

A(MS)-Team

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Nijmegen
The Netherlands



Disclaimer

- Nothing to disclaim with regard to the topic



Thanks for inviting me for this keynote

- ⦿ The Dutch have many well known speakers and researchers on the topic of AMS, many of which work at “my hospitals” Radboud UMC and CWZ ...
- ⦿ ... but I am not one of them and was hoping that this topic would be selected as a short lecture at 7 AM ...

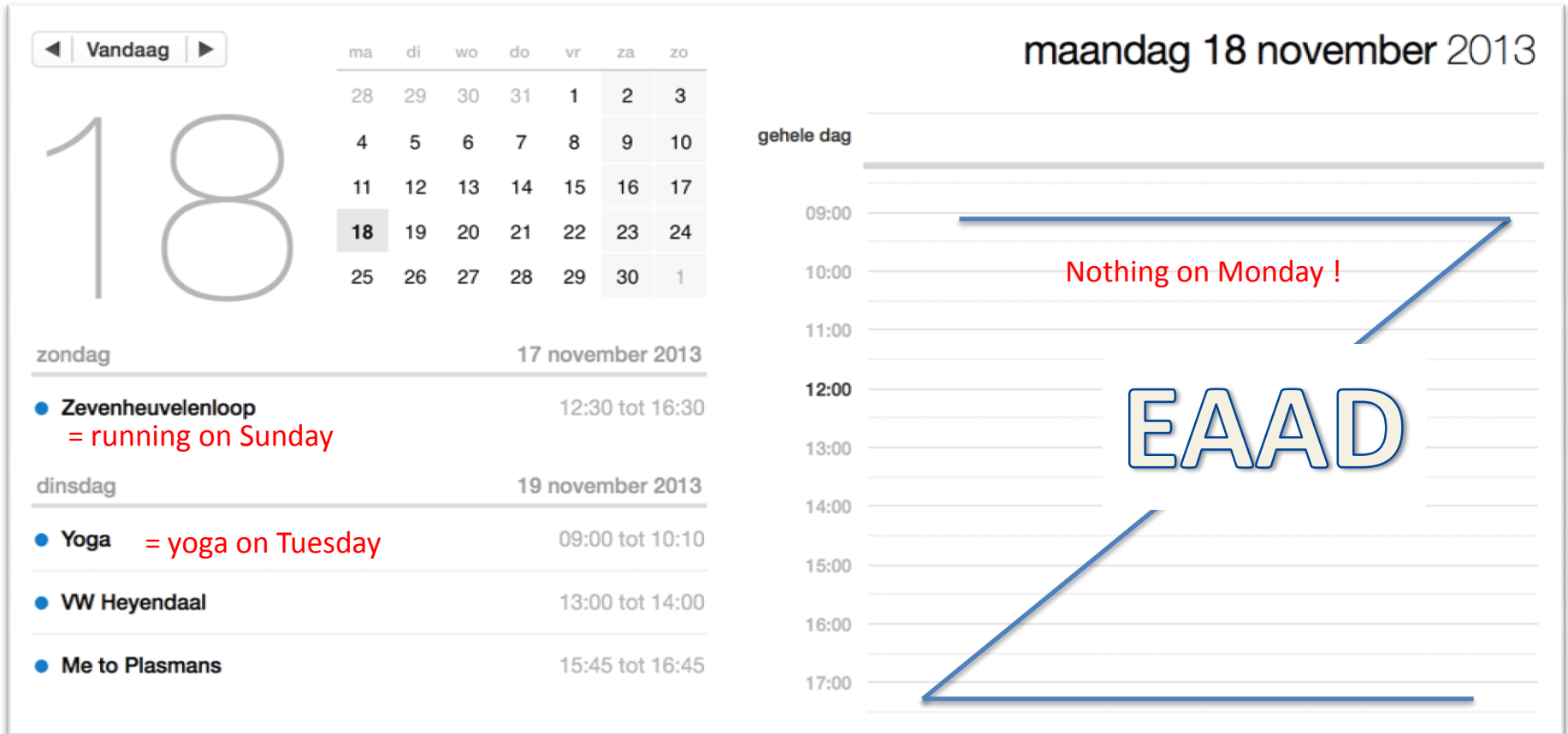
... thus I appologize

- ⦿ ... to all those in the room knowing more about the topic than I do ...
- ⦿ ... to all those having the hope to hear a lot over international interventions
- ⦿ ... those who are getting bored stiff after the first 10 minutes ...
- ⦿ ... and my Dutch colleagues for ruining the Dutch reputation with regard to this subject.

What I will try to do

- ⦿ Cover the basics – or what I believe they are
- ⦿ Talk about “The SWAB”
- ⦿ Take you along in what we do
 - ✧ since - thanks to the before mentioned experts - the Nijmegen hospitals do quite well

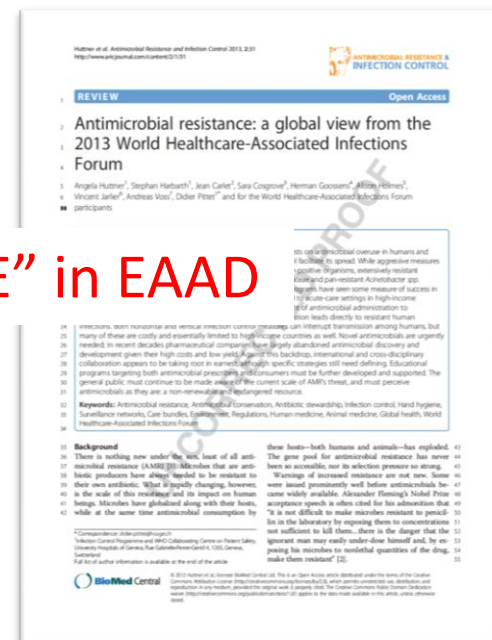
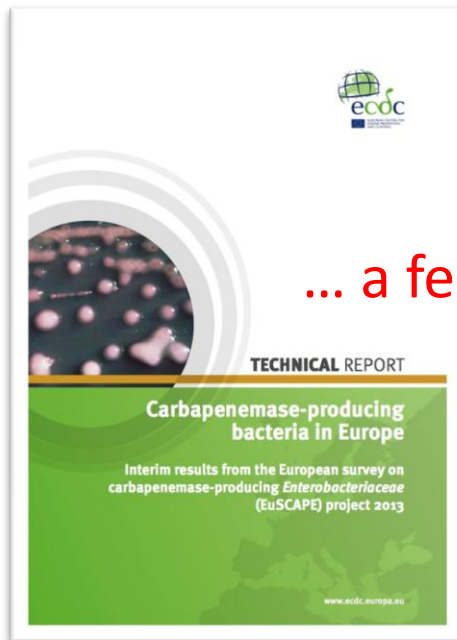
Lets go back into the recent past



my wifes agenda

European Antimicrobial Awareness Day

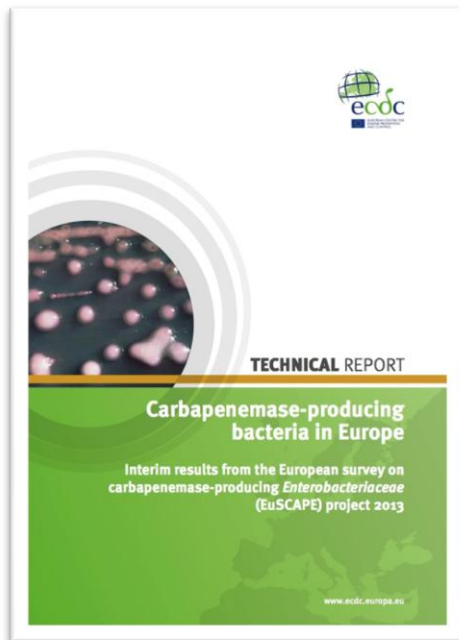
- 🕒 Celebrated with lots of (social-)media attention
- 📄 Special publications



... a few comments on the “E” in EAAD

Global Antimicrobial Awareness Day

- ⦿ Celebrated with lots of (social-)media attention
- ⦿ Special publications



Promotion

Huttner *et al. Antimicrobial Resistance and Infection Control* 2013, **2**:31
<http://www.aricjournal.com/content/2/1/31>



ANTIMICROBIAL RESISTANCE &
INFECTION CONTROL

REVIEW

Open Access

Antimicrobial resistance: a global view from the 2013 World Healthcare-Associated Infections Forum

Angela Huttner¹, Stephan Harbarth¹, Jean Carlet², Sara Cosgrove³, Herman Goossens⁴, Alison Holmes⁵,
Vincent Jarlier⁶, Andreas Voss⁷, Didier Pittet^{1*} and for the World Healthcare-Associated Infections Forum
participants

www.aricjournal.com

Antibiotic resistance – the need for global solutions

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The Lancet Infectious Diseases Commission

D-13-01071

S1473-3099(13)70318-9

Embargo: November 17, 2013—00:01 [GMT]

NH

Version 1

This version saved: 17:57, 05-Nov-13

Antibiotic resistance—the need for global solutions



Ramanan Laxminarayan, Adriano Duse, Chand Wattal, Anita K M Zaidi, Heiman F L Wertheim, Nithima Sumpradit, Erika Vlieghe, Gabriel Levy Hara, Ian M Gould, Herman Goossens, Christina Greko, Anthony D So, Maryam Bigdeli, Göran Tomson, Will Woodhouse, Eva Ombaka, Arturo Quizhpe Peralta, Farah Naz Qamar, Fatima Mir, Sam Kariuki, Zulfiqar A Bhutta, Anthony Coates, Richard Bergstrom, Gerard D Wright, Eric D Brown, Otto Cars

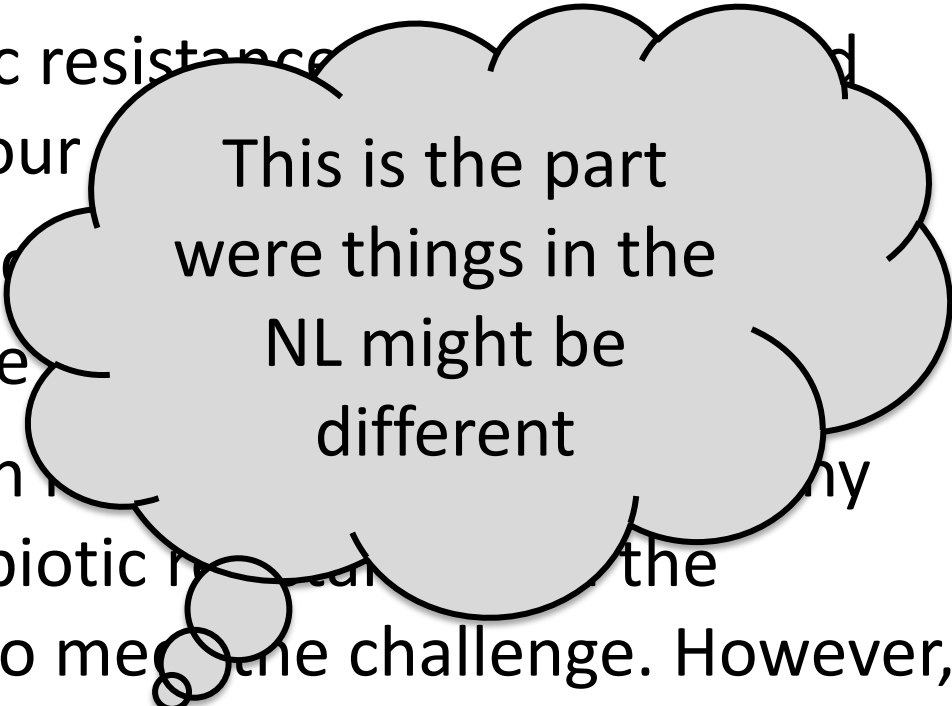
The causes of antibiotic resistance are complex and include human behaviour at many levels of society; the consequences affect everybody in the world. Similarities with climate change are evident. Many efforts have been made to describe the many different facets of antibiotic resistance and the interventions needed to meet the challenge. However, coordinated action is largely absent, especially at the political level, both nationally and internationally. Antibiotics paved the way for unprecedented medical and societal developments, and are today indispensable in all health systems. Achievements in modern medicine, such as major surgery, organ transplantation, treatment of preterm babies, and cancer chemotherapy, which we today take for granted, would not be possible without access to effective treatment for bacterial infections. Within just a few years, we might be faced with dire setbacks, medically, socially, and economically, unless real and unprecedented global coordinated actions are immediately taken. Here, we describe the global situation of antibiotic resistance, its major causes and consequences, and identify key areas in which action is urgently needed.

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[http://dx.doi.org/10.1016/S1473-3099\(13\)70316-8](http://dx.doi.org/10.1016/S1473-3099(13)70316-8)

Antibiotic resistance

– the need for global solutions

- The causes of antibiotic resistance include human behaviour
- The consequences affect Similarities with climate
- Many efforts have been different facets of antibiotic interventions needed to meet the challenge. However, **coordinated action is largely absent, especially at the political level, both nationally and internationally.**



This is the part
were things in the
NL might be
different

Antibiotic resistance

– the need for global solutions

- ⦿ Within just a few years, we might be faced with dire setbacks, medically, socially, and economically, unless real and unprecedented global coordinated actions are immediately taken.
- ⦿ Here, we describe the global situation of antibiotic resistance, its major causes and consequences, and identify **key areas in which action is urgently needed.**

Antibiotic resistance – the need for global solutions

Part 1: Global epidemiology of antibiotic resistance and use (page 1)

*Ramanan Laxminarayan, Adriano Duse, Chand Wattal,
Anita K M Zaidi*

Part 2: Getting out of the impasse (page 5)

*Heiman FL Wertheim, Nithima Sumpradit, Erika Vlieghe,
Gabriel Levy Hara, Ian M Gould*

Part 3: Minimising the time to effective treatment—rapid diagnostic testing (page 9)

Herman Goossens

Part 4: The interface between people and animals (page 12)

Christina Greko

Antibiotic resistance

– the need for global solutions

Part 5: The access and excess dilemma (page 15)

Anthony D So, Maryam Bigdeli, Göran Tomson, Will Woodhouse, Eva Ombaka, Arturo Quizhpe Peralta

Part 6: Challenges of antibiotic resistance in weak health systems (page 19)

Farah Naz Qamar, Fatima Mir, Sam Kariuki, Zulfiqar A Bhutta

Part 7: Improving the interface between academics and the pharmaceutical industry (page 23)

Anthony Coates, Richard Bergstrom

Part 8: Beyond antibiotics—alternative strategies for prevention and treatment (page 27)

Gerard D Wright, Eric D Brown


Part 9: Call to action (page 31)

Otto Cars, with contributions from all groups of authors

Antibiotic resistance

– the need for global solutions

- ◉ Within just a few years, we will see setbacks, medically, socially and economically. Real and unprecedented challenges are immediately taken.
- ◉ Here, we describe the global situation of antibiotic resistance, its major causes and consequences, and identify **key areas in which action is urgently needed.**



... but they forgot
basic infection
control !

Infection Control helps in two ways:

- prevention of HAIs → no need for treatment
- controls transmission = MDRO spread

Lots on the impact of AB-resistance...



National Summary Data

*That is
without
C. difficile*

Estimated minimum number of illnesses and deaths caused by antibiotic resistance*:

At least  **2,049,442** illnesses,
 **23,000** deaths

**bacteria and fungus included in this report*

Clostridium difficile



CLOSTRIDIUM DIFFICILE



250,000
INFECTIONS PER YEAR



14,000
DEATHS



\$1,000,000,000

IN EXCESS MEDICAL COSTS PER YEAR



THREAT LEVEL
URGENT




This bacteria is an immediate public health threat that requires urgent and aggressive action.

AMMS

Antimicrobial Stewardship

What is antibiotic stewardship?



So
2005 ...

An ongoing effort to optimize antimicrobial use among hospitalized patients in order to:

- ⦿ Improve patient outcomes
- ⦿ Ensure cost-effective therapy
- ⦿ Reduce adverse sequelae of antimicrobial use (including antimicrobial resistance)

What's about nursing homes?

- ⦿ Presently one step to far, but desperately needed !
 - ✧ no CM&ID (IC) structure in place
 - ✧ UTI: 3 x blind treatment before first culture
 - ✧ Possible source of MDROs

Antibiotics stewardship helps ...

Recent Cochrane review



- ⦿ **‘Interventions to improve antibiotic prescribing in hospitals are successful and can reduce microbiological resistance’**
- ⦿ 3 controlled studies with regard to resistance:
 - ✧ de Man 2000, Lancet (restricted to NICU)
 - ✧ Singh 2000 AJRCC (automatic stop of AB)
 - ✧ Toltzis 2002 Pediatrics (cycling)

Costs/benefits of AMS

Significant reduction of costs have been shown, due to:

- ⊙ Reduction of expensive iv treatment
 - ✧ The CWZ switch-project that was limited to internal medicine produced savings of > € 40.000 per year (antibiotics including cost of administration)
- ⊙ Reduction of unnecessary long and broad treatment
- ⊙ Reduction of expensive (reserve) antibiotics
- ⊙ Reduction of antimicrobial resistance
- ⊙ Reductions of complications due to less complications associated with AB-use
- ⊙ Reduction of LOS by switch, stop, or home treatment

Antimicrobial stewardship: bridging the gap between quality care and cost. Goff DA. Curr Opin Infect Dis. 2011 Feb;24 Suppl 1:S11-20.

Cost-effectiveness analysis of an antimicrobial stewardship team on bloodstream infections: a probabilistic analysis. Scheetz MH, Bolon MK, Postelnick M, Noskin GA, Lee TA. J Antimicrob Chemother. 2009 Apr;63(4):816-25.

To control resistance more than AMS in hospitals is needed

292

THE NEW ENGLAND JOURNAL OF MEDICINE

Jan. 30, 1992

community

RESISTANCE TO ERYTHROMYCIN IN GROUP A STREPTOCOCCI

HELENA SEPPÄLÄ, M.D., ANTTI NISSINEN, M.Sc., HELINÄ JÄRVINEN, M.D., M.Sc., SAARA HUOVINEN, M.D., TAISTO HENRIKSSON, M.D., ELJA HERVA, M.D., STIG E. HOLM, M.D., MATTI JAHKOLA, M.D., MARJA-LEENA KATILA, M.D., TIMO KLAUKKA, M.D., SIRKKA KONTIAINEN, M.D., OILI LIIMATAINEN, M.Sc., SINIKKA OINONEN, M.D., LEENA PASSI-METSOMAA, M.D., AND PENTTI HUOVINEN, M.D.

Abstract Background. The use of erythromycin in Finland nearly tripled from 1979 to 1989. In 1988, we observed an unusually high frequency of resistance to erythromycin in group A streptococci in one geographic region. Because routine testing does not detect the sensitivity of these organisms to antibiotics, we initiated a national study to evaluate the extent of this resistance.

Methods. We studied 272 isolates of group A streptococci obtained from blood cultures from 1988 through 1990. In 1990 we collected from six regional laboratories 3087 consecutive isolates from throat swabs and 1349 isolates from pus samples. Resistance was indicated by growth on blood agar containing 2 μ g of erythromycin per milliliter after incubation in 5 percent carbon dioxide. We also evaluated the clinical importance of erythromycin resistance in a retrospective study of consecutive patients with pharyngitis.

Results. The frequency of resistance to erythromycin in group A streptococci from blood cultures increased from 4 percent in 1988 to 24 percent in 1990. From January to

December 1990, the frequency of resistance in isolates from throat swabs increased from 7 percent to 20 percent, and resistance in isolates from pus increased from 11 percent to 31 percent. In four communities within 50 km of each other, the frequency of erythromycin resistance ranged from 2 to 5 percent to 26 to 44 percent. Several distinct DNA restriction profiles and serotypes were found among resistant isolates from the same area, suggesting a multiclonal origin. The treatment of pharyngitis with erythromycin failed in 9 of 19 patients infected with erythromycin-resistant group A streptococci, as compared with 1 of 26 patients with erythromycin-susceptible isolates (47 percent vs. 4 percent, $P = 0.008$).

Conclusions. In Finland since 1988 there has been a rapid and substantial increase in resistance to erythromycin in group A streptococci. The extent of this resistance is particularly serious since there are only a few alternative antibiotics available for peroral treatment of group A streptococcal infections. (N Engl J Med 1992;326:292-7.)

Years later

The New England Journal of Medicine

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VOLUME 337

AUGUST 14, 1997

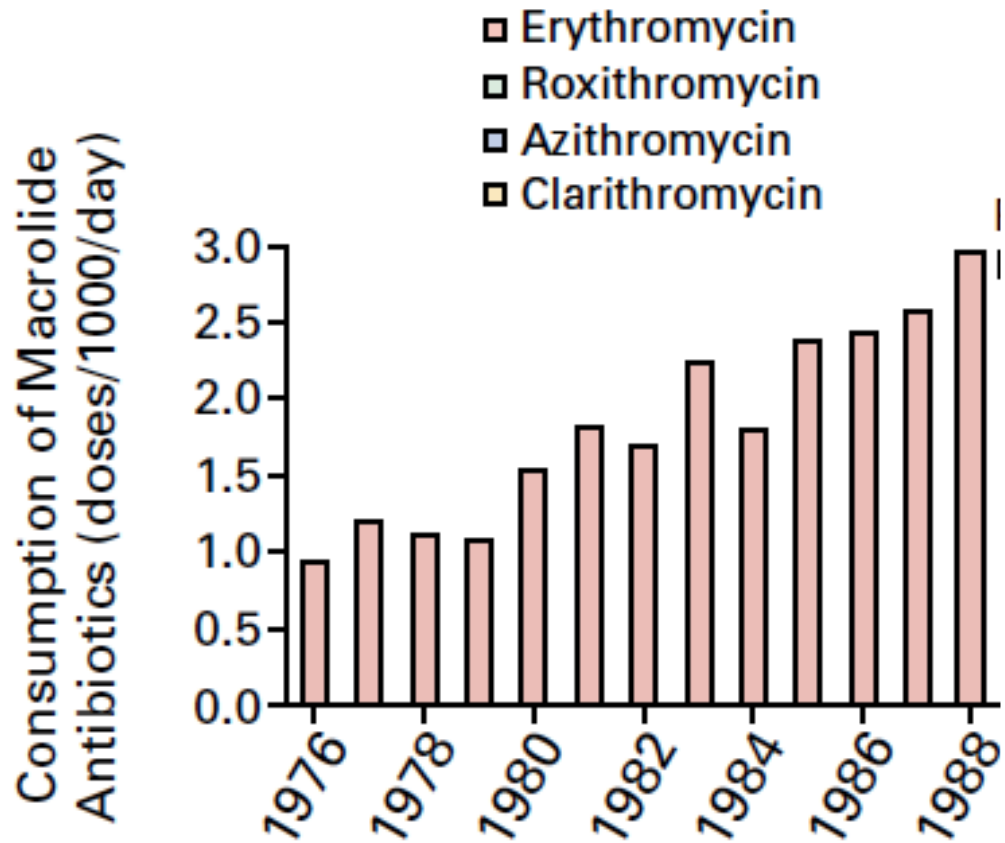
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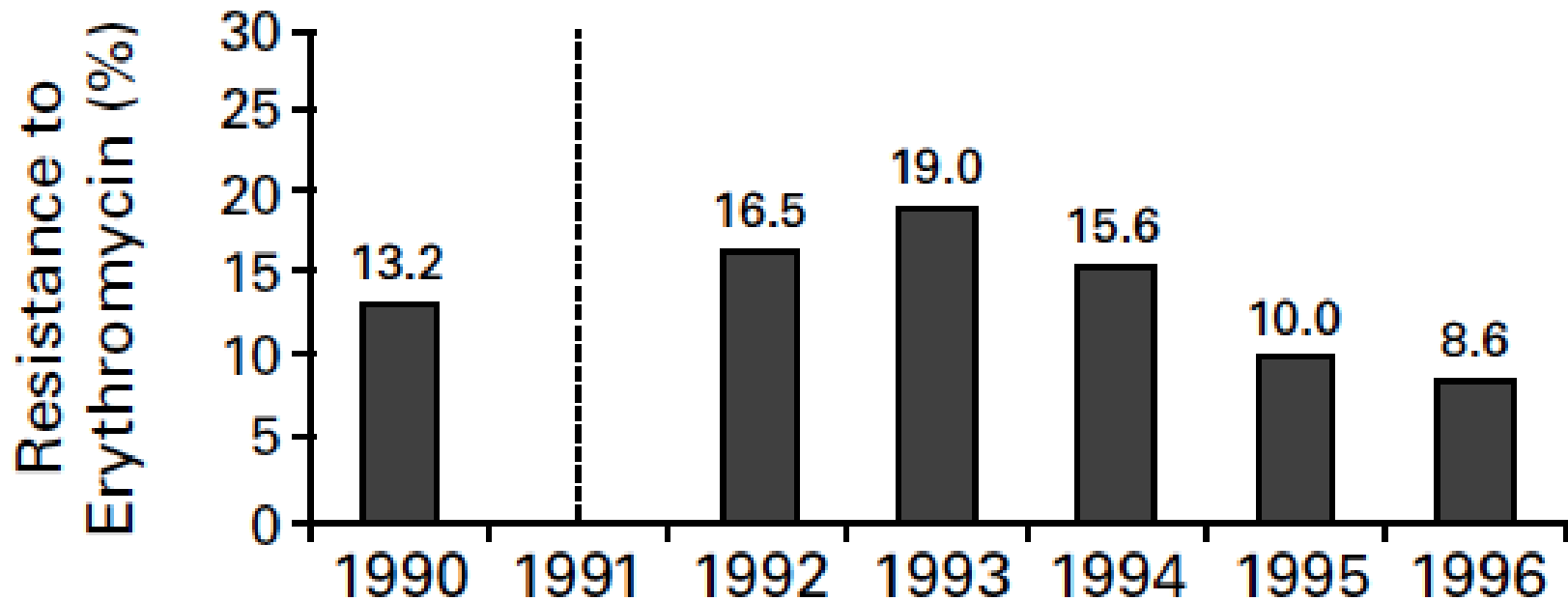
THE EFFECT OF CHANGES IN THE CONSUMPTION OF MACROLIDE
ANTIBIOTICS ON ERYTHROMYCIN RESISTANCE IN GROUP A STREPTOCOCCI
IN FINLAND

HELENA SEPPÄLÄ, M.D., TIMO KLAUKKA, M.D., JAANA VUOPIO-VARKILA, M.D., ANNA MUOTIALA, PH.D.,
HANS HELENIUS, M.Sc., KATRINA LAGER, M.Sc., PENTTI HUOVINEN, M.D.,
AND THE FINNISH STUDY GROUP FOR ANTIMICROBIAL RESISTANCE*

Consumption of macrolides



Resistance to erythromycin



What did they do?

- ⦿ Information, feed-back, education, guidelines:
 - ✧ GP's (and other healthcare settings)
 - ✧ Patients
 - ✧ Insurances
 - ✧ Pharmaceutical companies
 - ✧ Media, politics
- ⦿ AMS in hospitals is one of the many components to control antimicrobial resistance
- ⦿ Today we would need to aim at the use of antimicrobials in livestock & farming, too

What is SWAB?

- ⦿ SWAB = Dutch antibiotic-policy working group
- ⦿ Create national antibiotic-use guidelines
 - for professionals by professionals



STICHTING WERKGROEP ANTIBIOTICABELEID



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SWAB-richtlijnen

[Surveillance](#)

[Nascholing](#)

[Symposia](#)

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Publieksinformatie

Het RIVM heeft in samenwerking met de SWAB een [toolkit](#) ontwikkeld waarin veel informatie is te vinden over verantwoord antibioticagebruik.



Actueel

Schippers en WHO werken samen tegen resistentie

Minister Edith Schippers (VWS) heeft samenwerkingsovereenkomsten gesloten met de World Health Organisation (WHO). Belangrijk onderdeel is de aanpak van antibioticaresistentie. [Zie persbericht](#) (28 november 2013)

Huisartsen schrijven minder antibiotica voor

Uit onderzoek van het Instituut voor Verantwoord Medicijngebruik (IVM) blijkt dat er in de eerste lijn minder antibiotica worden voorgeschreven. In 2010 kreeg gemiddeld 19 procent van de patiënten één of meer antibioticakuren. In 2012 was dit gedaald naar 15 procent. Voor meer informatie: [website IVM](#) (14 november 2013)

SWAB-cursus voor A-teams op 12 en 13 december

Antimicrobial Stewardship is één van de belangrijkste beheersmaatregelen in de ontwikkeling van antibioticaresistentie. De beroepsorganisaties hebben bij monde van de SWAB een plan van aanpak gepresenteerd dat door IGZ en de minister is omarmd. De IGZ verwacht dat op afzienbare termijn ieder ziekenhuis over een Antimicrobial Stewardshipprogramma en een Antibioticateam (A-team) beschikt. Een A-team bestaat uit tenminste een internist-infectioloog (of internist meervoudig profiel met profielstage Infectieziekten), een arts-microbioloog en een ziekenhuis-apotheker. De SWAB organiseert in overleg met de beroepsgroepen en de IGZ de eerste nationale SWAB certificeringscursus Antibiotic Stewardship. In deze praktijkcursus worden A-teams (in oprichting) getraind om het antibioticabeleid in hun ziekenhuizen te implementeren. Klik [hier](#) voor programma of ga direct naar [inschrijven](#). (7 oktober 2013)

Nieuwe online nascholingen beschikbaar



E-Bug: de wereld van de microbeestjes. Over bacteriën, virussen en nog veel meer. >>

















[Andere spelletjes >>](#)

Direct naar

- [NethMap](#)
- [Nieuwe antibioticaboekje](#)
- [Oude antibioticaboekje \(vervallen\)](#)
- [Online nascholing European CME](#)
- [Visiedocument 2012](#)

redactie@swab.nl

Current Guidelines

	Subject	Year	Guideline (Dutch)	Guideline (English)	Publ. NTvG (Dutch)	Publ. NethJMed (English)	Comment
XVI	Central Nervous System (CNS) bacterial infections	2012					
XV	Community acquired pneumonia (CAP)	2011				<small>Abstract</small> The Journal of Medicine	
XIV	Sepsis	2010					
XII	Invasive fungal infections	2008			ntv gg		
XII	MRSA-carriers	2012					
X	Complicated urinary tract infections	2006			ntv gg		
IX	Acute infectious diarrhoea	2005			ntv gg	<small>Abstract</small> The Journal of Medicine	
VII	Infectious endocarditis	2003			ntv gg	<small>Abstract</small> The Journal of Medicine	1 2
VI	Selective decontamination	2001			ntv gg		
V	Perioperative antibiotic prophylaxis	2000			ntv gg		
I	General	1998			ntv gg		

On-line antibiotic guideline



STICHTING WERKGROEP ANTIBIOTICABELEID

SWABID (Nationaal)



verberg kinder-doseringen

[Home](#) [Therapie](#) [Profylaxe](#) [Middelen](#) [Overig](#)

zoeken

zoeken

[Home](#) >> [Therapie](#) >> [Sepsis](#)

Sepsis

[sepsis - enterococ](#)

[sepsis - Listeria monocytogenes](#)

[sepsis - onbekende verwekker](#)

[sepsis - Pseudomonas](#)

[sepsis - S.aureus](#)

[sepsis, bij centrale lijn \(geen neutropenie\)](#)

[sepsis, bij neutropenie](#)

[sepsis, vermoedelijk focus cholangitis](#)

[sepsis, vermoedelijk focus tr. urogenitalis](#)

[sepsis, vermoedelijk focus tractus digestivus](#)

[urosepsis](#)

What does the SWAB* want?

- ⦿ ‘The Dutch hospitals (all of them) have to establish A-TEAMS”
 - ✧ Latest by January 1st, 2014

* and the Health Inspectorate, since they audit for best practices according to professional guidelines



STICHTING WERKGROEP ANTIBIOTICABELEID

\$\$\$

Hosp. admin

PharmD

Quality &
Pat. Safety

ICT

ClinMicro/ID

THE A TEAM

Task of the A-team

- ⦿ Consults- 'audit and feedback'
 - ✧ Reserve antibiotics
 - ✧ Risk-patients
- ⦿ Restricting choices
 - ✧ Antibiotic guideline (adjusted CM reports and CP dispensing)
- ⦿ Guideline development
 - ✧ CAP
 - ✧ UWI
- ⦿ Projects to improve antimicrobial use
 - ✧ Switch program
 - ✧ 5S protocol
- ⦿ Education

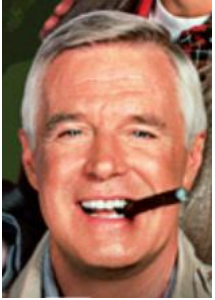


Other tasks by A-team

- ⦿ PPS of antibiotic use
- ⦿ Surveillance of antimicrobial resistance
- ⦿ Develop ICT based monitoring & support
- ⦿ Feedback/reports to hosp. administrators



Old school Clinical Micro



◉ Selective reporting

✧ eg *E.coli* from urine

AB	Measured
Amox	S
Amox/clav	S
Trim	S
Nitrofur	S
Cipro	S
Ertap	S

Selective reporting

- ⊙ To guide treatment
 - ⊙ To protect restricted antibiotics
 - ⊙ According to guideline in hospital
 - ⊙ Specific per customer group (GP, NH, ...)
- ... but 24/7 service in case of questions

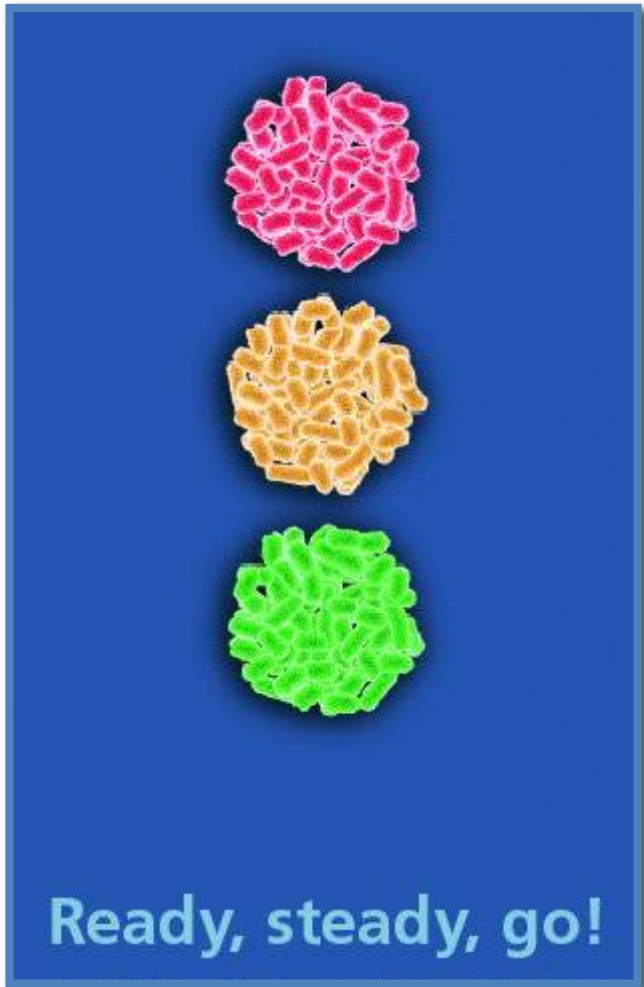
Selective reporting everywhere possible?

Culture differences

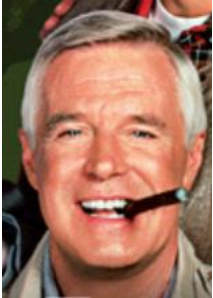
It's mandatory in England

It's a suggestion in France

It's Christmas decoration
in Italy



New School Clinical Micro



- ⦿ All data from the lab are dumped into national data system every night

The screenshot shows the ISISweb website interface. At the top, there is a header with the logo 'Medische Microbiologie ISISweb' and a navigation menu with links: Home, Agenda, Achtergrond, ISISweb Rapporten, Documentatie Labs, Help, and Legal Notice. Below the navigation menu, there is a main content area with a left sidebar containing a 'Snel naar' section with links to Nieuws, Publicaties, Deelnemersdagen, Leeswijzer Rapportages, and Contact. The main content area features a paragraph about antimicrobial resistance and a list of links under 'Bekijk om te beginnen:'. To the right of the text is a small image of pink, rod-shaped bacteria. At the bottom of the page, there is a footer with the text 'ISISweb is een gezamenlijk initiatief van de NVMM en het RIVM.'

Medische Microbiologie
ISISweb

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Op deze website kunt u met interactieve rapportages inzicht krijgen in cijfers en trends van antimicrobiële resistentie. Deze cijfers zijn gebaseerd op data uit ISIS-AR, het systeem voor nationale surveillance van resistentie. ISISweb is een initiatief van het RIVM en van de Nederlandse Vereniging voor Medische Microbiologie (NVMM).

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Patiënt

Leeftijdsgroep van: tot en met:

Geslacht: Man Vrouw Onbekend

Monster afname van:

tot en met:

Herhalingsisolaten:

Lab aanvraag	Instelling	Micro-organisme	Antibioticum
Materiaal <input type="text" value="Alle"/>	Instellingstype <input type="text" value="Alle"/> Afdeling <input type="text" value="Alle"/>	Micro-organisme <input type="text" value="Maak een keuze"/>	Maak eerst een keuze onder Micro-organisme; daarna kunt u hier de Antibiotica kiezen.

Uitvoer

Type:

Ongestackt Gestackt

Rapport in nieuw scherm openen

... or use standard rapports

Medische Microbiologie
ISISweb

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ISISweb > ISISweb Rapporten > rapporten

Standaardrapporten van 1 voor 2013-Q2

Resistentie van E. coli in bloed	pdf xls
Resistentie van E. coli in urine	pdf xls
Resistentie van K. pneumoniae in bloed	pdf xls
Resistentie van K. pneumoniae in urine	pdf xls
Resistentie van S. aureus in klinische isolaten	pdf xls
Resistentie van S. pneumoniae in klinische isolaten	pdf xls
Resistentie van E. faecalis in klinische isolaten	pdf xls
Resistentie van E. faecium in klinische isolaten	pdf xls
Resistentie van P. mirabilis in klinische isolaten	pdf xls
Resistentie van S. aureus, E. coli, K. pneumoniae en Enterobacter op de ICU afdeling	pdf xls
Overzicht BRMO	pdf xls

- per hospital we serve
- for all GP's
- For all nursing homes

Resistance of *E. coli* from bloodcultures

Resistentie van *E. coli* in bloed

Instelling: ISIS022 | ZH: 1
Periode: 2010 t/m 2013 Q2
Isolaatselectie per patient: Eerste bloed-isolaat

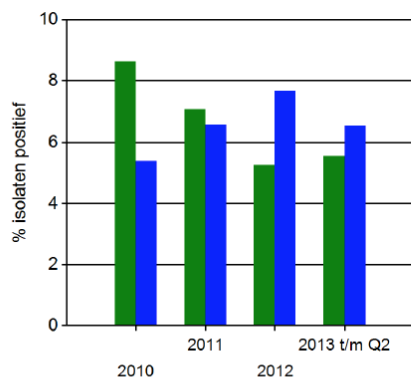
Zorgclassificatie: Top-klinisch
2012 Top-klinisch: Gemiddelde van 15 ziekenhuizen
2012 Landelijk: Gemiddelde van 78 ziekenhuizen

Rapport aangemaakt op: 01-10-2013

	Eigen instelling							
	2010		2011		2012		2013 t/m Q2	
Escherichia coli	totaal	% IR / pos.	totaal	% IR / pos.	totaal	% IR / pos.	totaal	% IR / pos.
ESBL*	116	8.6	141	7.1	152	5.3	54	5.6
amoxicilline / ampicilline	116	85.3	140	45.7	152	44.7	54	37.0
amoxicilline/clavulaanzuur	116	72.4	139	20.1	152	21.7	54	22.2
piperacilline/tazobactam	0		0		0		0	
2de generatie cefalosporines	116	18.1	140	7.9	152	7.2	54	5.6
3de generatie cefalosporines	116	8.6	141	7.1	152	5.3	54	5.6
Carbapenem-antibiotica	116	0.0	141	0.0	152	0.0	54	0.0
ciprofloxacine	116	25.0	141	24.1	152	17.8	54	16.7
gentamicine	116	6.0	140	6.4	152	4.6	54	3.7
tobramycine	116	8.6	141	9.9	152	7.2	54	3.7
cotrimoxazole	116	36.2	141	29.8	142	31.7	54	27.8

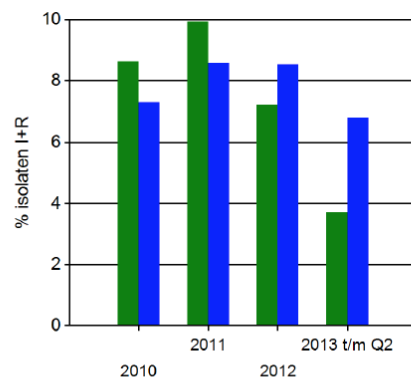
Landelijk gemiddelde			
2012 Top-klinisch		2012 Landelijk	
totaal	% IR / pos.	totaal	% IR / pos.
440	5.7	1188	7.7
440	48.4	1187	54.8
440	22.3	1187	29.7
280	10.0	914	11.4
440	13.9	1188	17.3
440	5.9	1188	8.2
441	0.0	1189	0.0
440	18.2	1189	19.4
440	6.6	1189	7.0
440	7.7	1080	8.5
430	30.2	1176	29.1

Escherichia coli × ESBL*



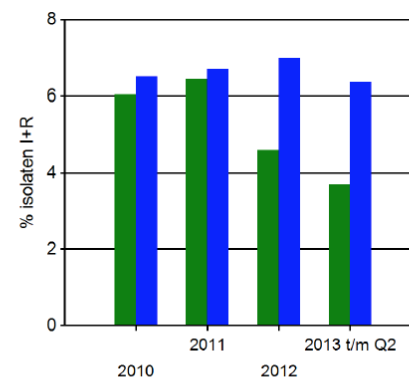
■ 1 ■ Landelijk

Escherichia coli × tobramycine



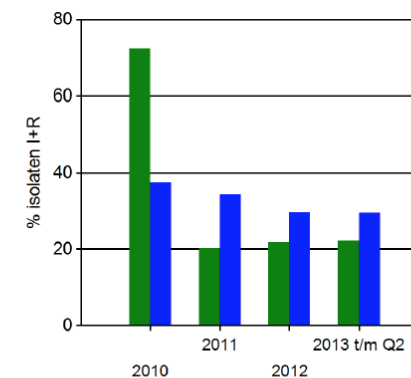
■ 1 ■ Landelijk

Escherichia coli × gentamicine



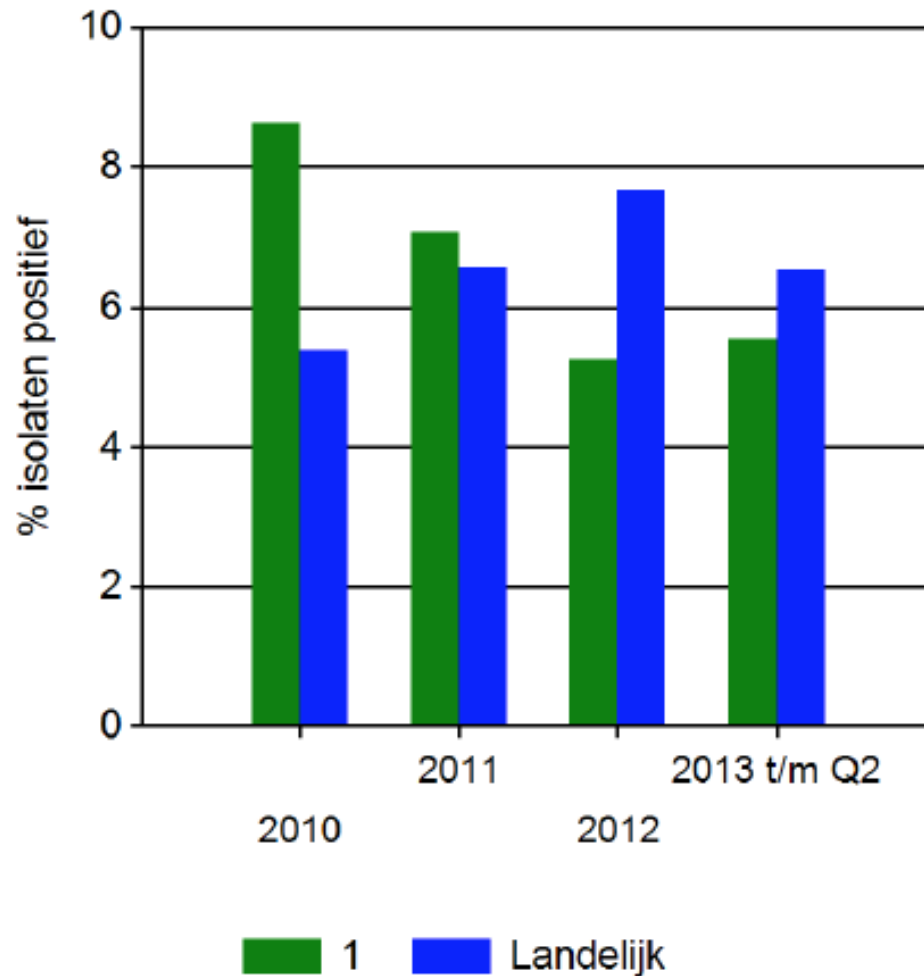
■ 1 ■ Landelijk

Escherichia coli × amoxicilline/clavulaanzuur



■ 1 ■ Landelijk

ESBL-prod. *E. coli* from bloodcultures



Clin Pharm & ICT



- ⦿ Identification of patients on reserve (carbapenems) & “key” (toxic) antibiotics
 - ✧ daily report to CM/ID
- ⦿ Reminders for switch and stop
 - ✧ by email to prescriber (trigger)
- ⦿ Monitoring AB-use



Trigger-system

- ⦿ **Automatic** identification of patients that might have a switch indication and generation of an email:
 - ✧ >48h of antibiotics
 - ✧ switchable antibiotics
 - ✧ decreasing CRP
 - ✧ non neutropenic
 - ✧ not using TPN
- ⦿ Treating physician decides yes/no

Switch trigger

Parenterale Antibiotica > 48 uur 16/05/2013 **Afdeling:** **B12**

Geachte collega,

Onderstaande patiënt gebruikt langer dan 48 uur parenterale antibiotica en zou mogelijk in aanmerking kunnen komen voor switchen van parenterale naar orale therapie.
Zie voor overige criteria 'antibiotica switch project interne geneeskunde' op het kwaliteitsportaal en/of het digitale 'antibioticum boekje CWZ' onder het tabblad 'overig' en/of het switchkaartje dat aan u is uitgereikt.

Patiëntnr:	[REDACTED]	[REDACTED]
Opnamernr:	[REDACTED]	Geboortedatum: 06/07/1935

switches ter overweging	startdatum	stopdatum	dosering
CIPROFLOXACINE 2MG/ML 200ML INFLST FREE ciprofloxacine 2dd 400mg → ciprofloxacine 3dd 500mg	13/05/2013		2d 400 MG
AMOXICILLINE 1000MG INOPDR amoxicilline 4dd 1000mg → amoxicilline 3dd 750mg	13/05/2013		4d 1000 MG

Graag na het zien van dit formulier de volgende vragen beantwoorden:

Is patiënt van IV naar oraal geswitched? ja nee

Indien nee, waarom niet

- Kan geen orale therapie krijgen
- Voldoet niet aan switch criteria , nmi:
- Anders, nmi:

Reden:

als CRP > op 1715 dan switch
had aanvankelijk ceftriaxon
3dd en peristaltiek 40° →
switch amoxi/cepo
nu keels vrij

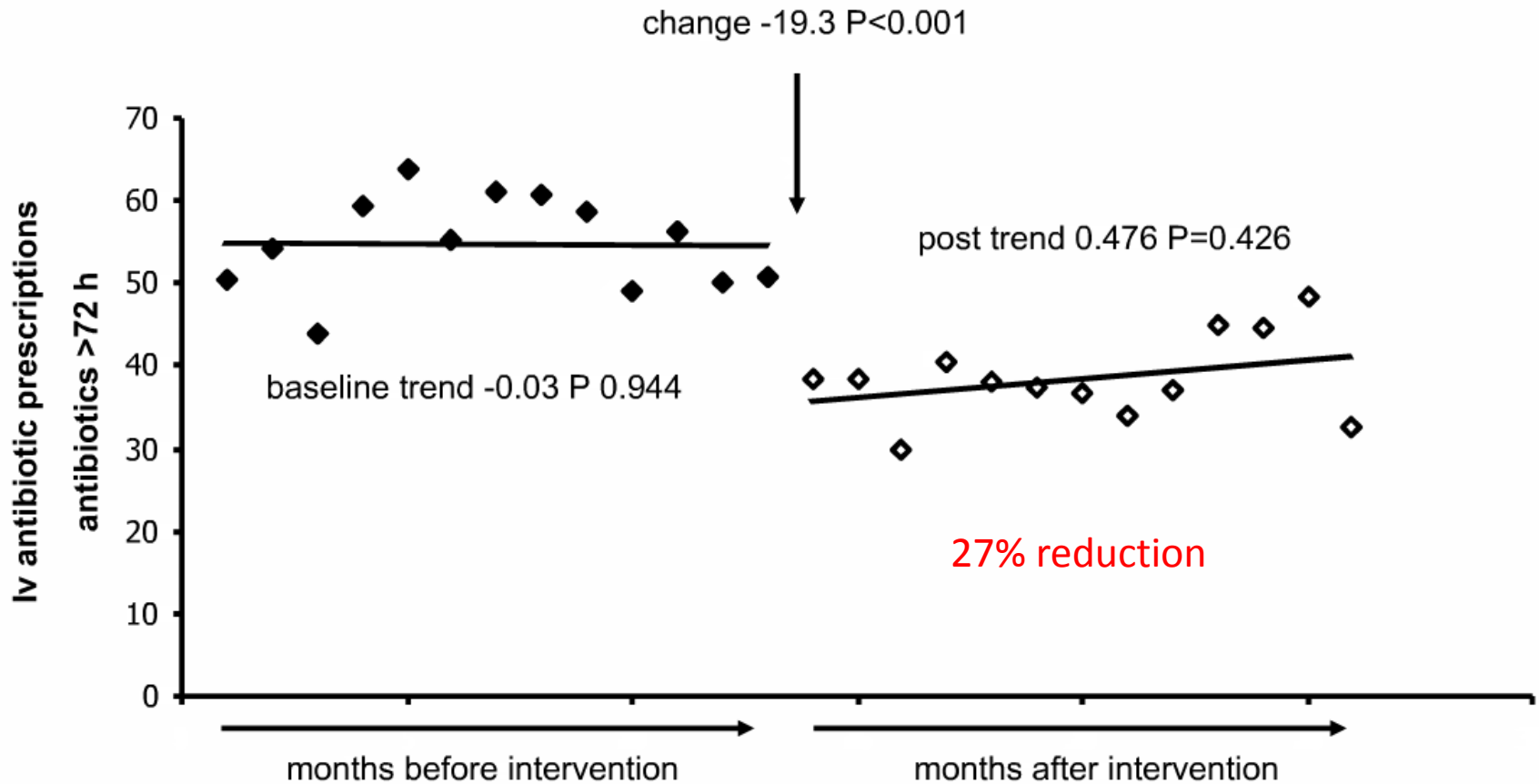
Dit formulier graag retourneren aan uw afdelingssecrtaresse.

Met vriendelijke groet,

Antibioticacommissie CWZ

Voor overleg over switchen van antibiotica kunt u contact opnemen met infectioloog (tel. 2089/2091) of arts-microbioloog (tel. 7556).
Voor overleg over het switchproject kunt u contact opnemen met Tom Sprong, internist-infectioloog (tel. 2089) of Hanneke Hultgens-Fluere, ziekenhuisapotheker-klinisch farmacoloog (tel. 7617).

Switch trigger



Is any of this new?

THE
A TEAM

NO

The tasks are known, but they are all brought together into one team

Antibiotic use frequently wrong

- ⦿ > 50% of the prescriptions are irrational

What does the car and the A-team have in common?



“5S”

- ⦿ Start: wrong indication, not according to guideline
- ⦿ Switch iv to oral not done when possible
- ⦿ Streamlining/adjustment according to susceptibility not done
- ⦿ Safety – disregarding interactions
- ⦿ Stop – unneeded continuation

How do we know where we are?

The logo for Google Maps, featuring the word "Google" in its signature multi-colored font (blue, red, yellow, blue, green, red) followed by the word "maps" in a blue sans-serif font.

One of the few things Google can't do for you !

How do we know where we are?

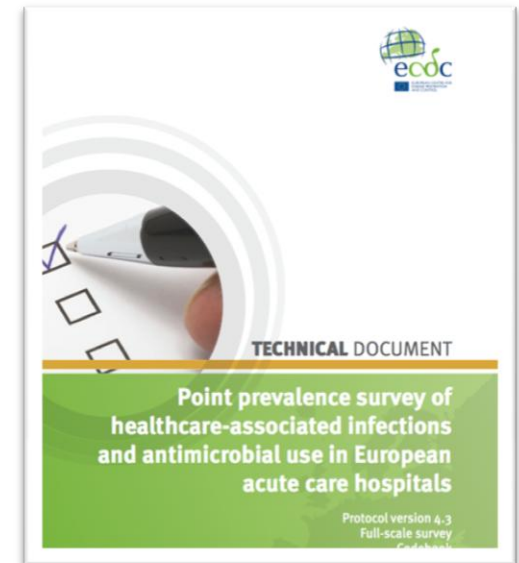
⦿ PPS

✧ point-prevalence studies

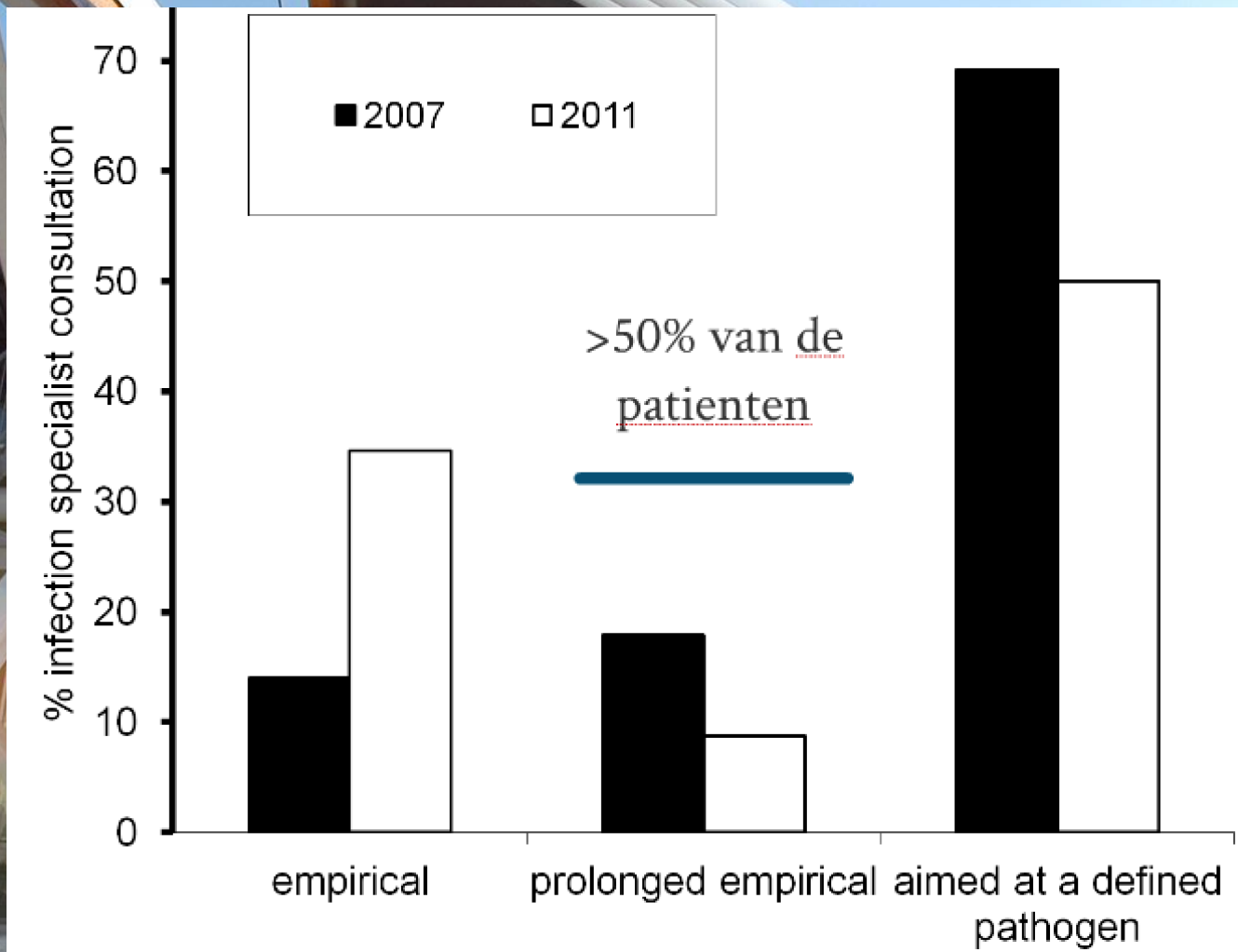
⦿ Efficient way to gather insight into prescribing and antimicrobial use in your hospital

⦿ ClinPharm provides data on all admitted patients receiving antibiotics on a certain day

⦿ ClinMicro & iD performs standardized interviews of all treating physicians



Results PPS at CWZ



Results PPS: vancomycin-use

- 70 prescriptions for vancomycine in the ICU (in 52 patients) during 2 years = 2.2/1000 pts/days
- Empirical use: 27%
- After culture known: 53%
- In 66% of cases start after consultation (CM/ID)

VRE & antibiotic use



SDD & VRE

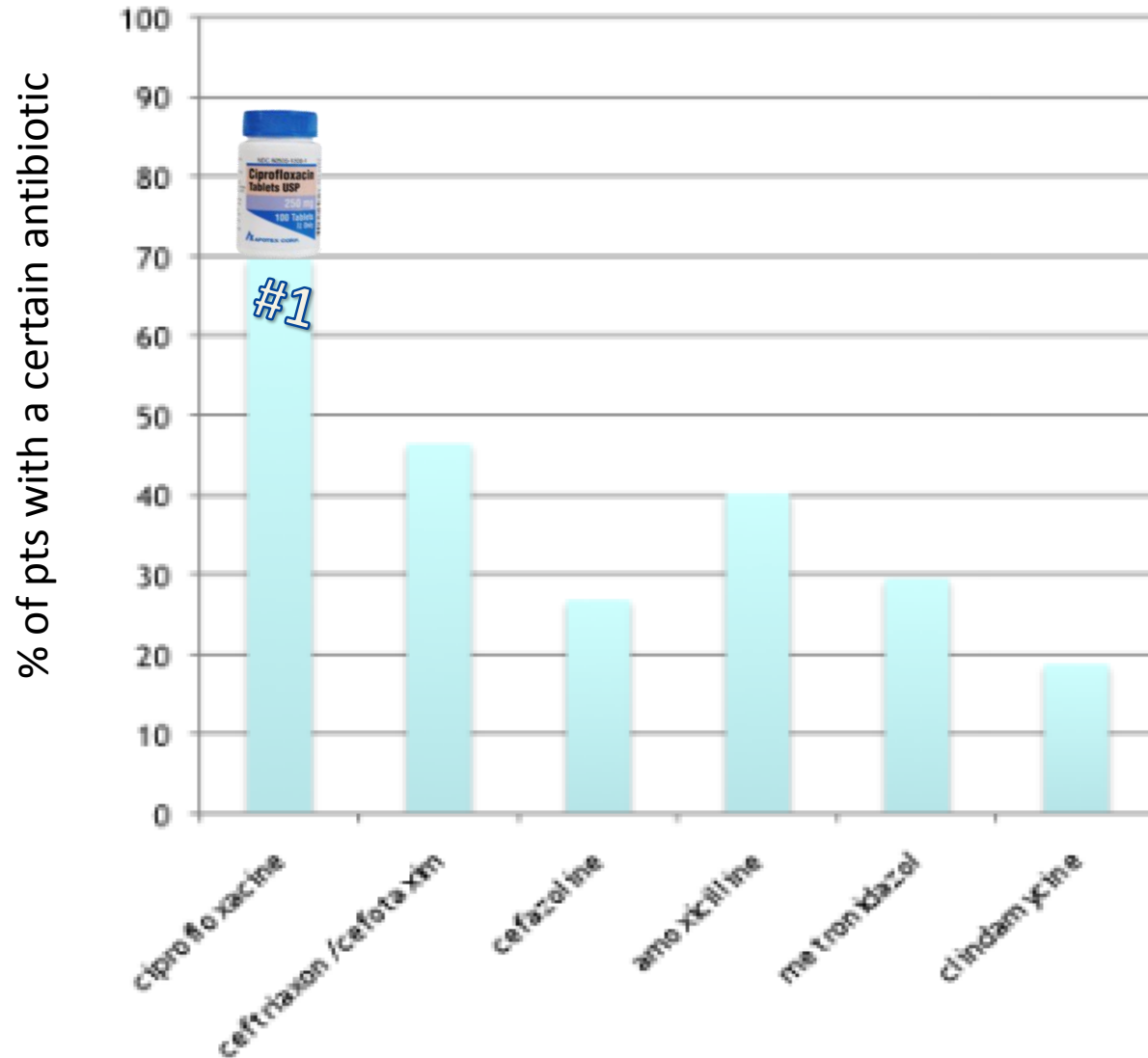
- ⦿ No proof that SDD or SOD increases chance of VRE colonization (but most trials in countries with low VRE prevalence)
- ⦿ We do know that cephalosporin use (including in ICU) selects for enterococci and VRE
- ⦿ In the Netherlands: of the 15 hospitals with VRE problems 10 (71%) used SDD compared to about 50% in general

CWZ: antibiotics in VRE+ pts

- 93% of the patients received antibiotics in the last 3 months before the first pos VRE culture
 - ✧ versus <50% of VRE- patients
- 54% had antibiotics at the moment of their first pos VRE culture
- On average patients had 2.85 different antibiotics before their first pos VRE culture (range 0-10)
- Only 0.9% had previously received vancomycin



If not vanco, what did they get ?



Does antibiotics stewardship help?



Does AMS help for VRE?

- ⊙ Pozniak 2001
 - ✧ Cycling of Ab in the ICU → **no effect**
- ⊙ Quale 1996
 - ✧ Reducing vancomycin en cefalosporin use
→ **VRE colonization from 47% to 14%**
- ⊙ Smith 1999
 - ✧ Reducing vancomycin en cefalosporin use
→ **VRE colonization from 16% to 6%**
- ⊙ Bradley 2000
 - ✧ Empiric treatment of neutopenic fever: pip/tazo instead of ceftazidime → **VRE colonization from 29% to 5%**

Conclusion AB & VRE

- ⦿ Use of antibiotics with Gram-neg or anaerobic spectrum are predisposing patients for VRE colonization
- ⦿ VRE control strategies should include reduction and change of the antimicrobial choices

What we are doing



What the Dutch Health Inspectorate wants & what my hospital does

- ⊙ Control/restricted use of reserve-antibiotics.
 - ✧ The definition of the antibiotics and the way of controlling their use is up to the local hospital.
 - ✧ Review and feedback (audit/persuasion) vs. restriction and pre-use authorization.
- ⊙ CWZ:
 - ✧ *Antibiotic guideline, checks by A-team, restrictive reporting, automatic reports on DDD's per 1000 pat-days via pharmacy, pre-use authorization*

What the Dutch Health Inspectorate wants & what my hospital does

- ⦿ Select and measure local indicators for adequate antimicrobial use.
- ⦿ CWZ:
 - ✧ *Daily consultations, audits, point-prevalence studies*

What the Dutch Health Inspectorate wants & what my hospital does

- ⦿ Standardize empiric treatment and enhance/foster iv-oral switch.
- ⦿ CWZ
 - ✧ *priority of “switch”*
 - ✧ *Switch of the week*
 - ✧ *“5 x S” as part of consultation & teaching*
 - ✧ *start, safety, streamline, switch, stop*
 - ✧ *On-line AB-guideline*

What the Dutch Health Inspectorate wants & what my hospital does

- ⦿ Education and training with regard to antimicrobial use

- ⦿ CWZ

 - ✧ *Continuous effort of ID & Clin Micro*

 - ✧ *own fellows*

 - ✧ *part of hospital fellow education*

 - ✧ *need to establish a “registration system”*

 - ✧ *thinking about mandatory e-learning tool*

What the Dutch Health Inspectorate wants & what my hospital does

- ⦿ Define all patients categories that need bedside ID consultation
- ⦿ CWZ
 - ✧ *All patients with meningitis, endocarditis, using antibiotics for longer than 2 weeks, and suffering an S. aureus bacteremia will be seen by ID/CM*
 - ✧ *In the future all patients on reserve antibiotics will be seen, too*

What the Dutch Health Inspectorate wants & what my hospital does

- ⦿ Reporting local antibiotic-use to national reference system.
- ⦿ CWZ
 - ✧ *responsibility of Clinical Pharmacy*
 - ✧ *regular local reports in comparison to national average*
 - ✧ *feedback of data to clinicians*
 - ✧ *part of HAI-AS committee*

What the Dutch Health Inspectorate wants & what my hospital does

- ⦿ Real-time surveillance (including feedback) of local resistance trends and resistance related problems in the region/country

- ⦿ CWZ
 - ✧ *responsibility of infection control*
 - ✧ *monthly ISIS reports*
 - ✧ *(real-time MDRO reports)*
 - ✧ *part of HAI-AS committee*

To control AR in your hospital, more than just an A-Team is needed

- ⦿ SWAB (national antibiotic/treatment guidelines)
- ⦿ WIP (national infection control guidelines)
- ⦿ ISIS (national resistance surveillance)
- ⦿ PREZIES (national HAI surveillance)
- ⦿ National system for antimicrobial use surveillance
- ⦿ Active professional societies
- ⦿ Inspectorate (audits based on professional standards)
- ⦿ ID & CM specialists in all major hospitals

Questions?



SUPPORT BACTERIA!

it's the only culture some people have