

# Selective reporting; ongoing work in Finland

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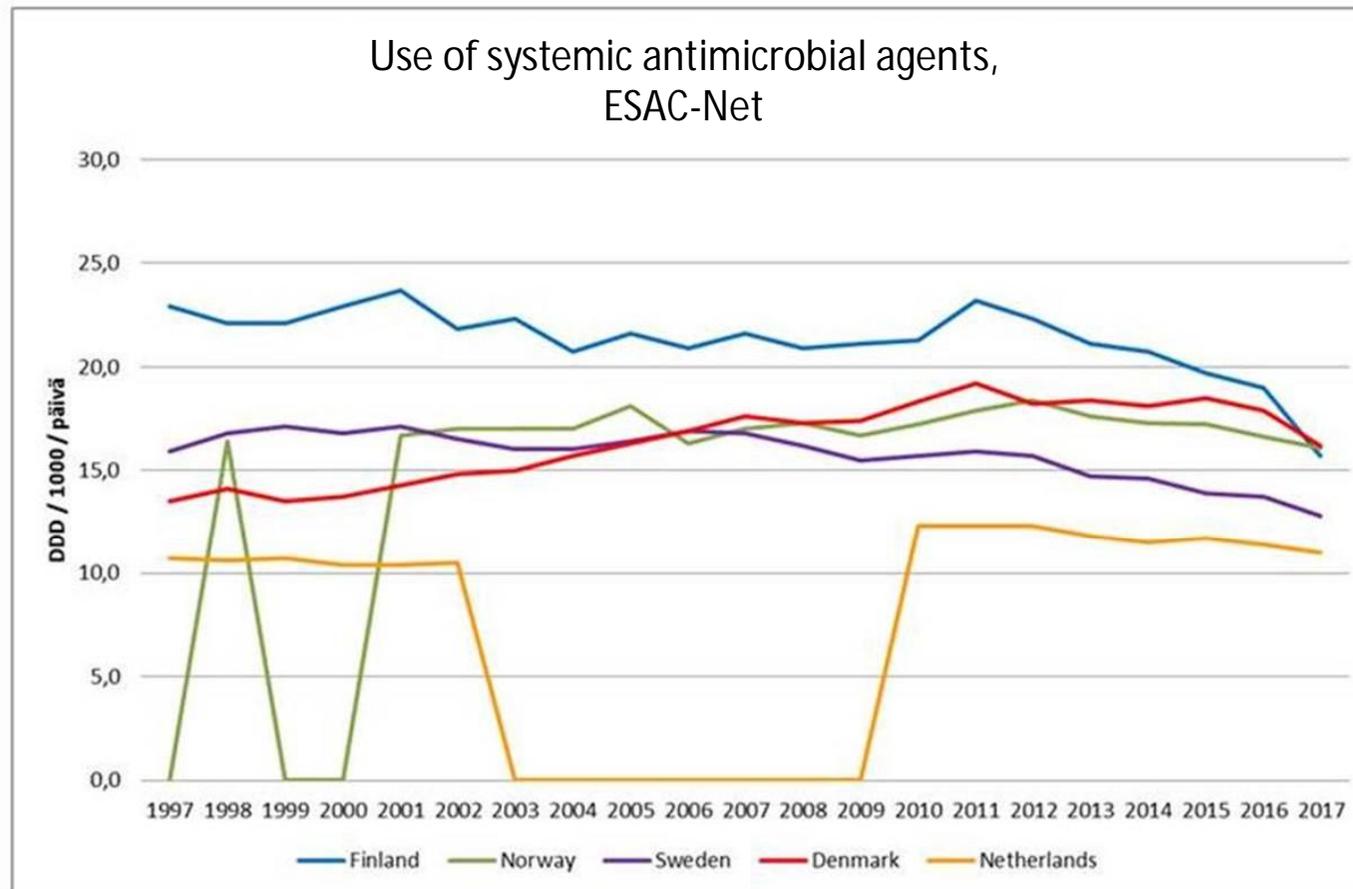
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# Antibiotic use increases resistance



Surveillance based on drug sales register



<https://ecdc.europa.eu/en/antimicrobial-consumption/database/rates-country>

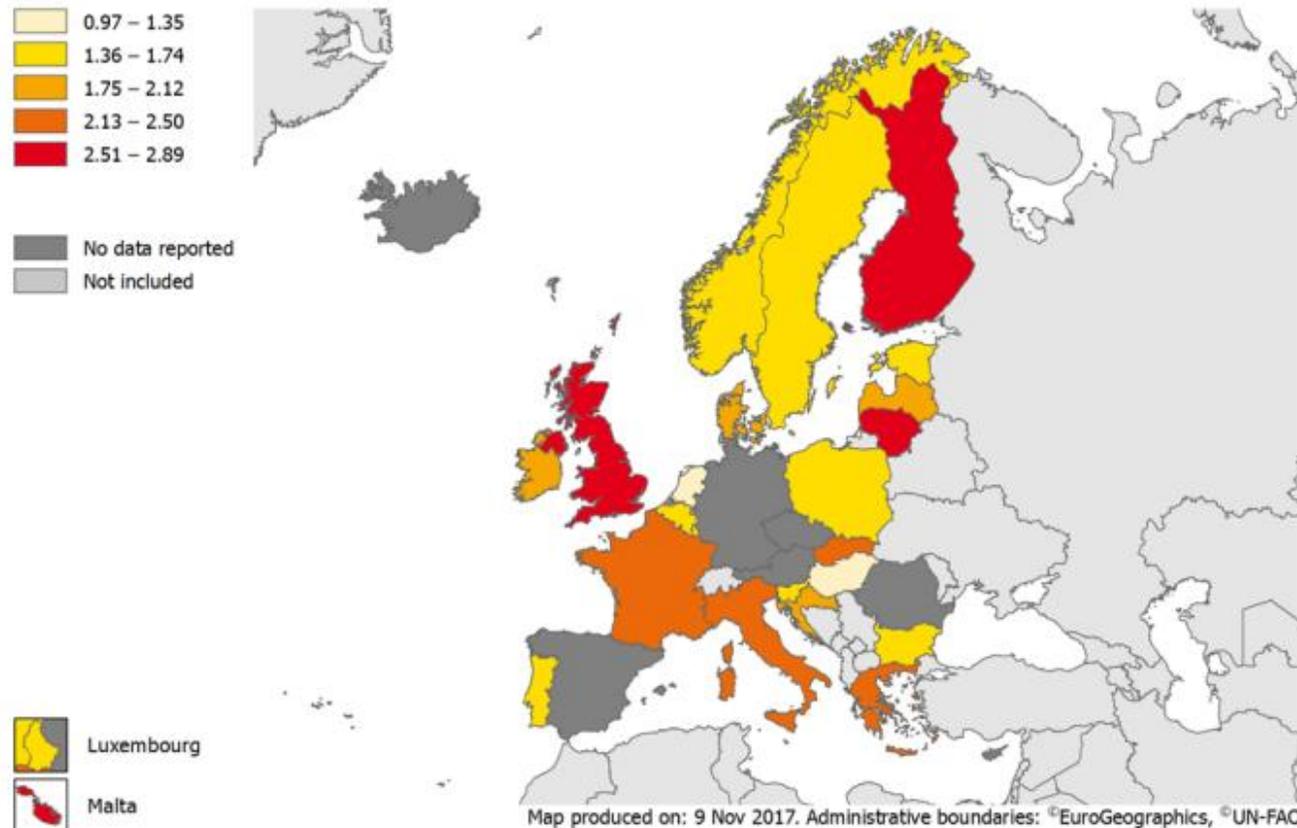
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7.1.2019

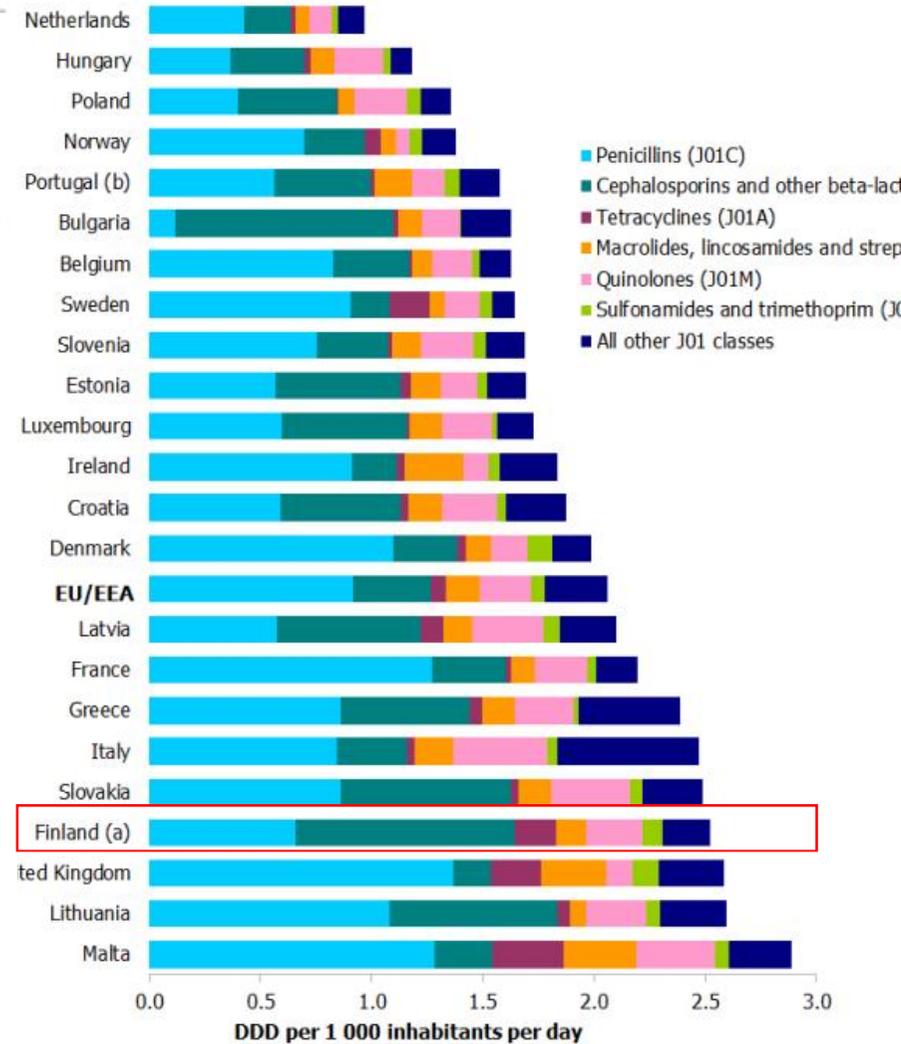
## Consumption of antibiotics in the hospital sector

Consumption of antibiotics for systemic use in the hospital sector in EU/EEA countries in 2016 expressed in DDD per 1 000 inhabitants per day is shown in Figure 4.

**Figure 4. Consumption of antibiotics for systemic use in the hospital sector, EU/EEA countries, 2016 (expressed as DDD per 1 000 inhabitants per day)**



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Finland: data include consumption in remote primary healthcare centres and nursing homes

# Mikrobilääkeresistenssin torjunnan kansallinen toimintaohjelma 2017–2021

Sosiaali- ja terveysministeriö

📅 12.5.2017

Sosiaali- ja terveysministeriön julkaisu

Hakanen, Antti; Jalava, Jari; Kaartinen, Liisa

[Avaa tiedosto PDF \(740,1 kt\)](#)

Pysyvä osoite Valtioneuvoston julkaisuarkistossa  
<http://urn.fi/URN:ISBN:978-952-00-3955-4>

Mikrobilääkkeet eli antibiootit ovat yksi lääketieteen merkittävimmistä keksinnöistä. Mikrobien muuttuminen resistenteiksi eli vastustuskykyisiksi mikrobilääkkeille uhkaa ihmisten ja eläinten terveyttä kaikkialla maailmassa. Tästä syystä resistenssin torjunta nos tettiin kautta aikojen neljäntenä terveysaiheena YK:n yleiskokouksen asialistalle syysyllä 2016. Resistenssin torjuntaa on tehtävä poikkihallinnollisessa yhteistyössä kaikilla tasoilla koko yhteiskunnassa. Torjuntatyössä on otettava huomioon ihmiset, eläimet, elintarvikkeet ja ympäristö. Huo miota on kiinnitettävä resistenssien mikrobien tunnistamiseen, leviämisen ehkäisyyn, infektioiden torjuntaan ja lisäksi on varmistettava mikrobilääkkeiden oikea ja vastuullinen käytö ihmisten ja eläinten hoidossa. Kasvintuotannossa ei Suomessa käytetä mikrobilääkkeitä, mutta maailmalla tilanne on toinen. Siksi myös kasvintuotannon mikrobilääkekäyttö on huomioitava resistenssiä lisäävänä tekijänä. Mikrobilääkeresistenssin seurannalla mitataan torjuntatoimien tehokkuutta ja todetaan uudet uhat

ANTIBIOOTIT BAKTEERIT MIKROBIT TARTUNTATAUDIT WHO

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SOSIAALI- JA TERVEYSMINISTERIÖ

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[Sivukartta](#)

[Kysy asiana palautetta](#)

The National Action Plan on Antimicrobial Resistance 2017–2021  
Ministry of Social Affairs and Health

-Control measures of antimicrobial resistance in Finland.

-New actions to correct observed defects and to strengthen different areas of resistance control in the future.

>National specialist group implement and follow up the actions

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FINNISH STUDY GROUP FOR ANTIMICROBIAL RESISTANCE



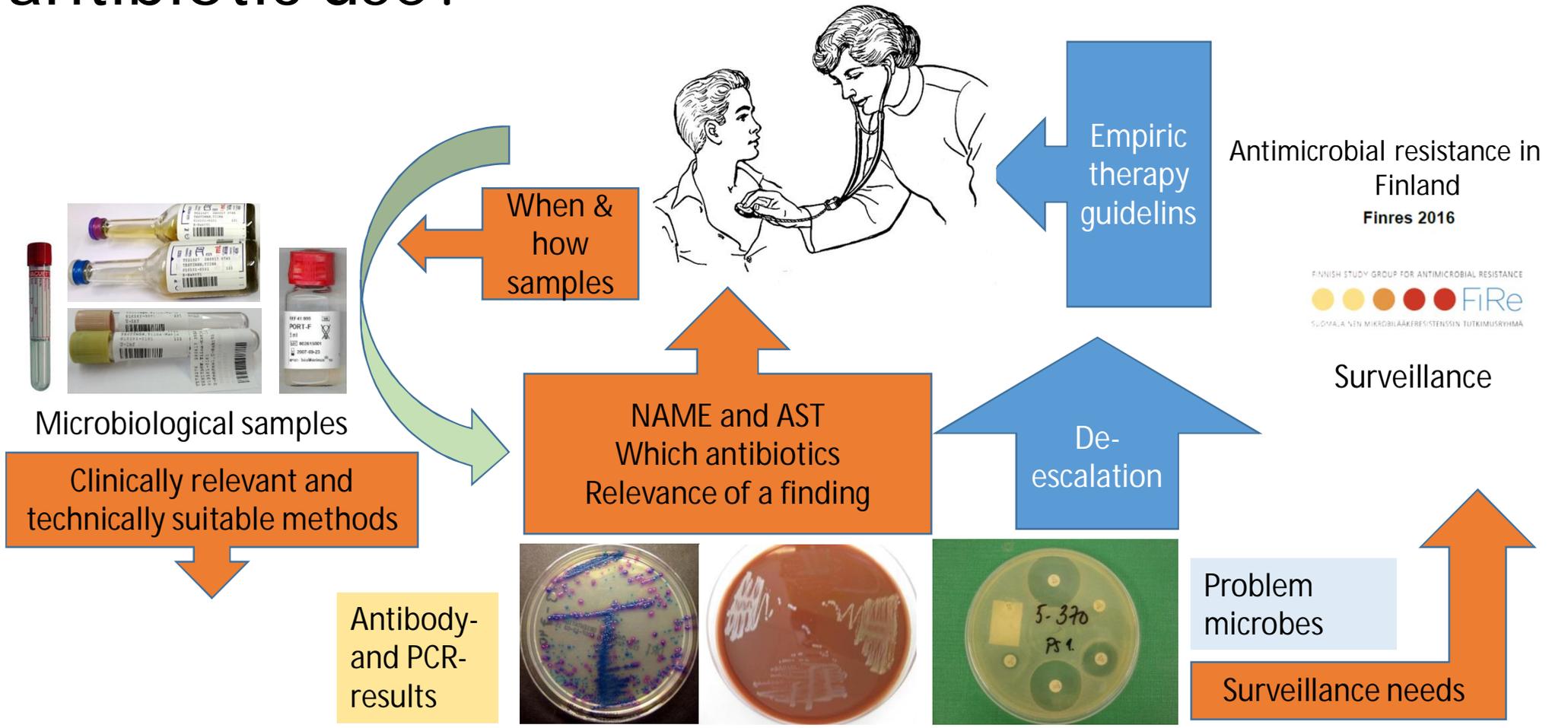
SUOMALAINEN MIKROBILÄÄKERESISTENSSIN TUTKIMUSRYHMÄ

# National guideline for laboratories on bacterial culture reporting

-Skin and soft tissue cultures (mainly ulcers/wounds)

-Urine cultures

# Where laboratory affects (intentionally/un-intentionally) antibiotic use?



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Modified from Kaisu Rantakokko-Jalava's slide

## Finnish guideline under preparation by FiRe (Ulcer/wound cultures)

Body site	Material/ Infection type	Main pathogens (Report with name and AST)	Special
<b>Skin and Soft tissue infections</b>	Ulcers, bedsore, unknown ulcer, surgical wound, etc.	Str. betahem A, B, C, G S. aureus, S. lugdunensis  Anaerobes (mixed flora without AST) Surgical wound: P. aeruginosa	Ward/ER patient/DM/ASO: mixed flora specified if needed.  Surgical wound: Gram-negative rod (pure): name+ comment: colonizing flora + shelved*

\*:Phone laboratory (p. 050 427 2222), if specific name or susceptibility is needed. The sample stays in the laboratory for one week.

# Treatment of complicated skin and skin structure infections in areas with low incidence of antibiotic resistance—a retrospective population based study from Finland and Sweden

Jääskeläinen IE et al,  
Infectious Diseases 2017

I. H. Jääskeläinen<sup>1</sup>, L. Hagberg<sup>2</sup>, J. From<sup>3</sup>, T. Schyman<sup>4</sup>, L. Lehtola<sup>5</sup> and A. Järvinen<sup>1</sup>

1) Helsinki University and Department of Infectious Diseases, Inflammation Centre, Helsinki University Central Hospital, Helsinki, Finland, 2) Institute of Biomedicine, Department of Infectious Diseases, Sahlgrenska Academy, University of Gothenburg, 3) AstraZeneca Nordic-Baltic, Södertälje, 4) TFS, Lund, Sweden and 5) Helsinki City Hospital, Department of Emergency Care, Helsinki, Finland

-Complicated skin- and soft tissue infections Göteborg (241) and Helsinki (219)

-Average age 61v, males 61%

-76% underlying disease, 38% >1 underlying disease, 41% DM, 39% ASO

-> Helsinki: more polymicrobial laboratory reports

-> Wide spectrum antibiotic with Gram-neg. coverage, no better treatment result

**Gram-pos coverage would have been enough !**

Female 55V

Primary care center X 05/2017 08:01 secretion

Before

Where taken: left ankle

Underlying disease: no

Antibiotic: no

Clinical info: Chronic skin ulcer

## 2. Pu-BaktVi2-vastaus 05/2017 --varsinainen

- |           |   |     |        |                             |
|-----------|---|-----|--------|-----------------------------|
| 1. löydös | STAPH. AUREUS   | ++  | kiekot | } <u>Gram.negat.sauvoja</u> |
| 2. löydös | PSEUDOM.AERUGINOSA  | ++  | kiekot |                             |
| 3. löydös | SERRATIA MARCESCENS                                       | +++ | kiekot |                             |
| 1         | 1356 Monoterapiaa <u>kefalosporiineilla</u> ei suositella |     |        |                             |
- kyseisen bakteerin aiheuttamissa infektioissa.
- |           |                      |    |  |  |
|-----------|----------------------|----|--|--|
| 4. löydös | IHON NORMAALIFLOORAA | ++ |  |  |
|-----------|----------------------|----|--|--|

1. löydös 456 STAPH. AUREUS ++

2. löydös 415 PSEUDOM.AERUGINOSA ++

3. löydös 448 SERRATIA MARCESCENS +++  
1 1356 Monoterapiaa kefalosporiineilla ei suositella

kiekko

Erytromy S=S  
Fusidini S=S  
Kefaleks S=S  
Kefoksit 28=S D  
Klindamy S=S  
Levoflok S=S  
Oksasill S=S  
Trim/sul S=S

kiekko

Amikasin S=S  
Keftatsi 27=S  
Kolistin S=S D  
Meropene 32=S  
Pip+tazo 26=S  
Siproflo S=S  
Tobramys S=S

kiekko

Amox+kla 6=R  
Ampisill 6=R  
Ertapene 27=S  
Kefaleks 6=R  
Keftatsi 24=S  
Keftriax 27=S  
Kefuroks 10=R  
Levoflok S=S  
Meropene S=S  
Pip+tazo 25=S

kiekko

Tobramys 22=S  
Trim/sul 25=S

Body site	Material/ Infection type	Main pathogens (Report with name and AST)	Special
Skin and Soft tissue infections	Ulcers, bedsore, unknown ulcer, surgical wound, etc.	Str. betahem A, B, C, G S. aureus, S. lugdunensis	Ward/ER patient/DM/ASO: mixed flora specified if needed.
		Anaerobes (mixed flora without AST) Surgical wound: P. aeruginosa	Surgical wound: Gram-negative rod (pure): name+ comment: colonizing flora + shelved

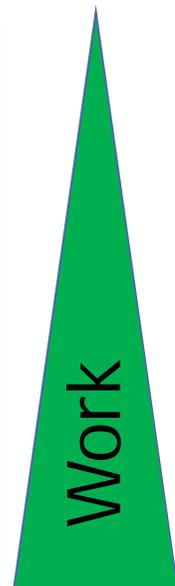
DRAFT

Gram-neg.rods/colonizing flora reporting levels : HUSLAB way

-Health centers & outpatient policlinics: Gram-neg. rods identified by naked eye (without MALDI) and reported: aerobic flora.

-Ward/DM/ASO: Maldi and report: Aerobic flora specifying main flora, no AST. Comment: colonizing flora. Shelved if needed.

-Intensive care, samples taken in operation theater: ID + AST



- Finnish guideline under preparation by FiRe (Urine cultures)
  - European laboratory guideline under revision by Clinical chemists (T.Kouri)
- Clinical implications for the culture
- Best sampling methods
- Screening methods (Particle counting etc.)
- Uropathogens and less important findings & threshold values
- Panels

Bacterium (group)	Category in the European guideline	Threshold in the European guideline	Special
E. coli	I	≥10 <sup>3</sup>	Symptomatic patients even lower
Staph. saprophyticus	I		
Other Enterobacterales	II	women ≥10 <sup>4</sup> men ≥10 <sup>3</sup>	Enterococci? Higher threshold or comment: uncertain clinical significance?
Enterococcus sp.	II		
P. aeruginosa	II		
S. aureus	II		
Corynebacterium urealyticum	II		
Haemophilus and Pneumococcus	II		Children
Aerococcus sp.	-	As in group II?	Older men. A. schaalii required blood containing plate and 48 h.
Actinotignum schaalii			

European:

I: Primary pathogen, causes infection in healthy

II: Secondary pathogen, hospital derived and/or underlying disease

III: Doubtful pathogens

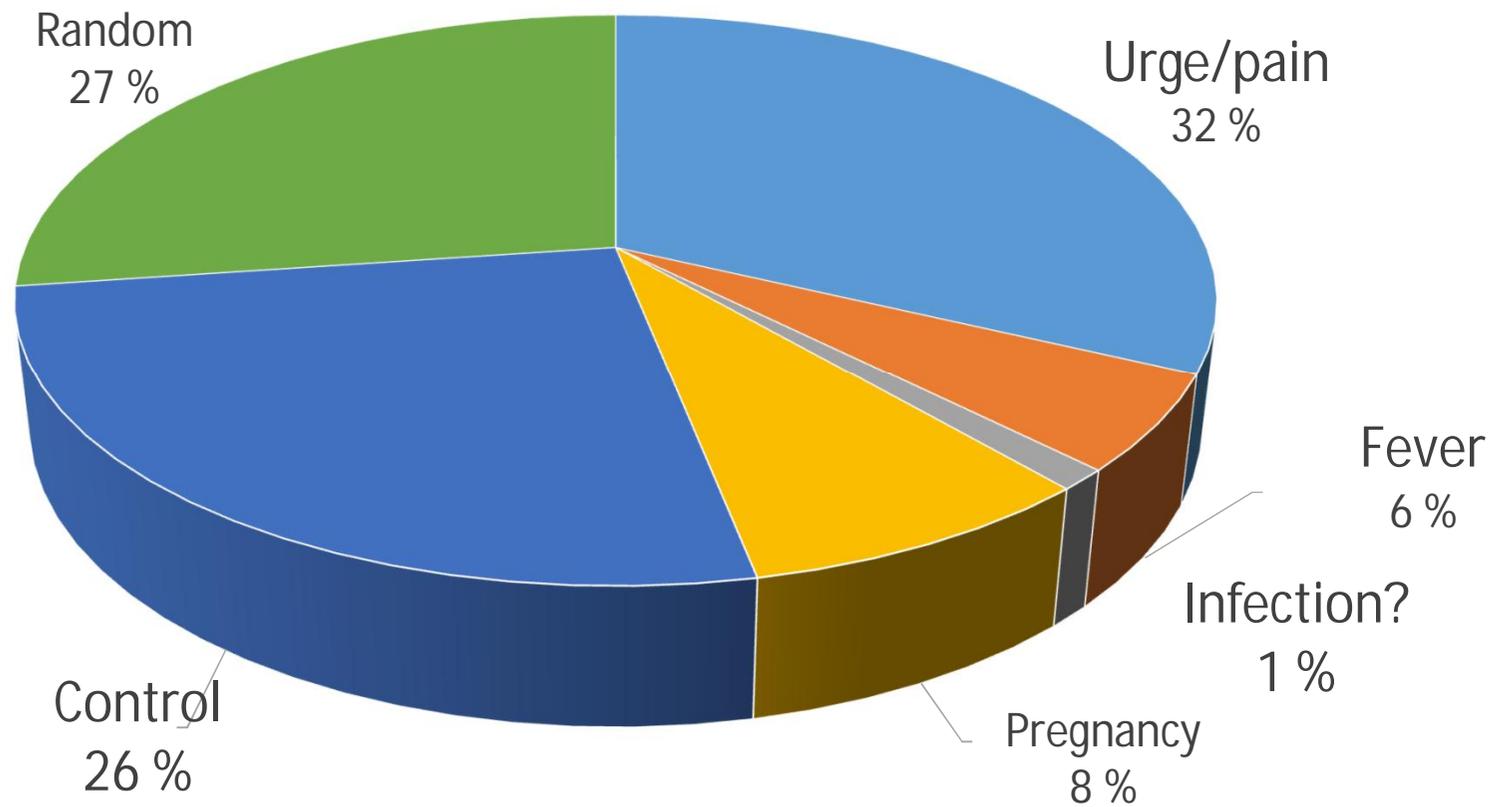
IV: Genital normal flora

The table continues.....

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# Reported cause of urine culture in Turku University Laboratory

Tyks 2017 n=34 000\* \*only 1/3 has reported the cause



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Kaisu Rantakokko-Jalava's slide

	E. coli	Other enterobacterales	P. aer.	Enterococci	Stafylococci
Mesillinam (10)	x	x	always R	-	-
Nitrofurantoin (100 U)	x	x	always R	x	x
Trimethoprim (5)	x	x	always R	ECOFF given	x
Ciprofloxacin *(5)	x	x	x	x	x
Cefuroxime (30)	x	x	always R	always R	S. saphro.?
Amoxicillin-clavulanic acid (20/10)	x	x	always R	ampisilliini 2 mikrog	S. saphro.?

*Escherichia coli* AST in HUSLAB

Urine 1: for adults and children

Antibiotic	%R	%R
2017	women	men
Nitrofurantoin	1	1
Mecillinam	4	5
Cefalexin	5	10
Trimetoprim	19	19
Trim/sulfa (from Trim)		
Cefuroxime	6	10
Ciprofloxacin	8	16
Netilmycin		
<b>ESBL-%</b>	<b>3</b>	<b>7</b>

Urine 2:

- When <3 S in Urine 1
- When cefuroxime R

- Fosfomycin D Esbl
- **Tobramycin**
- Ceftazidime D Esbl
- **Amox+clavulanic**
- Ceftriaxone D Esbl
- **Ertapenem**

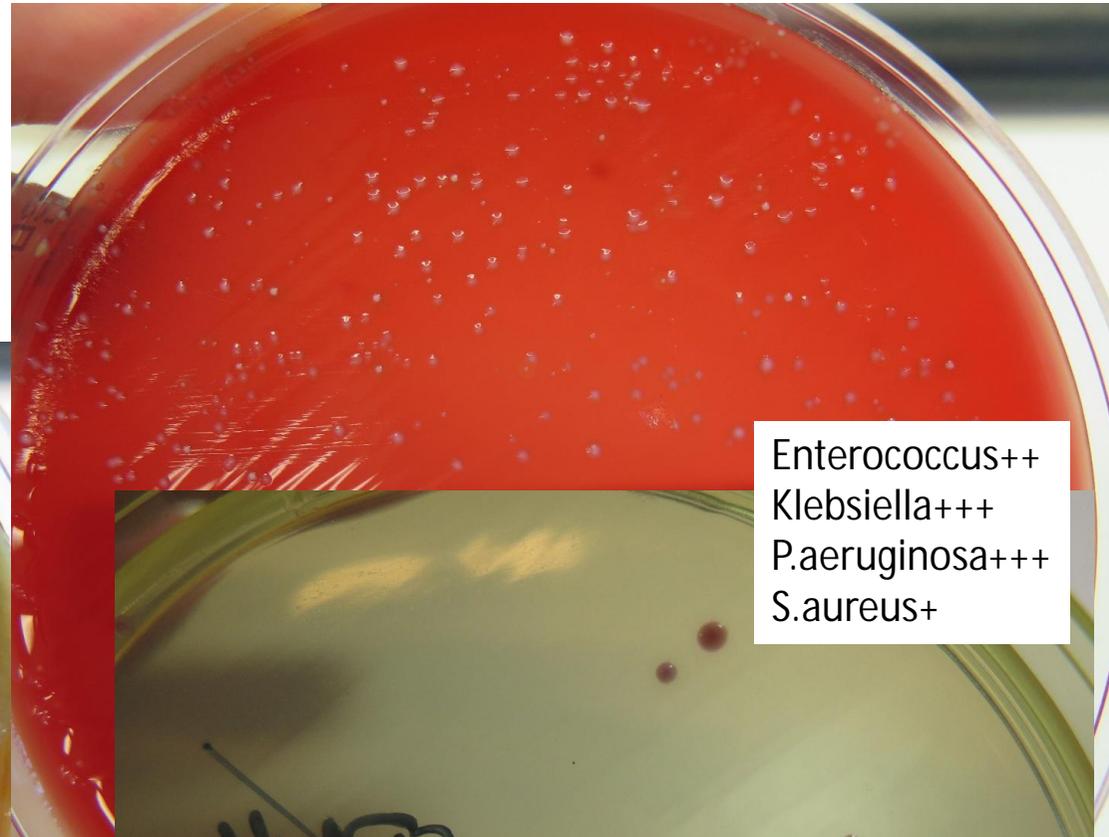
Panel 1 has place for 1 disc: What to choose? We are waiting feedback from our doctors

# Thank you!

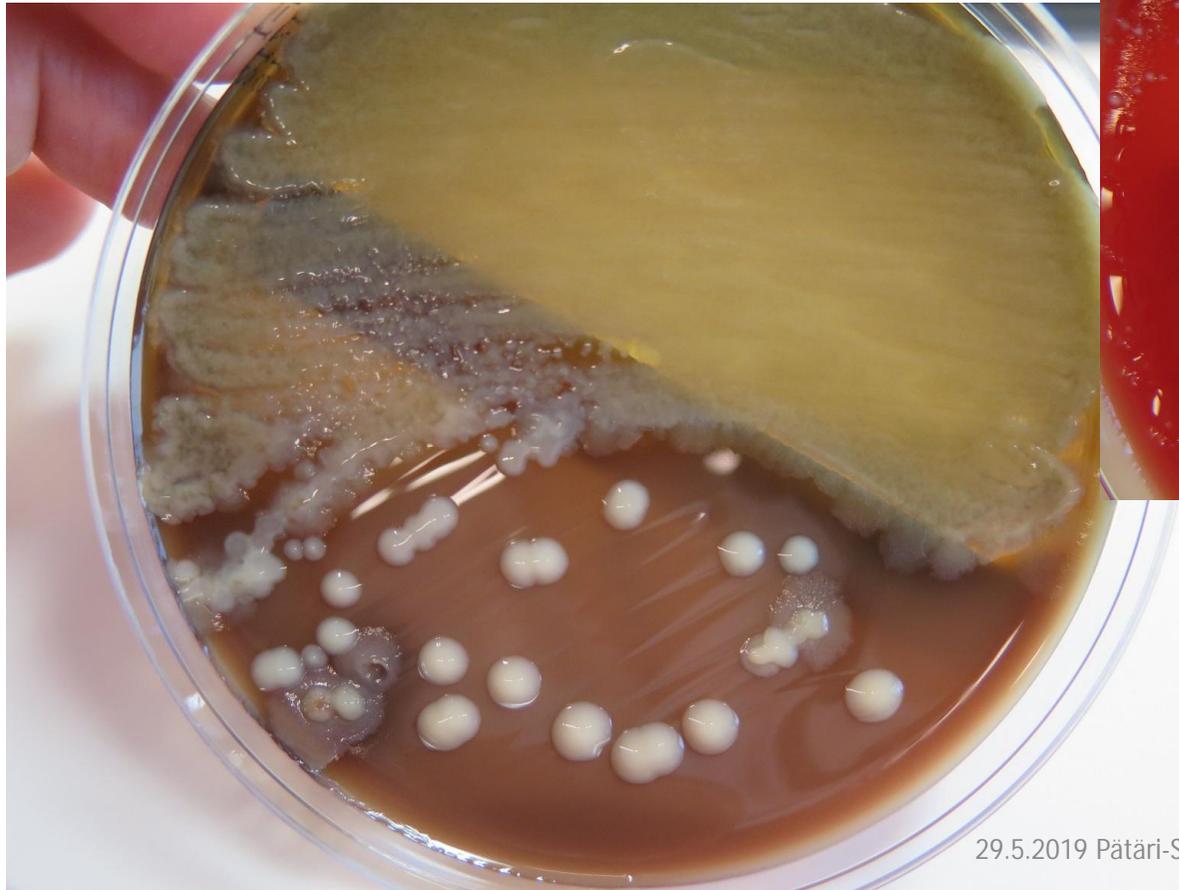
and Kaisu Rantakokko-Jalava,  
FiRe board,

FiRe guideline working group members,  
Johanna Haiko & Tanja Holma

89yrs male, polyclinics of plastic surgery, groin wound



Enterococcus++  
Klebsiella+++  
P.aeruginosa+++  
S.aureus+



# How would you report the findings in your lab?

- a. Everything with names + AST
- b. S.aureus + AST, 2. Colonizing Gram-negative rods
- c. Only S.aureus + AST
- d. S.aureus + AST 2. Colonizing mixed flora, Mostly P.aeruginosa and K.pneumoniae, Shelved.
- e. Mixed colonizing flora. Call for more info.

# 89yrs male, policlinics of plastic surgery, groin wound

## 1. Pu-BaktVi2-final report 2018

1. STAPH. AUREUS + Discs
2. MIXED AEROBIC FLORA +++

Fits to colonization. Mostly *P.aeruginosa* and *K.pneumoniae*

Phone laboratory (p. 050 427 2222), if specific name or susceptibility is needed. The sample stays in the laboratory for one week.