Antibiotikaresistens: Hvordan tverrfaglig kvalitetsarbeid bidrar til riktigere antibiotikabruk – DU kan gjøre en forskjell!

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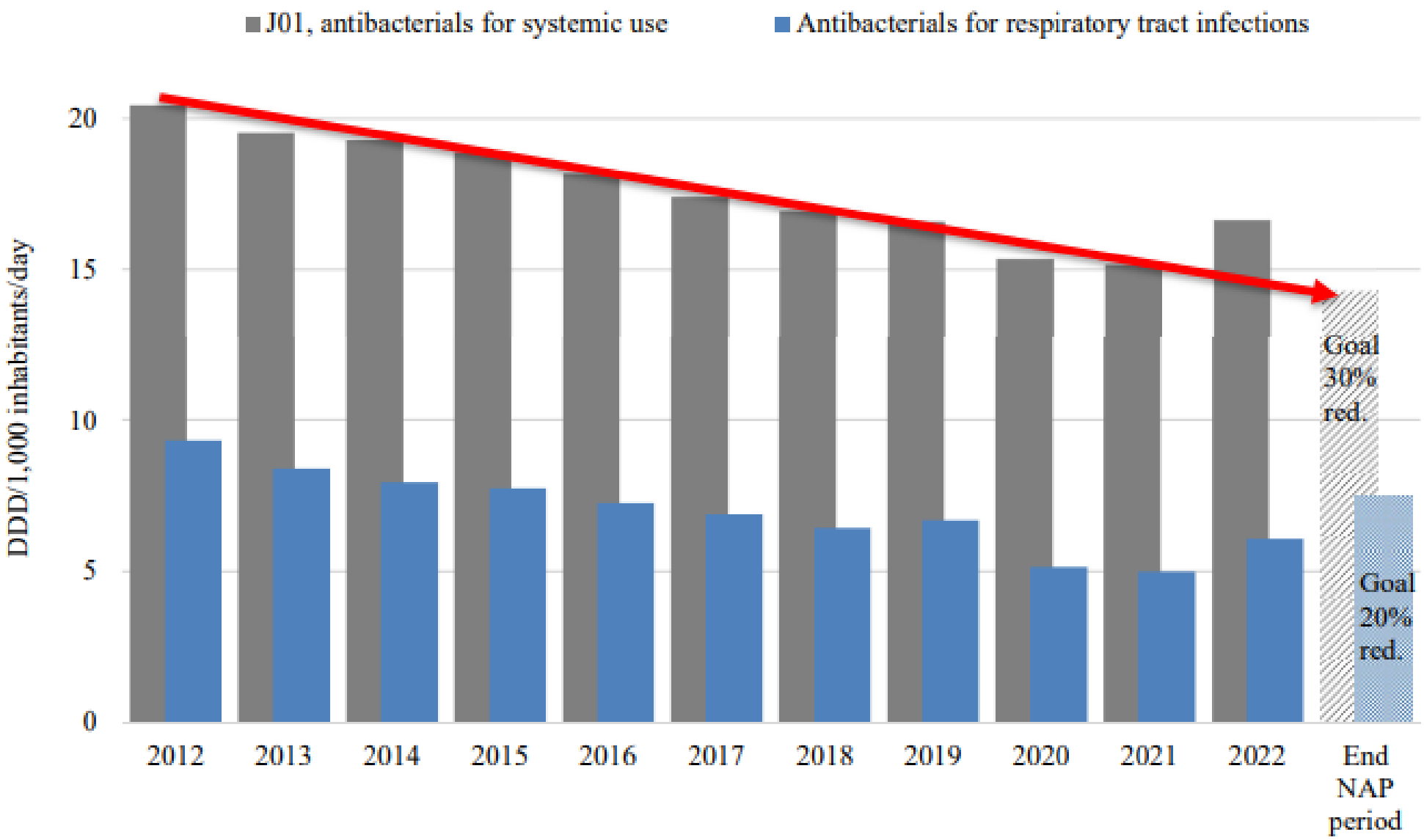
Antibiotikasenteret for primærmedisin

DU kan gjøre en forskjell!

- Hvordan hjemmetjenesten og fastlegene sammen kan bidra til riktigere antibiotikabruk.
- Hvordan din bruk av laboratorietjenester påvirker antibiotikaforskrivning i sykehjem og hjemmetjeneste.

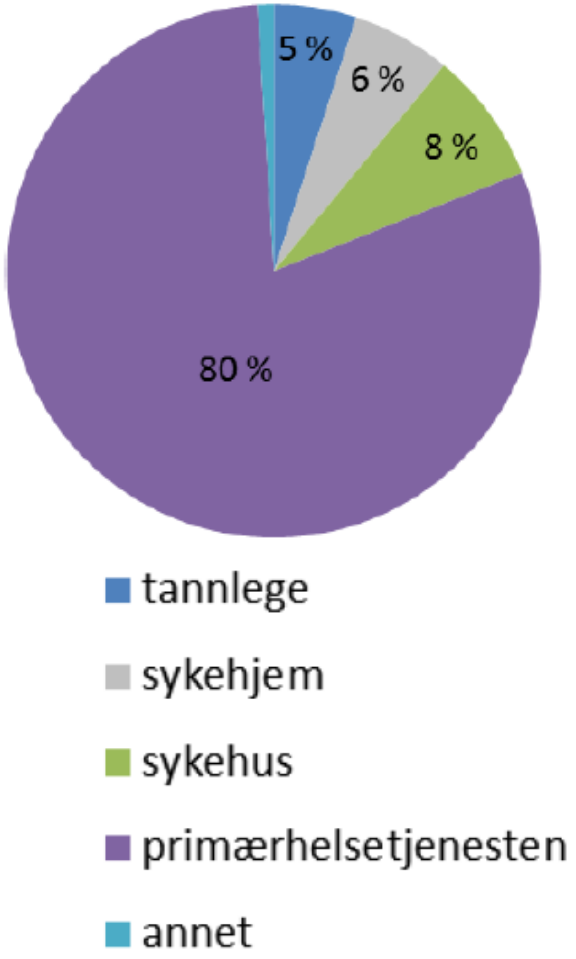

J01, antibacterials for systemic use
Antibacterials for respiratory tract infections
DDD/1,000 inhabitants/day
20
15
10
5
0
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
Goal 30% red.
Goal 20% red.
End NAP period

Antibiotikabruk i primærhelsetjenesten

- Rundt 90 % av all forskrivning skjer *utenfor* sykehus
- 60 % er til luftveisinfeksjoner, som ofte er selvbegrensende
- Antibiotika brukes vanligvis for å forkorte eller lindre symptomer
- Stor variasjon i forbruk mellom land, områder, enkeltleger

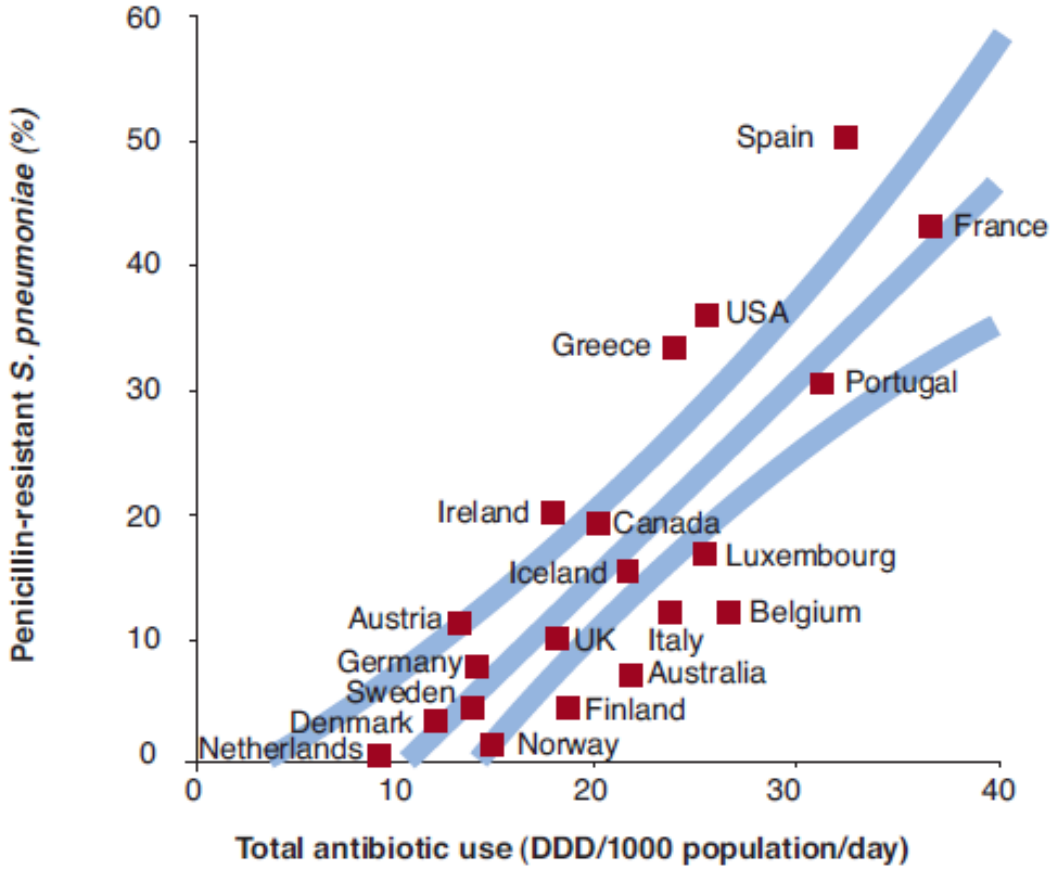
⬇

- Grunnlag for forbedring



Sammenheng mellom forbruk og resistens

- Land med lavt forbruk (Nederland, Norge, Danmark, Sverige) har lav andel resistente bakterier
- Land med høyt forbruk (Spania, Frankrike) har høy andel resistente bakterier

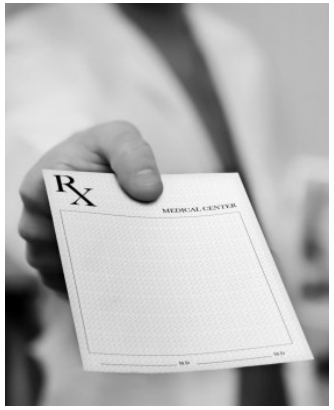


Antibiotikabruk-kjeden

100%?

25% (5-50%)

23% (10-60%)



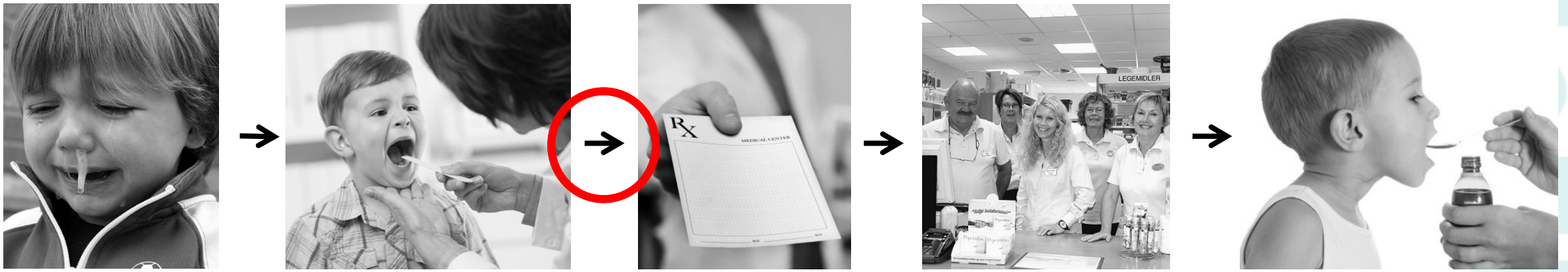
92% (85-100%)

50-86%

Antibiotikabruk-kjeden

0,2 - 26%

Antibiotikabruk-kjeden



Tverrfaglighet

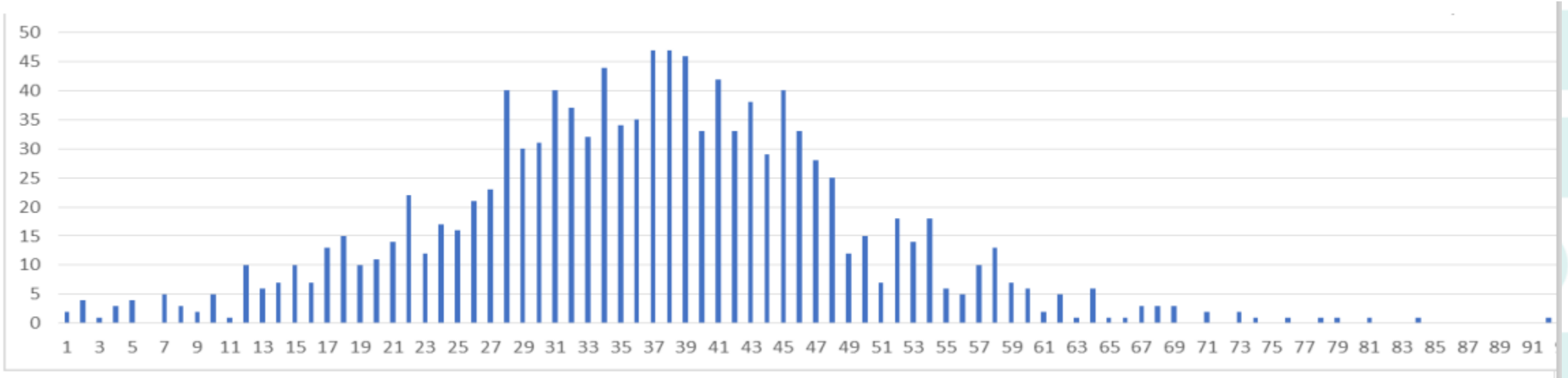
- Riktig antibiotikabruk handler om **MYE** mer enn legens beslutning om å forskrive

Andre yrkesgrupper:

- Portvakt til forskriver
- Informasjon om egenomsorg
- Kontakt med pårørende
- Observatør
- Prøvetaker – når er det relevant med prøvetaking

- «For med stor visdom følger store kvaler. Den som øker sin kunnskap, øker sin smerte.»

Eksempel 1 – CRP ved luftveisinfeksjoner



- Stor forskjell i hvor ofte CRP brukes; grunnlag for forbedring
- En *ganske* dårlig test – skiller langt fra perfekt mellom når det er behov for antibiotika og når det ikke er det
- Pasientene forventer test

CRP ved luftveisinfeksjoner

- Screening med CRP gir mer – og ikke mindre – antibiotikabruk
- Bruk må gi svar på et definert spørsmål

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BMJ Open

Out-of-hours antibiotic prescription after screening with C reactive protein: a randomised controlled study

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ABSTRACT

Objective: To evaluate the effect of preconsultation C reactive protein (CRP) screening on antibiotic prescribing and referral to hospital in Norwegian primary care settings with low prevalence of serious infections.

Design: Randomised controlled observational study at out-of-hours services in Norway.

Setting: Primary care.

Participants: 401 children (0–6 years) with fever and/or respiratory symptoms were recruited from 5 different out-of-hours services (including 1 paediatric emergency clinic) in 2013–2015.

Intervention: Data were collected from questionnaires and clinical examination results. Every third child was randomised to a CRP test before the consultation; for the rest, the doctor ordered a CRP test if considered necessary.

Outcome measures: Main outcome variables were prescription of antibiotics and referral to hospital.

Results: In the group pretested with CRP, the antibiotic prescription rate was 26%, compared with 22% in the control group. In the group pretested with CRP, 5% were admitted to hospital, compared with 9% in the control group. These differences were not statistically significant. The main predictors for ordering a CRP test were parents' assessment of seriousness of the illness and the child's temperature. Paediatricians ordered CRP tests less frequently than did other doctors (9% vs 56%, p<0.001).

Conclusions: Preconsultation screening with CRP of children presenting to out-of-hours services with fever and/or respiratory symptoms does not significantly affect the prescription of antibiotics or referral to hospital.

Trial registration number: NCT02496559; Results.

Strengths and limitations of this study

- The study is a randomised controlled trial evaluating the effect on antibiotic prescription and hospital referral by screening children with fever and/or respiratory symptoms with a C reactive protein (CRP) test before the consultation.
- Nearly complete data since we used dedicated nurses to collect clinical symptoms and findings on all children.
- The study was underpowered, that is, the differences were too small to reach statistical significance.
- Identified predictors of CRP testing are observational and not a result of the randomised trial.

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INTRODUCTION

Fever, respiratory symptoms and infections are common among children in primary care, especially at out-of-hours (OOH) services.[1] Serious infections have low prevalence in primary care, and even more so after introduction of vaccines for *Haemophilus influenzae* type B and pneumococcal conjugate vaccines.[2 3] It is challenging for clinicians to distinguish serious and low-prevalent diseases from common, self-limiting infections. A severity-of-illness scoring system does not exist for primary care.

In Norway, 85% of antibiotics are prescribed in primary care.[4] Despite a decrease in serious infections, the use of antibiotics has been increasing until 2012, and is generally believed to be unnecessarily widespread.[5] Although there has been an increase in methicillin-resistant *Staphylococcus aureus* (MRSA), the prevalence of antibiotic resistant bacteria is lower than in most other countries.[6] In order to keep the antimicrobial resistance low, it is important to avoid unnecessary antibiotics and use narrow spectrum penicillin when possible.[7]

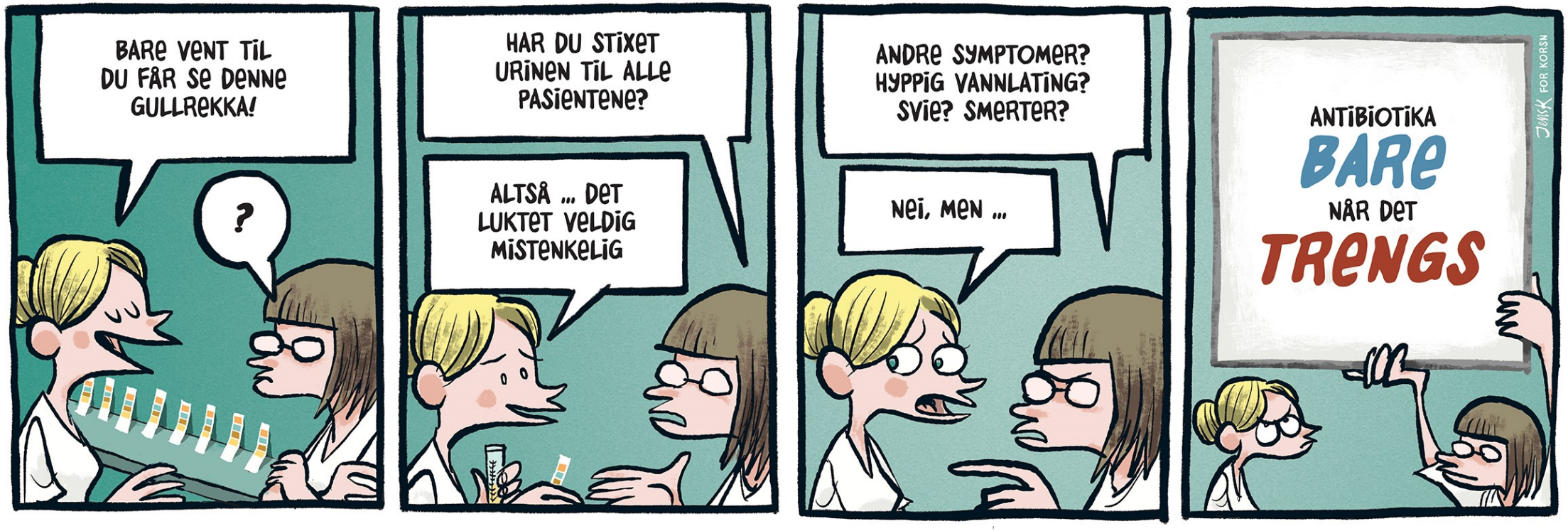
C reactive protein (CRP) is an inflammation marker, reflecting the severity of inflammation and tissue injury, which is used as a tool to differentiate between bacterial and viral infections.[8] It has high popularity in Norwegian primary care as a point-of-care test, and in OOH services it is used in more than half of all children with respiratory symptoms.[1 9] It thus seems that CRP testing is more like a routine, rather than a supplement to history taking and clinical examination.

Eksempel 2 – urinstrimmelundersøkelse

- Skiller ikke mellom bakterier i urinen og urinveisinfeksjon
- Opp til 50% av eldre på sykehjem har asymptomatisk bakteriuri
- Symptomer som ikke er spesifikt fra urinveiene, forvirring og uro er de vanligste årsakene til at personalet mistenker urinveisinfeksjon hos pasienter på sykehjem

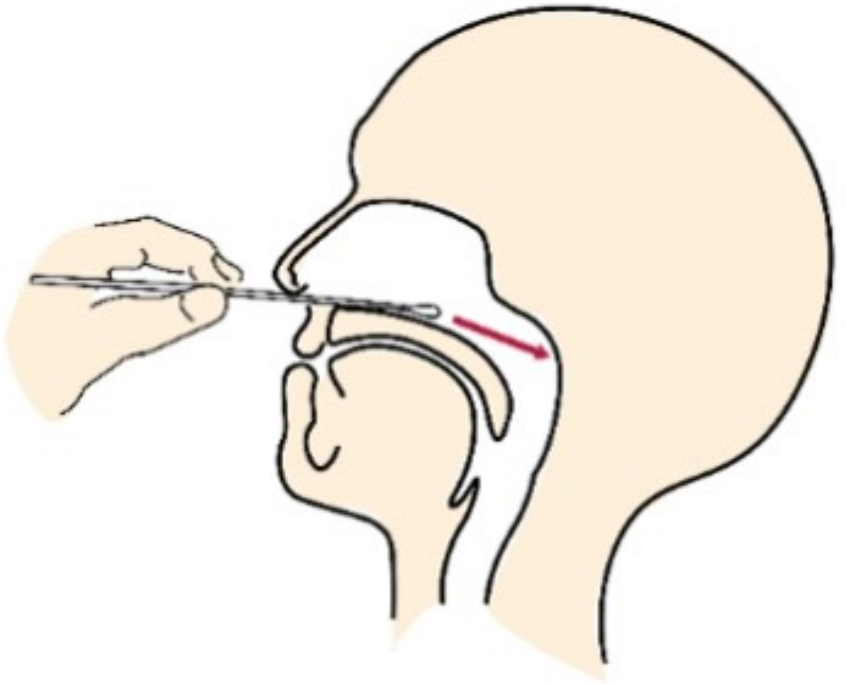
Eksempel 2 – urinstrimmelundersøkelse

- Urinstrimmelundersøkelse bør kun utføres når pasienten har symptomer fra urinveiene.



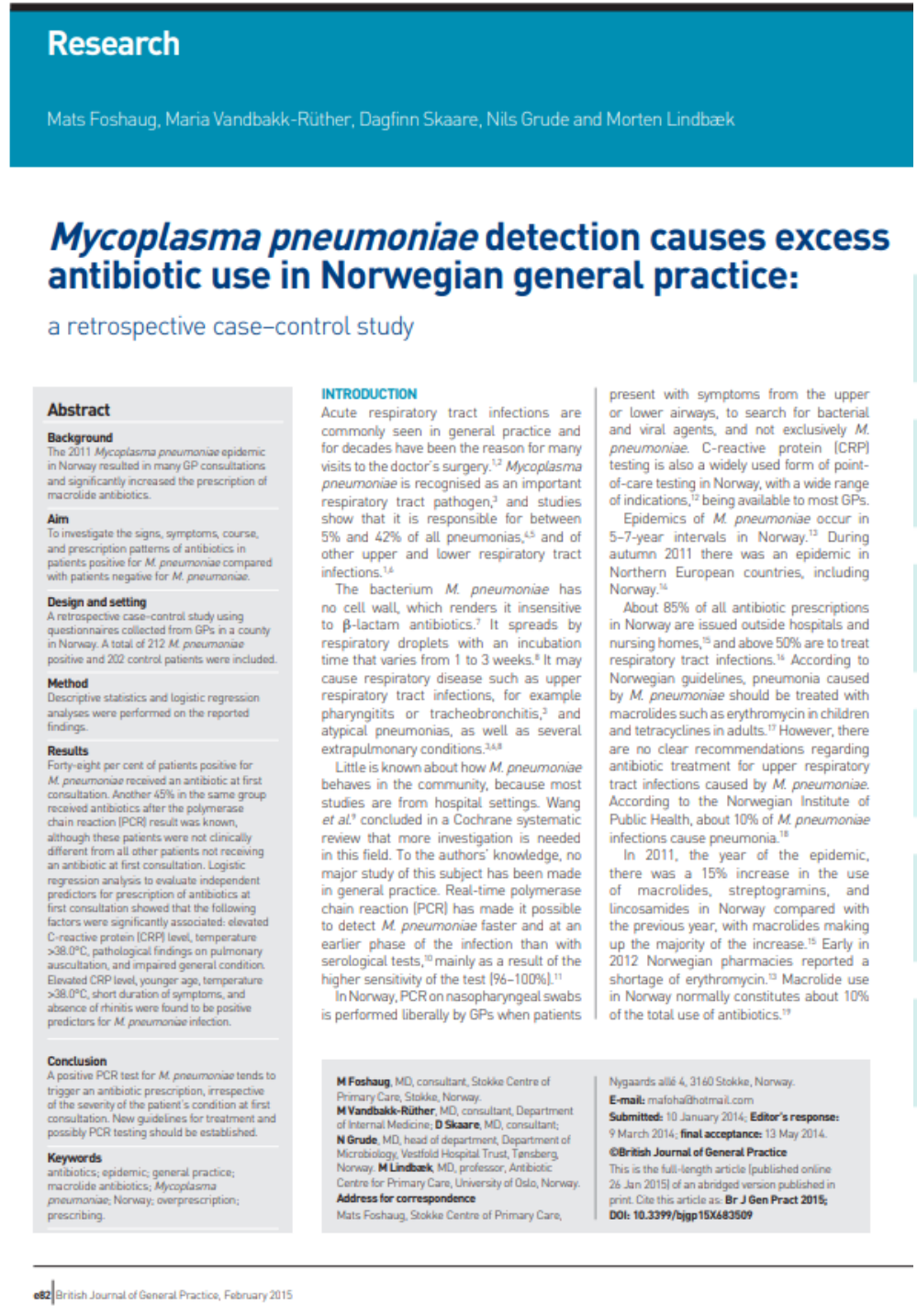
Eksempel 3 – PCR ved luftveisinfeksjoner

- Polymerase chain reaction – finner nålen i høystakken
- Dyr test, gir svar først etter 1 – 2 dager
- *Mycoplasma pneumoniae*-epidemi på vei



PCR ved luftveisinfeksjoner

- Ved forrige store epidemi i 2011-12: Utstrakt bruk førte til overdreven antibiotikabruk
- Finner nål i feil høystakk
- Kan svare på: Skyldes denne lungebetennelsen *M. pneumoniae*?
- Kan ikke svare på: Er dette en lungebetennelse?



Research

Mats Foshaug, Maria Vandbakk-Rüther, Dagfinn Skaare, Nils Grude and Morten Lindbæk

Mycoplasma pneumoniae detection causes excess antibiotic use in Norwegian general practice:

a retrospective case–control study

Abstract

Background
The 2011 *Mycoplasma pneumoniae* epidemic in Norway resulted in many GP consultations and significantly increased the prescription of macrolide antibiotics.

Aim
To investigate the signs, symptoms, course, and prescription patterns of antibiotics in patients positive for *M. pneumoniae* compared with patients negative for *M. pneumoniae*.

Design and setting
A retrospective case–control study using questionnaires collected from GPs in a county in Norway. A total of 212 *M. pneumoniae* positive and 202 control patients were included.

Method
Descriptive statistics and logistic regression analyses were performed on the reported findings.

Results
Forty-eight per cent of patients positive for *M. pneumoniae* received an antibiotic at first consultation. Another 45% in the same group received antibiotics after the polymerase chain reaction (PCR) result was known, although these patients were not clinically different from all other patients not receiving an antibiotic at first consultation. Logistic regression analysis to evaluate independent predictors for prescription of antibiotics at first consultation showed that the following factors were significantly associated: elevated C-reactive protein (CRP) level, temperature >38.0°C, pathological findings on pulmonary auscultation, and impaired general condition. Elevated CRP level, younger age, temperature >38.0°C, short duration of symptoms, and absence of rhinitis were found to be positive predictors for *M. pneumoniae* infection.

Conclusion
A positive PCR test for *M. pneumoniae* tends to trigger an antibiotic prescription, irrespective of the severity of the patient's condition at first consultation. New guidelines for treatment and possibly PCR testing should be established.

Keywords
antibiotics; epidemic; general practice; macrolide antibiotics; *Mycoplasma pneumoniae*; Norway; overprescription; prescribing.

INTRODUCTION

Acute respiratory tract infections are commonly seen in general practice and for decades have been the reason for many visits to the doctor's surgery.[1,2] *Mycoplasma pneumoniae* is recognised as an important respiratory tract pathogen,[3] and studies show that it is responsible for between 5% and 42% of all pneumonias,[4,5] and of other upper and lower respiratory tract infections.[1,6]

The bacterium *M. pneumoniae* has no cell wall, which renders it insensitive to β-lactam antibiotics.[7] It spreads by respiratory droplets with an incubation time that varies from 1 to 3 weeks.[8] It may cause respiratory disease such as upper respiratory tract infections, for example pharyngitits or tracheobronchitis,[3] and atypical pneumonias, as well as several extrapulmonary conditions.[3,4,8]

Little is known about how *M. pneumoniae* behaves in the community, because most studies are from hospital settings. Wang *et al*.[9] concluded in a Cochrane systematic review that more investigation is needed in this field. To the authors' knowledge, no major study of this subject has been made in general practice. Real-time polymerase chain reaction (PCR) has made it possible to detect *M. pneumoniae* faster and at an earlier phase of the infection than with serological tests,[10] mainly as a result of the higher sensitivity of the test (96–100%).[11]

In Norway, PCR on nasopharyngeal swabs is performed liberally by GPs when patients present with symptoms from the upper or lower airways, to search for bacterial and viral agents, and not exclusively *M. pneumoniae*. C-reactive protein (CRP) testing is also a widely used form of point-of-care testing in Norway, with a wide range of indications,[12] being available to most GPs.

Epidemics of *M. pneumoniae* occur in 5–7-year intervals in Norway.[13] During autumn 2011 there was an epidemic in Northern European countries, including Norway.[14]

About 85% of all antibiotic prescriptions in Norway are issued outside hospitals and nursing homes,[15] and above 50% are to treat respiratory tract infections.[16] According to Norwegian guidelines, pneumonia caused by *M. pneumoniae* should be treated with macrolides such as erythromycin in children and tetracyclines in adults.[17] However, there are no clear recommendations regarding antibiotic treatment for upper respiratory tract infections caused by *M. pneumoniae*. According to the Norwegian Institute of Public Health, about 10% of *M. pneumoniae* infections cause pneumonia.[18]

In 2011, the year of the epidemic, there was a 15% increase in the use of macrolides, streptogramins, and lincosamides in Norway compared with the previous year, with macrolides making up the majority of the increase.[15] Early in 2012 Norwegian pharmacies reported a shortage of erythromycin.[13] Macrolide use in Norway normally constitutes about 10% of the total use of antibiotics.[19]

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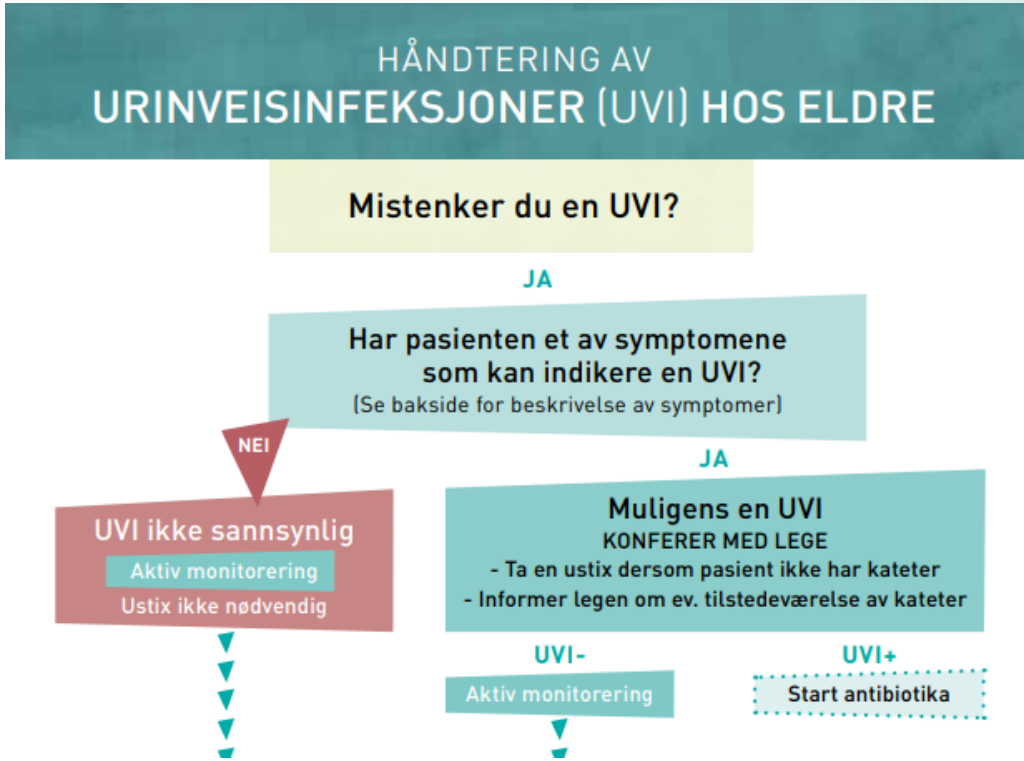
RASK

Riktigere Antibiotikabruk i Sykehjem / Kommunale helseinstitusjoner

- Antibiotikastyringsprogram / kvalitetsforbedringsprogram for sykehjem
- Tverrfaglig
- Et hovedpoeng: riktigere bruk av urinstrimmelundersøkelse



RAK Riktigere Antibiotikabruk i Kommunene

LEGEVAKT

- Pilot: Kvalitetsforbedringsprogram for legevakt
- Tverrfaglig – men vanskelig å få legevaktleger med
- Et hovedpoeng:
  - Bedre kommunikasjon mellom legevaktsykepleiere og legevaktleger
  - Enighet om når hurtigprøver skal tas