Does antimicrobial resistance really matter?

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Winfried Kern

Emails between Winfried and Gunnar 10 days ago

Winfried:

- ok, ok - our topic is "Is antimicrobial multi-drug resistance really a great problem?"

  I guess **you** could say: "yes, but less so for me as a CM guy if you have a good ID and IC who take it for serious and ask us the right questions and send us the right samples ...." ???
  I guess I could say: "yes, but less so for me as an ID guy if you have a good laboratory who answers (rapidly and correctly) the right questions, and I with that info and my ID experience can play dosing and combinations like a guitar ....."

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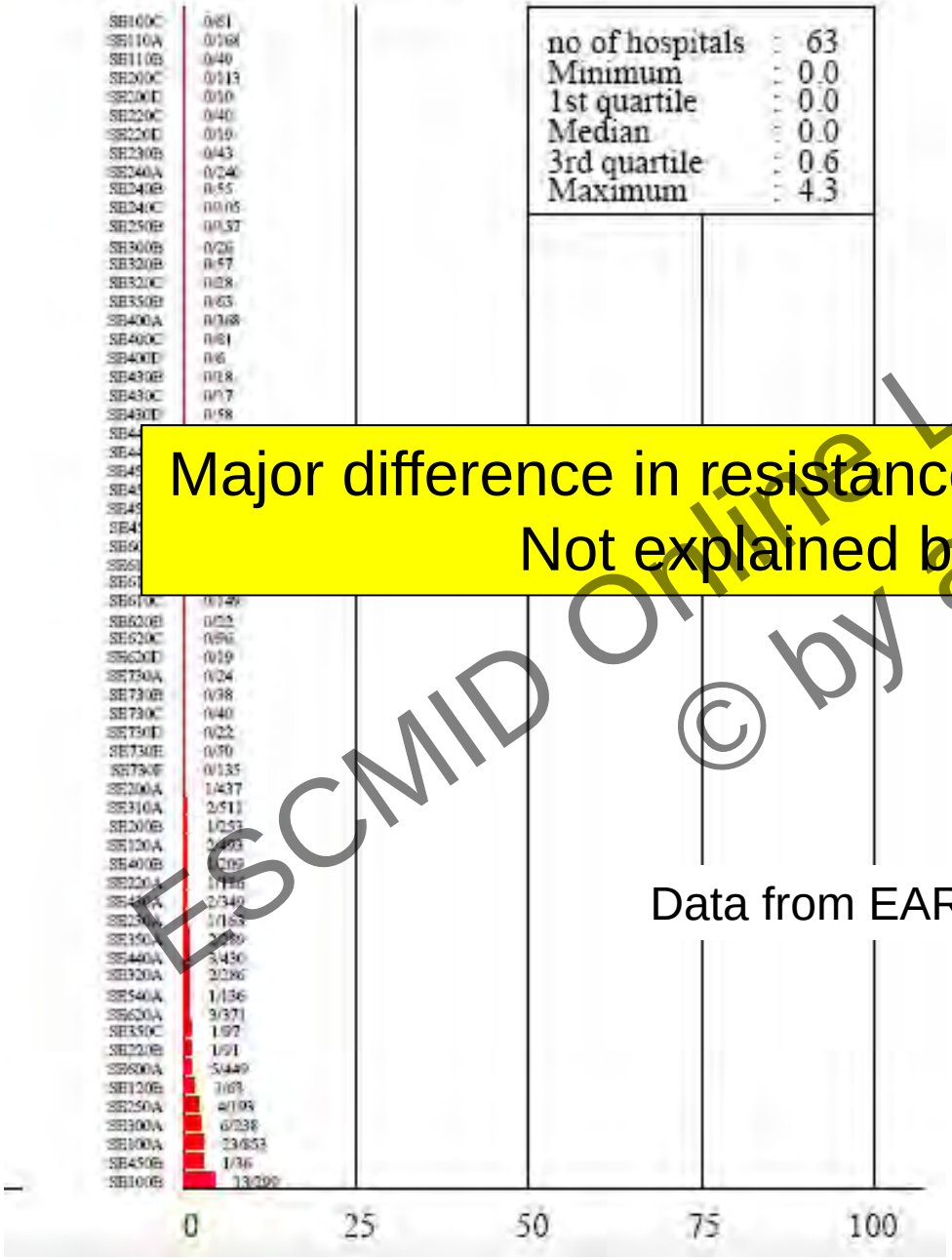
Gunnar:

- I guess **I as CM** could say: Yes, more so to me as a CM because it really requires a constantly updated expertise on mechanisms, susceptibility testing methods and screening methodology and improvement on services (rapid availability of reports) and interactions with the clinicians while the ID and IC guys only need to follow “my” excellent advice.

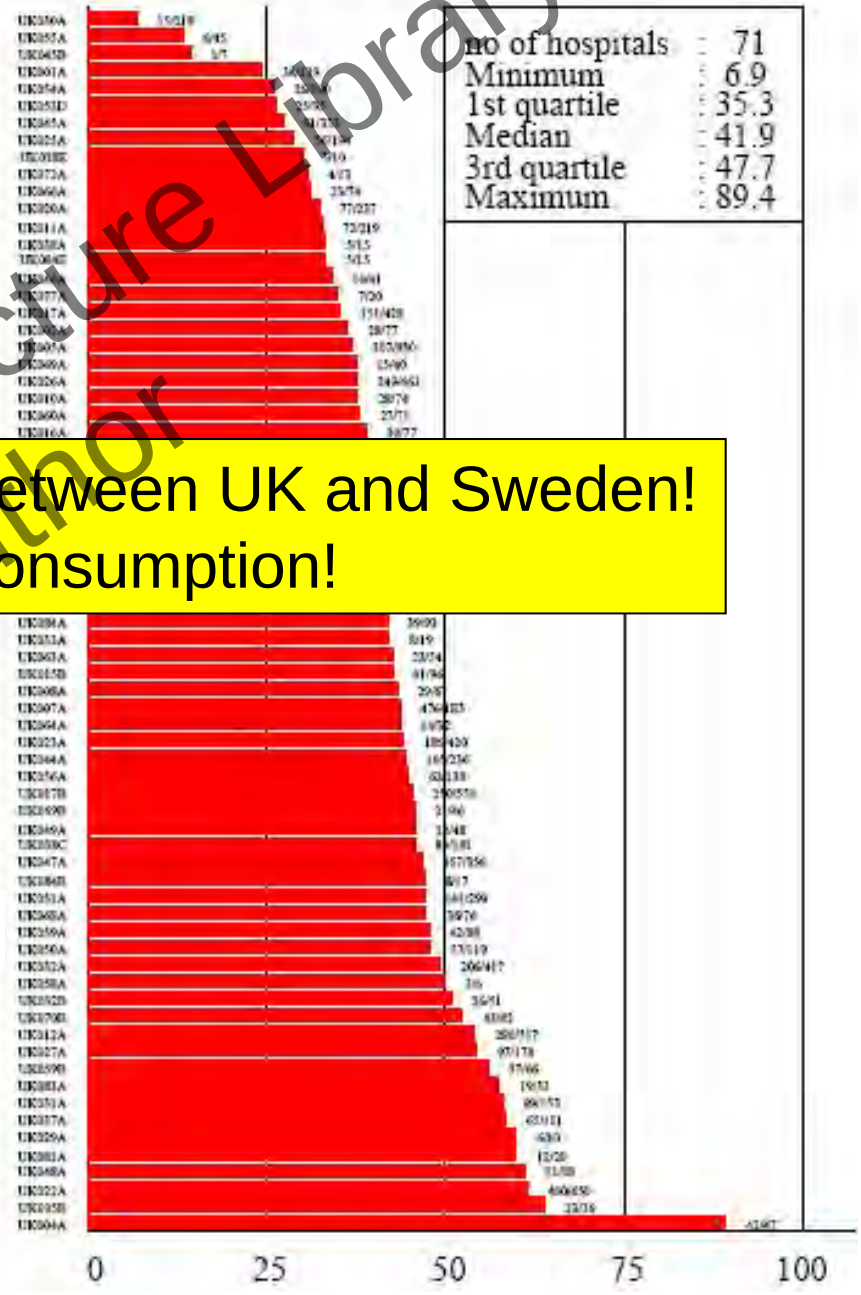
MRSA at hospital level (Sweden)

Figure 3. Proportion (%) MRSA by hospital (1999-2004)



MRSA at hospital level (UK)

Figure 3. Proportion (%) MRSA by hospital (1999-2004)



Major difference in resistance between UK and Sweden!
Not explained by consumption!

Data from EARSS

Multiresistance - matter to whom?

- **Society (economy, organisation, political cost)**
  - Economy – difficult to assess, but we are talking billions.
  - Political cost = public acceptance/awareness – the affected group is not coherent enough

- **Health care system**
  - Gigantic effects on quality of care, organisation, planning, building, resources, staffing, closing and opening of wards, cleaning, education of staff, outbreak handling, etc
  - Karolinska hospital in Stockholm (and several other hospitals in the country) are rebuilding facilities to offer more single rooms with separate bathroom facilities.

- **Infection Control**
  - Multiresistance has changed the agenda of the IC-specialists.
  - Screening, Containment, Co-horting, planning, meetings, etc etc.
  - Its importance in the eyes of colleagues has increased.

Multiresistance - matter to whom?

- **The patient**
  - Disease burden has increased (UK 1/400 death certificates contained the term "MRSA" – as compared to <1/10 000 in Sweden.
  - The risk of severe complications has increased
  - The risk of chronic infections has increased
  - The risk of failed cure (transplantation, foreign body interventions)
  - The risk of untimely death has increased
  - Individual patients in high risk "areas" have started consider and reconsider.
- **Industry**
  - Pharmaceutical industry – we need new drugs and we need drugs manufactured under reasonable circumstances!
    - Should serve as the biggest incitament ever – but no! The system fails!
  - Diagnostic industry – we need to shorten empirical therapy!
    - Serves as one of the biggest incitaments ever – but so far limited success compared to the speed of MR-development

Multiresistance - matter to whom?

- **Clinical microbiology lab (My laboratory)**
  - **The importance of microbiology has increased tremendously in the eyes of admin and politicians**
  - The work load (for AST) has increased significantly (AST + screening for MRB)
    - The number of reports with extended AST has increased
    - The number of reports with one or several MICs has increased
    - The number of reports with comments on AMR has increased
    - The number of screening samples (neonatal ward every week, ICU every 7 – 10 days, all CD-samples screened for VRE, outbreak screening, incidental screening) has increased.
    - Demand for typing has increased
  - The demand for high quality and rapid susceptibility testing has increased.
    - Demand for rapid testing has increased (blood culture results with 60 min and 6 hours)

OR…

Are we overestimating its importance – Commitment is surprisingly lukewarm!

- **WHO Geneva** – the number of employees dealing with AMR is the same now as 20 years ago.
- **WHO Europe** – CAESAR Project ("financed" by WHO, RIVM and ESCMID) –needs at least 10 - 100 times more money to make a difference!
- **ECDC**
  - **EARS-Net** – repetitious with no development over more than 10 years. And there is still no requirement for QC of data.
  - **EUCAST** (mostly financed by ESCMID and I have spent the better part of my holidays the last 13 years trying to find continued economical backing – and I still have to respond to Calls for Tender. All is based on the unpaid work of top experts.
- **CDC** – ads in Washington posts warning people against US300.
- **Governments** - nada

WHO

- Antimicrobial resistance (**AMR) threatens the effective prevention and treatment** of an ever-increasing range of infections caused by bacteria, parasites, viruses and fungi.
- AMR is present in all parts of the world. **New resistance mechanisms emerge and spread globally.**
- In 2012, there were about **450 000 new cases of multidrug-resistant tuberculosis** (MDR-TB). Extensively drug-resistant tuberculosis (XDR-TB) has been identified in 92 countries. MDR-TB requires treatment courses that are much longer and less effective than those for non-resistant TB.
- Resistance to earlier generation antimalarial drugs is widespread in most malaria-endemic countries. Further spread, or emergence in other regions, of artemisinin-**resistant strains of malaria** could jeopardize important recent gains in control of the disease.
- There are **high proportions of antibiotic resistance (ABR) in bacteria that cause common infections (e.g. urinary tract infections, pneumonia, bloodstream infections) in all regions** of the world. A high percentage of hospital-acquired infections are caused by highly resistant bacteria such as methicillin-resistant *Staphylococcus aureus* (MRSA) or multidrug-resistant Gram-negative bacteria.
- Treatment failures due to resistance to treatments of last resort for gonorrhoea (third-generation cephalosporins) have now been reported from 10 countries. **Gonorrhoea may soon become untreatable** as no vaccines or new drugs are in development.
- Patients with infections caused by drug-resistant bacteria are generally at increased risk of **worse clinical outcomes and death**, and consume more healthcare resources than patients infected with the same bacteria that are not resistant.

Let us not be unkind…

- Microbial
- threat
- conferances
- have
- made
- us
- master
- the
- fine
- art
- of
- bullet
- points

But AMR matters – believe me!

And when the curtain has dropped,
the lights are out, the audience gone –

it is CM and ID who must deal with it.

So let us ride that bandwagon!

Thank you!

We are up ”shit creek” without a paddle!