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Danish Center for Health Services Research

Quality of cancer-related data from the Danish National Patient Registry (1994-2025) and the Danish Cancer Registry (2004-2025): a systematic review

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OBJECTIVES

The Danish National Patient Registry (DNPR) and the Danish Cancer Registry (DCR) are key data sources for registry-based cancer research. This systematic review evaluates studies assessing the quality of cancer-related data in these registries under their current data structures.

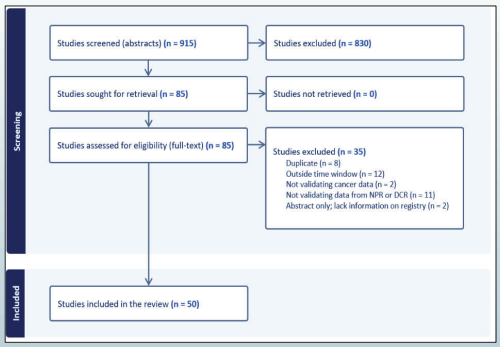

Figure 1: Flowchart for study inclusion.

CONCLUSION

The DNPR and DCR provide generally high-quality data for many cancer diagnoses, treatments, and outcomes, supporting their use in register-based research. Algorithmic approaches can enhance utility, but several cancer-related data elements remains insufficiently validated.

METHODS

PubMed and Embase were searched on January 24, 2025 (PROSPERO: CRD420251005952). Studies validating DNPR or DCR cancer data against a gold standard were included and synthesized narratively.

RESULTS

- Of 915 records, 50 studies were included: 23 on the DNPR, 9 on DCR, and 18 on algorithms combining data sources (Figure 1).
- DNPR cancer diagnoses and treatments showed positive predictive values (PPVs) of 57–100%, highest for common malignancies.
- Comorbidities and complications varied widely (PPVs 0–98%).
- DCR diagnoses were highly valid, but staging completeness ranged from 34–95%.
- Algorithms identifying recurrence, active cancer, or recognized metastases had PPVs of 60–96%, while unrecognized metastases had 28% (Figure 2).

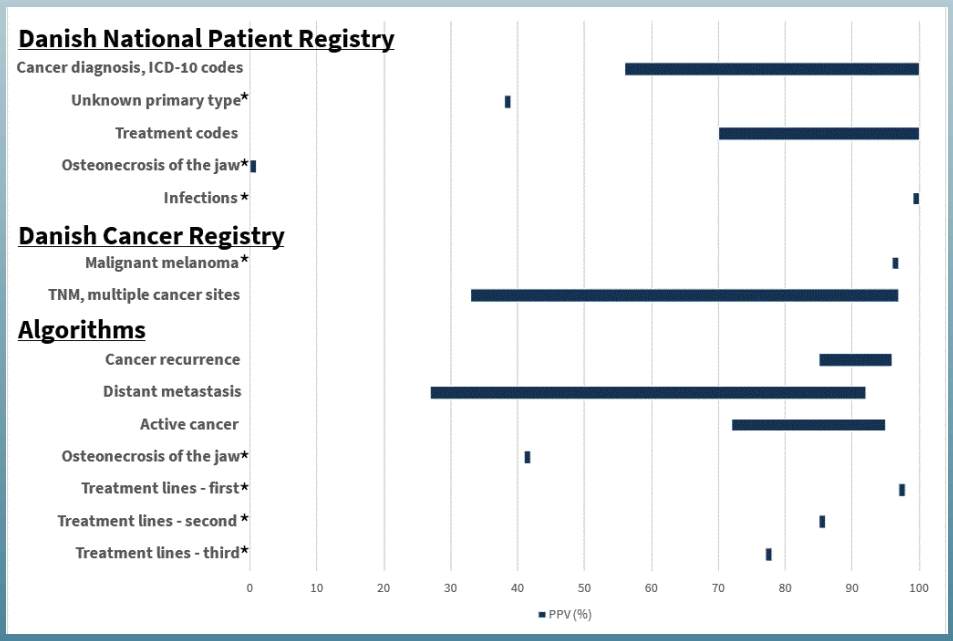

Figure 2: Summary of PPVs from selected studies. Asterisk denotes a single PPV estimate rather than a range.

This study was funded by The Danish Cancer Society (R305 A18514).

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Global kvalitetssikring af IHC: NordiQC's rolle i forbedret kræftdiagnostik og behandling

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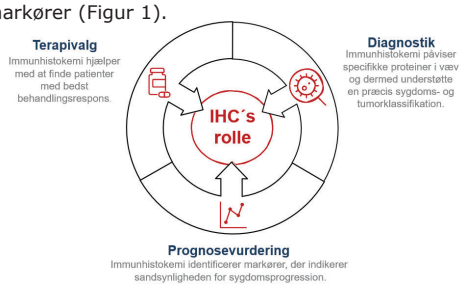
Introduktion Alle kræftdiagnoser stilles i patologiafdelingen, og høj diagnostisk præcision er afgørende for både målrettet behandling og effektiv brug af sundhedsressourcer. Immunhistokemi (IHC) er en hjørnesten i moderne kræftdiagnostik, prognosevurdering og terapivalg, fordi metoden hurtigt og omkostningseffektivt kan påvise specifikke vævsmarkører (Figur 1).

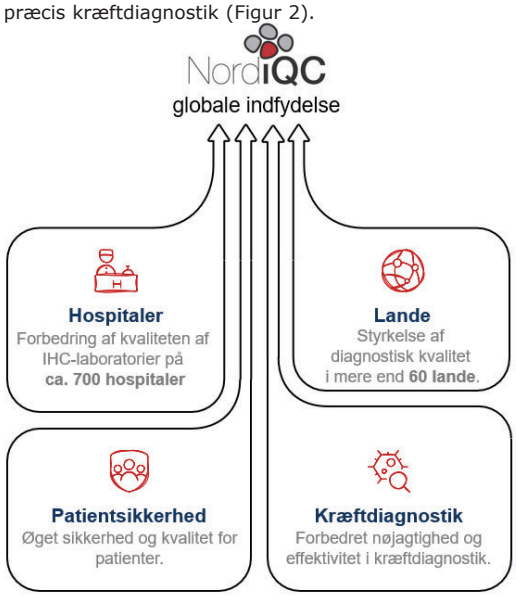


Figur 1. Immunhistokemiens rolle i medicin

Da IHC-resultater er følsomme over for variationer i laboratoriepraksis, er omhyggelig kvalitetssikring nødvendig for at undgå fejl. Her udfylder det internationale eksterne kvalitetssikringsprogram NordiQC (Nordic Immunohistochemical Quality Control), lokaliseret på Aalborg Universitetshospital, en central rolle.

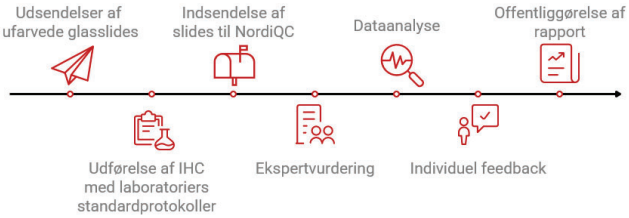
Formål Vi ønsker at belyse, hvordan NordiQC har forbedret kvaliteten af IHC-analyser i patologilaboratorier globalt og fremhæve betydning af kvalitetssikringens rolle for præcis kræftdiagnostik og behandlingsvalg.

I mere end 20 år har NordiQC kvalitetssikret IHC-analyser. Arbejdet, som i dag omfatter deltagelse af ca. 700 laboratorier fra mere end 60 lande, har bidraget til forbedret laboratoriekvalitet, styrket diagnostik, øget patientsikkerhed og mere præcis kræftdiagnostik (Figur 2).



Figur 2. NordiQC har i over 20 år kvalitetssikret IHC-analyser; aktuelt deltager >700 hospitaler fra > 60 lande.

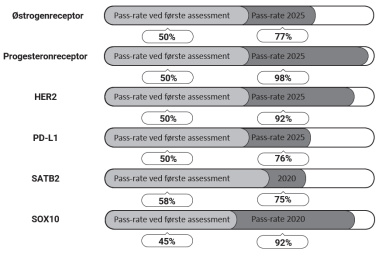
Metoder NordiQC udsender vævsprøver, som laboratorierne behandler ved at udføre IHC-analyser baseret på de protokoller, de på forhånd har oplyst i detaljer til NordiQC.
Deltagerne returnerer deres IHC-analyser, som et internationalt ekspertpanel herefter vurderer kvaliteten af og sammenligner med de forventede resultater.
Denne proces muliggør en efterfølgende dataanalyse, der kan identificere centrale protokol parametre for korrekte resultater.
Hvert laboratorium modtager personlig og målrettet feedback fra ekspertpanelet om, hvordan deres IHC-analyser kan forbedres. Desuden offentliggøres en rapport på NordiQCs hjemmeside, der indeholder de samlede resultater, dataanalysen, almindelige faldgruber og de protokoller, der har fungeret bedst (Figur 3). Denne åbne proces fremmer erfaringsudveksling, harmonisering og bidrager til at løfte den samlede faglige kvalitet.



Figur 3. Arbejdsgang i NordiQC assessments

Resultater

Erfaringerne fra NordiQC viser, at regelmæssig ekstern evaluering og målrettet feedback løfter kvaliteten af IHC-analyser markant. Når en markør vurderes første gang, er andelen af tilfredsstillende resultater ofte lav, men stiger betydeligt i de efterfølgende runder.



Figur 4. Udvikling i pass-rate vist med forskellige markører.

For de prædiktive biomarkører østrogenreceptor, progesteronreceptor, HER2 og PD-L1, som anvendes til brystkræft, steg pass-raten fra ca. 50 % i første kvalitetsrunde til henholdsvis 77 %, 98 %, 92 % og 76 % i 2025 (Figur 4).

Det samme mønster ses for diagnostiske markører. SATB2, anvendt ved tarm- og æggestokkræft, gik fra 58 % tilfredsstillende resultater i første runde i 2020 til 75 % i næste runde, mens SOX10, anvendt ved melanom, gik fra 45 % i 2015 til 92 % i 2020 (Figur 4).

Den samlede pass-rate for nye og gentestede markører er også steget over tid, selv om der er udskiftning blandt de deltagende laboratorier og testede markører. Dokumenteret erfaring og øget kvalitetsfokus har løftet den gennemsnitlige pass-rate fra 71 % (2003-2015, >30 000 præparater) til 79 % (2017-2024, >40 000 præparater).

NordiQC bidrager bredt til både laboratorier og producenter gennem gratis adgang til information om faldgruber og optimale protokoller på hjemmesiden, tæt dialog med producenter om produktkvalitet og kvalitetsforbedring samt fokus på *fit-for-purpose IHC-tests* og en opfordring til, at produkter tilpasses ændringer i den kliniske kontekst. Programmet fungerer samtidig som et tidligt varslingssystem for tekniske og produktrelaterede fejl. Hertil kommer undervisning i IHC-kvalitet gennem foredrag på internationale kongresser, seminarer og workshops.
For de deltagende laboratorier giver programmet yderligere fordele i form af adgang til NordiQC-assessments, personlig feedback til forbedring af konkrete IHC-assays samt adgang til et kontrol-atlas (Figur 5).

Figur 5. NordiQC bidrag

Konklusion

IHC er en teknisk krævende analyse, som kræver nøje opmærksomhed på alle trin i arbejdsgangen. Erfaringerne fra NordiQC viser, at struktureret kvalitetssikring med regelmæssige vurderinger, præcis feedback og løbende metodejustering fører til målbare forbedringer i kvaliteten af laboratoriernes IHC-analyser. Programmet har ikke blot hævet den tekniske standard, men sikrer også, at nye kliniske krav hurtigt omsættes til praksis. Den brede internationale deltagelse gør det muligt at opdage og løse både lokale og globale kvalitetsudfordringer. NordiQC demonstrerer dermed, hvordan et eksternt kvalitetssikringsprogram kan styrke diagnostisk præcision, øge patientsikkerheden og understøtte effektiv kræftbehandling på tværs af hospitaler og landegrænser.

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Forfatterne erklærer, at de ikke har nogen interessekonflikter i relation til indholdet af dette arbejde.

Danish Center for Health Services Research

Detection of prostate cancer by MRI before biopsy

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AIM

To examine the detection of prostate cancer in biopsy-naïve men undergoing a first-time prostate MRI-procedure.

METHODS

- Nationwide Danish cohort study (2018–2022)
- Men aged ≥40 years with first-time prostate MRI
- Classified as MRI-positive if biopsied within 30 days, and MRI-negative if not
- This was a proxy for the radiology report findings
- One-year cumulative incidence of prostate cancer diagnosis in the Danish Prostate Cancer Registry, repeated MRI, biopsy, and mortality were estimated by MRI-status and PSA level, using the Aalen-Johansen estimator.
- High-grade cancer was assessed.

RESULTS

- Included 10,777 men with a first-time prostate MRI
- 40% were MRI-positive and 60% MRI-negative
- The cumulative incidence of prostate cancer was higher in the MRI-positive compared to the MRI-negative men over the 730-day follow-up (Figure 1)
- The cumulative incidence was increasing with higher PSA levels in both groups (Figure 1)
- At 365 days, MRI-negative men had a lower cumulative incidence of repeated MRI (9.45, 95% CI:8.61-10.33) compared to MRI-positive (20.51, 95% CI:17.92-23.23)
- The biopsy incidence was 14.58 (95%CI:13.66–15.54) among MRI-negative men
- Mortality was slightly higher in MRI-positive (1.14, 95%CI:0.82–1.58) than in MRI-negative men (0.83, 95%CI:0.60–1.14).
- The crude risk of high-grade prostate cancer was 73.97% (95%CI:70.93-77.02) in the MRI-negative men and 80.32% (95%CI:78.94-81.71) in the MRI-positive men with prostate cancer

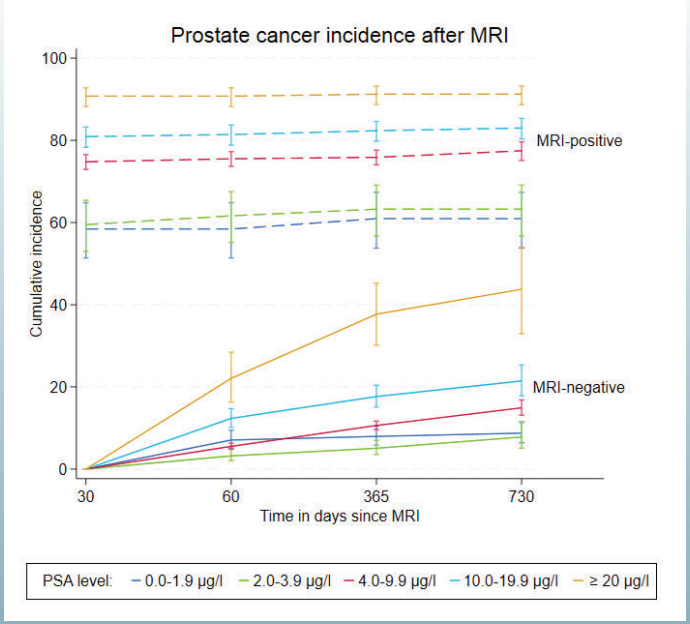

Figure 1 – Prostate cancer incidenceafter MRI

CONCLUSION

Among biopsy-naïve men undergoing first-time prostate MRI, MRI-positive status strongly predicts prostate cancer, even in men with low PSA. In MRI-negative men with PSA<4.0µg/l, prostate cancer risk remains low, suggesting continued surveillance may be unnecessary.

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This study was funded by The Danish Cancer Society (R305 A18514).

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Copenhagen Centre for Cancer and Health

A professionally led peer-to-peer network for people with lived experience of oesophagogastric cancer

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Background

Patients who have undergone surgery for oesophageal or gastric (EG) cancer often experience complex and long-term rehabilitation needs. In 2024, 143 patients underwent surgery for EG cancer at Copenhagen University Hospital, Rigshospitalet. That same year, a professionally led peer-to-peer network was piloted as a collaboration between Rigshospitalet, the Danish Cancer Society, and the Copenhagen Centre for Cancer and Health (CCCH).

Aim and methods

The aim was to assess the reach, recruitment, and perceived relevance of the network for patients and relatives.

Participation was evaluated through attendance data.
Perceived benefits were evaluated through two online questionnaires midway (May 2024) and at the end (December 2024).

Organizational framework

The network met monthly for two hours in the afternoon, nine times in total. It included thematic sessions led by health professionals, a social worker, or a psychologist with opportunities for peer exchange. Themes included surgery and post-operative effects, meals and nutrition, unpredictability and psychological reactions. Participants could join on a rolling basis and participate as many times as they wished.

The EG Patient Network – An Intersectoral Collaboration

RIGSHOSPITALET
- Contact and information to patients from Region Zealand and the Capital Region of Denmark.
- Clinical presentations at network sessions.
- Presence of nurse(s) at network sessions.

THE DANISH CANCER SOCIETY
- Administration of the network, including participant registration.
- Promotion of the network via the website and local cancer counselling centres.
- Psychology-focused presentations and facilitation at network sessions.

THE CCCH
- Coordinating role, including responsibility for the programme, information materials, monitoring, and evaluation.
- Clinical and psychosocial presentations and facilitation at network sessions.
- Overall facilitation of network sessions.

Results

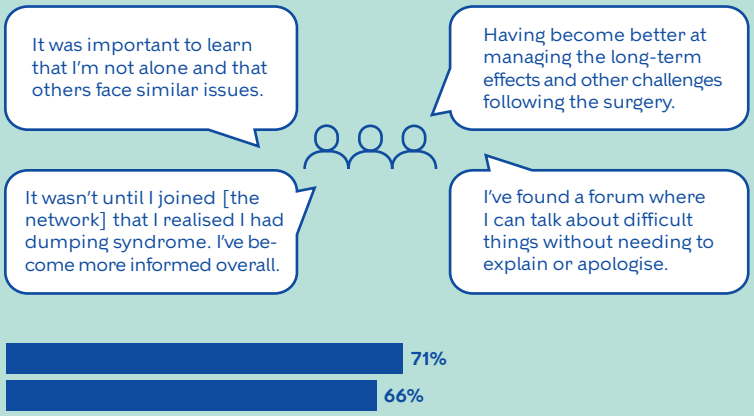
Participation
- 44 individuals participated: 33 patients and 11 relatives.
- Among patients, 67% (n=22) were men; among relatives, 73% (n=8) were female partners.
- 30-50% reported coming from outside of the municipality of Copenhagen.

Perceived benefits

Response rates of questionnaires were 88% (n=21) and 77% (n=20), respectively.

Proportion responding high/very high degree:

The network makes me feel less alone with challenges (n=14)
The network has provided me with more knowledge (n=15)



Conclusion

- A professionally led peer-to-peer network can address unmet rehabilitation needs following EG cancer surgery.
- Intersectoral collaboration enabled a broad regional reach and a comprehensive programme.

Next steps

- After the pilot phase, the network became fully operational in January 2025.
- As the network continues, focus will be on exploring relatives' involvement, monitoring potential emotional strain in group settings, and assessing preferences for online formats.

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Read more about the netwok here

Real-World Healthcare Resource Utilisation in Patients With Higher-Risk Myelodysplastic Syndrome During Azacitidine Treatment: A Population-Based Cohort Study

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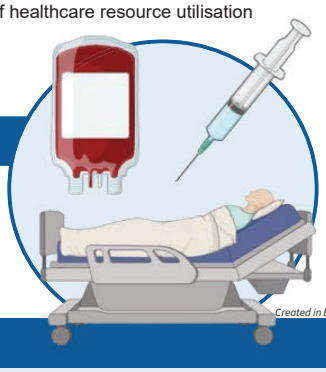
INTRODUCTION

The hypomethylating agent azacitidine (AZA) is the most widely used first-line treatment for patients with higher-risk myelodysplastic syndromes (MDS) due to its survival benefits. Effective management of higher-risk MDS requires addressing not only clinical outcomes but also the burden of healthcare resource utilisation (hospital admissions and transfusions), which remains poorly characterised.

OBJECTIVE

The study evaluates the healthcare resource utilisation (transfusions and hospital admissions) for real-world patients with higher-risk MDS for up to 12 AZA cycles.



CONCLUSION

This study highlights the substantial healthcare resource utilisation for patients with higher-risk MDS receiving AZA. RBC transfusion was the most common supportive care, followed by hospital admissions. Healthcare resource utilisation was highest during the initial four treatment cycles. The findings highlight the importance of considering these factors in treatment planning.

This pilot study forms the groundwork for a nationwide analysis, which will be conducted in collaboration with all haematology departments, of patients with higher-risk MDS treated with AZA.

METHODS

We conducted a retrospective, population-based study of patients with higher-risk MDS who received AZA monotherapy between 1 January 2010 and 31 December 2022 in the North Denmark Region.

Patients were followed from initiation of AZA until death, or end of follow-up (March 1, 2024).

We collected clinical data, including red blood cell (RBC) and platelet transfusions and MDS-related hospital admissions, by detailed review of medical records from the initiation of AZA and up to 12 cycles or until discontinuation. For each cycle, we collected AZA dosing details, delays, blood counts, MDS-related hospital admissions, units of RBC and platelet transfusions, and bone marrow blasts (if assessed).

Response was assessed using IWG 2006 response criteria, overall survival (OS) and progression-free survival (PFS) were estimated by Kaplan Meier.

RESULTS

The cohort included 103 patients with a male predominance (60%), a median age at diagnosis of 72 years (IQR 66-75), and 61% were RBC transfusion dependent prior to treatment.

Patients received a median of 6 AZA cycles (IQR 3-11) with a median cycle length of 28 days (IQR 28-30). Within the 12 cycles, 81% of patients discontinued treatment and 57% did so before the sixth cycle.

The median OS was 12.8 months (95% CI, 10.0-17.2), and median PFS was 10.3 months (95% CI, 8.5-13.8). The cohort had an overall response rate of 36%, and 94% of patients required supportive care during treatment.

Healthcare resource utilisation peaked during the first four cycles with transfusions and hospitalisations decreasing over time (***Figure 1***). Out of the entire patient cohort, 44% required all three types of supportive care (***Figure 2***). Among patients who were dependent on RBC transfusions prior to treatment, 24% achieved independence.

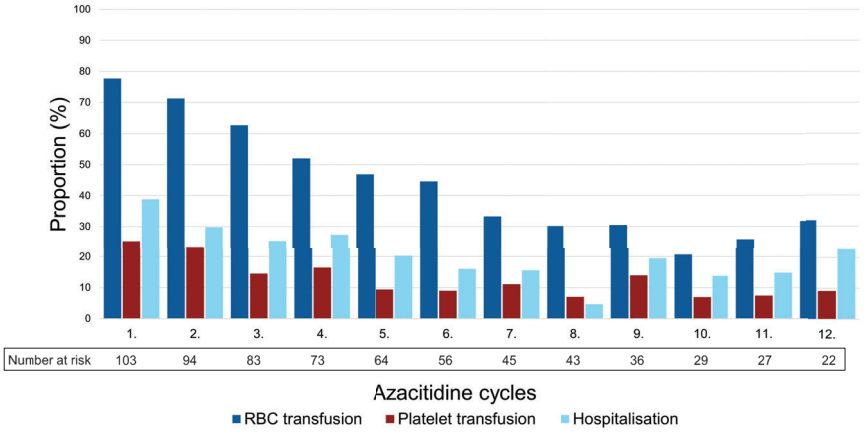


Figure 1: Healthcare resource utilisation for 12 azacitidine cycles

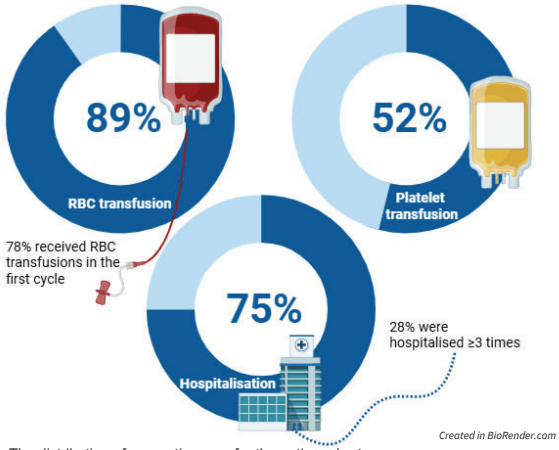


Figure 2: The distribution of supportive care for the entire cohort

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Patientoplevelser af at have forløb i flere afdelinger - Koordination af hudkræftbehandling

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Baggrund

Incidens af hudkræft i Danmark

- Basalcellekarcinom (BCC) og pladecellekarcinom (SCC) er de hyppigste former for kræft i Danmark.
- 20% af den danske befolkning vil opleve mindst ét tilfælde.
- Forekomsten er primært hos personer over 65 år, grundet at risikoen for udvikling af BCC og SCC stiger med alderen.

Diagnostik & behandling

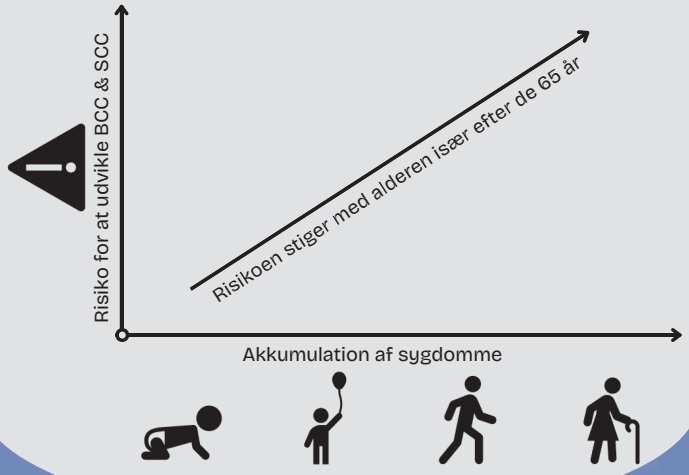
- Diagnostik og initial behandling foregår i almen praksis og hos privatpraktiserende dermatologer.
- Tumorens placering, størrelse og sværhedsgrad bestemmer behandlingsstedet:
  - Almen praksis i primærsektoren.
  - Privatpraktiserende plastikkirurger og dermatologer.
  - Plastikkirurgiske afdelinger.
  - Dermatologiske afdelinger.
  - Onkologiske afdelinger.

Begrundelse for studie

- Stigende tendens til flere samtidige hudkræfttilfælde hos patienter.
- Multidisciplinær vurdering på tværs af primær- og sekundærsektoren samt hospitaler.
- Manglende viden om patienters oplevelse af at navigere i overlappende forløb.

Formål

- Kortlægning af antal patienter i samtidige behandlingsforløb.
- Design af et kvalitativt studie for at forstå patientenes oplevelser, behov og præferencer gennem interviews.



Metode

Første del af studiet → Populations identifikation:

- Kvantitativt studie.
- Registerbaseret kohortestudie, sammenholder data fra:
  - Cancerregisteret + Patologiregisteret + Landspatientregisteret.
- Patienter diagnosticeret med BCC eller SCC i 2019, som har samtidige behandlingsforløb på danske hospitaler.
  - Samtidige forløb = 2 eller flere parallelle hospitalskontakter i samme tidsperiode relateret til behandling af hudkræft.

Anden del af studiet → Afdækning af patientoplevelser:

- Kvalitativt studie.
- Interviewstudie baseret på semitstrukturerede enkeltinterviews af 12-15 patienters oplevelser af at være patient i overlappende forløb på tværs af afdelinger på Odense Universitetshospital.
  - Enkeltinterview → målgruppens alder m.m. taget i betragtning.
  - Interviewguide → Semistruktureret.
- Analyse
  - Transskribering, kodning & tematisering, som sker gennem en iterativ proces, inspireret af den hermeneutiske analysemetode med fokus på meningsfortolkning.

Resultater

Første del af studiet → Populations identifikation:

Type af Hudkræft	Patienter m. diagnosen BCC/SCC (n)	Patienter behandlet på et dansk hospital (n og %)	Patienter med overlapende forløb (n)
BCC	25.347	7.984 (67% plastikkirurgisk afd., 13% dermatologisk afd. & 9% onkologisk afd.)	345
SCC	5.729	3.068 (77% plastikkirurgisk afd., 10% dermatologisk afd. & 7% onkologisk afd.)	242

Anden del af studiet → Afdækning af patientoplevelser:

- Udvikling af interviewguide, patientrekruttering m.m. er under udarbejdelse.

SDU
Research Unit for PLASTIC SURGERY
Region Syddanmark
OUH Odense Universitetshospital Svendborg Sygehus

Fremtidens kræftkirurgi: Individualiserede behandlingsforløb baseret på fysisk risikostratificering

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INTRODUKTION

Indførelsen af minimalt invasive robotkirurgiske teknikker har markant forandret det kirurgiske landskab og løftet patientforløbene – selv ved kompleks kræftkirurgi. Hvor åbne indgreb ofte medfører større vævstraumer med længere hospitalsindlæggelser og øget risiko for postoperative komplikationer, muliggør robotassisteret kirurgi præcise og skånsomme indgreb. Det har medført færre komplikationer, mindre smerte og en hurtigere rekonvalescens for mange patienter

FORMÅL

At undersøge om ambulante skrøbelighedstests, såsom clinical frailty scale, håndgrebsstyrketest og 30-sek rejse-sætte-sig test afspejler patienternes faktiske fysiske kapacitet i hverdagene.

METODE

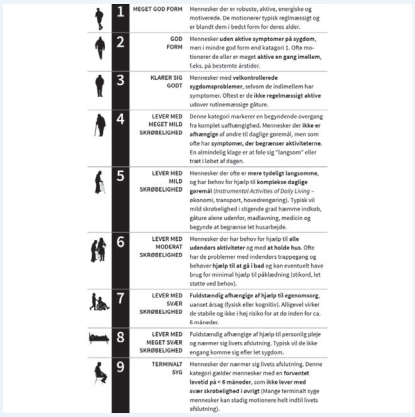
Projektet er godkendt af den regionale videnskabsetiske komité og registreret i Region Nordjyllands forskningsoversigt.

I alt blev 23 patienter, planlagt til robotkirurgi for blære- eller nyrebækkenkræft, prospektivt inkluderet i studiet. I perioden op til operationen bar deltagerne et smartwatch (Garmin Venu3), som døgnet rundt registrerede aktivitets- og sundhedsdata i hverdagen.

Som led i operationsforberedelserne blev patienterne desuden vurderet med Clinical Frailty Scale (CFS) og gennemførte både håndgrebsstyrketest (HGS) og 30-sekunders rejse-sætte-sig test.

På baggrund af et køns- og aldersstratificeret nomogram[1] blev patienterne herefter klassificeret som potentielt skrøbelige eller ikke-skrøbelige på baggrund af rejse-sætte-sig testen.

1) Macfarlane DJ, Chou KL, Cheng YH, Chi I. Validity and normative data for thirty-second chair stand test in elderly community-dwelling Hong Kong Chinese. Am J Hum Biol. 2006 May-Jun;18



Clinical Frailty Scale (CFS)

	Alder, år	Normal	Nedsat	Stærkt nedsat
Kvinder	18-29	19-30	14-18	< 14
	30-39	19-30	13-18	< 13
	40-49	17-28	11-16	< 11
	50-59	15-26	9-14	< 9
	60-69	13-23	8-12	< 8
	70-79	11-19	7-10	< 7
	80-89	10-17	6-9	< 6
	≥ 90	10-17	6-9	< 6
Mænd	18-29	19-30	14-18	< 14
	30-39	20-31	15-19	< 15
	40-49	19-29	14-18	< 14
	50-59	16-27	11-15	< 11
	60-69	13-24	8-12	< 8
	70-79	12-21	7-11	< 7
	80-89	9-18	5-8	< 5
	≥ 90	9-18	5-8	< 5

30 sekunders rejse-sætte-sig test

RESULTATER

	Skrøbelighed n = 8	Ingen skrøbelighed n = 15
Alder, år	75 (68:84)	68 (45:80)
BMI, kg/m^2	26 (19:34)	26 (17:33)
30 sek. rejse-sætte-sig test, antal	9 (0:12)	17 (13:25)
Clinical frailty score, score	4 (2:6)	3 (2:6)
Håndgrebs-styrke-test, kg	31 (16:58)	38 (22:60)
Daglige antal skridt, antal	2723 (824:5848)	4424 (1454:11956)
Daglige gang distance, meter	3600 (562:8001)	6189 (2205:16316)
Moderat el højt aktivitetsniveau, minutter	13 (2:26)	29 (1:97)
Søvnvarighed, timer	8 (6:10)	8 (7:10)
Heart rate variability, bbi	913 (735:1224)	827 (689:966)

(..) angiver data-range

Accepten af at bære smartwatch var høj, idet uret i gennemsnit blev anvendt i 95 % af observationsperioden på gennemsnitlig 7 dage (2:14).

I alt blev 8/23 patienter (35 %) klassificeret som potentielt skrøbelige på baggrund af rejse-sætte-sig testen. Sammenlignet med ikke-skrøbelige patienter var de skrøbelige i gennemsnit ældre, gik færre daglige skridt, havde kortere daglig gang-distance og tilbragte mindre tid i moderat til høj aktivitet. Derudover havde de højere heart-rate-variability og kortere indlæggelsesforløb.

Der sås ingen forskelle i kønsjusteret HGS eller CFS.

KONKLUSION

Den 30-sekunders rejse-sætte-sig test fremstår som et enkelt og anvendeligt redskab til identifikation af patienter med reduceret fysisk kapacitet.

Datagrundlaget er dog begrænset og utilstrækkeligt til at påvise statistisk sikre forskelle, hvorfor yderligere studier er nødvendige for at afklare testens kliniske relevans i stratificeringen af kræftkirurgiske patienter.

Den høje patientaccept af dataindsamling via wearable-teknologi i eget hjem understøtter muligheden for at integrere denne metode i fremtidige kliniske forskningsprojekter og patientforløb.

På længere sigt kan teknologien potentielt fungere som supplement til patientrapporterede resultatmål (PROM) og bidrage til en mere individualiseret postoperativ opfølgning

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Implementering af *rød-gul-grøn*-handlingsalgoritme for optimering af kræftforløb på urologisk afdeling

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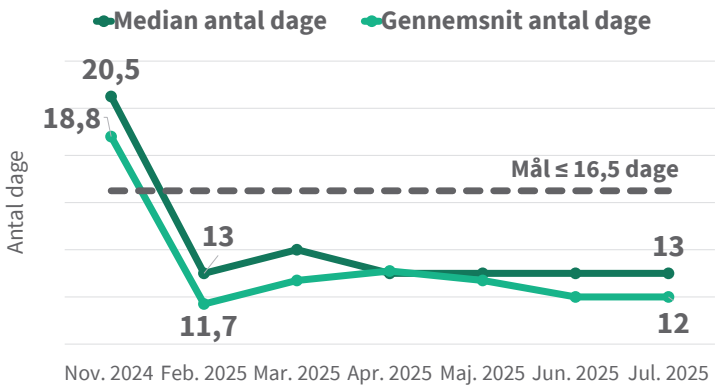
INTRODUKTION

De danske kræftpakker sikrer ensartet udredning og behandling bl.a. gennem standardforløbstider, der er en faglig anbefaling for hvor hurtigt et kræftudredningsforløb bør forløbe fra henvisning til behandling. For at overholde forløbstiderne, er det vigtigt at sundhedsadministrativt personale ved nøjagtigt, hvornår patienter skal bookes og hvilke handlemuligheder der findes ved manglende ledige tider. I dette kvalitetsudviklingsprojekt implementerede vi på en urologisk afdeling, en *rød-gul-grøn*-handlingsalgoritme, der anviser sekretærernes handlemuligheder, når der mangler ledige, hurtige tider til CT og kikkertundersøgelse af blæren.

RESULTATER

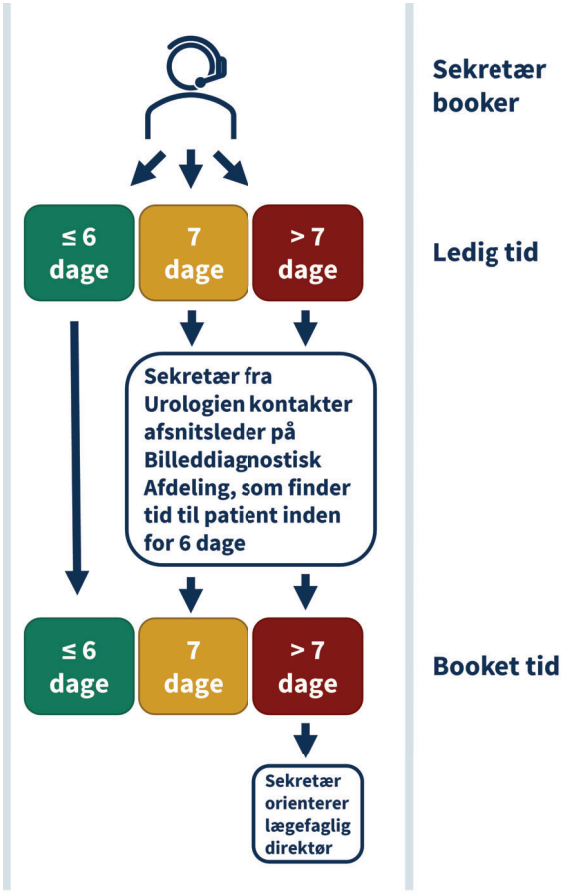
Efter implementering faldt varigheden fra henvisning til CT og cystoskopi. Før implementering (november 2024) tog det 20,5 og 18,5 dage (median og gennemsnit) fra henvisning til udført CT og cystoskopi. Efter implementering, i juli 2025, tog det 13 og 12 dage (median og gennemsnit) svarende til en reduktion af median forløbstid på 37% (reduktion på 7,5 dage).



Figur 2: Figuren viser det median og gennemsnitlig antal dage fra patienten henvises i en kræftpakke, til der er udført og beskrevet CT-urografi og cystoskopi. Baseline er dannet på 56 forløb i november 2024.

METODE

Baselinedata blev indsamlet ved audit på 82 patientjournaler fra november 2024. I alt 26 af de 82 forløb fulgte ikke det udvalgte udredningsforløb og blev derfor ekskluderet. Implementeringen startede d. 1. februar 2025 og indsatsen fulgtes månedligt til og med juli 2025.



Figur 1: En rød-gul-grøn-handlingsalgoritmen for sekretærer på en urologisk afdeling. Algoritmen viser sekretærens handlemuligheder for booking af patient ud fra tilgængelige CT-tider. Lignede algoritme blev implementeret for tider til cystoskopi.

RESULTATER

Rød-gul-grøn-handlingsalgoritmen anvendt i dette studie viste sig at være et simpelt og effektivt redskab til at reducere varigheden af kræftudredningsforløb. Handlingsalgoritmer og action-cards er hyppigt anvendt i kvalitets- og forbedringsprojekter og et velkendt værktøj i sundhedsvæsenet, da det er enkelt og let at implementere. Dette studie viser, at det også er særdeles effektivt i sundhedsadministrative processer, når handlemulighederne er tydeligt beskrevet og aftalt af alle parter.

Characteristics, treatment, and outcome of recurrent gastro-oesophageal adenocarcinoma after perioperative chemotherapy and radical resection - a national longterm real-world follow-up.

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Background

High-level evidence of treatment and outcome of patients with relapse following curative multi-modal therapy for gastro-esophageal adenocarcinoma is almost absent.

Methods

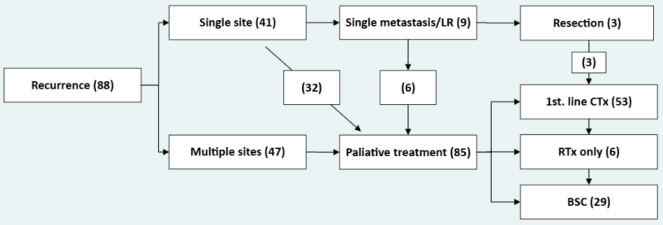
In this retrospective audit, a total of 89 patients were identified with recurrence within 12 years from surgery in a nationwide, consecutive cohort of 202 patients, radically resected after perioperative chemotherapy (CTx) *ad modum* "MAGIC". Patients were followed postoperatively without scheduled investigations (follow-up "on demand").

Patient characteristics and prognostic analyses

Variable[a]	Stratum	Number	Univariate OS analysis			Multivariate OS analysis[d]		
			HR	95%CI	P-value	HR	95%CI	P-value
Sex	Male	70	Ref.	-	-			
	Female	18	1.12	(0.67-1.89)	0.67			
Age at recurrence [65 years]	Cont.	88	1.02	(1.00-1.04)	*0.04*	1.01	(0.99-1.03)	0.29
Primary site	Esophagus/GEJ	75	Ref.	-	-			
	Gastric	13	1.46	(0.80-2.66)	0.21			
ypT-stage at surgery	0/1	1/5	Ref	-	-			
	2	42	0.89	(0.38-2.11)	0.80			
	3	32	0.76	(0.32-1.84)	0.55			
	4	8	0.83	(0.29-2.41)	0.74			
ypN-stage at surgery	0	23	Ref.	-	-	Ref.	-	-
	1	45	0.96	(0.57-1.61)	0.88	1.55	(0.86-2.78)	0.14
	2	13	0.88	(0.44-1.74)	0.71	1.54	(0.73-3.27)	0.26
	3	7	2.55	(1.07-6.05)	*0.03*	3.99	(1.59-10.05)	*0.003*
Start postoperative CTx	Yes	68	Ref.	-	-	Ref.	-	-
	No	20	2.42	(1.43-4.10)	*0.001*	2.28	(0.83-6.25)	0.11
RD perioperative platinum [80.5%]	Continuous	88	0.99	(0.98-1.00)	0.057	1.01	(1.00-1.03)	0.13
Time from surgery to relapse [14.9 months]	Continuous	88	0.99	(0.97-1.00)	0.11			
Number of sites at recurrence	1[b]	31	Ref.	-	-	Ref.	-	-
	Oligo	9	0.34	(0.16-0.74)	*0.007*	0.34	(0.15-0.76)	*0.009*
	2+	48	0.74	(0.47-1.16)	0.19	0.71	(0.43-1.17)	0.18
ECOG PS (31)	0	13	Ref.	-	-			
	1	24	1.58	(0.78-3.18)	0.20			
	2	11	2.50	(1.09-5.77)	*0.03*			
	3	9	7.09	(2.79-18.0)	*<0.001*			
>10% weight loss (34)	No	39	Ref.	-	-			
	Yes	15	2.15	(1.14-4.05)	*0.02*			
Alarming symptoms (1)	None	10	Ref.	-	-			
	Any	77	1.08	(0.56-2.10)	0.82			
Palliative treatment	CTx	53	Ref.	-	-	Ref.	-	-
	BSC[c]	35	4.23	(2.66-6.72)	*<0.001*	4.50	(2.62-7.75)	*<0.001*

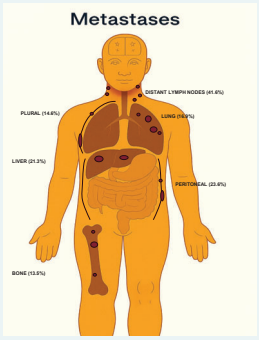
One patient diagnosed with recurrence at autopsy was excluded.
a) median value in brackets. Numbers missing in parenthesis.
b) excluding oligometastasis.
c) including palliative RTx without CTx.
d) Variables significant or marginally significant in univariate analysis were included in multivariate analysis, except for ECOG PS and weight loss that were not included due to large number of missing values.
BSC, best supportive care; CI, confidence interval; CTx, chemotherapy; ECOG PS, Eastern Cooperative Oncology Group performance status; GEJ, gastroesophageal junctional; HR, hazard ratio; OS, overall survival; RD; relative dose of intended dose; Ref., reference value (=1.0); RTx, radiotherapy; yp, post-neoadjuvant pathological.

Recurrence types and treatment

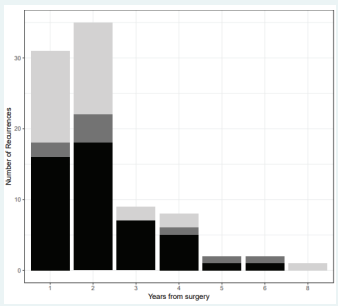


Number of patients in parentheses. One patient diagnosed at autopsy was excluded. A total of 12 patients treated with CTx received also palliative RTx.
BSC, best supportive care; CTx, chemotherapy; RTx, radiotherapy.

Frequent sites of recurrence

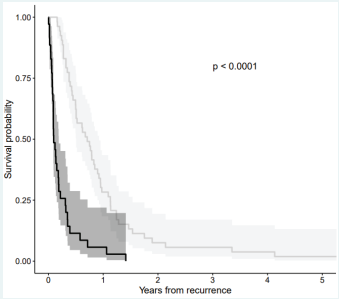


Time to recurrence



Black: recurrence at multiple sites;
Dark gray: oligo-recurrence;
Light gray: single-site recurrence excluding oligo-recurrence.
One patient diagnosed with recurrence at autopsy excluded.

Survival according to treatment



Light gray: patients receiving palliative chemotherapy (N=53); black: patients receiving best supportive care or palliative radiotherapy only (N=35).
One patient with recurrence at autopsy excluded.

Additional results

- Pleuroperitoneal metastases were associated with very poor OS (P=0.02).
- Only 10% had a solitary recurrence. All three patients treated with curative intent at relapse relapsed again within 13 months.
- ORR of palliative chemotherapy was 35% (95%CI 17-56%) and median PFS was 4.0 months

Conclusions

In this unselected cohort with follow-up "on demand", recurrence was a 99% fatal event.
91% of recurrences occurred within 3 years from surgery.
60% of patients received palliative CTx.
Efficacy of CTx at relapse after multi-modal treatment is most comparable to that of 2nd-line palliative treatment.

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