

## Press release

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### Basic information

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Department of: Clinical Medicine

Main supervisor: Else Marie Skjøde Damsgaard

Title of dissertation: Mobile X-ray examination for residents living in aged care facilities in Aarhus Municipality, Denmark

Date for defence: 28. januar at (time of day): 14.00 Place: Zoom

Press release (Danish)

Ph.d. forsvar - Maria Dietz Toppenberg

I høj indkomst lande som fx Danmark stiger antallet af ældre over 65 år, hvilket resulterer i flere udfordringer for velfærdsstaten, da det at blive ældre er associeret med et øget brug af sundhedsvæsenet. Hvis en patient mistænkes for lungesygdomme eller brud på en knogle, bliver patienten henvist til Røntgen og Skanning eller Akutafdelingen med henblik på en røntgenundersøgelse. Patienten henvises af den praktiserende læge eller af den ansvarlige læge hvor patienten er indlagt. Teknologi har gjort det muligt at røntgenundersøge patienter i eget hjem med mobilt røntgenudstyr. I Aarhus kommune blev mobil røntgen introduceret i 2014, som et pilot projekt, men effekten var uklar og det var derfor nødvendigt at evaluere projektet. Formålet med dette Ph.d. studie var at evaluere mobil røntgen i et dansk set-up for plejehjemspatienter og patienter bosat i ældreboliger. Vi ønskede at studere effekten af og tilfredsheden med mobil røntgen.

Ph.d. afhandlingen er baseret på tre studier. Det første består af et scoping review for at belyse litteratur om mobil røntgen. I studie II og III var metoden et randomiseret kontrolleret (RCT) forsøg og inkluderede 131 patienter henvist til en mobil røntgenundersøgelse. I studie II var det primære endemål hospitalsindlæggelser, hvor vi sammenlignede hospitalsindlæggelse i interventionsgruppen (mobil røntgen) med kontrolgruppen (røntgen på hospitalet). I studie III bad vi plejepersonale om at svare på vegne af patienter om tilfredshed med røntgenundersøgelsen i et selvudviklet spørgeskema. I litteraturstudiet fandt vi, at mobil røntgen primært har været anvendt til skrøbelige ældre, demenspatienter, hjemløse, stofbrugere, asylansøgere og plejehjemsbeboere. Der har været anvendt flere forskellige endemål til at vurdere effekten af mobil røntgen. Patienter og sundhedspersonale er generelt tilfredse med mobil røntgen. Mobil røntgen er omkostningseffektiv, og billedkvaliteten er acceptabel. I studie II fandt vi ikke signifikante forskelle mellem mobil røntgen (intervention) og røntgen på hospitalet (kontrol) i forhold til det primære endemål: hospitalsindlæggelser og antal hospitalsdage. Vi mødte flere udfordringer, da vi gennemførte RCT i studiepopulationen, muligvis fordi mobil røntgen allerede er et etableret tilbud i Aarhus Kommune. Resultatet i studie III viste, at patienter undersøgt med mobil røntgen, var signifikant mere tilfredse sammenlignet med patienter, der blev undersøgt med røntgen på hospitalet. "Mobile X-ray examination for residents living in aged care facilities in Aarhus Municipality, Denmark" er et Ph.d. projekt fra Aarhus Universitet, Health. Projektet er gennemført af Maria Dietz Toppenberg..

Forsvaret af ph.d.-projektet finder sted på Zoom, 28.januar kl.11.30. Zoom adresse og kode kan rekvireres af Maria Toppenberg.

Titlen på projektet er "Mobile X-ray examination for residents living in aged care facilities in Aarhus Municipality, Denmark".

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Press release (English)

Ph.d. defence - Maria Dietz Toppenberg

In high income countries including Denmark, the number of persons 65+ years is increasing, which poses severe challenges for the traditional welfare state because getting old is associated with more use of public services. When a patient in Aarhus Municipality, is suspected of having lung diseases or a fracture, the patient is referred to the Department of Radiology or the Acute Department at Aarhus University Hospital by the general practitioner (GP) or the responsible doctor at the department where the patient is hospitalized for an X-ray examination. Technology has made it possible for X-ray patients to be examined at home using mobile X-ray equipment. At Aarhus University hospital, mobile X-ray outside the hospital was introduced in 2014 as a pilot project, but the effect was still unclear and needed to be evaluated. The aim of this PhD study was to evaluate mobile X-ray in a Danish setting including patients in aged care facilities. In that perspective, we studied the effect of mobile X-ray and satisfaction with mobile X-ray.

This PhD dissertation is based on three studies. In Study I, we conducted a scoping review to disclose literature about mobile X-ray. Study II and Study III were randomized controlled trials (RCT) and included 131 patients referred to a mobile X-ray examination. We compared the intervention group (mobile X-ray) to the control group (X-ray at the hospital). In Study II, the primary outcome was hospitalizations. In Study III, we asked healthcare staff to answer on behalf of patients about the patient's satisfaction with the X-ray examination in a self-developed questionnaire. In Study I, we found that the target population for mobile X-ray outside the hospital was frail elderly, dementia patients, homeless patients, drug users, asylum seekers and residents in aged care facilities. There were several different outcome measures to study of the effect. Patients and healthcare staff were satisfied with mobile X-ray. Mobile X-ray was cost effective and the image quality was acceptable. In Study II, we did not find significant differences between mobile X-ray (intervention) and X-ray at the hospital (control) concerning the primary outcome: hospitalizations and number of hospital days. We

met several challenges when carrying out RCT in the study population probably because mobile X-ray is an established offer in Aarhus Municipality. In Study III, we found that patients examined with mobile X-ray were significantly more satisfied than patients examined with X-ray at the hospital. "Mobile X-ray examination for residents living in aged care facilities in Aarhus Municipality, Denmark, is a PhD project from Aarhus University, Health. The project was carried out by Maria Dietz Toppenberg.

The defence is taking place at Zoom, the 28th of January at 14.00 Zoom address and code can be requested by Maria Toppenberg.

The title of the project is "Mobile X-ray examination for residents living in aged care facilities in Aarhus Municipality, Denmark. For more information, please contact PhD student Maria Dietz Toppenberg, email: matopp@rm.dk, Phone +45 22423009 .

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