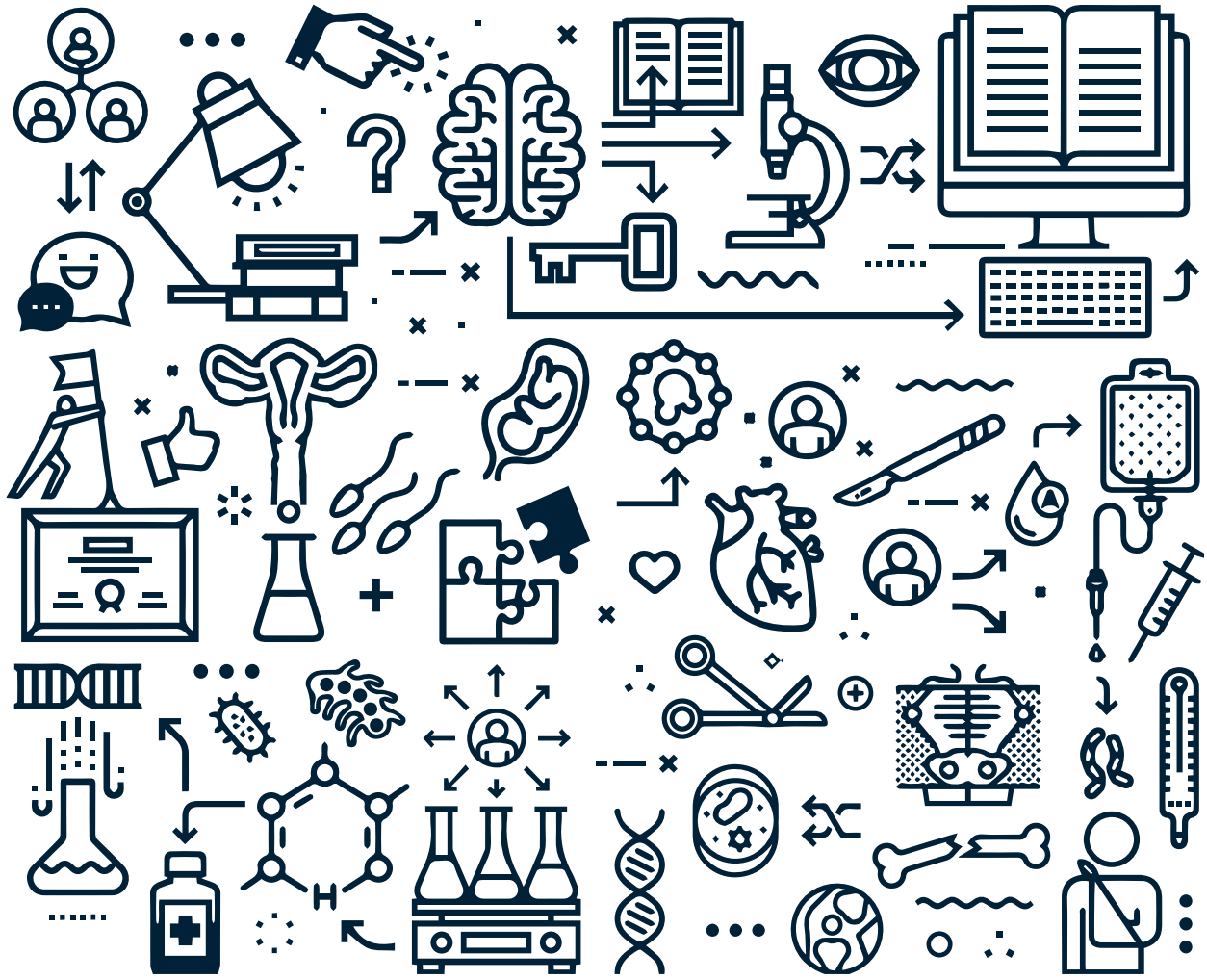


Abstractbog

Symposium for Klinisk Forskning og Udvikling

En portefølje af sundhedsfaglig forskning og udvikling ved Regionshospital Nordjylland

5. november 2026

REGIONSHOSPITAL NORDJYLLAND

AALBORG UNIVERSITET

Jubilæumsudgave 10 år

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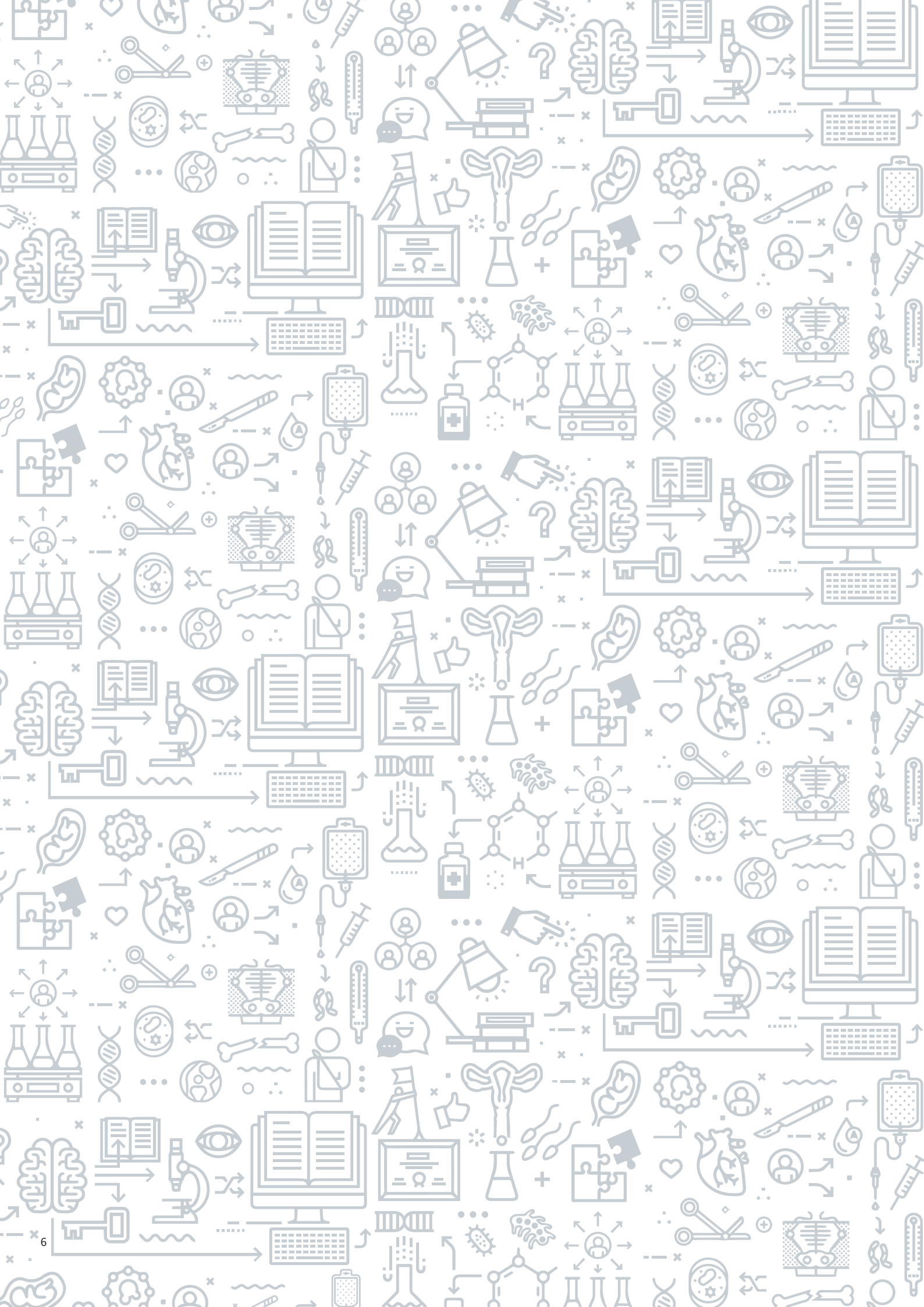
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Forord

Det er med stor glæde, at vi, traditionen tro den første torsdag i november, byder velkommen til Symposium for Klinisk Forskning og Udvikling på Regionshospital Nordjylland. Dette års symposium er særligt bemærkelsesværdigt, da vi i år markerer symposiets 10. afholdelse. Det er en bedrift, som vi med rette kan være stolte af. I lyset af dette har det været både inspirerende og givende at gennemgå abstractbøgerne fra tidligere år. Her ses et tydeligt mønster, der spænder fra den initiale projektudvikling og planlægning til selve afslutningsfasen – ofte med en stærk klinisk implementeringskomponent. Kontinuiteten i afholdelsen af symposiet understreger den meningsfulde helhed i klinisk nær forskning og udvikling.

Vi har igen i år modtaget mange fremragende abstracts, som findes i denne bog og desuden præsenteres som posters i Glasgangen. Bidragene kommer fra stort set alle hospitalets specialer og repræsenterer et bredt tværfagligt engagement. Symposiet er således klinisk og sundhedsfagligt solidt funderet. Det skaber en følelse af fælles fodslag i integrationen af klinisk forskning og udvikling – to kerneelementer i det nordjyske sundhedsvæsens nuværende transformation.

Vi står over for et nyt kapitel med implementeringen af Sundhedsreformen i 2027, som vil kræve, at sundhedsvæsenet agerer på nye måder. Blandt andet vil vi opleve en omfattende flytning af opgaver mellem hospitaler og kommuner, hvilket vil skabe et øget behov for monitorering og evaluering i diverse projekter – et emne, der også berøres i flere af årets abstracts.

Samtidig er vi i gang med at udvikle og implementere en samlet uddannelsesstrategi for Regionshospital Nordjylland. Her vil vi i højere grad arbejde med fælles rammer for uddannelse og kompetenceudvikling på tværs af specialer og faggrupper med et øget fokus på temaorienteret arbejde. Symposiet giver en oplagt mulighed for at få et indblik i denne spændende udvikling.

Afslutningsvis vil jeg takke alle, som har bidraget til, at vi kan fejre dette 10 års jubilæumssymposium.

Peter Derek Christian Leutscher, Professor, Forskningschef,
Center for Klinisk Forskning, Regionshospital Nordjylland
og Klinisk Institut, Aalborg Universitet

Program

Symposium for Klinisk Forskning og Udvikling

Torsdag den 5. november 2026 – Skou Auditoriet, Regionshospital Nordjylland

12.00-12.45 **Poster walk**
Symposiet starter i Glasgangen, hvor det er muligt at studere postere og tale med forskerne

12.45-13.00 **Pause**
Alle deltagere bevæger sig til Skou Auditoriet

13.00-13.10 **Velkomst**
v/Peter Derek Christian Leutscher, professor, forskningschef, Center for Klinisk Forskning, Regionshospital Nordjylland

13.10-13.25 **Forskning på Regionshospital Nordjylland i en reformtid**
v/Frank Skriver Mikkelsen, hospitalsdirektør, Regionshospital Nordjylland

13.25-13.55 **Orale præsentationer del 1, moderator seniorforsker Suzette Sørensen**
Effect of high-irradiance phototherapy on neonatal hyperbilirubinemia: a randomized controlled trial
v/Emil Lønstrup Øhrstrøm, Afdeling for Børn og Unge, Regionshospital Nordjylland

Indications for referral for acute computed tomography pulmonary angiography (CTPA) in cases of suspected pulmonary embolism - a quality study
v/Britt Sommer, Afdeling for Billeddiagnostik, Regionshospital Nordjylland

Subakut kirurgisk ambulatoriebehandling: erfaringer fra det første år med en kirurgisk klinik med hurtig adgang
v/Dánjan Hestoy, Afdeling for Mave- og Tarmkirurgi, Regionshospital Nordjylland

13.55-14.10 **Pause**

14.10-14.40 **Orale præsentationer del 2, moderator seniorforsker Suzette Sørensen**
Oleic acid in adipose tissue is not associated with the risk of ischemic stroke: a Danish case-cohort study
v/Jonas Pedersen, Afdeling for Intern Medicin, Regionshospital Nordjylland

Can transplantation of fecal extracellular vesicles be utilized as therapeutic intervention for Alzheimer's disease?
v/Zuzanna Stachowiak, Center for Klinisk Forskning, Regionshospital Nordjylland

Hyppigheden af forebyggelige indlæggelsesforløb hos ældre akut indlagte patienter - en retrospektiv tværsektoriel journalgennemgang
v/Mathias Brix Danielsen, Afdeling for Ældremedicin, Regionshospital Nordjylland

14.40-14.50 **Pause**

14.50-15.35 **Poster præsentationer, moderator seniorforsker Mona Kyndi Pedersen**
Inguinal-related groin pain in athletes: a cohort study of outcomes following non-mesh repair
v/Søren Kaalund, Sportsmedicinsk Center, Regionshospital Nordjylland

Implementering af remimazolam som alternativ til anæstesiledsaget propofolsedation ved avancerede og vanskelige endoskopiske procedurer – erfaringer fra et regionalt hospital
v/Anders Linde, Afdeling for Kirurgi, Regionshospital Nordjylland

Sepsis-associated non-hepatic hyperammonemia in the intensive care unit
v/Christina Louise Winther, Afdeling for Anæstesi og Intensiv, Regionshospital Nordjylland

Histological findings in fallopian tubes removed during elective sterilization: evaluating the necessity of routine microscopic examination
v/Sólrun Heradóttir, Patologisk Institut, Regionshospital Nordjylland

Validering af Cepheid Xpert Bladder Cancer Monitor
v/Jette Fischer Petersen, Klinisk Biokemisk Afsnit, Regionshospital Nordjylland

The effect of maternal pregestational diabetes on fetal liver fat assessed by MRI
v/Victoria Lindblad, Afdeling for Kvindesygdomme, Graviditet og Fødsel, Regionshospital Nordjylland

How did our OPAT-unit perform during the following 2 years? Various quality control data with readmission rate and 30-day mortality after initiation
v/Shakil Shakar, Afdeling for Intern Medicin, Regionshospital Nordjylland

Talegenkendelse: hurtigere, men bedre? Sundhedsprofessionelles erfaringer med dokumentationskvalitet, patientsikkerhed og arbejdsgange
v/Mille V. G. Eisenhardt, Center for Klinisk Forskning, Regionshospital Nordjylland

15.35-15.45 **Uddeling af Regionshospital Nordjyllands Undervisnings- og Uddannelsespris 2026**
v/Louise T. S. Arenholt, Center for Klinisk Forskning, Regionshospital Nordjylland og Line Bonderup-Knudsen, VenSim, Regionshospital Nordjylland

15.45-15.55 **Uddeling af Symposiepriserne**
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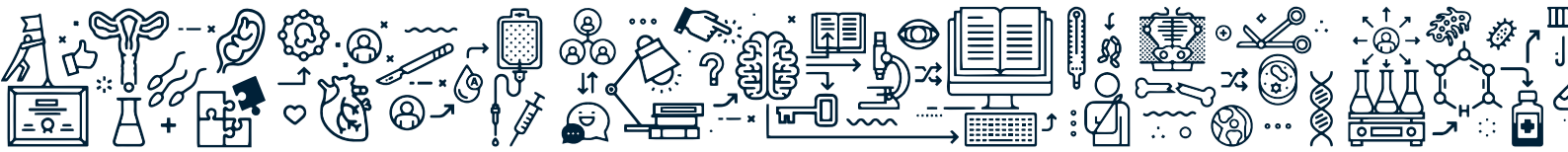
Christina Højmark Østergaard
Chefsygeplejerske, Afdeling for Kvindesygdomme, Graviditet og Fødsel, Regionshospital Nordjylland

Egon Toft
Konsulent, Danmarks Innovationsfond

Søren Hagstrøm
Professor, Afdeling for Børn og Unge, Aalborg Universitetshospital

15.55-16.00 **Afslutning**

Akut og Intensiv



1.

Ventetid og arbejdsgange i akutmodtagelsen - kvalitativ afdækning af behov for indhold i patientrettet informationsmateriale

Anne-Sofie Linde Sundgaard[1], Lone Flyvholm Olsen[1], Karina Månsson[1], Daniel Krag Nielsen[2,3], Rikke Rishøj Mølgaard[2,3]

1. Akutmodtagelsen, Regionshospital Nordjylland, Hjørring, Danmark
2. Hospitalsledelsen, Regionshospital Nordjylland, Hjørring, Danmark
3. Sygeplejerskeuddannelsen, Professionshøjskolen UCN, Hjørring og Thisted, Danmark

Baggrund

Patienter i akutmodtagelsen oplever ventetid og utilstrækkelig information om plan og forløb som frustrerende. Denne frustration påvirker relationen mellem patient og sygeplejerske og vanskeliggør opfyldelsen af patientens behov. Sygeplejerskerne beskriver tilsvarende frustration, da de oplever begrænsninger i muligheden for at levere den sygepleje, de vurderer som den nødvendige. Formålet med undersøgelsen er derfor at undersøge patienters oplevelser vedrørende ventetid og arbejdsgange i akutmodtagelsen med henblik på at udvikle relevant informationsmateriale.

Metoder

Undersøgelsen bygger på foreløbigt seks kvalitative interviews med patienter, pårørende og personale fra akutmodtagelsen. Patientgruppen omfatter voksne over 18 år. Der er anvendt en interviewguide som er tilpasset målgruppen for interviewene. Analysen er i proces og omfatter lytning til lydfiler og drøftelse af materiale i projektgruppen og skriftliggørelse af fund som fremkommer i denne proces.

Resultater

Foreløbig analyser viser at: ”Information skaber ro” og ”Forventningsafstemning skal prioriteres”. De foreløbige fund peger på, at manglende information om ventetid og arbejdsgange skaber frustration og besværliggør relationen mellem patienter og personale. Plejepersonalet oplever irritation og utryghed hos patienter der mangler information. Modsat oplever patienter, hvor information prioriteres at være rolige og har mindre behov for at tilkalde hjælp for at spørge til ventetid og plan.

Konklusioner

Fundene tyder på behov for udvikling af informationsmateriale, der informerer om, hvorfor der kan være ventetid. Der er også behov for information, der skaber forståelse for hvilke arbejdsgange, der foregår i akutmodtagelsen, og hvorfor de foregår. En tydelig kommunikation kan potentielt forbedre patientens oplevelse og understøtte personalets mulighed for at levere den ønskede sygepleje.

Ventetid og arbejdsgange i Akutmodtagelsen

Anne-Sofie Linde Sundgaard[1], Lone Flyvholm Olsen[1], Karina Månsson[1], Daniel Krag Nielsen[2,3], Rikke Rishøj Mølgaard[2,3]
[1] Akutmodtagelsen Regionshospital Nordjylland, Hjørring, Danmark
[2] Hospitalsledelsen, Regionshospital Nordjylland, Hjørring, Danmark
[3] Sygeplejerskeuddannelsen, Professionshøjskolen UCN, Hjørring, Danmark





Baggrund:
Patienter i akutmodtagelsen oplever ventetid og utilstrækkelig information om plan og forløb som frustrerende.
Sygeplejerskerne beskriver tilsvarende frustration, da de ikke kan levere den sygepleje, de vurderer som den nødvendige.

Formålet:
At undersøge patienters oplevelser vedrørende ventetid og arbejdsgange i akutmodtagelsen med henblik på at udvikle relevant informationsmateriale.

Metode:
- Der er foretaget kvalitative interviews med voksne patienter, pårørende og personale fra akutmodtagelsen.
- Der er anvendt en interviewguide som er tilpasset målgruppen for interviewene.

Resultater:
Foreløbig analyse viser:
- Information skaber ro
- Forventningsafstemning skal prioriteres

Konklusion:
- Fundene tyder på behov for udvikling af informationsmateriale, der informerer om, hvorfor der kan være ventetid.
- Der er også behov for information, der skaber forståelse for hvilke arbejdsgange, der foregår i akutmodtagelsen, og hvorfor de foregår.

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2.

Sepsis-associated non-hepatic hyperammonemia in the intensive care unit

Christina L. Winther[1*], Tobias B. Jensen[1], Søren Jepsen[2], Kjeld A. Damgaard[1,3]

1. Department of Anesthesiology and Intensive Care Medicine, North Denmark Regional Hospital, Hjoerring, Denmark
2. Department of Clinical Biochemistry, North Denmark Regional Hospital, Hjoerring, Denmark
3. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark

**Participant in the Introduction Course to Clinical Research and Development, North Denmark Regional Hospital, 2026*

Background

Hyperammonemia is a known factor in the development of hepatic encephalopathy. Retrospective studies have reported non-hepatic hyperammonemia in critically ill patients with non-hepatic diseases, including sepsis, suggesting a position in sepsis-associated encephalopathy. This study aimed to measure plasma ammonia concentrations in critically ill Danish patients with sepsis to investigate whether the findings of non-hepatic hyperammonemia could be replicated in a western cohort.

Methods

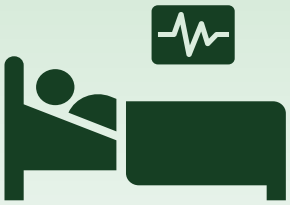
This quality control study included all adult patients with sepsis admitted over a 6-month period to the ICU at the North Denmark Regional Hospital. Blood samples were sampled daily for the first 3 days of ICU admission, or until plasma ammonia concentrations were <50 mmol/L. Patients with plasma ammonia concentrations >50 mmol/L were assessed to initiate treatment with lactulose or dialysis.

Results

This abstract presents preliminary data, and the results will be further updated before the conference. Nineteen patients were included over the first 4 months. Seven patients had hyperammonemia in at least one sample during ICU admission. Fewer than three patients were treated with lactulose or with both lactulose and dialysis. Three-month mortality was elevated in all patients with hyperammonemia.

Conclusions

These preliminary results suggest that non-hepatic hyperammonemia might be more common in patients with sepsis admitted to the ICU than previously suggested. Our findings suggest that larger multicenter studies on plasma ammonia measurements on patients with sepsis are needed to cover the extent of sepsis-associated non-hepatic hyperammonemia as well as the potential of treatment and risk of mortality.



SEPSIS-ASSOCIATED HYPERAMMONEMIA IN THE INTENSIVE CARE UNIT

Christina L. Winther[1], Tobias B. Jensen[1], Søren Jepsen[2], Kjeld A. Damgaard[1]

[1] *Department of Anaesthesia and Intensive Care, North Denmark Regional Hospital, Hjørring, Denmark*

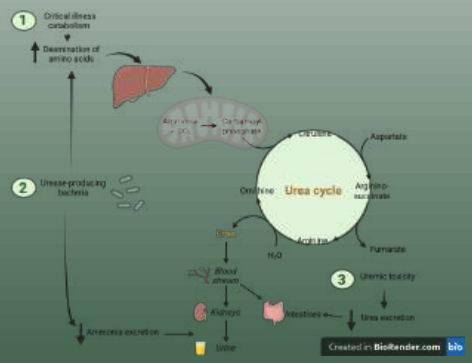
[2]*Department of Clinical Biochemistry, North Denmark Regional Hospital, Hjørring, Denmark*

Background

Sepsis has been estimated to contribute to 15% of all deaths in Denmark, but exact numbers are lacking. Sepsis and septic shock are severe responses to infection leading to organ dysfunction and failure, often requiring stabilization in the intensive care unit. Moreover, sepsis-associated encephalopathy is common in the acute phase of sepsis and has been associated with increased mortality, although the pathogenesis is poorly understood.

In hepatic encephalopathy, ammonia crosses the blood-brain barrier and acts as a neurotoxin when converted to glutamine. Retrospective studies have reported non-hepatic hyperammonemia in critically ill patients with non-hepatic diseases, including sepsis, acute brain damage, and kidney disease, suggesting a position in sepsis-associated encephalopathy.

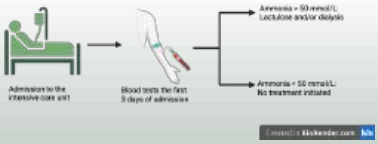
Proposed mechanisms to non-hepatic hyperammonemia:



This study aimed to measure plasma ammonia concentrations in critically ill Danish patients with sepsis to investigate whether the findings of non-hepatic hyperammonemia could be replicated in a western cohort.

Methods

This quality control study included all adult patients with sepsis admitted over a 6-month period to the intensive care unit at the North Denmark Regional Hospital.

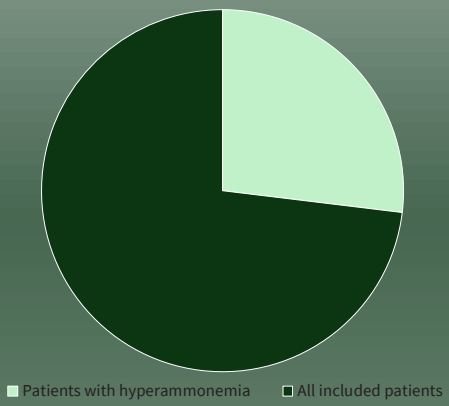


Results

Nineteen patients were included over the first 4 months. Seven patients had hyperammonemia in at least one sample during admission to the intensive care unit.

Fewer than three patients were treated with lactulose or with both lactulose and dialysis. Three-month mortality was 100% among patients with hyperammonemia.

Hyperammonemia in patients with sepsis





Conclusions

These preliminary results suggest that non-hepatic hyperammonemia might be more common in patients with sepsis admitted to the ICU than previously suggested.

Our findings suggest that larger multicenter studies on plasma ammonia measurements on patients with sepsis are needed to cover the extent of sepsis-associated non-hepatic hyperammonemia as well as the potential of treatment and risk of mortality.

REGIONSHOSPITAL NORDJYLLAND

3.

The role of prehospital patient data in emergency department preparation for time-critical patient arrivals: a focused ethnographic study

Emma Østergaard Mortensen[1*], Christine Kjeldal Skram[1*], Morten Breinholt Søvsø[1,2], Mona Kyndi Pedersen[1,3], Ninna Rysholt Heiner Daugaard[1,3,4]

1. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark
2. Centre for Prehospital and Emergency Research, Aalborg University Hospital, Aalborg, Denmark
3. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
4. Department of Emergency Medicine, North Denmark Regional Hospital, Hjoerring, Denmark

**Participant in the Introduction Course to Clinical Research and Development, North Denmark Regional Hospital, 2026*

Background

Emergency Medical Services (EMS) serve as the frontline in time-critical emergencies, documenting essential data on injury mechanisms, medical history, vital signs, and initial treatment in the electronic prehospital patient medical record (PPR). The transmission of real-time prehospital patient data aims to assist and prepare the Emergency Department (ED) team upon patient arrival. This study aims to investigate how prehospital patient data can facilitate preparation and the initial assessment and treatment of time-critical patients in the ED.

Methods

A focused ethnographic design will be employed at North Denmark Regional Hospital during autumn 2026. The study will integrate non-participant observations of 10 time-critical patient arrivals, including trauma and medical emergency calls, combined with semi-structured interviews. Observations spanning from team assembly to the initiation of acute treatment will capture how real-time prehospital data is used in the emergency room. To gain a deeper understanding of clinicians' reasoning and experiences with PPR data, semi-structured interviews will be conducted on the same day with the respective team leaders and emergency nurses. Field notes and interview transcripts will be analyzed thematically to uncover underlying patterns in clinical workflow and decision-making.

Perspectives

By investigating the facilitative role of the PPR, this study addresses a fundamental priority in emergency medicine: minimizing time-to-intervention. The study focuses on critical stages of the care continuum, including preparation and initial assessment and treatment. The findings are expected to offer a nuanced understanding of how prehospital information is integrated into clinical workflows, ensuring a seamless transition from information reception to life-saving interventions.

READY BEFORE THE DOORS OPEN?



The role of prehospital patient data in emergency department preparation for time-critical patient arrivals: A focused ethnographic study

Emma Østergaard Mortensen[1], Christine Kjeldal Skram[1], Morten Breinholt Søvsø[1,2], Mona Kyndi Pedersen[1,3], Ninna Rysholt Heiner Daugaard[1,3,4]

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BACKGROUND

Emergency Medical Services serve as the frontline in time-critical emergencies, documenting data such as injury mechanisms, vital signs, and initial treatment in the electronic prehospital patient medical record (PPR). The transmission of real-time prehospital patient data aims to assist and prepare the Emergency Department (ED) team upon patient arrival.

This study aims to investigate how prehospital patient data can facilitate the preparation, initial assessment, and treatment of time-critical patients in the ED.

METHODS

10 time-critical patient arrivals, including trauma and medical emergency calls.

Non-participant observations covering the period from team assembly to the initiation of acute treatment.

Semi-structured interviews with the respective team leaders and emergency nurses to gain a deeper understanding of clinicians' reasoning and experiences regarding PPR data.

WHAT WE HOPE TO FIND

Time-critical patients require rapid assessment and treatment, and therefore the preparation of the ED team members plays a crucial role.

This study is expected to provide a nuanced understanding of how prehospital information can facilitate preparation and clinical workflows.



AALBORG UNIVERSITY

NORTH DENMARK REGIONAL HOSPITAL

CKF CENTRE FOR CLINICAL RESEARCH North Denmark Regional Hospital

4.

Kvalitetssikring af monitorering af vitale værdier ved overflytning af patienter fra intensivafdeling til stationært sengeafsnit

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**Deltager i Kursus i Klinisk Forskning og Udvikling, Regionshospital Nordjylland, 2026*

Baggrund

TOKS (Tidlig Opsporing af Kritisk Sygdom) 2.1 anvendes til at standardisere monitorering og klinisk respons ved patofysiologisk forværring gennem tidsbestemte målinger af vitale værdier. Den tilsigtede nytteeffekten af TOKS er betinget af at målingerne foretages og dokumenteres rettidigt. Eksisterende studier og kliniske erfaringer indikerer dog udfordringer med målinger og dokumentation af disse, primært grundet ressourcemangel. En sårbar patientgruppe, der oplever en markant reduktion i monitoreringsintensitet (step-down), er intensivpatienter, der overflyttes til en stationære sengeafsnit. Denne overgang kan føles utrygt for både patienter og personale bl.a. på grund af skiftet fra kontinuerlig monitorering. Bærbare sensorer muliggør kontinuerlig monitorering og integration med software kan være med til at opspore tidligere identifikation af mulig klinisk forværring.

Metoder

Studiet inkluderer patienter, som overflyttes fra intensivafdelingen til sengeafsnit på Regionshospital Nordjylland. Patienterne udstyres med bærbar sensor, der foretager kontinuerligt monitorering af vitale værdier i minimum 48 timer. De rutinemæssige og kontinuerlige målinger analyseres efterfølgende med henblik på fuldstændighed og rettidighed i overensstemmelse med TOKS 2.1 retningslinjerne. Ved hjælp af WARD 24/7 analyseres de kontinuerlige registreringer forud for eventuelle kritiske hændelser i deltagerpopulationen, for at identificere de forudgående klinisk relevante patofysiologiske ændringer. Endelig undersøges patienters og sundhedsprofessionelles erfaringer og oplevelser med sensor teknologien og monitoreringssystemet via spørgeskema og interviews.

Perspektiver

Kontinuerlig monitorering understøttet af intelligente systemer kan fremme tidlig opsporing af klinisk forværring og supplere eksisterende kliniske arbejdsgange, herunder det Mobile Akut Team. Teknologien har potentiale til bredere anvendelse end blot post-intensive patienter, men også øvrige højrisiko grupper på sengeafsnit i forhold til netop tidlig opsporing af akut kritisk sygdom.

Ud af intensiv

- Kontinuerlig monitorering af vitale værdier
- Én sygeplejerske pr. patient
- Trygge rammer



AI-genereret billede

ude af fokus?



AI-genereret billede

- Tidsbestemt monitorering af vitale værdier
- Flere patienter pr. sygeplejerske
- Utryg overgang for patient og pårørende

Kvalitetssikring af monitorering af vitale værdier efter overflytning fra intensivafsnittet til sengeafsnit

BAGGRUND

Vitalparametre som blodtryk, puls, respiration, temperatur og iltmætning er essentielle for at vurdere en patients fysiologiske status og opdage tidlig klinisk forværring. Ved Aalborg Universitetshospital og Regionshospital Nordjylland anvendes scoringssystemet TOKS 2.1, som standardiserer patientplejen ved at tildele point baseret på afvigelser fra normalværdier. TOKS 2.1 dikterer både risikokategorisering og hyppigheden af målinger. Disse målinger er tidskrævende for personalet og kan føre til manglende observationer grundet travlhed. Dette skaber en usikkerhed, særligt for patienter overført fra intensivafdelinger, hvor monitoreringen går fra kontinuerlig til punktmåling. Som en løsning tilbyder wearable-teknologi muligheden for kontinuerlig monitorering, hvilket kan fange fluktuationer, som punktmålinger overser.

FORMÅL

1. Undersøge praktiseringen af patientmonitorering i henhold til TOKS 2.1 på stationære afdelinger.
2. Undersøge, om kontinuerlig monitorering kan identificere klinisk forværring lige så tidligt som TOKS 2.1-baseret monitorering.
3. Undersøgelse af patienters, sundhedspersonalets og pårørendes oplevelser med kontinuerlig monitorering.

METODER

Studiet inkluderer patienter, som overflyttes fra intensivafdelingen til sengeafsnit. Patienterne udstyres med bærbar sensor, der foretager kontinuerlig monitorering af vitale værdier i minimum 48 timer. De rutinemæssige og kontinuerlige målinger analyseres efterfølgende med henblik på fuldstændighed og rettidighed i overensstemmelse med TOKS 2.1 retningslinjerne. Ved hjælp af WARD 24/7 analyseres de kontinuerlige registreringer forud for eventuelle kritiske hændelser i deltagerpopulationen, for at identificere de forudgående klinisk relevante patofysiologiske ændringer. Endelig undersøges patienters og sundhedsprofessionelles erfaringer og oplevelser med sensor teknologien og monitoreringssystemet via spørgeskema og interviews.

Forventede resultater

Nuværende praksis	✓ ✗ ✓ ✓ ✗ ✗ ✓ ✗ ✓ ✓ ✗ ✗ ✓
Kliniske retningslinjer	● ● ● ● ● ● ● ● ● ● ● ● ● ●

PERSPEKTIVER

Kontinuerlig monitorering understøttet af intelligente systemer kan fremme tidlig opsporing af klinisk forværring og supplere eksisterende kliniske arbejdsgange, herunder det Mobile Akut Team. Teknologien har potentiale til bredere anvendelse end blot post-intensive patienter, men også øvrige højrisikogrupper på sengeafsnit i forhold til netop tidlig opsporing af akut kritisk sygdom.



AI-genereret billede

- Øget tryghed for personale, patienter og pårørende
- Et intelligent softwaresystem sender en alarm ved behov for klinisk vurdering af patienten

Malgorzata Halina Dudko[1] | Kristine Brønbjerg Øby[1] | Rikke Borregaard[2] | Heidi Andresen[2] | Morten Freundlich[2] | Peter Derek Christian Leutscher[1,3]

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REGION NORDJYLLAND CKF CENTER FOR KLINISK FORSKNING Regionshospital Nordjylland

5.

Poetisk Personalestue - en metode til faglig refleksion og fælles videndeling på intensiv afdeling

Marie Damgaard Winther[1], Heidi Andersen[1], Catrine Garver Christensen[1], Majbritt Haldskov Carlsen[1], Grethe Frederiksen[1], Bente Frydkjær Rømer[2,4], Inga Gerner Nielsen[5], Mona Kyndi Pedersen[2,3]

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3. Klinisk Institut, Aalborg Universitet, Aalborg, Danmark
4. Kontor for Det Nære Sundhedsvæsen og Digitalisering, Regionshospital Nordjylland, Hjørring, Danmark
5. House of Futures, In the Mirror of Care Work, Tversted, Danmark

Baggrund

Intensivsygeplejersker besidder høj ekspertise i sygepleje til kritisk syge patienter, men oplever ofte usikkerhed ved sygepleje i forbindelse med behandlingsophør og dødsfald. Da der mangler kliniske retningslinjer og standardiserede workflows på intensivafdelingen, påhviler ansvaret for patientcentreret pleje den enkelte sygeplejerske. Dette medfører, at væsentlig erfaringsbaseret viden forbliver tavs hvilket begrænser fælles læring og videndeling. Formålet med studiet var at afprøve en metode til faglig refleksion, der kan eksplorere tavs viden og skabe et grundlag for et reflekterende læringsmiljø samt fælles vidensdeling.

Metoder

For at tilgå sygeplejerskernes tavse viden blev metoden "Poetiske Personalestue" anvendt i samarbejde med en performancekunstner. Metoden er en kunstbaseret, fænomenologisk interviewteknik, der faciliterer refleksion i en tryg, tillidsskabende atmosfære. 35 intensivsygeplejersker deltog i parvise sessioner, hvor de via genstande og sensorisk fokuserede spørgsmål blev guidet til at genopleve og verbalisere deres erfaringer fra sygepleje til døende patienter og deres pårørende. Intentionen var at generere rige, kvalitative narrativer gennem sanselig bevidsthed.

Resultater

Metoden genererede et omfattende kvalitativt materiale, der synliggjorde sygeplejerskernes tavse viden som en kernekompetence. Sygeplejerskerne blev bevidste om deres sensoriske perceptioner og æstetiske dimensioner. Det indsamlede materiale undergår tematisk analyse med henblik på at identificere nøgletemaer.

Konklusioner

"Poetiske Personalestue" kan fungere som en innovativ ramme for både sygehusets interne kompetenceudvikling og som et pædagogisk redskab til kompetenceudvikling på afdelingen og i undervisningen af sygeplejestuderende. Ved at transformere tavs viden til delbar erfaringsbaseret viden kan metoden bidrage til udviklingen af nye kliniske workflows og styrke det reflekterende læringsmiljø på tværs af kliniske og uddannelsesmæssige kontekster.

Når ordene mangler – Poetisk Personalestue

Poetisk Personalestue som metode til at aktivere tavs viden og styrke fælles refleksion og vidensdeling på intensiv afdeling

Sygeplejens tavse viden: **verbaliseret udforsket og delt**

Marie Damgaard Winther[1], Heidi Andersen[1], Catrine Garver Christensen[1], Majbritt Haldskov Carlsen[1], Grethe Frederiksen[1], Bente Frydkjær Rømer[2,4], Inga Gerner Nielsen[5] & Mona Kyndi Pedersen[2,3]

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hvorfor?

På intensivafdelingen står sygeplejersker ofte alene med de komplekse opgaver, der følger ved behandlingsophør og dødsfald.

Trods høj faglig ekspertise kan manglen på kliniske retningslinjer skabe usikkerhed i arbejdet med patienter og pårørende.

Da meget af sygeplejerskernes erfaring forbliver uudtalt, begrænses muligheden for fælles refleksion og vidensdeling i det professionelle miljø.





hvordan?

For at tilgå denne tavse viden blev metoden **Poetisk Personalestue** faciliteret af en interaktiv performance-kunstner i et trygt og tillidsopbyggende rum.
35 intensivsygeplejersker deltog parvis i sessioner, hvor de gennem brug af sensoriske genstande og guidede spørgsmål fik mulighed for at reflektere over deres oplevelser.
Ved at bruge sanserne aktivt blev de guidet til at verbalisere den viden, der ligger i sygeplejen til døende patienter.

→ verbaliseret

Poetisk Personalestue er en ny metode til at skabe et rum for refleksion over de svære emner ved livets afslutning, som sjældent italesættes i hverdagen.

Metoden har genereret et rigt materiale af sygeplejerskernes egne **fortællinger** om deres møde med døende patienter og deres pårørende.

→ udforsket

Gennem metoden blev sygeplejerskerne bevidste om brugen af deres sanser og de blev i stand til at **sætte ord på** deres tavse viden.

Projektet understreger vigtigheden af at udforske den erfaringsbaserede og sanselige dimension af sygeplejen ved livets afslutning.

Det indsamlede materiale gennemgår nu en **tematisk analyse** for at identificere nøgletemaer.

→ delt

Poetisk Personalestue kan anvendes som et pædagogisk værktøj til kompetenceudvikling i spændet fra sygeplejestuderende til erfarne klinikere.

Ved at skabe trygge og reflekterende lærings-rum bidrager metoden til et styrket arbejdsmiljø og faciliterer kompetencedeling gennem nye, fælles arbejdsgange.



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NORTH DENMARK REGIONAL HOSPITAL

6.

A patient reported outcome measure for the initial assessment in the emergency department: the PROMED-IA study

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6. Centre for Prehospital and Emergency Research, Aalborg University, Aalborg, Denmark

Background

While patient-reported outcome measures (PROMs) are increasingly integrated into routine healthcare, most existing tools are designed for chronic care or specific diagnostic groups. Consequently, there is a paucity of generic, validated PROMs tailored for the acute, fast-paced environment of the Emergency Department (ED). This PhD project aims to develop and feasibility-test a PROM questionnaire (termed PROMED-IA) and a corresponding intervention to support clinical decision-making and facilitate patient-centered care during initial ED assessment.

Methods

This PhD project comprises three studies: (I) a scoping review to map the current landscape of PROMs in the ED; (II) the methodological development, content validation, and pilot testing of the PROMED-IA questionnaire and corresponding intervention; and (III) a feasibility study assessing the clinical utility, acceptability, and usability of PROMED-IA from the perspectives of patients and healthcare professionals (HCPs).

Results

The scoping review identified 173 unique PROMs utilized in ED settings, that could be used in the development of PROMED-IA. The PROMED-IA questionnaire comprises 23–32 items, depending on skip logic. A feasibility study was conducted and included 262 patients. Preliminary results demonstrated that patients perceived PROMED-IA as a tool for constructive symptom reflection. HCPs valued the tool for enhancing patient communication and provided a rapid, comprehensive overview of clinical priorities. However, the high-pressure ED workflow presents significant barriers to seamless integration.

Conclusions

PROMED-IA represents a novel, clinically relevant tool that enhances patient engagement and provides clinicians with structured, patient-centered data. While promising, successful implementation will require addressing challenges related to workflow integration.

A PATIENT-REPORTED OUTCOME MEASURE FOR THE INITIAL ASSESSMENT IN THE EMERGENCY DEPARTMENT

THE PROMED-IA STUDY

BACKGROUND

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METHODS

This PhD project comprises three studies

STUDY I
A scoping review to map the current landscape of PROMs in the ED

STUDY II
The methodological development, content validation, and pilot testing of the PROMED-IA questionnaire and corresponding intervention

STUDY III
A feasibility study assessing the clinical utility, acceptability, and usability of PROMED-IA from the perspectives of patients and healthcare professionals (HCPs)

CONCLUSION

PROMED-IA represents a novel, clinically relevant tool that enhances patient engagement and provides clinicians with structured, patient-centered data. While promising, successful implementation will require addressing challenges related to workflow integration.

RESULTS

STUDY I
The scoping review identified 173 unique PROMs utilized in ED settings, that could be used in the development of PROMED-IA

STUDY II
The PROMED-IA questionnaire contain 9 domains and comprises 23–32 items, depending on skip logic.

STUDY III
A feasibility study was conducted and included 262 patients. Preliminary results demonstrated that patients perceived PROMED-IA as a tool for constructive symptom reflection. HCPs valued the tool for enhancing patient communication and provided a rapid, comprehensive overview of clinical priorities. However, the high-pressure ED workflow presents significant barriers to seamless integration.



MOVIE ON "HOW IT WORKS"

NINNA RYSHOLT HEINER DAUGAARD [1,2,3]
LIV MARIT VALEN SCHOUGAARD [4,5]
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7.

Rational use of blood cultures in emergency medicine (RUBCEM)

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**Participant in the Introduction Course to Clinical Research and Development, North Denmark Regional Hospital, 2026*

Background

Bloodstream infection (BSI) is a critical medical emergency. In Denmark, the incidence of positive blood culture (BC) with pathogenic species rose 29% from 2015 to 2024, while BC use rose 42%. In the emergency departments (ED) of the North Denmark Region, BCs are ordered by nurses guided only by fever or suspected infection; this practice lacks scientific validation and may result in missed diagnoses in high-risk patients and unnecessary testing in low-risk patients. As existing BSI prediction models are not directly applicable, the RUBCEM project aims to characterize current BC usage and inform future guidelines.

Methods

Data from all adult ED admissions at North Denmark Regional Hospital (Sept 2023 - Aug 2025) were analysed. BCs ordered within ± 24 hours of admission were included. Contaminants were classified as negative. BC results will be compared with admission vitals and blood tests to derive a pre-test BSI probability model.

Results

Out of 36,350 admissions (22,964 patients), BCs were performed in 10844 (29.8%) and was positive 7.53% (n=817). The 878 isolates comprised 93 distinct isolate identifications; the most prevalent were *Escherichia coli* (n=338), *Staphylococcus aureus* (n=83), and *Klebsiella pneumoniae* (n=49). Antibiotics were administered before preliminary results in 83.4% (681/817) of positive cases.

Conclusions

Despite high BC utilization, the yield remains low, consistent with prior studies. Most BSI patients received antibiotics before BC results were available. Implementing a pre-test probability model optimize BSI detection and reduce unnecessary testing.

RUBCEM • Rational use of blood cultures in emergency medicine

Estimating pretest probability of bloodstream infection

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Background

Bloodstream infection (BSI) is a severe and frequently suspected medical emergency, but more than 90% of blood cultures (BC) are negative.

In North Denmark Region Emergency Departments (ED), BCs are often ordered by nurses guided by fever or suspected infection, without formal risk stratification. This practice poses a dual risk: under-detection of BSI in high-risk patients, and over-utilisation of BC in low-risk patients. Existing BSI prediction models rely on variables unavailable at triage or non-routine blood tests.

RUBCEM aims to characterise current BC practices and provide an evidence base for future guidelines.

Results

Among 36,350 admissions (22,964 patients), 10,844 (29.8%) had BC, of which 799 (7.4%) had BSI; an additional 18 had positive BC considered contaminants.

After LASSO, the Triage model retained 8 of 16 candidate variables; the Triage+laboratory model retained 15 of 26.

The quantity of BCs avoided and BSI cases missed is dependent on the chosen pBSI threshold:

Model	Threshold	BC avoided	BSI missed
Triage	4%	4,466 (41.2%)	122 (15.3%)
Triage+labs	2%	3,858 (35.6%)	37 (4.6%)

Conclusions

- More than 92% of blood cultures in ED admissions at North Denmark Regional Hospital were negative.
- Among admissions with BC, pBSI models identified a substantial low-risk group in which BC could be omitted, at a cost of missed BSI, depending on the chosen pBSI threshold.
- Limitations:
  1. Models derived only from cultured admissions probably overestimate pBSI for uncultured admissions, raising questions about model implementation.
  2. Known risk factors, such as shaking chills and indwelling venous or urinary catheter, were unavailable in this study.
  3. Single-centre data limit external validity, as some patients, e.g. those with haematological cancer, are directed to Aalborg ED.

Visit **www.rubcem.dk**

To try out the experimental **Hjørring Bloodstream Infection Calculator**

Methods

We included all adult ED admissions at North Denmark Regional Hospital, September 2023 to August 2025, and BCs ordered within ± 24 hours of admission. Positive BCs were reviewed for contamination. Two probability-of-BSI (pBSI) models were derived using logistic regression with restricted cubic splines and group LASSO (least absolute shrinkage and selection operator) for variable selection: a Triage model using information available at triage and a Triage+laboratory model adding routine blood tests. Candidate variables were prespecified based on prior research, data availability and utility. Missing values were imputed using MICE (multiple imputation by chained equations). Performance was optimism-corrected using 200 patient-level bootstrap replicates.

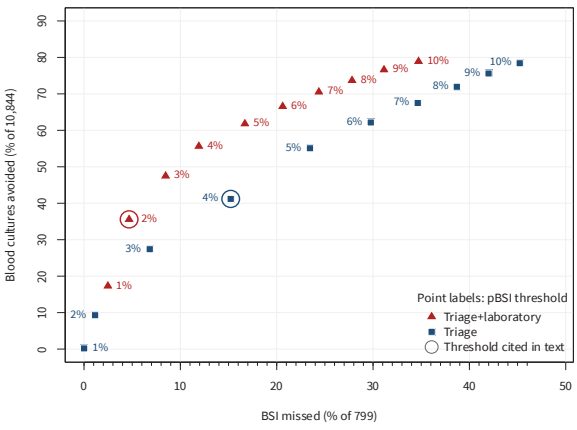
Model performance	C-statistic	Calibration intercept	Calibration slope
Triage	0.74 (0.73 to 0.77)	0.00 (-0.08 to 0.08)	0.97 (0.90 to 1.05)
Triage+laboratory	0.83 (0.82 to 0.85)	0.00 (-0.08 to 0.08)	0.96 (0.91 to 1.03)

Variable inclusion and bootstrap selection frequency

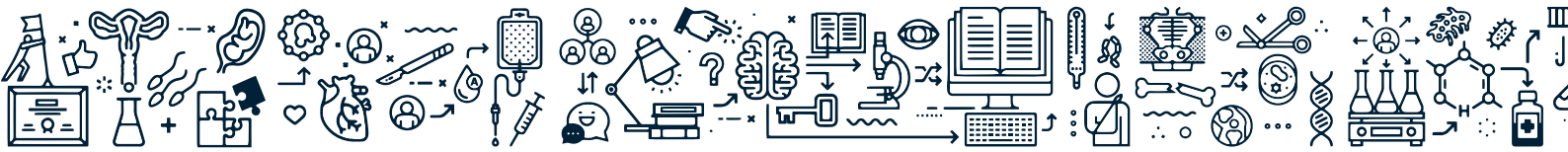
		Triage			Triage+laboratory		
Variable	**Form**	**Status**	**IQR OR**	**Selected (%)**	**Status**	**IQR OR**	**Selected (%)**
Age	5-knot RCS	Retained	1.81	100.0	Retained	1.30	100.0
Temperature	5-knot RCS	Retained	2.83	100.0	Retained	2.33	100.0
Systolic blood pressure	5-knot RCS	Retained	0.76	100.0	Retained	0.97	91.5
Solid tumour	Binary	Retained	1.01	59.5	Retained	1.00	60.5
Diabetes mellitus	Binary	Retained	1.20	86.0	Retained	1.05	73.0
Chronic lung disease	Binary	Retained	0.61	100.0	Retained	0.66	100.0
Heart rate	5-knot RCS	Retained	1.00	69.5	Dropped	—	63.0
Chronic kidney disease	Binary	Dropped	—	0.5	Retained	0.93	66.5
Liver cirrhosis	Binary	Retained	2.16	93.0	Dropped	—	32.5
Neutrophils	5-knot RCS	—	—	—	Retained	2.14	100.0
Platelets	5-knot RCS	—	—	—	Retained	0.80	100.0
C-reactive protein	Log, 5-knot RCS	—	—	—	Retained	1.35	100.0
Creatinine	Log, 4-knot RCS	—	—	—	Retained	1.96	100.0
Urea	5-knot RCS	—	—	—	Retained	1.14	91.5
Albumin	5-knot RCS	—	—	—	Retained	0.65	100.0
Bilirubin	Log, 5-knot RCS	—	—	—	Retained	1.53	100.0
Haemoglobin	5-knot RCS	—	—	—	Retained	0.88	93.5
Sex (male)	Binary	Dropped	—	21.0	Dropped	—	41.0
Respiratory rate	5-knot RCS	Dropped	—	51.0	Dropped	—	73.5
Oxygen saturation	4-knot RCS	Dropped	—	5.5	Dropped	—	21.0
O_2-supplement	Binary	Dropped	—	9.0	Dropped	—	23.0
Glasgow Coma Score	3 categories	Dropped	—	2.5	Dropped	—	6.5
Haematological malignancy	Binary	Dropped	—	1.5	Dropped	—	21.0
Chronic heart failure	Binary	Dropped	—	2.5	Dropped	—	15.5
Alanine aminotransferase	Log, 5-knot RCS	—	—	—	Dropped	—	18.5
Lactate dehydrogenase	Log, 4-knot RCS	—	—	—	Dropped	—	68.5

RCS, restricted cubic spline; Log, natural logarithm. Grey, dropped; —, not a candidate. IQR OR, odds ratio for 75th vs 25th percentile. Selected, % of 200 bootstrap replicates.

Blood cultures avoided versus BSI missed



Billeddiagnostik



8.

Thoracic spine radiographic evaluation with breathing technique and different exposure times – room for image quality improvement

Hanne Thomsen[1], Anne Holm Sønderby[2], Regitze Gyldenholm Skals[3], Anne Marie Kelter-Wesenberg[3], Osama Hussein AI-Kafaji[1], Peter Derek Christian Leutscher[4,5], Ane Simony[6]

1. Department of Radiology, North Denmark Regional Hospital, Frederikshavn, Denmark
2. Department of X-ray Physics, Aalborg University, Aalborg, Denmark
3. Research Data and Biostatistics, Aalborg University Hospital, Aalborg, Denmark
4. Department of Orthopaedic Radiology, Aarhus University Hospital, Aarhus, Denmark
5. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
6. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark
7. Department of Orthopedic Surgery, Lillebaelt Hospital, Kolding, Denmark

Background

Thoracic spine radiographs can be difficult to interpret because visualization is impaired by superimposed lung tissue and vascular structures, particularly in the upper thoracic region. In patients with suspected vertebral fractures, insufficient visualization may necessitate additional CT imaging, increasing costs and time. This study aimed to evaluate image quality of thoracic spine radiographs obtained with suspended inspiration and breathing technique with varying exposure times.

Methods

A retrospective image analysis was performed on thoracic spine radiographs obtained in a prospective randomized study. 400 conventional thoracic spine examinations acquired on Siemens Ysio Max were included. Patients were randomized to suspended inspiration or breathing technique. AP and lateral projections were evaluated independently by radiologists and orthopedic surgeons with varying experience, all blinded to imaging protocol. Image quality was assessed for endplates, anterior and posterior vertebral arch at T1-T3, T4-T10, and T11-T12. Images were categorized as diagnostic or non.

Results

Of 400 examinations, 398 were eligible for inclusion. The breathing technique significantly improved image quality in AP projections ($p<0.001$-0.02). Diagnostic quality in the upper thoracic spine (T1-T3) was not improved on lateral projections when comparing breathing technique with suspended inspiration (p: 0.22-0.83). However, for T4-T10, T11 and T12 statistically significant improvements were observed ($p<0.001$-0.02). Experience influenced image evaluation.

Conclusions

Breathing technique improved image quality in AP projections and in lateral projections from T4-T10. In the upper thoracic spine (T1-T3) image quality improved in AP projections, while significant improvement of T11-T12 was observed in lateral projections. We recommend breathing technique in thoracic spine radiography.



Thoracic spine radiographic

evaluation with breathing technique and different exposure times

– room for image quality improvement

Hanne Thomsen[1], Anne Holm Sønderby[2], Regitze Gyldenholm Skals[3], Anne Marie Kelter-Wesenberg[4], Osama Hussein Al-Kafaji[1], Peter Derek Christian Leutscher[5,6], Ane Simony[7]

1. Department of Radiology, North Denmark Regional Hospital, Frederikshavn, Denmark. 2. Section of X-ray Physics, North Denmark, Aalborg University, Denmark. 3. Research Data and Biostatistics, Aalborg University Hospital, Aalborg, Denmark. 4. Department of Radiology, North Denmark Regional Hospital, Hjørring, Denmark. 5. Centre for Clinical Research, North Denmark Regional Hospital, Denmark. 6. Department of Clinical Medicine, Aalborg University, Denmark. 7. Department of Orthopedic Surgery, Lillebaelt Hospital, Kolding, Denmark.

Background

Diagnostic of vertebral fractures in the thoracic spine is complicated by overlying pulmonary structures and differences in X-ray attenuation between thoracic and abdominal anatomical regions.

This study aimed to evaluate image quality of thoracic spine radiographs obtained with suspended inspiration and breathing technique with varying exposure times.

Methods

Retrospective image analysis performed on thoracic spine radiographs obtained in a prospective randomized study.

Blinded evaluation by radiologists and orthopedic surgeons

Comparison across specialties to identify differences in interpretation

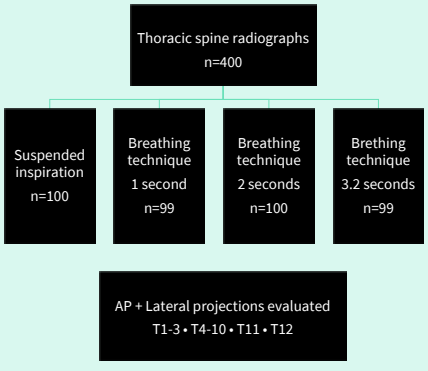
Clinicians with varying experience levels included

Suspended inspiration



Breathing technique 3.2 seconds





Results

The breathing technique significantly improved image quality in AP projections ($p<0.001$-0.02).

For lateral projections statistically significant improvements were observed for T4-12 ($p<0.001$-0.02).

However diagnostic quality in the upper thoracic spine (T1-3) did not improve when comparing the breathing technique with suspended inspiration.

Experience was found to influence image evaluation.

Conclusion

We recommend the use of breathing technique in conventional thoracic spine radiography.

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Region of Southern Denmark

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9.

Indications for referral for acute computed tomography pulmonary angiography (CTPA) in cases of suspected pulmonary embolism - a quality study

Lubna Alkattan[1], Britt Sommer[1], Sune Kjems Skuldbøl[1], Peter Derek Christian Leutscher[2,3]

1. Akutmodtagelsen, Regionshospital Nordjylland, Hjørring, Danmark
2. Center for Klinisk Forskning, Regionshospital Nordjylland, Hjørring, Danmark
3. Klinisk Institut, Aalborg Universitet, Aalborg, Danmark

Background

Pulmonary embolism (PE) involves total or partial thrombotic occlusion of the pulmonary arteries. Because symptoms overlap with various differential diagnoses, some identifiable via chest X-ray or venous-phase CT, it is critical to determine whether all suspected cases require direct referral for acute computed tomography pulmonary angiography (CTPA). This study assessed the clinical relevance of such referrals, and their correlations with imaging outcomes.

Methods

This retrospective quality study was conducted at the North Denmark Regional Hospital. The study population comprised 200 randomly selected adults admitted to the emergency department and referred for CTPA due to suspected PE. Patient medical records were reviewed, and relevant clinical data were extracted for analysis.

Results

PE was found in 42 of 200 cases (21%). Among these, 69% had no other pathology, 14% had pneumonia, 10% pulmonary congestion and 7% had other pathology (e.g. atelectasis, malignancy, pneumothorax, or emphysema). Of the 158 patients without PE, 39% showed no pathology, 25% had pneumonia, 21% had other pathology, and 15% had pulmonary congestion. D-Dimer was not measured prior to CTPA in 56 cases (28%). Ultrasound performed prior to CTPA in 5 patients all revealed DVT.

Conclusions

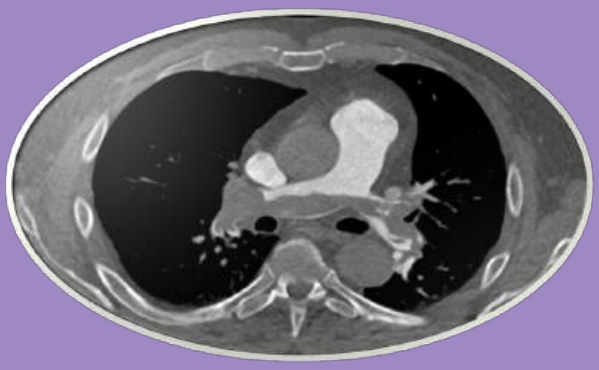
A significant proportion of patients referred for CTPA were free of PE, often presenting with alternative pathologies. The high rate of CTPA referrals without prior d-Dimer testing suggests opportunities to optimize diagnostic pathways.

Indication for referral for acute CT scan with suspicion of pulmonary embolism

Lubna Alkattan[1], Britt Sommer[1], Sune Kjems Skuldbøl[1], Peter Derek Christian Leutscher[2]
1. Department of Radiology, Hjørring, North Denmark Regional Hospital, Denmark
2. Center for Clinical Research, Hjørring, North Denmark Regional Hospital, Denmark

Background

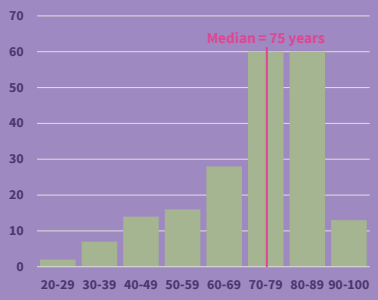
Pulmonary embolism (PE) involves total or partial thrombotic occlusion of the pulmonary arteries. Because symptoms overlap with various differential diagnoses, some identifiable via chest X-ray or venous-phase CT, it is critical to determine whether all suspected cases require direct referral for acute computed tomography pulmonary angiography (CTPA). This study assessed the clinical relevance of such referrals, and their correlations with imaging outcomes.



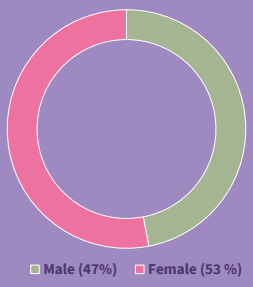
Method

This retrospective quality study was conducted at the North Denmark Regional Hospital. The study population comprised 200 randomly selected adults admitted to the emergency department and referred for CTPA due to suspected PE. Patient medical records were reviewed, and relevant clinical data were extracted for analysis.

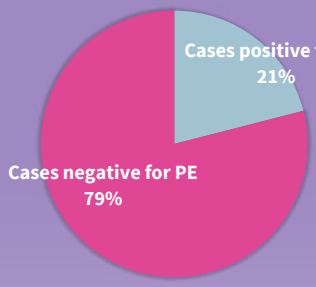
Age



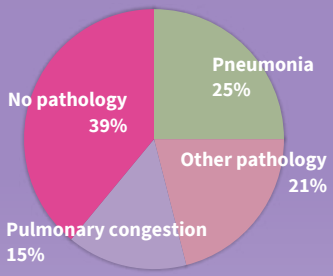
Gender



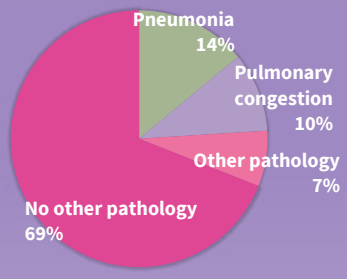
CTPA (n=200)



CTPA with no PE (n=158)



CTPA with PE (n=42)



Results

PE was found in 42 of 200 cases (21%). Among these, 69% had no other pathology, 14% had pneumonia, 10 % pulmonary congestion and 7 % had other pathology (e.g. atelectasis, malignancy, pneumothorax, or emphysema). Of the 158 patients without PE, 39 % showed no pathology, 25 % had pneumonia, 21 % had other pathology, and 15 % had pulmonary congestion. D-Dimer was not measured prior to CTPA in 56 cases (28%). Ultrasound was performed prior to CTPA in 5 patients, all revealing deep venous thrombosis (DVT).

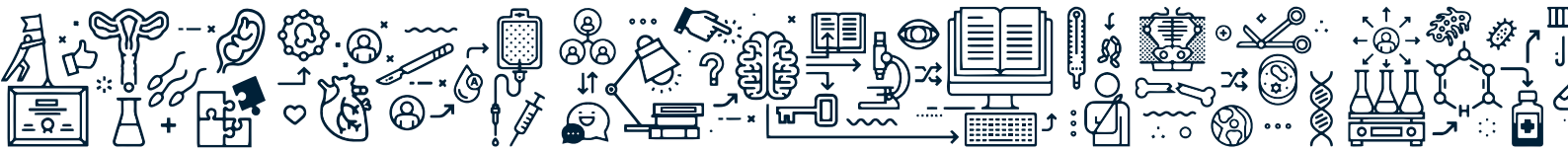
Conclusions

A significant proportion of patients referred for CTPA were free of PE, often presenting with alternative pathologies. The high rate of CTPA referrals without prior d-Dimer testing suggests opportunities to optimize diagnostic pathways.

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CKF CENTER FOR KLINISK FORSKNING Regionshospital Nordjylland

Børn og Unge



10.

Cycled versus continuous intensive double phototherapy for neonatal jaundice: a randomized controlled trial

Emil Lønstrup Øhrstrøm[1,2,3], Bo Mølholm Hansen[4], Rikke Wiingreen[4,5], Lars Bender[3,6], Mette Line Donneborg Roed[1,2,3]

1. Department of Pediatrics, North Denmark Regional Hospital, Hjoerring, Denmark
2. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
3. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark
4. Department of Pediatrics, North Zealand Regional Hospital, Hilleroed, Denmark
5. Department of Obstetrics and Gynecology, Copenhagen University Hospital Hvidovre, Denmark
6. Department of Pediatrics, Aalborg University Hospital, Aalborg, Denmark

Background

Neonatal hyperbilirubinemia is a leading cause of neonatal hospital admissions. Current Danish practice typically involves 24–48 hours of single phototherapy, often requiring separation of the infant from the parents. Recent evidence suggests that 12 hours of double phototherapy may be non-inferior to longer single phototherapy sessions, and international studies indicate that cycled phototherapy might be as effective as continuous treatment. The aim of this study was to compare the efficacy of 12 hours of cycled double phototherapy versus 12 hours of continuous double phototherapy.

Methods

In this randomized controlled trial, neonates with non-hemolytic hyperbilirubinemia (gestational age ≥33+0, birthweight ≥1800g) were randomized to either continuous phototherapy or cycled phototherapy (1.5 hours of treatment followed by a 1.5-hour pause). All infants received 12 hours of double phototherapy (overhead irradiance of 70 μW/cm^2/nm and a biliblanket). The primary outcome is the change in serum bilirubin levels. Secondary outcomes include parental experiences via surveys and breastfeeding success evaluated at approximately 4 months postpartum.

Perspectives

If cycled therapy is proven non-inferior, it could facilitate greater parent-infant intimacy and improve breastfeeding initiation. At the time of this abstract, 54 infants were included. Full results and analysis will be presented at the symposium.

Neonatal hyperbilirubinemia

– phototherapeutic treatment strategies

Emil Lønstrup Øhrstrøm[1,2,3], Bo Mølholm Hansen[4], Rikke Wiingreen[4,5], Lars Bender[3,6], Mette Line Donneborg Roed[1,2,3]



AIM

1. Is cycled phototherapy as effective as continuous phototherapy?
2. What are the parental and nursing-reported outcomes?

METHODS

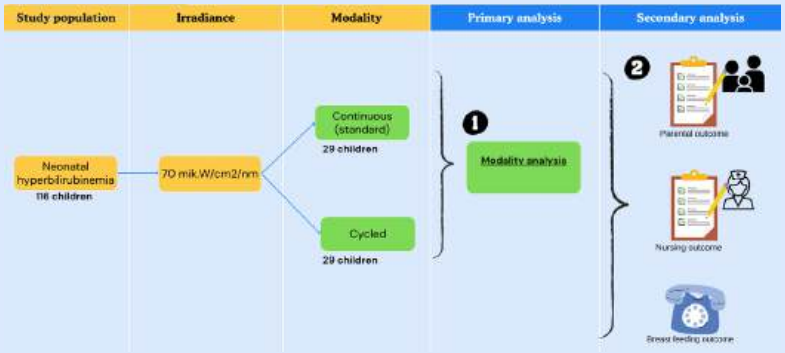
Design:
Randomized multicenter trial

Population:
58 neonates with non-hemolytic hyperbilirubinemia

Inclusion criteria:
Gestational age ≥ 33+0
Birth weight ≥ 1800g

All neonates treated with 12 hours double phototherapy

Cycled phototherapy:
1,5 h phototherapy followed by 1,5 h pause for a total of 12 h

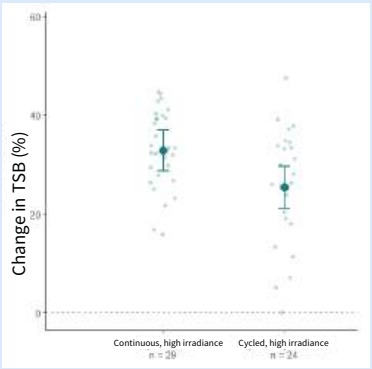


Figur 1. Study design

RESULTS

1

Pre-liminary results



Figur 2. **Adjusted mean decline in total serum bilirubin***

In the adjusted linear regression analysis, continuous phototherapy was associated with 7.7% (95%CI: 1.5-14.0) greater TSB reduction compared with cycled phototherapy (p = 0.02).

*Adjusted for: postnatal age, hemoglobin and basline bilirubin

2

Analyses of parental-, nursing and breast-feeding outcomes are yet to be evaluated.

CONCLUSION

1. Continuous phototherapy was more effective than cycled phototherapy (p=0.02)
2. Impact on caregiver-reported outcomes is yet to be determined.

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11.

Effect of high-irradiance phototherapy on neonatal hyperbilirubinemia: a randomized controlled trial

Emil Lønstrup Øhrstrøm[1,2,3], Bo Mølholm Hansen[4], Rikke Wiingreen[4,5], Lars Bender[3,6], Mette Line Donneborg Roed[1,2,3]

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5. Department of Obstetrics and Gynecology, Copenhagen University Hospital, Hvidovre, Denmark
6. Department of Pediatrics, Aalborg University Hospital, Aalborg, Denmark

Background

Neonatal jaundice affects approximately 60% of all newborns, with 4–5% requiring phototherapy to prevent bilirubin-induced brain damage. While current Danish guidelines recommend an irradiance of >30 μW/cm^2/nm, the maximum beneficial limit of irradiance remains unclear. This study aims to investigate the efficacy of increasing irradiance levels during intensive phototherapy and evaluate the dose-response relationship.

Methods

In this multicenter randomized controlled trial, neonates with non-hemolytic hyperbilirubinemia were randomized to 12 hours of phototherapy at overhead irradiance levels of 40, 55, or 70 μW/cm^2/nm, combined with biliblanket phototherapy. The primary outcome was the percentage change in total serum bilirubin (TSB) from baseline to 12 hours. Differences were analyzed using ANCOVA adjusted for baseline TSB, hemoglobin, postnatal age at treatment initiation, and gestational age. Adjusted pairwise comparisons and linear dose–response were assessed.

Results

Eighty-six neonates were included in the adjusted analysis. Adjusted mean TSB reductions were 29.3% (95% CI 25.8–32.9), 29.1% (25.4–32.8), and 33.3% (29.5–37.1) at 40, 55, and 70 μW/cm^2/nm, respectively (p=0.23). Pairwise comparisons showed no significant differences. Each 10 μW/cm^2/nm increase in irradiance was associated with a 1.26 percentage-point greater TSB reduction (95% CI −0.48 to 3.00; p=0.15).

Conclusions

No significant differences in TSB reduction were observed between the three irradiance levels, and no linear dose–response relationship was found. Increasing overhead irradiance from 40 to 70 μW/cm^2/nm provides limited additional bilirubin reduction when combined with biliblanket phototherapy.

Neonatal hyperbilirubinemia

– phototherapeutic treatment strategies

Emil Lønstrup Øhrstrøm[1,2,3], Bo Mølholm Hansen[4], Rikke Wiingreen[4,5], Lars Bender[3,6], Mette Line Donneborg Roed[1,2,3]



AIM

1 Is there an upper limit to the effect of increasing phototherapy irradiance (”dose”)??

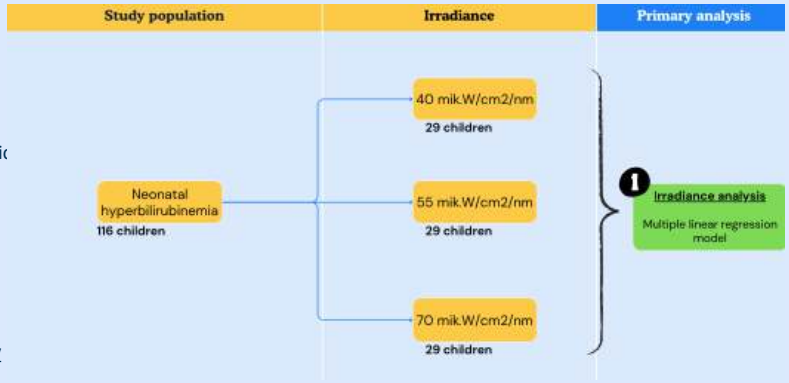
METHODS

Design:
Randomized multicenter trial

Population:
87 neonates with non-hemolytic hyperbilirubinemia

Inclusion criteria:
Gestational age ≥ 33+0
Birth weight ≥ 1800g

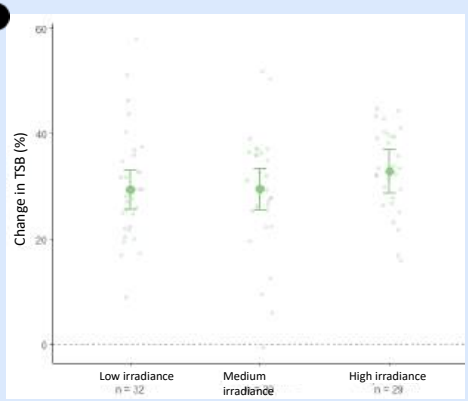
All neonates treated with 12 hours double phototherapy



Figur 1. Study design

RESULTS

1



Figur 2. **Adjusted mean decline in total serum bilirubin***

In the adjusted linear regression analysis, there was no evidence of an overall difference in TSB reduction between the three phototherapy irradiance groups (p = 0.2).

*Adjusted for: postnatal age, hemoglobin and basline bilirubin

CONCLUSION

1 TSB reduction was similar across all tested irradiances (p=0.2).

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12.

Extreme neonatal hyperbilirubinemia and school outcomes in childhood

Emil Lønstrup Øhrstrøm[1,2,3], Bo Mølholm Hansen[4], Rikke Wiingreen[4], Mette Line Donneborg Roed[1,2,3]

1. Department of Pediatrics, North Denmark Regional Hospital, Hjoerring, Denmark
2. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
3. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark
4. Department of Pediatrics, North Zealand Regional Hospital, Hilleroed, Denmark

Background

Extreme neonatal hyperbilirubinemia (EHB; total serum bilirubin ≥450 µmol/L) carries a risk of kernicterus spectrum disorder (KSD). However, the long-term neurodevelopmental and educational impact on children with EHB who do not develop KSD remains uncertain. This study investigated the association between neonatal EHB and schooling outcomes during elementary school.

Methods

This nationwide, population-based register study included liveborn neonates (gestational age 35–44 weeks) born in Denmark from 2000 to 2015. EHB exposure was identified via national laboratory databases and validated through medical record reviews. Outcomes included: 1) Special educational needs (SEN; ≥9 hours/week support), 2) School difficulties (non-completion of primary school, grade <2 in math or language, or delayed completion), 3) Final exam grades in math and language, and 4) Neurodevelopmental disorders (cerebral palsy, epilepsy, or psychiatric disorders).

Results

Among 955,478 neonates, 408 (0.4%) had EHB. After excluding 12 cases of KSD, 396 children with EHB were analyzed against 955,466 controls. No significant associations were found for SEN (HR 1.09 [0.79;1.50]) or school difficulties (OR 0.86 [0.57;1.43]). Adjusted mean grades in math (EHB: 6.87 [6.50;7.25] vs. control: 6.70 [6.67;6.72]; p=0.18) and language (EHB: 6.60 [6.30;6.88] vs. control: 6.67 [6.74;6.78]; p=0.19) showed no significant difference. The prevalence of neurodevelopmental disorders was similar between groups (12.3% vs. 11.4%; p=0.28).

Conclusions

EHB is not associated with increased risks of SEN, school difficulties, lower academic performance, or neurodevelopmental disorders in children who do not develop KSD.

Extreme Neonatal Hyperbilirubinemia and School Outcomes in Childhood

Emil Lønstrup Øhrstrøm[1,2,3] • Bo Mølholm Hansen[4] • Rikke Wiingreen[4] • Mette Line Donneborg Roed[1,2]



Background

Extreme neonatal hyperbilirubinemia (EHB; total serum bilirubin ≥450 µmol/L) carries a risk of kernicterus spectrum disorder (KSD). While KSD is becoming less coming the incidens of EHB is increasing in Denmark. The long-term educational impact on children with EHB who *do not* develop KSD remains uncertain. This study investigated the association between neonatal EHB and schooling outcomes during elementary school.

Methods

Population

Children born in Denmark in 2000-2015 with a gestationel age ≥35 weeks

Exposure

Total serum bilirubin ≥450 µmol/L

Outcomes

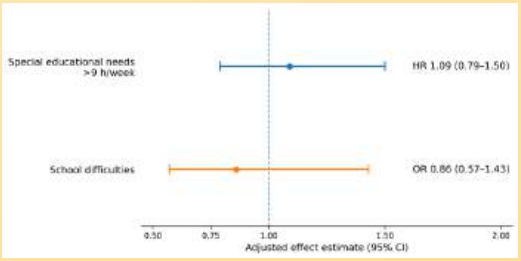
1. Special educational needs ≥ 9 h /week
2. School difficulties
   - Not completing primary school before age 18
   - Grade average <2 in language or math
3. Mean grade average in final exam of primary school

Analysis

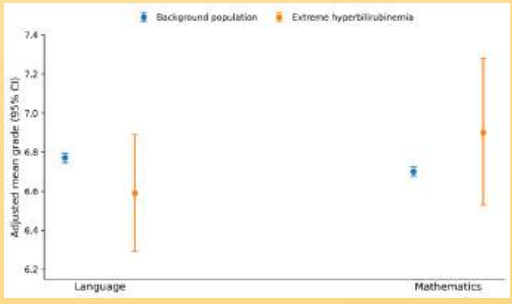
1. Cox regression. 2. Logistic regression. 3. ANCOVA

Results

Among 955,478 neonates, 408 (0.4%) had EHB. After excluding 12 cases of KSD, 396 children with EHB were analyzed against 955,466 in the background population *



*Background population as reference
**Adjusted for: Sex, gestationel age, birth weight, apgar, mother's educational level



Background population as reference
Adjusted for: Sex, gestationel age, birth weight, apgar, mother's educational level

Conclusion

Extreme neonatal hyperbilirubinemia is not associated with increased risks of special educational needs, school difficulties or lower academic performance in children who do not develop KSD.

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13.

Safety of high irradiance phototherapy in neonatal jaundice – a randomized controlled trial

Emil Lønstrup Øhrstrøm[1,2,3], Suzette Sørensen[2,3], Bo Mølholm Hansen[4], Rikke Wiingreen[4], Mette Line Donneborg Roed[1,2,3]

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2. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
3. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark
4. Department of Pediatrics, North Zealand Regional Hospital, Hilleroed, Denmark

Background

Phototherapy has been the standard treatment for neonatal hyperbilirubinemia for decades. The dose of phototherapy is expressed as irradiance (μW/cm^2/nm). Although generally considered a safe treatment with few adverse effects, some studies of conventional phototherapy have reported transient DNA damage in circulating blood cells during treatment. Studies investigating LED-based phototherapy have not demonstrated similar findings. A multicenter randomized controlled trial is currently investigating whether high-irradiance LED double phototherapy can reduce treatment duration and length of hospitalization for neonatal jaundice. The aim of this study is to evaluate the safety of high-irradiance LED phototherapy by assessing possible transient DNA damage during treatment.

Methods

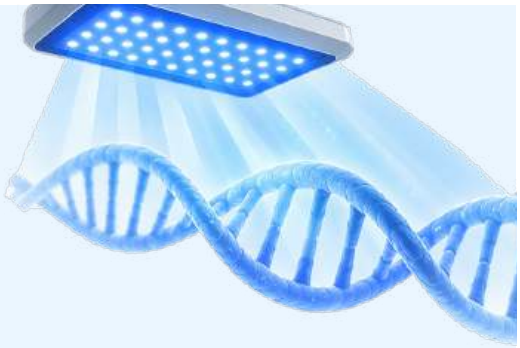
Neonates requiring phototherapy will be randomized to receive 12 hours of double phototherapy with an irradiance of either 40 or 70 μW/cm^2/nm. Inclusion criteria are gestational age ≥33 weeks and birth weight ≥1800 g. Exclusion criteria are jaundice within the first 24 hours of life or clinical signs of an underlying hemolytic disorder. Blood samples will be collected before and after phototherapy. DNA damage will be assessed using the alkaline comet assay.

Perspectives

Recent studies investigating more effective phototherapy strategies have increasingly focused on double phototherapy and higher irradiance levels. These approaches may reduce treatment duration and length of hospitalization while increasing opportunities for skin-to-skin contact and promoting parent-infant bonding. This study will provide important safety data regarding the use of high-irradiance LED phototherapy. The findings may support future implementation of more effective phototherapy regimens in regional and national clinical guidelines..

Safety of High Irradiance Phototherapy in Neonatal Jaundice

– A Randomized Controlled Trial



Emil Lønstrup Ørhstrøm[123], Suzette Sørensen[2,3], Bo Mølholm Hansen[4], Rikke Wiingreen[4], Mette Line Donneborg Roed[123]

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2. Centre for Clinical Research, North Denmark Regional Hospital, Hjørring, Denmark
3. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark
4. Department of Pediatrics, North Zealand Regional Hospital, Hillerød, Denmark

Aim

"The aim of this study is to evaluate the safety of high-irradiance LED phototherapy by assessing possible transient DNA damage during treatment"

Background

Phototherapy has been the standard treatment for neonatal hyperbilirubinemia for decades. Although generally considered a safe treatment with few adverse effects, some studies of conventional phototherapy have reported transient DNA damage in circulating blood cells during treatment. Studies investigating LED-based phototherapy have not demonstrated similar findings.

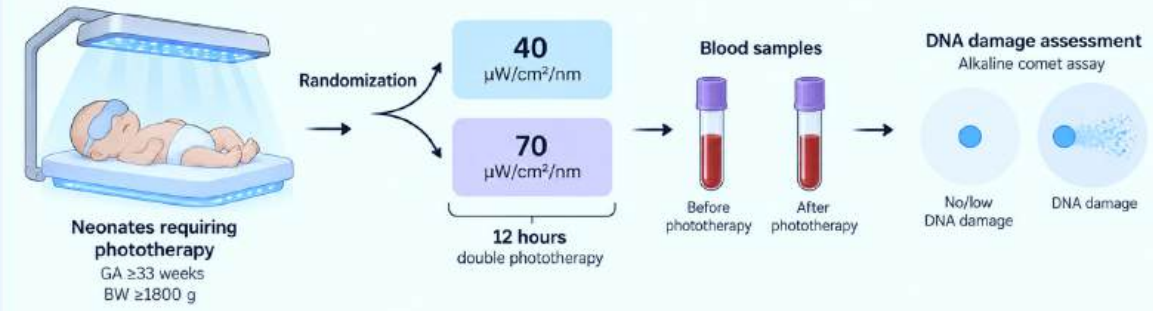
Methods

Neonates requiring phototherapy will be randomized to receive 12 hours of double phototherapy with an irradiance of either 40 or 70 µW/cm²/nm.

Inclusion criteria are gestational age ≥33 weeks and birth weight ≥1800 g. Exclusion criteria are jaundice within the first 24 hours of life or clinical signs of an underlying hemolytic disorder.

Blood samples will be collected before and after phototherapy. DNA damage will be assessed using the alkaline comet assay.

Figur 1: Study design



Perspectives

This study will provide important safety data regarding the use of high-irradiance LED phototherapy. The findings may support future implementation of more effective phototherapy regimens in regional and national clinical guideline

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14.

Extreme hyperbilirubinemia and kernicterus spectrum disorder in Denmark from 2000-2024 – a national assessment

Emma Aagaard Kjær[1,2], Frida Leck Kæseler[1,2], Emil Lønstrup Øhrstrøm[1,2,3], Mette Line Donneborg Roed[1,2,3]

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3. Department of Pediatrics, North Denmark Regional Hospital, Hjoerring, Denmark

Background

60% of all term neonates develop jaundice, due to an accumulation of unconjungated bilirubin, which can be neurotoxic. Extreme neonatal hyperbilirubinemia, defined as total serum-bilirubin (TsB) ≥450µmol/L, is associated with adverse outcomes, including acute and chronic neurological deficits, Acute Bilirubinencephalopathy (ABE) and Kernicterus Spectrum Disorder, (KSD), respectively. The latest nationwide report in Denmark is nearly a decade old, highlighting the importance of reassessing current trends.

Methods

The study was a nationwide, retrospective cohort for all Danish neonates with extreme hyperbilirubinemia born between the years 2000-2024. The study population consisted of infants with TsB ≥450µmol/L within the neonatal period (≤ 28 days), ratio of conjugated bilirubin to TsB < 0.30 and gestational age ≥ 35 weeks. Neonates from the Region of Southern Denmark were excluded. This study was build upon a previous study spanning from 2000–2015 and further incorporated new data from 2016–2024, based on medical record reviews. Outcomes and trends were compared between the two periods.

Results

The cohort consisted of 652 neonates. The incidence of extreme neonatal hyperbilirubinemia per 100,000 neonates was 40 in 2000-2015, compared to 55 in 2016-2024, indicating an upward trend. The incidence of KSD was 0.9/100,000 neonates in 2000-2024. In comparison of the two periods; neonates were admitted a day earlier, TsB peaked earlier, fewer neonates showed ABE-symptoms, and fewer neonates developed KSD.

Conclusions

Preliminary findings indicate an increased incidence of extreme neonatal hyperbilirubinemia and a reduced incidence of KSD. The study suggests an increased proficiency in detecting and treating neonates.

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Extreme Hyperbilirubinemia and Kernicterus Spectrum Disorder

A National Assessment in Denmark From 2000-2024

Frida Leck Kæseler [1] Emma Aagaard Kjær [2] Emil Lønstrup Øhrstrøm [1, 3, 4] Mette Line Donneborg Roed [1, 3, 4]



60% *of all term neonates develop jaundice, due to an accumulation of unconjungated bilirubin, which can be neurotoxic. Extreme neonatal hyper-bilirubinemia, defined as total serum-bilirubin (TsB) ≥450μmol/L, is associated with adverse outcomes, including acute and chronic neurological deficits, Acute Bilirubinencephalopathy (ABE) and Kernicterus Spectrum Disorder (KSD), respectively. The latest nationwide report in Denmark is nearly a decade old, highlighting the importance of reassessing current trends.*

The study was a nationwide, retrospective cohort for all Danish neonates with extreme hyperbilirubinemia born between the years 2000-2024. The study population consisted of infants with TsB ≥ 450 μmol/L within the neonatal period (≤ 28 days), ratio of conjugated bilirubin to TsB < 0.30 and gestational age ≥ 35 weeks. Neonates from the Region of Southern Denmark were excluded. This study was built upon a previous study spanning from 2000–2015 and further incorporated new data from 2016–2024, based on medical record reviews. Outcomes and trends were compared between the two periods.

652 *neonates were identified in this cohort. The incidence of extreme neonatal hyperbilirubinemia per 100,000 neonates was 40 in 2000 -2015, compared to 55 in 2016-2024, indicating an upward trend. The incidence of KSD was 0.9 per 100,000 neonates in 2000-2024.*

Preliminary findings indicate an increased incidence of extreme neonatal hyperbilirubinemia and a reduced incidence of KSD.
The study suggests an increased proficiency in detecting and treating neonates.

In comparison of the periods

Neonates were admitted a day earlier

Fewer neonates showed ABE-symptoms

Fewer neonates developed KSD

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15.

Neonatal hyperbilirubinæmi – belysning af en global sundhedsudfordring

Frida Leck Kæseler[1,3], Emil Lønstrup Øhrstrøm[1,2,3], Mette Line Donneborg Roed[1,2,3]

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Baggrund

Gulsot, neonatal hyperbilirubinæmi, er blandt de hyppigste tilstande, som opstår i den neonatale periode. Tilstanden er forbundet med neurologiske skade, der kan lede til kroniske neurologiske senfølger (KSD) eller død. Grundet diagnostiske og behandlingsmæssige fremskridt forekommer disse komplikationer dog sjældent i den vestlige verden. På verdensplan er tilstanden dog fortsat blandt de 10 hyppigste årsager til neonatal mortalitet. Sygdomsbyrden vurderes særlig høj i Subsaharisk Afrika. Her er omfanget af sygdomsbyrden endnu sparsomt belyst.

Metoder

Med udgangspunkt i et nyere, landsdækkende spædbarnsregister, Neonatal Inpatient Database, fra Tanzania foretages et retrospektivt landsdækkende kohortestudie. Studiepopulationen skal bestå af spædbørn født i Tanzania mellem 01.01.2026-31.12.2028 med signifikant hyperbilirubinæmi i neonatal perioden (alder ≤ 28 dage). Signifikant hyperbilirubinæmi defineres som klinisk diagnosticeret hyperbilirubinæmi eller biokemisk fund af total-serum-bilirubin ≥ 20mg/L. Informationer indhentes mhp. at fastslå national incidens af neonatal hyperbilirubinæmi, KSD samt mortalitetsrate.

Perspektiver

Belysning af nationale tendenser i Tanzania vil afdække omfanget af sygdomsbyrden, ikke blot på nationalt plan, men også i bredere kontekst. Studiet vil muliggøre et mere retvisende indblik i tendenser i Østafrika og på sigt globale estimater. Studiet sigter desuden mod at øge fokus af et disproportionalt belastet område, som på sigt kan fremme implementering af præventive tiltag hos de mest udsatte spædbørn.

Frida Leck Kæseler Emil Lønstrup Øhrstrøm [1, 2, 3] Mette Line Donneborg Roed [1, 2, 3]
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NEONATAL HYPERBILIRUBINÆMI I TANZANIA

Belysning af en global udfordring



Trods store fremskridt i den vestlige verden, er gulsot, neonatal hyperbilirubinæmi, fortsat blandt de 10 ledende årsager til neonatal død på verdensplan. Sygdomsbyrden er særlig stor i Subsaharisk Afrika, hvor omfanget af sygdommen er sparsomt belyst.

Med udgangspunkt i et nyt, landsdækkendespædbarnsregister, Neonatal Inpatient Database, fra Tanzania foretages et retrospektivt landsdækkende kohortestudie. Informationer indhentes mhp. at fastslå national incidens af neonatal hyperbilirubinæmi, senfølger og mortalitet.

Belysning af nationale tendenser i Tanzania vil afdække omfanget af sygdomsbyrden, ikke blot på nationalt plan, men på sigt globale estimater. Studiet sigter mod at øge fokus af et disproportionalt belastet område, som på sigt kan fremme præventive tiltag hos de mest udsatte børn.

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16.

Long-term adverse outcomes among children with neonatal hyperbilirubinemia requiring phototherapy

Ida Savkov[1,2], Sofie Korsgaard Carstens[1,2], Emil Lønstrup Øhrstrøm[1,2,3], Mette Line Donneborg Roed[1,2,3]

1. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark
2. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
3. Department of Pediatrics, North Denmark Regional Hospital, Hjoerring, Denmark

Background

Neonatal hyperbilirubinemia is a common condition in newborns caused by an accumulation of unconjugated bilirubin. Phototherapy is the standard treatment for neonatal hyperbilirubinemia. However, epidemiological studies have raised concerns about potential long-term adverse outcomes following neonatal phototherapy, including febrile seizures, epilepsy, autism spectrum disorder, attention-deficit/hyperactivity disorder, developmental delay, childhood cancer, asthma, allergy, atopic dermatitis, haemangioma, café-au-lait spots, and type 1 diabetes. The evidence remains uncertain and heterogeneous, warranting further investigation. We therefore aim to investigate whether neonatal phototherapy is associated with long-term morbidity in children with neonatal hyperbilirubinemia.

Methods

This retrospective register-based cohort study includes infants in the North Denmark Region with a gestational age of ≥ 35 weeks and without significant neonatal comorbidity. Exposure is defined as a total serum bilirubin concentration of 350-400 µmol/L within the first 28 days of life, a level at which phototherapy would generally be expected according to Danish guidelines. This assumption will be validated by review of a sample of medical cords. Eligible infants, relevant covariates and long-term outcomes will be identified using the regional laboratory database, the Danish Medical Birth Register and the Danish National Patient Register.

Perspectives

Internationally, there is a growing demand for knowledge regarding the long-term consequences of neonatal phototherapy exposure. The Danish nationwide registration system based on personal identification numbers used across healthcare sectors, provides strong opportunities for long-term follow-up and linkage of neonatal exposure data with later health outcomes.



Long-term adverse outcomes among children with neonatal hyperbilirubinemia requiring phototherapy

Ida Savkov[1,2], Sofie Korsgaard Carstens[1,2], Emil Lønstrup Øhrstrøm[1,2,3], Mette Line Donneborg Roed[1,2,3]

1. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark
2. Department of Children and Adolescents, North Denmark Regional Hospital, Hjoerring, Denmark
3. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark

BACKGROUND
Neonatal hyperbilirubinemia is common in newborns and is frequently treated with phototherapy. Although phototherapy is considered safe and effective, epidemiological studies have suggested potential associations with several long-term adverse outcomes. However, the evidence remains inconsistent and uncertain.

PERSPECTIVES
Internationally, there is a growing demand for knowledge regarding the long-term consequences of neonatal phototherapy exposure. The Danish nationwide registration system based on personal identification numbers used across healthcare sectors, provides strong opportunities for long-term follow-up and linkage of neonatal exposure data with later health outcomes.

AIM
To investigate whether neonatal phototherapy is associated with long-term adverse outcomes in children with neonatal hyperbilirubinemia.

METHODS
This retrospective register-based cohort study includes infants in the North Denmark Region with a gestational age of ≥ 35 weeks and without significant neonatal comorbidity. Exposure is defined as a total serum bilirubin concentration of 350-400 µmol/L within the first 28 days of life, a level at which phototherapy would generally be expected according to Danish guidelines. This assumption will be validated by review of a sample of medical cords.
Eligible infants, relevant covariates and long-term outcomes will be identified using the regional laboratory database, the Danish Medical Birth Register and the Danish National Patient Register.

STUDY DESIGN

A retrospective register-based cohort study in the North Denmark Region

STUDY POPULATION

Liveborn infants in the North Denmark Region



Inclusion criteria
- GA ≥ 35 weeks
- Born in the North Denmark Region
- TSB measured within the first 28 days of life

Exclusion criteria
- Significant neonatal comorbidity

EXPOSURE

Neonatal phototherapy



Total serum bilirubin 350-400 µmol/L
within the first 28 days of life

Exposure validation
Expected phototherapy according to Danish guidelines; assumption validated by review of a sample of medical records

DATA SOURCES

Regional Labaratory Database
- Bilirubin measurements (0-28 days)
- Exposure definition

Danish Medical Birth Register
- Inclusion/exclusion
- Birth characteristics
- Maternal factors
- Covariates

Danish National Patient Register
- Long-term outcomes
- Somatic and psychiatric diagnoses
- Follow-up from birth to end of study period

LONG-TERM OUTCOMES

Selected outcome categories

Neurological and neurodevelopmental
Epilepsy, febrile seizures, autism spectrum disorder, ADHD, developmental delay

Allergic and respiratory
Asthma, allergic rhinitis, atopic dermatitis

Oncological
Leukaemias, other haematological malignancies, solid tumors, benign tumors

Dermatological
Naevi, melanoma, café-au-lait macules, haemangioma

Metabolic
Type 1 diabetes mellitus

Birth (≥ 35 weeks) — **0-28 days TSB measurement and phototherapy** — *Follow-up in national registers* — **Up to end of the study period Long-term outcomes**

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17.

Neonatal jaundice: from inpatient care to minimal interrupting family-centered home treatment – an upcoming PhD project

Julia Vonasek[1], Emil Lønstrup Øhrstrøm[2,3,4], Morten Mørk[5], Mette Line Donneborg Roed[2,3,4]

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5. Department of Clinical Biochemistry, North Denmark Regional Hospital, Hjoerring, Denmark

Background

More than half of all neonates develop jaundice, and approximately 3,000 infants receive phototherapy annually in Denmark. Standard care requires hospital admission for at least 24 hours, physically separating the infant from the parents while receiving phototherapy. Families report this separation as the most challenging aspect, as it disrupts early bonding, skin-to-skin contact, and breastfeeding. Although portable devices allow home treatment, evidence is lacking regarding which device is most effective and provides the best family experience. Additionally, data are lacking on whether capillary blood samples drawn to guide phototherapy discontinuation remain reliable when collected at home or in general practice, as well as identifying which infants require follow-up blood sampling after completing phototherapy and for whom such testing is redundant.

Methods

The project comprises three sub-studies: 1) An RCT in neonates (GA ≥35+0, birth weight ≥2.500 g) comparing two portable devices for home phototherapy, evaluating bilirubin decline, breastfeeding success, and parental/staff satisfaction. 2) A prospective laboratory study of 90 capillary blood samples assessing bilirubin stability under simulated primary care transport and storage conditions up to 24 hours. 3) A register-based study (10,000–12,000 neonates) utilizing artificial intelligence (XGBoost) to develop a digital decision-support tool predicting the need for follow-up blood sampling.

Perspectives

This project prioritizes family well-being by facilitating safe home phototherapy, protecting early parent-infant bonding and breastfeeding, and hopefully sparing infants from unnecessary, painful heel pricks and hospital trips. Findings could lay the foundation for national clinical guidelines in Denmark.



AI – genereret billede

Neonatal Jaundice: From Inpatient Care to Minimal Interrupting Family-Centered Home Treatment – An upcoming Ph.D.-project

Julia Vonasek (1,2) • Emil Lønstrup Øhrstrøm (1) • Morten Mørk (3) • Mette Line Donneborg (1,4)

1 Department of Pediatrics, North Denmark Regional Hospital, Hjoerring, Denmark
2 Department of Pediatrics Aalborg University Hospital, Aalborg, Danmark
3 Department of Clinical Biochemistry, North Denmark Regional Hospital, Hjoerring, Denmark
4 Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark

Background

More than half of all neonates develop jaundice, and approximately 3,000 infants receive phototherapy annually in Denmark. Standard care requires hospital admission for at least 24 hours, physically separating the infant from the parents while receiving phototherapy. Families report this separation as the most challenging aspect, as it disrupts early bonding, skin-to-skin contact, and breastfeeding. Although portable devices allow home treatment, evidence is lacking regarding which device is most effective and provides the best family experience. Additionally, data are lacking on whether capillary blood samples drawn to guide phototherapy discontinuation remain reliable when collected at home or in general practice, as well as identifying which infants require follow-up blood sampling after completing phototherapy and for whom such testing is redundant.

Aim

Our aim with the study is to move the treatment for neonatal hyperbilirubinemia from inpatient care to homebased care, with individualized follow-up.

Study 1

An RCT in neonates (GA ≥35+0, birth weight ≥2,500 g) comparing two portable devices for home phototherapy, evaluating bilirubin decline, breastfeeding success, and parental/staff satisfaction.

Study 2

A prospective laboratory study of 90 capillary blood samples assessing bilirubin stability under simulated primary care transport and storage conditions up to 24 hours.

Study 3

A register-based study (10,000–12,000 neonates) utilizing artificial intelligence (XGBoost) to develop a digital decision-support tool predicting the need for follow-up blood sampling.

Perspectives

This project prioritizes family well-being by facilitating safe home phototherapy, protecting early parent-infant bonding and breastfeeding, and hopefully sparing infants from unnecessary, painful heel pricks and hospital trips. Findings could lay the foundation for national clinical guidelines in Denmark.

Patient flow now

Diagnosis at hospital (Bilirubin above treatment threshold) → Phototherapy in hospital (separating mother and infant) → Bloodsample every 24 hours (until bilidubin under discontinuation threshold) → Rutine follow-up blood samples (no guidelines regarding who need flollow-up blood samples)

Aim for future patient flow

Diagnosis at hospital (Bilirubin above treatment threshold) → Home based phototherapy (supporting mother/infant bonding → Bloodsample at home or general practitioner (until bilidubin under discontinuation threshold) → Individualized follow-up AI-based selection of patients at risk of rebound hyperbilirubinemia

Contact

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REGIONSHOSPITAL NORDJYLLAND

18.

Who drops out? Factors associated with dropout, weight trajectories and patient reported barriers in 602 Danish children in pediatric obesity treatment

Sara Munk Nielsen[1,2,3], Karoline Bastholm Weesgaard[1,2,3], Niels Henrik Bruun[4], Tine Caroc Warner[1,2,3,5], Charlotte Nørkjær Eggertsen[5]

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5. Department of Pediatrics, Aalborg University Hospital, Aalborg, Denmark

Background

Childhood overweight and obesity affect up to 19% of Danish schoolchildren and are associated with substantial physical and psychosocial consequences. The Children's Obesity Clinics Treatment programme reduces body mass index standard deviation score (BMI-SDS), but dropout rates remain high. To describe children and adolescents enrolled in The Children's Obesity Clinics Treatment programme in Northern Denmark, identify factors associated with dropout, assess BMI-SDS trajectories by sex and treatment adherence, and investigate reasons for dropout.

Methods

We retrospectively reviewed medical records of 602 patients aged 3–18 years who initiated treatment between 2018 and 2023. Baseline characteristics, factors associated with dropout, BMI-SDS changes, and reasons for dropout were analyzed.

Results

BMI-SDS decreased in 73.5% of patients, with a mean reduction of 0.37 (95% CI 0.32–0.42). 57.5% dropped out. Dropouts were older and had mothers with lower educational attainment than adherents. Reductions were greater among adherents than dropouts (difference 0.29, 95% CI 0.21–0.37; $p < 0.001$) and among boys than girls (difference 0.20, 95% CI 0.09–0.30). Among dropouts, 55% did not report discontinuation reason.

Conclusions

Older age and lower maternal educational attainment were associated with dropout. Greater BMI-SDS reductions were observed among adherents, especially boys.

REGION NORDJYLLAND
– i gode hænder

Who drops out?

Factors associated with Dropout, Weight Trajectories and Patient Reported Barriers in 602 Danish Children in Pediatric Obesity Treatment

Sara Munk Nielsen[1*], Karoline Bastholm Weesgaard[1*], Niels Henrik Bruun[2], Tine Caroc Warner[3,5], Charlotte Nørkjær Eggertsen[4].

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3. Department of Pediatrics, North Denmark Regional Hospital, Hjoerring, Denmark.
4. Department of Pediatrics and Adolescent Medicine, Aalborg University Hospital, Aalborg, Denmark.
5. Department of Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark.



BACKGROUND

Childhood overweight and obesity affect up to 19% of Danish schoolchildren and are associated with substansial physical and psychosocial consequences. The Children´s Obesity Clinics Treatment (TCOCT) programme reduces body mass index standard deviation score (BMI-SDS) but dropout rates remain critically high

OBJECTIVES

- **To describe children and adolescents enrolled in a TCOCT programme in Northern Denmark**
- **To assess BMI-SDS trajectories by sex and treatment adherence**
- **To identify factors associated with dropout**
- **To investigate patient-reported reasons for dropout**

METHODS

Retrospective review of medical records of 602 patients aged 3-18 years, who initiated treatment between 2018 and 2023. Baseline characteristics, factors associated with dropout, BMI-SDS changes and patient reported reasons for dropout were analysed

KEY FINDINGS

602
children
aged 3-18 years
(2018-2023)

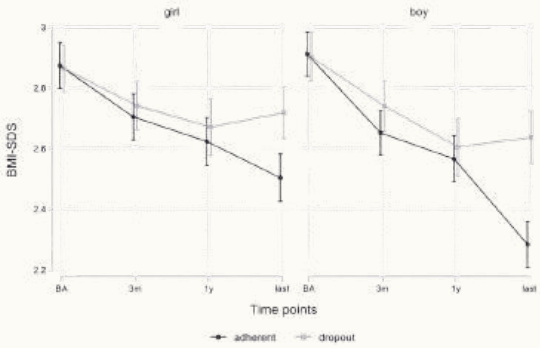
57.5%
dropped out
of treatment

73.5%
had a decrease in BMI-SDS
mean reduction -0.37
(95% CI -0.42 to -0.32)

55%
of dropouts did not report a reason for discontinuation

RESULTS

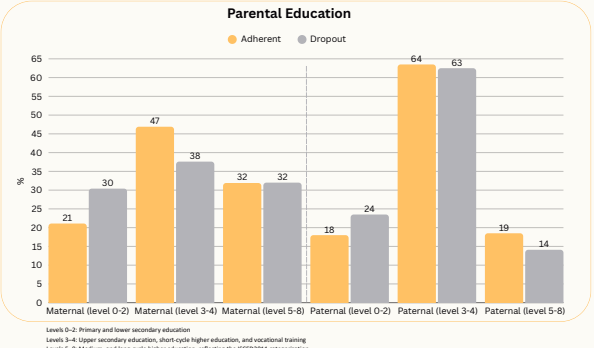
Figure 1. BMI-SDS Trajectories stratified by sex and treatment adherence



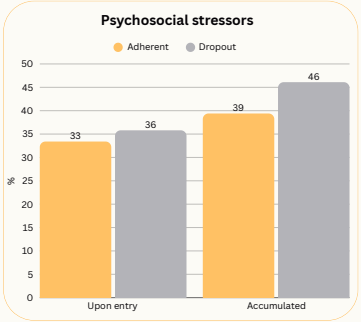
Reductions in BMI-SDS were greater among adherents than dropouts
Mean difference 0.28
(95% CI -0.39 to -0.18;
p < 0.001)

Reductions in BMI-SDS were greater among boys than girls
Mean difference 0.20
(95% CI 0.09 to 0.30;
p < 0.001)

Figure 2. Factors associated with dropout



Levels 0–2: Primary and lower secondary education
Levels 3–4: Upper secondary education, short-cycle higher education, and vocational training
Levels 5–8: Medium- and long-cycle higher education, reflecting the ISCED2011 categorization.



Dropouts were significantly older at treatment initiation *(p < 0.00)*

Dropouts were from families with lower maternal education *(p= 0.04)*

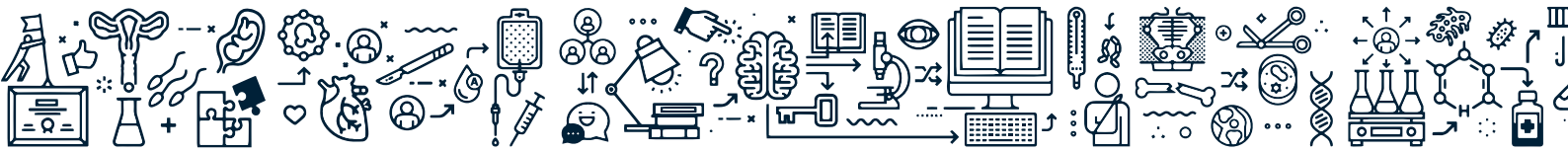
A higher percentage of dropouts had ≥1 psychosocial stressor

CONCLUSION

- **In this real world cohort from Northern Denmark, 57,5% of children dropped out of treatment.**
- **55% of dropouts did not report a definitive reason for dropout.**
- **Older age and lower maternal educational attainment were associated with dropout**
- **Greater BMI-SDS reductions were observed among adherents, especially boys**
- **Understanding and addressing barriers to continued treatment is essentiel to improve outcome**



Gynækologi og Obstetrik



19.

Choosing vaginal breech birth: women's experiences of counselling, decision-making, and childbirth – an interpretative phenomenological analysis

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Background

Women diagnosed with breech presentation at term may face complex decisions regarding mode of birth. Counselling involves consideration of clinical evidence and potential risks alongside individual values, preferences, and previous experiences. While research on breech presentation has predominantly focused on clinical outcomes, less is known about how women experience and make sense of choosing vaginal breech birth. The aim of this study is to explore how women who choose planned vaginal breech birth experience and make sense of counselling, decision-making, and the subsequent birth.

Methods

This qualitative study will use individual semi-structured interviews with women who, following counselling for term breech presentation at North Denmark Regional Hospital, chose planned vaginal breech birth. Women will be eligible irrespective of whether the subsequent birth is vaginal or by intrapartum caesarean section. Interviews will explore experiences of counselling, involvement in decision-making, interactions with healthcare professionals, expectations of vaginal breech birth, and experiences of the subsequent birth. Data will be analysed using Interpretative Phenomenological Analysis, with an idiographic focus on how individual participants make sense of their experiences before examining patterns across participants. Researcher reflexivity will be considered throughout data collection and analysis.

Perspectives

The study may provide an in-depth understanding of how women experience and make sense of choosing vaginal breech birth, including their needs for information, involvement, and support. Integrating women's perspectives with clinical knowledge may contribute to more individualised, woman-centred counselling and support informed decision-making for women considering vaginal breech birth.

CHOOSING VAGINAL BREECH BIRTH

Women's Experiences of Counselling, Decision-Making, and Childbirth

An Interpretative Phenomonological Analysis

Catherine Vinge François[1,2,3], Kamilla Groenmeijer Nielsen[4], Lisandra Stein Bernardes[1,5], Mona Kyndi Pedersen[1]
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WHY THIS STUDY?

Women diagnosed with breech presentation at term may face complex decisions regarding mode of birth. Counselling involves consideration of clinical evidence and potential risks alongside individual values, preferences, and previous experiences.

AIM

To explore how women who choose planned vaginal breech birth experience and make sense of counselling, decision-making, and the subsequent birth.

STUDY POPULATION

Women who, following counselling for term breech presentation, choose planned vaginal breech birth. Women are included irrespective of whether the subsequent birth is vaginal or by intrapartum caesarean section.

DATA COLLECTION

Individual semi-structured interviews exploring counselling, involvement in decision-making, interactions with healthcare professionals, expectations, and the subsequent birth experience.

ANALYSIS

Interpretative Phenomenological Analysis (IPA), with an idiographic focus on individual meaning-making before examining patterns across participants. Researcher reflexivity will be considered throughout.

WHY DOES THIS MATTER?

INFORMATION · INVOLVEMENT · SUPPORT

This study may provide an in-depth understanding of how women experience and make sense of choosing vaginal breech birth, including their needs for information, involvement, and support. Integrating women's perspectives with clinical knowledge may contribute to more individualised, woman-centred counselling and informed decision-making.



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NORTH DENMARK REGIONAL HOSPITAL

20.

Contemporary vaginal breech birth: clinical course and intrapartum management in a retrospective cohort study

Catherine Vinge François[1,2,3], Aya Mohammed Alsadi[2], Kamilla Groenemeijer Nielsen[4], Mona Kyndi Pedersen[1,2], Lisandra Stein Bernardes[1,5]

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5. Department of Gynecology and Obstetrics, Aalborg University Hospital, Aalborg, Denmark

Background

Vaginal breech birth remains controversial, and contemporary evidence on the clinical course and management of planned vaginal breech birth is limited. In particular, detailed data on maternal birth position, intrapartum interventions, and management of the final stage of vaginal breech birth are scarce. The aim of this study is to describe the clinical course, management, and outcomes of term singleton breech births within a structured clinical approach.

Methods

We conducted a retrospective cohort study of term singleton breech births at North Denmark Regional Hospital, Denmark, from 1 June 2020 to 31 May 2025. Throughout the study period, vaginal breech births were managed by a dedicated breech team trained in a structured clinical algorithm for upright breech birth. Data were obtained from electronic medical records and clinical databases and included maternal and pregnancy characteristics, intended and actual mode of birth, intrapartum course, birth position, obstetric interventions, manoeuvres, and maternal and neonatal outcomes. Planned vaginal breech births are described according to actual mode of birth, while successful vaginal births are examined in detail, particularly management from birth of the fetal trochanters to complete birth. Analyses are descriptive.

Perspectives

Detailed description of contemporary vaginal breech birth may provide insight into specialised breech care in clinical practice. The study may identify clinically relevant patterns in maternal positioning, intrapartum interventions, and management of the final stage of birth, providing a foundation for future research and contributing to evidence-based, individualised care for women considering vaginal breech birth.

VAGINAL UPRIGHT BREECH BIRTH

How do we manage the essential last five minutes of breech birth?

Five-year retrospective cohort – North Denmark Region, 2021-2026

Catherine Vinge François[1,2,3], Aya Mohammed Alsadi[4], Mona Kyndi Pedersen[1], Kamilla Groenmeijer Nielsen[5], Lisandra Stein Bernardes[1,6]

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WHY THIS STUDY

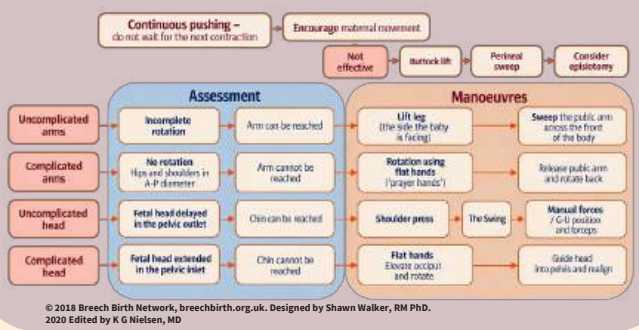
Recent evidence on the clinical management of upright vaginal breech birth is limited. This study describes its clinical course and management within a structured clinical approach.

ANALYTIC COHORT

75 upright vaginal breech births. Detailed analyses of labour and manoeuvres included births intended for management using the structured upright approach.

DIAGNOSIS AND MANAGEMENT – LAST 5 MINUTES

The final five minutes of breech birth are critical. A structured clinical algorithm for the last five minutes is used to assess fetal descent, encourage maternal movement, and targeted manoeuvres during upright breech birth.



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HOW OFTEN WAS DIRECT MANUAL ASSISTANCE NEEDED?

39,2 %
COMPLETYLY SPONTANEOUS
(29/74)

60,8 %
≥1 DIRECT MANUEL MANEOUVRE
(45/74)

ARM MANOEUVRES

33,8% required an arm manoeuvre (25/74)

UNCOMLICATED ARMS	
Lift maternal leg	**6/13**
Sweep the pubic arm across fetal body	**13/13**

COMLICATED ARMS	
Release pubic arm and rotate back	**11/12**
Rotate using using flat hands	**12/12**

AFTERCOMMING-HEAD MANOEUVRES

52,7% required a head manoeuvre (39/74)

UNCOMLICATED HEAD	
Shoulder press	**19/23**
"The swing"	**21/23**

COMLICATED HEAD	
Elevate occiput and rotate	**2/2**
Guide head into pelvis and realign	**2/2**

VAGINAL BREECH BIRTH – TIMING (MEDIAN)

20 min
Descent

13 min
Pushing

2 min
Time from birth of fetal pelvic to head

60/69
Managed withn the 5-minute timeframe

TAKE-HOME

Final stage of vaginal breech birth is short. Manual assistance was required in 3 in 5 upright breech births. The upright breech flowchart was used correct for diagnosis and management. 60 out of 69 breech birth kept the 5-minute timeframe.

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NORTH DENMARK REGIONAL HOSPITAL

21.

Bringing specialist urological and urogynecological care closer to citizens: the first cross-sectoral initiative from the Centre for Pelvic Floor and Lower Urinary Tract Disorders

Constanze Merkel[1,2], Stine Roed Einarsson[3], Bianca-Georgiana Mihai[2,4], Ulla Kristine Worum[2,4], Marianne Greisen[1,2], Malene Rokkjær Dalsager[1,2], Lone Sloth Pihl[2,4], Tina Heilesen[1,2]

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3. Hjoerring Municipality, Hjoerring, Denmark
4. Department of Renal and Urinary Tract Surgery, North Denmark Regional Hospital, Hjoerring, Denmark

Background

Urinary incontinence, catheter-related complications and pelvic organ prolapse are common conditions among older adults and frequently require management in nursing homes. The Danish healthcare reform promotes stronger cross-sectoral collaboration and increased use of outreach hospital functions to support care closer to citizens. In this context, the newly established Centre for Pelvic Floor and Lower Urinary Tract Disorders aims to strengthen knowledge sharing and competency development across healthcare sectors. As the centre's first collaborative development project, this study seeks to support nursing home staff in the management of common urogynecological conditions through a structured competency development programme tailored to different educational backgrounds and responsibilities.

Methods

The project is currently under development and is designed as a mixed methods pilot study with a pre-post evaluation framework. The intervention will include three modules focusing on Minimal Care in urinary incontinence, catheter care, and management of pelvic organ prolapse. Educational content will be differentiated for skilled and unskilled care staff. Quantitative data will be collected through questionnaires assessing self-reported knowledge, confidence, competence and relevance before and after the intervention. Qualitative data will be collected through focus group or semi-structured interviews exploring experiences, feasibility and implementation factors.

Perspectives

The project is expected to provide knowledge regarding the feasibility and perceived value of competency development in nursing home settings. Findings may contribute to future implementation of cross-sectoral outreach initiatives and serve as a model for translating specialist hospital knowledge into practice, supporting care delivery closer to citizens in accordance with the ambitions of the Danish healthcare reform.

Bringing specialist urological and urogynecological care closer to citizens

The first cross-sectoral initiative from the Centre for Pelvic Floor and Lower Urinary Tract Disorders

Constanze Merkel[1,3], Stine Roed Einarsson[1], Bianca-Georgiana Mihai[2,3], Ulla Kristine Worum[2,3], Marianne Greisen[1,3], Malene Rokkjær Dalsager[1,3], Lone Sloth Pihl[2,3], Tina Heilesen[1,3]

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[4] Hjørring Municipality, Hjørring, Denmark



BACKGROUND
Urinary incontinence, catheter-related complications and pelvic organ prolapse are common conditions among older adults and frequently require management in nursing homes.
The Danish healthcare reform promotes stronger cross-sectoral collaboration and increased use of outreach hospital functions to support care closer to citizens.

AIM
To support nursing home staff in the management of common urogynecological conditions through a structured competency development programme tailored to different educational backgrounds and responsibilities.

PROJECT STATUS
Pilot study under development
No results yet
Same specialist knowledge – closer to home

THE COMPETENCY DEVELOPMENT PROGRAMME

Three modules – tailored to skilled and unskilled care staff

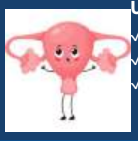
Minimal Care in Urinary Incontinence
- Assessment and observation
- Conservative management
- Skin care and continence aids



Catheter Care
- Indications and handling
- Aseptic technique
- Complication prevention
- Everyday routines



Management of Pelvic Organ Prolapse
- Recognition and assessment
- Conservative options
- Support and referral
- Practical guidelines



DIFFERENTIATED EDUCATION
Skilled care staff
✓ In-depth content
✓ Clinical reasoning
✓ Complex cases
Unskilled care staff
✓ Practical focus
✓ Step-by-step guidance
✓ Everyday management

PRE-INTERVENTION
Questionnaires

Quantitative evaluation (Self-reported)
✓ Knowledge
✓ Confidence
✓ Competence
✓ Relevance

INTERVENTION
Three educational modules

Qualitative evaluation
✓ Experiences
✓ Feasibility
✓ Implementation factors

POST-INTERVENTION
Questionnaires

EXPECTED CONTRIBUTIONS
✓ Knowledge on feasibility and perceived value of competency development in nursing homes
✓ A model for cross-sectoral outreach initiatives
✓ Translation of specialist hospital knowledge into everyday practice
✓ Supporting care delivery closer to citizens in accordance with the Danish healthcare reform

Stronger Sector for brighter tomorrows

From specialist knowledge to local competence – supporting high-quality care closer to where older citizens live.

NORTH DENMARK REGIONAL HOSPITAL

Hjørring Kommune

22.

Vaginal birth after cesarean section – does specialized birth planning consultations make a difference? A retrospective cohort study

Julie Paulsen[1*], Victoria Lindblad[1,2], Lars Burmester[1]

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2. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark

**Participant in the Introduction Course to Clinical Research and Development, North Denmark Regional Hospital, 2026*

Background

Over the past 30 years, Danish cesarean section (CS) rates have increased from 12.9 to 20.3%. CS increases the risk of maternal and neonatal complications. Global estimates from WHO indicate that 10-15% of CS are made without medical indication but on maternal request. In 2018, North Denmark Regional Hospital established a specialized obstetrician–midwife consultation service for women with a maternal CS-request, many of whom had previous CS. The goal was to help these women feel safe in vaginal delivery. Preliminary data indicates that the success-rate of Trial of Labor after Cesarean (TOLAC) is substantially lower among women referred to this service compared with national data, resulting in an elevated risk of emergency CS. This study aims to investigate whether maternal, obstetric or intrapartum characteristics explain the lower success-rate of TOLAC observed among these women.

Methods

This retrospective cohort study includes all women that attempted TOLAC at North Denmark Regional Hospital from 2020-2024. Data will be obtained from medical records and collected in REDCap. The primary outcome is birth method (vaginal delivery or emergency CS). CS-rates will be compared between women who attended the specialized consultation service and those who did not. Maternal age, BMI and other obstetric characteristics will be examined for their associations with successful and unsuccessful TOLAC.

Perspectives

The study may improve the understanding of factors associated with failed TOLAC among women referred for specialized birth planning consultations. The findings could support risk stratification and improve informed decision-making regarding planned mode of delivery after previous CS.

Vaginal birth after cesarean section

Does specialized birth planning consultations make a difference? A retrospective cohort study

Julie Paulsen[1] • Victoria Lindblad[1,2] • Lars Burmester[1]

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Background

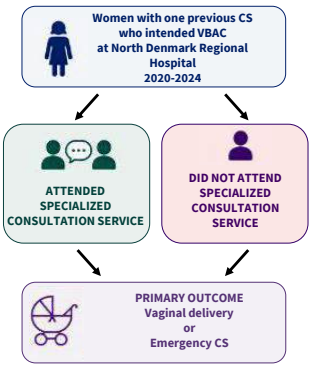
- A cesarean section (CS) often makes the difference between life and death. However, CS increases the risk of maternal and neonatal complications and should only be performed when necessary. A strategy to reduce the CS-rates is to only perform CS on medical indication (and not on maternal request alone).
- In 2018, North Denmark Regional Hospital established a specialized obstetrician–midwife consultation service for women with a maternal CS-request. The goal was to help these women feel safe in vaginal delivery. Preliminary data indicate that women with a previous CS who were referred to this service and intended on vaginal delivery, had a substantially elevated risk of emergency CS compared with national data.
- This study aims to investigate whether maternal, obstetric or intrapartum characteristics explain the lower success-rate of TOLAC (Trial of Labor after Cesarean) observed among these women.

Danish CS-rates have increased from 12.9% in 1997 to 20.3% in 2024. WHO estimates that 10-15% of all CS performed globally are without medical indication.



Methods

- This is a retrospective cohort register study.
- Primary outcome will be compared with national data of TOLAC success-rates.
- Potential risk factors including maternal age, BMI and other obstetric characteristics will be examined as confounders and predictors of successful TOLAC.



Perspectives

The study may improve the understanding of factors associated with failed TOLAC among women referred to specialized birth planning consultations. The findings could potentially lead to a decision-making tool that could support the obstetricians and midwifes in the specialized consultations team.



REGIONSHOSPITAL NORDJYLLAND

23.

Characterising genital lesions in women with female genital schistosomiasis with association to clinical outcomes. Does lesion size matter?

Karoline Jøker[1,2,3*], Sigve Holmen[4], Hashini Galappaththi-Arachchige[4], Arnauld Kadingi Kabulu[5], Solrun Søfteland[4,6], Kelly Moonsamy[5], Myra Taylor[7], Elisabeth Kleppa[4], Svein Gunnar Gundersen[8], Louise Thomsen Schmidt Arenholt[1,3], Peter Derek Christian Leutscher[1,3], Hannah Motshedisi Sebitloane[9], Eyrun Kjetland[4,5,6]

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**Participant in the Introduction Course to Clinical Research and Development, North Denmark Regional Hospital, 2026*

Background

Female genital schistosomiasis (FGS) is a neglected tropical disease caused by an infection with the parasite S*chistosoma haematobium*. An estimated 82 million women and girls are affected by FGS in Africa and face symptoms such as abnormal discharge, pain, bleeding, as well as infertility and an increased risk of HIV. This gynaecological disease may be characterized by cervical and vaginal FGS lesions. However, women's symptoms and susceptibility to other diseases have never been explored as a consequence of the FGS lesions' finer details such as size, type, location and visual signs of inflammation. This study aims to address this gap, particularly, how lesion size relates to symptom burden and susceptibility to secondary infection.

Methods

This study will use previously collected cross-sectional data from a large study investigating FGS in school-going adolescents and young women in KwaZulu-Natal, South Africa. Archived cervical images will be reanalysed to measure of lesion size and subtype-specific features as indicators of severity. The size of the FGS-associated lesions will be assessed in relation to self-reported urogenital symptoms and to the presence of secondary infections (STIs, bacterial vaginosis, and HIV).

Perspectives

By detailing the size and characteristics of the FGS-associated lesions against symptom burden and infection susceptibility, the study will seek to determine the clinical implications of the FGS lesions' and potentially facilitate improvement in the therapeutic recommendations.

DOES LESION SIZE MATTER?

CHARACTERIZING GENITAL LESIONS IN WOMEN WITH FEMALE GENITAL SCHISTOSOMIASIS WITH ASSOCIATION TO CLINICAL OUTCOMES

Karoline Jøker[1,2,3], Sigve Holmen[4], Hashini Galappaththi-Arachchige[4], Arnauld Kadingi Kabulu[5], Solrun Søfteland[4,6], Kelly Moonsamy[5], Myra Taylor[7], Elisabeth Kleppa[4], Svein Gunnar Gundersen[8], Louise Thomsen Schmidt Arenholt[1,3], Peter Derek Christian Leutscher[1,3], Hannah Motshedisi Sebitloane[9], Eyrun Kjetland[4,5,6]

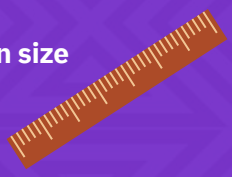
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Background

Female genital schistosomiasis (FGS) is a neglected tropical disease caused by an infection with the parasite *Schistosoma haematobium*. An estimated 82 million women and girls are affected by FGS in Africa and face symptoms such as abnormal discharge, pain, bleeding, as well as infertility and an increased risk of HIV. This gynaecological disease may be characterized by cervical and vaginal FGS lesions. However, women's symptoms and susceptibility to other diseases have never been explored as a consequence of the FGS lesions' finer details such as size, type, location and visual signs of inflammation. This study aims to address this gap, particularly, how lesion size relates to symptom burden and susceptibility to secondary infection.



Lesion size



Clinical Outcomes Assessed

Symptom burden
Self reported

Secondary infections
STI, BV, HIV

Methods

This study will use previously collected cross-sectional data from a large study investigating FGS in school-going adolescents and young women in KwaZulu-Natal, South Africa. Archived cervical images will be reanalysed to measure of lesion size and subtype-specific features as indicators of severity. The size of the FGS-associated lesions will be assessed in relation to self-reported urogenital symptoms and to the presence of secondary infections (STIs, bacterial vaginosis, and HIV).

Perspectives

By detailing the size and characteristics of the FGS-associated lesions against symptom burden and infection susceptibility, the study will seek to determine the clinical implications of the FGS lesions' and potentially facilitate improvement in the therapeutic recommendations.

24.

Advancing women‘s health through medical education and digital learning

Louise Thomsen Schmidt Arenholt[1,2], Karoline Jøker[1,2,3], Amy Sturt[4,5], Jennifer Downs[6,7], Humphrey Mazigo[8], Amina Jumanne Yussuph[9], Amaya Bustinduy[10], Bellington Vwalika[11], Mundia Muya[11], Bodo Sahondra Randrianasolo[12], Rivo Solotiana Rakotomalala[13], Peter Derek Christian Leutscher[1,2]

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11. University of Zamia School of Medicine, Lusaka, Zambia
12. Association K’OLO VANONA, Antananarivo, Madagascar
13. CHU PZaGa Androva Mahajanga Madagascar, Mahajanga, Madagascar

Background

Female genital schistosomiasis (FGS) is a neglected parasitic disease caused by S*chistosoma haematobium* and acquired through contact with infested freshwater. The disease affects an estimated 82 million women and girls in sub-Saharan Africa and may cause chronic pelvic pain, abnormal vaginal bleeding, genital lesions, infertility, and increased susceptibility to HIV infection. Despite its substantial impact on women’s health, FGS remains inadequately addressed in medical education, resulting in limited awareness and diagnostic capacity among healthcare professionals. Strengthening health professions education is therefore essential to improve prevention, diagnosis, treatment, and advocacy for affected women

Methods

This project aims to establish an equitable partnership between Aalborg University (Denmark), the University of Mahajanga (Madagascar), the Catholic University of Health and Allied Sciences (Tanzania), and the University of Zambia (Zambia). Supported by a joint partnership development initiative under the Knowledge and Innovation Programme (KIP), Danida, the partners will conduct stakeholder engagement, national workshops, and student needs assessments to identify educational gaps related to FGS and women’s health. The collaboration will support co-development of curriculum initiatives, digital learning resources, student-led awareness activities, and an international summer school. Medical students and faculty members from all partner institutions will participate in the co-creation process.

Perspectives

The partnership will provide the foundation for a sustainable capacity-strengthening program focused on women’s health, neglected tropical diseases, and digital learning. By creating transferable educational models and fostering student engagement across countries, the initiative aims to improve competencies related to FGS and strengthen health professions education in sub-Saharan Africa.

ADVANCING WOMEN'S HEALTH THROUGH MEDICAL EDUCATION AND DIGITAL LEARNING

Louise Arenholt[1,2], Karoline Jøker[1,2,3], Amy Sturt[4,5], Jennifer Downs[6,7], Humphrey Mazigo[8], Amina Jumanne Yussuph[9], Amaya Bustinduy[10], Bellington Vwalika[11], Mundia Muya[11], Bodo Sahondra Randrianasolo[12], Rivo Solotiana Rakotomalala[13], Peter Leutscher[1,2]

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AALBORG UNIVERSITY

NORTH DENMARK REGIONAL HOSPITAL

CKF | CENTRE FOR CLINICAL RESEARCH North Denmark Regional Hospital

Background

Female genital schistosomiasis (FGS), caused by the parasite *Schistosoma haematobium*, affects an estimated 82 million women and girls in sub-Saharan Africa. The disease may cause genital lesions, chronic pelvic pain, abnormal bleeding, infertility, and increased susceptibility to HIV infection. However, with timely diagnosis and treatment, many of these complications can be prevented, reducing the long-term impact on women's health and quality of life.

Despite its significant burden, FGS remains inadequately addressed in medical education, resulting in limited awareness and diagnostic capacity among healthcare professionals. Strengthening medical education is therefore essential to improve prevention, early diagnosis, treatment, and advocacy for affected women.

Methods

An equitable partnership has been established between:

- Aalborg University, Denmark
- University of Mahajanga, Madagascar
- Catholic University of Health and Allied Sciences, Tanzania
- University of Zambia, Zambia

Supported by Danida's Knowledge and Innovation Programme, the partners will:

- Identify educational gaps through stakeholder engagement and student needs assessments
- Co-develop curriculum initiatives and digital learning resources
- Promote student-led awareness activities
- Establish an international summer school on FGS and women's health

Perspectives

This partnership will lay the foundation for a sustainable capacity-strengthening programme in women's health, neglected tropical diseases, and digital learning. Through collaborative curriculum development, digital educational resources, and student engagement, the initiative aims to strengthen competencies in FGS prevention, diagnosis, and management, while enhancing health professions education across sub-Saharan Africa. The resulting educational models and resources will be designed for adaptation and scale-up across countries and institutions, supporting sustainable regional impact.

MINISTRY OF FOREIGN AFFAIRS OF DENMARK Danida

DANIDA FELLOWSHIP CENTRE





25.

More extensive use of balloon catheters and early amniotomy – another approach to induction of labor

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**Participant in the Introduction Course to Clinical Research and Development, North Denmark Regional Hospital, 2026*

Background

Induction of labor is one of the most frequently performed obstetric procedures and may be indicated when the risks of continuing pregnancy outweigh those associated with induction and delivery. Oral prostaglandins are widely used for cervical ripening but may be associated with uterine tachysystole and prolonged induction processes. Previous studies suggest that balloon catheters and early amniotomy may shorten time to delivery without compromising maternal or neonatal safety. This study aims to evaluate outcomes following implementation of a revised induction approach with increased use of balloon catheters and early amniotomy.

Methods

This quality improvement study was designed as a retrospective before-and-after study conducted at the Department of Obstetrics and Gynecology, North Regional Hospital, Hjoerring, Denmark. Outcomes from induced labors managed according to the existing induction protocol during 2023–2025 were compared with outcomes following implementation of a revised induction protocol over a six-month period beginning in January 2027. The revised protocol involved increased use of balloon catheters and earlier amniotomy rather than primary use of oral prostaglandins. Data were collected retrospectively from medical records. Primary outcomes included caesarean section rate and induction-to-delivery interval. Secondary outcomes included postpartum hemorrhage and neonatal Apgar score. Statistical comparisons were performed using appropriate parametric and non-parametric tests.

Perspectives

This study may contribute evidence on whether a modified induction approach can improve labor efficiency while maintaining maternal and neonatal safety. Findings may support future optimization of induction practices in obstetric care.

Another labor induction approach

Sara Clemmensen[1] · Ulla B Christiansen[1]
[1]Department of Obstetrics and Gynecology, North Regional Hospital, Hjoerring, Denmark

Background

Induction of labor is one of the most frequently performed obstetric procedures. Oral prostaglandins are widely used for cervical ripening but may be associated with uterine tachysystole and prolonged induction processes. Previous studies suggest that balloon catheters and early amniotomy may shorten time to delivery without compromising maternal or neonatal safety.

Methods

This study aims to evaluate outcomes following implementation of a revised induction approach with increased use of balloon catheters and early amniotomy rather than use of oral prostaglandins. Outcomes were compared between the two protocols.
Primary outcomes included caesarean section rate and induction-to-delivery interval. Secondary outcomes included postpartum hemorrhage and neonatal Apgar score.

Perspectives

This study may contribute evidence on whether a modified induction approach can improve labor efficiency while maintaining maternal and neonatal safety. Findings may support future optimization of induction practices in obstetric care.



NORTH DENMARK REGIONAL HOSPITAL

26.

Histological findings in fallopian tubes removed during elective sterilization: evaluating the necessity of routine microscopic examination

Sólrun Heradóttir[1*], Peter Derek Christian Leutscher[2,3], Susanne Maria Vesterkær[1]

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2. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
3. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark

**Participant in the Introduction Course to Clinical Research and Development, North Denmark Regional Hospital, 2026*

Background

The clinical paradigm for female sterilization has shifted from tubal interruption towards total bilateral salpingectomy to provide prophylactic protection against high-grade serous ovarian carcinoma, which is believed to originate from the fimbriated end of the fallopian tube. This study aims to characterize the histological findings in fallopian tubes, removed during elective sterilization and to evaluate the necessity of routine microscopic examination of these specimens.

Methods

This retrospective, descriptive study was conducted at the Department of Pathology, North Denmark Regional Hospital. This study analyzed surgical specimens from women, who underwent elective sterilization between January 1, 2023, and June 30, 2026. The final analytical cohort consisted of 620 women with a median age of 35 years, who had undergone total salpingectomy. Histological findings were categorized as normal, pre-malignant, malignant, and other changes.

Results

Of the 620 specimens analyzed, neither pre-malignant nor malignant changes were identified. A total of 24 specimens exhibited “other changes”, amongst others: endometriosis (*n*=4), salpingitis isthmica nodosa (*n*=3), and inflammation (*n*=3). Most specimens (*n*=597) showed normal histological tissue.

Conclusions

The incidence of histological abnormalities, particularly malignancy, is remarkably low in the population of women undergoing elective sterilization. While total salpingectomy remains a vital prophylactic tool against malignancies in predisposed women, our findings suggest that routine microscopic examination of every specimen, regarding elective sterilization, may generate unnecessary workload for the pathologists.

Histological findings in fallopian tubes removed during elective sterilization

- Evaluating the necessity of routine microscopic examination

Sólrun Heradóttir[1] • Peter Derek Christian Leutscher[2,3] • Susanne Maria Vesterkær[1]

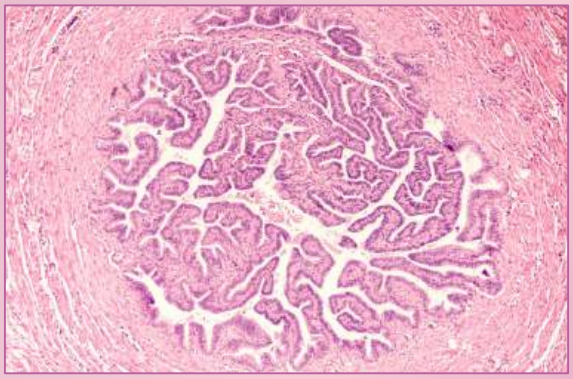
[1]Department of Pathology, North Denmark Regional Hospital, Hjoerring, Danmark
[2]Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Danmark
[3]Department of Clinical Medicine, Aalborg University, Aalborg, Denmark

BACKGROUND

The clinical paradigm for female sterilization has shifted from tubal interruption towards total bilateral salpingectomy to provide prophylactic protection against high-grade serous ovarian carcinoma, which is believed to originate from the fimbriated end of the fallopian tube. The fallopian tube is, when removed, sent to histological examination, to exclude malignancy. Thus, this study aims to characterize the histological findings in fallopian tubes, removed during elective sterilization and to evaluate the necessity of routine microscopic examination of these specimens.

METHODS

This retrospective, descriptive study was conducted at the Department of Pathology, North Denmark Regional Hospital. This study analyzed surgical specimens from women, who underwent elective sterilization between January 1, 2023, and June 30, 2026. The final analytical cohort consisted of 620 women with a median age of 35 years (IQR 31-39), who had undergone total salpingectomy. Histological findings were categorized as normal, pre-malignant, malignant, and other changes.





RESULS

In specimen from 620 women, neither pre-malignant nor malignant changes were identified. Specimen from 23 women exhibited ”other changes”, amongst others: benign adenoma (*n*=1), Endometriosis (*n*=4) and Endosalpingiosis (*n*=1). Most specimen (*n*=597) showed normal histological tissue.

CONCLUSION

The incidence of histological abnormalities, particularly malignancy, is remarkably low in the population of women undergoing elective sterilization. While total salpingectomy may provide a prophylactic effect against high-grade serous ovarian carcinoma, our findings suggest that routine microscopic examination of every single specimen, regarding elective sterilization, may generate unnecessary workload for pathologists.

REGIONSHOSPITAL NORDJYLLAND

27.

Drømmen der aldrig blev født - en ny start: et differentieret støttetilbud til kvinder og deres partnere ved ufrivillig abort

Tina Heilesen[1], Hanne Væver[1], Mettine Thorsmark Madsen[2], Anders Bobo Larsen[2], Sofie Ladekarl Bøtker[2,3], Mona Kyndi Pedersen[2,3]

1. Afdeling for Kvindesygdomme, Graviditet og Fødsel, Regionshospital Nordjylland, Hjørring, Danmark
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Baggrund

Ca. 20% af alle kendte graviditeter går til grunde og i afdelingens optageområde oplever omkring 260 kvinder årligt ufrivillig abort. Tabet medfører ofte sorg, depression og selvbebrejdelse. Kvinder med ufrivillig abort har traditionelt ikke haft adgang til struktureret støtte som ved provokeret abort. Formålet med projektet var derfor at udvikle og afprøve et differentieret støttetilbud, der dækker de fysiske, emotionelle og relationelle behov hos kvinder og deres partnere efter ufrivillig abort.

Metoder

Projektet blev gennemført i faser, omfattede dataindsamling via spørgeskemaer (n=32) og workshops (n=8) for at definere behovet. Herefter blev en differentieret 3-trins model udviklet og afprøvet som integreret del af patientforløbet i ambulatoriet over seks måneder (november 2024 – maj 2025), hvor en specialiseret sygeplejerske sikrede en helhedsorienteret indsats, der forenede klinisk ekspertise med støtte i sorgprocessen.

Resultater

Resultaterne viste et udbredt behov for støtte, centreret omkring individuelle eller parbaserede indsatser. Der var desuden positive indikationer på, at tilbuddet understøttede familiens generelle trivsel med potentiale for at reducere sygefravær. Den differentierede model muliggjorde en målrettet indsats, så sårbare familier kunne modtage mere omfattende støtte, mens mindre belastede kunne nøjes med en kortere opfølgning. Tilbuddet fungerede desuden som screening, der sikrede rettidig identifikation og viderehenvisning til supplerende professionel hjælp.

Konklusioner

Projektet har kvalificeret den patientnære indsats og skabt et fundament for et struktureret støttetilbud, som anbefales permanent forankret i patientforløbet. Fremadrettet, bør tilbuddet videreudvikles med fokus på de individuelle og parbaserede indsatser samt fleksible løsninger, der kan understøtte indsatsen på tværs af sektorer i tråd med den nationale sundhedsreform.

Drømmen der aldrig blev født – En ny start

Et differentieret støttetilbud til kvinder og deres partnere ved ufrivillig abort

Tina Heilesen[1], Hanne Væver[1], Mettine Thorsmark Madsen[2], Anders Bobo Larsen[2], Sofie Ladekarl Bøtker[2,3], Mona Kyndi Pedersen[2,3]

1. Afdeling for Kvindesygdomme, Graviditet og Fødsel, Regionshospital Nordjylland, Danmark
2. Center for Klinisk Forskning, Regionshospital Nordjylland, Danmark
3. Klinisk institut, Aalborg Universitet, Danmark



Baggrund

Hvert år oplever ca. 20.000 kvinder i Danmark en ufrivillig abort – heraf omkring **260 kvinder** i vores optageområde.

Oplevelsen af **tabet** kan udløse svære følelser som **meningsløshed, tristhed og selvbebrejdelse**, hvilket kan føre til **sorg og depression**. Historisk set har denne gruppe ikke haft adgang til den samme **strukturerede støtte**, som tilbydes ved provokeret abort.

Formålet med dette projekt har været at udvikle, afprøve og evaluere et **støttetilbud**, der kan rumme de emotionelle, relationelle og behandlingsmæssige aspekter hos både **kvinder og deres partnere efter ufrivillig abort**.



sorg
meningsløshed
selvbebrejdelse
chok
skyld
skam
angst
ensomhed
tomhed
savn
tristhed



lydhørhed
blive set
tryghed
information
omsorg
støtte
empati
Fundamentals of Care



Skriftlig kontakt med informationsvideoer



Telefonisk kontakt

Individuel samtale

Resultater

Projektet bekræfter et reelt og udbredt behov for støtte på tværs af demografier.

- **Høj værdi:** 94 % finder opfølgning givende, 100 % ser værdi i de individuelle samtaler. Skaber ro og tryghed.
- **Målrettet indsats:** 3-trins modellen optimerer ressourcerne ved at intensivere støtten til de mest sårbare, mens der sikres passende opfølgning til de øvrige.
- **Opsporingsværktøj:** Sikrer rettidig henvisning til yderligere professionel hjælp.
- **Format:** Behovet er individuelt/parbaseret – ikke gruppebaseret.
- **Trivsel:** Indikationer på øget familietrivsel og reduceret sygefravær (kræver monitorering).

Metode

Projektet omfattede dataindsamling via **spørgeskemaer** (n = 32) og **workshops** (n = 8) Herefter blev en differentieret 3-trins model **afprøvet** som en integreret del af ambulatoriets patientforløb over **seks måneder** (nov. 2024 – maj 2025).

En specialiseret sygeplejerske sikrede en **helhedsorienteret indsats**, der forenede klinisk ekspertise med støtte i sorgprocessen.



Konklusion

Projektet har **kvalificeret den patientnære indsats** og lagt **fundamentet** for et struktureret støttetilbud, der anbefales permanent forankret i patientforløbet.
Modellen er anvendelig og **skalerbar** med potentiale for national udbredelse.

Fremadrettet bør tilbuddet **videreudvikles** med fokus på individuelle og parbaserede indsatser samt **fleksible løsninger**, der understøtter indsatsen på tværs af sektorer i tråd med den nationale **sundhedsreform**.

Anbefalinger

- **Permanent forankring:** Integrer tilbuddet som en systematisk del af patientforløbet for at sikre støtte til alle berørte kvinder og partnere.
- **Fasthold differentiering:** Bevar den trinopdelte model, så ressourcerne intensiveres til de mest sårbare, mens øvrige tilbydes passende opfølgning.
- **Individuelt fokus:** Prioritér individuelle og parbaserede indsatser samt fleksible, tværsektorielle løsninger.
- **Kontinuerlig monitorering:** Etabler løbende evaluering for at dokumentere langsigtede effekter på mental sundhed, trivsel og sygefravær.

mental sundhed
livskvalitet
viden
mestring af sorg, hverdagen og ny graviditet

Eksempel på informationsvideo
"Psykiske reaktioner efter ufrivillig abort"

AALBORG UNIVERSITET
CKF CENTER FOR KLINISK FORSKNING Regionshospital Nordjylland
REGIONSHOSPITAL NORDJYLLAND

28.

The effect of maternal pregestational diabetes on fetal liver fat assessed by MRI

Victoria Lindblad[1,2,3*], Jennifer Lindberg[3,4], Lise H. Thomsen[3,4], Ása W. Olsen[5], Sidsel L. Rathcke[3,4], David A. Peters[6], Jens B. Frøkjær[3,7], Paula Nagel[1], Anne N. W. Sørensen[1,2,3,8]

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6. Department of Procurement and Clinical Engineering, Central Denmark Region, Aarhus, Denmark
7. Department of Radiology, Aalborg University Hospital, Aalborg, Denmark
8. Department of Obstetrics and Gynecology, Randers Regional Hospital, Randers, Denmark

**Participant in the Introduction Course to Clinical Research and Development, North Denmark Regional Hospital, 2026*

Background

Maternal diabetes is associated with maternal metabolic dysfunction and increased maternal liver fat (MLF). However, the effect of maternal diabetes on fetal liver fat remains to be explored. This study aims to compare fetal liver fat (FLF) between pregnancies with and without pregestational diabetes using MRI-based proton density fat fraction (PDFF).

Methods

MRI scans were performed at gestational weeks (GW) 25-30 and 33-38. We included 51 pregnant women (control=26 and diabetes=25). Maternal and fetal liver fat fractions were estimated within a region of interest (ROI). The association between FLF and maternal diabetes status, MLF, maternal HbA1c, and triglycerides levels was investigated by multiple linear regression at each time point adjusted for maternal age and BMI.

Results

FLF was significantly increased in pregnancies with maternal diabetes at GW 25-30 (Difference: 0.44 percentage points, 95% CI: 0.026-0.859, p=0.038) and GW 33-38 (Difference: 0.87 percentage points, 95% CI: 0.191-1.542, p=0.013). Furthermore, maternal HbA1c was positively associated with FLF at both time points (GW 25-30: β=0.030, p=0.029, R^2=0.17) and (GW 33-38: β=0.061, p=0.015, R^2=0.13). FLF was not associated with MLF or the level of maternal triglycerides.

Conclusions

This small pilot study suggests that assessment of FLF is feasible using MRI. In pregestational diabetes pregnancies, FLF was consistently increased in late pregnancy. Furthermore, the results suggest that FLF may be influenced by maternal glycaemic control rather than maternal BMI, age, MLF, or triglycerides levels. Our findings need to be further explored in larger cohorts stratified by diabetes types.



The effect of Maternal Pregestational Diabetes on Fetal Liver Fat - assessed by MRI

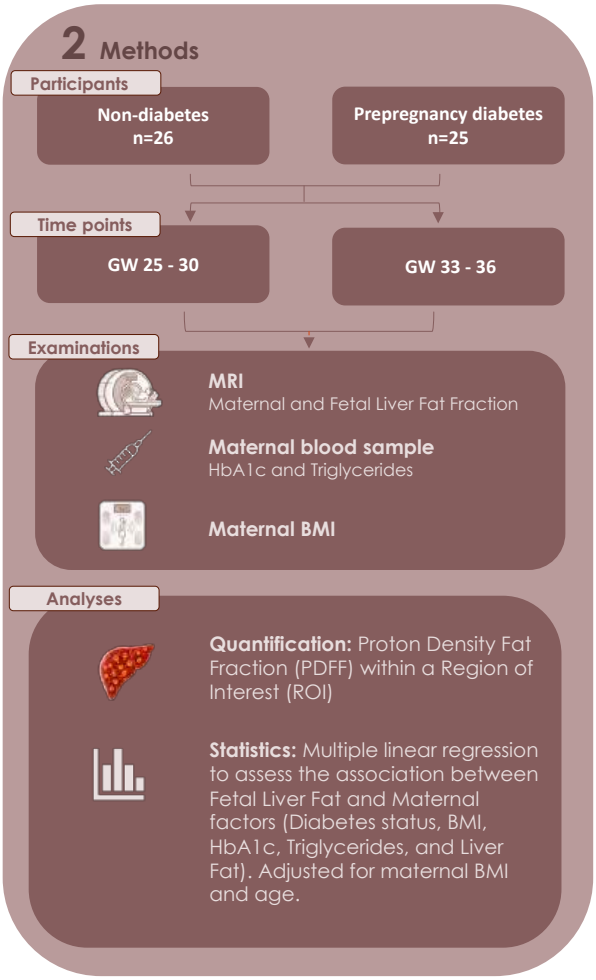
Victoria Lindblad[1,2,3], Jennifer Lindberg[3,4], Lise H Thomsen[3,4], Ása W Olsen[5], Sidsel L. Rathcke[3,4], David A. Peters[6], Jens B Frøkjær[3,7], Paula Nagel[1], and Anne N. W. Sørensen[1,2,3,8]

[1] Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark, [2] Department of Obstetrics and Gynecology, North Denmark Regional Hospital, Hjoerring, Denmark [3] Department of Clinical Medicine, Aalborg University, Aalborg, Denmark,[4] Department of Obstetrics and Gynaecology, Aalborg University Hospital, Aalborg, Denmark, [5] Department of Anaesthesiology and Intensive Care, North Denmark Regional Hospital, Hjoerring, Denmark,[6] Department of Procurement and Clinical Engineering, Central Denmark Region, Aarhus, Denmark [7] Department of Radiology, Aalborg University Hospital, Aalborg, Denmark, [8] Department of Obstetrics and Gynecology, Randers Regional Hospital, Randers, Denmark

1 Background

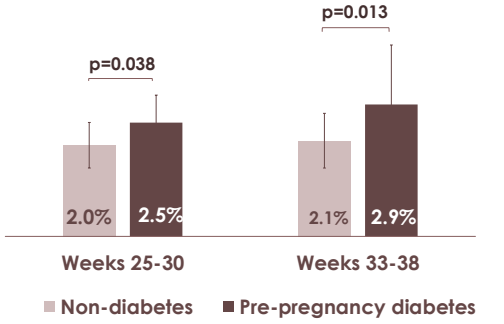
- Maternal diabetes is associated with maternal metabolic dysfunction and increased maternal liver fat (MLF).
- However, the effect of maternal diabetes on fetal liver fat remains to be explored.
- **This study aims to compare fetal liver fat (FLF) between pregnancies with and without pregestational diabetes using MRI.**

2 Methods

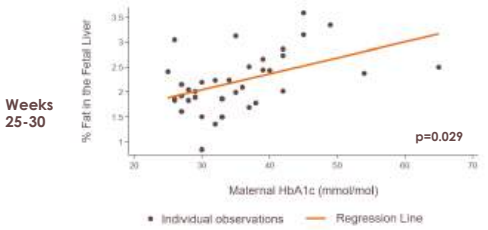


3 Results

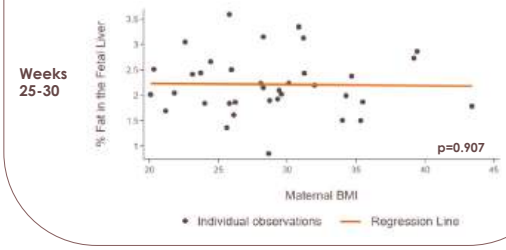
Fetal Liver Fat



Maternal HbA1c vs. Fetal Liver Fat



Maternal BMI vs. Fetal Liver Fat

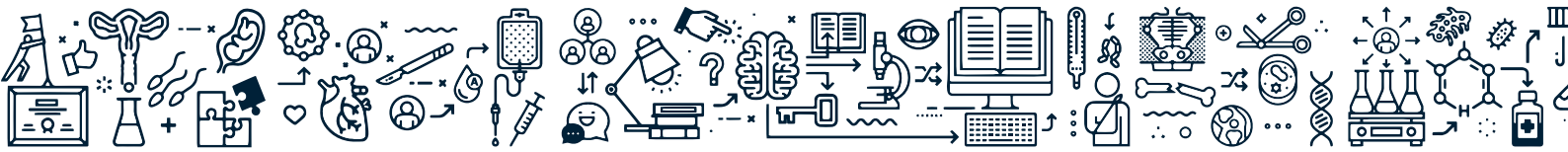


4 Key findings

- **Pregestational diabetes was associated with increased Fetal Liver Fat**
- **Maternal Glycaemic Control was positively associated with Fetal Liver Fat**
- **Maternal BMI and Triglycerides were not associated with Fetal Liver Fat**

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Intern Medicin



29.

Unge voksne med ADHD og diabetes type 1 - et litteraturreview

Behjat Baheri[1*], Peter Derek Christian Leutscher[1,2], Rebecca Bauer Tørring[1,3]

1. Center for Klinisk Forskning, Regionshospital Nordjylland, Hjørring, Danmark
2. Klinisk Institut, Aalborg Universitet, Aalborg, Danmark
3. Steno Diabetes Center Nordjylland, Aalborg Universitetshospital, Aalborg, Danmark

**Deltager i Kursus i Klinisk Forskning og Udvikling, Regionshospital Nordjylland, 2026*

Baggrund

Type 1-diabetes kræver daglig og præcis behandlingshåndtering. Når diagnosen kombineres med ADHD, øges kompleksiteten markant på grund af udfordringer med opmærksomhed, planlægning og selvregulering. Selvom sammenhængen mellem ADHD og type 1-diabetes er veldokumenteret, mangler der en samlet forståelse af de udfordringer, unge voksne med begge diagnoser møder i hverdagen. Dette litteraturreview har til formål at undersøge de udfordringer, som patienter i alderen 18-25 år med ADHD og type 1-diabetes oplever.

Metoder

Opgaven gennemføres som et litteraturreview baseret på en systematisk søgning i de medicinske databaser PubMed og CINAHL. Søgestrategien er struktureret ved hjælp af PICO-modellen for at definere relevante søgetermer, herunder ADHD, type 1-diabetes, glykæmisk kontrol og unge (*young adults*). Der inkluderes originale forskningsartikler publiceret inden for de seneste 10 år, som omhandler unge i alderen 18–25 år med både ADHD og type 1-diabetes. For at øge resultaternes overførbarhed til en dansk sundhedsfaglig kontekst inkluderes studier fra Danmark og sammenlignelige vesteuropæiske lande med tilsvarende sundhedssystemer og sociokulturelle forhold. Data vedrørende udfordringer i håndteringen af diabetes ekstraheres og analyseres ved hjælp af tematisk analyse.

Perspektiver

Dette litteraturreview kan bidrage til en dybere forståelse af de specifikke udfordringer blandt unge voksne med ADHD og type 1-diabetes. Resultaterne kan kvalificere sundhedsprofessionelles evne til at identificere særlige kliniske behov og potentielt understøtte udviklingen af mere målrettede og individuelt tilpassede indsatser i diabeteshåndtering.

Unge voksne med ADHD og diabetes type 1

- et literatur review

Behjat Baheri[1], Peter Derek Christian Leutscher1,2, Rebecca Bauer Tørring1,3
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2. Klinisk Institut, Aalborg Universitet, Aalborg, Danmark
3. Steno Diabetes Center Nordjylland, Aalborg, Danmark



ADHD + Diabetes



Baggrund

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REGIONSHOSPITAL NORDJYLLAND · AALBORG UNIVERSITET · STENO DIABETES CENTER NORDJYLLAND · CKF CENTER FOR KLINISK FORSKNING

30.

Familial hypercholesterolemia is associated with impaired global longitudinal strain: a case-control study

Cecilie Victoria Chevtchenko-Andersen[1], Frederik Marquardsen[1], Sanna á Borg[2], Michael Rene Skjelbo-Nielsen[3], Jan Jóanesarson[4], Peter Søgaard[1,5], Erik Berg Schmidt[1,6], Henrik Vadmann[1,5], Christian Bork[1,5,7,8], Albert Marni Joensen[7,8]

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Background

Familial hypercholesterolemia (FH) is a genetic disorder characterized by elevated plasma low-density lipoprotein-cholesterol (LDL-C) from birth resulting in an increased risk of premature atherosclerotic cardiovascular disease (ASCVD). Global longitudinal strain (GLS) is a marker of subclinical myocardial disease, which can be obtained using speckle-tracking echocardiography. We aimed to investigate whether GLS was associated with FH among subjects without a history of ASCVD compared to matched controls.

Methods

We utilised data from a Faroese study population including 107 cases of FH and 111 controls without a history of ASCVD. Potential FH cases aged 18 to 75 years were identified through a laboratory database and invited for diagnostic evaluation for FH. Controls were identified in the background population. GLS was obtained in all participants using speckle tracking echocardiography. Odds ratios (OR) were obtained using multivariable logistic regression analysis.

Results

In multivariable analyses, we found that patients with FH had higher odds of impaired GLS with an OR of 4.64 (95% CI:1.25; 17.16) than controls without FH. No difference in left ventricular ejection fraction was observed between the groups. A positive association was found between plasma LDL-C levels and GLS.

Conclusions

Patients with FH had a higher risk of impaired GLS than matched controls without FH. Furthermore, we found a positive correlation between untreated levels of plasma LDL-C and GLS among FH cases.

Familial Hypercholesterolemia Is Associated With Impaired Global Longitudinal Strain: A Case-Control Study

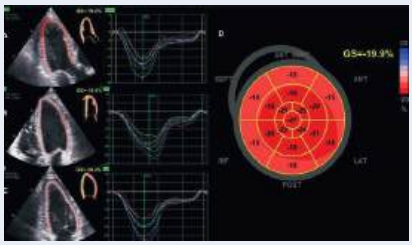
Cecilie Victoria Chevtchenko-Andersen , Frederik Marquardsen , Sanna á Borg, Michael Rene Skjelbo-Nielsen, Jan Jóanesarson, Peter Søgaard, Erik Berg Schmidt , Henrik Vadmann , Christian Bork , Albert Marni Joensen

BACKGROUND & AIM

Familial hypercholesterolemia (FH) is a genetic disorder causing elevated plasma LDL-cholesterol from birth, increasing the risk of premature atherosclerotic cardiovascular disease (ASCVD).



Global longitudinal strain (GLS), obtained using speckle-tracking echocardiography, is a marker of systolic function, and impaired GLS can be used as a marker of subclinical myocardial disease.



Aim: To investigate whether GLS is associated with FH among subjects without a history of ASCVD, compared with matched controls.

METHODS

Design: Case-control study

Cases: Identified through a Faroese laboratory database by LDL-C > 6,7 mmol/l

- Age 18–75 years
- Probable or definite FH according to DLCN criteria, or definite according to Simon Broome and/or MEDPED criteria
- Without history of ASCVD, persistent atrial fibrillation/flutter or secondary hyperlipidemia

Controls:

- Age- and sex matched
- LDL-C < 3,5 mmol/L
- DCLN ≤ 3
- Without lipid lowering treatment (LLT)

Measurements: Through transthoracic echocardiography, we obtained GLS in all participants using speckle-tracking imaging.

RESULTS

We recruited 107 FH cases and 111 controls and baseline characteristics are shown in Table 1.

We found statistically significant higher odds of impaired GLS among FH cases compared to controls (Table 2)

Table 1: Baseline Characteristics.

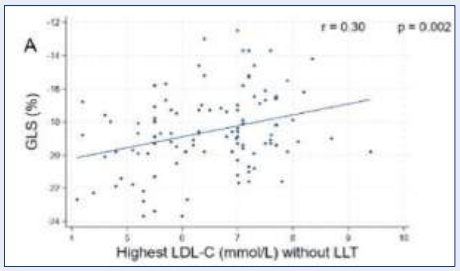
	Controls (n = 111)	FH (n = 107)	p-value
Age, years	55.0 (11.3)	56.6 (11.5)	0.301
Sex, n (%)			
Male	48 (43.2%)	45 (42.1%)	0.892
Female	63 (56.8%)	62 (57.9%)	
BMI, kg/m²	27.3 (4.7)	28.6 (4.6)	0.041
Smoking status, n (%)			
Never	55 (49.6%)	40 (37.4%)	0.156
Former	36 (32.4%)	39 (36.4%)	
Current	20 (18.0%)	28 (26.2%)	
Alcohol, n (%)			
≤7 units/week	104 (93.7%)	94 (87.9%)	0.162
>7 units/week	7 (6.3%)	13 (12.1%)	
Hypertension, n (%)			
Yes	49 (44.1%)	60 (56.1%)	0.104
Diabetes mellitus, n (%)			
Yes	2 (1.8%)	6 (5.6%)	
LDL-C, mmol/L	2.6 (0.5)	4.2 (1.4)	<0.001
Highest LDL-C without LLT, mmol/L	2.8 (0.5)	6.5 (1.1)	<0.001
LLT, n (%)			<0.001
Yes	0 (0.0%)	55 (48.6%)	
GLS (%)	-19.2 (1.9)	-18.6 (2.4)	0.034
Clinical GLS categories, n (%)			
Normal	77 (69.4%)	66 (61.7%)	
Borderline	31 (27.9%)	26 (24.3%)	0.010
Impaired	3 (2.7%)	15 (14.0%)	

Abbreviations: FH = familial hypercholesterolemia; BMI = body mass index; LDL-C = low-density lipoprotein cholesterol; LLT = lipid-lowering treatment; GLS = global longitudinal strain

Table 2: Association between GLS and FH

Clinical GLS categories (%)	FH, n	Control, n	Age- and sex adjusted OR (95% CI)	p-value	Multivariable adjusted OR [a] (95% CI)	p-value
Normal (below -18)	66	77	1		1	
Borderline (-16 to -18)	26	31	1.00 (0.54; 1.85)	0.988	0.90 (0.46; 1.74)	0.747
Impaired (above -16)	15	3	5.98 (1.64; 21.81)	0.007	4.64 (1.25; 17.16)	0.021

Abbreviations: GLS = global longitudinal strain; FH = familial hypercholesterolemia; CI = confidence interval; OR = odds ratio,
[a]Age, sex, hypertension, BMI, diabetes, smoking status



A linear regression analysis between the highest plasma LDL-C level without LLT and GLS revealed a significant correlation

CONCLUSION

In this study, we found that:

- **Patients with FH had a higher risk of impaired GLS than matched controls without FH.**
- **We found a positive correlation between untreated plasma LDL-C levels and GLS among FH cases.**

Our results might suggest a more aggressive approach to treatment of hypercholesterolemia in patients with FH.

REGION NORDJYLLAND

31.

Long-term adherence following nurse-led gout treatment initiation: a 5-year cohort study

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Background

Gout management, particularly long-term urate-lowering therapy (ULT), is frequently suboptimal despite the availability of effective and affordable drugs. The rising prevalence of gout-related hospitalizations necessitates new approaches. This real-world cohort study evaluated the sustained effectiveness of an initial nurse-led care model employing a treat-to-target strategy for gout management over a 5-year period.

Methods

Patients with microscopy-confirmed gout were consecutively enrolled in the study. The nurse-led gout clinic implemented a structured treatment protocol comprising clinical consultations, patient education, telephone follow-ups, and laboratory monitoring. Following treatment initiation, patients underwent a structured transition to continued management within general practice. Follow-up data were extracted from comprehensive registry data. The primary outcome was the maintenance of recommended target serum urate (SU) levels (<0.36 mmol/L) at 5 years post-diagnosis. Secondary outcomes included treatment adherence and target SU achievement in specific subgroups. Results were compared to patients diagnosed in the same clinic who received usual care without nurse-led intervention.

Results

In the nurse-led group (n=95), 82% maintained target SU, and 92% continued ULT, with consistent subgroup results. In the usual care group (n=98), only 46% achieved target SU alongside lower allopurinol dosages. Nurse-led care involved 2 visits and 3 telephone contacts. Five-year mortality rates were 15% in nurse-led care compared to 38% in usual care.

Conclusions

These findings reflect real-world clinical practice and demonstrate that this model of initial gout management, with a structured and dedicated transition to primary care, is feasible and scalable. Thus, it warrants widespread adoption to ensure sustainable long-term clinical outcomes.

Long-Term Adherence Following Nurse-Led Gout Treatment Initiation: A 5-Year Cohort Study

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REGIONSHOSPITAL NORDJYLLAND

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Background
Gout management, particularly long-term urate-lowering therapy (ULT), is frequently suboptimal despite the availability of effective and affordable drugs. The rising prevalence of gout-related hospitalizations necessitates new approaches. Sustained, treat-to-target urate-lowering therapy is crucial to prevent serious complications.

Aim
This real-world cohort study evaluated the sustained effectiveness of an initial nurse-led care model employing a treat-to-target strategy for gout management over a five-year period.

Methods
Patients with microscopy-confirmed gout were consecutively enrolled in the study. The nurse-led gout clinic implemented a structured treatment protocol comprising clinical consultations, patient education, telephone follow-ups, and laboratory monitoring. Following treatment initiation, patients underwent a structured transition to continued management within general practice. Follow-up data were extracted from comprehensive registry data. The primary outcome was the maintenance of recommended target serum urate (SU) levels (<0.36 mmol/L) at 5 years post-diagnosis. Secondary outcomes included treatment adherence and target SU achievement in specific subgroups. Results were compared to patients diagnosed in the same clinic who received usual care without nurse-led intervention.

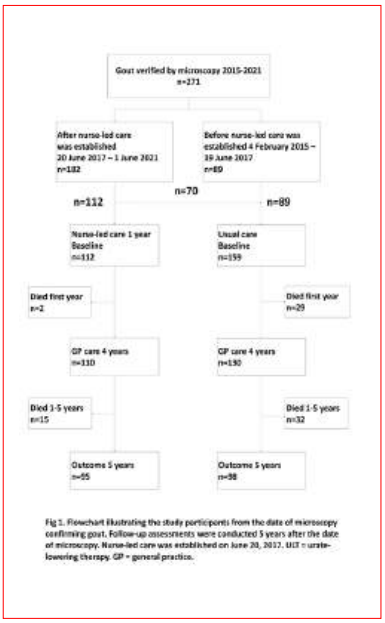
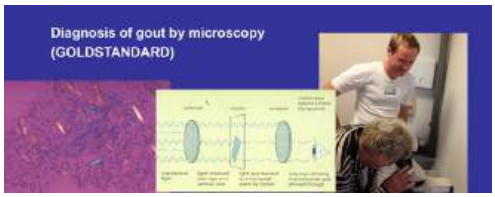


Fig 1. Flowchart illustrating the study participants from the date of microscopy confirming gout. Follow-up assessments were conducted 5 years after the date of microscopy. Nurse-led care was established on June 20, 2017. ULT = urate-lowering therapy. GP = general practice.





Structured transition to general practitioner



4 years management in general practice

Results
In the nurse-led group (n = 95), 82% maintained target SU and 92% continued ULT, with consistent results across subgroups. In the usual care group (n = 98), only 46% achieved target SU, alongside lower allopurinol dosages. Nurse-led care involved a median of 2 visits and 3 telephone contacts. Five-year mortality rates were 15% in the nurse-led group compared to 38% in the usual care group. In the multivariable logistic regression analysis, nurse-led care emerged as the strongest independent determinant of achieving target SU levels (OR = 5.59, 95% CI: 2.76–11.30, p < 0.001), and this association remained robust after adjustment for kidney disease and other covariates.

Conclusions
These findings reflect real-world clinical practice and demonstrate that this model of initial gout management, with a structured and dedicated transition to primary care, is feasible and scalable. Thus, it warrants widespread adoption to ensure sustainable long-term clinical outcomes.

32.

LAG-3 polymorphisms and shared epitope status in rheumatoid arthritis: impact on disease development and severity

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**Participant in the Introduction Course to Clinical Research and Development, North Denmark Regional Hospital, 2026*

Background

Rheumatoid arthritis (RA) is a chronic inflammatory joint disease in which genetic factors play a substantial role in disease susceptibility and progression. The shared epitope (SE), a conserved amino acid sequence motif in certain MHC class II alleles, is the most well-established genetic risk factor and is associated with more severe disease. Lymphocyte activation gene-3 (LAG-3) is a coinhibitory receptor that binds MHC-II with high affinity and dampens inflammatory responses by reducing proinflammatory cytokine production and limiting effector T cell proliferation. LAG-3 has been shown to affect RA inflammation, and evidence from other autoimmune diseases suggests its clinical significance is amplified in genetically predisposed individuals. The interaction between LAG-3 genetic variants and SE status may therefore be a critical determinant of RA susceptibility and disease severity, yet this relationship remains uninvestigated.

Methods

Samples originate from the DATURA Biobank, comprising blood from 110 Danish and 110 Turkish newly diagnosed, treatment-naïve RA patients and healthy controls. Single nucleotide polymorphism analysis will determine LAG-3 genetic variants. Validated multiplex assays will measure pro- and anti-inflammatory cytokines and soluble coinhibitory receptors. SE status, derived from previously performed HLA-DR allele typing, is available for all participants. Clinical and radiological data, including 10 years of longitudinal follow-up, are obtained from the DANBIO and TURKBIO registries.

Perspectives

Integrating genetic, protein-level, and clinical data will provide novel insights into RA pathogenesis and identify potential biomarkers for disease stratification. This knowledge may enable personalized treatment algorithms and has broader implications for autoimmune disease management and LAG-3-targeted therapeutic development.

Genetiske varianter i
LAG-3 ved leddegigt
- Betydning for sygdomsudvikling og sværhedsgrad

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[2]Klinisk Immunologisk Afdeling, Aalborg Universitetshospital, Danmark

BAGGRUND

Ca. 50.000 danskere har leddegigt (RA).

RA er en autoimmun sygdom, som hos nogle forløber alvorligt og destruerer leddene.

Vi har i dag ingen markører for, hvem der udvikler leddegigt eller i hvor svær grad.

LAG-3 er en af immunsystemets naturlige bremser. Mere LAG-3 eller øget LAG-3 aktivitet kan derfor potentielt dæmpe sygdomsaktiviteten ved RA.

Formålet er at undersøge om genetiske variationer i LAG-3 genet hænger sammen med udvikling af leddegigt og på sigt afklare om disse variationer spiller en rolle for sværhedsgrad af sygdommen og behandlingsrespons.



METODE

Case-kontrol undersøgelse

Deltagere: 110 nydiagnosticerede behandlingsnaive leddegigtpatienter (DATURA) og 200 alders- og kønsmatchede kontroller.

Genotyping: 7 Single Nucleotide Polymorphisms (SNPs) i LAG-3 blev genotypet på DNA fra blod.

Genotype- og allelfrekvens for hver SNP blev sammenlignet mellem patienter og kontroller.

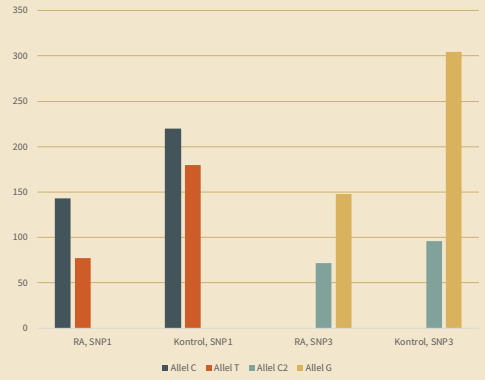
Fremadrettet skal LAG-3 varianterne sammenlignes med:
- Genetiske variationer i MHC-II genet (kendt RA risikofaktor)
- Niveau af LAG-3 protein og pro-inflammatoriske cytokiner i blodet
- Kliniske data fra DANBIO og røntgenforandringer ift. sværhedsgrad af sygdom samt behandlingsrespons på immundæmpende behandling

RESULTATER

2 ud af de 7 undersøgte SNPs i LAG-3 adskiller sig signifikant i allel-frekvens mellem patienter med leddegigt (n= 110) og raske kontroller (n = 200).

SNP1, rs870849: OR 1,5 (95% CI 1,1-2,1; p = 0,02)
SNP3, rs2365094: OR 1,5 (95% CI 1,1-2,2; p = 0,02)

MHC-II vævstyper (HLA-DRB1) foreligger på samme kohorte (DATURA) og afventer statistisk analyse.



KONKLUSION

Genetiske varianter i LAG-3 er forskellige mellem leddegigt patienter og raske kontroller.

Genetiske varianter i LAG-3 kan være forbundet med øget risiko for udvikling af leddegigt og understøtter en mulig rolle for LAG-3 i sygdommens patogenese.

PERSPEKTIV

Undersøgelse af LAG-3 varianternes relation til sygdomsaktivitet, røntgenforandringer og inflammatoriske cytokiner mhp. at afklare LAG-3's værdi som prognostisk markør og potentiel behandlingstarget.

CKF | CENTER FOR KLINISK FORSKNING Regionshospital Nordjylland
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33.

Prevalence of gout and the burden of associated risk factors among individuals with diabetes: a cross-sectional study from a Danish diabetes outpatient clinic

Jesper Walther Larsen[1,2], Marie-Louise Lund Søbye[1], Johan Røikjer[3,4], Niels Ejskjær[3,4], Peter Derek Christian Leutscher[1,4], Peter Rubak[5], Claus Rasmussen[2,4], Asta Linauskas[2,4]

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2. Department of Rheumatology, North Denmark Regional Hospital, Hjoerring, Denmark
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4. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark
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Background

Gout affects 2-3% of the general population, with studies reporting a prevalence of up to 22% among individuals with diabetes. Gout is frequently underdiagnosed and may directly contribute to complications such as diabetes-related foot ulceration and amputations. Despite this, gout is not included in current diabetes management guidelines, and its prevalence and the risk burden of associated risk factors in a diabetes outpatient setting remain poorly described.

Methods

This cross-sectional study included all individuals (N=1,830) receiving diabetes treatment at a Danish regional outpatient clinic between 27 November 2020 and 27 November 2025. Gout was defined by either ICD-10 diagnosis codes, or ATC codes for urate-lowering therapy. Among individuals without known gout, we assessed the prevalence of established risk factors, including hyperuricemia (serum urate ≥0.40 mmol/L), impaired renal function (eGFR <60 mL/min/1.73 m^2), age >60 years, male sex, diabetes type 2, and diuretic use.

Results

Gout was identified in 106 of 1,830 individuals (5.8%). Among the 1,724 individuals without known gout, 22% had a maximum recorded serum urate ≥0.40 mmol/L, 17% had eGFR <60 mL/min/1.73 m^2, 28% were using diuretics, 60% were male, 51% were >60 years old, and 45% had type 2 diabetes.

Conclusions

Although gout was identified in only 5.8% of individuals with diabetes, a substantial proportion of those without known gout exhibited established risk factors, notably hyperuricemia, impaired renal function, and diuretic use. This discrepancy suggests that gout may be underdiagnosed in this population, highlighting the need for greater clinical awareness of gout within diabetes management.

UNSOLVED

COLD CASE

Prevalence of Gout and the Burden of Associated Risk Factors Among Individuals with Diabetes

Jesper Walther Larsen[1,2], Marie-Louise Lund Søbye[1], Johan Røikjer[3,4], Niels Ejskjær[3,4], Peter Derek Christian Leutscher[1,4], Peter Rubak[5], Claus Rasmussen[2,4], Asta Linauskas[2,4]

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BACKGROUND

While gout significantly impacts individuals with diabetes, increasing risk of cardiovascular diseases, foot ulceration and amputation, it remains unaddressed in standard diabetes care. Diagnosis is complex, as hyperuricaemia alone does not diagnose gout. This necessitates a better understanding of the prevalence and risk profiles in this population.

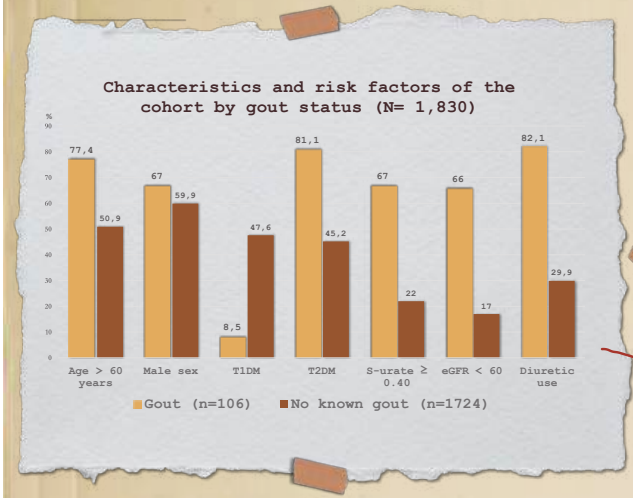
AIM

To describe the recorded prevalence of gout in a diabetes outpatient population, and the burden of established risk factors among those without the diagnosis.

METHOD

This cross-sectional study included 1,830 individuals receiving diabetes care at a Danish regional outpatient clinic (27 Nov 2020 – 27 Nov 2025). Gout was defined by ICD-10 diagnosis codes or a history of dispensed urate-lowering therapy (allopurinol or febuxostat). Among non-gout patients, six risk factors were assessed: serum urate ≥0.40 mmol/L (the saturation threshold for urate deposition), eGFR < 60 mL/min/1.73 m², diuretic use, male sex, age > 60 years, and type 2 diabetes.

RESULTS



Co-occurence of risk factors by urate status among individuals without known gout (n = 1514*)

	Urate ≥ 0.40 mmol/L n = 335	Urate < 0.40 mmol/L n = 1179
eGFR < 60	**51.3%**	8.2%
Diuretic use	**61.8%**	21.8%
Male sex	**73.4%**	56.2%
Age > 60 years	**73.4%**	45.0%
Type 2 diabetes	**72.8%**	36.0%

*The 1.514 of 1,724 individuals without known gout who had a valid urate measurement, stratified by urate level. Risk factors are not mutually exclusive.

n = 682 (40%) without gout with at least one risk factor for gout!

CONCLUSION

Gout was identified in 5.8% of the diabetes cohort. Notably, 40% of patients without a gout diagnosis exhibited one or more clinical markers. Among those exceeding the urate saturation threshold, 50% had reduced renal function and 61.8% used diuretics. While routine data cannot confirm a gout diagnosis, these findings suggest that targeted screening may be warranted in this high-risk subgroup.

CASE REOPENED



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34.

Gout as a risk factor for lower-extremity amputation in diabetes: a nationwide register-based case-control study

Johan Røikjer[1,2], Annika Vestergaard Kvist[1], Peter Derek Christian Leutscher[2,3], Niels Ejskjaer[1,2], Claus Rasmussen[2,3,4]

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Background

Non-healing diabetic foot ulcers (DFU) are a major precursor to lower-extremity amputation (LEA) in diabetes and gout may be an overlooked contributor. We hypothesized that individuals with both diabetes and gout have a higher risk of LEA than those with diabetes alone, with the strongest effect at more distal amputation levels.

Methods

In a nationwide case–control study of 601,541 individuals with type 2 diabetes, we identified 4912 cases with LEA and 39,101 age- and sex-matched controls. Gout exposure was determined using ICD-10 diagnoses and ATC codes for urate-lowering therapy. Associations were estimated using conditional logistic regression, adjusting for diabetes duration, peripheral arterial disease, acute myocardial infarction, and late diabetes complications.

Results

Gout was associated with an increased risk of LEA (OR=1.85, 95% CI: 1.69–2.02) in unadjusted analyses, and the association remained significant after full adjustment (OR=1.53, 95% CI: 1.37–1.69). A significant trend (p=0.03) was observed across amputation levels, with potentially higher risk at more anatomically distal sites although no statistically significant differences were observed between individual amputation levels: OR=1.37 (95% CI: 1.12–1.68) for above-knee amputations, increasing to OR=1.65 (95% CI: 1.32–2.05) for toe amputations.

Conclusions

Co-existing gout is an independent risk factor for LEA in individuals with type 2 diabetes. The risk is elevated across all amputation levels, with the most pronounced effect potentially being at distal anatomical sites. These findings highlight the need for increased awareness of gout when managing individuals with type 2 diabetes at risk of LEA.

GOUT AS AN independent RISK FACTOR FOR LOWER-EXTREMITY AMPUTATION IN DIABETES

53%

Johan Røikjer[1,2,3], Annika Vestergaard Kvist[1,3], Peter Leutscher[5,3], Niels Ejskjær[1,2,3], Claus Rasmussen[4,5]

[1]Steno Diabetes Center North Denmark, Aalborg University Hospital. [2]Department of Endocrinology, Aalborg University Hospital. [3]Department of Clinical Medicine, Aalborg University. [4]Department of Rheumatology, North Denmark Regional Hospital. [5]Centre for Clinical Research, North Denmark Regional Hospital

1 BACKGROUND AND AIM

Diabetic foot ulcers, driven by the interplay between external trauma, diabetic peripheral neuropathy, peripheral artery disease, and impaired wound healing, remain a major cause of morbidity and mortality in people with long-standing diabetes. **Importantly, diabetic foot ulcers are also the leading cause of lower-extremity amputations, with mortality rates in affected people far exceeding most types of cancer.**

Despite its potential relevance, gout is not addressed in international guidelines for diabetic foot disease, and its role in recurrent or non-healing diabetic foot ulcers, which are common precursors to lower-extremity amputations, remains poorly studied. Moreover, the relationship between concomitant diabetes and gout, and its impact on the risk of lower-extremity amputations remains largely unexplored.

Therefore, we aimed to investigate the impact of co-existing type 2 diabetes and gout on the risk of overall and site-specific lower-extremity amputations.



DANISH PEOPLE WITH TYPE 2 DIABETES (N=591,972)

LOWER-EXTREMITY AMPUTATIONS THROUGH SKS-PROCEDURE CODES FROM 2012 TO 2021 AND GOUT EXPOSURE (ATC AND ICD-10)

INCLUDED 4,912 AMPUTATION CASES MATCHED WITH 39,101 TYPE 2 DIABETIC CONTROLS

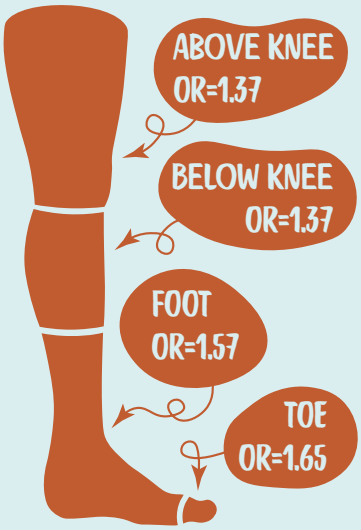
MATCHED BY AGE, SEX, DUATION OF DIABETES, AND DIABETES MEDICATION. ADJUSTED BY DIABETIC COMPLICATIONS (ICD-10/8) LIKE HEART DISEASE, NEUROPATHY, NEPHROPATHY ETC.

DOES CO-EXISTING GOUT INDEPENDENTLY INCREASE THE RISK OF LOWER-EXTREMITY AMPUTATION IN PEOPLE WITH TYPE 2 DIABETES?

2 METHOD AND DATA

The study utilized data from a nationwide cohort of all individuals living with diabetes in Denmark using 'Danmarks Statistik'. In this study, we primarily used the Danish National Patient Register (DNPR) and the Danish Medicines Agency's Register of Medicinal Products Statistics (RMPS). The DNPR was used to identify amputations and to extract data on risk factors using diagnostic codes. Individuals with potential undiagnosed gout were excluded (history of kidney stones, synovectomies, arthropathies). RMPS was used to identify presciption drug use.
Associations between gout and lower-extremity amputations were estimated using conditional logistic regression yielding odd ratios (ODs) with 95% CIs (crude, semi-adjusted and full adjustment models).

3 RESULT OF THE ANALYSIS



Gout was associated with an increased risk of lower-extremity amputations (OR=1.85, 95% CI: 1.69–2.02) in crude analyses, and the association remained significant after full adjustment (OR= 1.53, 95% CI: 1.37–1.69).
The risk is elevated across all amputation sites, with a trend toward the strongest effect at the most distal anatomical sites (p=0.03).

These findings suggest that co-existing gout may be an important, underrecognized, and modifiable factor associated with an increased risk of lower-extremity amputations in people with type 2 diabetes, warranting greater awareness in high-risk populations.

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35.

Oleic acid in adipose tissue is not associated with the risk of ischemic stroke: a Danish case-cohort study

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7. The Lipid Clinic, Medical Department, Oslo University, Oslo, Norway
8. Department of Public Health, Aarhus University, Aarhus, Denmark
9. Danish Cancer Institute, Danish Cancer Society, Denmark
10. Department of Cardiology, Aalborg University Hospital, Aalborg, Denmark

Background

Oleic acid derived from olive oil has been suggested as a major explanation for the beneficial effect of the Mediterranean diet in the prevention of cardiovascular disease. However, recent findings have raised concern that monounsaturated fatty acids may instead be associated with a higher overall risk of cardiovascular disease.

Methods

A case-cohort study was undertaken using data from the Danish Diet, Cancer and Health cohort (57,053 participants aged 50-65 years at enrolment between 1993-1997). The outcome was ischemic stroke, identified by record linkage with nationwide registries. The content of oleic acid in adipose tissue obtained from gluteal biopsies at baseline was analysed by gas chromatography in all cases of ischemic stroke and compared to a random sample of 4,616 participants from the cohort. Statistical analyses were conducted using weighted Cox proportional hazard regression adjusted for established risk factors.

Results

A total of 3,242 cases of ischemic stroke were identified during a median of 20.9 years of follow-up. In multivariable analyses, no association was observed between adipose content of oleic acid and the risk of ischemic stroke. Thus, when comparing the highest to the lowest quintile of oleic acid in adipose tissue, the hazard ratio of ischemic stroke was 1.06 (95% CI: 0.91, 1.24).

Conclusions

We observed no association between adipose tissue content of oleic acid and the risk of incident ischemic stroke. Our findings support the need for future investigations of individual monounsaturated fatty acids and their origin for their role in the prevention of cardiovascular disease.

Oleic Acid in Adipose Tissue Is Not Associated with the Risk of Ischemic Stroke: A Danish Case-Cohort Study

Jonas Pedersen [1,2,3,4], Berit S. Hedegaard [3], Kirsten B. Holven [5,6], Kjetil Retterstøl [6,7], Christina C. Dahm [8], Anja Olsen [8,9], Erik B. Schmidt [3,4], Christian Bork [1,2,4,10]

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Background:

- Oleic acid is the main dietary monounsaturated fatty acid. Monounsaturated fatty acids have been considered beneficial, but recent studies have suggested that they may be associated with a higher risk of cardiovascular disease

Aim:

- To investigate the association of the content of oleic acid in adipose tissue (long-term biomarker) and the risk of future ischemic stroke

Methods:

- Design: Case-Cohort study
- Study population: The Diet, Cancer, and Health cohort (54,305 subjects aged 50-65 years at enrolment between 1993-1997)
- Outcome: Incident ischemic stroke identified by record linkage with Danish nationwide registries
- Exposure: Baseline gluteal adipose tissue content of oleic acid in all cases and in a random sub-cohort of 4,616 subjects determined by gas chromatography
- Statistics: Weighted Cox proportional hazard regression adjusted for established risk factors

Results:

- Median follow-up: 20.9 years
- A total of 3,242 cases of ischemic stroke
- Risk factors were more prevalent in cases than in the sub-cohort (**Table 1**)
- No observed association between adipose content of oleic acid and risk of ischemic stroke in multivariate analyses (**Table 2**)

Table 1: Baseline characteristics

	Sub-cohort (n = 4,616)	Ischemic stroke (n = 3,242)
Age at enrolment, years*	56.2 (50.5 – 64.8)	58.1 (50.6 – 64.7)
Sex**		
Women	47.9 (2,211)	42.3 (1,370)
Men	52.1 (2,405)	57.7 (1,872)
Body mass index, km/m²*	25.7 (19.7 – 35.9)	26.2 (20.1 – 36.6)
Waist circumference, cm*	90.0 (67.0 – 115.5)	92.0 (69.0 – 118.0)
Education**		
<7 years	32.2 (1,488)	38.2 (1,238)
8 to 10 years	45.0 (2,077)	44.2 (1,434)
>10 years	22.8 (1,051)	17.6 (570)
Smoking status**		
Never	34.8 (1,606)	28.1 (911)
Former	29.0 (1,337)	27.5 (890)
Current	36.2 (1,673)	44.4 (1,441)
Physically inactive**	25.0 (1,155)	29.5 (955)
Alcohol intake, g/day*	13.7 (0.2 – 83.6)	14.1 (0.0 – 90.3)
Hypercholesterolemia**	7.8 (361)	9.7 (314)
Hypertension**	16.1 (744)	24.3 (788)
Diabetes mellitus**	2.0 (92)	3.4 (111)
Atrial Fibrillation**	41 (0.9)	44 (1.4)

*Continuous variables are presented as medians (2.5th – 97.5th percentile) **Categorical variable are presented as %(n)

Table 2: Risk of ischemic stroke by quintiles of oleic acid in gluteal adipose tissue

Oleic acid in percentage of total fatty acids (%)	Cases (n = 3,242)	Hazard ratio (95% CI)
Q1 (34.0 – 42.3)	640	1.00 (reference)
Q2 (42.3 – 43.4)	601	1.01 (0.86, 1.17)
Q3 (43.4 – 44.4)	657	1.06 (0.91, 1.23)
Q4 (44.4 – 45.5)	648	0.98 (0.84, 1.15)
Q5 (45.5 – 52.8)	696	1.06 (0.91, 1.24)

Multivariate analyses included: baseline age, length of schooling (≤7 years, 8-10 years, >10 years), body-mass-index, waist circumference, smoking (never, former, current (<15g/day, 15-25g/day, >25g/day)), physical activity (inactive, moderately inactive, moderately active, active), alcohol (g/day).

Conclusion

We found no association between the content of oleic acid in gluteal adipose tissue and risk of ischemic stroke

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36.

Klinisk anvendelighed af beregnet plasma-osmolaritet under indlæggelse hos voksne ældre – et pilotstudie

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Baggrund

Beregnet plasma-osmolaritet anbefales som et screeningsværktøj for hyperosmolær dehydrering. En nyere gennemgang fandt, at hyperosmolaritet kunne identificeres hos hver tredje til fjerde indlagte ældre. Hyperosmolaritet er forbundet med øget mortalitet, morbiditet og længere indlæggelsestid. Der er ingen kliniske forsøg omhandlende brug af osmolaritet, og kun få studier har undersøgt, om brugen vil føre til ændringer i behandlingen. Derudover er osmolaritetens anvendelighed under indlæggelsen ikke blevet undersøgt. Patienter med hyperosmolaritet uden intravaskulær væskemangel kan potentielt drage fordel af målrettet hydreringsbehandling.

Metoder

Vi gennemførte et prospektivt kohorte convenience sample-studie af patienter indlagt på geriatrisk afsnit, medicinsk afdeling, på Regionshospital Nordjylland i juni 2026. Patienten eller deres nærmeste pårørende gav informeret samtykke, og under indlæggelsen blev plasma-osmolaritet og hydreringsstatus løbende evalueret.

Resultater

Vi inkluderede 35 deltagere med en gennemsnitsalder på 80,9 ± 8,6 år, en gennemsnitlig Clinical Frailty Scale på 5,9 ± 2,2 og et gennemsnitligt antal faste ordinationer ved udskrivelse på 10,8 ± 4,1. Ved indlæggelsen havde 8 patienter en plasma-osmolaritet på ≥295 mmol/L. Under indlæggelsen var 17 ud af 55 målinger af plasma-osmolaritet ≥295 mmol/L. Hyperosmolaritet uden tegn på intravaskulær væskemangel forekom i 10 ud af 55 målinger svarende til 18 %. I 8 ud af 10 tilfælde blev der ordineret væske med lavt elektrolytindhold (5 % glukose) eller målrettet oral væsketerapi.

Konklusioner

Vores undersøgelse viste, at prævalensen af hyperosmolaritet uden intravaskulær væskemangel under indlæggelse var 18 %. Derfor kan tilstanden være hyppigt forekommende og flere studier om tilstanden kan være nødvendige.

Bare hæng en liter væske op?

KEY POINTS

Hyperosmolaritet kan være en vejledning til væskebehandling
Høj plasma-osmolaritet indikerer højere risiko for **mortalitet** uafhængig af plasma-natrium

BAGGRUND

- Plasma-osmolaritet værdier **>295 mmol/L** indikerer hyperosmolaritet.
- Høj plasma-osmolaritet er associeret med dårligere outcome under indlæggelse.
- Høj plasma-osmolaritet bør fysiologisk behandles med **hypoton væske** fx oral væske el. 5% glukose
- Den **kliniske anvendelighed** af beregnet plasma-osmolaritet er fortsat uafklaret.

$$\text{Osmolaritet [mmol/L]} = 1.86 \times ([Na^+] + [K^+]) + 1.15 \times [\text{glukose}] + [\text{karbamid}] + 14$$

Kan beregnet plasma-osmolaritet **vejlede til valg** af væskebehandling?

METHOD

- Prospektiv kohorte convenience sample-undersøgelse på indlagte på ældremedicinsk afsnit, medicinsk afdeling, Regionshospital Nordjylland i juni 2026.
- Plasma-osmolaritet, hydreringsstatus og nyrefunktion samt valg af væskebehandling blev indsamlet.
- Vi inkluderede 35 deltagere og indsamlede i alt 55 plasma-osmolaritet foruden baselineværdi.



RESULTS

Baselineværdi	
Alder [år]	80,9 (±8,6)
Dysfagi	22,8%
Medicinliste	10,8 (±4,1)
Clinical Frailty Scale	5,9 (±2,2)
Osmolaritet [mmol/L]	288,3 (±12,1)
Hyperosmolaritet	22,8%
eGFR [ml/min/1,73 m^2]	65,5 (±30,4)

Værdier som gennemsnit (±standard deviation) eller procent.

	Normotensiv og habituel eGFR	Mistanke om intravaskulære væskemangel
Osmolaritet ≤ 295 mmol/L	31	7
Osmolaritet > 295 mmol/L	**10 (18%)**	7

CONCLUSION

- Ved **18% af plasma-osmolariteter** blev der fundet hyperosmolaritet, hvor behandling med hypoton væske ville være relevant. Vores resultater tyder på, at osmolaritet kan bidrage til bedre væskebehandling hos ældre indlagte patienter.

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NORTH DENMARK REGIONAL HOSPITAL

37.

How does intensified home-hemodialysis affect skeletal health in patients with chronic kidney disease?

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**Participant in the Introduction Course to Clinical Research and Development, North Denmark Regional Hospital, 2026*

Background

Patients with chronic kidney disease (CKD) receiving dialysis have a high risk of bone fractures due to disturbances in mineral metabolism. This secondary hyperparathyroidism is driven by phosphate retention leading to hyperphosphatemia, as well as hypocalcemia due to lack of activation of Vitamin D in the kidneys. Intensified home-hemodialysis (HD) is more efficient in phosphate removal, often resulting in near-normal phosphate levels. The overall effect on bone metabolism is unclear. This study aims to investigate the impact of intensified home-HD on skeletal health.

Methods

This observational prospective cohort study includes adult patients receiving chronic intensified home-HD who are ≥45 years or ≥18 years with diabetes. Exclusion criteria include scheduled kidney transplantation, expected survival > 6 months, and inability to provide informed consent. Patients will be recruited from the Department of Nephrology at Aalborg University Hospital, Aalborg, Denmark. This study will investigate the effect of intensified home-HD on skeletal health by measuring biochemical bone turnover markers, mineral density using dual-energy x-ray absorptiometry (DXA), and microarchitecture using high-resolution peripheral quantitative computed tomography (HRpQCT) at baseline and after one year. Bone histomorphometry and TMV classification will be assessed by optional bone biopsy.

Perspectives

This study will provide an in-depth characterization of skeletal health in patients receiving intensified home-HD, in particular, how disturbances in mineral metabolism and bone turnover may translate to changes in bone quality and quantity. Results should contribute to a more individualized diagnostic and therapeutic approach in this population.

How does intensified home-hemodialysis affect skeletal health in patients with chronic kidney disease?

Maja Skadhauge Pinholt[1] • My Svensson[1,2] • Rie Lo Glerup[1,2] • Marie Houmaa Vrist[3,4] • Peter Vestergaard[5] • Subagini Nagarajah[6] • Ditte Hansen[7] • Hanne Skou Jørgensen[1,2,4,8]

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BACKGROUND

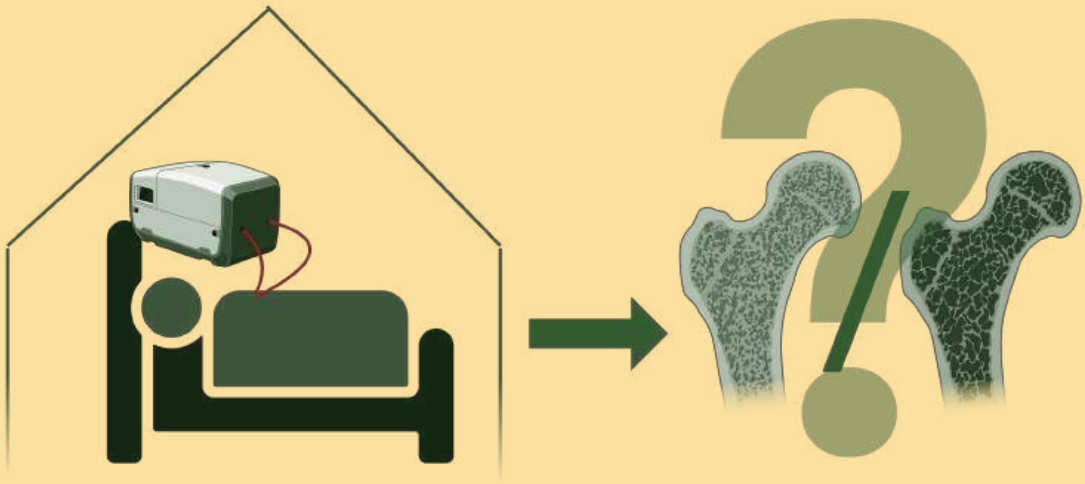
Patients with Chronic kidney disease (CKD) have disturbances in mineral- and bone metabolism, contributing to a 2- 4 times increased risk of fracture in patients with CKD compared to the general population

It is known that conventional hemodialysis (HD) and peritoneal dialysis (PD) have both an increased risk of fracture and development of osteoporosis [1].

Patients receiving intensified home- hemodialysis differ from patients receiving HD and PD, because of more efficient removal of phosphate, among other things. How this affects bone metabolism is not clear.

AIM

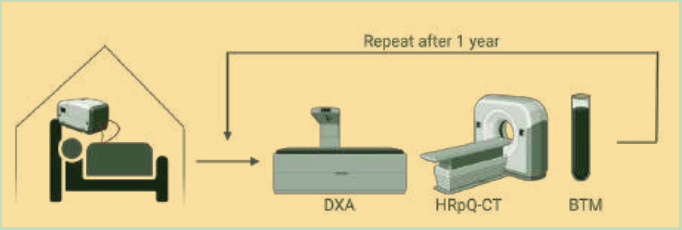
This study aims to investigate the impact of intensified home hemodialysis on skeletal health and bone loss over one year



METHOD

This is an observational single-center prospective cohort study including patients receiving intensified home hemodialysis at the Department of Nephrology at Aalborg University Hospital. Inclusion criteria are age > 45 years (or >18 with diabetes), chronic intensified home hemodialysis for more than 3 months, and ability to provide written informed consent.

Participants will undergo bone imaging including: dual-energy X-ray absorptiometry (DXA) to measure Bone Mineral Density (BMD), vertebral fracture assessment using DXA, and high-resolution peripheral quantitative computed tomography (HRpQ-CT) to measure bone microarchitecture. Additionally, biochemical bone turnover markers (BTM) will be measured. Bone imaging and BTM assessment are performed at baseline and after one year (see figure 1)



PERSPECTIVES

This study will provide an in-depth characterization of skeletal health in patients on intensified dialysis therapy, in particular, how disturbances in mineral metabolism and bone turnover may translate to changes in bone quality and quantity. Results should contribute to a more individualized treatment strategy, as opposed to one-size-fits-all, to prevent CKD-associated osteoporosis in patients receiving dialysis therapy

AALBORG UNIVERSITETSHOSPITAL

38.

Fra sår til udredning: ny handleplan til diagnostik af urinsyregigt hos mennesker med diabetes og fodsår

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Baggrund

Både diabetes og urinsyregigt (UG) forårsager behandlingskrævende fodsår med et overlappende symptombillede, om end de har forskellig patogenese og behandlingsstrategi. På trods af at hver femte med diabetes udvikler UG, og at den medicinske behandling af UG effektivt forebygger sår, modtager 80% af patienterne med diabetes, fodsår og UG utilstrækkelig medicinsk behandling. UG behandles i udgangspunktet hos egen læge hvorfor UG ikke tidligere er blevet adresseret i hospitalsregi i forbindelse med diabetisk sårbehandling. Dette kan have haft alvorlige følger da UG risikerer at blive overset som årsag eller medvirkende faktor til fodsåret. UG øger desuden risikoen for amputation med 50% hos danskere med diabetes, mens en velbehandlet UG sænker risikoen for alvorlige kardiovaskulære hændelser med 33%.

Metoder

I et samarbejde mellem afdelingerne for reumatologi og ortopædkirurgi, patologisk institut og Center for Klinisk Forskning udarbejder Regionshospital Nordjylland som de første i Danmark en multidiciplinær klinisk handleplan for UG igennem SOP, PRI og flowcharts. Handleplanen skal både sikre relevant mistanke for ikke- eller underbehandlet UG hos personer med fodsår, systematisere diagnostik igennem mikroskopi af sårprøver, samt sikre henvisning til reumatologisk udredning og optimeret behandling.

Perspektiver

Med en dokumenteret og multidiciplinær handleplan for UG ønsker vi fremadrettet at øge bevågenheden og behandlingskvaliteten af fodsår i krydsfeltet mellem diabetes og UG. Ved tidligere og sufficient behandling kan vi potentielt reducere gentagne fodsår, amputationer og kardiovaskulære hændelser hos patienter med diabetiske fodsår, som hidtil er blevet kompliceret af utilstrækkelig behandlet UG.

FRA SÅR TIL UDREDNING

ny handleplan til diagnostik af urinsyregigt hos mennesker med diabetes og fodsår

Marie-Louise Lund Søbye[1], Jesper Walther Larsen[1,2], Trine Stenbak Bisgaard[3], Lis Kjær Larsen[3], Jane Andersen[3], Charlotte Buch Gøtghen[3], Tina Therkildsen Koch[4], Tina Futtrup[5], Morten Johansen[4], Claus Rasmussen[2,6], Asta Linauskas[2,6], Marcin Ryszard Kowalski[2], Peter Derek Christian Leutscher[1,6]

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BAGGRUND

Både diabetes og urinsyregigt forårsager behandlingskrævende fodsår. Hver femte med diabetes udvikler urinsyregigt, og den medicinske behandling for urinsyregigt forebygger effektivt sår hvis behandlingsmålet vel og mærke opnås og vedligeholdes

Urinsyregigt behandles normalt hos egen læge, men størstedelen får i dag for lidt medicin. Da RHN som de eneste i regionen modtager akutte diabetiske fodsår, er det nødvendigt med en ny handleplan til kontrol af både behandlingsmål og eventuel uopdaget urinsyregigt i sårambulatoriet. På den måde kan vi optimere sårbehandlingen og forebygge recidive fodsår og genindlæggelser

80% af patienterne med diabetes, fodsår og urinsyregigt på RHN får for lidt medicin hvilket kan måles på deres plasma urat

19% af de undersøgte "diabetiske fodsår" var karakteristiske for fodsår forårsaget af urinsyregigt og ikke diabetes

Urinsyregigt øger risikoen for amputation med **53%** hos danskere med diabetes

En velbehandlet urinsyregigt sænker også risikoen for alvorlige kardiovaskulære hændelser med **33%**

MÅL



Reumatologisk ambulatorium bidrager med risikofaktorer hos mennesker med diabetes og fodsår, som bør give anledning til mistanke om uopdaget eller underbehandlet urinsyregigt

Sårambulatoriet måler systematisk plasma urat og bruger risikofaktorerne til at vurdere mulig urinsyregigt, samt prøvetager evt. det diabetiske fodsår for uratkrystaller





Som noget nyt analyseres prøven på patologisk institut, hvor svaret nu registeres i journalen. Eventuelle positive svar resulterer i en direkte henvisning til reumatologisk ambulatorium



Patienten kan nu udredes ogopstartes uratsænkende medicin. Patienten følges herefter i reumatologisk ambulatorium eller hos egen læge. Ved evt. sårbehandling fortsætter kontrollen af plasma urat

PERSPEKTIV

Med en dokumenteret og multidiciplinær handleplan for urinsyregigt håber vi at kunne øge bevågenheden og behandlingskvaliteten af fodsår i krydsfeltet mellem diabetes og urinsyregigt. **Ved tidligere og sufficient behandling opnår vi potentielt færre fodsår, amputationer og blodpropper forårsaget af urinsyregigt hos mennesker med diabetes.**



REGIONSHOSPITAL NORDJYLLAND

CKF | CENTER FOR KLINISK FORSKNING Regionshospital Nordjylland

39.

How did our OPAT-unit perform during the following 2 years? Various quality control data with readmission rate and 30-day mortality after initiation

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3. Department of Local Health Services and Digitalization, North Denmark Regional Hospital, Hjoerring, Denmark

Background

Outpatient parenteral antimicrobial therapy units (OPAT) are only recently being established in Denmark. Following international frameworks we initiated an OPAT unit with a quality control database. Our aim was to analyze our 2 year data, and if necessary, readjust the unit for a safer patient care.

Methods

We established a RedCap database in sept 2023 to collect anonymous data, after patient consent. We used charts for demographics, initiated antibiotics and length of therapy. Further we registered the referral diagnosis, microbiological findings, rate of complications, rate of readmission and for what reason. Lastly, we registered 30-day mortality.

Results

After 2 years, 160 patients were treated in our OPAT unit. This gives a total sum of 1848 days or 924 days/year treated at home, with an increasing number of referrals over this time period. We will present various diseases and used antibiotics. Rate of complication was at 15.6% and mostly related to the iv line, and a readmission rate at 15.6%. Here there was an OPAT related cause in 8.1% and other causes in 7.5%, which were mostly destabilized comorbidities. Finally, 30-day mortality was measured to 3.8%.

Conclusions

Our data shows an acceptable level of quality, but as our quality control goal for readmission rate was set at a maximum of 10%, further optimization is needed. Our aim will be to continuously optimize and choose the correct patients for treatment in our OPAT unit. This as most other causes for readmission are because of destabilized comorbidities.

How did our OPAT-unit perform during the following 2 years ?

Various quality control data with readmission rate and 30-day mortality after initiation

Shakil A. Shakar[1], Charlotte Holm[2], Malene Stilling[3]

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[3]Department of Local Health Services and Digitalization, North Denmark Regional Hospital - Hjoerring (Denmark)

Background

Outpatient parenteral antimicrobial therapy units (OPAT) are well-implemented in many parts of Europe, but only recently being established in Denmark. Following international frameworks, we initiated an OPAT unit with a quality control database, collecting anonymous data after patients consent.

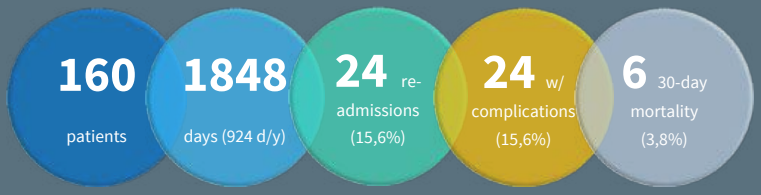
Our aim was to analyze our 2-year quality control data, and if necessary, readjust the unit for a better, or a safer patient care.

Method

In collaboration with Team for quality, we initiated a RedCap database in sept 2023 to collect anonymous data, after patient consent. We collected data from the charts for demographics, initiated antibiotics and length of therapy in OPAT. Rate of patients initiated in OPAT as outpatients or inpatients. Further we registered the referral diagnosis and microbiological findings. Then we registered the rate of complications, the rate of readmission and for what reason. Lastly, we registered 30-day mortality.

Results

After 2 years, 160 patients with a mean age of 69 years, was treated in our OPAT unit. This gives a total sum of 1848 days or 924 days/year treated at home, and we see an increasing number of referrals over this period **figure 1**. Approximately ¼ of referred patients got their treatment initiated in an outpatient clinic. The distribution of diseases is displayed in figure 2 and used antibiotics in figure 3. Rate of complication was at 15,6% and mostly related to the iv line, and a readmission rate at 15,6%. Here there was an OPAT related cause in 8,1% and other causes in 7,5%, which were mostly destabilized comorbidities. Finally, 30-day mortality was measured to 3,8%.



OPAT patients/month during a 2 year period

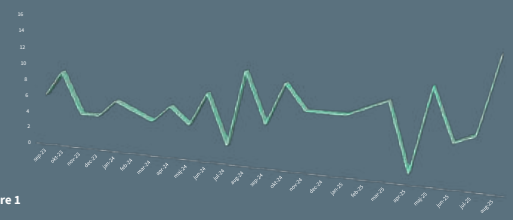


Figure 1

Used antimicrobials

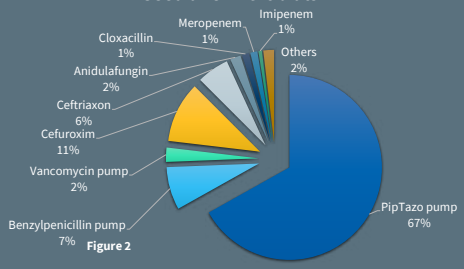


Figure 2

Distribution of diseases

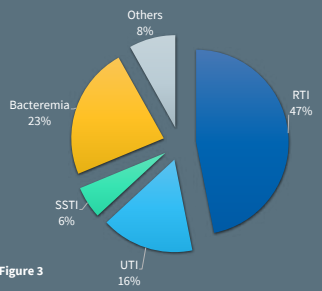


Figure 3

Conclusion

Our data shows a very satisfactory level of quality , but as our quality control goal for readmission rate was set at a maximum of 10%, further optimization is needed. Our aim should be to continuously optimize and choose the correct patients for treatment in our OPAT unit, as most other causes of readmission is because of destabilized comorbidities.

REGION NORDJYLLAND

References

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40.

Intracerebral and intraventricular antibiotic penetration during experimental bacterial meningitis: a porcine microdialysis PhD programme

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**Participant in the Introduction Course to Clinical Research and Development, North Denmark Regional Hospital, 2026*

Background

Bacterial meningitis remains associated with high mortality and neurological sequelae despite prompt antibiotic therapy. Current guidelines recommend third-generation cephalosporins combined with vancomycin, or carbapenems for resistant or postsurgical infections, given as intermittent bolus infusions. Continuous infusion may improve pharmacodynamic exposure of beta-lactams, but pharmacokinetic data on antibiotic penetration into the inflamed central nervous system (CNS) remain scarce, and cerebrospinal fluid (CSF) concentrations do not necessarily reflect brain tissue exposure. We therefore aimed to develop a porcine model of meningeal inflammation to compare intracerebral pharmacokinetics of meropenem given as continuous versus intermittent infusion, and to determine whether adjunctive dexamethasone impairs CNS penetration of vancomycin.

Methods

This Ph.D. programme comprises three interlinked porcine studies using a validated intracerebral microdialysis model enabling simultaneous sampling from brain extracellular fluid, ventricular, cisternal and lumbar CSF, and plasma. Study I establishes a reproducible model of blood-brain barrier disruption and meningeal inflammation following intraventricular inoculation with *Escherichia coli* lipopolysaccharide, confirmed by CSF leukocytes, albumin and histopathology. Study II compares intracerebral pharmacokinetics of high-dose meropenem given as intermittent bolus versus continuous infusion within the inflamed model, assessed against time above the minimum inhibitory concentration. Study III investigates whether adjunctive dexamethasone impairs intracerebral vancomycin penetration. Drug concentrations are quantified by liquid chromatography-tandem mass spectrometry.

Perspectives

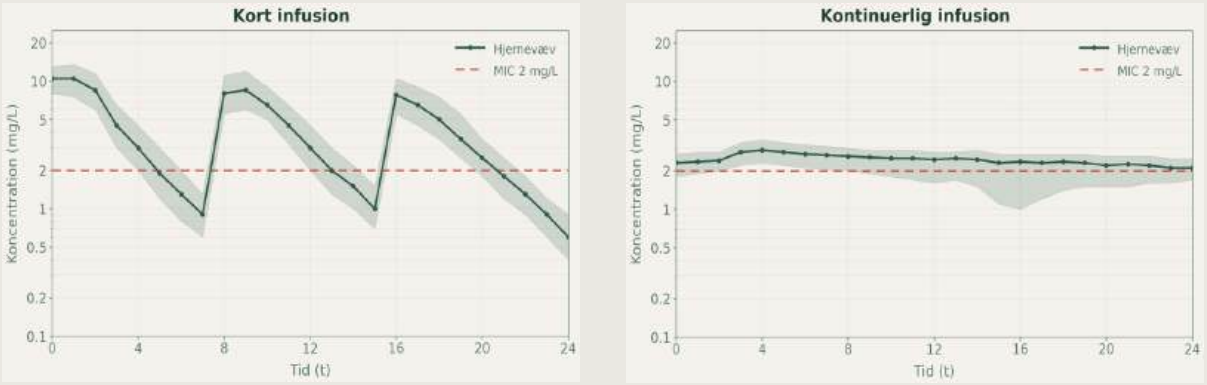
By combining a validated model of meningeal inflammation with direct comparison of infusion strategies and adjunctive corticosteroid therapy, this project aims to generate the first detailed pharmacokinetic data on antibiotic CNS penetration during inflammation, informing evidence-based dosing of bacterial meningitis amid rising antimicrobial resistance.

Optimeret antibiotisk behandling af bakteriel meningitis

Baggrund

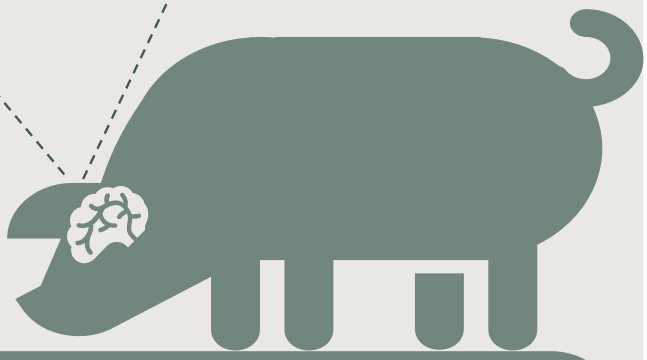
Bakteriel meningitis (BM) er en sjælden, men livstruende infektion. Standardbehandling er højdosis beta-lactam antibiotika givet som korte IV-infusioner (SI). Kontinuerlig infusion (CI) giver bedre dækning ved andre infektioner, men er aldrig undersøgt ved inflammeret centralnervesystem (CNS). For de fleste anvendte antibiotika ved BM er det farmakodynamiske mål at opretholde fri lægemiddelkoncentration over minimal inhibitory concentration (MIC) størst mulig andel af doseringsintervallet (*f*T>MIC). Formålet med det aktuelle studie er, at klarlægge om kontinuerlig infusion af hhv. meropenem og vancomycin forbedre det farmakodynamiske mål i CNS under meningitis.

Figur 1: Tids-koncentrationsprofiler for meropenem i hjernevæv (cortex cerebri; ECF) hos grise med LPS-induceret meningitis ved kontinuerlig infusion (CI) og kort infusion (SI, q8t). Kurver angiver middelkoncentration med min-max interval fra pilotdata. MIC = minimal inhibitory concentration for *Pseudomonas aeruginosa*.



Konklusion

Præliminære data fra en porcin LPS-meningitismodel indikerer, at kontinuerlig infusion af meropenem medfører overlegen farmakodynamisk CNS-dækning, målt ved *f*T>MIC, sammenlignet med konventionel kort infusion.
Endelige data fra studie 2 og 3 afventes.



Metode

Studie 3 — Vancomycin: CI vs. SI
12 grise med LPS-meningitis (studie 1) randomiseres til vancomycin som CI eller SI hver 8. time (samme døgndosis). Koncentration måles i hjernevæv, lateral ventrikel og cerebrospinalvæske. AUC/MIC ratio bestemmes.

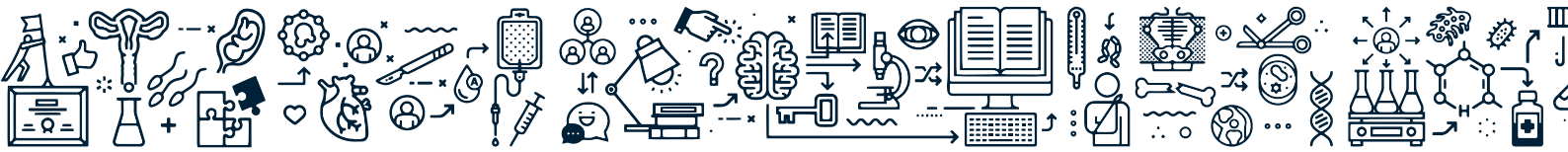
Studie 2 — Meropenem: CI vs. SI
12 grise med LPS-meningitis (studie 1) randomiseres til meropenem som CI eller SI hver 8. time (samme døgndosis). Koncentration måles i hjernevæv, lateral ventrikel og cerebrospinalvæske. Tid > MIC bestemmes.

Studie 1 — Meningitis grisemodel
12 grise randomiseres til intraventrikulær injektion med varierende doser proteiner fra E. coli (LPS). CSV undersøges for leukocytter, cytokiner og albumin som markører for inflammation og kompromitteret blod-hjerne-barriere.

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Kirurgi



41.

Implementering af remimazolam som alternativ til anæstesiledsaget propofolsedation ved avancerede og vanskelige endoskopiske procedurer – erfaringer fra et regionalt hospital

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Baggrund

På Abdominalkirurgisk Afdeling, Regionshospital Nordjylland, har patienter med forventet vanskelige eller avancerede endoskopiske procedurer traditionelt fået anæstesiledsaget propofolsedation. På baggrund af positive erfaringer med remimazolam (Byfavo) fra andre danske endoskopicentre blev der gennemført en 2-måneders prospektiv kvalitetsafprøvning for at vurdere remimazolam som alternativ.

Metoder

Patienter visiteret til anæstesiledsaget propofolsedation blev inkluderet til sedation med remimazolam og alfentanil. Patienter med svær komorbiditet, høj ASA-score, nedsat performance status eller andet behov for anæstesiologisk overvågning blev ekskluderet og fortsatte i det eksisterende propofolforløb. Procedurerne omfattede diagnostiske skopier hos patienter med udtalt angst, tidligere dårlige erfaringer eller forventede smerter samt avancerede terapeutiske procedurer (EMR, argonplasmakoagulation og dilatation). Alle procedurer blev udført af samme erfarne endoskopør og samme sygeplejehold. Gennemførelsesrate, sederingsforbrug og klinisk forløb blev registreret. Forsøget blev finansieret af Abdominal kirurgisk afdeling, Regionshospitalet Nordjylland. Registrering er udført i REDCap.

Resultater

Af 60 bookede procedurer blev 58 (96,7 %) gennemført. Alle 11 diagnostiske koloskopier og 21 af 22 gastroskopier blev fuldført. Blandt 27 avancerede procedurer blev 15 af 16 koloskopier og alle 11 gastroskopier gennemført. De to afbrudte procedurer skyldtes henholdsvis svær angst og utilstrækkelig tarmudrensning. Gennemsnitligt remimazolamforbrug var 9–13 mg afhængigt af proceduren, mens alle patienter fik gennemsnitligt 0,5 mg alfentanil. Ingen udviklede hæmodynamisk instabilitet eller krævede anæstesiologisk intervention. Alle kunne udskrives inden for 30 minutter.

Konklusioner

Remimazolam kombineret med alfentanil muliggjorde høj gennemførelsesrate, stabile hæmodynamiske forhold og hurtig restitution hos nøje selekterede patienter. Metoden kan være et sikkert og effektivt alternativ til anæstesiledsaget propofolsedation og potentielt reducere behovet for anæstesiressourcer.

IMPLEMENTERING AF REMIMAZOLAM (BYFAVO) SOM ALTERNATIV TIL ANÆSTESILEDSAGET PROPOFOLSEDATION VED AVANCEREDE OG VANSKELIGE ENDOSKOPISKE PROCEDURER

Forfatter: Anders Linde Nielsen
Kontakt: a.linde@rn.dk

Baggrund

På Abdominalkirurgisk Afdeling, Regionshospitalet Nordjylland, har patienter med forventet vanskelige eller acancerede endoskopiske procedurer traditionelt været sederet med anæstesiledsaget propofol.

På baggrund af positive erfaringer med remimazolam (Byfavo) fra andre danske endoskopicentre blev der gennemført en 2-måneders prospektiv kvalitetsafprøvning med henblik på at undersøge om remimazolam kunne anvendes som et sikkert og effektivt alternativ hos nøje selekterede patienter uden behov for kontinuerlig anæstesiologisk overvågning.

Metode

DESIGN
Prospektiv kvalitetsafprøvning i 2 måneder.

POPULATION
Patienter, som efter afdelingens gældende praksis var visiteret til anæstesiledsaget propofolsedation, blev inkluderet til sedation med remimazolam kombineret med alfentanil.

EKSKLUSIONSKRITERIER
Patienter med behov for anæstesiologisk overvågning under proceduren pga. svær komorbiditet, høj ASA-score, nedsat performance status eller andre forhold, hvor anæstesiologisk tilstedeværelse blev vurderet nødvendig, blev ekskluderet og fortsatte i det eksisterende propofolforløb.

PROCEDURER
Både diagnostiske endoskopier hos patienter med udtalt angst, tidligere dårlige erfaringer eller forventede betydelige smerter samt avancerede terapeutiske procedurer (EMR, argonplasmakoagulation og dilatation).

GENNEMFØRELSE
Samtlige procedurer blev udført af den samme erfarne endoskopør, og al sedation blev administreret af det samme hold sygeplejersker.

DATA INDSAMLING
Der blev registreret gennemførelsesrate, sederingsforbrug, komplikationer, behov for anæstesiologisk intervention samt tid til udskrivelse.

Resultater

I alt blev
58 ud af 60 procedurer udført (96,7%)

DIAGNOSTISKE PROCEDURER (n = 33)

Procedure	Gennemført	Ikke gennemført	Årsag
Koloskopi	11 / 11 (100%)	0	-
Gastroskopi	21 / 22 (95.5%)	1	Svær angst hos pt. med skizofreni
I alt	**32 / 33 (97.0%)**	**1**	-

AVANCEREDE PROCEDURER (n = 27)

Procedure	Gennemført	Ikke gennemført	Årsag
Koloskopi	15 / 16 (93.8%)	1	Utilstrækkelig tarmudrensning
Gastroskopi	11 / 11 (100%)	0	-
I alt	**26 / 27 (96.3%)**	**1**	**-**

FORBRUG AF REMIMAZOLAM

Diagnostisk koloskopi	Diagnostisk gastroskopi	Avanceret koloskopi	Avanceret gastroskopi
9 mg	10.5 mg	12.5 mg	13 mg

SIKKERHED OG KLINISK FORLØB

Ingen patienter udviklede hæmodynamisk instabilitet	Ingen patienter krævede anæstesiologisk intervention	Alle patienter udskrevet inden for 30 minutter efter proceduren	Ingen behov for yderligere observation

Konklusion

Implementering ad remimazolam kombineret med alfentanil var forbundet med en høj gennemførelsesrate, stabile hæmodynamiske forhold og hurtig restitution hos nøje selekterede patienterr, som efter afdelingens vanlige praksis var visiteret til anæstesiledsaget propofolsedation, men hvor kontinuerlig anæstesiologisk overvågning ikke blev vurderet nødvendig.

De to ikke gennemførte procedurer var ikke relateret til sedationen.

Resultaterne understøtter at remimazolam kan være et relevant alternativ til anæstesiledsaget propofolsedation og potentielt reducere behovet for anæstesiologiske ressourcer ved avancerede og vanskelige endoskopiske procedurer.

REGIONSHOSPITAL NORDJYLLAND

42.

Subakut kirurgisk ambulatoriebehandling: erfaringer fra det første år med en kirurgisk klinik med hurtig adgang

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1. Afdeling for Mave- og Tarmkirurgi, Regionshospital Nordjylland, Hjørring, Danmark
2. Klinisk Institut, Aalborg Universitet, Aalborg, Danmark

Baggrund

Patienter med subakutte kirurgiske problemstillinger kan have gavn af en hurtig vurdering hos en speciallæge uden indlæggelse, via et dedikeret ambulant forløb. Vi etablerede en subakut kirurgisk klinik, der muliggjorde direkte henvisning fra praktiserende læger, lægevagten samt akut- og kirurgiske afdelinger, med planlagt vurdering inden for 0–1 dag. Vi evaluerede aktiviteten og den kliniske anvendelse af tilbuddet i dets første år.

Metoder

Vi foretog en retrospektiv gennemgang af alle patientkontakter til den subakutte kirurgiske klinik fra januar 2025 til januar 2026. Alle 1.221 patientjournaler blev gennemgået. Vi registrerede henvisende instans, diagnoser, behandling, herunder om indlæggelse blev undgået. Klinikken modtog henvisninger inden for otte foruddefinerede kategorier, herunder galdestensrelaterede problemer, abscesser, anorektale lidelser, divertikulitis og diagnosticeringsforløb, der var gået i stå.

Resultater

Af de 1.221 kontakter var 95 % fysiske konsultationer og 5 % telefonkonsultationer. Patienterne blev vurderet inden for 0–1 dag efter henvisningen. Praktiserende læger udgjorde den hyppigste henvisende instans (462 patienter), efterfulgt af kirurgisk afdeling (191). Abscesser (350) og galdestenssygdom (177) var blandt de hyppigste diagnoser. Behandlingen omfattede akutte og subakutte kirurgiske indgreb, billeddiagnostik, klinisk opfølgning, behandling af abscesser og henvisning til andre afdelinger. Tilbuddet muliggjorde ambulant behandling udenom akutmodtagelsen (495 patienter) og undgåelse af indlæggelse for en betydelig andel (108) af patienterne.

Konklusioner

Et dedikeret subakut kirurgisk ambulant forløb sikrede hurtig speciallægevurdering af en bred vifte af kirurgiske tilstande og muliggjorde ambulant behandling af patienter, der ellers ville have haft behov for akut vurdering på hospitalet eller indlæggelse.

Subakut kirurgisk ambulatorium

- Speciallæge vurdering indenfor 0-1 døgn

Dánjal H. Hestoy, Ragnhildur Hamper, Frank Svendsen Jensen, Marianne Sønderkær, Kathrine Holte
Alle: Mave- og Tarmkirurgisk afdeling, Regionshospital Vendsyssel

Bagrund

Vi etablerede et subakut kirurgisk ambulatorium, der muliggjorde direkte henvisninger fra praktiserende læger, lægevagten og akut- og kirurgiske afdelinger, med planlagte vurderinger indenfor 0–1 dage. Vi evaluerede aktiviteten og den kliniske anvendelse af tilbuddet i det første år.

Metoder

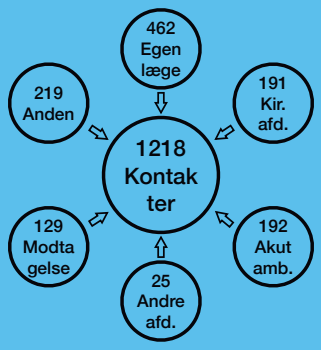
Vi foretog en retrospektiv gennemgang af alle patientkontakter til det subakutte kirurgiske ambulatorium fra januar 2025 til januar 2026.

Konsultationer

95% fysiske

5% telefoniske

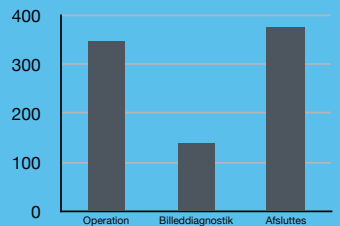
Hvem henviser?

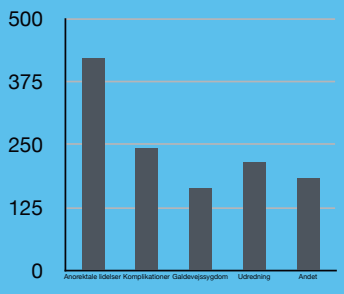


Fund

De hyppigeste diagnoser var: Anorektale lidelser, Galdevejssygdom og komplikationer

Hyppigste behandling





Resultat

Tilbuddet muliggjorde ambulant behandling udenom akutmodtagelsen for 495 patienter og 108 patienter slap for indlæggelse.

Konklusion

Et dedikeret subakut kirurgisk ambulant forløb sikrede hurtig speciallægevurdering af en bred vifte af kirurgiske tilstande og muliggjorde ambulant behandling af patienter, der ellers ville have haft behov for akut vurdering på hospitalet eller indlæggelse.

43.

Adherence to intravenous antibiotic guidelines in acute cholecystitis: a retrospective study of clinical practice and potential overuse

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1. Department of Gastrointestinal Surgery, North Denmark Regional Hospital, Hjoerring, Denmark
2. Department of Health Science and Technology, Aalborg University, Aalborg, Denmark
3. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark

Background

Acute cholecystitis is a common surgical condition typically caused by gallstones, and a secondary bacterial infection. Effective management requires both surgical intervention and appropriate antibiotics treatment to prevent systemic complications. As the Danish healthcare system lacks a dedicated national guideline for acute cholecystitis. This may lead to inconsistent antibiotic treatment in clinical practice and potential over prescription.

Methods

A retrospective cross-sectional study was conducted including 170 patients admitted with acute cholecystitis. Clinical data such as inflammatory markers, operative findings, and antibiotic regimens were collected using a REDCap database.

Results

Antibiotic use showed considerable variation, with an overall treatment rate of 93.5%. Following the 2025 guideline update, prescribing patterns shifted significantly in the surgical group, with ampicillin use increasing from 1.3% to 63.2%, while broad-spectrum agents (piperacillin/tazobactam and ciprofloxacin) decreased. Conservatively treated patients received longer courses (mean 5.1 days) than surgical patients (mean 3.2 days). Notably, 63.6% of patients with no objective inflammatory signs or operative pathology received antibiotics, suggesting potential overuse.

Conclusions

The 2025 update successfully transitioned practice to ampicillin and reduced broad-spectrum use. However, the high treatment rate among patients without inflammation reveals a standardized, opportunistic approach regardless of severity. Furthermore, persistent cefuroxime use in 20% of cases leaves a pharmacological gap regarding Enterococcus spp. Systematic severity grading (TG18) is essential to minimize unnecessary antimicrobial exposure.

Adherence to Intravenous Antibiotic Guidelines in Acute Cholecystitis

Emil Cebula[1] • Mohammad Najeb Altaleb[1] • Bogi Davidsen[1]
Rasmus Virenfeldt Flak[1,2] • Kathrine Holte[1,2]
[1]Department of General Surgery, North Denmark Regional Hospital, Hjoerring, Denmark
[2]Center of Clinical Research (CKF), North Denmark Regional Hospital, Hjoerring, Denmark

BACKGROUND

Acute cholecystitis is a common surgical condition typically caused by gallstones, and a secondary bacterial infection. Effective management requires both surgical intervention and appropriate antibiotics treatment to prevent systemic complications. As the Danish healthcare system lacks a dedicated national guideline for acute cholecystitis. This may lead to inconsistent antibiotic treatment in clinical practice and potential over prescription.

RESULTS

Antibiotic use showed considerable variation, with an overall treatment rate of 93.5% across the cohort. Following the 2025 guideline update, prescribing patterns shifted significantly in the surgical group, with ampicillin use increasing from 1.3% to 63.2%, while broad-spectrum agents (piperacillin/tazobactam and ciprofloxacin) decreased. Conservatively treated patients received longer courses (mean 5.1 days) than surgical patients (mean 3.2 days). Notably, 63.6% of patients with no or mild objective inflammatory signs or operative pathology received post-operative antibiotics, and 55.6% of patients with normal laboratory values received treatment, suggesting potential overuse. Furthermore, persistent cefuroxime use (~18% in surgical cases) leaves an unaddressed pharmacological gap against Enterococcus spp.

CONCLUSION

The 2025 update successfully transitioned practice to ampicillin and reduced broad-spectrum use. However, the high treatment rate among patients post operatively, without inflammation reveals a standardized, opportunistic approach regardless of severity. Furthermore, persistent cefuroxime use in 18% of cases leaves a pharmacological gap regarding Enterococcus spp. Systematic severity grading (TG18) is essential to minimize unnecessary antimicrobial exposure.

METHODS

A retrospective cross-sectional study was conducted including 170 patients admitted with acute cholecystitis to the Department of Surgery, North Denmark Regional Hospital, between October 2024 and October 2025. Clinical data, including inflammatory markers, operative findings, and antibiotic regimens, were collected using a REDCap database.

Main Findings

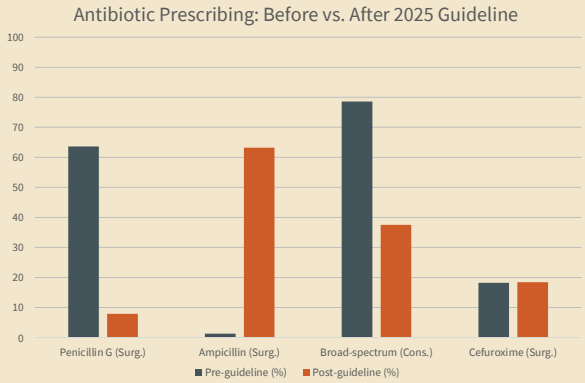


Figure 1. Antibiotic selection pre- (n=105) vs. post-guideline (n=54). Shows a clear shift from Penicillin G to Ampicillin (surgical) and reduced broad-spectrum use (conservative).

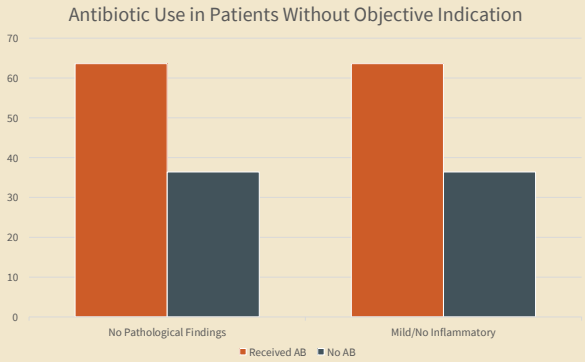


Figure 2. Postoperative antibiotic use without objective indication (n=21/33). 63.6% received unnecessary antibiotics despite normal/mild inflammation or absent pathology.

REGION NORDJYLLAND

44.

It is the patient and the disease, not the repair: conversion, morbidity and mortality after perforated peptic ulcer: a retrospective cohort study

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2. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark

Background

Perforated peptic ulcer remains a high-risk emergency. Laparoscopic repair is widely used, but conversion to open surgery is common. We examined whether conversion, morbidity and mortality track patient and disease factors rather than the operative approach.

Methods

Retrospective cohort study at North Denmark regional hospital, August 2021 to August 2025. Cases were identified by ICD-10 codes. Of 40 admitted patients, three treated non-operatively were excluded, leaving 37 who underwent a laparoscopic-first approach. Complications were graded by Clavien–Dindo; analyses were descriptive.

Results

Median age was 71 years (IQR 58–80); 78.4% were ASA ≥3. Conversion was required in 12/37 (32.4%), more often with ulcers ≥1 cm (62.5% versus 11.8% below 1 cm) and diffuse peritonitis (36.0% versus 25.0%). Major complications (Clavien–Dindo ≥III) occurred in 18/37 (48.6%), affecting 58.6% of ASA ≥3 versus 12.5% of ASA I–II patients. Thirty-day mortality was 10/37 (27.0%), unchanged at 90 days, with all deaths among ASA ≥3 patients. Mortality rose from 6.3% below 70 years to 42.9% at ≥70 years, and 75.0% for ulcers above 2 cm. Mortality was 41.7% after conversion versus 20.0% after completed laparoscopy, but converted patients more often had ulcers ≥1 cm (83.3% versus 28.6%) and ASA ≥3 (91.7% versus 72.0%).

Conclusions

Conversion was more frequent with larger ulcers and diffuse peritonitis, whereas morbidity and mortality were highest with ASA ≥3 and advanced age. Higher mortality after conversion accompanied a heavier disease burden, consistent with case mix rather than harm from the approach, supporting early risk stratification. No primary open repairs were performed, precluding comparison.

It's the patient and the disease, not the repair

Conversion, morbidity and mortality after perforated peptic ulcer, a four-year retrospective cohort of 37 surgically treated patients.

Hassan Mafrag[1], Kathrine Holte[1].

[1] Department of surgery, Regional Hospital of North Denmark, Denmark

Introduction

Perforated peptic ulcer is a high-risk surgical emergency. We describe patient and disease factors, conversion, and outcomes following a laparoscopic-first approach.

Methods

Single-center retrospective 4 years cohort study. Patients were identified using ICD-10 codes. Of 40 admissions, 3 were managed non-operatively and excluded. Complications were graded by Clavien–Dindo and data presented descriptively.

37 patients. Two operative pathways.

40 admissions · 3 non-operative patients excluded



32.4% Converted to open surgery — 12/37 patients

48.6% Major complications — Clavien–Dindo III–V · 18/37

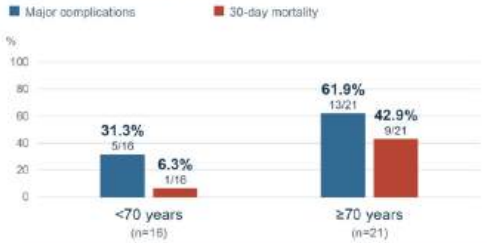
27.0% 30-day mortality — 10/37 · unchanged at 90 days

75.0% Mortality for ulcer >2 cm — 3/4 patients · small subgroup

1 The patient

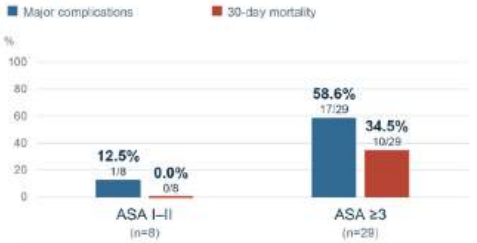


Age vs adverse outcomes



Age ≥80 is a subgroup of ≥70: mortality 6/11 (54.5%).

ASA vs adverse outcomes

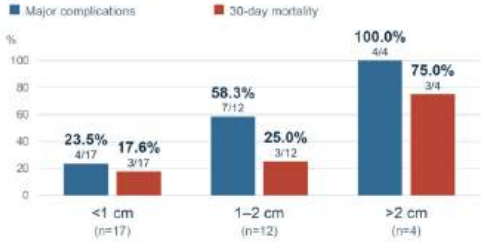


All 10 deaths occurred among patients with ASA ≥3.

2 The disease

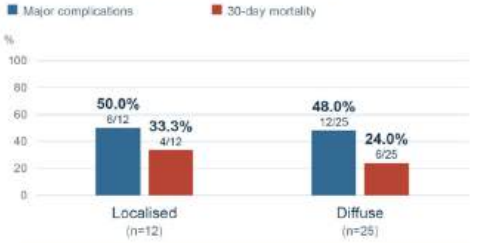


Ulcer size vs adverse outcomes



ASA ≥3: 11/17 (64.7%), 10/12 (83.3%) and 4/4 (100%).

Peritonitis vs adverse outcomes

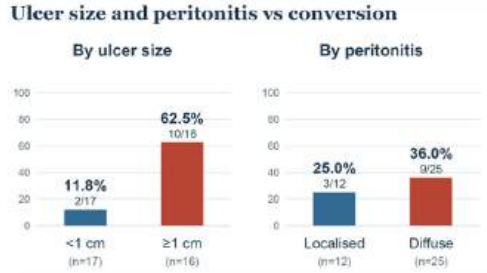


Diffuse peritonitis did not show higher outcome rates.

3 Conversion

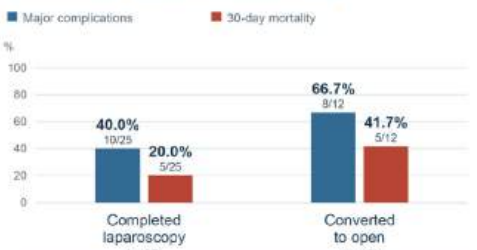


Ulcer size and peritonitis vs conversion



Ulcer size: n=33. Peritonitis: all 37 operated patients.

Conversion vs adverse outcomes



ASA ≥3: 18/25 (72.0%) completed; 11/12 (91.7%) converted.

Key risk factors for adverse outcome

DRIVE EARLY RISK STRATIFICATION

Ulcer ≥ 1 cm
62.5% conversion vs 11.8% below 1 cm

Diffuse peritonitis
36.0% conversion vs 25.0% localised

Advanced age
42.9% mortality at ≥ 70 yrs; 54.5% at ≥ 80 yrs

ASA ≥ 3
All 10 deaths and all 6 reperforations

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45.

Kapacitet, ventetid og privatsamhandel – en driftsanalyse af afdeling for nyre- og urinvejskirurgi med organisatoriske og strategiske perspektiver

Mille Vraa Gamborg Eisenhardt[1*], Henrik Weinreich[2], Peter Derek Christian Leutscher[1,3]

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2. Afdeling for Nyre- og Urinvejskirurgi, Regionshospital Nordjylland, Hjørring, Danmark
3. Klinisk Institut, Aalborg Universitet, Aalborg, Danmark

**Deltager i Kursus i Klinisk Forskning og Udvikling, Regionshospital Nordjylland, 2026*

Baggrund

Ventetider i sundhedsvæsenet udgør en væsentlig organisatorisk og sundhedspolitisk udfordring og kan medføre øget anvendelse af behandling i privat regi. Inden for urologien stiller kombinationen af høj patientefterspørgsel, komplekse patientforløb og begrænset operationskapacitet betydelige krav til planlægning og ressourceanvendelse. Projektet havde til formål at analysere sammenhængen mellem kapacitet, ventetid, organisering og privatsamhandel.

Metoder

Projektet blev gennemført som et kvalitetssikringsprojekt med et mixed methods-design baseret på registerdata fra NordEPJ for perioden 2023–2025 samt data fra Qlik HR/Løn og Koncern Info/ØS Indsigt. Analysen omfattede aktivitetsdata, ventetider, operationsaktivitet, personaledata og privatsamhandel. Der blev anvendt deskriptiv statistik, regressionsanalyser, weighted moving average-modeller (WMA) og ventetidsmodellering. Den kvalitative del bestod af praksisnære organisatoriske observationer af arbejdsgange, patient flow og ressourceanvendelse.

Resultater

Fremskrivningsmodellerne viste, at ventetiden fortsat forventes at være omkring 23 uger ved udgangen af 2026. Beregningerne estimerede samtidig et behov for cirka 182 ekstra ambulante besøg pr. måned for at opnå en ventetid på maksimalt fire uger pr. 1. januar 2027. Analysen viste desuden, at en betydelig andel af privatsamhandel var relateret til patienter med vandladningsproblemer (LUTS). Gennemgang af private udredningsforløb viste variation i indholdet af undersøgelserne samt potentielt overlap mellem offentlig og privat udredning.

Konklusioner

Projektet viser, at ventetiden i urologien påvirkes af et komplekst samspil mellem operationskapacitet, organisering, patient flow og privatsamhandel. Resultaterne indikerer, at ændringer ét sted i patientforløbet kan have afledte konsekvenser andre steder i systemet.

KAPACITET, KØ & KRONER

En driftsanalyse af kapacitet, ventetid og privatsamhandel i Afdeling for Nyre- og Urinvejskirurgi

Mille V. G. Eisenhardt[1], Henrik Weinreich[2] & Peter Derek Christian Leutscher[1,3]
1. Center for Klinisk Forskning, Regionshospital Nordjylland, Hjørring, Danmark | 2. Afdeling for Nyre- og Urinvejskirurgi, Regionshospital Nordjylland, Hjørring, Danmark | 3. Klinisk Institut, Aalborg Universitet, Danmark

BAGGRUND

Lange ventetider kan medføre øget behov for privatsamhandel. 26% af henvisningerne blev i gennemsnit omvisiteret pr. måned i 2025, mens den samlede udgift til privatsamhandel var 11,2 mio. kr. i, tilsvarende 27% af det samlede forbrug.

FORMÅL: At analysere sammenhængen mellem kapacitet, ventetid, organisering og privatsamhandel.

METODE

2023 - 2025

NordEPJ, Qlik, KoncernInfo

Aktivitets-, ventetids-, og privatsamhandelsanalyse



**Opgjort for:*
Privat regi: LUTS-udredning (n = 735)
RHN: Prostatarelaterede vandladningsgener (n=1.785)

RESULTATER

1

RHN	PRIVAT
60 *TUR-P*	134 *TUR-P*
285 *Phimosis*	165 *Phimosis*

VS

Phimosis ≈ 5.000 kr. TUR-P ≈ 20.000 kr.

2 UDREDNINGSFORLØB

Stikprøve på 10 udredningsforløb for LUTS i privatregi

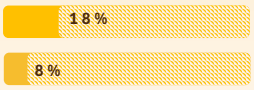
10 *forløb* → **7** *forskellige undersøgelser* → **0** *forløb med alle syv*

Cysto-skopi · Ultra-lyd · Uro-flow-metri · Resi-dual-urin · VV-skema · Rek-tal eks. · Blære kateter

Indikerer forskelle i udredningsforløb

3 BEHANDLINGSFREKVENS*

For TUR-P



KONKLUSION

Forskelle i opgavefordeling, udredningsforløb og TUR-P-frekvens peger på potentiale for bedre organisering mellem RHN og privat regi. En mere målrettet opgavefordeling kan reducere udgifterne, mens mere ensartede LUTS-udredninger kan sikre kvalitet og værdi af den købte aktivitet.

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46.

Clinical significance of isolated microperforation in acute diverticulitis: a four-year retrospective cohort study

Nicole Hvarregaard[1*], Pernille Kristensen[1], Elisabeth Desirée Kjærsgaard[1], Peter Derek Christian Leutscher [2,3], Katrine Holte[1,3]

1. Department of Gastrointestinal Surgery, North Denmark Regional Hospital, Hjoerring, Denmark
2. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
3. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark

**Participant in the Introduction Course to Clinical Research and Development, North Denmark Regional Hospital, 2026*

Background

The clinical significance of isolated pericolic extraluminal air (microperforation) in acute diverticulitis remains uncertain. We compared clinical presentation, treatment, and outcomes in patients with uncomplicated diverticulitis, isolated microperforation, and other complicated diverticulitis.

Methods

This retrospective single-centre cohort included patients admitted with CT-confirmed acute diverticulitis at Regional Hospital North Jutland, Denmark, from April 2022 to March 2026. Microperforation was defined as pericolic extraluminal air within 5 cm of the inflamed bowel segment without abscess or distant free air. Clinical characteristics, inflammatory markers, treatment, length of stay, complications, readmission, bowel resection, and mortality were compared.

Results

Among 317 patients 85 (26.8%) had uncomplicated diverticulitis, 77 (24.3%) isolated microperforation, and 155 (48.9%) other complicated diverticulitis. Treatment differed between groups ($p<0.001$): 92.2% with microperforation were managed conservatively and 5.2% underwent intervention, compared with 73.5% and 23.2% in other complicated diverticulitis. Median length of stay was 2.0, 2.0, and 3.0 days, respectively ($p<0.001$). Complications, 12-month readmission, and mortality did not differ significantly. Twelve-month bowel resection occurred in 6.6%, 6.7%, and 21.9%, respectively ($p=0.002$), with similar rates for uncomplicated diverticulitis and microperforation ($p=1.000$). CRP differed between CT groups, whereas leukocyte trajectories showed no significant group-by-time interaction.

Conclusions

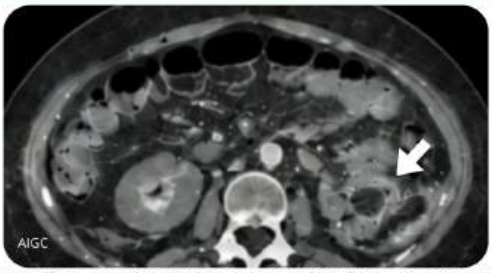
Isolated microperforation was predominantly managed conservatively and had outcomes comparable to uncomplicated diverticulitis, including similar 12-month resection rates. Other complicated diverticulitis required more intervention and had longer hospital stays and higher resection rates, supporting isolated microperforation as a distinct clinical subgroup.

Clinical significance of isolated microperforation in Acute Diverticulitis: A four-year retrospective cohort study

Nicole Hvarregaard[1], Pernille Kristensen[1], Elisabeth Desirée Kjærsgaard[1], Peter Leutscher[2], Katrine Holte[1].
Department of Surgery, North Denmark Regional Hospital[1], Center of Clinical Research[2].

BACKGROUND

The clinical significance of perioccolic extraluminal air (microperforation) in acute diverticulitis remains uncertain.



CT-verified acute diverticulitis with pericolic inflammation (arrow).

AIM

To compare clinical presentation, treatment, and outcomes among patients with uncomplicated diverticulitis, isolated microperforation and other complicated diverticulitis in a Danish, population-base cohort.

METHODS

- Single-centre, population-based cohort (North Denmark Regional Hospital)
- 1 April 2022 - 31 March 2026
- Adult patients (≥18 year) diagnosed with acute diverticulitis CT-verified (n = 317)
- Classification based on CT findings:
  - Uncomplicated diverticulitis
  - Isolated microperforation
  - Other complicated diverticulitis
- Data source: Electronic medical record (NordEPJ)

RESULTS

Study population

n = 317

Adult patients with CT-verified acute diverticulitis (2022-2026)

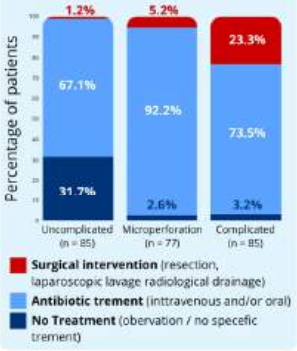
Distribution of CT findings



- **Uncomplicated diverticulitis** n = 85 (26.8%)
- **Isolated microperforation** n = 77 (24.3%)
- **Other complicated diverticulitis** n = 155 (48.9%)

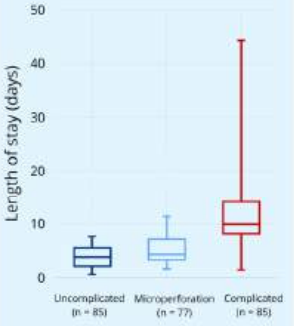
1 Treatment strategy

Treatment strategy differed significantly between groups (p < 0.001).



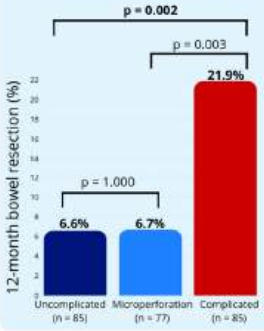
2 Length of stay

Length of hospital stay differed significantly between group (p < 0.001)



3 12-month bowel resection

The 12-month risk of bowel resection differed significantly between groups (p = 0.002).



KEY FINDINGS

Most patients with microperforation are treated with antibiotics

92.3% received antibiotic treatment without indications of surgical interventions.

Hospital stay is longer in complicated diverticullitis

Length of stay differed significantly between group (p < 0.001).

Higher risk of bowel resection in complicated diverticullitis

21.9% underwent bowel resection within 12 months compared with 6.6% in uncomplicated diverticulitis and 6.7% in microperforantion (p < 0.002).

CONCLUSION

In this Danish, population-based cohort, treatment strategy, length of hospital stay and 12-month risk of bowel resection differed significantly between uncomplicated diverticulitis, isolated microperforation and other complicated diverticulitis.

Isolated microperforation was managed with antibiotics in the vast majority of patients and had a low risk of subsequent bowel resection, similar to uncomplicated diverticulitis, whereas complicated diverticulitis had the highest risk of resection.

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47.

Fascial dehiscence despite adoption of European Hernia Society guidelines

Pernille Kristensen[1*], Nicole Hvarregaard[1], Elisabeth Desirée Kjærsgaard[1], Anna Ramsgaard Jensen[1], Peter Derek Christian Leutscher[2,3], Kathrine Holte[1,2]

1. Department of Gastrointestinal Surgery, North Denmark Regional Hospital, Hjoerring, Denmark
2. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark
3. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark

**Participant in the Introduction Course to Clinical Research and Development, North Denmark Regional Hospital, 2026*

Background

Abdominal fascial dehiscence is a serious postoperative complication following laparotomy, associated with high morbidity and mortality. Although the European Hernia Society recommends the small-bite technique, adherence, particularly in emergency surgery, remains uncertain. This study examined guideline compliance among patients with fascial dehiscence following laparotomy, and the patient-related and technical factors associated with this complication.

Methods

This retrospective study included all patients who developed fascial dehiscence following laparotomy at two surgical departments in the North Denmark Region between 1 March 2021 and 1 March 2026. Data on demographics, comorbidities, operative characteristics, closure technique, and postoperative outcomes were collected from medical records and analysed descriptively.

Results

Among 81 patients, 74.1% underwent acute laparotomy and 66.7% had an ASA score ≥III. The small-bite technique was documented in 67.9% of patients. Conventional large-bite suturing was not documented in any patient, and single interrupted sutures were used in 1.2% of patients. In 30.9% of operative reports, the suturing technique was not explicitly documented. Median time to dehiscence was 7 days, and 97.5% underwent reoperation. Management at reoperation most commonly involved VAC therapy (46.9%) or small-bite re-suturing (43.2%), while conventional large-bite repair was used in 6.2% of patients (categories not mutually exclusive). Ninety-day mortality was 13.6%.

Conclusions

The small-bite technique appears to have become standard practice, yet fascial dehiscence continues to occur, predominantly among high-risk patients, suggesting that patient-related factors may be the dominant drivers in the emergency setting. Heterogeneity in reoperative closure reflects a lack of consensus in current guidelines.

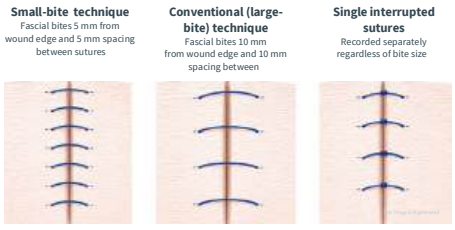
FASCIAL DEHISCENCE DESPITE ADOPTION OF EUROPEAN HERNIA SOCIETY GUIDELINES

Pernille Kristensen[1] • Elisabeth Desirée Kjærsgaard[1] • Nicole Hvarregaard[1] • Anna Ramsgaard Jensen[1] • Peter Leutscher[2,3] • Kathrine Holte[1,2]

[1]Department of Abdominal Surgery, North Denmark Regional Hospital, Hjoerring, Denmark
[2]Department of Clinical Medicine, Aalborg University, Aalborg, Denmark
[3]Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark

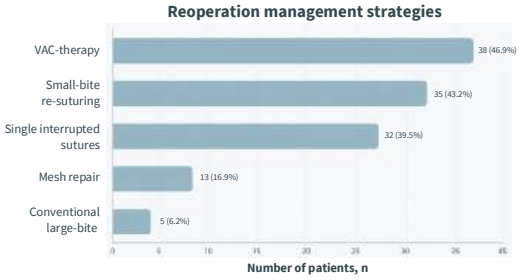
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Among 81 patients, 74.1% underwent acute laparotomy and 66.7% had an ASA score ≥III. The small-bite technique was documented in 67.9% of patients. Conventional large-bite suturing was not documented in any patient, and single interrupted sutures were used in 1.2% of patients. In 30.9% of operative reports, the suturing technique was not explicitly documented. Median time to dehiscence was 7 days, and 97.5% underwent reoperation. Management at reoperation most commonly involved VAC-therapy (46.9%) or small-bite re-suturing (43.2%), while conventional large-bite repair was used in 6.2% of patients (categories not mutually exclusive). 90-day mortality was 13.6%.



67.9% of patients had documented small-bite technique – yet fascial dehiscence still occurred



Methods

This retrospective study included all patients who developed fascial dehiscence following laparotomy at two surgical departments in the North Denmark Region between 1 March 2021 and 1 March 2026. Data on demographics, comorbidities, operative characteristics, closure technique, and postoperative outcomes were collected from medical records and analysed descriptively.

Conclusion

The small-bite technique appears to have become standard practice, yet fascial dehiscence continues to occur, predominantly among high-risk patients. This suggests patient-related factors may be the dominant drivers in the emergency setting. Heterogeneity in reoperative closure reflects a lack of consensus in current guidelines.

REGION NORDJYLLAND

48.

Health economic analysis of mesh suture versus planar mesh repair for small ventral hernias: the MeMa randomized controlled trial

Vitaly Gameza[1*], Dorthe Scavenius Brønnum[2], Kathrine Holte[1,3], Jakob Juul Christensen[4]

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**Participant in the Introduction Course to Clinical Research and Development, North Denmark Regional Hospital, 2026*

Background

Ventral hernia repair is among the most frequently performed surgical procedures in Denmark, with approximately 2,500 operations annually. Despite being classified as minor outpatient procedures, up to 7% of patients are readmitted within 90 days due to wound complications, generating substantial direct healthcare and indirect societal costs. DURAMESH™, a novel CE-marked suturable mesh device, is hypothesized to reduce wound complications and operative time compared to standard planar mesh (OptileneMesh®). The health economic consequences of different surgical approaches for small ventral hernias remain unexplored.

Methods

This pre-specified cost-utility analysis is conducted alongside the MeMa trial: a multicenter, randomized, blinded, controlled superiority trial enrolling 280 patients across four Danish surgical departments. The primary outcome is the Incremental Cost-Effectiveness Ratio (ICER), combining total societal costs and Quality-Adjusted Life Years (QALYs). Costs comprise direct surgical costs (mesh, operating time, consumables), post-surgical healthcare costs up to 90 days (readmissions, wound care, and primary sector contacts valued using DRG tariffs and Danish Health Data Authority unit costs), and indirect societal costs (sick leave valued using Statistics Denmark average daily wages). QALYs are derived from EQ-5D-5L utility scores at baseline, day 7–13, and day 90 using the validated Danish value set.

Perspectives

This study will provide the first prospective randomized evidence on societal costs and health utility comparing mesh suture to planar mesh repair for small ventral hernias. Given approximately 2,500 procedures performed annually, even modest per-patient cost differences would translate into substantial national healthcare savings. These findings will contribute to guideline development and health technology assessment in Denmark.

Health Economic Analysis of Mesh Suture versus Planar Mesh Repair for Small Ventral Hernias: The MeMa Randomized Controlled Trial

Vitaly Gameza[1], Dorthe Scavenius Brønnum[2], Kathrine Holte[1,3], Jakob Juul Christensen[4]

[1]Surgical Department & [2]Centre for Clinical Research, North Denmark Regional Hospital, Hjørring, Denmark

[3]Department of Clinical Medicine & [4]Department of Health Economics, Aalborg University, Aalborg, Denmark

1 Background

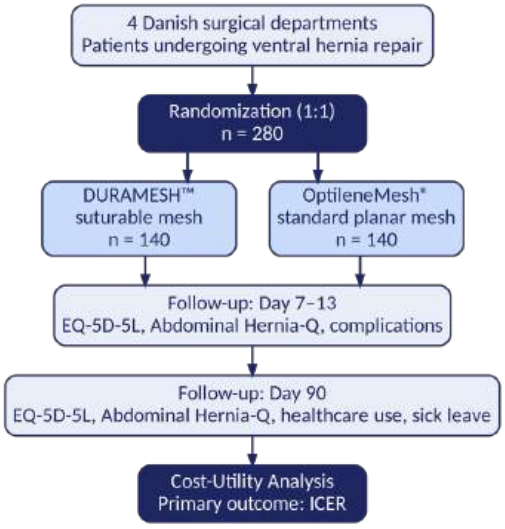
- Ventral hernia repair is among the most frequently performed surgical procedures in Denmark
- Up to 7% of patients are readmitted within 90 days due to wound complications — generating substantial direct healthcare and indirect societal costs
- DURAMESH™, a novel suturable mesh, is hypothesized to reduce wound complications and operative time versus standard planar mesh (OptileneMesh®)
- The health economic consequences of surgical approach for small ventral hernias remain unexplored

~2,500

ventral hernia repairs performed annually in Denmark

2 Trial Design & Methods

- Pre-specified cost-utility analysis conducted alongside the MeMa trial
- Multicenter, randomized, blinded, controlled superiority trial — 280 patients across 4 Danish surgical departments
- Primary outcome: Incremental Cost-Effectiveness Ratio (ICER) — total societal costs versus QALYs
- QALYs derived from EQ-5D-5L utility scores (Danish value set) at baseline, day 7–13, and day 90



3 Cost Categories

Category	Includes	Valued using
Direct surgical	Mesh, operating time, consumables	Center-level unit costs
Direct post-surgical (≤90 days)	Readmissions, wound care, primary sector contacts	DRG tariffs & Danish Health Data Authority unit costs
Indirect societal	Sick leave	Statistics Denmark average daily wage

4 Perspectives & Impact

- First prospective randomized evidence on societal costs and health utility comparing mesh suture to planar mesh repair for small ventral hernias
- With ~2,500 procedures performed annually, even modest per-patient cost differences translate into substantial national healthcare spending
- Findings will contribute to guideline development and health technology assessment in Denmark

Primary outcome

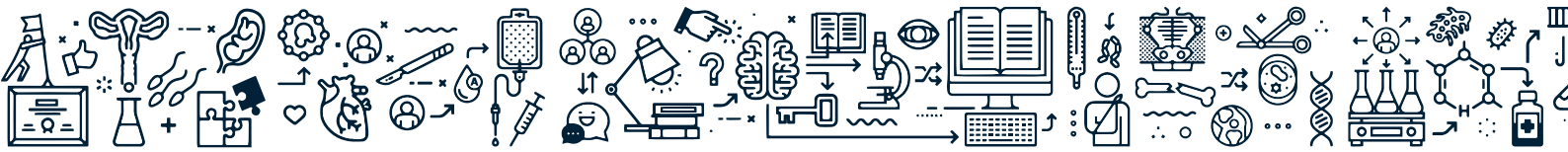
ICER

Societal costs relative to Quality-Adjusted Life Years (QALYs)

MeMa Trial — PhD Project: Health Economic Evaluation of Mesh Suture Repair for Ventral Hernias

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Mikrobiota



49.

Effects of CSF1R inhibition on cognitive function and gut microbiome composition in a rat model of Alzheimer's disease

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Background

Microglia have emerged as a promising therapeutic target in the treatment of Alzheimer's disease (AD), as sustained microglial activation drives neuroinflammation and disease progression. Microglia and the gut microbiome affect one another bidirectionally: gut metabolites shape microglial function, while inhibition of the colony-stimulating factor 1 receptor (CSF1R), a key regulator of microglial survival, has been shown to alter gut microbiome composition in mice. Whether this impacts AD pathology is unknown. Therefore, this study aimed to investigate whether inhibition of CSF1R improved cognitive function and altered the fecal microbiome in a transgenic AD rat model.

Methods

TgF344-AD rats (a rat model of AD) of mixed sex were treated with a CSF1R inhibitor or placebo for 3 months, starting at 10 months of age (average 10.5 months). Additional wildtype rats, receiving placebo, were included as controls. Spatial learning and memory were assessed at endpoint, applying Barnes maze. Fecal samples were collected at baseline and endpoint and used for microbiome analyses using 16S rRNA gene sequencing.

Results

CSF1R inhibition showed a trend toward improved learning in TgF344-AD rats. In contrast, memory was unaffected. Overall gut microbiome composition was not significantly altered by treatment; however, inter-individual variability was seen between the rats.

Conclusions

These findings suggest that CSF1R inhibition may influence both cognition and gut microbiome composition in AD, though further research is warranted.

TARGETING MICROGLIA IN A RAT MODEL OF ALZHEIMER'S DISEASE
- Effects on Cognition and the Gut Microbiome

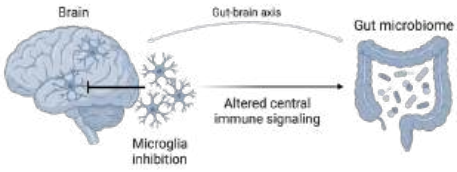
Julie Niemann Holm-Jacobsen[1], Ann-Maria Jensen[2], Caspar Bundgaard-Nielsen[2], Suzette Sørensen[2,3], Ove Wiborg[1]

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Background

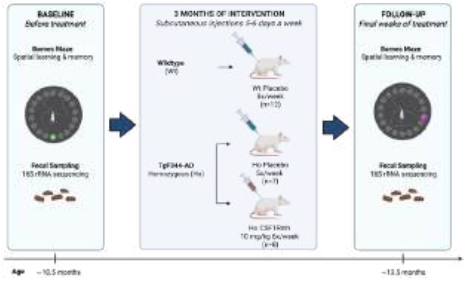
Microglia have emerged as a promising therapeutic target in the treatment of Alzheimer's disease (AD), as sustained microglial activation drives neuroinflammation and disease progression. Microglia and the gut microbiome affect one another bidirectionally: gut metabolites shape microglial function, while inhibition of the colony-stimulating factor 1 receptor (CSF1R), a key regulator of microglial survival, has been shown to alter gut microbiome composition in mice. Whether this also occurs in AD, and how it relates to cognition, remains unclear.

Aim: The study aimed to investigate whether inhibition of CSF1R improved cognitive function and altered the fecal microbiome in a transgenic AD rat model.



Methods

Homozygous TgF344-AD and wildtype rats of both sexes were included. Homozygous rats received subcutaneous placebo or CSF1R inhibitor, and wildtype rats received placebo, for 3 months from approximately 10.5 months of age. Before and at the end of the treatment period, spatial learning (two acquisition days) and short- and long-term memory (probe trials on day 3 and 10) were assessed in the Barnes maze as primary latency. In addition, fecal samples from both timepoints were analyzed by 16S rRNA gene sequencing. Group sizes vary between analyses due to missing data.



Results

Only placebo-treated homozygous rats were significantly slower than wildtype at the end of learning, whereas CSF1R inhibitor-treated rats were significantly slower than wildtype in the long-term memory test

All groups learned the task across the five trials ($p < 0.001$), with no significant difference in learning rate ($p = 0.54$) (Fig. 1A). At the last trial, only placebo-treated rats remained significantly slower than wildtype ($p = 0.018$), although the two homozygous groups did not differ significantly from each other. On day 10, only CSF1R inhibitor-treated rats were significantly slower than wildtype ($p = 0.010$) (Fig. 1B).

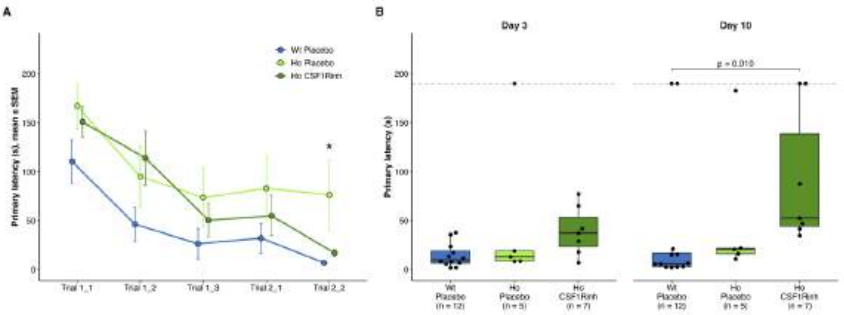


Figure 1: Spatial learning and memory tested in the Barnes maze at follow-up. Performance was measured as primary latency, the time to first reach the target hole. **A)** Learning across five trials (Day 1–2), mean ± SEM. Linear mixed-effects model. * Ho Placebo vs Wt Placebo at the last trial. **B)** Short- and long-term memory (Day 3 and 10). Boxes: median and IQR, points: individual rats, dashed line: trial cutoff (190 s). Last trial (A) and memory tests (B): Kruskal-Wallis with Dunn's test (Bonferroni-adjusted).

Homozygous rats had a different gut microbiome from wildtype, but CSF1R inhibitor-treated rats varied more between individuals

Before treatment, the gut bacterial composition of CSF1R inhibitor-treated rats already differed significantly from wildtype ($p = 0.017$), with a borderline difference in placebo-treated rats ($p = 0.063$). At follow-up, both differed significantly (Fig. 2A). The homozygous groups did not differ significantly from each other, but CSF1R inhibitor-treated rats varied significantly more between individuals at follow-up ($p = 0.004$). *Prevotella copri* reached high abundance in some CSF1R inhibitor-treated rats (Fig. 2B).

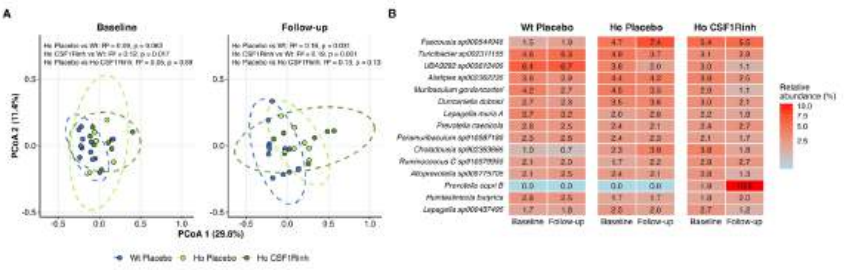


Figure 2: Fecal bacterial composition at baseline and follow-up. At baseline, groups are shown as later allocated and no treatment had been given. **A)** PCoA based on Bray-Curtis dissimilarity. Points: individual rats, dashed ellipses: spread of each group. PERMANOVA. Number of rats (baseline/follow-up): Wt Placebo 12/12, Ho Placebo 5/7, Ho CSF1Rinh 8/7. **B)** Mean relative abundance (%) of the 15 most abundant species per group and timepoint.

Conclusion

In AD rats, inhibiting microglia did not improve memory, as the treated rats performed worse than healthy rats in the long-term memory test. The gut bacteria of the AD rats differed from those of healthy rats already before treatment, and at follow-up, treated rats varied more from each other in their gut bacteria.

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50.

Extracellular vesicles from the gastrointestinal microbiota in patients with rheumatoid arthritis: a pilot study

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Background

Rheumatoid arthritis (RA) is a chronic systemic autoimmune disease with a prevalence of 0.5-1%. It is characterized by joint swelling, pain, extra-articular manifestations, and increased mortality rate. Multiple factors contribute to RA development, including genetic and environmental factors. However, the complete pathogenesis remains unknown. In recent years, the gastrointestinal microbiota has been proposed to be involved. One theory is that GM-derived extracellular vesicles (GM-EVs) may contribute to RA pathogenesis by delivering bacterial compounds to the host environment, thereby initiating immune responses. Currently, little research on this area is available. We aim to investigate the difference in GM and its functional output through GM-EVs in newly diagnosed, treatment-naive RA patients and after three months follow-up, compared to healthy controls.

Methods

Fecal samples will be collected from treatment-naive patients with RA (n=10) at time of diagnosis and 3 months after initiating treatment. Samples from time of diagnosis will be compared to age-and sex-matched healthy controls (n=10). Size-exclusion chromatography (SEC) is used to isolate GM-EVs. Afterwards, characterisation of GM-EVs is performed using nanoparticle tracking analysis (NTA), bicinchoninic acid assay (BCA) and qPCR. Oxford Nanopore sequencing of the V1-V8 region of the 16S rRNA gene will be used to determine the bacterial DNA-profile of the GM-EVs and the GM community composition.

Perspectives

Knowledge about the role of GM-EVs in the pathogenesis of RA may pave the way for further exploration into future treatments. These potentially include fecal microbiota transplantations or dietary interventions aimed at modulating the GM and the gut barrier function.

Extracellular vesicles from the gastrointestinal microbiota in patients with rheumatoid arthritis: A pilot study

Sophie Amalie Lindhardt[1,2,3*], Amalie Skak Thomsen[1,2,3*], Caspar Bundgaard-Nielsen[3], Zuzanna Stachowiak[1,3], Anne Sofie Vedsted[3], Nadia Ammitzbøll[3], Ann-Maria Jensen[3], Peter Derek Christian Leutscher[1,3], Suzette Sørensen[1,3], Asta Linauskas[1,2]

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3 Center for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
**These authors contributed equally to this work*

1. BACKGROUND

- Rheumatoid arthritis (RA) is a chronic systemic autoimmune disease with a prevalence of 0.5-1%. It is characterized by joint swelling, pain, extra-articular manifestations, and increased mortality rate.
- Multiple factors contribute to RA development, including genetic and environmental factors. However, the complete pathogenesis remains unknown.
- One theory is that nanosized gut microbiota-derived extracellular vesicles (GM-EVs) may contribute to RA pathogenesis by delivering bacterial compounds to the host environment, thereby initiating immune responses.

2. AIM

- To investigate the difference in GM and its functional output through GM-EVs in treatment-naive RA patients at time of diagnosis, after three- and six-months follow-up, compared to healthy controls.

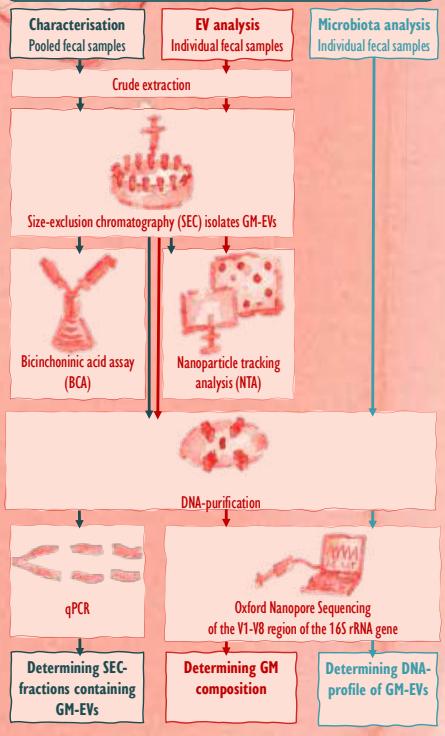
3.1 METHODS

Samples and participants

- Fecal samples will be collected from treatment-naive patients with RA (n=10) at time of diagnosis and 3 months after initiating treatment.
- Samples from time of diagnosis will be compared to age-and sex-matched healthy controls (n=10).

3.2 METHODS

Experimental setup



4. PERSPECTIVES

- Knowledge about the role of GM-EVs in the pathogenesis of RA may pave the way for future treatment options.
- These potentially include dietary interventions aimed at modulating the GM and the gut barrier function or administration of beneficial EVs or bacterial strains with specific EV signatures.

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51.

Can transplantation of fecal extracellular vesicles be utilized as therapeutic intervention for Alzheimer's disease?

Zuzanna Stachowiak[1,2], Caspar Bundgaard-Nielsen[1], Ann-Maria Jensen[1], Anne Sofie Vedsted[1], Peter Derek Christian Leutscher[1,2], Ove Wiborg[3], Suzette Sørensen[1,2]

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3. Department of Health Science and Technology, Aalborg University, Aalborg, Denmark

Background

The microbiota-gut-brain axis may contribute to Alzheimer's disease (AD) pathogenesis. Gut microbiota-derived extracellular vesicles (GM-EVs) are small bacterial particles that may facilitate communication between gut bacteria and the host. However, the therapeutic potential of GM-EVs from healthy hosts remains largely unexplored.

Methods

GM-EVs were isolated from healthy wild-type Fischer-344 rat feces using rounds of centrifugation and filtration, followed by size-exclusion chromatography (SEC). Vesicle-enriched fractions were characterized for particle size and concentration using nanoparticle tracking analysis (NTA), while protein content was assessed by bicinchoninic acid (BCA) assay. Sixteen AD (Tg344-AD) rats were randomly assigned to equal treatment and placebo groups. The treatment group received GM-EVs orally every weekday for 2.5 months. Spatial learning and memory were assessed before and after treatment using the Barnes Maze.

Results

SEC fractions 8-12 were identified as vesicle-enriched, with a mean particle size of 164.4 ± 4.6 nm and concentration of $2.17 \times 10^{10} \pm 7.07 \times 10^{9}$ particles/mL (mean ± SEM). The main protein peak occurred outside these fractions, supporting separation of vesicle-enriched fractions from free protein. Barnes Maze performance showed no significant treatment-related differences in spatial learning or memory retention. However, both groups demonstrated learning and retention over time.

Conclusions

Oral GM-EV treatment did not significantly improve spatial learning or memory under the tested conditions. The interpretation of the findings is limited by animal age and variable vesicle intake. Studies in older animals and analysis of cerebral amyloid plaque burden may determine whether GM-EVs influence AD-related pathology despite the absence of detectable cognitive effects.

Can transplantation of gut microbiota-derived extracellular vesicles be utilized as therapeutic intervention for Alzheimer's disease?

Zuzanna Stachowiak[1,2], Caspar Bundgaard-Nielsen[1], Ann-Maria Jensen[1], Anne Sofie Vedsted[1], Peter Derek Christian Leutscher[1,2], Ove Wiborg [3], Suzette Sørensen[1,2]

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Background

Alzheimer's disease (AD) is a growing global health threat due to an aging population and limited treatment options. Despite its well-established multifactorial pathophysiology, emerging evidence suggests that gut microbiota (GM) dysbiosis, an imbalance in the gut bacterial composition, may contribute to disease pathology from an early stage. As bacteria rarely enter the central nervous system, gut microbiota-derived extracellular vesicles (GM-EVs) may act as key mediators of gut-brain communication. GM-EVs are nanosized, bacteria-derived particles that function as "envelopes" for biologically active cargo, including nucleic acids, proteins, lipids, and metabolites. Their small size and protective structure enable them to traverse biological barriers, including the intestinal wall and blood-brain barrier (BBB), providing a potential mechanism through which changes in the gut microbiota can influence the brain. Importantly, the effects of GM-EVs may depend on their bacterial origin. GM-EVs derived from pathogenic bacteria can promote neuroinflammation, amyloid-beta (Aβ) aggregation, tau hyperphosphorylation, and cognitive decline, whereas those derived from probiotic bacteria may exert neuroprotective effects. However, current research has focused predominantly on GM-EVs from isolated bacterial strains, leaving the community-level effects of GM-EVs and their potential role in AD poorly understood.

Aim: To investigate whether GM-EVs derived from healthy WT rats exert therapeutic effects on spatial learning and memory in AD rats

Method overview

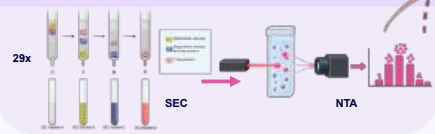
1. Fecal sample collection and initial processing

Feces were collected from 5–7-month-old male WT rats (N = 5), homogenized to lyse the samples, and centrifuged to remove larger debris, and subsequently filtered.



2. GM-EV isolation and characterization

Size-exclusion chromatography (SEC) was used to isolate GM-EVs by separating the fecal sample into fractions based on particle size, followed by NTA to identify particle-rich fractions and measurement of protein concentration across fractions.



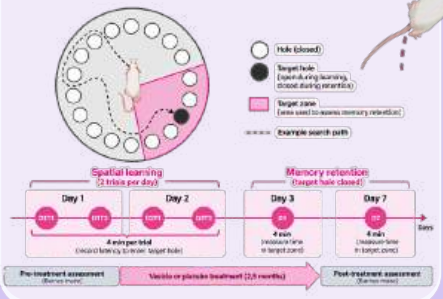
3. Vesicle treatment

Rats were divided into two groups and received either GM-EVs or placebo (sugar water) on their food every weekday for 2,5 months.



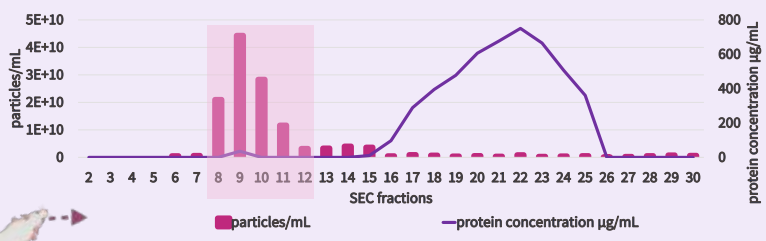
4. Cognition assessment with Barnes Maze

Cognition was assessed before and after treatment using a circular arena with multiple holes and one target hole. Spatial learning was evaluated on days 1-2 with two trials per day, and memory retention on days 3 and 7.



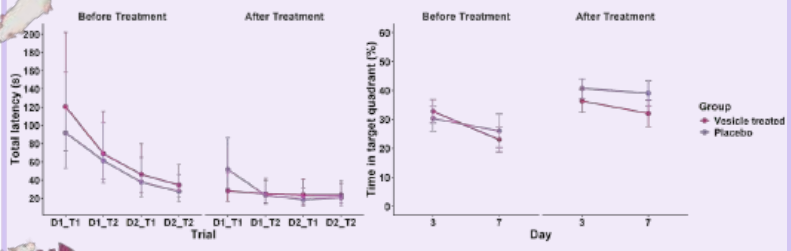
Results

GM-EV Characterization



A total of 29 SEC fractions were investigated using NTA. The highest particle concentrations were detected in fractions 8 to 12, identifying these fractions as putative GM-EV-enriched fractions. Furthermore, protein concentration measurements showed that the main protein peak occurred later, predominantly in fractions 20-25, outside the selected particle-enriched fractions. The clear separation between the particle and protein peaks supports successful enrichment of putative GM-EV-containing fractions with reduced free-protein contamination.

Behavior experiment



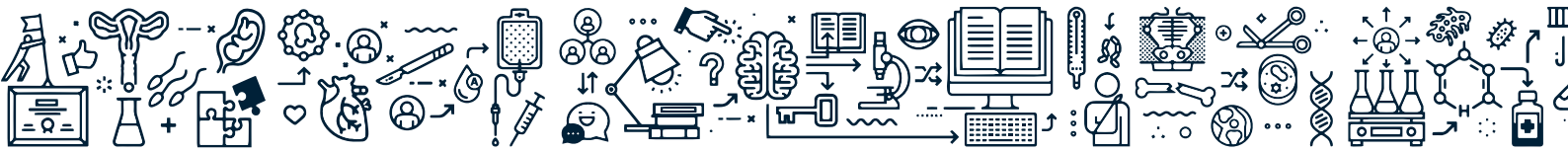
No significant treatment-related differences were observed in **total latency,** or **time spent in the target quadrant.** Total latency decreased across trials, indicating **spatial learning in both groups.** Both groups also **showed retention of the target location. Overall, GM-EV treatment did not significantly improve spatial learning or memory compared with placebo.**

Conclusions

Oral GM-EV treatment did not significantly improve spatial learning or memory in rats under the tested conditions. Nevertheless, both treatment and placebo groups demonstrated learning and memory retention throughout the Barnes maze experiment. The absence of a detectable treatment effect may have been influenced by the age of the animals and variability in oral GM-EV intake. Future studies should investigate older AD cohorts, more controlled GM-EV dosing, and cerebral amyloid plaque burden.

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Onkologi



52.

Intra-patient stabilitet og variation af immunhistokemiske biomarkører ved pleuralt mesotheliom

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Baggrund

Ved pleuralt mesotheliom (PM) anvendes immunhistokemiske markører til diagnostik og karakterisering af tumorbiologi. Det er uafklaret, hvor stabile disse markører er gennem sygdomsforløbet. Dette er klinisk relevant, da stabile biomarkører i den første prøve kan give et repræsentativt billede af tumorens biologiske profil. Formålet var at undersøge intra-patient variation i parrede cytologiske og histologiske prøver.

Metoder

Retrospektivt identificeredes patienter med cytologiske og histologiske prøver fra en PM patientkohorte fra Aalborg Universitetshospital. Den immunhistokemiske ekspression af WT1, CK7, BAP1 og MTAP blev vurderet binært, mens CHK1 og TP blev kvantificeret ved H-score.

Resultater

Prøverne stammede fra fem patienter og var udtaget i perioden 2000–2011 med et interval på 11–260 dage. Alle cytologiske prøver samt fire histologiske prøver stammede fra pleura, mens en histologisk prøve stammede fra peritoneum. CK7, BAP1 og MTAP var uændrede hos alle fem patienter, mens WT1 varierede hos tre. CHK1 og TP viste større intra-patient variation, herunder variation i kerne- og cytoplasmatisk ekspression. F.eks. steg CHK1 hos patient 1 med 40 point, mens TP faldt med 100 point.

Konklusioner

CK7 samt de tumor-suppressor-relaterede markører BAP1 og MTAP var stabile mellem de parrede prøver, mens differentieringsmarkøren WT1 varierede. CHK1, involveret i DNA-skaderespons og cellecyklusregulering, og TP, involveret i nukleotidmetabolisme og angiogenese, viste større intra-patient variation i ekspressionsniveau og subcellulær lokalisering. Resultaterne tyder på, at biomarkørernes biologiske funktion kan være relateret til deres stabilitet gennem sygdomsforløbet og kan få betydning for fortolkningen af prøver udtaget på forskellige tidspunkter. Fundene bør valideres i større longitudinelle kohorter.

INTRA-PATIENT STABILITET OG VARIATION AF IMMUNHISTOKEMISKE BIOMARKØRER VED PLEURALT MESOTHELIOM

Azadeh Asghari Birbaneh[1,2,3] • Christos Meristoudis[4] • Caspar Bundgaard Nielsen[2] • Weronika Maria Szejniuk[3,5] • Morten Johansen[1] • Peter Derek Christian Leutscher[2] • Vasiliki Panou[6,7] • Oluf Dimitri Røe[5,8]

Formål

At undersøge intra-patient variation i parrede cytologiske og histologiske prøver.

Hvorfor undersøgte vi det?

Immunhistokemiske biomarkører bruges til diagnostik og karakterisering af lungehindekræft. Det er uvist, om den første prøve fortsat er repræsentativ senere i sygdomsforløbet.

Design og metode

Retrospektiv kohorte
5 patienter, 5 prøvepar
Interval: 11-260 dage

CHk1 og TP : H-score.
WT1: Kategorisk vurdering
CK7, BAP1 og MTAP : binær vurdering

Resultater

CHK1 og TP ændrede sig mellem prøverne, WT1 ændrede sig hos 3/5 patienter, mens CK7, BAP1 og MTAP var stabile.

Konklusioner

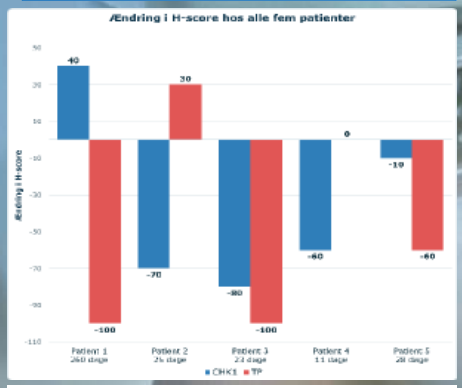
Variable markører kan afspejle tumorens aktuelle biologiske tilstand, mens stabile markører i højere grad kan afspejle faste genetiske ændringer eller celletypen.

Fundene er eksplorative og skal valideres i større studier.

Klinisk betydning

Prøvetidspunkt og markørtype bør indgå i vurdering af, om en tidligere tumorprøve fortsat er repræsentativ.

Biomarkørændringer hos den enkelte patient



Ændring i H-score fra første til opfølgende prøve. Tidsintervallet vises for hver patient.

WT1-status mellem de to prøver (kategorisk vurdering)

Patient 1	Patient 2	Patient 3	Patient 4	Patient 5
Svagt positiv→ positiv	Uændret	Uændret	Svagt positiv→ positiv	Positiv → Negativ

Biologisk fortolkning

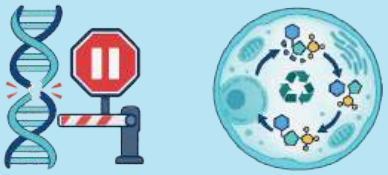
CHK1 reagerer på DNA-skade og problemer under celledelingen. TP påvirkes af omsætning af DNA-byggesten, iltmangel og dannelse af blodkar.

Begge kan derfor ændre sig med tumorens tilstand og omgivelser.

WT1 styrer cellens identitet og kan ændre sig, når tumorcellernes egenskaber eller sammensætning ændres.

BAP1 og MTAP tab afspejler ofte genetiske ændringer, mens CK7 hænger sammen med celletype og struktur. Det kan forklare deres større stabilitet.

CHK1 og TP: Reagerer på cellens tilstand



CHK1
Cellens sikkerhedskontrol
Stopper celledelingen ved DNA-skade.

TP
Stofskifte og nye blodkar
Omsætter DNA-byggesten og kan fremme dannelsen af blodkar.

WT1: Afspejler cellens identitet



WT1
Styrer cellens identitet
Påvirker, hvilke gener cellen bruger.

BAP1, MTAP og CK7: Mere faste kendetegn



BAP1
Cellens vækstbremse
Hjælper med at kontrollere cellens vækst og deling.



MTAP
Cellens genbrugssystem
Genanvender vigtige molekylære byggesten.



CK7
Cellens indre støtte
Styrker cellens struktur og kendetegner celletypen.

TAKE-HOME MESSAGE

Den første tumorprøve er ikke nødvendigvis repræsentativ for alle biomarkører gennem sygdomsforløbet.

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NORTH DENMARK REGIONAL HOSPITAL

CKF CENTER FOR KLINISK FORSKNING

AALBORG UNIVERSITET

53.

Validering af Cepheid Xpert Bladder Cancer Monitor

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2. Klinisk Institut, Aalborg Universitet, Aalborg, Danmark

Baggrund

Blærecancer er den sjette hyppigst diagnosticerede cancerform i Danmark, og op mod 50 % oplever tilbagefald. Cystoskopi er standardmetoden ved monitorering for recidiv, men metoden er invasiv og forbundet med ubehag og infektionsrisiko, hvorfor flere urinbaserede biomarkørtests er blevet udviklet. I 2025 besluttede Dansk Blære Cancer Gruppe, at Cepheid Xpert Bladder Cancer Monitor (XBCM) skulle indgå i monitoreringen hos patienter med højmaligne tumorer. XBCM måler ekspressionen af fem mRNA-markører (ABL1, ANXA10, UBK1B, IGF2 og CRH). Et studie fra Aarhus Universitet har vist, at metoden kunne reducere antallet af cystoskopier med 55 % og vurderede den klinisk anvendelig.

Metoder

Metoden blev valideret med ni positive og syv negative eksterne kontroller samt ti patientprøver fra patienter med tidligere ikke-muskelinvasiv blæretumor, herunder både høj- og lavmaligne tumorer. Genekspressionen af markørerne blev målt som Cycle Threshold (Ct) ved reverse transcription-polymerase chain reaction, og alle Ct-værdierne blev normaliseret til ABL1. De resulterende ΔCt-værdier blev anvendt i en matematisk model til klassifikation af positiv eller negativ. Gennemsnit, standardafvigelse og variationskoefficient blev efterfølgende beregnet.

Resultater

De eksterne kontroller viste kun små variationer i de målte værdier, mens patientprøverne forventeligt havde større spredning. En patient med recidiv ved cystoskopi var også positiv med XBCM, mens yderligere to patienter var XBCM-positive trods negativ cystoskopi. En patient med tidligere lavmalign tumor var XBCM-negativ trods positiv cystoskopi.

Konklusioner

Valideringen indikerer, at XBCM kan anvendes til klinisk monitorering af patienter med tidligere højmaligne tumorer.

Metodevalidering af Cepheid Xpert Bladder Cancer Monitor

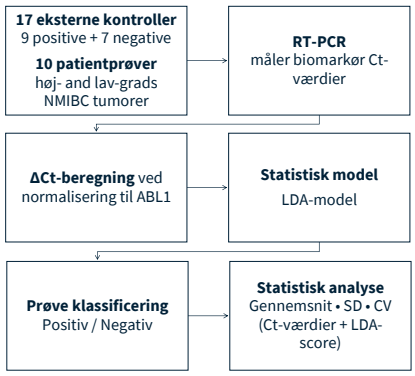
Jette Fischer Petersen[1], Abdirashid Sufi Hussein[1], Morten Mørk[1,2]

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2. Klinisk Institut, Aalborg Universitet, Aalborg, Danmark

Baggrund

- Blærecancer er den sjette mest diagnosticerede cancertype i Danmark, og op mod **50 % får recidiv.**
- Cystoskopi er standardmetoden til overvågningen af recidiv, men den er invasiv, ukomfortabel og forbundet med øget risiko for infektion.
- Dansk Blærecancer Gruppe anbefalede, i 2025, at gøre brug af **Cepheid Xpert Bladder Cancer Monitor (XBCM)** til overvågningen af patienter med højgradstumorer.
- XBCM måler fem mRNA-markører (**ABL1, ANXA10, UBK1B, IGF2, and CRH**) samt en Cepheid Internal Control (CIC) til detektion af PCR-inhibering.
- Et studie fra Aarhus Universitet fandt, at XBCM kunne reducere antallet af cystoskopier med 55%.

Metoder



Resultater

- Positive kontroller havde **CV = 0.8–2.0 %** for biomarkørerne og **4.2 %** for LDA-scoren.
- Negative kontroller havde **CV = 0.6 % (CIC)**, **0.9 % (ABL1)**, og **13.4 % (LDA-score)**. (Der er ingen andre markører i kontrollen)

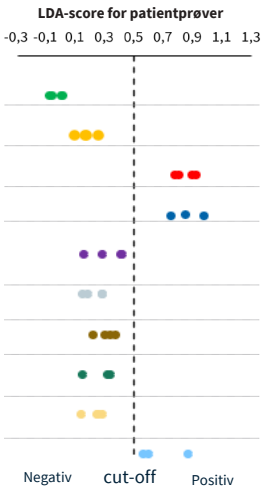
- **Pt2:** XBCM-negativ på trods af positiv cystoskopi, tidligere lav-gradstumor (gul).
- **Pt3:** Recidiv fundet med både cytoskopi og XBCM (rød).
  Pt4 og Pt10: XBCM-positive på trods af negative cystoskopier (blå).

Konklusion

- Den store variation i resultaterne fra patientprøverne var forventet.
- Den høje variation af CV%-værdier LDA-scorerne var uventet.
- LDA-algoritmen er ikke oplyst af producenten og derfor ukendt.
- SD og CV% for hver individuel mRNA-biomarkør blev derfor anvendt i valideringen.
- Resultaterne indikerer, at XBCM-metoden kan anvendes til klinisk monitorering af patienter med tidligere tilfælde af høj-gradstumorer.

	Oprindelig diagnose*	CIC			ABL1			ANXA10			UPK1B			CRH			IGF2			LDA		
		Gns	SD	CV %	Gns	SD	CV%	Gns	SD	CV%	Gns	SD	CV%	Gns	SD	CV%	Gns	SD	CV%	Gns	SD	CV%
pt1	PTa høj + CIS	33,9	**0,5**	**1,4 %**	28,3	**1,0**	**3,5 %**	39,3			35,5	**0,6**	**1,7 %**				40,0			-0,03	**0,05**	153,4 %
pt2	PT1 lav + ny	33,3	**0,2**	**0,5%**	33,6	**0,6**	**1,8 %**				34,8	**0,4**	**1,2 %**				39,5	**1,6**	**4,0 %**	0,2	**0,07**	38,1 %
pt3	CIS + mulig ny	34,2	**0,9**	**2,6%**	25,5	**0,5**	**1,8 %**	36,7	**2,4**	**6,6 %**	26,2	**0,7**	**2,8 %**	29,7	**0,2**	**0,6 %**	30,4	**0,8**	**2,5 %**	0,9	**0,07**	8,4 %
pt4	PT1 høj	32,9	**0,2**	**0,7%**	29,3	**1,2**	**4,0 %**	33,8	**1,4**	**4,0 %**	28,4	**1,0**	**3,4 %**	31,8	**1,0**	**3,0 %**	31,6	**1,4**	**4,4 %**	0,9	**0,1**	13,5 %
pt5	PTa lav + tidl. recidiv CIS og Pta lav	33,3	**0,3**	**0,9%**	30,7	**0,5**	**1,7 %**	38,2	**0,1**	**0,4 %**	33,3	**1,0**	**3,0 %**	36,7	**1,3**	**3,6 %**	36,8	**2,1**	**5,8 %**	0,3	**0,1**	39,6 %
pt6	PTa høj	33,1	**0,3**	**1,0%**	34,5	**0,8**	**2,4 %**				34,5	**0,7**	**2,1 %**				38,9	**1,4**	**3,7 %**	0,2	**0,07**	30,1 %
pt7	PTa høj	33,1	**0,2**	**0,6%**	30,8	**0,2**	**0,6 %**	38,8			33,0	**0,4**	**1,3 %**				35,8	**1,5**	**4,2 %**	0,3	**0,07**	21,6 %
pt8	PTa høj + CIS	33,3	**0,1**	**0,3%**	29,6	**0,7**	**2,4 %**	39,0			34,9	**1,3**	**3,7 %**				34,7	**1,6**	**4,7 %**	0,3	**0,1**	39,7 %
pt9	PTa høj + CIS	33,2	**0,1**	**0,2%**	32,9	**1,0**	**3,0 %**	37,3			35,2	**1,4**	**3,9 %**				37,7	**1,3**	**3,5 %**	0,2	**0,06**	27,6 %
pt10	PT1 høj	33,1	**0,1**	**0,3%**	30,9	**0,4**	**1,1 %**	35,6	**1,2**	**3,4 %**	32,7	**0,6**	**1,9 %**	39,7	**2,3**	**5,9 %**	30,7	**0,5**	**1,5 %**	0,7	**0,2**	24,5 %

*PTx beskriver tumorens stadie
CIS = *Carcinoma in situ*

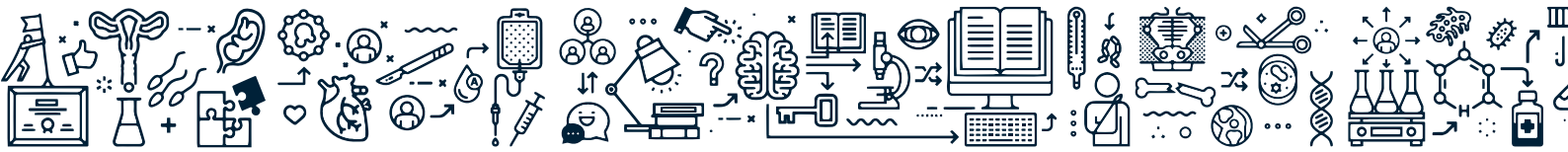


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Patient og Borger i Fokus



54.

Kan udvikling af videobaseret patientinformation styrke sundhedskompetencer hos patienter, der tilbydes elektiv kirurgi?

Anne Skov Søndergaard[1], Caroline Fuglsang[1], Lærke Broen Wichmann Christensen[1], Jette Aagaard Jensen[1], Tina Ipsen[1], Rikke Rishøj Mølgaard[2,3], Daniel Krag Nielsen[2,3]

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3. Sygeplejerskeuddannelsen, Professionshøjskolen UCN, Hjørring og Thisted, Danmark

Baggrund

Patienter, der tilbydes elektiv kirurgi, kan opleve usikkerhed og manglende overblik over det præ-, per- og postoperative forløb. Patienters behov og præferencer for information varierer, og deres sundhedskompetencer kan have betydning for, hvordan information forstås og anvendes. Vores erfaringer viser, at utilstrækkelig forståelse af patientforløbet kan medføre manglende efterlevelse af præoperative forberedelser hjemmefra, øget angst samt skabe forsinkelser eller aflysninger af operationer. Vi oplever, at medgivet skriftligt materiale ikke altid bliver læst og vil derfor undersøge patienter og sundhedsprofessionelles perspektiv på, om videobaseret patientinformation kan styrke patienternes sundhedskompetence som supplement til mundtlig og skriftlig information.

Metoder

Projektet er et kvalitativt udviklingsprojekt med individuelle semistrukturerede interviews. Der inkluderes elektive kirurgiske patienter (>18 år), som har modtaget præoperativ information i ambulatoriet og efterfølgende modtaget skriftlig information om indgrebet. Ligeledes vil vi gennemføre individuelle interviews med relevante sundhedsprofessionelle. Interviewene fokuserer på patienternes oplevelser af den givne information, og om denne har været tilstrækkelig som forberedelse til operationen, samt de sundhedsprofessionelles oplevelse af dette. Data analyseres tematisk med henblik på at identificere centrale behov og informationsmangler som grundlag for udvikling af videomateriale.

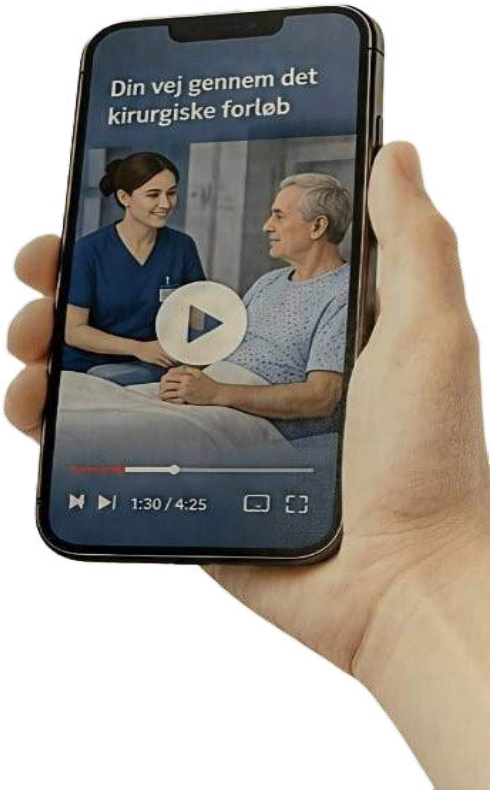
Perspektiver

Projektet skal danne grundlag for udvikling af et patientcentreret digitalt informationsmateriale, der kan forbedre patienternes forståelse, tryghed og forberedelse til kirurgi. Videomaterialet tænkes som supplement til eksisterende information og som et fleksibelt tilbud, patienterne kan tilgå før operation og gense efter behov. Herved understøttes patienternes individuelle sundhedskompetencer og forbedre patientoplevelsen samt bidrager til øget kvalitet og patientsikkerhed. Forhåbentligt kan dette reducere misforståelser og aflysninger i det kirurgiske patientforløb.

KAN UDVIKLING AF VIDEOBASERET PATIENTINFORMATION STYRKE SUNDHEDSKOMPETENCER HOS PATIENTER, DER TILBYDES ELEKTIV KIRURGI?

BAGGRUND

Mange patienter oplever usikkerhed og manglende overblik før operation trods skriftlig og mundtlig information. Studier viser, at en del patienter ønsker flere informationsmuligheder. Konsekvensen kan være, at patienter møder op angste og uden at have fulgt de præoperative forberedelser.
Derfor ønsker vi at udvikle et videobaseret informationsmateriale for at styrke patienternes sundhedskompetencer.



METODE

- Data fra elektive patienter >18 år og sundhedsprofessionelle
- Semistrukturerede interviews med tematisk analyse
- Udvikling af et supplerende videomateriale til elektiv kirurgiske patienter



PERSPEKTIV

- Videomateriale kan styrke patienternes forståelse og tryghed
- Øge kvalitet og patientsikkerhed via personcentreret informationsmateriale
- Minimere misforståelser og aflysning af kirurgiske indgreb

REGION NORDJYLLAND

Anne Skov Søndergaard[1], Caroline Fuglsang[2], Lærke Broen Wichmann Christensen[2], Jette Aagaard Jensen[3], Tina Ipsen[4], Rikke Rishøj Mølgaard[5,6], Daniel Krag Nielsen[5,6].

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55.

Fra gentagne henvendelser med obstipation eller divertikler til øget sundhedskompetence: kan sygepleje gøre forskellen?

Camilla Borrisholt[1], Morith Grøne[1], Daniel Krag Nielsen[2,3], Rikke Rishøj Mølgaard[2,3]

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3. Sygeplejerskeuddannelsen, Professionshøjskolen UCN, Hjørring og Thisted, Danmark

Baggrund

Obstipation og divertikler er hyppige problemstillinger blandt patienter, og det udfordrer patienternes livskvalitet. Patienter henvises gentagne gange med samme problemstilling, hvilket bevirker, at patienter skal igennem de samme undersøgelser flere gange. Undersøgelser, som ikke er uden ubehag og risiko for patienten. I ambulatoriet opleves det, at mange patienter har behov for gentagen vejledning om kost, væskeindtag, fysisk aktivitet, medicinsk behandling og håndtering af symptomer. Derfor er formålet at undersøge hvilken sygeplejefaglig indsats, der kan udvikles for at styrke patienternes sundhedskompetence til at håndtere obstipation og divertikler i hverdagslivet.

Metoder

Patientgruppen kortlægges ved hjælp af aktivitetsdata fra Kirurgisk Ambulatorium og Endoskopisk Afsnit, hvor der samles data om antal henviste patienter eller allerede undersøgte patienter med obstipation og divertikler. Disse data rapporteres i antal og proportioner. Derudover gennemføres litteratursøgning for at afdække evidensbaseret viden på området. Denne informerer interviewguide til afvikling af kvalitative interviews af patienter med henblik på at afdække hvordan obstipation og divertikler udfordrer deres hverdag, samt hvilket behov for viden de ønsker eller mangler. Analysen af data og interviews foretages af en tværprofessionel projektgruppe.

Perspektiver

Undersøgelsens resultater kan bidrage til udvikling af målrettede sygeplejefaglige indsatser, der understøtter patienternes forståelse af egen sygdom, behandling og forebyggelse. Dette kan potentielt reducere antallet af uhensigtsmæssige henvendelser og genkontakter samt styrke patienternes sundhedskompetence således symptomer i hverdagen reduceres og håndteres bedst muligt.

FRA GENTAGNE HENVENDELSER MED OBSTIPATION ELLER DIVERTIKLER TIL ØGET SUNDHEDSKOMPETENCE.

Kan sygepleje gøre forskellen?

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2 Hospitalsledelsen, Regionshospital Nordjylland, Hjørring, Danmark
3 Sygeplejerskeuddannelsen, Professionshøjskolen UCN, Hjørring, Danmark

BAGGRUND

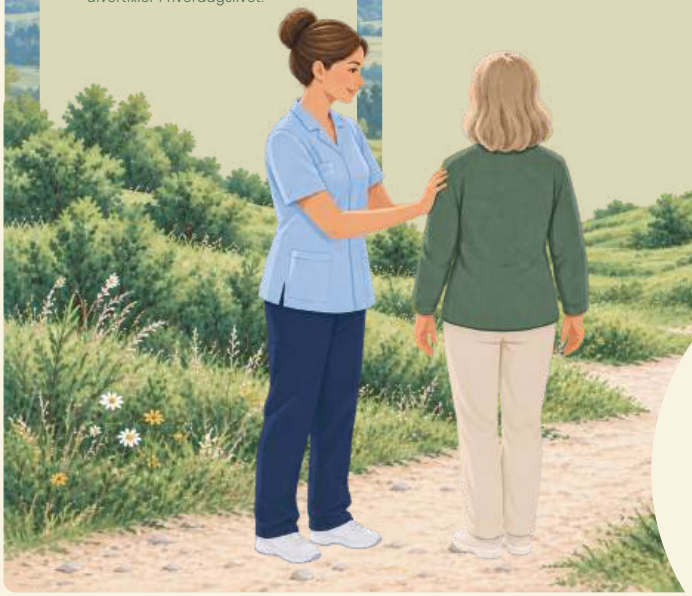
- Livskvalitet kan udfordres hos patienter med obstipation eller divertikler.
- Patienter henvises gentagne gange og udsættes for de samme risikofyldte procedurer.
- I Endoskopisk afsnit opleves det, at mange patienter har behov for gentagen vejledning om obstipation og divertikler.
- Formålet er at undersøge hvilken sygeplejefaglig indsats der kan udvikles, for at kunne styrke patienternes sundhedskompetence og derved bedre mestringen af obstipation eller divertikler i hverdagslivet.

METODE

- Patientgruppen kortlægges ved hjælp af aktivitetsdata.
- Litteratursøgning for at afdække evidensbaseret viden på området.
- Kvalitative interviews med afdækning af hvordan obstipation eller divertikler påvirker patientens hverdag og hvilken viden de erfarer at have behov for eller mangler.
- Analyse foretages af en tværprofessionel projektgruppe.

PERSPEKTIV

- Udvikling af en målrettet og personcentreret sygeplejefaglig indsats, der styrker patienternes sundhedskompetencer.
- Reducere antallet af henvisninger for samme patient med samme problematik.





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Alberte Sigrid | Grafisk Designer

56.

Sundheds- og omsorgspladser i Vendsyssel – fagligt og strategisk afsæt for etablering af et nyt sundhedsfagligt tilbud i sundhedskæden

Charlotte Fuglesang[1], Katrine Porsborg Larsen[2], Pia Hæstrup[3], Bente Frydkjær Rømer[3]

1. Hospitalsledelsen, Regionshospital Nordjylland, Hjørring, Danmark
2. Medicinsk Afdeling, Regionshospital Nordjylland, Hjørring, Danmark
3. Kontor for Det Nære Sundhedsvæsen og Digitalisering, Regionshospital Nordjylland, Hjørring, Danmark

Baggrund

Med sundhedsreformen overtager regionerne fra 1. januar 2027 myndigheds- og finansieringsansvaret for sundheds- og omsorgspladserne. I Vendsyssel skal Regionshospital Nordjylland etablere og drive 83 pladser fordelt på tre matrikler i Hjørring, Brønderslev og Frederikshavn. Opgaven er ikke alene at overtage og videreføre eksisterende pladser, men at udvikle et nyt sundhedsfagligt tilbud med et tydeligt rehabiliterende sigte. Tilbuddet skal bringe flere sundhedsfaglige indsatser tættere på borgerens hverdagsliv, understøtte borgerens egenmestring og styrke sammenhængen mellem hospital, kommune og almenmedicinske tilbud.

Metoder

Det faglige og strategiske afsæt udvikles på baggrund af nationale og regionale rammer og gennem et tværsektorielt udviklingsarbejde med inddragelse af relevante faglige og organisatoriske aktører. Arbejdet konkretiserer tilbuddets faglige ambition, målgruppe og rolle i sundhedskæden og omsætter disse til en fælles retning for etablering og drift. Efter driftsstart anvendes erfaringer systematisk og sammen med data fra praksis vil tilbuddet løbende blive kvalificeret og videreudviklet.

Perspektiver

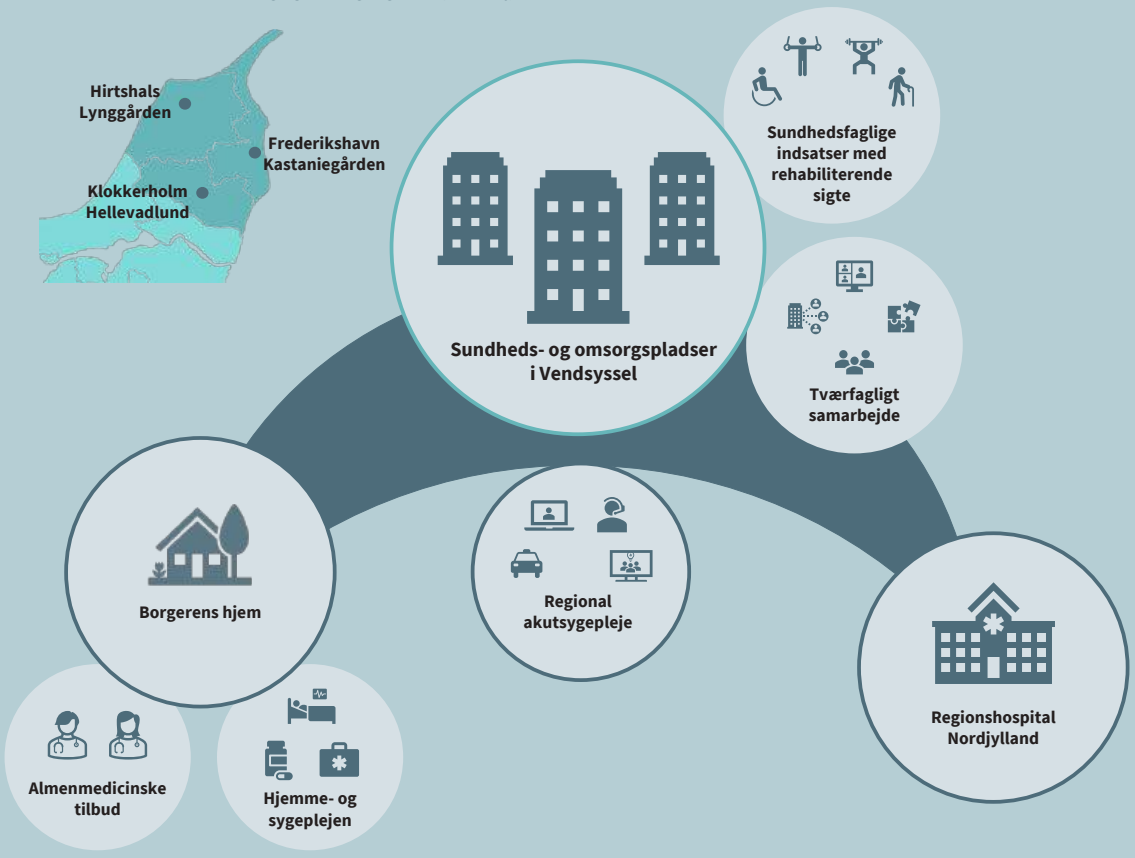
Sundheds- og omsorgspladserne skal tilbyde fokuserede, tidsafgrænsede og tværprofessionelle ophold med et tydeligt formål, meningsfulde mål og blik for de næste skridt i borgerens forløb. Opholdene skal bidrage til at forebygge sygehusindlæggelse og understøtte overgangen fra hospital til eget hjem. Funktionsevne, stabilisering, egenmestring og hverdagsliv skal være gennemgående omdrejningspunkter. Hverdagens aktiviteter skal ikke sættes på pause under opholdet, men indgå aktivt i den sundhedsfaglige og rehabiliterende indsats. Tilbuddets kvalitet og værdi skal vurderes bredere end ud fra belægning og aktivitet – med blik for den forskel, opholdet skaber for borgerens egenmestring og mulighed for at vende tilbage til hverdagslivet.

SUNDHEDS- OG OMSORGSPLADSER I VENDSYSSEL

Fagligt og strategisk afsæt for etablering af et nyt sundhedsfagligt tilbud i sundhedskæden

Charlotte Fuglesang[1], Katrine Porsborg Larsen[2], Pia Hæstrup[3], Bente Frydkjær Rømer[3]

[1] Hospitalsledelsen, Regionshospital Nordjylland, Hjørring, Danmark.
[2] Medicinsk afdelingsledelse, Regionshospital Nordjylland, Hjørring, Danmark.
[3] Kontor Det Nære Sundhedsvæsen og Digitalisering, Regionshospital Nordjylland, Danmark.



Baggrund

Med sundhedsreformen overtager regionerne fra 1. januar 2027 myndigheds- og finansierings-ansvaret for sundheds- og omsorgspladserne.

I Vendsyssel skal Regionshospital Nordjylland etablere og drive 83 pladser fordelt på tre matrikler i Hjørring, Brønderslev og Frederikshavn.

Opgaven er ikke alene at overtage og videreføre eksisterende pladser, men at udvikle et nyt sundhedsfagligt tilbud med et tydeligt rehabiliterende sigte.

Tilbuddet skal bringe flere sundhedsfaglige indsatser tættere på borgerens hverdagsliv, understøtte borgerens egenmestring og styrke sammenhængen mellem hospital, kommune og almenmedicinske tilbud.

Metode

Det faglige og strategiske afsæt udvikles på baggrund af nationale og regionale rammer og gennem et tværsektorielt udviklingsarbejde med inddragelse af relevante faglige og organisatoriske aktører.

Arbejdet konkretiserer tilbuddets faglige ambition, målgruppe og rolle i sundhedskæden og omsætter disse til en fælles retning for etablering og drift.

Efter driftsstart anvendes erfaringer systematisk og sammen med data fra praksis vil tilbuddet løbende blive kvalificeret og videreudviklet.

Resultat

Sundheds- og omsorgspladserne skal tilbyde fokuserede, tidsafgrænsede og tværprofessionelle ophold med et tydeligt formål, meningsfulde mål og blik for de næste skridt i borgerens forløb.

Opholdene skal bidrage til at forebygge sygehusindlæggelse samt understøtte overgangen fra hospital til eget hjem.

Funktionsevne, stabilisering, egenmestring og hverdagsliv skal være gennemgående omdrejningspunkter.

Hverdagens aktiviteter skal ikke sættes på pause under opholdet, men indgå aktivt i den sundhedsfaglige og rehabiliterende indsats.

Tilbuddets kvalitet og værdi skal vurderes bredere end ud fra belægning og aktivitet – med blik for den forskel, opholdet skaber for borgerens egenmestring og mulighed for at vende tilbage til hverdagslivet.

REGIONSHOSPITAL NORDJYLLAND

57.

Hyppigheden af forebyggelige indlæggelsesforløb hos ældre akut indlagte patienter - en retrospektiv tværsektoriel journalgennemgang

Mathias Brix Danielsen[1,2,3], Vibeke Høgh[4], Morten Breinholt Søvsø[5], Gustav Valentin Gade[2,3], Julius Simoni Leere[6], Mette Grønkjær[3,7], Stig Andersen[2,3], Emma Jelstrup Balkin[3,7]

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3. Klinisk Institut, Aalborg Universitet, Aalborg, Danmark
4. Afdeling for Ældre og Sundhed, Senior og Omsorg, Aalborg Kommune, Aalborg, Danmark
5. Forskningsenheden for Almen Praksis, Aalborg, Danmark
6. Arden Lægehus, Arden, Danmark
7. Forskningsenhed for Klinisk Sygepleje, Aalborg Universitetshospital, Aalborg, Danmark

Baggrund

I takt med stigende alder, stiger risikoen for akut hospitalsindlæggelse. Nogle af disse indlæggelser kan forebygges gennem relevant behandling og rettidig intervention. Ved kvalificeret at gennemgå patientforløb tværsektorielt og tværfagligt kan hyppighed af forebyggelige indlæggelser og mulige relevante interventions belyses.

Metoder

Vi gennemførte en retrospektiv journalgennemgang af et tilfældigt udtræk af akutte medicinske indlæggelser fra 2023 blandt patienter på 80+ år. Genindlæggelser blev ekskluderet. Data fra hospital, - og kommunale journaler + kontakter til almen praksis blev gennemgået for dybdegående at vurdere forløbne op til og under indlæggelsen. Gennemgangen blev foretaget af erfarne klinikere i geriatri eller almen medicin i samarbejde med kommunal sygeplejerske.

Resultater

Vi gennemgik 297 patientforløb. Patienterne havde en gennemsnitsalder på 86,0 ± 4,0 år og en gennemsnitlig Clinical Frailty Scale på 5,3 ± 1,7. Af disse modtog 51,7% kommunal hjemmehjælp, 19,1% kun rengøring. 24,9% havde modtaget målrettet sygeplejefagligt behandling op til indlæggelsen. De hyppigste tilstande ved indlæggelse var konfusion (23%), lungebetændelse (22%), fald (19%) og væskemangel (17%). I vores gennemgang fandt vi at 34,3% af indlæggelserne var potentielt forebyggelige med varierende sandsynlighed. Af disse kunne 46 % muligvis være forebygget ved subakut indlæggelse på en kommunal akutplads med lægebemanding. Derudover kunne et basalt hospital-at-home-tilbud forebygge 35% og Advanced Care Planning 22%.

Konklusioner

En betydelig andel af akutte indlæggelser blandt patienter på 80 år kan muligvis undgås. For at kunne forebygge akutte indlæggelser hos ældre patienter kræver det ofte både lægefagligt og plejemæssige subakutte tilbud, men indlæggelsesfrekvensen kan reduceres med op mod 34%.

Forebyggelige indlæggelser hos de ældste

Hyppigheden af forebyggelige indlæggelsesforløb hos ældre akut indlagte patienter – en retrospektiv tværsektoriel journalgennemgang

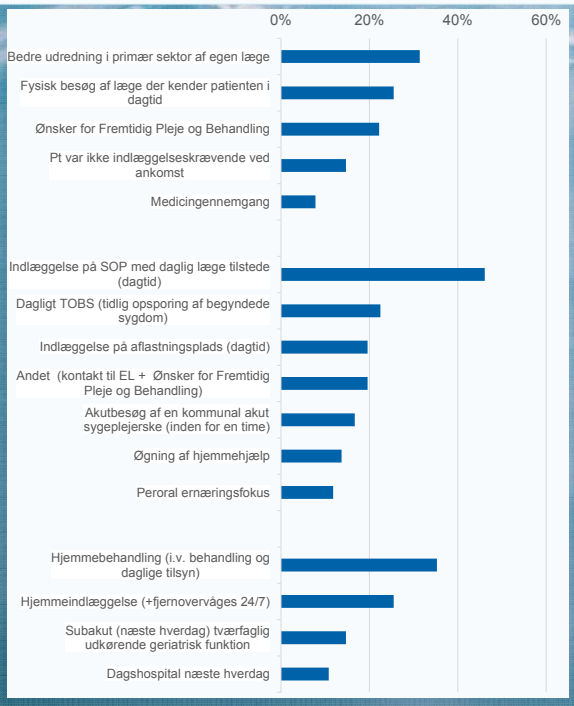
Metode

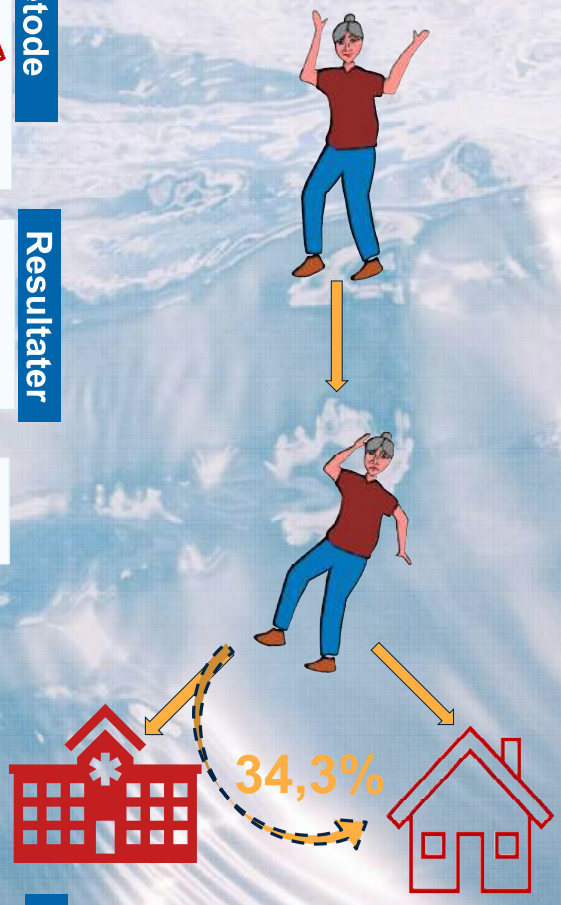
Retrospektiv journalgennemgang
- Population: 80+ år, akutte medicinske indlæggelser (n=297)
- Genindlæggelser ekskluderet
- Data fra: Regionale journal
  + kommunale journaler
  + ydelser fra egen læge
- Gennemgang af 4 fagligt kvalificerede læger + kommunal sygeplejerske

Resultater

Baseline :
- Alder: 86 (± 4,0)
- Clinical Frailty Scale: 5,3 (±1,7)
- 52% modtog hjemmehjælp

Subakutte interventioner der potentielt kunne forebygge indlæggelsen





Konklusion

Op til en tredjedel af indlæggelserne hos de ældste kan forebygges ved subakut læge,- og/eller plejefaglige tiltag.

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AALBORG UNIVERSITETSHOSPITAL · Aalborg Kommune · REGIONSHOSPITAL NORDJYLLAND

58.

The balancing act of involving relatives of hospitalized patients: a qualitative study of attitudes, expectations and involvement among patients, relatives and healthcare professionals

Mettine Thorsmark Madsen[1], Daniel Krag Nielsen[2], Sofie Ladekarl Bøtker[1,3], Kirstine Cecilia Ladefoged Nielsen[2], Karin Dam Eikhof[2], Ann Karenina Kløve Laugaard[2], Mona Kyndi Pedersen[1,3]

1. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
2. Department of Nursing, University College of Northern Denmark, Hjoerring and Thisted, Denmark
3. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark

Background

Involving relatives of hospitalized patients is widely known as an important and beneficial act within healthcare and prioritized in many policies. Nevertheless, there has been limited attention to strategies for successful involvement of relatives in care. Therefore, this study aimed to describe the current practice of involving relatives of hospitalized patients.

Methods

A descriptive qualitative design was used for the study. Field observations and semi-structured individual interviews were made in two hospital wards in the North Denmark Region. Participants consisted of patients, relatives and healthcare professionals. Observational data and interview data were equally analyzed based on reflexive thematic analysis. As part of a Participatory Action Research study, this study integrates user involvement through the active engagement of patient representatives in both the research activities and the project's steering group.

Results

Three overarching themes emerged from the data. Strategies and approaches for involving relatives consisted of both predefined activities and informal ways. The roles and positions of relatives in care differed in various ways. Some relatives naturally offered support to both the patient and the healthcare professionals. Some patients and relatives did not express a desire to be involved. A positive attitude among healthcare professionals was an enabler for the involvement. Organizational barriers such as time pressure had a negative effect on the possibilities for involvement.

Conclusions

Involving relatives in hospital care is a complex balancing act, shaped by context, healthcare professionals' attitudes and varying expectations from patients and relatives.



THE BALANCING ACT OF INVOLVING RELATIVES

A qualitative study of attitudes, expectations and involvement among patients, relatives and healthcare professionals

Mettine Thorsmark Madsen[1], Daniel Krag Nielsen[2], Sofie Ladekarl Bøtker[1,3], Kirstine Cecilia Ladefoged Nielsen[2], Karin Dam Eikhof[2], Ann Karenina Kløve Laugaard[2], Mona Kyndi Pedersen[1,3]

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3. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark



BACKGROUND
Involving relatives of hospitalized patients is widely known as an important and beneficial act within healthcare and prioritized in many policies. Nevertheless, there has been limited attention to strategies for successful involvement of relatives in care. Therefore, this study aimed to describe the current practice of involving relatives of hospitalized patients.

METHODS
A descriptive qualitative design was used for the study. Field observations and semi-structured individual interviews were made in two hospital wards in the North Denmark Region (n= 31). Participants consisted of patients, relatives and healthcare professionals.

RESULTS
Three overarching themes emerged from the data. Strategies and approaches for involving relatives consisted of both predefined activities and informal ways. The roles and positions of relatives in care differed in various ways. Some relatives naturally offered support to both the patient and the healthcare professionals. Some patients and relatives did not express a desire to be involved. A positive attitude among healthcare professionals was an enabler for the involvement. Organizational barriers such as time pressure had a negative effect on the possibilities for involvement.

CONCLUSIONS
Involving relatives in hospital care is a complex balancing act, shaped by context, healthcare professionals' attitudes and varying expectations from patients and relatives.

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UCN UNIVERSITY COLLEGE OF NORTHERN DENMARK

AALBORG UNIVERSITY

59.

Evaluering af implementering af Fundamentals of Care på Regionshospital Nordjylland: en pilottest

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1. Afdeling for Kvindesygdomme, Graviditet og Fødsel, Regionshospital Nordjylland, Hjørring, Danmark
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3. Afdeling for Nyre- og Urinvejskirurgi, Regionshospital Nordjylland, Hjørring, Danmark
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5. Center for Klinisk Forskning, Regionshospital Nordjylland, Hjørring, Danmark
6. Klinisk Institut, Aalborg Universitet, Aalborg, Danmark

Baggrund

På Regionshospital Nordjylland er det en fælles ambition at udøve sygepleje med afsæt i begrebsrammen Fundamentals of Care (FoC). Begrebsrammen har siden 2018 været et centralt element i hospitalets sygeplejefaglige strategier og udviklingsprogrammer. FoC understøtter personcentreret og situationsorienteret sygepleje, hvor relationen til patienten og dennes individuelle behov og ønsker er omdrejningspunktet. Formålet med pilotprojektet er at undersøge, om Landsdækkende Undersøgelse af Patientoplevelser (LUP) kan anvendes som redskab til at evaluere implementeringen af FoC ud fra patienternes perspektiv.

Metoder

LUP er en national undersøgelse af patientoplevelser, hvor et tilfældigt udvalg af patienter modtager et valideret spørgeskema om deres møde med sundhedsvæsenet. Deltagere fra hospitalets udviklingsnetværk, bestående af sygeplejersker med særlige kliniske funktioner inden for udvikling, undervisning og uddannelse, udvalgte og vurderede spørgsmål fra LUP's spørgsmålskatalog. Syv spørgsmål blev udvalgt på baggrund af deres relevans for de fysiske, psykosociale og relationelle aspekter af FoC. Pilotafdelingerne er Afdeling for Kvindesygdomme, Graviditet og Fødsel samt Urinvejskirurgisk Afdeling. Projektet omfatter sengeafsnit, dagafsnit og ambulatorier og gennemføres i 3 trin med baselinemåling, målrettede forbedringsindsatser og efterfølgende effektmåling. Baselinemålingen blev gennemført fra maj til juli 2026 og omfatter 253 besvarelser. Data analyseres lokalt på de involverede afdelinger med henblik på udvikling og afprøvning af målrettede indsatser. Effektmålingen gennemføres fra februar til april 2027.

Perspektiver

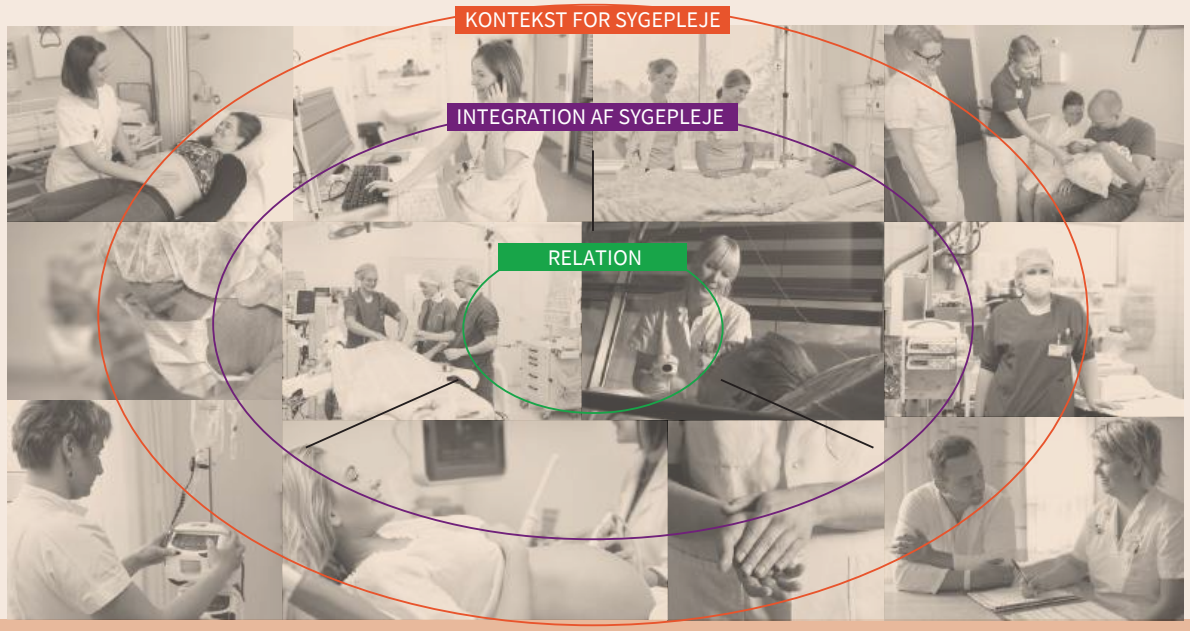
Pilotprojektet kan bidrage med viden om, hvorvidt LUP kan anvendes som indikator for implementering af Fundamentals of Care på hospitalet. Resultaterne kan samtidig identificere konkrete forbedringsområder og understøtte den fortsatte implementering og forankring af FoC på Regionshospital Nordjylland.

HVORDAN MÆRKER PATIENTERNE VORES SYGEPLEJE?

Evaluering af implementering af Fundamentals of Care

Tina Heilesen[1], Hanne Thomsen[2], Ulla Worum[3], Kathrine Reidl Olsen[4], Mettine Thorsmark Madsen[5], Mona Kyndi Pedersen[5,6]

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2. Diagnostisk Afdeling, Regionshospital Nordjylland, Frederikshavn, Danmark
3. Urinvejskirurgisk Afdeling, Regionshospital Nordjylland, Danmark
4. Kontor for Kvalitet, Patientsikkerhed og Arbejdsmiljø, Regionshospital Nordjylland, Hjørring, Danmark
5. Center for Klinisk Forskning, Regionshospital Nordjylland, Hjørring, Danmark
6. Klinisk Institut, Aalborg Universitet, Aalborg, Danmark



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PERSPEKTIVER

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REGIONSHOSPITAL NORDJYLLAND

CKF | CENTER FOR KLINISK FORSKNING Regionshospital Nordjylland

AALBORG UNIVERSITET

60.

Regional akutsygepleje i Vendsyssel – nytænkning i sundhedsvæsenet

Tina Jensen[1], Trine Pernille Søndergaard[2], Pia Hæstrup[1], Charlotte Fuglesang[3]

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2. Medicinsk Afdeling, Regionshospital Nordjylland, Hjørring, Danmark
3. Hospitalsledelsen, Regionshospital Nordjylland, Hjørring, Danmark

Baggrund

Sundhedsreformen sætter retning mod et mere nært, sammenhængende og lige sundhedsvæsen. På Regionshospital Nordjylland har vi gennem en årrække arbejdet med at gentænke måden, hvorpå opgaver organiseres og løses på tværs af sundhedskæden med henblik på i højere grad at kunne intervenere tidligt og inden helbredsmæssige udfordringer udvikler sig. *Omsorgs- og ansvarstrappen* er udviklet som en ramme for denne tænkning. Omsorgs- og ansvarstrappen illustrerer ambitionen om, at patienten og borgeren modtager den nødvendige sundhedsfaglige indsats på det mindst indgribende, men fagligt forsvarlige niveau. Den kommende regionale akutsygepleje bliver en central funktion i at omsætte denne ambition til praksis ved at bringe hospitalskompetencer i spil på tværs af hospital, sundheds- og omsorgspladser og eget hjem.

Metoder

Den regionale akutsygepleje udvikles som en ny tværgående funktion med faglig forankring i Medicinsk Afdeling. Funktionen designes til at arbejde på tværs af hospital, sundheds- og omsorgspladser og borgerens eget hjem og med virtuelle løsninger som en integreret del af opgaveløsningen. Udviklingen sker i samarbejde med akutsygeplejersker og centrale samarbejdspartnere på tværs af sundhedskæden. Et målrettet oplæringsprogram skal understøtte fælles kompetencer, faglig identitet og praksis. Funktionen følges forskningsmæssigt med henblik på løbende læring og kvalificering.

Perspektiver

Med den regionale forankring af akutsygeplejen flyttes hospitalskompetencer tættere på borgeren. Med sit indgående kendskab til hele sundhedskæden understøtter akutsygeplejersken en proaktiv og forebyggende tilgang ved at samarbejde med sundhedsvæsenets øvrige aktører om at iværksætte tidlig og rettidig pleje og behandling samt sikre differentierede, koordinerede og sammenhængende forløb for borgeren.

REGIONAL AKUTSYGEPLEJE I VENDSYSSEL

Nytænkning i sundhedsvæsenet

Tina Jensen[1] • Trine Pernille Søndergaard[2] • Pia Hæstrup[1] • Charlotte Fuglesang[3]

[1] *Kontor Det Nære Sundhedsvæsen og Digitalisering, Regionshospital Nordjylland, Hjørring, Danmark*
[2] *Medicinsk Afdelingsledelse, Regionshospital Nordjylland, Hjørring, Danmark*
[3] *Hospitalsledelsen, Regionshospital Nordjylland, Hjørring, Danmark*

Akutsygeplejersken arbejder i hele sundhedskæden



Kompetencer i akutsygeplejen

Tværsektoriel organisatorisk indsigt	Digitale færdigheder	Klinisk dømmekraft	Drift, administration og kvalitet	Samarbejde uden for hospitalet

Sammenhængende patientforløb • Populationsansvar • Klinisk koordinering på tværs af sektorer

Baggrund

Sundhedsreformen sætter retning mod et mere nært, sammenhængende og lige sundhedsvæsen. På Regionshospital Nordjylland har vi gennem en årrække arbejdet med at gentænke måden, hvorpå opgaver organiseres og løses på tværs af sundhedskæden med henblik på i højere grad at kunne intervenere tidligt og inden helbredsmæssige udfordringer udvikler sig.
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Omsorgs- og ansvarstrappen illustrerer ambitionen om, at patienten og borgeren modtager den nødvendige sundhedsfaglige indsats på det mindst indgribende, men fagligt forsvarlige niveau. Den kommende regionale akutsygepleje bliver en central funktion i at omsætte denne ambition til praksis ved at bringe hospitalskompetencer i spil på tværs af hospital, sundheds- og omsorgspladser og eget hjem.

Metoder

Den regionale akutsygepleje udvikles som en ny tværgående funktion med faglig forankring i Medicinsk Afdeling. Funktionen designes til at arbejde på tværs af hospital, sundheds- og omsorgspladser og borgerens eget hjem og med virtuelle løsninger som en integreret del af opgaveløsningen. Udviklingen sker i samarbejde med akutsygeplejersker og centrale samarbejdspartnere på tværs af sundhedskæden. Et målrettet oplæringsprogram skal understøtte fælles kompetencer, faglig identitet og praksis. Funktionen følges forskningsmæssigt med henblik på løbende læring og kvalificering.

Perspektiver

Med den regionale forankring af akutsygeplejen flyttes hospitalskompetencer tættere på borgeren. Med sit indgående kendskab til hele sundhedskæden understøtter akutsygeplejersken en proaktiv og forebyggende tilgang ved at samarbejde med sundhedsvæsenets øvrige aktører om at iværksætte tidlig og rettidig pleje og behandling samt sikre differentierede, koordinerede og sammenhængende forløb for borgeren.

REGIONSHOSPITAL NORDJYLLAND

61.

Kan fotodokumentation af stomipleje på hospital øge patientens sundhedskompetence og sikre vidensdeling med primærsektor?

Tove Christensen[1], Tanja Sølvkær[1], Anette Nielsen[1], Daniel Krag Nielsen[2,3], Rikke Rishøj Mølgaard[2,3]

1. Afdeling for Mave- og Tarmkirurgi, Regionshospital Nordjylland, Hjørring, Danmark
2. Hospitalsledelsen, Regionshospital Nordjylland, Hjørring, Danmark
3. Sygeplejerskeuddannelsen, Professionshøjskolen UCN, Hjørring og Thisted, Danmark

Baggrund

Patienter med nyanlagt stomi er meget bekymrede for hvilken hjælp, der tilbydes efter udskrivelse til stomipleje i hjemmet. Utilstrækkelig stomipleje kan resultere i komplikationer i form af lækage, hudproblemer og utryghed. Patienterne mødes i hjemmet af sundhedspersonale fra primærsektor, der ofte ikke har specialviden i stomipleje og derfor henvender sig til hospitalet for vejledning og sparring. Derfor ønsker vi at undersøge om fotodokumentation af stomipleje inden udskrivelse kan øge patientens sundhedskompetence og sikre vidensdeling med primærsektor.

Metoder

Inden patienten udskrives, tages der billeder med patientens smartphone af hvordan der foretages stomipleje. Denne information suppleres af den beskrevne sygepleje i plejeforløbsplanen til primærsektor. Denne intervention evalueres med opfølgende kvalitative interviews af patienter, sundhedspersonale i primærsektor og sundhedsprofessionelle på hospitalet. Disse data analyseres og fortolkes af en projektgruppe og dokumenteres skriftligt.

Perspektiver

For patienterne forventes interventionen at bidrage til, at de bedre kan indgå i dialog med primærsektor om den anbefalede stomipleje, fordi de kan dokumentere anbefalinger fra hospitalets sundhedsprofessionelle. Det forventes at medvirke til at patienternes sundhedskompetencer øges. For sundhedspersonalet i primærsektoren og sundhedsprofessionelle på hospitalet forventes interventionen at bidrage til en større vidensdeling til den enkelte patient, hvormed håbet er at patienten oplever færre komplikationer med stomien.







Tove Christensen [1], Tanja Sølvkær [1], Anette Nielsen [1], Daniel Krag Nielsen [2,3], Rikke Rishøj Mølgaard [2,3]

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[2] Hospitalsledelsen, Regionshospital Nordjylland, Hjørring, Danmark

[3] Sygeplejerskeuddannelsen, Professionshøjskolen UCN, Hjørring, Danmark

KAN FOTODOKUMENTATION AF STOMIPLEJE PÅ HOSPITALET ØGE PATIENTENS SUNDHEDSKOMPETENCE OG SIKRE VIDENSDELING MED PRIMÆRSEKTOR?

Baggrund

- ❑ Patienter med nyanlagt stomi er meget bekymrede for hvilken hjælp, der tilbydes efter udskrivelse til stomipleje i hjemmet.
- ❑ Utilstrækkelig stomipleje kan resultere i komplikationer i form af lækage, hudproblemer og utryghed. Patienterne mødes i hjemmet af sundhedspersonale fra primærsektor, der ofte ikke har specialviden i stomipleje og derfor henvender sig til hospitalet for vejledning og sparring.

Formål

at undersøge om fotodokumentation af skifteproceduren inden udskrivelse kan øge patientens sundhedskompetence og sikre vidensdeling med primærsektor.

Metode

- ❑ Fotodokumentation af stomipleje inden udskrivelse, som formidles skriftligt til primær sektor
- ❑ Intervention med fotodokumentation evalueres med kvalitative interviews med patienter og sundhedsprofessionelle i primær og sekundær sektor

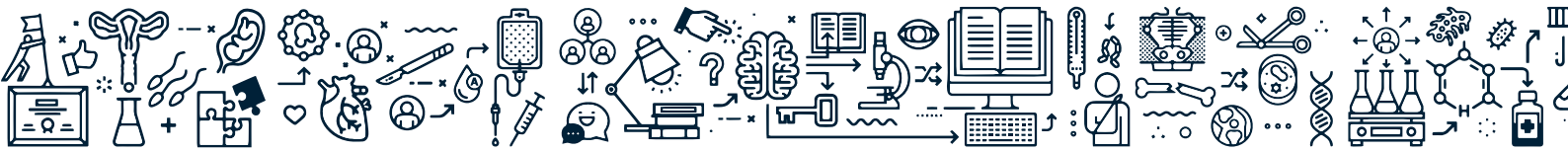
Perspektiver

- ❑ For patienterne forventes interventionen at bidrage til, at de bedre kan indgå i dialog med primærsektor om den anbefalede stomipleje
- ❑ Patienternes sundhedskompetencer forventes at øges
- ❑ Færre komplikationer for patienterne
- ❑ Større vidensdeling mellem sundhedspersonalet i primærsektoren og sundhedsprofessionelle på hospitalet

REGIONSHOSPITAL NORDJYLLAND

Kontakt: Tove Christensen
toc@rn.dk

Sportsmedicin



62.

Inguinal-related groin pain in athletes: a cohort study of outcomes following non-mesh repair

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2. Department of Surgery, North Denmark Regional Hospital, Hjoerring, Denmark

Background

Inguinal-related groin pain is a less common cause of groin pain in athletes, particularly soccer players. It is associated with repetitive mechanical stress and weakness of the posterior inguinal wall. The Desarda technique offers a non-mesh alternative to traditional mesh repair, using autologous tissue to reinforce the inguinal canal. This study evaluated pain and return-to-play outcomes following Desarda repair in athletes with inguinal-related groin pain.

Methods

In this cohort study, 16 patients underwent Desarda non-mesh repair, including one bilateral procedure. Patients were assessed preoperatively at the Centre for Sports Medicine, Frederikshavn, and operated at the Department of Abdominal Surgery, Hjoerring. Pain during physical activity was assessed using the Numerical Rating Scale (NRS) preoperatively and at 1, 3, and 12 months postoperatively. Changes over time were analyzed using repeated-measures ANOVA.

Results

Activity-related pain decreased significantly during follow-up. Median NRS decreased from 9.0 [IQR 8.0–9.0] at baseline to 3.5 [2.0–6.0] at 1 month, 2.0 [1.0–7.0] at 3 months, and 0.0 [0.0–2.0] at 12 months ($p<0.001$). Return-to-play data were available for 12/16 patients (75%), with a median return-to-play time of 52.5 days [IQR 30–90].

Conclusions

Desarda non-mesh repair was associated with a significant reduction in activity-related pain in athletes with inguinal-related groin pain. Among patients with available data, median return-to-play time was 52.5 days.

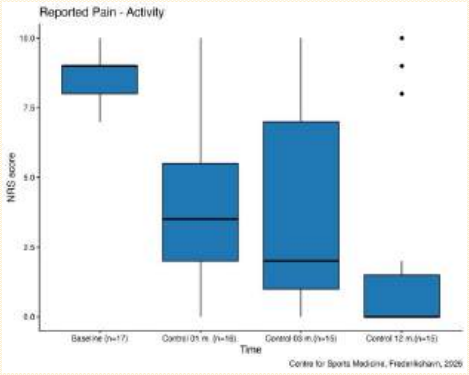
Inguinal-related groin pain in athletes:
A cohort study of outcomes following non-mesh repair

Dennis Christian Andersen[1] , Thøger Persson Krogh[1] , Nils Brandenburger[2] , Søren Kaalund[1]

[1]Centre for Sports Medicine, North Denmark Regional Hospital, Frederikshavn, Denmark
[2]Department of Abdominal Surgery, North Denmark Regional Hospital, Hjoerring, Denmark

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Conclusion

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Return-to-play: 52.5 days



REGION NORDJYLLAND

63.

Long-term prognosis of lateral hip pain: a retrospective cohort study

Emma Hjortflod Christiansen[1], Ulrich Fredberg[1,2], Thøger Persson Krogh[1]

1. Centre for Sports Medicine, North Denmark Regional Hospital, Frederikshavn, Denmark
2. Department of Rheumatology, Odense University Hospital, Odense, Denmark

Background

Lateral hip pain (LHP) is a common and often debilitating condition, but knowledge of its long-term course is limited. We aimed to investigate the long-term course of LHP, identify baseline characteristics associated with symptom resolution, and describe patient-reported outcomes among participants with persistent symptoms.

Methods

Patients diagnosed with LHP by the same 2 specialists (rheumatologist and radiologist) at a specialized musculoskeletal clinic in Denmark between 2001 and 2022 were identified through electronic medical records using the ICD-10 code DM706 (Trochanteric bursitis) and invited to complete a follow-up questionnaire in 2025. Time from symptom onset to self-reported complete symptom resolution was analysed using Kaplan–Meier analysis, and potential predictors using Cox regression. Patient-reported outcomes among participants with persistent symptoms were compared across symptom-duration groups.

Results

Of 324 eligible patients, 142 participated, of whom 80 (56.3%) reported ongoing symptoms at follow-up. The cumulative proportion with symptom resolution was 2.8% after 1 year, 21.2% after 5 years, 34.9% after 10 years, and 46.7% after 15 years. Median time to symptom resolution was 16.4 years. Most baseline characteristics were not associated with symptom resolution. Contralateral symptoms were associated with a lower hazard of resolution (HR 0.51, 95% CI 0.28–0.94). Among participants with persistent symptoms, HAGOS, VISA-G, and self-rated hip status showed no significant differences across symptom-duration groups.

Conclusions

This study shows that lateral hip pain often persists for many years. The findings highlight the prolonged course of LHP and provide new insight into its long-term prognosis.

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Long-Term Prognosis of Lateral Hip Pain

Emma Hjortflod Christiansen[1], Ulrich Fredbjerg[1,2], Thøger Persson Krogh[1]

[1] Center for Sports Medicine, Regional Hospital of Northern Denmark
[2] Department of Rheumatology, Odense University Hospital

MEDIAN TIME TO SYMPTOM RESOLUTION

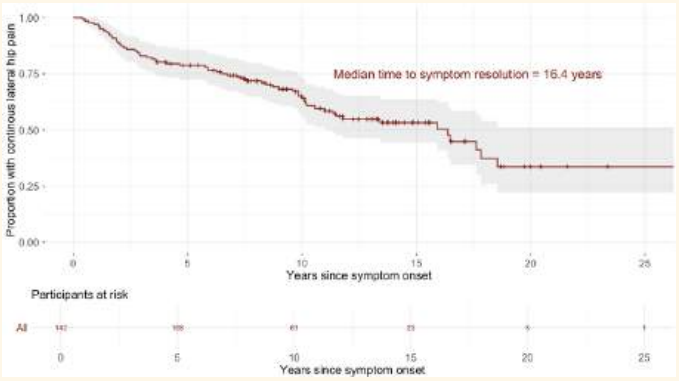
16.4

years

Counted from symptom onset.

At follow-up in 2025, 80 of 142 participants (56.3%) reported ongoing symptoms.

Time to symptom resolution (Kaplan–Meier)



CUMULATIVE PROPORTION WITH SYMPTOM RESOLUTION

1 year	5 years	10 years	15 years
2.8%	**21.2%**	**34.9%**	**46.7%**
95% CI 0.1–5.5%	95% CI 14.1–27.6%	95% CI 26.0–42.7%	95% CI 36.2–55.4%

Background

Lateral hip pain is common and often debilitating, yet little is known about its long-term course. We aim to investigate the long-term course of lateral hip pain and factors associated with symptom resolution.

Methods

Patients diagnosed with DM706 (trochanteric bursitis) in 2001–2022 at Stadionklinikken, Aarhus, were identified and invited to a follow-up questionnaire in 2025. Time to self-reported symptom resolution was analysed with Kaplan–Meier and Cox regression.

733	324	142
identified	eligible, invited	included (44%)

Mean age 62 years · 76% women

Predictors of symptom resolution

Cox regression

	Hazard ratio	95% CI	p-value
Sex (male vs. female)	0.95	0.54–1.66	0.85
Age (per year)	0.99	0.97–1.01	0.43
BMI (reference: 18.5–24.9)			
BMI < 18.5	3.67	0.49–27.33	0.20
BMI 25–29.9	0.96	0.56–1.64	0.89
BMI > 30	0.75	0.33–1.73	0.51
Smoker vs. non-smoker	0.60	0.22–1.65	0.32
Highest educational level (reference: medium-cycle higher education)			
Primary secondary education	1.43	0.50–4.12	0.51
Upper secondary education	1.98	0.76–5.21	0.16
Short-cycle higher education	1.93	1.01–3.67	0.05
Long-cycle higher education	1.55	0.79–3.03	0.20
Physical activity level at work (reference: minimally demanding)			
Moderately physically demanding	0.69	0.38–1.26	0.23
Highly physically demanding	0.54	0.26–1.13	0.10
Contralateral pain			
Ever vs. never	**0.51**	**0.28–0.94**	**0.03***
Current (among ever)	**0.22**	**0.06–0.73**	**0.01***

*p < 0.05. A hazard ratio above 1 indicates a higher likelihood of symptom resolution.

Conclusion

This study documents that lateral hip pain appeared to follow a prolonged course, with a median time to self-reported symptom resolution of 16.4 years. Further research is needed to identify effective long-term treatment strategies.

64.

Long-term prognosis of adhesive capsulitis: a follow-up study of a large single-center cohort

Ida Hylander Frederiksen[1,2], Emma Hjortflod Christiansen[1], Ulrich Fredberg[1,3], Thøger Persson Krogh[1]

1. Centre for Sports Medicine, North Denmark Regional Hospital, Frederikshavn, Denmark
2. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark
3. Department of Rheumatology, Odense University Hospital, Odense, Denmark

Background

Adhesive capsulitis of the shoulder, also known as frozen shoulder, is a common condition that impacts daily function and is characterized by significant shoulder pain and limitation in range of motion. Frozen shoulder is commonly viewed as a self-limiting disease, typically resolving within 1 to 3 years. However, the condition is not fully understood, and only a few studies have evaluated the long-term prognosis. These studies are limited by short follow-up periods and small numbers of patients. Therefore, the aims of this study are to assess the long-term prognosis of frozen shoulder using a validated patient-based questionnaire and to identify whether any baseline characteristics can be used to predict the long-term prognosis.

Methods

This study is a retrospective cohort study with prospective questionnaire follow-up using data from the Stadium Clinic in Aarhus, Denmark. The study is expected to include 362 patients with the diagnosis frozen shoulder from 2001 to 2024. The patients will be asked to complete a questionnaire assessing range of motion and pain. Additionally, the medical records and the questionnaire will be used to extract background information.

Perspectives

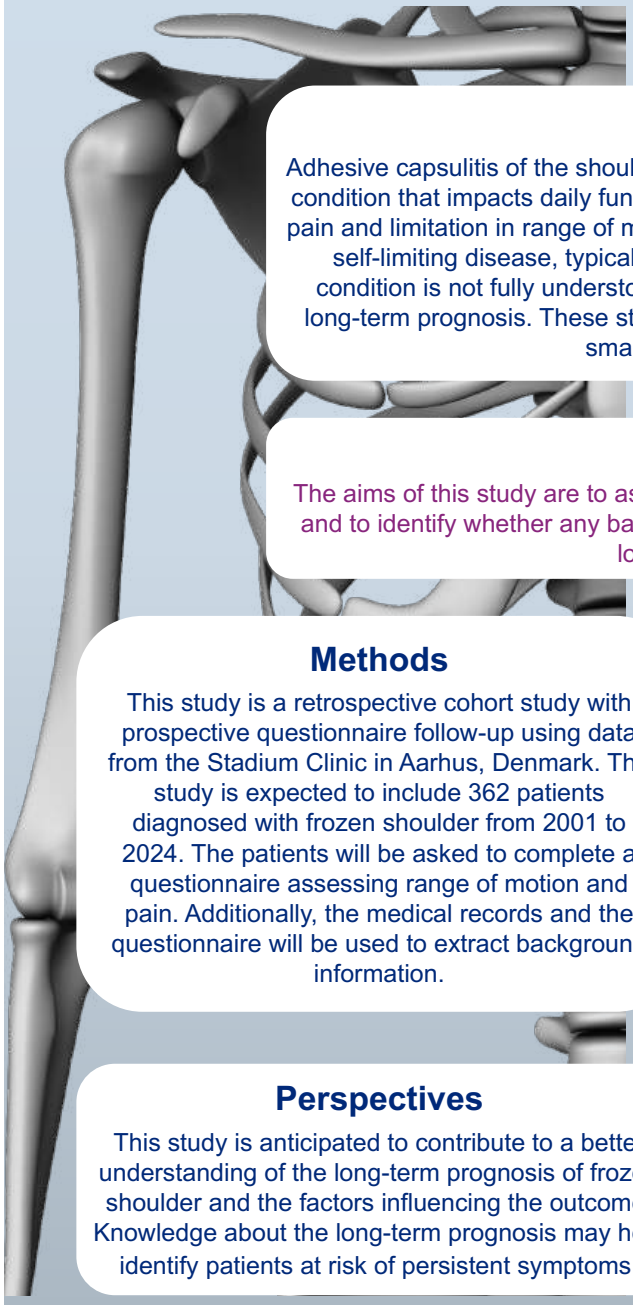
This study is anticipated to contribute to a better understanding of the long-term prognosis of frozen shoulder and the factors influencing the outcome. Knowledge about the long-term prognosis may help identify patients at risk of persistent symptoms.

LONG-TERM PROGNOSIS OF ADHESIVE CAPSULITIS

Ida Hylander Frederiksen[1], Emma Hjortflod Christiansen[1], Ulrich Fredberg[1,2], Thøger Persson Krogh[1]

1) Center for Sports Medicine, Regional Hospital of Northern Denmark, Denmark

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Perspectives

This study is anticipated to contribute to a better understanding of the long-term prognosis of frozen shoulder and the factors influencing the outcome. Knowledge about the long-term prognosis may help identify patients at risk of persistent symptoms.

Data Collection

The Stadium Clinic

362 patients diagnosed with frozen shoulder

Questionnaire assessing pain and range of motion



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65.

Gold microparticle injection combined with a progressive tendon-loading program for chronic Achilles tendinopathy: a pilot study

Josefine Vad Birkholm Madsen[1*], Ulrich Fredberg[1], Sten Rasmussen[2], Gorm Danscher[3], Gregers Gregersen[3], Thøger Persson Krogh[1]

1. Center for Sports Medicine, North Denmark Regional Hospital, Frederikshavn, Denmark
2. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark
3. Berlock ApS, Aarhus, Denmark

**Participant in the Introduction Course to Clinical Research and Development, North Denmark Regional Hospital, 2026*

Background

Achilles tendinopathy (AT) is a common and challenging musculoskeletal disorder. Inflammation may contribute to its complex pathophysiology. Gold microparticles may serve as an anti-inflammatory adjunct. The aim of this pilot study was to investigate clinical and ultrasonographic outcomes following peritendinous gold microparticle injection combined with an AT rehabilitation program.

Methods

Ten patients with chronic AT received an ultrasound-guided injection of gold microparticles (20 mg Berlock™ Micro Implants) into the Achilles peritendon, with hyaluronic acid (Suplasyn, 20 mg/2 mL) as the carrier. Participants followed a four-stage progressive Achilles tendon-loading program (4-PAP). Outcomes included the Victorian Institute of Sports Assessment-Achilles (VISA-A) score, tenderness on palpation rated on a 0-10 numerical rating scale, and ultrasonographic measures. Primary analyses focused on changes from baseline to 12 months.

Results

All patients completed the 12-month VISA-A assessment; tenderness and ultrasonographic data were available for nine. Mean VISA-A score improved by 22.1 points, from 45.3 to 67.4 (95% CI 9.6-34.6; p=0.003). No statistically significant changes were observed in tenderness on palpation (mean decrease: 0.3 points; p=0.720), tendon thickness (p=0.266), or color Doppler activity (p=0.125). Hypoechoic area decreased by 21.5 percentage points, but not significantly (p=0.067).

Conclusions

The combined intervention was associated with a statistically significant improvement in VISA-A score at 12 months but no significant changes in tenderness or ultrasonographic outcomes. A randomized controlled trial is required to determine treatment efficacy and whether the improvement is attributable to gold microparticle injection, progressive loading, their combined effect, or the natural course of the condition over 12 months.

A GOLDEN OPPORTUNITY?

Gold microparticle injection and progressive loading for chronic Achilles tendinopathy

Josefine Vad Birkholm Madsen[1], Ulrich Fredberg[1], Sten Rasmussen[2], Gorm Danscher[3], Gregers Gregersen[3], Thøger Persson Krogh[1]
1. Center for Sports Medicine, North Denmark Regional Hospital, Frederikshavn, Denmark
2. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark
3. Berlock ApS, Aarhus, Denmark

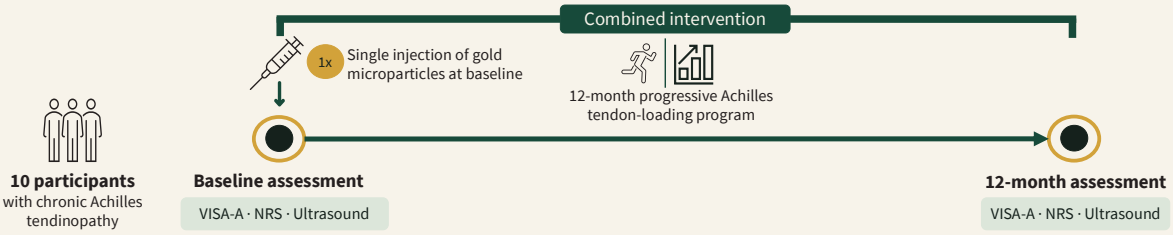
BACKGROUND

Achilles tendinopathy is a common and challenging musculoskeletal disorder affecting both athletes and working-age individuals. Inflammation may contribute to its complex pathophysiology. Gold microparticles possess anti-inflammatory properties and may represent a novel adjunctive treatment.

AIM

The aim of this pilot study was to investigate clinical and ultrasonographic outcomes following peritendinous gold microparticle injection combined with an Achilles tendon rehabilitation program.

METHODS



INTERVENTION DETAILS

Injection – Ultrasound-guided peritendinous injection of 20 mg gold microparticles (Berlock® Micro Implants)
Hyaluronic acid (Suplasyn, 20 mg/2 mL) as the carrier
Exercise – Four-stage progressive Achilles tendon-loading program (4-PAP)

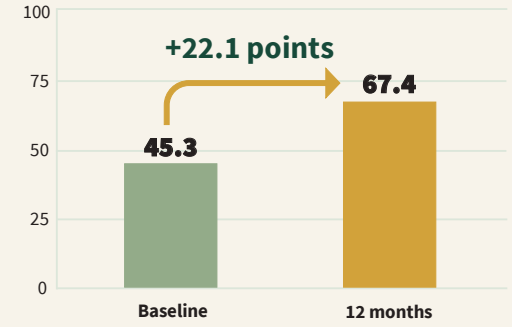
OUTCOME MEASURES

VISA-A – Achilles-specific pain and function questionnaire, 0–100 points
NRS – Tenderness on palpation of the Achilles tendon, rated using a 0–10 numerical rating scale
Ultrasound – Tendon thickness (mm), Color Doppler activity (blood flow within the tendon, grade 0–4), and hypoechoic area (%, structural tendon abnormality)

RESULTS

VISA-A SCORE

Achilles-specific pain and function questionnaire
Mean score (0–100 points), n = 10



Higher scores indicate fewer symptoms and better function

Statistically significant improvement
95% CI 9.6 to 34.6, p = 0.003

OTHER OUTCOMES

Baseline versus 12 months, n = 9

Outcome and interpretation	Results Baseline versus 12 months	p-value
Tenderness on palpation, NRS 0–10 Lower scores indicate less pain	Mean change: -0.3 points 95% CI -2.4 to 1.7	p = 0.720
Hypoechoic area, % Smaller areas indicate less structural tendon abnormality	Mean change: -21.5 percentage points 95% CI -44.8 to 1.8	p = 0.067
Tendon thickness, mm	Median: 10.7 vs 10.5 mm	p = 0.266
Color Doppler activity, grade 0–4 Lower grades indicate less blood flow activity within the tendon	Median grade: 2 vs 2	p = 0.125

Results are presented as mean changes with 95% CIs or medians, as appropriate.

No statistically significant changes in other outcomes

CONCLUSIONS

The combined intervention was associated with a statistically significant improvement in VISA-A score at 12 months but no significant changes in tenderness or ultrasonographic outcomes. A randomized controlled trial is required to determine treatment efficacy and whether the improvement is attributable to gold microparticle injection, progressive loading, their combined effect, or the natural course of the condition over 12 months.

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66.

Long-term prognosis of proximal hamstring pain: a follow-up study of a large single-center cohort

Sandra Sørensen[1,2], Emma Hjortflod Christiansen[1], Ulrich Fredberg[1], Thøger Persson Krogh[1]

1. Centre for Sports Medicine, North Denmark Regional Hospital, Frederikshavn, Denmark
2. Department of Clinical Medicine, Aalborg University, Aalborg, Denmark

Background

Proximal hamstring pain is a common musculoskeletal condition affecting both physically active and sedentary individuals. Persistent pain and functional limitations may substantially impair quality of life, yet the long-term prognosis remains poorly understood and available studies are limited by relatively short follow-up periods and small sample sizes. This study aims to investigate the long-term prognosis of proximal hamstring pain and identify clinical and patient-related factors associated with long-term pain and physical function in a large single-center cohort.

Methods

This cross-sectional follow-up study includes all patients registered with the diagnosis of bursitis tuber ischiadicum (proximal hamstring pain) at the Stadionklinikken, Aarhus, Denmark, between 2001 and 2025. A total of 831 patients are expected to be eligible. Baseline demographic and clinical characteristics will be extracted from electronic medical records. Patients will complete a follow-up questionnaire comprising the validated Victorian Institute of Sport Assessment–Hamstring (VISA-H), the Numeric Rating Scale (NRS) for pain, and questions regarding height, weight, smoking status, physically demanding work, and systemic comorbidities. Long-term pain severity, functional outcomes, and associations with baseline characteristics and comorbidities will be investigated.

Perspectives

This study will provide one of the largest long-term follow-up cohorts of patients with proximal hamstring pain. The findings are expected to improve understanding of the natural history of the condition, provide more accurate prognostic information, identify factors associated with persistent symptoms. Improved knowledge of the long-term prognosis may help guide patient counselling, optimize treatment strategies, and inform future clinical guidelines.

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REGION NORDJYLLAND

67.

Long-term follow-up on lateral and medial elbow tendinopathy and triceps enthesopathy

William Dall Ejlertzen[1], Torkell Ellingsen[2], Ulrich Fredberg[1], Thøger Persson Krogh[1]

1. Centre for Sports Medicine, North Denmark Regional Hospital, Frederikshavn, Denmark
2. Department of Rheumatology, University of Southern Denmark, Odense, Denmark

Background

Lateral elbow tendinopathy (LET, tennis elbow), medial elbow tendinopathy (MET, golfer's elbow), and triceps enthesopathy (TE) are common overuse conditions of the elbow with a poorly understood long-term prognosis. Existing literature is largely limited to short-term follow-up of less than two years in small samples, and no studies have systematically examined long-term symptom persistence, functional impairment, occupational impact, or ultrasonographic (US) tendon characteristics for these conditions.

Methods

This cross-sectional cohort study includes all patients diagnosed with LET (n=487), MET (n=119), and TE (n=14) at the Stadium Clinic, Aarhus, Denmark, between 2001 and 2022. Patients with LET will undergo in-person clinical examination, US imaging, and completion of the Patient-Rated Tennis Elbow Evaluation questionnaire 5-20 years after diagnosis. Patients with MET and TE will complete structured telephone or online questionnaires addressing symptom duration, perceived treatment efficacy, and occupational and activity-related consequences. For LET, associations between initial US findings and long-term outcomes will additionally be explored.

Perspectives

This study will provide novel long-term data on the natural course and functional impact of three common elbow tendinopathies, with implications for prognosis, rehabilitation strategies, and future clinical guidelines. For LET, the study will further contribute to characterizing long-term ultrasonographic tendon changes and to refining US evaluation methods to improve diagnostic and prognostic assessment.

LONG-TERM FOLLOW-UP ON LATERAL AND MEDIAL ELBOW TENDINOPATHY AND TRICEPS ENTHESOPATHY

William Dall Ejlertzen[1] • Torkell Ellingsen[2] • Ulrich Fredbjerg[1] • Thøger Persson Krogh[1]

[1]Center of Sports Medicine, Regional Hospital North Jutland, Denmark
[2]Department of Rheumatology, University of Southern Denmark, Odense, Denmark

Background

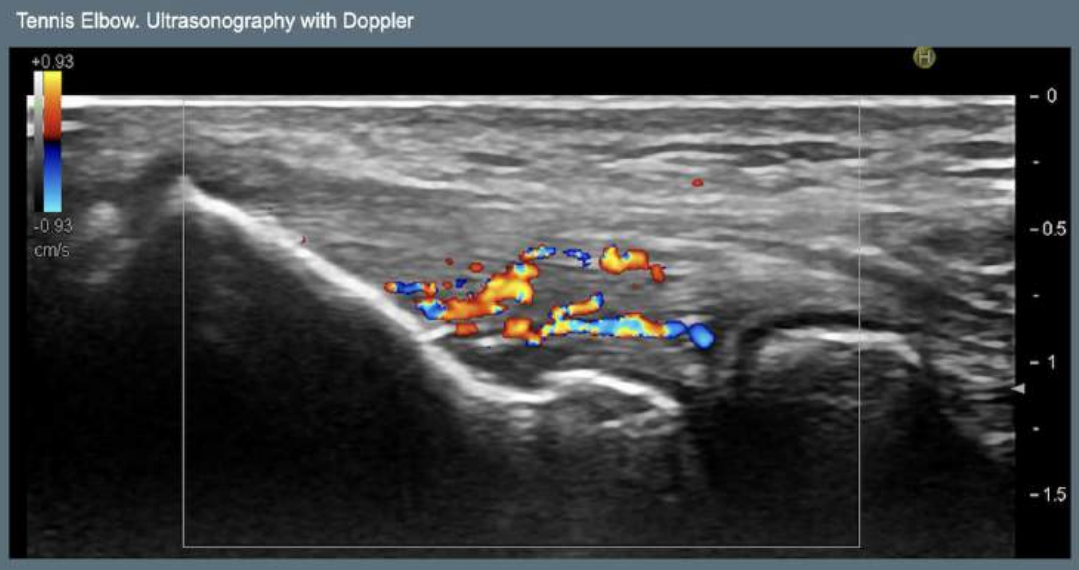
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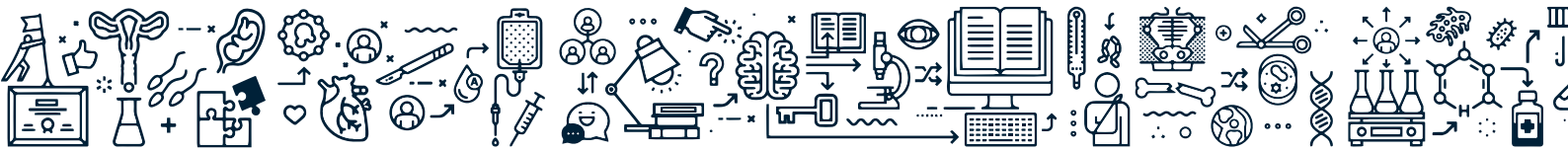
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NORTH DENMARK REGIONAL HOSPITAL

Sundhedsfaglig Uddannelse og Arbejdsmiljø



68.

Fra strategi til praksis: status på prøvehandlinger i hospitalets uddannelsesstrategi

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1. Hospitalsledelsen, Regionshospital Nordjylland, Hjørring, Danmark
2. Tværgående funktioner, Regionshospital Nordjylland, Hjørring, Danmark

Baggrund

Hospitalets uddannelsesstrategi omfatter tre prøvehandlinger: 1) Grundkursus i teambaseret samarbejde, 2) Tværfaglige læringsteams i klinisk praksis og 3) Stamafdelingskonceptet. Prøvehandlingerne afprøves med deltagelse af ledere, medarbejdere og uddannelsessøgende og skal bidrage til at styrke kompetencer, læringsmiljø, understøtte tværfagligt samarbejde og øge de uddannelsessøgendes tilknytning til hospitalet.

Metoder

En tværfagligt sammensat arbejdsgruppe har gennem det seneste år udviklet og klargjort konkrete tiltag til afprøvning i praksis. Prøvehandling 1 består af et grundkursus i teambaseret samarbejde med særskilte spor for ledere og medarbejdere. Formålet er at styrke kompetencer til at indgå i lærende teams med fokus på nysgerrighed, ansvar, refleksion og fælles læring. Prøvehandling 2 omfatter tværfaglige læringsteams i klinisk praksis. Første afprøvning gennemføres i Ambulatoriet for Gestationel Diabetes, hvor tværprofessionelle studerende indgår i autentiske patientforløb. Konceptet bygger på peer-learning og praksisnær læring. Parallelt udvikles en model til sengeafsnit. Prøvehandling 3 er et stamafdelingskoncept, hvor sygeplejestuderende vender tilbage til samme afdeling gennem uddannelsesforløbet. Konceptet undersøges med fokus på tilknytning til læringsmiljøet, trivsel, faglig progression samt forhold, der fremmer eller hæmmer gennemførlighed og effekt.

Perspektiver

Prøvehandlingerne monitoreres løbende. De indsamlede erfaringer og data skal danne grundlag for videreudvikling, justering og implementering af bæredygtige uddannelsestiltag, der styrker læringsmiljøet, kompetenceudviklingen og de uddannelsessøgendes tilhørsforhold til hospitalet med henblik på fremtidig rekruttering.

FRA STRATEGI TIL PRAKSIS

Status på prøvehandlinger i Hospitalets Uddannelsesstrategi

Charlotte Fuglesang[1] • **Pia Simonsen Lentz**[2]

1Hospitalsledelsen, Regionshospital Nordjylland, Hjørring, Danmark
2MScPH, Udviklingskonsulent for Kliniske Læringsmiljøer, Regionshospital Nordjylland, Hjørring, Danmark

Baggrund

Hospitalets uddannelsesstrategi omfatter tre prøvehandlinger:

1) Grundkursus i teambaseret samarbejde
2) Tværfaglige læringsteams i klinisk praksis
3) Stamafdelingskonceptet

Prøvehandlingerne afprøves med deltagelse af ledere, medarbejdere og uddannelsessøgende og skal bidrage til at styrke kompetencer, læringsmiljø, understøtte tværfagligt samarbejde og øge de uddannelsessøgendes tilknytning til hospitalet.

Metode

En tværfagligt sammensat arbejdsgruppe har gennem det seneste år udviklet og klargjort konkrete tiltag til afprøvning i praksis.

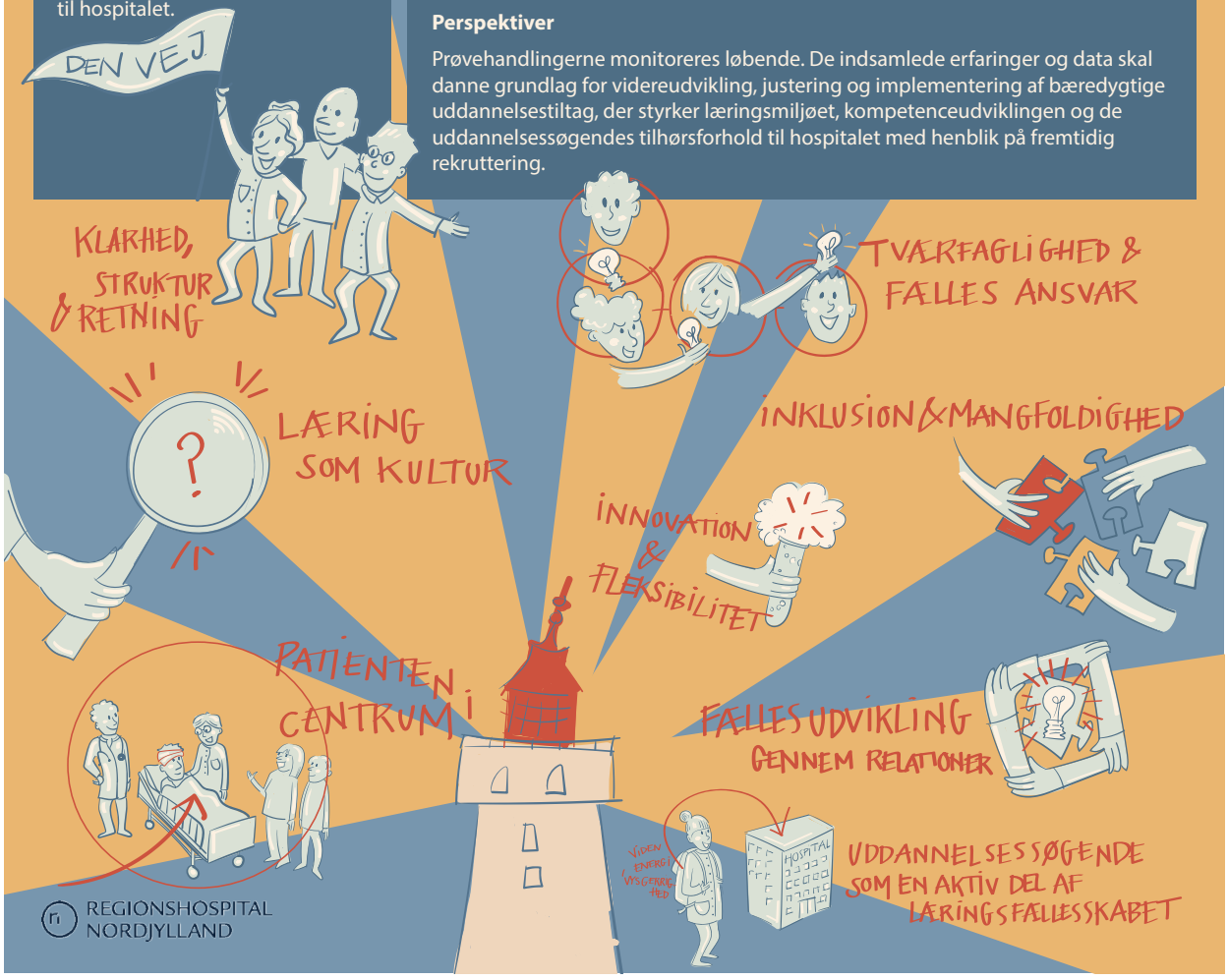
Prøvehandling 1 består af et grundkursus i teambaseret samarbejde med særskilte spor for ledere og medarbejdere. Formålet er at styrke kompetencer til at indgå i lærende teams med fokus på nysgerrighed, ansvar, refleksion og fælles læring.

Prøvehandling 2 omfatter tværfaglige læringsteams i klinisk praksis. Første afprøvning gennemføres i Ambulatoriet for Gestationel Diabetes, hvor tværprofessionelle studerende indgår i autentiske patientforløb. Konceptet bygger på peer-learning og praksisnær læring. Parallelt udvikles en model til sengeafsnit.

Prøvehandling 3 er et stamafdelingskoncept, hvor sygeplejestuderende vender tilbage til samme afdeling gennem uddannelsesforløbet. Konceptet undersøges med fokus på tilknytning til læringsmiljøet, trivsel, faglig progression samt forhold, der fremmer eller hæmmer gennemførlighed og effekt.

Perspektiver

Prøvehandlingerne monitoreres løbende. De indsamlede erfaringer og data skal danne grundlag for videreudvikling, justering og implementering af bæredygtige uddannelsestiltag, der styrker læringsmiljøet, kompetenceudviklingen og de uddannelsessøgendes tilhørsforhold til hospitalet med henblik på fremtidig rekruttering.



69.

Fra læring til handling: udvikling og pilotafprøvning af Grundmodul for Teambaseret Samarbejde på Regionshospital Nordjylland

Nathja Bartholomæussen Rold Nielsen[1], Trine Dahl Holm[1], Anja Kirstein[2], Liselotte Ingemann Pedersen[3], Mona Kyndi Pedersen[2,4], Christina Højmark Østergaard[5]

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3. Team Talenternes Hus, Regionshospital Nordjylland, Hjørring, Danmark
4. Klinisk Institut, Aalborg Universitet, Aalborg, Danmark
5. Afdeling for Nyre og Urinvejskirurgi, Regionshospital Nordjylland, Hjørring, Danmark

Baggrund

På Regionshospital Nordjylland er teambaseret samarbejde et indsatsområde i hospitalets uddannelsesstrategi. I en hospitalsorganisation, hvor samarbejde foregår på tværs af fagligheder, funktioner, afsnit og skiftende teams, er kompetencer til at indgå aktivt og konstruktivt i forskellige samarbejdsrelationer centrale. Som led i udmøntningen af uddannelsesstrategien er der derfor udviklet et Grundmodul for Teambaseret Samarbejde, der skal styrke medarbejderes og lederes kompetencer til teambaseret samarbejde med det gode og sammenhængende patientforløb for øje.

Metoder

Grundmodulet er udviklet som en læringsrejse, hvor læring kobles tæt til deltagernes daglige praksis. Læringsdesignet består af workshops, refleksionssessioner, forberedelse og mikrohandlinger mellem modulerne. Deltagerne vælger og afprøver små, konkrete ændringer i egen adfærd og bringer erfaringerne tilbage til fælles refleksion. Grundmodulet pilotafprøves i et leder- og et medarbejderspor, der bygger på samme faglige fundament. Ledersporet indeholder desuden et særligt fokus på betydningen af position, mandat, status og magt i samarbejdet. Pilotafprøvningen følges gennem før- og eftermåling, løbende evaluering af arbejdet med mikrohandlinger samt evaluering af læringsdesignet.

Perspektiver

Grundmodulet bygger på en antagelse om, at udvikling af teambaseret samarbejde ikke alene sker gennem ny viden, men gennem refleksion og konkrete handlinger i praksis. Ambitionen er, at små adfærdsændringer kan skabe bevægelse ud over undervisningsrummet og bidrage til lærende teams. Erfaringerne fra pilotafprøvningen skal anvendes til at videreudvikle Grundmodulet og skabe et fælles sprog og fælles greb til teambaseret samarbejde på tværs af hospitalet.

Fra læring til handling

Nathja Bartholomæussen Rold Nielsen[1], Trine Dahl Holm[1], Anja Kirstein[2], Liselotte Ingemann Pedersen[3], Mona Kyndi Pedersen[2,4],Christina Højmark Østergaard[5]
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Baggrund

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CKF | CENTER FOR KLINISK FORSKNING Regionshospital Nordjylland
REGIONSHOSPITAL NORDJYLLAND

70.

Vi kan gøre det bedre! En intervention for en tryg og inddragende udskrivelse for den ældre skrøbelige patient

Pernille Nedergård Birkbak[1], Christina Spåbæk Jakobsen[1], Anna Krøger Lemme[1], Marianne Godt Hansen[2], Rikke Rishøj Mølgaard[3,4], Daniel Krag Nielsen[3,4]

1. Afdeling for Diabetes-, Hjerte- og Hormonsygdomme, Regionshospital Nordjylland, Hjørring, Danmark
2. Marianne Godt Hansen, Ekstern konsulent, Aarhus, Danmark
3. Hospitalsledelsen, Regionshospital Nordjylland, Hjørring, Danmark
4. Sygeplejerskeuddannelsen, Professionshøjskolen UCN, Hjørring, Danmark

Baggrund

Udskrivelsesprocessen for skrøbelige ældre patienter (+80 år og Clinical Frailty Scale 5-8) og pårørende på afdelingen for hjerte- og hormonsygdomme er udfordret af manglende forventningsafstemning. Inddragelse af patient og pårørende i dialog om udskrivelsen er mangelfuld og beslutninger træffes i vid udstrækning af sundhedsprofessionelle. Det kan medføre manglende behovsafdækning samt utryghed for patient, pårørende og sundhedsprofessionelle. Formålet er at udarbejde en struktureret udskrivelsessamtale, hvor både patient og pårørende inddrages aktivt, for at sikre en personcentreret tilgang, hvor forventningerne afstemmes.

Metode

Der er udviklet og afprøvet en intervention hvor patient og pårørende er inviteret til en udskrivelsessamtale. Invitationen indeholder en introduktion til samtalen. Efterfølgende gennemføres en kvalitativ interviewundersøgelse, hvor data indsamles ved individuelle semistrukturerede interviews med patienter og pårørende efter en udskrivelsessamtale. Der anvendes interviewguide. Data vil blive analyseret og fortolket gennem sygeplejefaglig drøftelse og struktureret tematisering.

Perspektiver

Vi forventer, at undersøgelsen bidrager til at patient og pårørende oplever en struktureret og personcentreret inddragelse i udskrivelsesprocessen. Interventionen udvikles, så den tager hensyn til individuelle behov og ressourcer for patient og pårørende. Vi antager, at projektet kan bidrage til bedre patientforløb og forbedrede overgange mellem sektorer. Vi planlægger at inddrage alle sygeplejersker i afsnittet og deres perspektiv på interventionen ved afvikling af fokusgrupper med henblik på implementering ensartet og systematisk afvikling af udskrivelsessamtaler.

Vi KAN gøre det bedre !

-En intervention for en tryg og inddragende udskrivelse for den ældre skrøbelige patient

Pernille Nedergård Birkbak[1], Christina Spåbæk Jakobsen[1], Anna Krøger Lemme[1], Marianne Godt Hansen[2], Rikke Rishøj Mølgaard[3,4], Daniel Krag Nielsen[3,4]

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2 Marianne Godt Hansen, ekstern konsulent, Aarhus, Danmark
3 Hospitalsledelsen, Regionshospital Nordjylland, Hjørring, Danmark
4 Sygeplejerskeuddannelsen, Professionshøjskolen UCN, Hjørring, Danmark

Baggrund

Vi kan ikke planlægge den gode udskrivelse uden at spørge dem, det handler om

Når de professionelles perspektiv fylder mest, kan vigtige behov blive overset

Manglende forventningsafstemning kan skabe utryghed i udskrivelsesprocessen

Metode

En kvalitativ interviewundersøgelse, hvor data indsamles ved individuelle semistrukturerede interviews med patient og pårørende efter en udskrivelsessamtale.
Der anvendes interviewguide. Data vil blive analyseret og fortolket gennem sygeplejefaglig drøftelse og struktureret tematisering.



Perspektiver

Øget inddragelse af patienter og pårørende.
Intervention tilpasset individuelle behov og ressourcer.
Sygeplejerskers erfaringer inddrages via fokusgrupper.

REGIONSHOSPITAL NORDJYLLAND

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71.

Første fase i implementeringen af strategien „Sygepleje til Fremtiden“: mobilisering, klinisk engagement og kapacitetsopbygning

Rikke Rishøj Mølgaard[1,2], Charlotte Fuglesang[1], Marianne Godt Hansen[3], Daniel Krag Nielsen[1,2]

1. Hospitalsledelsen, Regionshospital Nordjylland, Hjørring, Danmark
2. Sygeplejerskeuddannelsen, Professionshøjskolen UCN, Hjørring og Thisted, Danmark
3. Marianne Godt Hansen, Ekstern konsulent, Aarhus, Danmark

Baggrund

På Regionshospital Nordjylland blev implementeringen af den første strategi for sygepleje igangsat i september 2025. Strategien understøtter personcentreret og evidensbaseret sygepleje og har bred ledelsesmæssig forankring. I første fase af implementeringen er fokus på at arbejde med kliniske problemstillinger og involverer sygeplejersker på alle niveauer. Formålet er at belyse, hvordan den indledende implementeringsfase bidrager til mobilisering, klinisk engagement og styrkelse af kompetencer blandt sygeplejersker til udviklingsarbejde.

Metoder

Den første fase af strategien har været rettet mod mobilisering, faglig dialog og opbygning af udviklingskapacitet blandt kliniske sygeplejersker. Der er gennemført seks idégenererende workshops med deltagelse fra alle afdelinger. På baggrund af 16 projektidéer er der gennemført yderligere fire tematiske workshops. Derudover er der afholdt månedlige drop-in workshops med individuel sparring og mulighed for feedback mundtligt og skriftligt. Programcheferne har desuden italesat og givet status på strategiarbejdet i relevante mødefora.

Resultater

Den øgede involvering af sygeplejersker i udviklingsarbejdet har styrket det kliniske engagement og oplevelsen af ejerskab samt skabt mulighed for faglig fordybelse. Strategien har skabt bred mobilisering og rum for dialog om sygepleje både internt og på tværs af afsnit. Foreløbige erfaringer indikerer, at kliniske idéer kun omsættes til systematisk udviklingsarbejde og efterfølgende implementering, når de understøttes af lokal organisatorisk prioritering, ressourcer og kompetencer til udviklingsarbejde.

Konklusioner

Arbejdet med strategien har medført en modningsproces, og har bidraget til et nødvendigt fokus på organisatorisk og individuel kapacitetsopbygning og ressourcer til udviklingsarbejde. I implementeringens næste fase arbejdes der systematisk med omsætning af sygeplejerskernes indsatser til konkrete forbedringer i klinisk praksis.

Første fase i implementeringen af strategien "Sygepleje til Fremtiden": Mobilisering, klinisk engagement og kapacitetsopbygning

Rikke Rishøj Mølgaard[1,2] • Charlotte Fuglesang[1] • Marianne Godt Hansen[3] • Daniel Krag Nielsen[1,2]

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[2]Sygeplejerskeuddannelsen, Professionshøjskolen UCN, Hjørring, Danmark
[3]Marianne Godt Hansen, Ekstern konsulent, Aarhus, Danmark

BAGGRUND

På Regionshospital Nordjylland blev implementeringen af strategi for sygepleje igangsat i 2025. Strategien understøtter personcentreret og evidensbaseret sygepleje og har bred ledelsesmæssig forankring. I første fase af implementeringen er fokus på at arbejde med kliniske problemstillinger og involverer sygeplejersker på alle niveauer.



Formål

Formålet er at belyse, hvordan den indledende implementeringsfase bidrager til mobilisering, klinisk engagement og styrkelse af kompetencer blandt sygeplejersker til udviklingsarbejde.





METODE

Den første fase af strategien har været rettet mod:

- Mobilisering, faglig dialog og opbygning af udviklingskapacitet
- Gennemførsel af idégenererende workshops og tematiske workshops
- Månedlige drop-in workshops med individuel sparring
- Deltagelse i strategiarbejdet i relevante mødefora

RESULTATER

- Øget involvering styrkede engagement, ejerskab og faglig fordybelse
- Strategien fremmede mobilisering og dialog om sygepleje på tværs af afsnit
- Udvikling og implementering kræver lokal prioritering, ressourcer og kompetencer



KONKLUSION

- Strategiarbejdet har understøttet organisatorisk modning og kapacitetsopbygning
- Der er skabt øget fokus på ressourcer til udviklingsarbejde
- Næste fase fokuserer på implementering af konkrete forbedringer i klinisk praksis

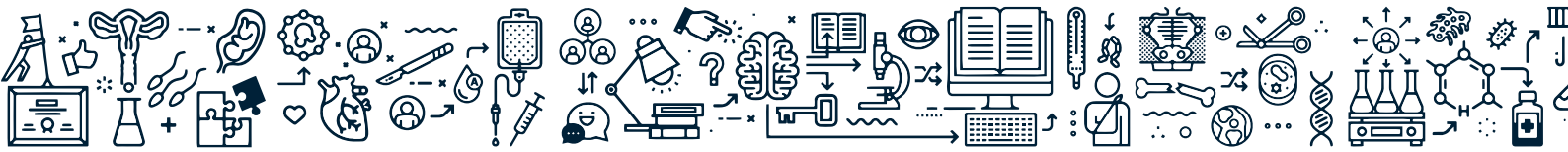
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Sundhedsteknologi



72.

Telekontaktcenter – én digital indgang til et mere sammenhængende og borgernært sundhedsvæsen

Charlotte Fuglesang[1], Christine Nørgaard[1]

1. Hospitalsledelsen, Regionshospital Nordjylland, Hjørring, Danmark

Baggrund

Sundhedsvæsenet står overfor stigende aktivitet, demografiske forandringer og rekrutteringsudfordringer, samtidig med at flere sundhedsydelser skal leveres tættere på borgeren. Det kræver nye organisatoriske modeller, hvor digitale løsninger ikke fungerer som enkeltstående tilbud, men integreres i sammenhængende patientforløb. Regionshospital Nordjylland udvikler derfor et Telekontaktcenter som organisatorisk og digitalt omdrejningspunkt for hospitalets e-sundhedsydelser. Visionen er at etablere én indgang - Single Point of Contact - hvor borgere og sundhedsprofessionelle guides til rette sundhedsfaglige indsats og kontaktform.

Metoder

Telekontaktcenteret udvikles i et tværgående implementeringsprojekt med ni kliniske udviklingsspor. Eksisterende arbejdsgange og kontaktmønstre kortlægges, og muligheder for digitalisering, automatisering og omlægning af opgaver identificeres. Der udvikles og afprøves koncepter inden for digital triage, hjemmemonitorering, specialistrådgivning, tværsektoriel koordinering og digital patientkommunikation. Løsningerne udvikles med fokus på skalerbarhed på tværs af hospitalets afdelinger og med inddragelse af patienter, klinikere og tværsektorielle samarbejdspartnere.

Perspektiver

Telekontaktcenteret skal skabe en organisatorisk infrastruktur, der forbinder hospitalets digitale og fysiske sundhedsydelser og understøtter behandling på det mest hensigtsmæssige niveau – på hospitalet, tættere på eller i borgerens eget hjem. Telekontaktcenteret skal samtidig fungere som udviklingsplatform for nye sundhedsfaglige løsninger og samarbejdsformer. Ved at samle kontakt, digitale muligheder og kliniske kompetencer skabes et afsæt for løbende at udvikle og afprøve nye tilbud, der kan styrke sammenhængen på tværs af hospital, almen praksis og kommunale tilbud og give borgere nye muligheder for adgang til rådgivning, behandling og opfølgning. Projektet forventes dermed at skabe mere sammenhængende patientforløb og bedre anvendelse af sundhedsvæsenets kapacitet samt etablere en skalerbar platform for innovation og udvikling af fremtidens e-sundhedsvæsen.

PROJEKT

TELEKONTAKTCENTERET

Én indgang til et mere sammenhængende og borgernært sundhedsvæsen

Charlotte Fuglesang[1] - Christine Nørgaard[1]
Regionshospital Nordjylland, Hjørring, Danmark



BAGGRUND

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METODE

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Eksisterende arbejdsgange og kontaktmønstre kortlægges, og muligheder for digitalisering, automatisering og omlægning af opgaver identificeres.

Der udvikles og afprøves koncepter inden for digital triage, hjemmemonitorering, specialistrådgivning, tværsektoriel koordinering og digital patientkommunikation.

Løsningerne udvikles med fokus på skalerbarhed på tværs af hospitalets afdelinger og med inddragelse af patienter, klinikere og tværsektorielle samarbejdspartnere.

VORES MÅL

Rette hjælp
til rette borger
– på rette tidspunkt

Sammenhængende
forløb på tværs af sektorer

Effektiv anvendelse
af sundhedsvæsenets kapacitet



CENTRALE ELEMENTER

Digitale services
Samling af alle online tjenester ét sted

Digital triage
Systematisk visitation til rette tilbud

Tværsektoriel koordinering
Samarbejde på tværs af hospital, kommune og almen praksis

Overblik og styring
Data og løbende lærings- og forbedringsprocesser

Innovation
Test og udvikling af nye sundhedsfaglige løsninger

PERSPEKTIVERING

Telekontaktcenteret skal skabe en organisatorisk infrastruktur, der forbinder hospitalets digitale og fysiske sundhedsydelser og understøtter behandling på det mest hensigtsmæssige niveau – på hospitalet, tættere på eller i borgerens eget hjem.
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Projektet forventes dermed at skabe mere sammenhængende patientforløb og bedre anvendelse af sundhedsvæsenets kapacitet samt etablere en skalerbar platform for innovation og udvikling af fremtidens e-sundhedsvæsen.

FRA KONTAKT TIL KONTINUITET



REGIONSHOSPITAL NORDJYLLAND

73.

Kan en AI-sprogmodel bruges til at oversætte borgeres journalnotater på sundhed.dk til lægmandssprog?

Kristine Brøndbjerg Øby[1], Anders Bobo Larsen[1], Carsten Wridt Stoltenberg[2], Emil Sales[3], Oliver Buckhave Pedersen[4], Gitte Nielsen[4], Søren Gray Worsøe Laursen[5], Helle Beck Hesthaven[6], Peter Derek Christian Leutscher[1,7]

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2. Basis Infrastruktur, Region Nordjylland, Aalborg, Danmark
3. Virgilerne, København, Danmark
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5. Kræftens Bekæmpelse, København, Danmark
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Baggrund

Alle danskere kan tilgå deres egne sundhedsoplysninger i Sundhedsjournalen på Sundhed.dk. Mængden af tilgængelige sundhedsoplysninger stiger i takt med den øgede datadeling, og størstedelen af disse oplysninger skabes i en klinisk kontekst i dialogen mellem sundhedsprofessionelle, eksempelvis i form af journalnotater. Undersøgelser viser dog, at mange borgere, grundet manglende kendskab til klinisk-terminologi eller læsevanskeligheder, har svært ved at forstå og dermed anvende deres oplysninger i Sundhedsjournalen. Dette begrænser borgernes mulighed for at mestre eget sygdomsforløb. Derfor har vi udviklet en løsning, der ved hjælp af generativ AI og opslag i Lægepatienthåndbogen kan transformere kliniske journalnotater til et mere letforståeligt hverdagssprog for patienten.

Metoder

Løsningen er testet på Kardiologisk Afdeling på Regionshospital Nordjylland. Her har Center for Klinisk Forskning, i samarbejde med klinikere og patienter, undersøgt effekten af at anvende generativ AI til at omskrive kliniske tekster til lægmandssprog. Testen indebar, at patienter vurderede forståeligheden af AI-oversatte journaludklip via spørgeskemaer, mens kardiologerne foretog en klinisk validering af oversættelsernes nøjagtighed.

Perspektiver

Vores mål er at gøre det lettere for borgerne at bruge sundhedsoplysninger aktivt på Sundhed.dk hvilket potentielt vil kunne skabe et bedre beslutningsgrundlag i eget sygdomsforløb. Samtidig ønsker vi at nå de patienter, der hidtil ikke har tilgået deres journaloplysninger grundet manglende forståelse, der ofte udgør de sårbare og sygeste patienter.

Kan AI gøre din journal lettere at forstå?

Kristine Brøndbjerg Øby[1], Anders B. Larsen[1], Carsten Wridt Stoltenberg[3], Emil Sales[4], Oliver Buckhave Pedersen[5], Gitte Nielsen[5], Søren Gray Worsøe Laursen[6], Helle Beck Hesthaven[7], Peter Derek Christian Leutscher[1,2]

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01 BAGGRUND

Alle danskere har adgang til egne sundhedsoplysninger via Sundhedsjournalen på Sundhed.dk. I takt med øget datadeling vokser mængden af tilgængelige sundhedsoplysninger, hvoraf en stor del genereres i en klinisk kontekst og indeholder klinisk terminologi. Undersøgelser viser, at mange borgere har vanskeligt ved at forstå og anvende disse oplysninger, hvilket kan begrænse muligheden for at mestre eget sygdomsforløb.



FORMÅL

At udvikle og afprøve en løsning, der ved hjælp af generativ AI og opslag i Lægepatienthåndbogen transformerer kliniske journalnotater til et mere letforståeligt hverdagssprog.

02 METODE

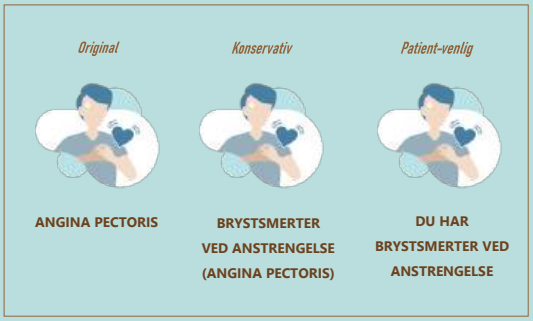
JOURNALUDKLIP
Kardiologisk Afdeling
(n = 40)

Epikrise *(n=10)*	Holter-monitorering *(n=10)*	Ekko-kardiografi *(n=10)*	CT-KAG *(n=10)*

AI-OVERSÆTTELSE

Patientvurdering *spørgeskema*	**Klinisk validering** *kardiologer*

SAMLET EVALUERING



03 PERSPEKTIVERING

Øget forståelse af journaloplysninger kan styrke patienters aktive deltagelse i eget sygdomsforløb og gøre Sundhedsjournalen mere tilgængelig – også for sårbare patienter.

74.

STEP-HF – evaluating changes in body weight, bioimpedance, and heart rate variability during decongestion in patients with heart failure

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Background

Heart failure is a major cause of hospitalization and readmission, frequently driven by progressive fluid accumulation. Daily body weight is widely used to monitor congestion, but changes in weight may be relatively insensitive and influenced by factors unrelated to fluid status. Bioimpedance analysis (BIA) offers insight into changes in body fluid composition, while heart rate variability (HRV), derived from nocturnal photoplethysmography (PPG) recordings and expressed as Root Mean Square of Successive Differences (RDSSD), may reflect concomitant autonomic alterations. The aim of the STEP-HF study is to evaluate whether changes in body weight, bioimpedance and wearable-derived autonomic measurements accurately reflect shifts in congestion during the decongestion process in patients hospitalized with worsening heart failure.

Methods

STEP-HF is a prospective proof-of-concept study evaluating the ImpediCare multimodal monitoring system. The system combines daily measurements of body weight and BIA obtained from a connected scale with nocturnal monitoring using a wrist-worn PPG sensor, which provides heart rate and HRV as RDSSD during sleep. Measurements will be collected longitudinally and integrated into a digital platform.

Perspectives

The STEP-HF study will explore whether integrating daily body weight, bioimpedance and nocturnal HRV provides a more comprehensive assessment of congestion than individual measurements alone. As the first step towards a larger clinical study, the findings will provide the basis for evaluating ImpediCare as a home-monitoring system in patients with heart failure, with the aim of enabling earlier detection of worsening congestion and timely intervention before clinical deterioration and hospitalization.

Hjemmemonitorering af hjertesvigt

Kan vi opdage forværring, før patienten mærker det?

Flere fysiologiske signaler, ét samlet billede

Puls og HRV

Natlig måling med en sensor på håndleddet

Vægt og bioimpedans

Daglig måling af vægt og kroppens væskestatus

Udvikling over tid

Målinger undersøges for tidlige tegn på forværring.



Konceptillustration

Baggrund

Væskeophobning er en central del af mange hjertesvigtsforværringer. Vægt alene kan være et utilstrækkeligt mål for ændringer i væskestatus.

STEP-HF

I et prospektivt proof-of-concept-studie undersøger vi ændringer i vægt, bioimpedans og HRV under behandling af patienter indlagt med forværret hjertesvigt.

Målet er tidligere indsats i hjemmet

Hvis målingerne kan identificere begyndende forværring, kan de på sigt understøtte behandling, før patienten får behov for indlæggelse.

STEP-HF **Impedi**care

Michael Bang[1], Kristian Hay Kragholm[2,3], Samuel Emil Schmidt[4], Gitte Nielsen[1], Peter Derek Christian Leutscher[3,5], Peter Søgaard[2,3]

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AALBORG UNIVERSITETSHOSPITAL
REGIONSHOSPITAL NORDJYLLAND

75.

Talegenkendelse: hurtigere, men bedre? Sundheds-professionelles erfaringer med dokumentationskvalitet, patientsikkerhed og arbejdsgange

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Baggrund

Talegenkendelse (TGK) anvendes i stigende grad til klinisk dokumentation og kan bidrage til hurtigere adgang til journaloplysninger. Implementeringen ændrer dog arbejdsgange og placerer en større opgavebyrde hos det kliniske personale. Undersøgelsen havde til formål at undersøge sundhedsprofessionelles erfaringer med TGK med særligt fokus på dokumentationskvalitet, patientsikkerhed og arbejdsgange.

Metoder

Undersøgelsen blev primært udført blandt læger på Medicinsk Afdeling og Kardiologisk Afdeling, Regionshospital Nordjylland, hvor TGK-systemet Nuance Dragon Medical (Omilon) var blevet indført 6 måneder forinden. Data blev indsamlet via REDCap juni–august 2026. Kvantitative data blev analyseret deskriptivt, mens fritekstbesvarelser blev kategoriseret tematisk.

Resultater

I alt besvarede 30 læger spørgeskemaet, hvoraf 29 (96,7 %) havde erfaring med TGK. Blandt disse respondenter vurderede 14 (48,3 %) TGK i en samlet vurdering *negativt/meget negativt*, seks (20,7 %) neutralt og ni (31,0 %) *positivt/meget positivt*. Hele 82,8% rapporterede at tekstfejl forekom *hyppigt* eller *altid*, og 44,8% var *enige/helt enige* i, at fejlene kunne påvirke patientsikkerheden. Samtidig angav 24 respondenter, at TGK gjorde journaloplysninger hurtigere tilgængelige. Desuden var 24 af 29 (82,8 %) var enige eller helt enige i, at korrekturlæsning optager væsentlig læge tid. Fritekstsvarene fremhævede især udfordringer vedrørende fejl, dokumentationskvalitet og tidsforbrug.

Konklusioner

TGK bidrager til hurtigere adgang til klinisk dokumentation, men teknologien er samtidig forbundet med hyppige fejl, et betydeligt tidsforbrug til korrekturlæsning og bekymring for patientsikkerheden. Resultaterne peger på et behov for både tekniske forbedringer af TGK og en revurdering af de arbejdsgange og ressourcer, der er afsat til dokumentation og kvalitetssikring.

BAGGRUND

Talegenkendelse (TGK) muliggør direkte klinisk dokumentation og hurtigere tilgængelighed af journaloplysninger. Samtidig ændres arbejdsgange og ansvaret for dokumentation, korrekturlæsning og registrering.

FORMÅL: At undersøge sundhedsprofessionelles erfaringer med TGK med fokus på dokumentationskvalitet, patientsikkerhed og ændringer i arbejdsgange.

METODE

MEDARBEJDERE
Medicinsk & Kardiologisk Afdeling

DATAINDSAMLING
REDCap + Interviews (jun.-sep. 26)

KVANTITATIV DATA
Deskriptiv analyse

KVALITATIV DATA
Tematisk kategorisering



TALEGENKENDELSE

HURTIGERE, MEN BEDRE?

RESULTATER

75 Respondenter

45 Med TGK-erfaring
29 læger · 10 sygeplejersker · 6 sekretærer

Real tid
Journalnotaterne er tilgængelige med det samme

Kognitiv belastning
Flere klik, kontrol og korrektioner øger tidsforbruget og kognitiv belastning

Kontekst
Oplevelsen af TGK varierer afhængigt af den kliniske kontekst og arbejdsgang

Opgaveflytning
Opgaver og kvalitetssikring flyttes fra sekretærerne til lægerne

SAMLET VURDERING

48,5%	20,4%	31,1%
Negativ eller *meget negativ*	*Neutral*	*Positiv* eller *meget positiv*

KONKLUSION

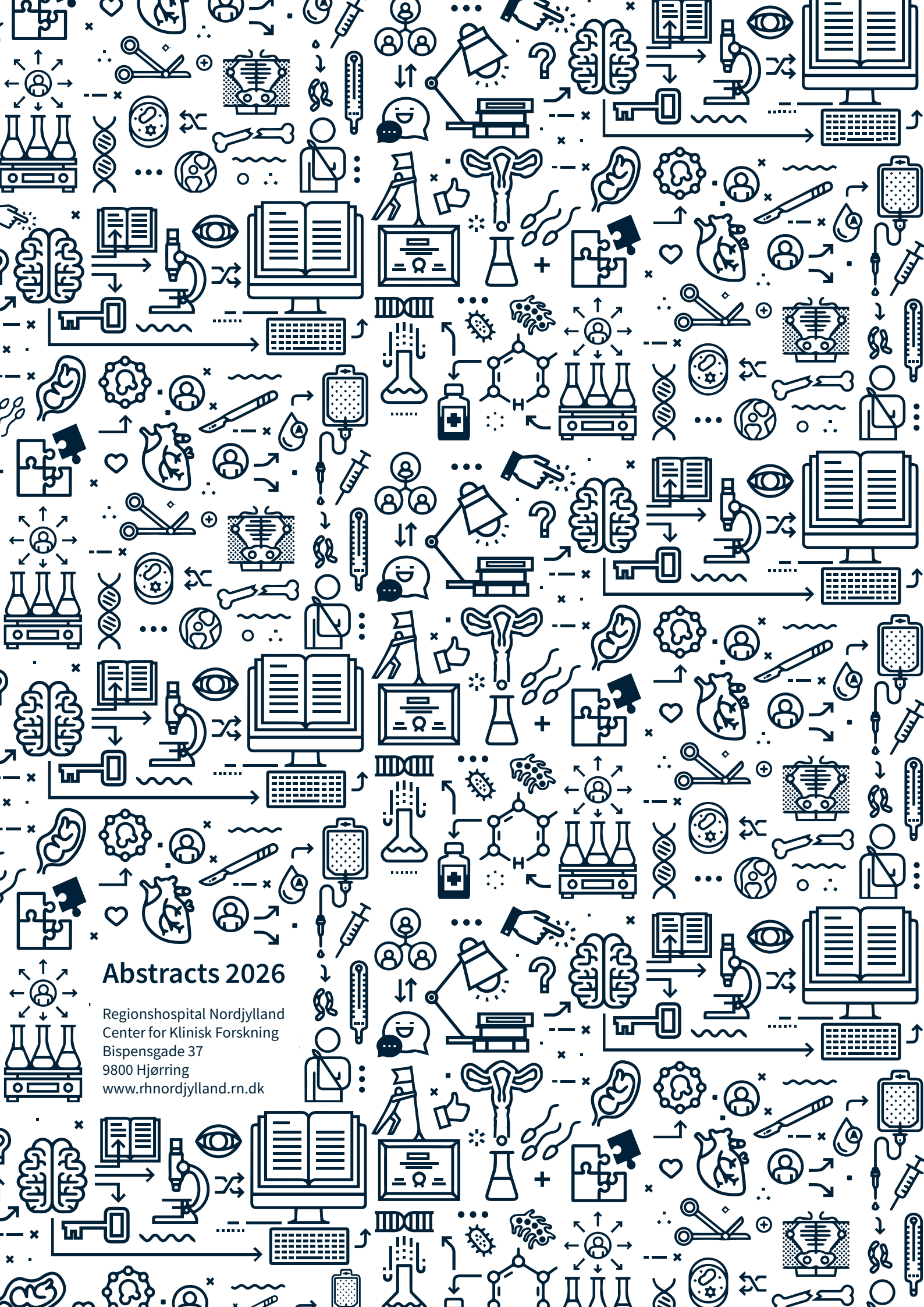
TGK gav hurtigere adgang til journaloplysninger, men var samtidig forbundet med hyppige fejl, øget tidsforbrug til korrekturlæsning og bekymring for patientsikkerheden.

PERSPEKTIVERING

TGK bør anvendes målrettet, hvor teknologien skaber værdi. Samtidig bør teknologi og opgavefordeling vurderes med fokus på kvalitet, patientsikkerhed og ressourceanvendelse.

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Abstracts 2026

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