Antimicrobial Resistance: Questions and unmet needs Prof APR Wilson

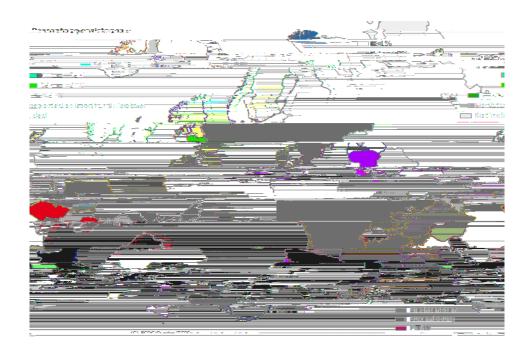
MDR Gram negatives

- Significant threat to patient treatment
- Hospital community transfer by patients, staff and equipment
- Colonization of travellers
- Antibiotics, urinary catheters, hand wash sinks
- Pan-resistance yet few new agentsTf1 0 0 1 133.1 208.75 Tm0 gs6g5BDC66ar

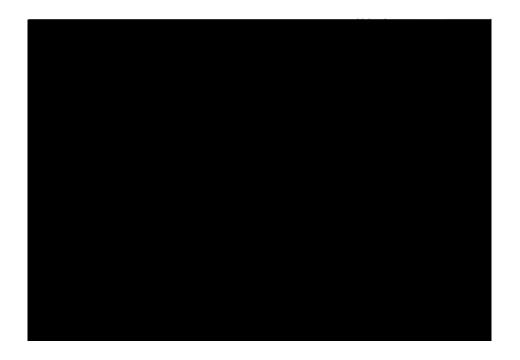
Terms

- ESBL Extended spectrum lactamase producer
- AmpC cephalosporinase
- CRO Carbapenem resistant organisms permeability or carbapenemase
- CRE Carbapenem resistant Enterobacteriaceae
- OXA-48 carbapenemase plasmid mediated

2008 MDR



2014 MDR



This report has been generated from data submitted to TESSy, The European Surveillance System on 2016-02-05. Page: 1 of 1. The report reflects the state of submissions in TESSy as of 2016-02-05 at 18:30

2017 MDR



Hospital vs. Long term care facility

- Patients move between healthcare facilities
- Stays shorter general practice
- Staff vectors, equipment
- Acinetobacter/ Kpneumoniae survive drying
- Plasmid outbreaks
- LTCF reservoir of resistance oro faecal, dementia, incontinence, urinary infection

Surveillance

- Gut colonisation travel history
- Plasmid transfer
- Food animals
- Antibiotic use, urinary catheters, sinks

Can screening be rapid and cost effective?

- Rectal carriage
- Multiple potential targets and species
- Screening identifies those to isolate quickly
- Resources, outbreak progression, patients
- Not cost effective for ESBL
- No indication for staff but encourage hand hygiene

How long does carriage last and can it be eradicated?

- Selective decontamination: non-absorbable antibiotics +/- iv agents
- Labour intensive, induces resistance
- Transient reduction in CRO at 2 weeks
- Chlorhexidine wash ineffective
- Carriage detected up to 18 months in a few cases

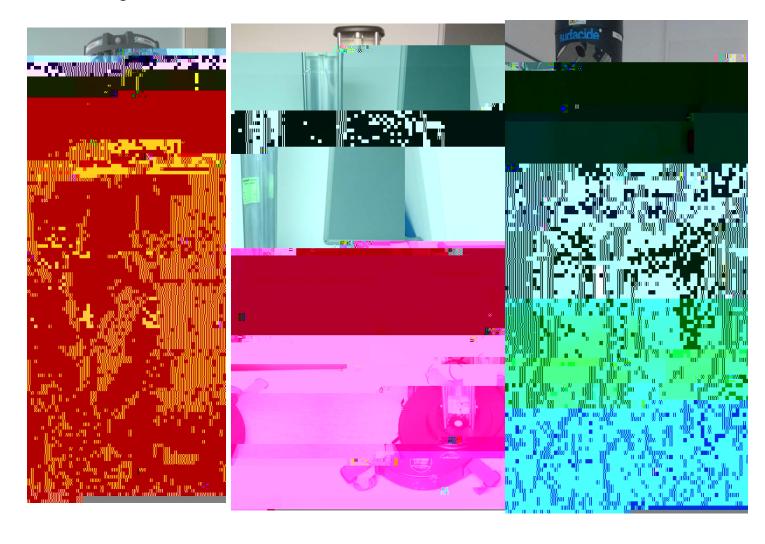
Isolation how does transmission occur?

- Standard Infection Control Precautions
- Single rooms reduce transmission 3/62 vs 7/39 ccm 2011 15 R211
- What are the common vectors for **E** coli and **Kebsiella**? Gut or hand?
- Pseudomonas -sinks, showers, drains. Are these the source of infection of patients getting bacteremia?

Can environmental contamination be detected quickly enough to direct deaning?

- Failure to clean associated with transmission
- Hydrogen peroxide vapour adjunct to terminal clean
- Human operator product, dilution, distribution and contact time may be wrong
- Endoscope reprocessing transmission if poor compliance

Three UV systems



Conclusion

- Rising antimicrobial resistance is threatening life expectancy over next 5-10 years
- Control programs not effective as yet
- Accurate, inexpensive and rapid detection
- Interrupting modes of transmission
- Avoiding conditions under which resistance emerges