

Effect of antimicrobial susceptibility reporting on antimicrobial use

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Opportunities for stewardship

- Clinical liaison
 - 35 calls for infection advice/day
 - 20 significant results telephoned
 - 20 patients reviewed on ward rounds/day
- Input into empirical prescribing guidelines
- Laboratory reporting

Laboratory reporting

- Laboratory Information Management System (LIMS)

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Report designation :Final      Suppression :N      Validn:Passed
(RC) Routine Culture..... Further work:N.. Status:Complete.... frame:1 of 4
 1) Microscopy .....
 2) Direct TB Microscopy ...
 3) Culture yields CY.. :
 4) Polymorphs .....
 5) . . .

        Density   Antibiotic(s)
 6)   growth   sC   sCIPsCN   sDA   sDAPsE   sF   sFD
Organism   STRA   STRA   H           S           S
          STAUR  STAUR  H           S   S   S   S   S   S   S
          .
          .
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Positive
microbiology
report



Inappropriate
prescribing

How can LIMS support antimicrobial stewardship?

- Interpretative comments
- Selective reporting of antimicrobial susceptibilities

Selective reporting

- 1980 letter in Journal of Clinical Pathology
 - “The influence of laboratory reports is limited”
- Cunney, Smyth. The impact of laboratory reporting practice on antibiotic utilisation. Int J of Antimicrob Agents 2000;14:13-19
 - “Restricted release of susceptibilities combined with interpretative comments, can have a positive impact on the level of appropriate antibiotic use”
- McNulty et al. Does laboratory antibiotic susceptibility reporting influence primary care prescribing in UTI and other infections?. JAC 2011;66:1396-1404
 - “...changing laboratory antibiotic susceptibility reporting has a direct effect on antibiotic prescribing by GPs.”

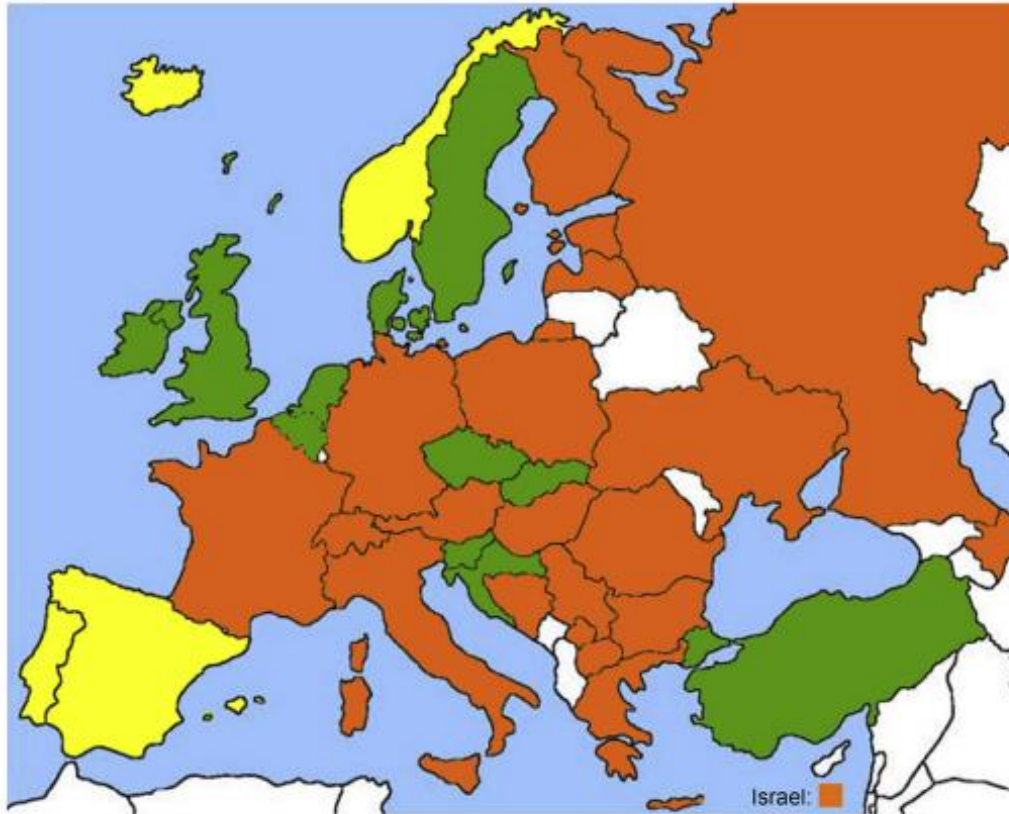
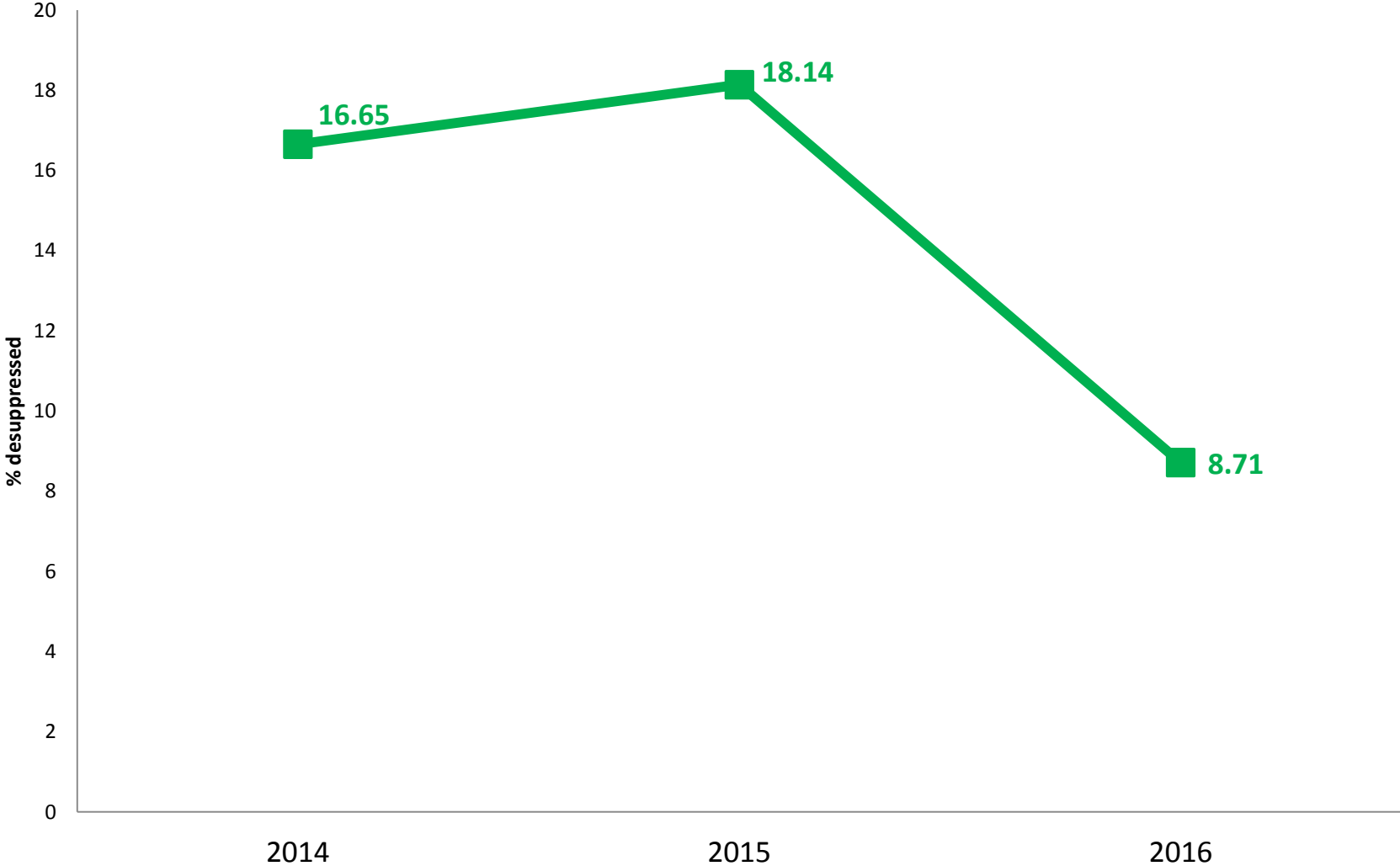


Fig. 1. Implementation of selective reporting of antibiotic susceptibility test results in Europe and Israel ($n = 36$ participating countries). Green: well implemented, i.e. part of daily practice in the majority of microbiology laboratories, at least in some clinical situations; yellow: partially implemented, i.e. applied at a regional, or even supraregional, level, but not in the majority of laboratories; and orange: only local initiatives or not implemented. In Slovakia and Slovenia, selective reporting is well implemented only in the outpatient (community) setting.

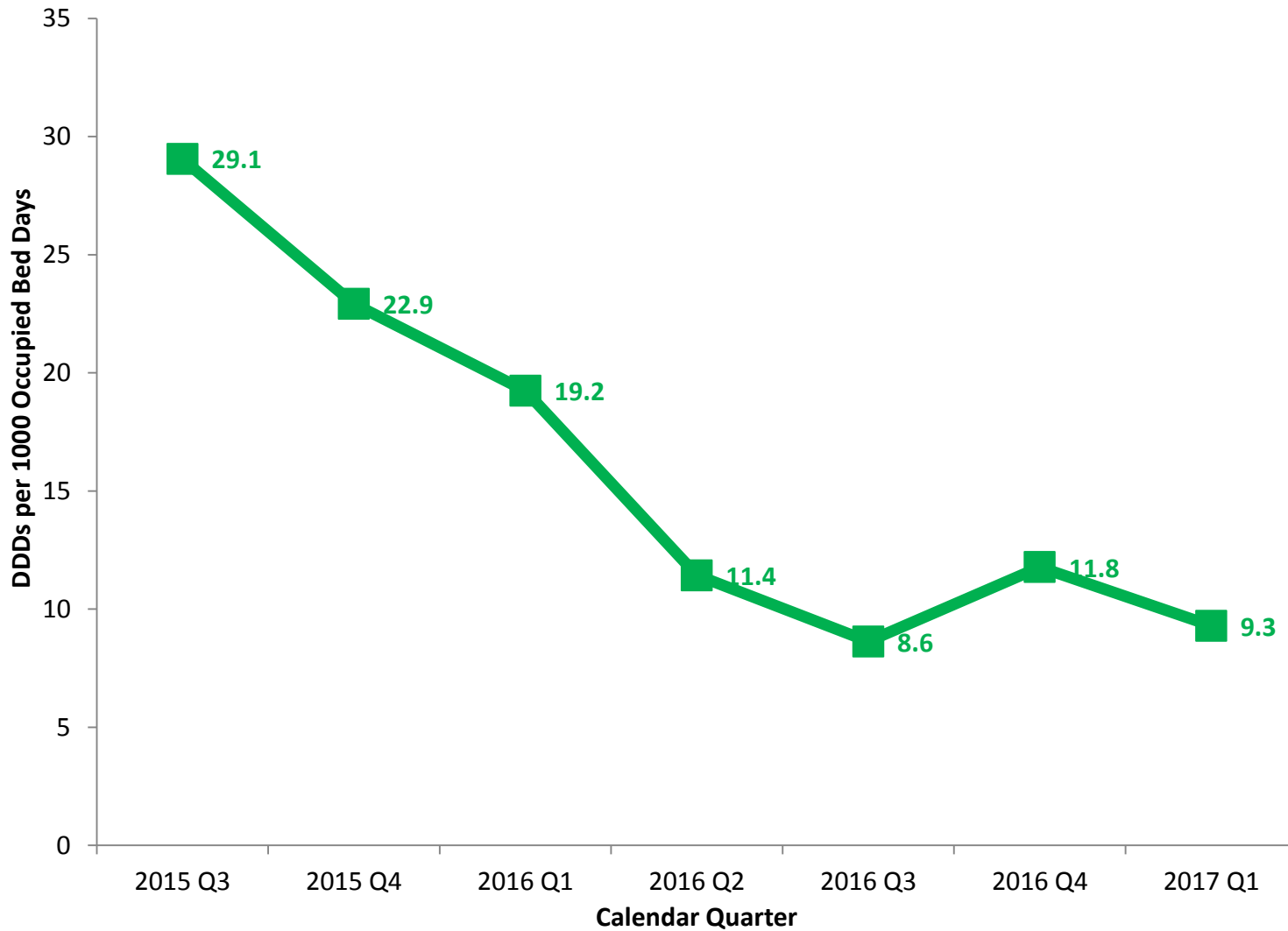
Selective Reporting

- Urinary coliforms
 - Tested against 5 antibiotics and ESBL screening antibiotic
 - Nitrofurantoin, Trimethoprim and Gentamicin routinely desuppressed
 - If resistant to 3 or more (or ?ESBL) then extended panel of sensitivities performed
 - Consultant reported

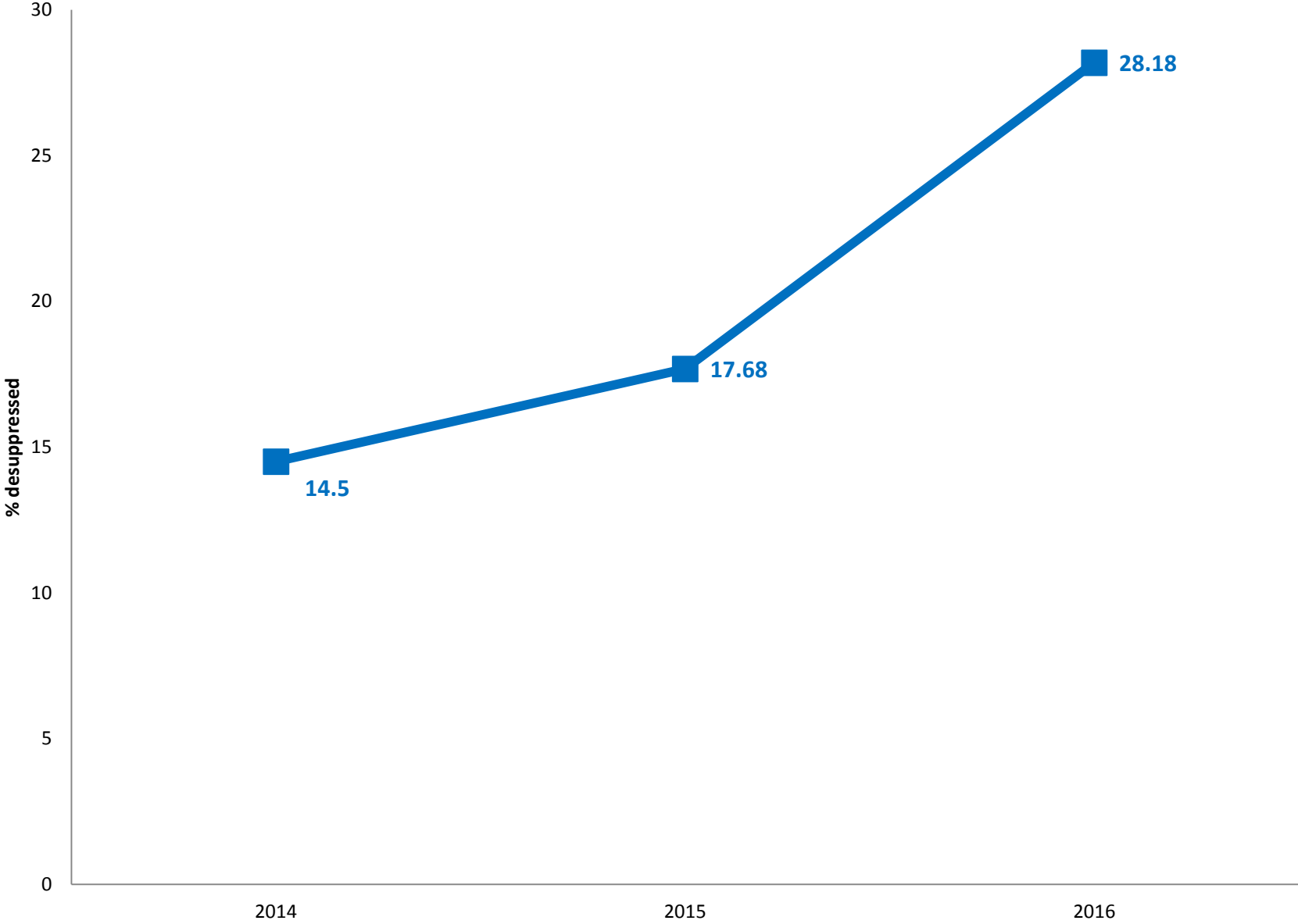
Tazocin desuppression in urinary coliforms, GRI



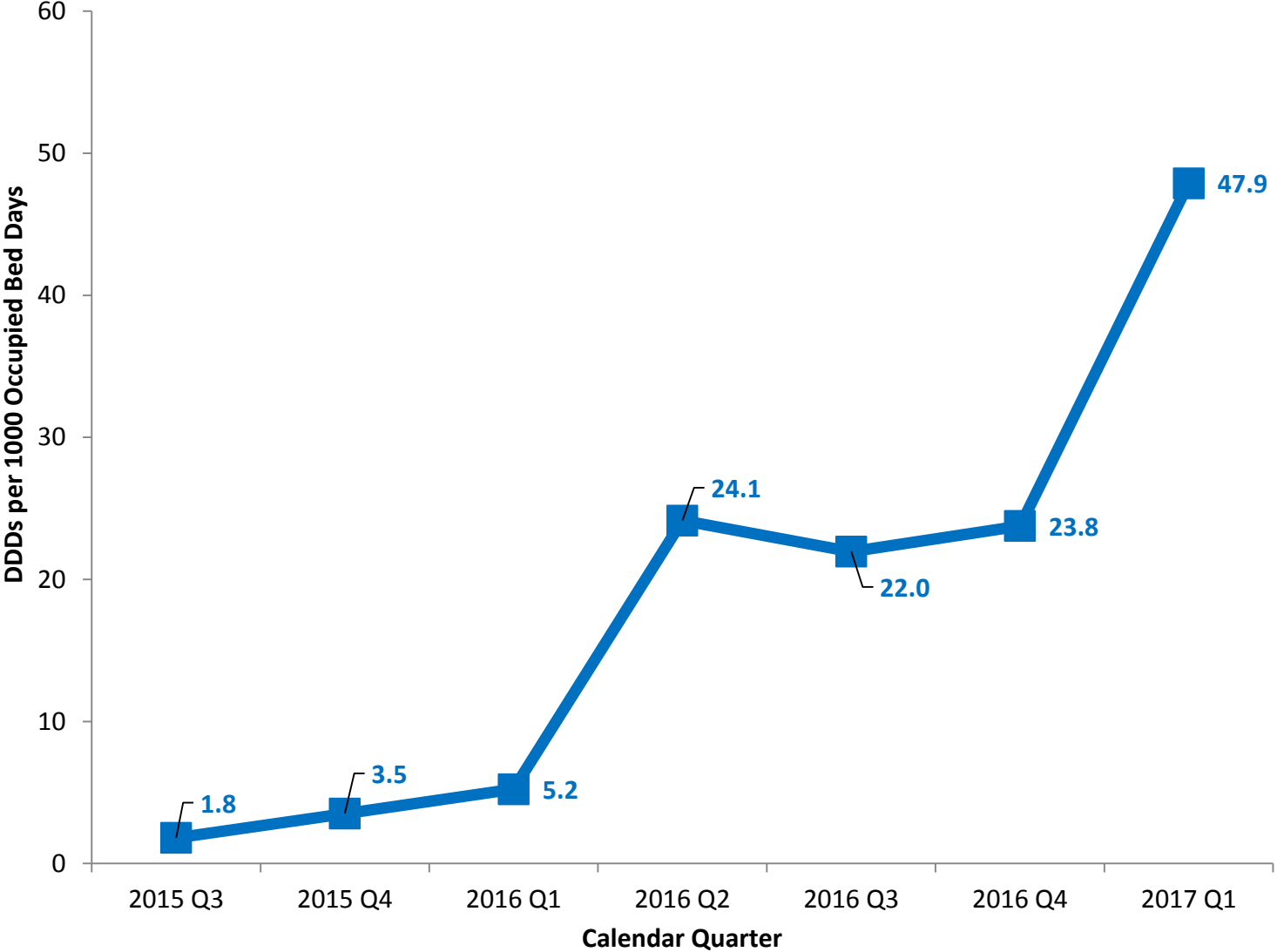
Piperacillin tazobactam use GRI to Q1 2017 (DDD/1000 OBD)



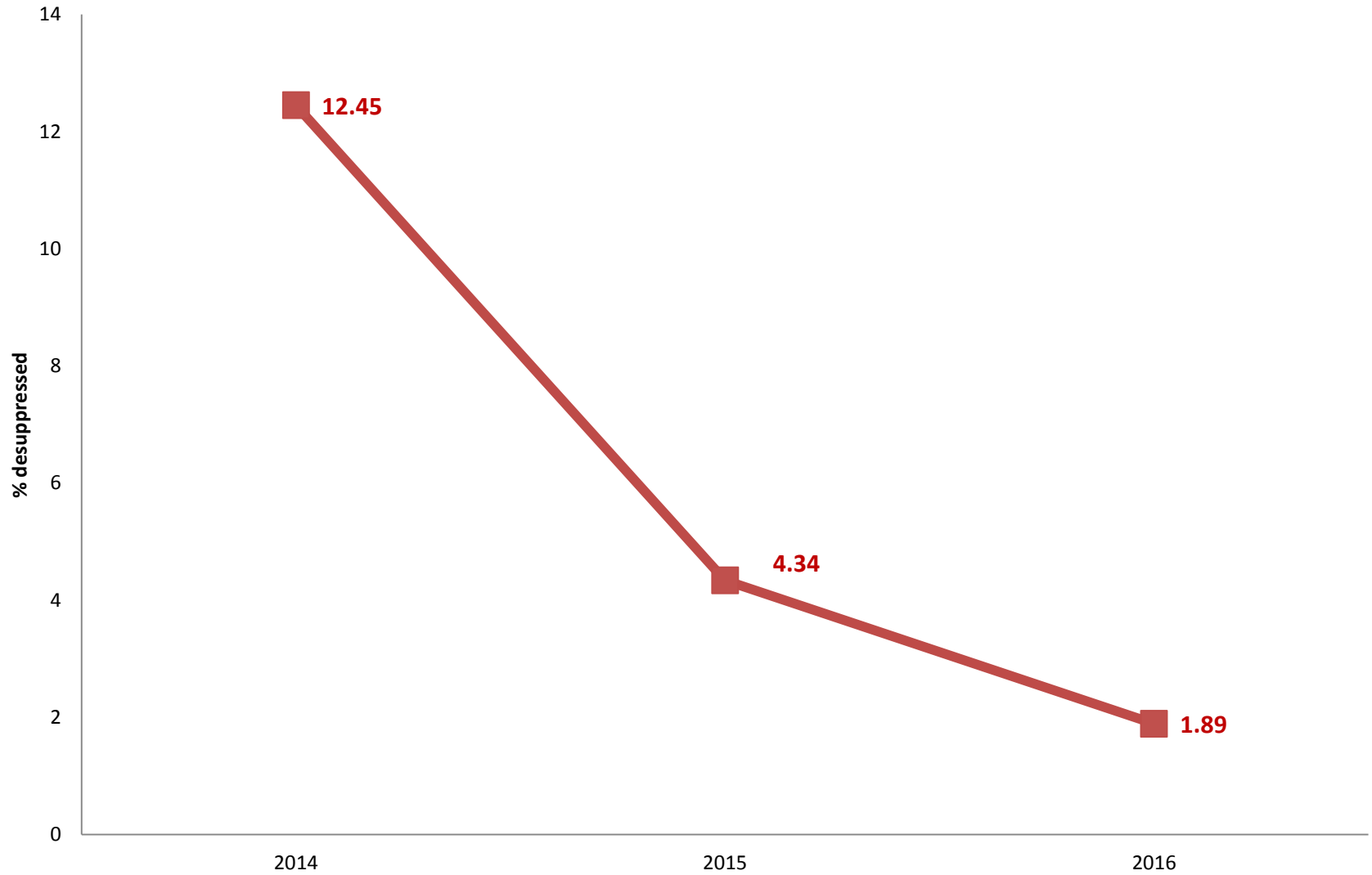
Temocillin desuppression in urinary coliforms, GRI



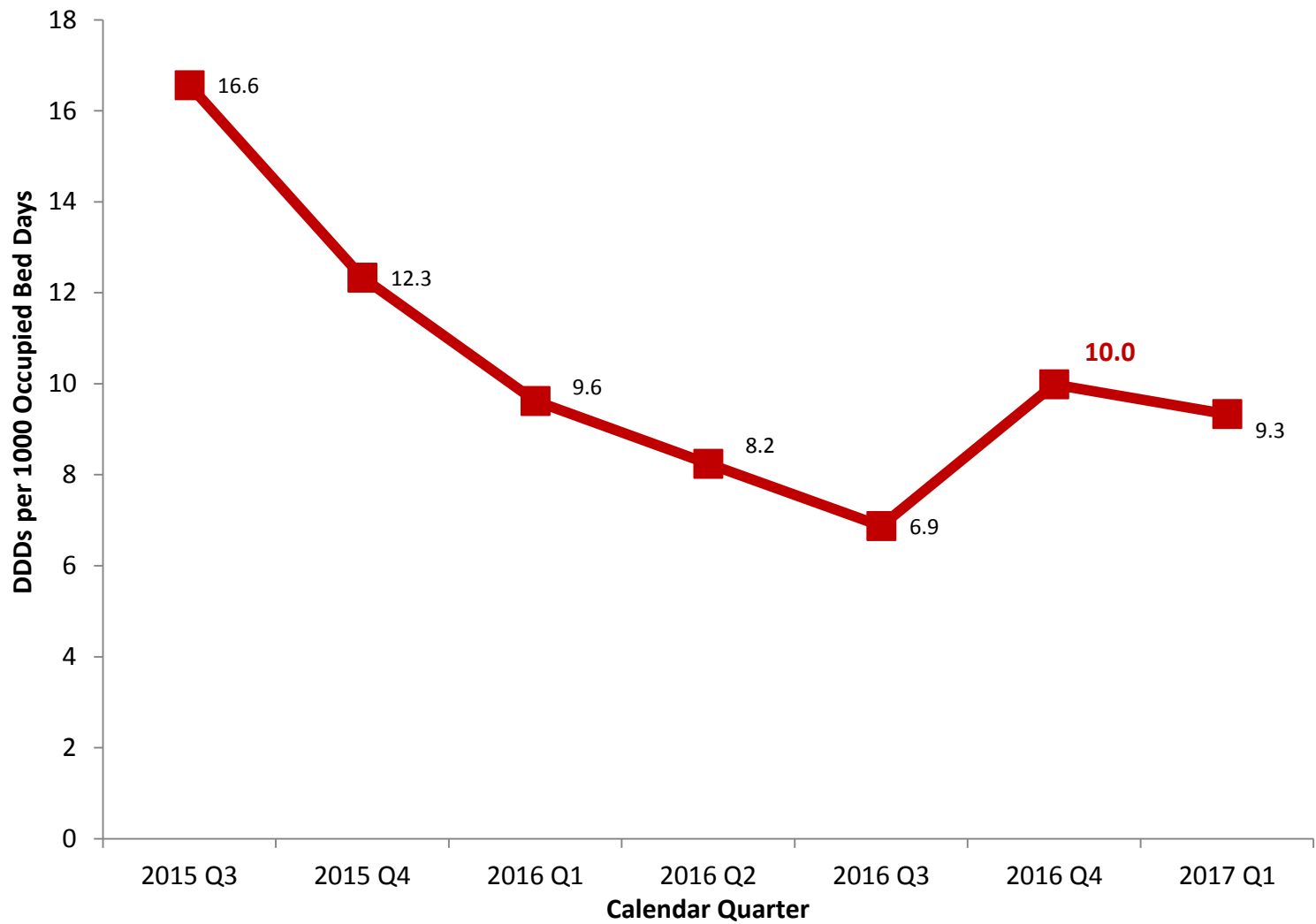
Temocillin use GRI to Q1 2017 (DDD/1000 OBD)



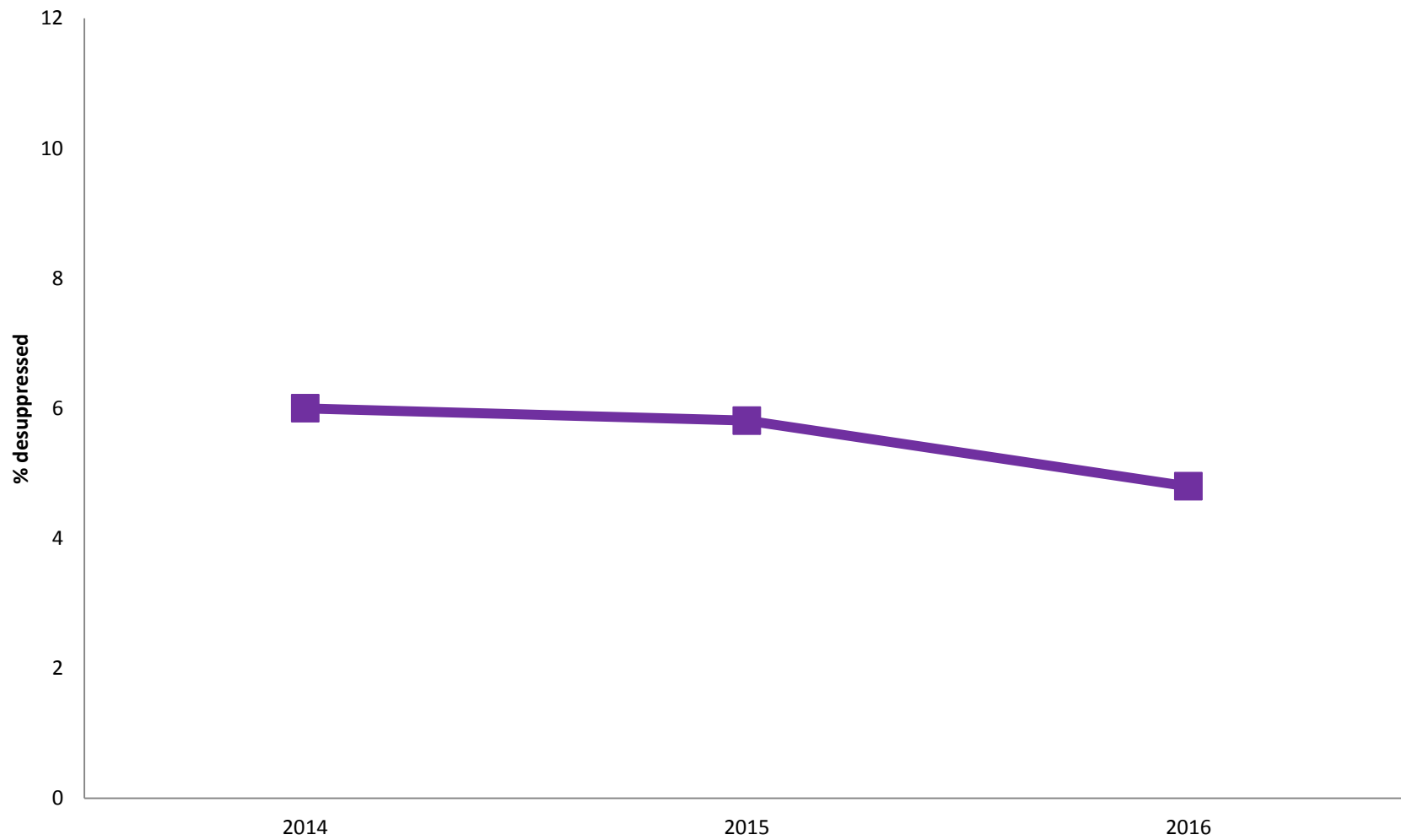
Meropenem desuppression in urinary coliforms, GRI



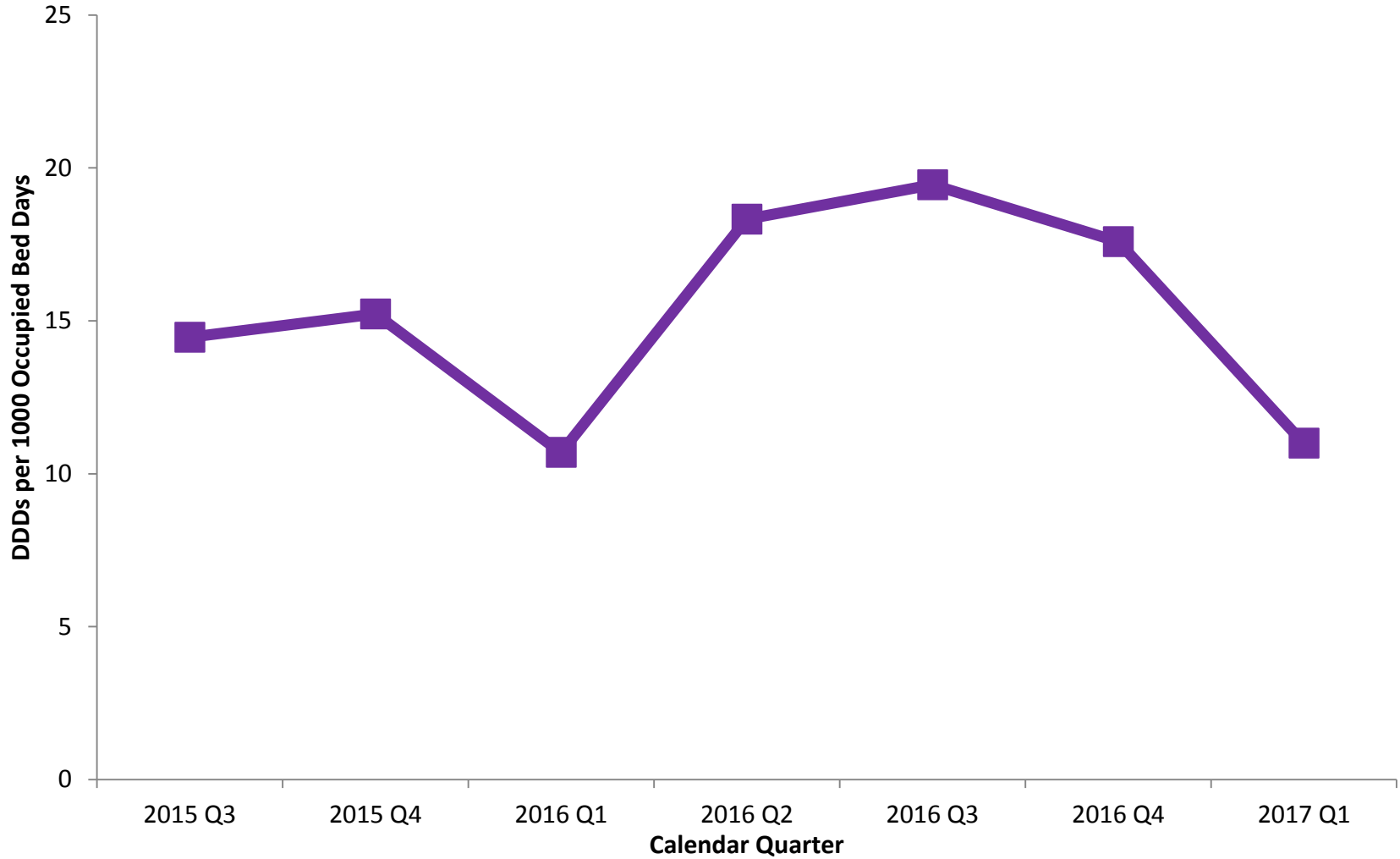
Meropenem use GRI to Q1 2017 (DDD/1000 OBD)



Meropenem desuppression in urinary coliforms, RAH

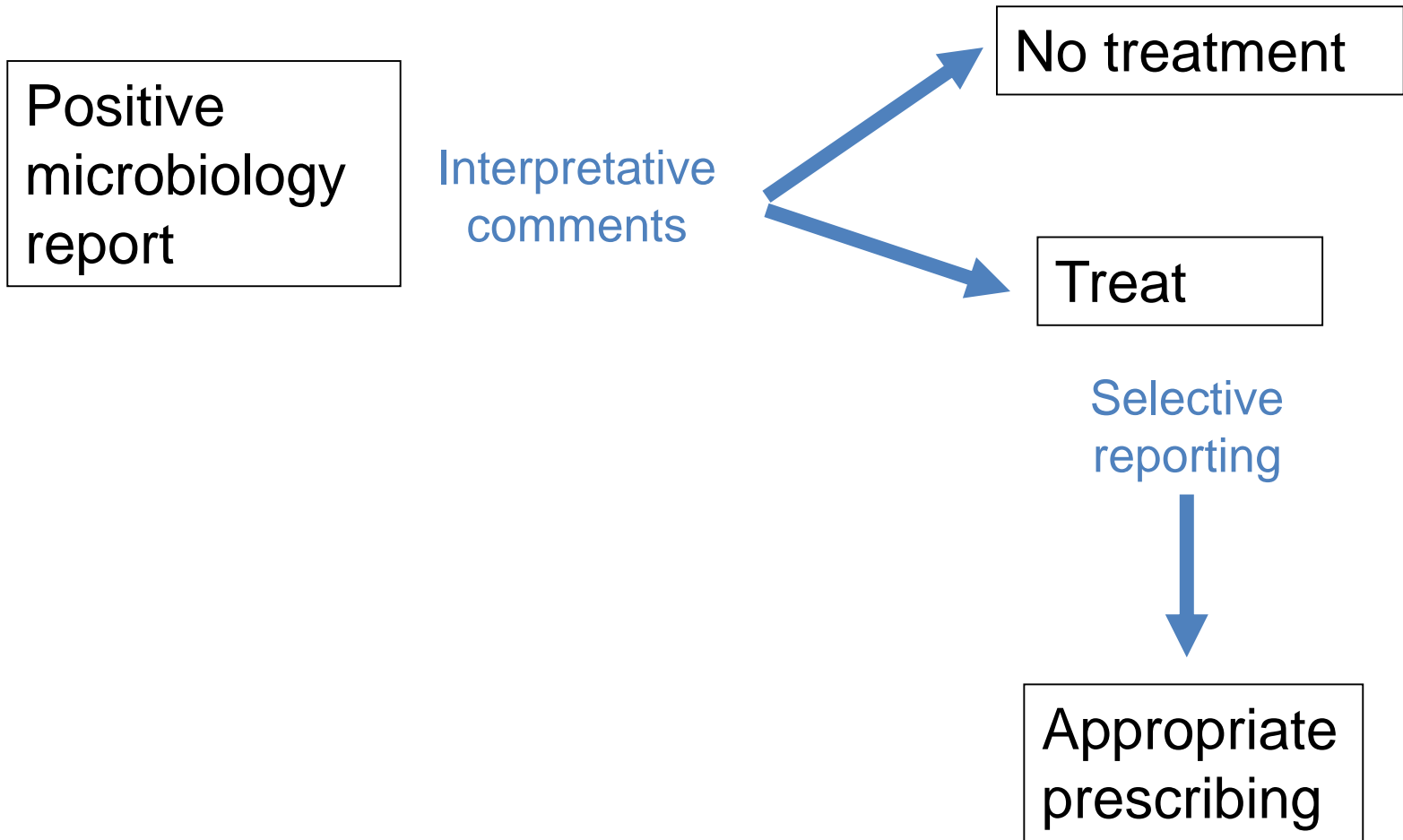


Meropenem use RAH to Q1 2017 (DDD/1000 OBD)



Barriers to selective reporting

- Lack of consensus amongst staff
- Lack of appropriate clinical information
- Inadequate IT resource



Next steps

- Update auto-authorisation rules to include age specific rules
- Audit anti-microbial desuppression quarterly and review with antimicrobial consumption statistics
- Review/extend interpretative comments utilised in LIMS

Thank you