A Patient Safety Journey through 40 Years: From Clinical Challenges to Implementation of System Changes

Stig Harthug MD, PhD

NSQH – Oslo 30.08.2024

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THE LANCET

Vol 338 Saturday 2 November 1991 No 8775

ORIGINAL ARTICLES

Effect of outer membrane vesicle vaccine against group B meningococcal disease in Norway

GUNNAR BJUNE E. ARNE HØIBY JON KETIL GRØNNESBY
ØYVIND ARNESEN JOHAN HOLST FREDRIKSEN
ALFRED HALSTENSEN EIRIK HOLTEN ANN-KRISTIN LINDBAK
HANNE NØKLEBY EINAR ROSENQVIST LEIF KÅRE SOLBERG
OTTO CLOSS JAN ENG L. ODDVAR FRØHOLM ARVE LYSTAD
LEIV S. BAKKETEIG BODOLF HAREIDE

For more than 15 years, Norway has had the highest incidence of meningococcal disease in northern Europe, with 80% of cases being due to serogroup B meningococci. The case-fatality has

Introduction

Since 1974, Norway has had a high incidence of meningococcal disease,[1-3] which started in the northern part of the country and slowly spread southwards. About 300 cases were being reported annually in a population of 4·2 million but since 1988 the annual number of reported cases has declined to less than 200 (fig 1). During these past 17 years, 80% of cases have been due to *Neisseria meningitidis* group B, with 75% being of serotype 15, subtype P1.16, or both.[4] Genetically 70–80% belonged to the sulphonamide-

the National Institute of Public Health (NIPH),

ment of a vaccine against group B meningococcal

arted in 1983. Unlike the capsular polysaccharides

ME- patients:
Allegations of side effects of the vaccine

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rapport 2008:11

Myalgisk encefalopati (ME) og vaksinasjon mot meningokokksykdom

folkehelseinstituttet

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GINAL ARTICLES

Effect of outer membrane vesicle vaccine against group B meningococcal disease in Norway

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atients:
ons of side
the vaccine

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NORDLANDSSYKEHUSET
HOVEDINNGANG
INNGANG PARKVEIEN
Akuttmottak
- Hovedkjøkken
- Teknisk avdeling
- Sentrallager
- Varemottak

>150 hospital patients infected with multiresistant enterococci at Haukeland University hospital 1995-1996

- Mostly urinary tract infection
- 1/20 died

- Failure in basic care routine

- Strongest riskfactor
  - use of broads spectum antibiotics
- The outbreak faded slowly


Aftenposten


Farlig bakterie smittet 114

STRENGT ISOLAT: Avdelingsoverlege Stig Harthug viser den røde varseltrekanten som forteller at pasienten på rommet er smittet av enterokokk-bakterier som er resistente mot antibiotikumet vankomycin. Disse pasientene blir lagt i det strengeste isolatet på Haukeland sykehus.
Foto: MARIT HOMMEDAL

SPRER SEG: 114 pasienter på Haukeland sykehus er det siste året blitt smittet av enterokokk-bakterier som er motstandsdyktige mot antibiotika. Fire av dem er døde. Bakteriene har spredt seg til flere avdelinger på sykehuset.

"Vi frykter at smitten skal spre seg så mye at vi mister kontrollen over situasjonen"
STIG HARTHUG, avdelingsoverlege Haukeland sykehus

DYSTERT. Bakterier kan utvikle motstandsdyktighet mot flere typer antibiotika. Hvis bakteriene på Haukeland går ett skritt videre i utviklingen, blir de helt umulige å behandle. Folkehelsa krever bedre kontroll. Side 3

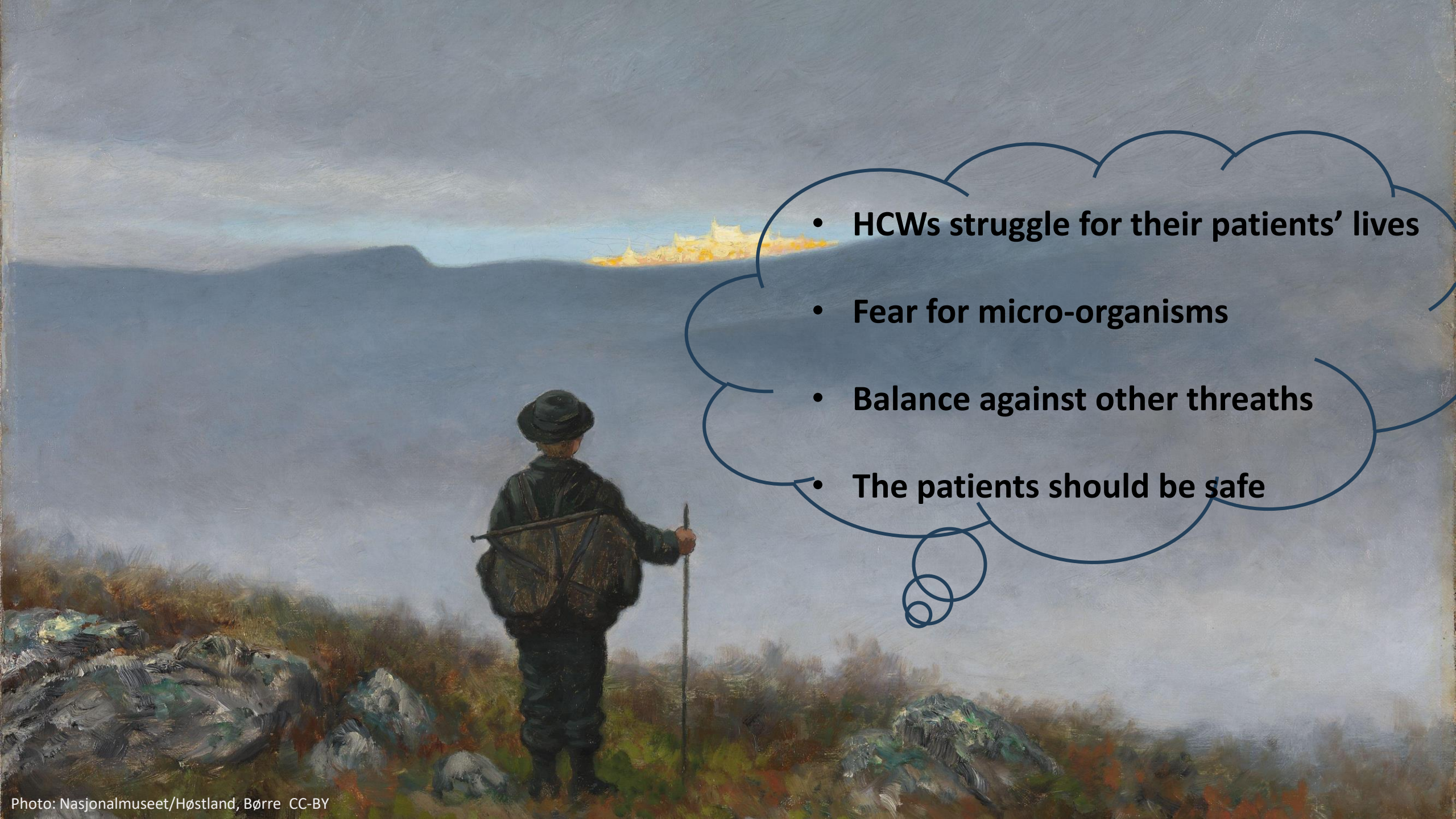

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Photo: Haukeland University Hospital

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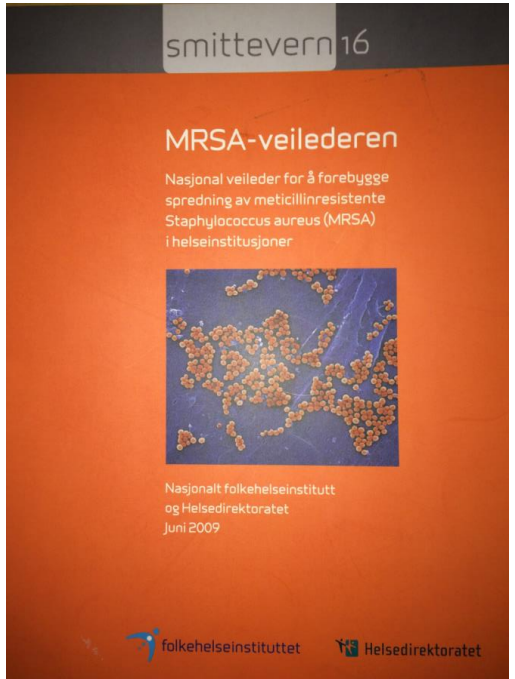
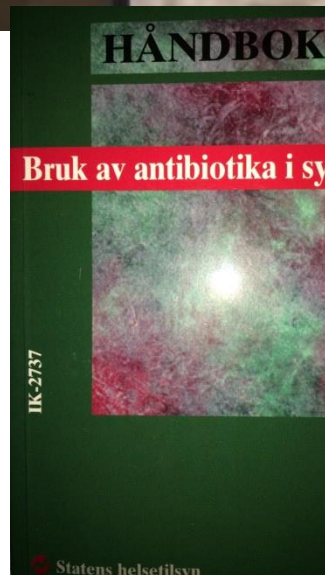
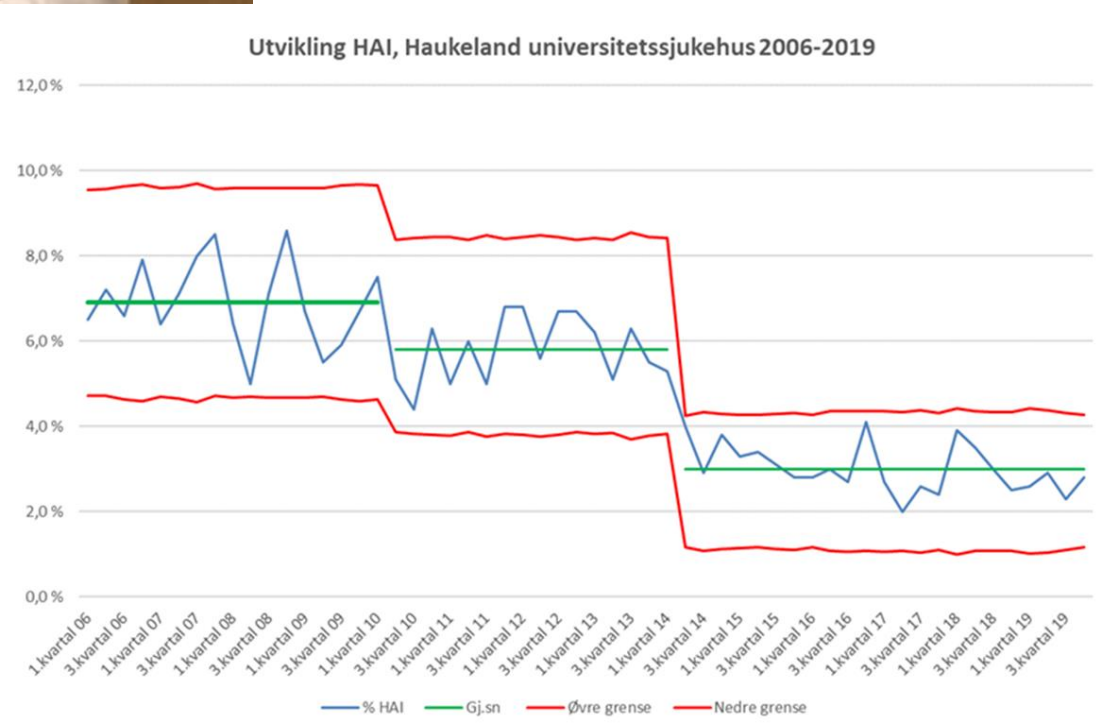
Infection control written procedures and guidelines







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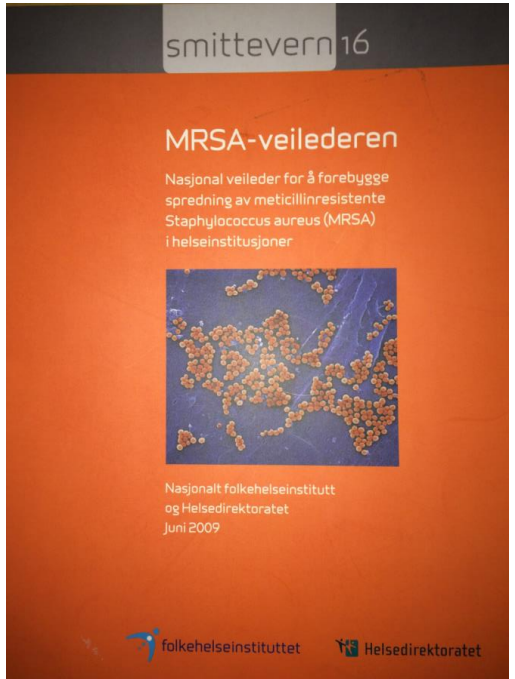

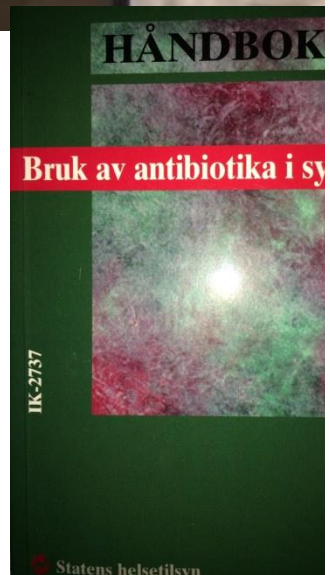

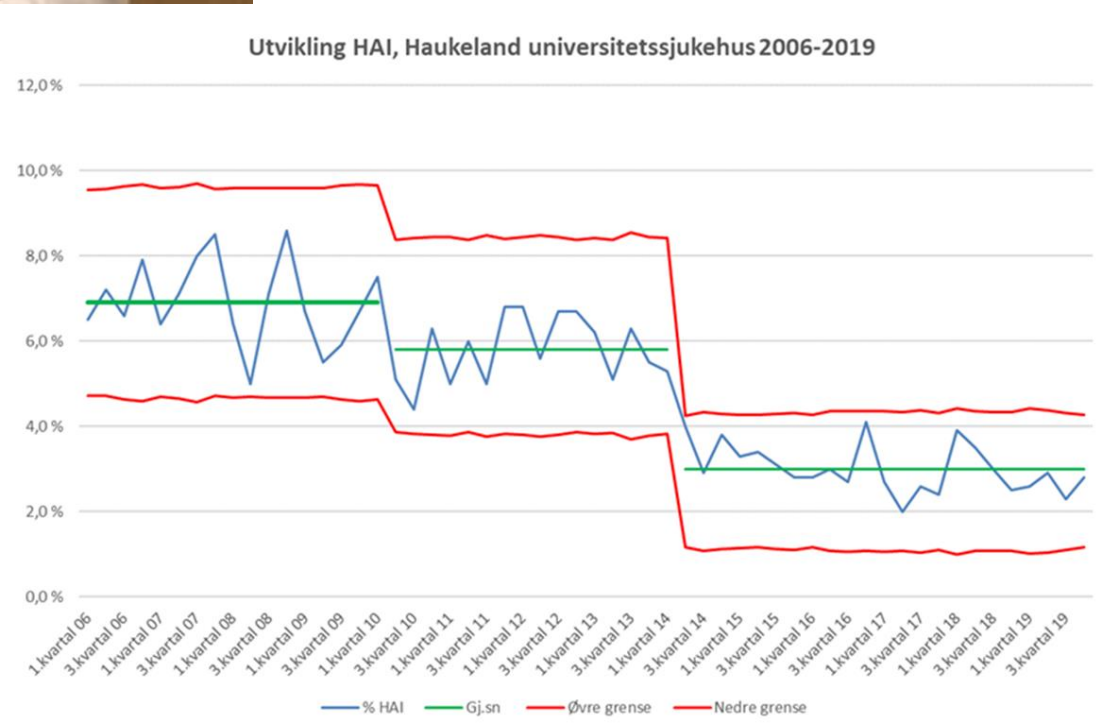

Case: ♂ 44

- Diagnosis: bacterial spondylitis
- Treatment: kloxacillin 2 g x 4 iv (4 weeks)
  + aminoglycosid iv (2 weeks)
- Short time Central Venous Catheter required
- The patent observed:
  - Great variation in practizing the catheter care
- The patient was discharged
  -recovering but very thoughtful

The Michigan Study 2006

- From 2,7 to 0 infections per 1000 catheter days
- «Clinical Care Bundle»

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 DECEMBER 28, 2006 VOL. 355 NO. 26

An Intervention to Decrease Catheter-Related Bloodstream Infections in the ICU

Peter Pronovost, M.D., Ph.D., Dale Needham, M.D., Ph.D., Sean Berenholtz, M.D., David Sinopoli, M.P.H., M.B.A., Haitao Chu, M.D., Ph.D., Sara Cosgrove, M.D., Bryan Sexton, Ph.D., Robert Hyzy, M.D., Robert Welsh, M.D., Gary Roth, M.D., Joseph Bander, M.D., John Kepros, M.D., and Christine Goeschel, R.N., M.P.A.

ABSTRACT

BACKGROUND

Catheter-related bloodstream infections occurring in the intensive care unit (ICU) are common, costly, and potentially lethal.

METHODS

We conducted a collaborative cohort study predominantly in ICUs in Michigan. An evidence-based intervention was used to reduce the incidence of catheter-related bloodstream infections. Multilevel Poisson regression modeling was used to compare infection rates before, during, and up to 18 months after implementation of the study intervention. Rates of infection per 1000 catheter-days were measured at 3-month intervals, according to the guidelines of the National Nosocomial Infections Surveillance System.

RESULTS

A total of 108 ICUs agreed to participate in the study, and 103 reported data. The analysis included 1981 ICU-months of data and 375,757 catheter-days. The median rate of catheter-related bloodstream infection per 1000 catheter-days decreased from 2.7 infections at baseline to 0 at 3 months after implementation of the study intervention ($P \leq 0.002$), and the mean rate per 1000 catheter-days decreased from 7.7 at baseline to 1.4 at 16 to 18 months of follow-up ($P < 0.002$). The regression model showed a significant decrease in infection rates from baseline, with incidence-rate ratios continuously decreasing from 0.62 (95% confidence interval [CI], 0.47 to 0.81) at 0 to 3 months after implementation of the intervention to 0.34 (95% CI, 0.23 to 0.50) at 16 to 18 months.

CONCLUSIONS

An evidence-based intervention resulted in a large and sustained reduction (up to 66%) in rates of catheter-related bloodstream infection that was maintained throughout the 18-month study period.

From the School of Medicine (P.P., D.N., S.B., S.C., B.S.), the School of Professional Studies in Business and Education (D.S.), and the Bloomberg School of Public Health (H.C.), Johns Hopkins University, Baltimore; and the University of Michigan, Ann Arbor (R.H.); William Beaumont Hospital, Royal Oak (R.W.); Ingham Regional Medical Center, Lansing (G.R.); Harper University Hospital, Detroit (J.B.); Sparrow Health System, Lansing (J.K.); and the Michigan Health and Hospital Association Keystone Center for Patient Safety and Quality, Lansing (C.G.) — all in Michigan.

N Engl J Med 2006;355:2725-32.

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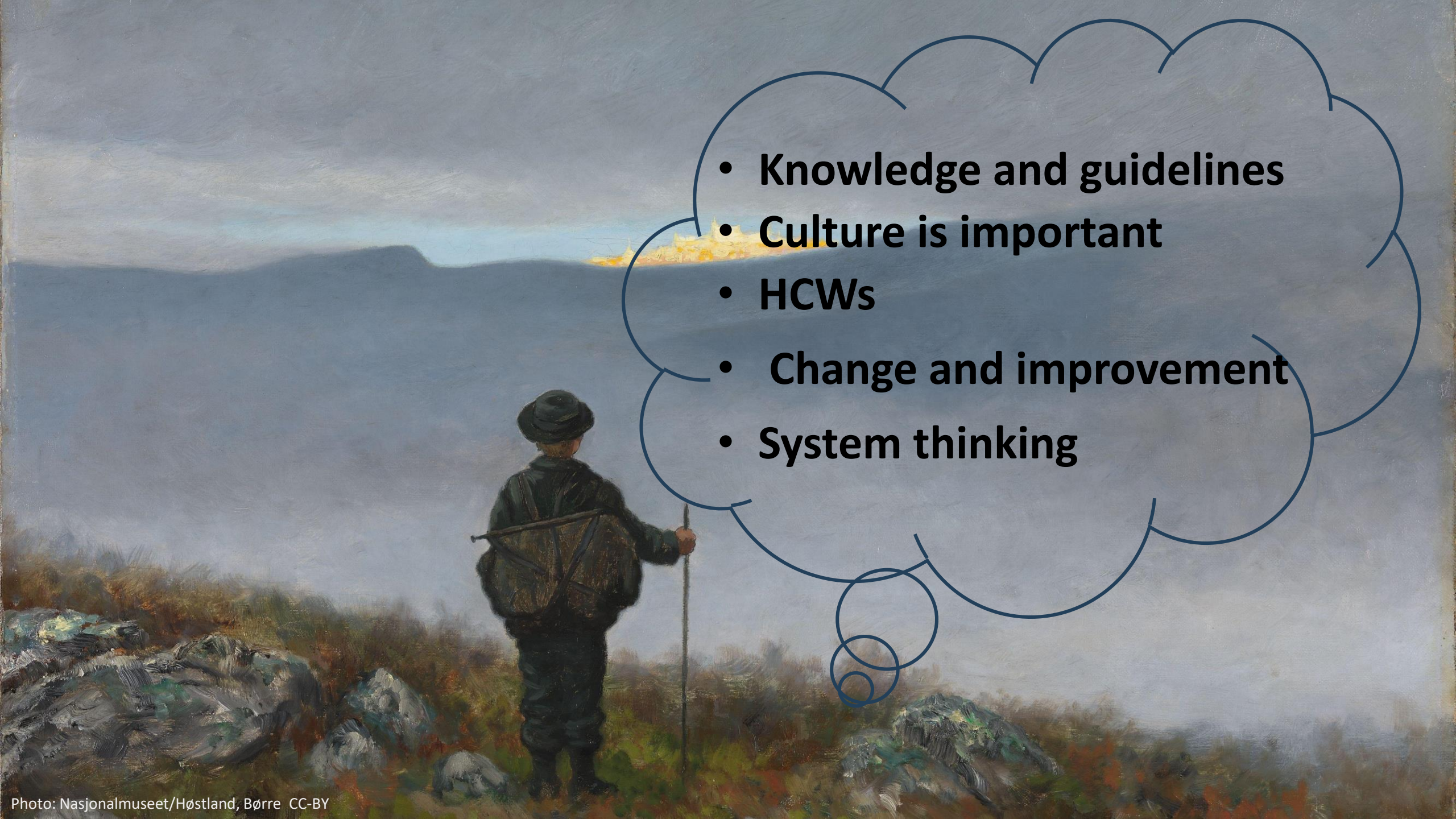

- Knowledge and guidelines
- Culture is important
- HCWs
- Change and improvement
- System thinking

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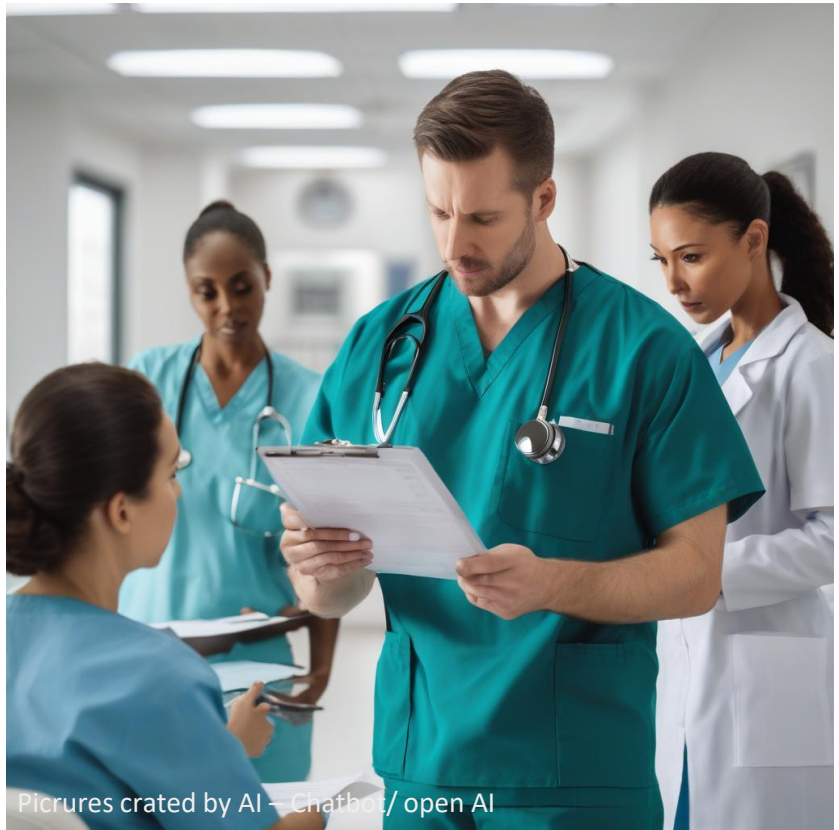
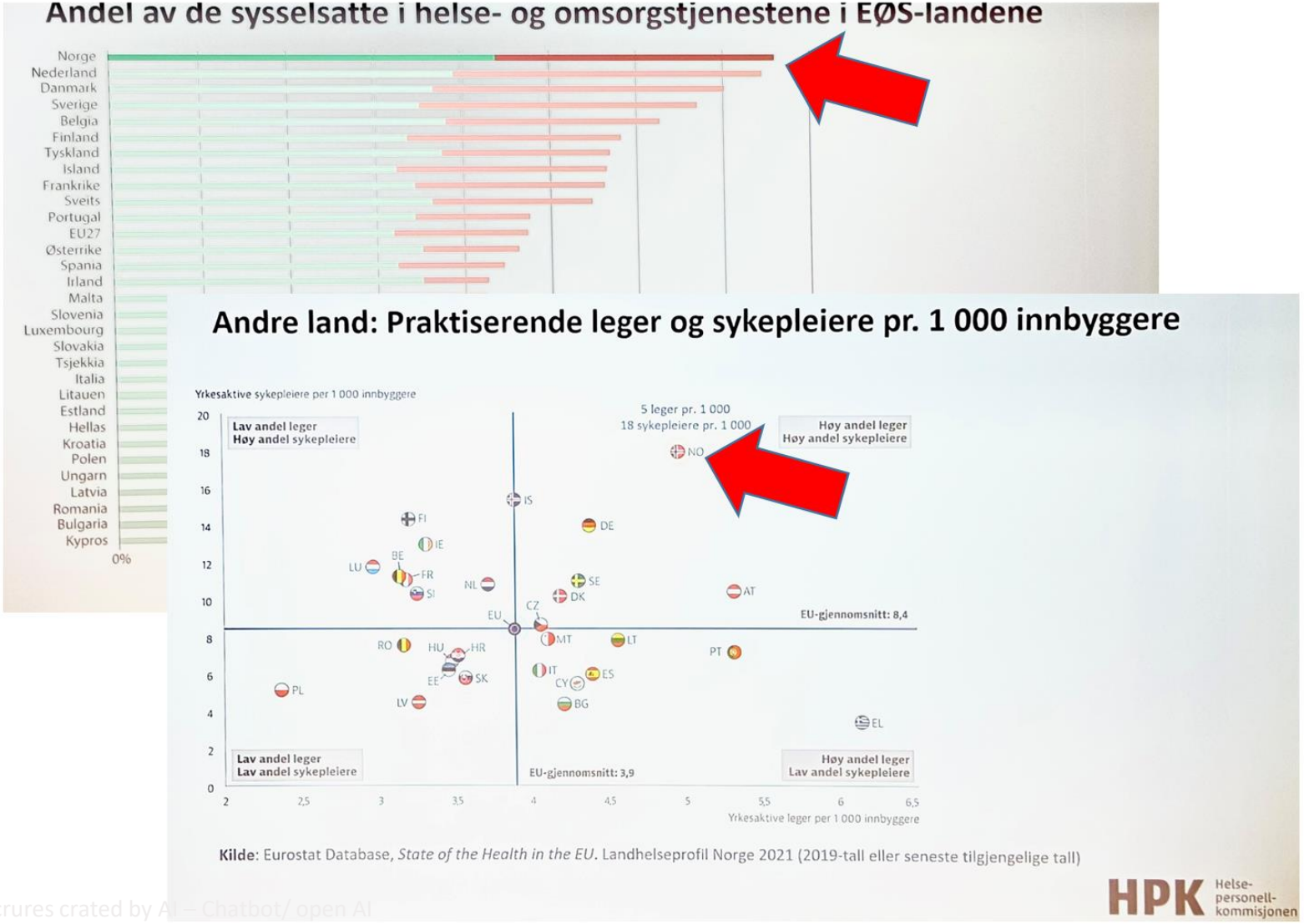
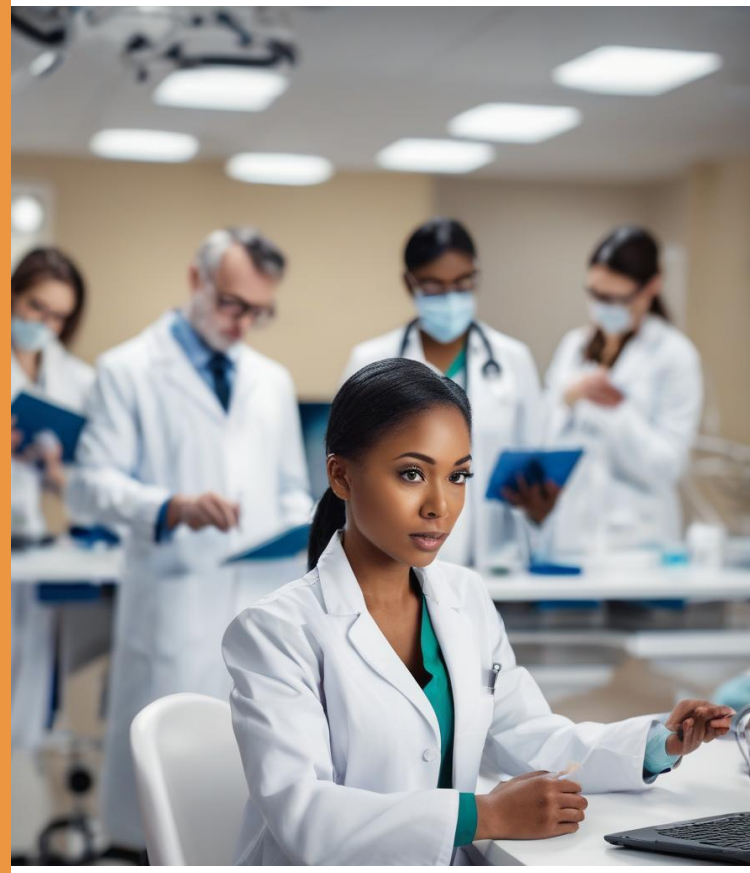
Teamwork or not?



Norway at the top of the world regarding rates of HCWs/capita



Picrures crated by AI – Chatbot/ open AI



I trygge hender 24 7

Tidlig oppdagelse og rask respons av forverret somatisk tilstand

Legemiddelrelaterte skader

Kirurgiske komplikasjoner

Underernæring

Urinveisinfeksjoner

Kateterassosierte infeksjoner

Selvmord

Overdosedødsfall

God utskrivningsprosess

Hjerneslag

Fallskader

Trykksår

Sepsis

I trygge hender

24
7

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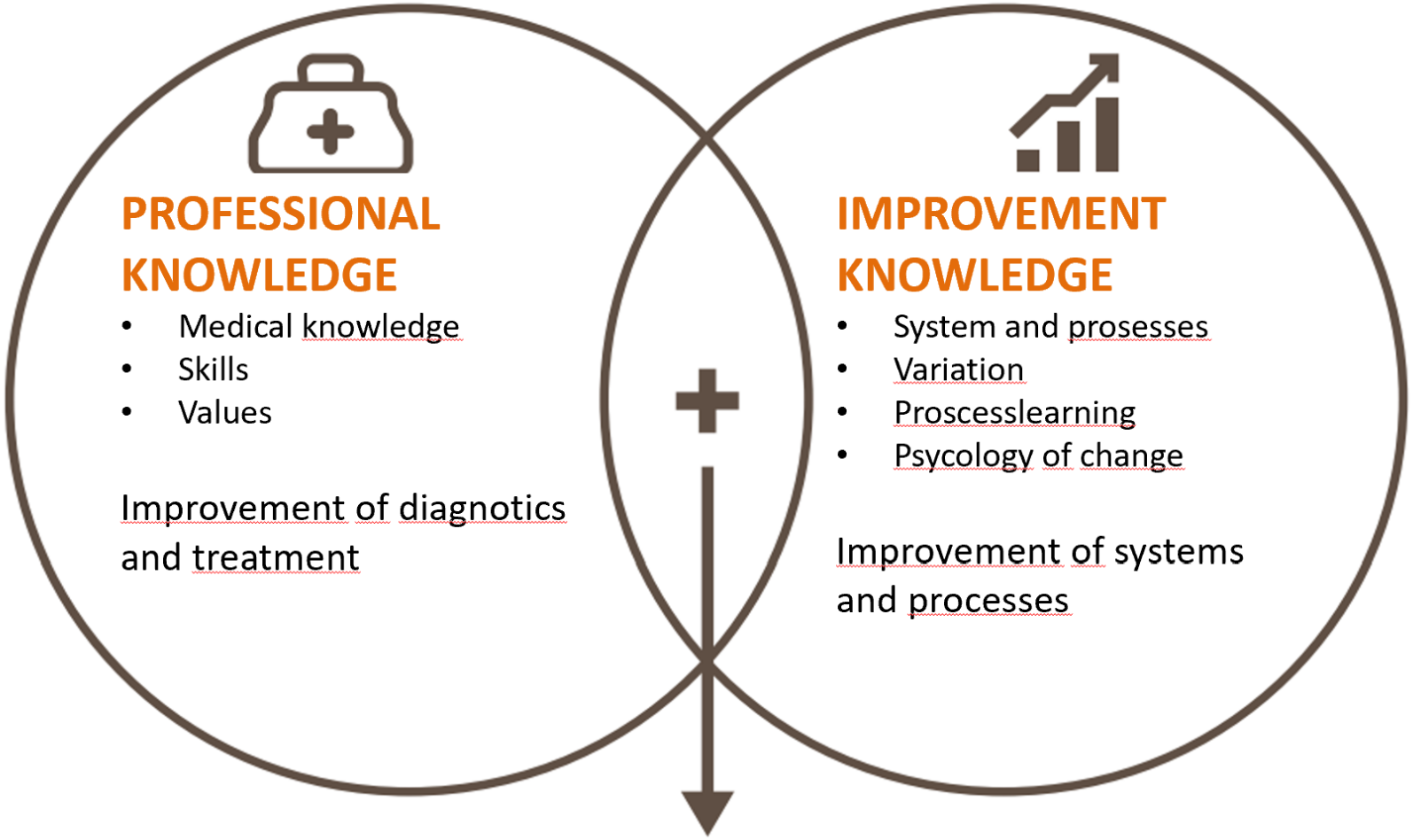
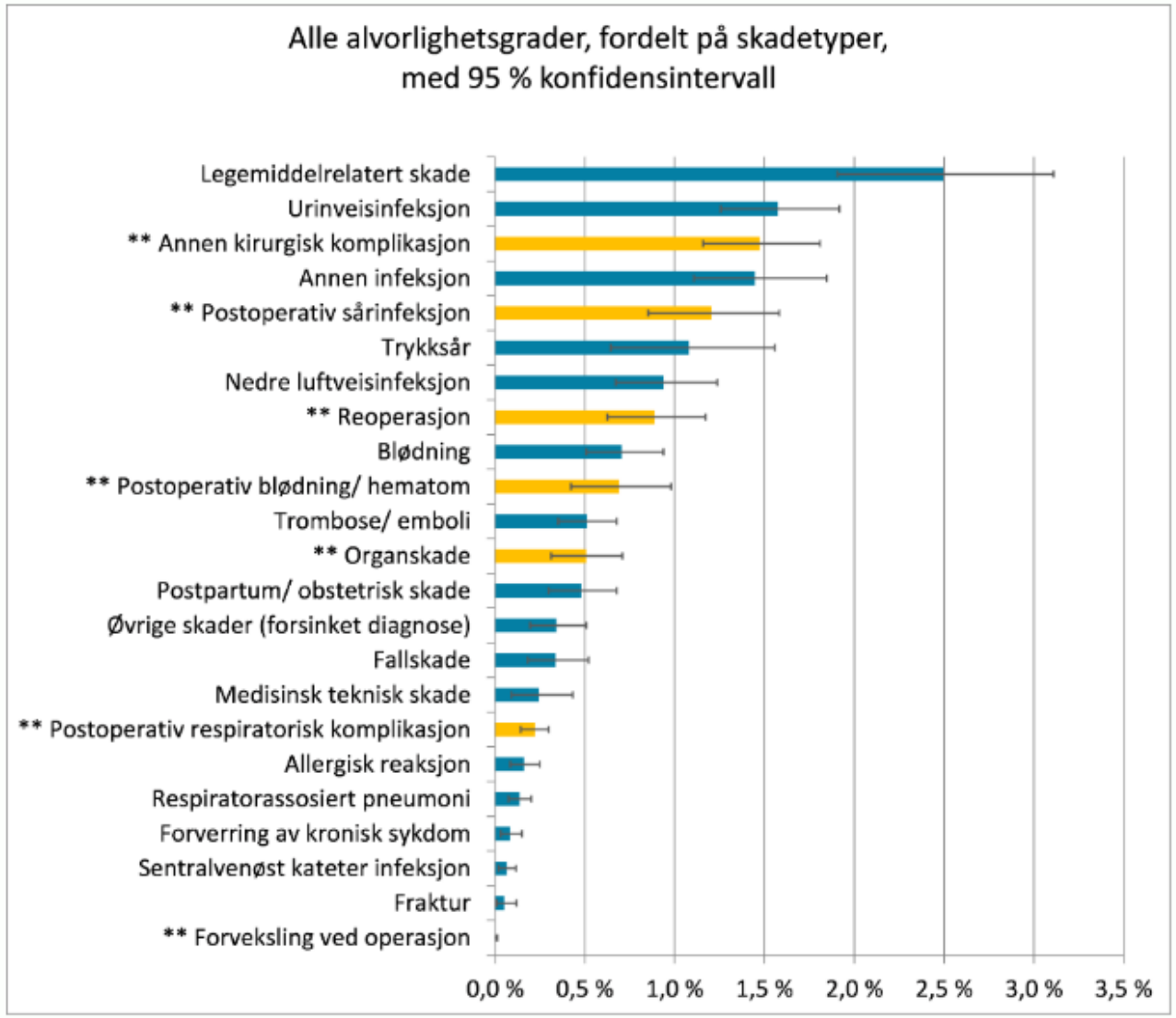
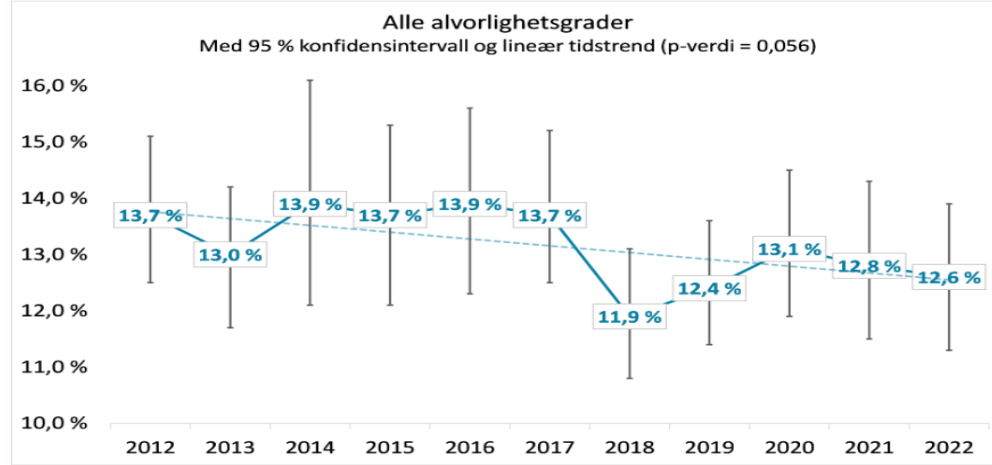


Efficient and systematic change of the health care

Modell adapted from Batalden PB and Stoltz PK (1993)



Figur 5 Andel sykehusopphold med minst én pasientskade i 2022 fordelt på skadetyper, med 95 % konfidensintervall. Alvorlighetsgrad E-I.



Figur 1 Andel sykehusopphold med minst én pasientskade for samlekategorien E-I, med 95 % konfidensintervall og lineær tidstrend for perioden 2012-2022.

42% reduction of all surgical complications

ANNALS OF SURGERY
A MONTHLY REVIEW OF SURGICAL SCIENCE SINCE 1885

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Home > May 2015 - Volume 261 - Issue 5 > **Effect of the World Health Organization Checklist on Patient...**

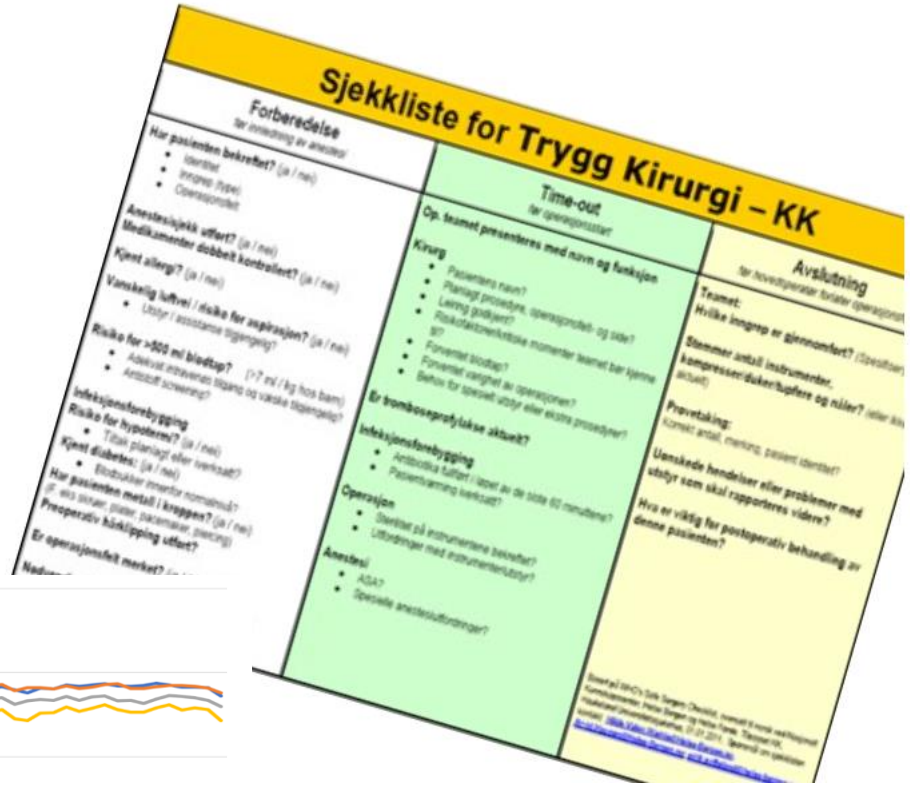
Next Abstract >

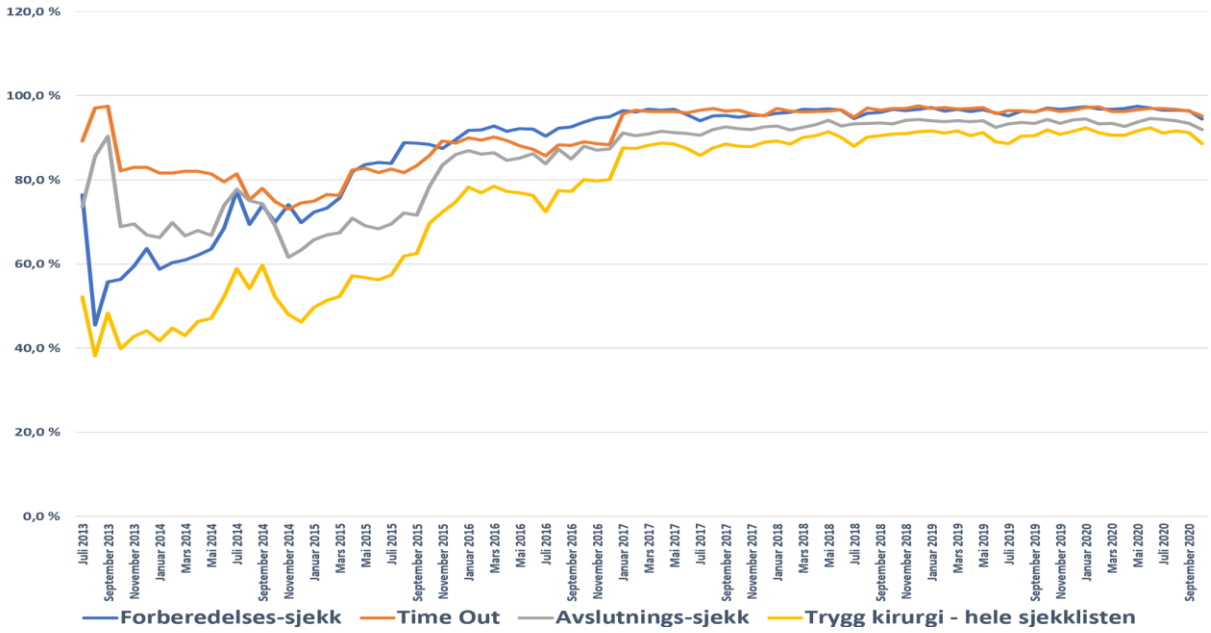
Annals of Surgery:
May 2015 - Volume 261 - Issue 5 - p 821–828
doi: 10.1097/SLA.0000000000000716
Features

Effect of the World Health Organization Checklist on Patient Outcomes: A Stepped Wedge Cluster Randomized Controlled Trial

Haugen, Arvid Steinar MSc[*,†]; Søfteland, Eirik MD, PhD[*]; Almeland, Stian K. MD[‡]; Sevdalis, Nick PhD[§]; Vonen, Barthold MD, PhD[¶]; Eide, Geir E. PhD[‖,**]; Nortvedt, Monica W. PhD[**]; Harthug, Stig MD, PhD[‡‡,†]

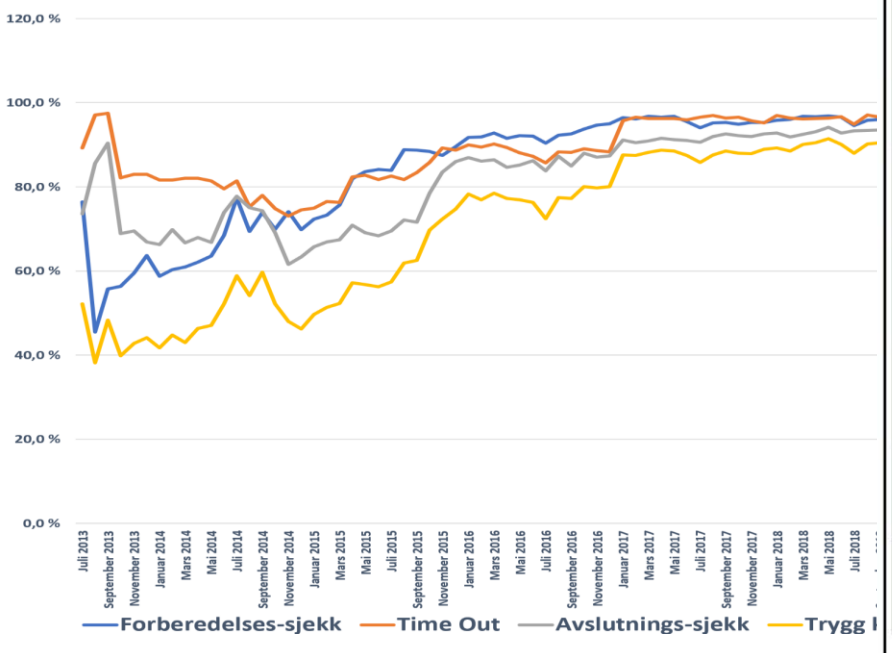
Utilisation of Safe Surgery Checklist at Haukeland University Hospital 2013-2020
(N = 240 000)





Patients Safety Checklist (PASC) in Surgery

Utilization of Safe Surgery Checklist at Haukeland University Hospital 2013-2020 (N = 240 000)



Implementation of a Stepped Wedge Cluster RCT - Effects on Patient and Implementation Outcomes

Målet med sjekklisten er å forebygge komplikasjoner som kan oppstå i operasjonsforløpet

Bruk sjekklisten aktivt ved å krysse av på JA eller NEI på sjekklistepunktene.

Har du spørsmål når du går gjennom sjekklisten, skriv dem ned og ta med til sykehuset.
Hvis nødvendig kontakt **sett inn avdelings kontakt informasjon her.**

Viktige punkter du bør tenke igjennom før operasjonen

1. Bruker du medisiner?
- ☐ NEI, gå til punkt 4
- ☐ JA, lær deg navn, utseende, tidspunkt du tar medisinene og hvorfor du tar dem

2. Bruker du blodfortynnende medisiner?
- ☐ NEI
- ☐ JA, er du informert om du skal stoppe eller når du skal stoppe med dem før din operasjon? Hvis ikke, ring 2 uker før operasjonen og avklar med avdelingen

3. Har du en medisinliste, med siste endringer?
- ☐ JA, husk å ta den med til sykehuset
- ☐ NEI, bestill time hos fastlegen og be om en ny medisinliste

4. Har du diabetes, høyt blodtrykk, hjerte- og karsykdommer, sår som ikke gror eller blir du behandlet for andre kroniske lidelser?
- ☐ NEI
- ☐ JA, hvis du ikke har hatt kontroll for dette de siste 12 månedene bestill time hos fastlegen.

5. Har du vært i utlandet de siste 12 månedene og hatt tannbehandling, medisinsk behandling, vært innlagt eller jobbet på sykehus?
- ☐ NEI
- ☐ JA, bestill time hos fastlegen og få tatt bakterieprøver av deg før innleggelse, ring avdelingen og informer

6. Er du informert om at opphør/avhold av røking og inntak av alkohol og andre rusmidler i god tid før operasjonen kan forebygge komplikasjoner?
- ☐ JA
- ☐ NEI, be om informasjon fra fastlege ☐ Ikke aktuelt

7. Er du informert om at det å være aktiv og ha et næringsrikt kosthold før operasjon kan redusere sjansen for komplikasjoner? (avklar med fastlegen om aktivitetsnivå)
- ☐ JA
- ☐ NEI, be om informasjon fra fastlege

Ta kontakt med din tannlege hvis behov

8. Går du til tannlege hvert år?
- ☐ JA
- ☐ NEI, tannlegekontroll anbefales før en operasjon

Bruk sjekklisten aktivt ved å krysse av på JA eller NEI på alle sjekklistepunkter.

Hva trenger du å være informert om før du reiser hjem? Les gjennom spørsmålene under før du snakker med legen og sykepleieren som skal skrive deg ut. Be om skriftlig informasjon ved behov.

Komplikasjoner

28. Er du informert om komplikasjoner som kan oppstå?
- ☐ JA
- ☐ NEI, be om informasjon fra legen som skriver deg ut

29. Er du informert om hva du skal gjøre hvis du får komplikasjoner eller blir akutt syk?
- ☐ JA
- ☐ NEI, be om informasjon fra legen som skriver deg ut

30. Er du informert om at du skal bruke støttestrømper?
- ☐ NEI ☐ Ikke aktuelt
- ☐ JA, avklar med sykepleieren din eller legen som skriver deg ut hvor lenge du skal bruke dem

Aktivitet og restriksjon

31. Er du informert om når du kan kjøre bil igjen?
- ☐ JA
- ☐ NEI, avklar med lege/sykepleier som skriver deg ut

32. Er du informert om at det er viktig at du er i aktivitet og når du kan begynne å trene?
- ☐ JA
- ☐ NEI, avklar med lege/sykepleier som skriver deg ut

33. Er du informert om aktivitetsrestriksjoner?
- ☐ JA
- ☐ NEI, avklar med lege/sykepleier som skriver deg ut

34. Er du informert om når du kan dusje igjen?
- ☐ JA
- ☐ NEI, avklar med lege/sykepleier som skriver deg ut

Medisiner

35. Skal du begynne med nye medisiner?
- ☐ NEI, gå til punkt 40
- ☐ JA, bruk sjekklistepunktene under og be om en gjennomgang med legen som skriver deg ut

36. Er du informert om mulige bivirkninger til de nye medisinene?
- ☐ JA
- ☐ NEI, avklar med legen som skriver deg ut

37. Er du informert om hvem du kan kontakte hvis du opplever bivirkninger?
- ☐ JA
- ☐ NEI, avklar med legen som skriver deg ut

38. Er det medisiner eller mat du ikke kan spise sammen med de nye medisinene dine?
- ☐ NEI
- ☐ JA, avklar med legen som skriver deg ut og skriv ned navnene

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Virtual pictures generated by AI – ChatGPT

Wiig *et al. BMC Health Services Research* 2013, **13**:206
http://www.biomedcentral.com/1472-6963/13/206

BMC Health Services Research

RESEARCH ARTICLE Open Access

Investigating the use of patient involvement and patient experience in quality improvement in Norway: rhetoric or reality?

Siri Wiig[1*], Marianne Storm[1], Karina Aase[1], Martha Therese Gjestsen[1], Marit Solheim[2,3], Stig Harthug[4,5], Glenn Robert[6], Naomi Fulop[7] and QUASER team

Abstract

Background: Patient involvement in health care decision making is part of a wider trend towards a more bottom-up approach to service planning and provision, and patient experience is increasingly conceptualized as a core dimension of health care quality.
The aim of this multi-level study is two-fold: 1) to describe and analyze how governmental organizations expect acute hospitals to incorporate patient involvement and patient experiences into their quality improvement (QI) efforts and 2) to analyze how patient involvement and patient experiences are used by hospitals to try to improve the quality of care they provide.

Methods: This multi-level case study combines analysis of national policy documents and regulations at the macro level with semi-structured interviews and non-participant observation of key meetings and shadowing of staff at the meso and micro levels in two purposively sampled Norwegian hospitals. Fieldwork at the meso and micro levels was undertaken over a 12-month period (2011–2012).

Results: Governmental documents and regulations at the macro level demonstrated wide-ranging expectations for the integration of patient involvement and patient experiences in QI work in hospitals. The expectations span from systematic collection of patients' and family members' experiences for the purpose of improving service quality through establishing patient-oriented arenas for ongoing collaboration with staff to the support of individual involvement in decision making. However, the extent of involvement of patients and application of patient experiences in QI work was limited at both hospitals. Even though patient involvement was gaining prominence at the meso level – and to a lesser extent at the micro level – relevant tools for measuring and using patient experiences in QI work were lacking, and available measures of patient experience were not being used meaningfully or systematically.

Conclusions: The relative lack of expertise in Norwegian hospitals of adapting and implementing tools and methods for improving patient involvement and patient experiences at the meso and micro levels mark a need for health care policymakers and hospital leaders to learn from experiences of other industries and countries that have successfully integrated user experiences into QI work. Hospital managers need to design and implement wider strategies to help their staff members recognize and value the contribution that patient involvement and patient experiences can make to the improvement of healthcare quality.

Keywords: Patient experience, Patient involvement, Quality improvement, Multi-level study

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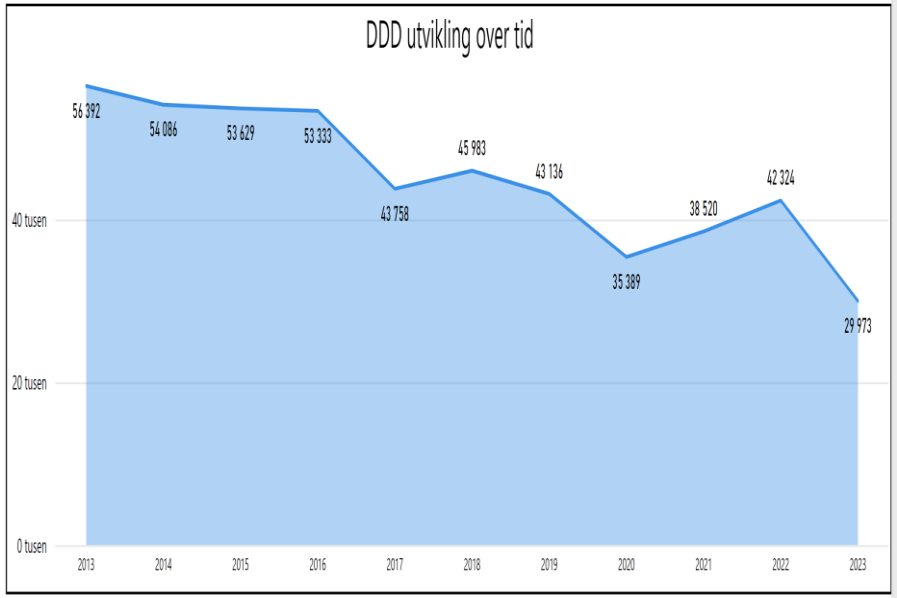
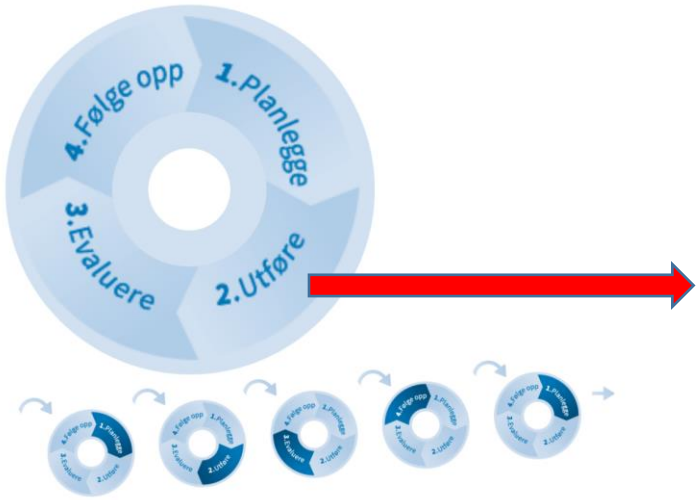
Interdisciplinary teams

Reduction in utilisation of broad spectrum antibiotics in the Norwegian hospitals achieved for a significant period



www.antibiotika.no



Praktiske råd og verktøy til hver fase

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Implement it!

Investigating implementation of patient safety interventions in primary and specialised health care

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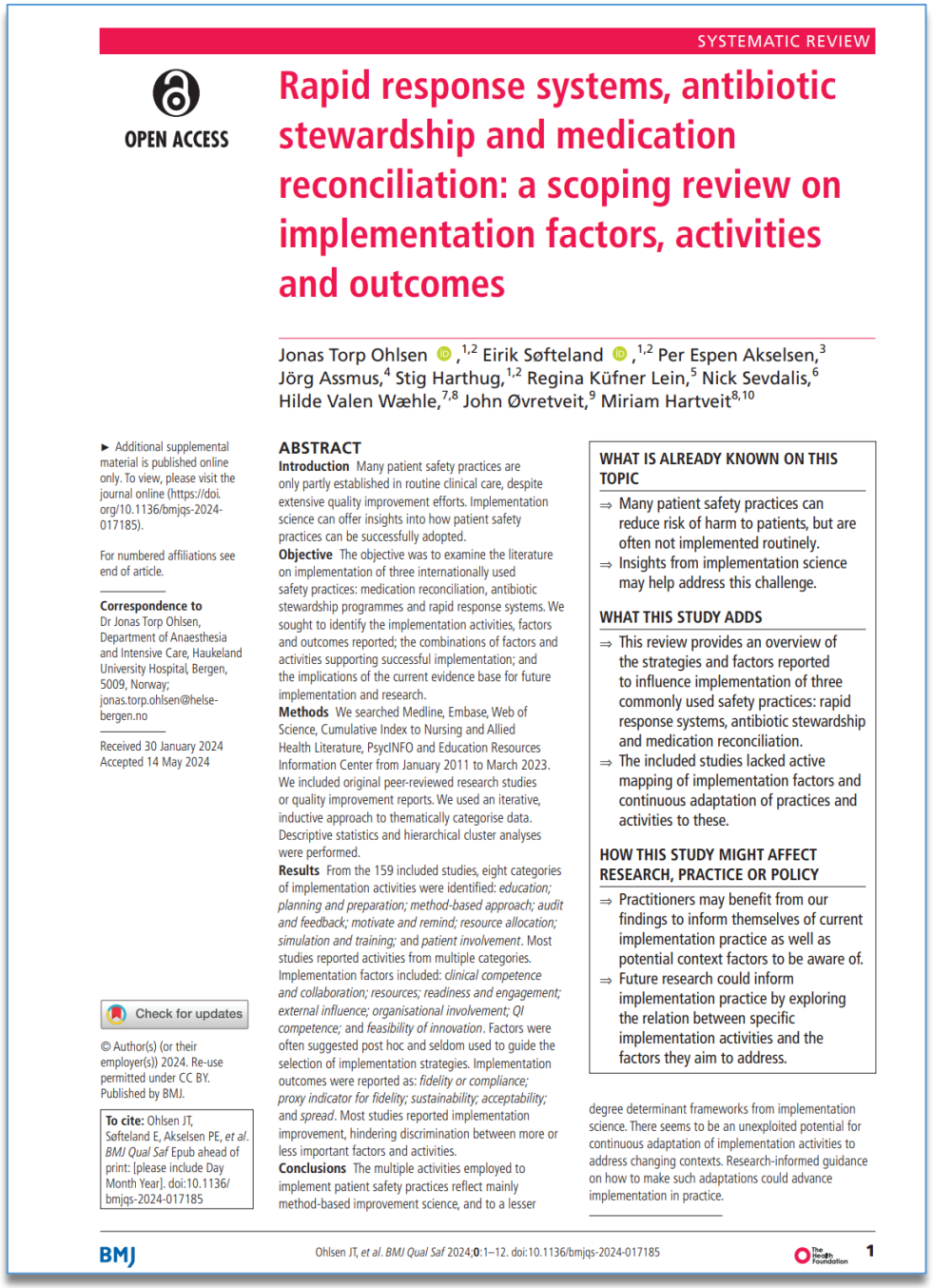
159 studies on implementation of rapid response systems, antibiotic stewardship and medication reconciliation

- Multiple activities reflect mainly
  - method-based improvement science
  - determinant frameworks from implementation science
- Unexploited potential for continuous adaptation of implementation activities to address changing contexts
- Research-informed guidance on how to make such adaptations could advance implementation in practice



SYSTEMATIC REVIEW

OPEN ACCESS

Rapid response systems, antibiotic stewardship and medication reconciliation: a scoping review on implementation factors, activities and outcomes

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ABSTRACT

Introduction Many patient safety practices are only partly established in routine clinical care, despite extensive quality improvement efforts. Implementation science can offer insights into how patient safety practices can be successfully adopted.

Objective The objective was to examine the literature on implementation of three internationally used safety practices: medication reconciliation, antibiotic stewardship programmes and rapid response systems. We sought to identify the implementation activities, factors and outcomes reported; the combinations of factors and activities supporting successful implementation; and the implications of the current evidence base for future implementation and research.

Methods We searched Medline, Embase, Web of Science, Cumulative Index to Nursing and Allied Health Literature, PsycINFO and Education Resources Information Center from January 2011 to March 2023. We included original peer-reviewed research studies or quality improvement reports. We used an iterative, inductive approach to thematically categorise data. Descriptive statistics and hierarchical cluster analyses were performed.

Results From the 159 included studies, eight categories of implementation activities were identified: *education; planning and preparation; method-based approach; audit and feedback; motivate and remind; resource allocation; simulation and training;* and *patient involvement*. Most studies reported activities from multiple categories. Implementation factors included: *clinical competence and collaboration; resources; readiness and engagement; external influence; organisational involvement; QI competence;* and *feasibility of innovation*. Factors were often suggested post hoc and seldom used to guide the selection of implementation strategies. Implementation outcomes were reported as: *fidelity or compliance; proxy indicator for fidelity; sustainability; acceptability;* and *spread*. Most studies reported implementation improvement, hindering discrimination between more or less important factors and activities.

Conclusions The multiple activities employed to implement patient safety practices reflect mainly method-based improvement science, and to a lesser degree determinant frameworks from implementation science. There seems to be an unexploited potential for continuous adaptation of implementation activities to address changing contexts. Research-informed guidance on how to make such adaptations could advance implementation in practice.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Many patient safety practices can reduce risk of harm to patients, but are often not implemented routinely.
⇒ Insights from implementation science may help address this challenge.

WHAT THIS STUDY ADDS

⇒ This review provides an overview of the strategies and factors reported to influence implementation of three commonly used safety practices: rapid response systems, antibiotic stewardship and medication reconciliation.
⇒ The included studies lacked active mapping of implementation factors and continuous adaptation of practices and activities to these.

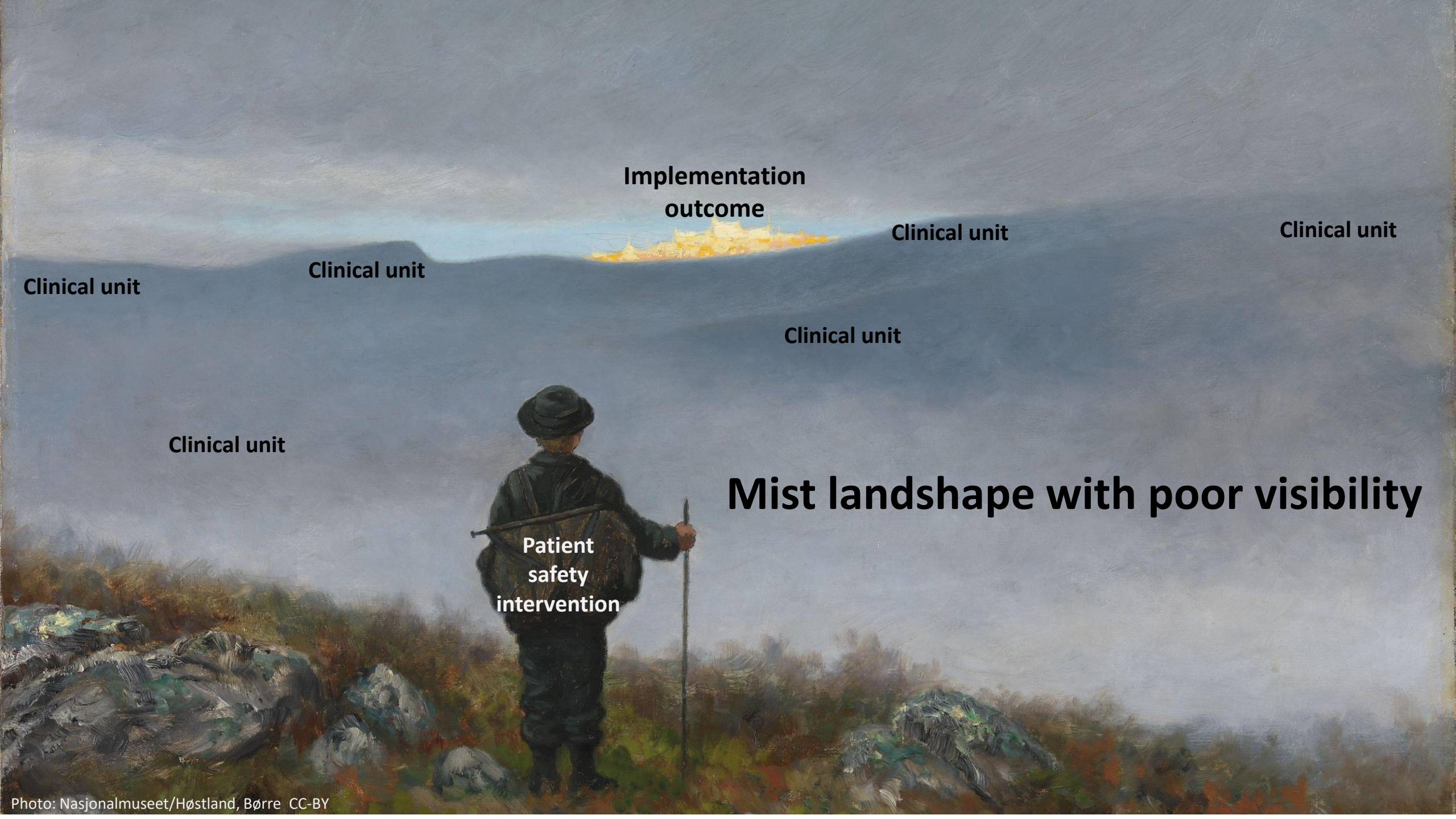
HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Practitioners may benefit from our findings to inform themselves of current implementation practice as well as potential context factors to be aware of.
⇒ Future research could inform implementation practice by exploring the relation between specific implementation activities and the factors they aim to address.

Reported from the included studies

categories based on thematic condensation

Activities	Factors	Outcomes
Education	Collaboration	Fidelity or compliance
Planning and preparation	Resources	Proxy indicator for fidelity
Method-based approach	Readiness and engagement	Sustainability
Audit and feedback	External influence	Acceptability
Motivate and remind	Organisational involvement	Spread
Resource allocation	QI competence	
Simulation and training	Feasibility of innovation	
Patient involvement		



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