

# Evaluation of the effectiveness of carbapenem and piperacillin-tazobactam prescribing guidelines within NHS Scotland

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# Agenda

- Background
- Survey and NAS-PPS key results
- Clinician interviews – key findings
- Recommendations

# Quality Improvement Approach

- Survey of implementation of prescribing guidance in boards
- Point Prevalence Survey (PPS) of carbapenem and piperacillin-tazobactam use in Scottish acute hospitals
- Case studies to investigate best practise in use of these agents

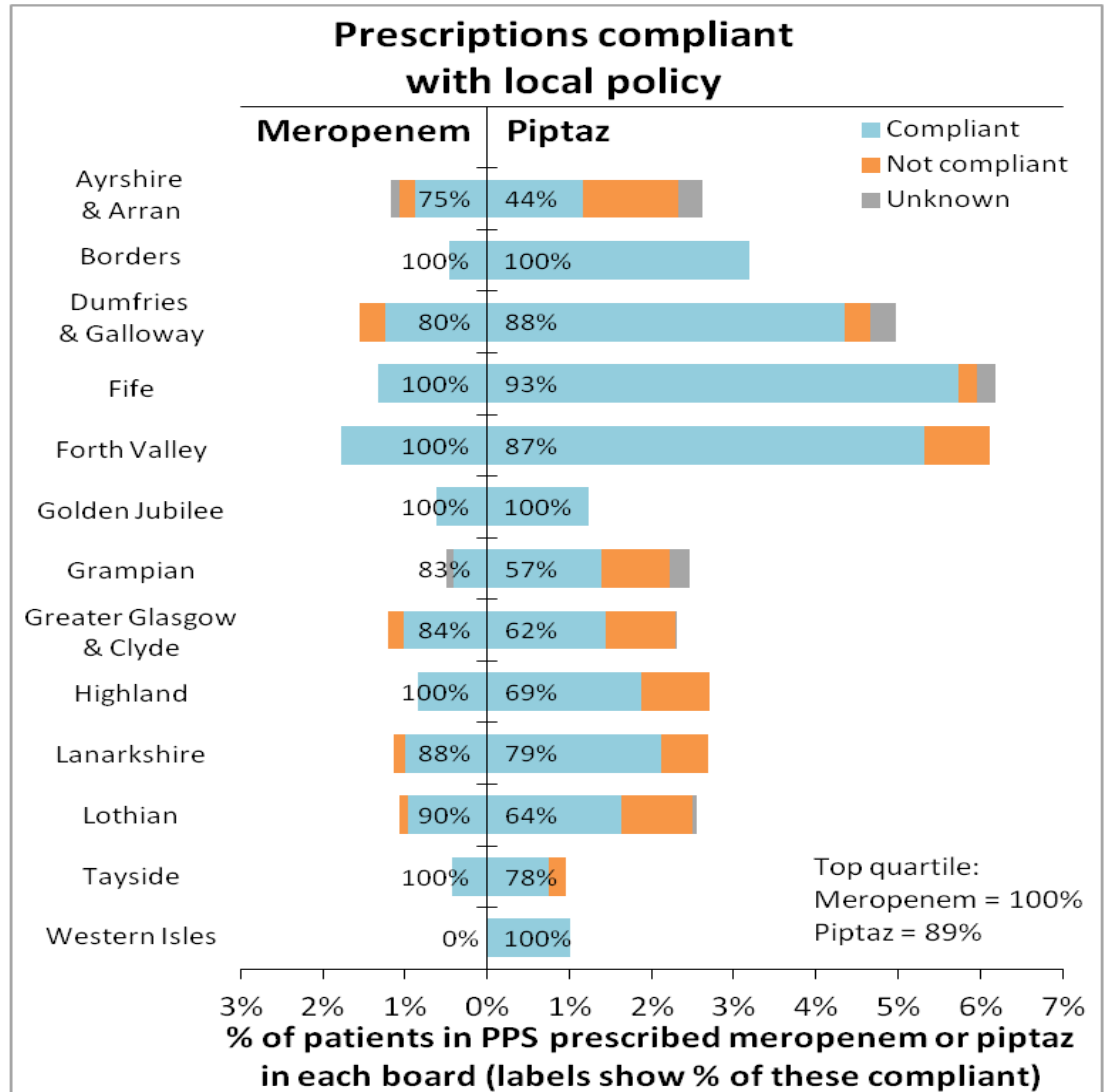
# Survey Key Results Summary

- Prescribing restrictions – for Meropenem, less for Piptaz
- Authorisation restricted to micro/ID for Meropenem but junior clinicians also authorise Piptaz
- Supplies freely available for Piptaz, not for Meropenem
- Low level of laboratory result suppression
- Small range of Carbapenem-sparing antibiotics available

# **BSAC National Antimicrobial Stewardship Point Prevalence Survey system (NAS-PPS)**

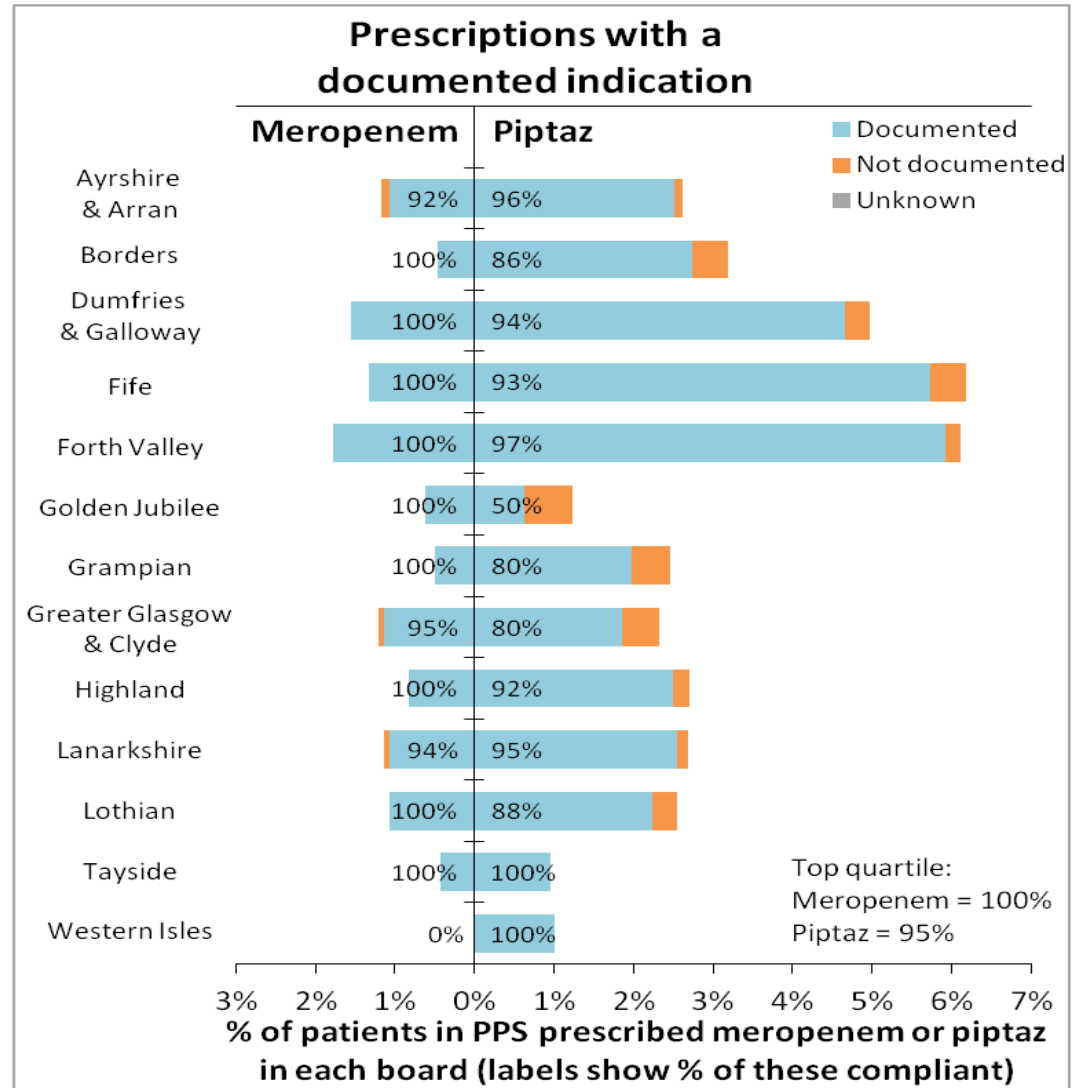
# Compliance With Antibiotic Policy

Compliance high for meropenem, lower for piperacillin-tazobactam



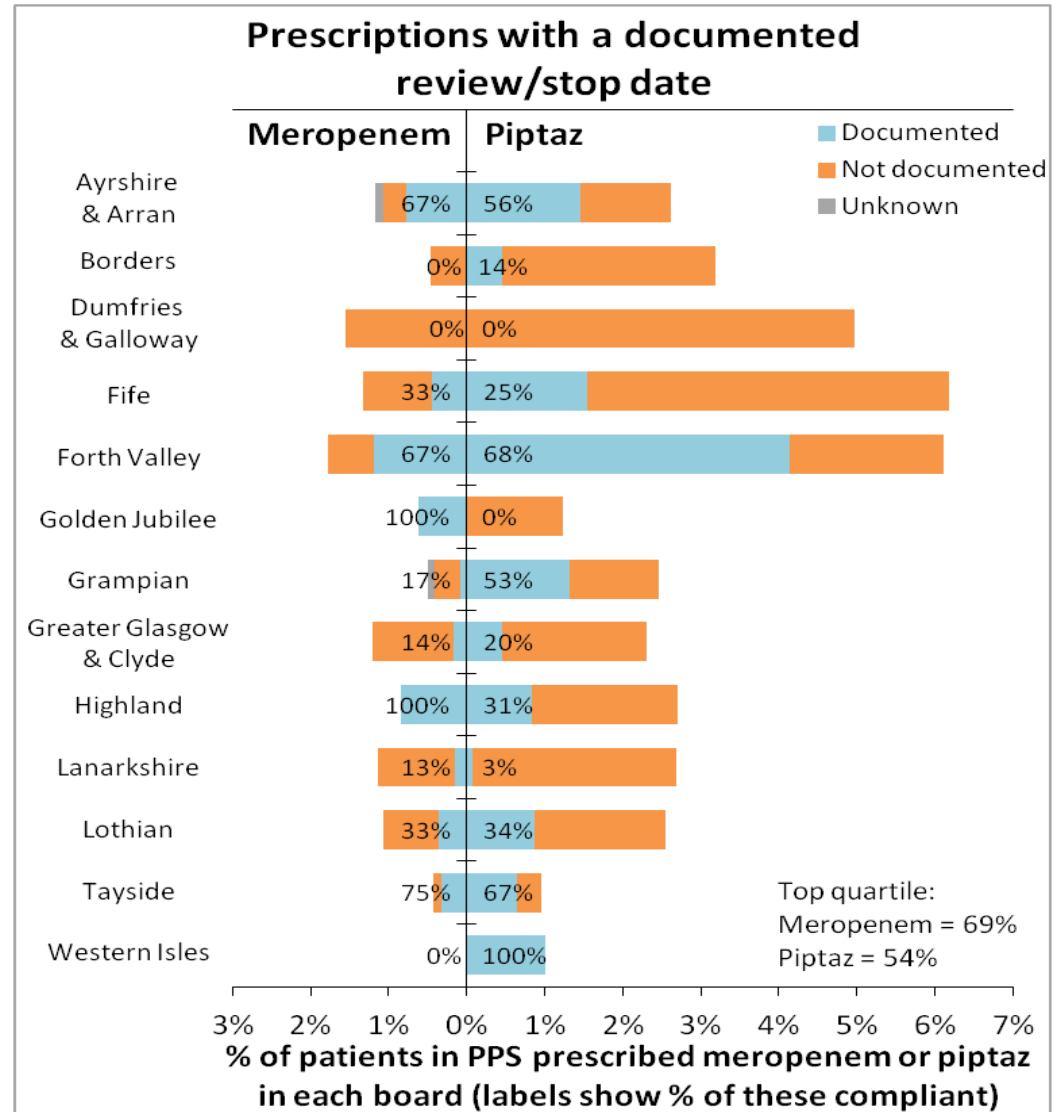
# Documentation Of Indication

High level of documentation of indication for meropenem, slightly lower level for piperacillin-tazobactam



# Documentation Of Review/Stop Date

**Review/stop dates poorly documented in most boards for both meropenem and piperacillin-tazobactam**





## Conclusions – Meropenem:

- Meropenem is subject to prescribing restrictions in most boards and compliance with antibiotic policies is high – Alert Antibiotic Policies
- Indication for use is well documented but review/stop dates were poorly documented
- Access mechanisms are in place in most boards and 60% boards use automatic suppression of lab reporting
- Low use of carbapenem sparing agents in boards

# Conclusions: Piperacillin-tazobactam

- Piperacillin-tazobactam is not subject to prescribing restrictions in most boards and compliance with antibiotic policies is much lower (only 4 boards in top quartile)
- Indication for use was well documented in most boards but review/stop dates poorly documented in the majority
- Freely available for use using a variety of mechanisms, only a minority of boards routinely suppress reporting by the laboratory

# **In-depth case studies to understand levers and barriers for prescribing Meropenem and Carbapenem-sparing agents**

Presented by: Abdulrhman Mohana, PhD candidate

Supervised by: Professor Alexander Mullen & Professor Marion Bennie

# Method

## Setting:

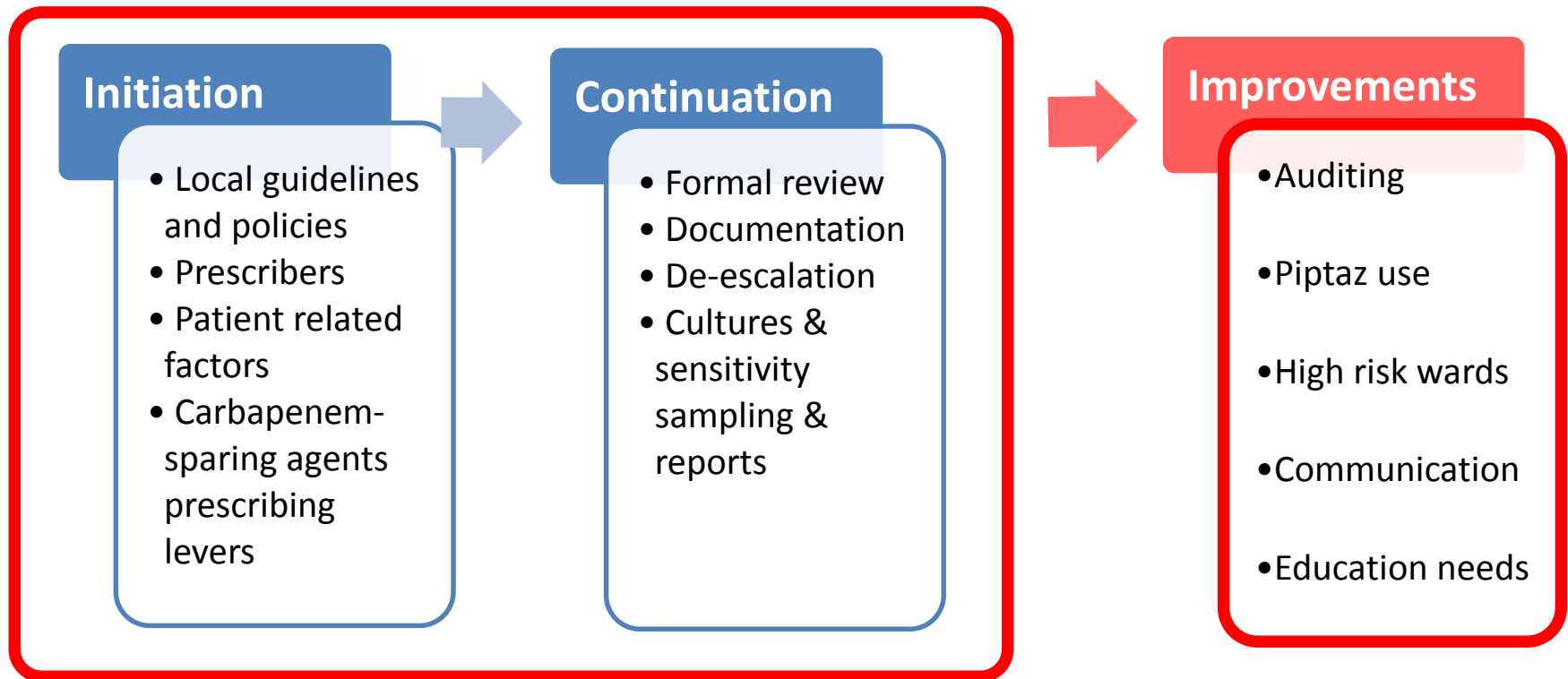
Four health boards were selected; Fife, Forth Valley, Tayside, GGC; based on:

- Overall performance in survey and NAS-PPS (part one & two)
- Reduction in meropenem or increase in carbapenem-sparing antibiotic consumption between 2008 and 2014

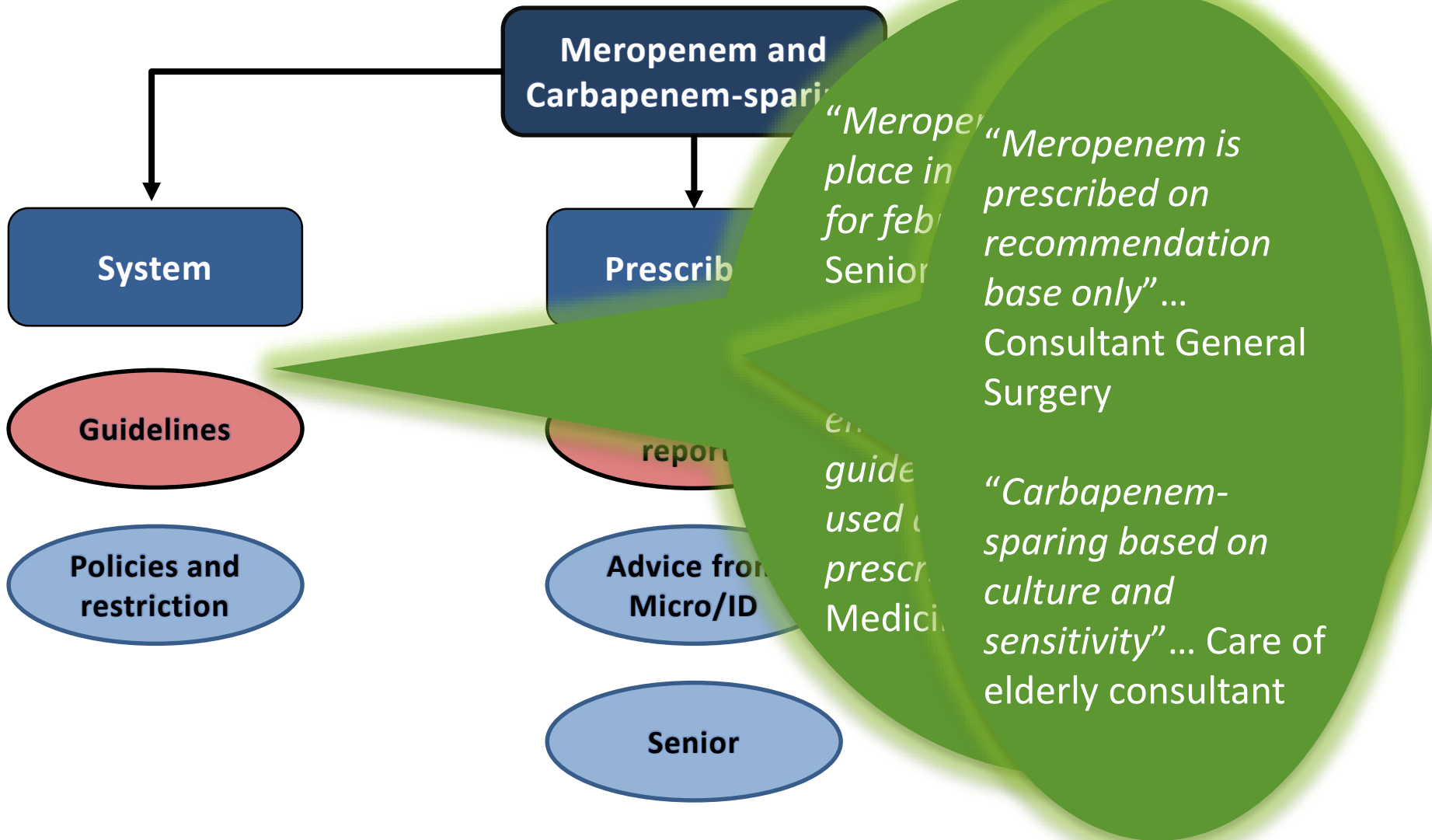
## Study participant:

- Consultants within the selected health boards and senior/junior doctors were recruited from different specialities.
- 28 one-to-one, semi-structured interviews, conducted between June - November 2016
- Interview times between 16 to 30 minutes

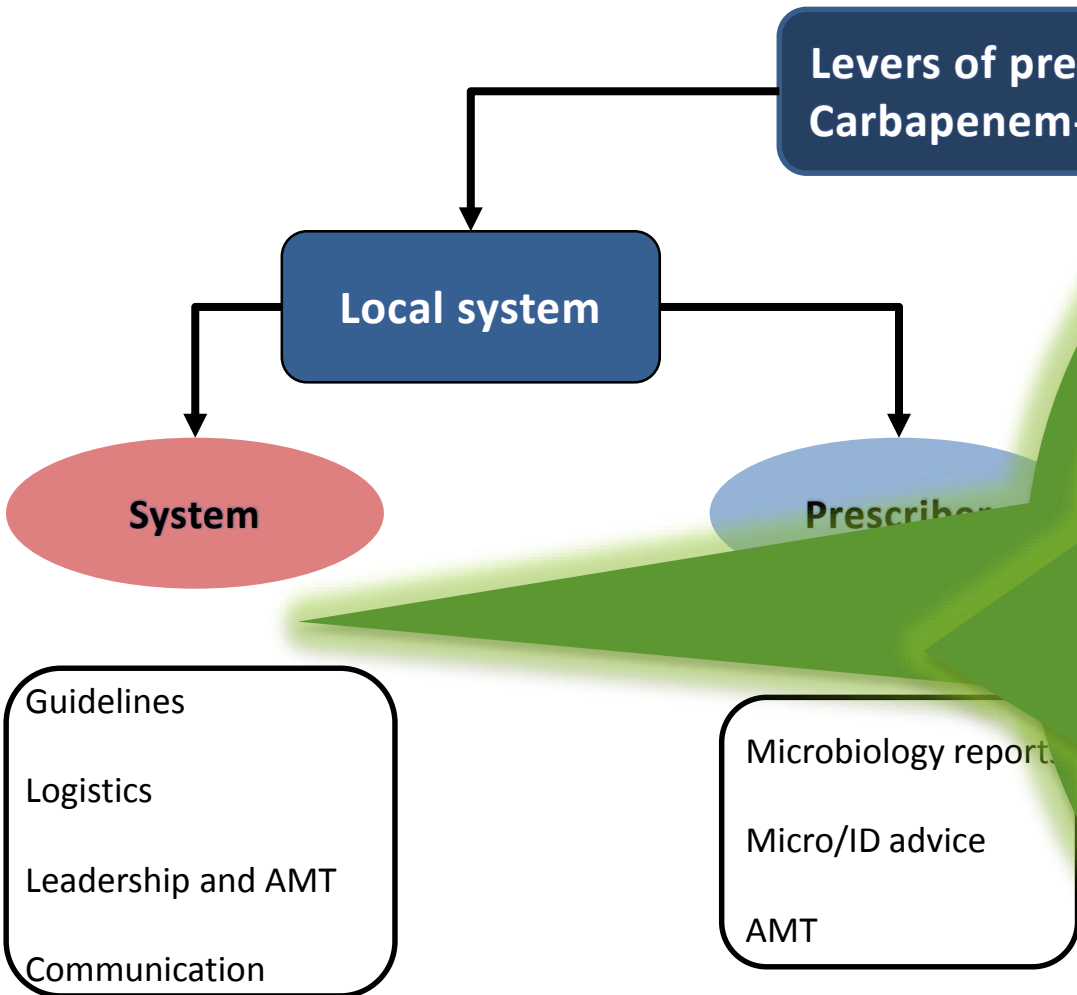
# Major themes



# Initiation



# Carbapenem-sparing agents



*"... people don't tend to be aware of them and they are rarely, if ever, suggested by the microbiologist as an alternative when you're phoning up and asking... they're not on their routine sensitivity reports" ...*

Acute care consultant

*"...if I'm being told by microbiology they've got a bug that's that sensitive to... then I'll happily go with that" ...*

Haematology Consultant

# Continuation

## Meropenem Follow-up & monitoring

*“Confidence in the use of oral alternatives to Meropenem. Whether pivmecillinam is effective ...and how fosfomycin can be used orally or IV I think that's difficult” ... ID consultant*

*“I think on some occasions it's not quite clear where you go to deescalate from Meropenem... I think better guidance on ... where to go following Meropenem would benefit ...” ... FY2 Medicine*

*“We advise  
consult*

*... the patie  
gain... If you  
ny concerns a  
the patient at th  
point, call us back  
... Micro consultant*

*“I think it's not very well documented as duration of treatment”  
... Medicine Senior registrar*

*“We're not as good as putting a duration as we should be”  
... Micro consultant*



# Areas for improvement

*"If the clinician doesn't pick up the phone to speak to the microbiologist, then the microbiologist will not know about them" ... General surgery consultant*

*"I might be the big Meropenem user... not my other colleagues" ... ID consultant*

*"...focusing on the areas where it's used most" ... Respiratory consultant*

*"...they all, the cont  
"It would be great to have a robust generic way to have post prescribing review" ... ID consultant*

*"...not sending off enough clinical specimens before antibiotic therapy is initiated increases the likelihood that you will treat without knowing what the infection" ...ID consultant*

*"...I'm not sure meropenem or tazocin are on the IV/oral policy" ... FY2 medicine*

# Summary of key issues

- Clinicians rely on infection specialists for advice on initiation and continuation/de-escalation - lack of confidence amongst clinical teams
- Overuse of ultra-broad spectrum agents acknowledged but tools to support review and de-escalation/IVOST required – formal review
- Lack of awareness and confidence amongst clinicians in using carbapenem-sparing agents unless within local guidelines and/or microbiology reports

Thank You