What Are The Challenges For Improving Hospital Antibiotic Use? AMT (Personal) Perspective

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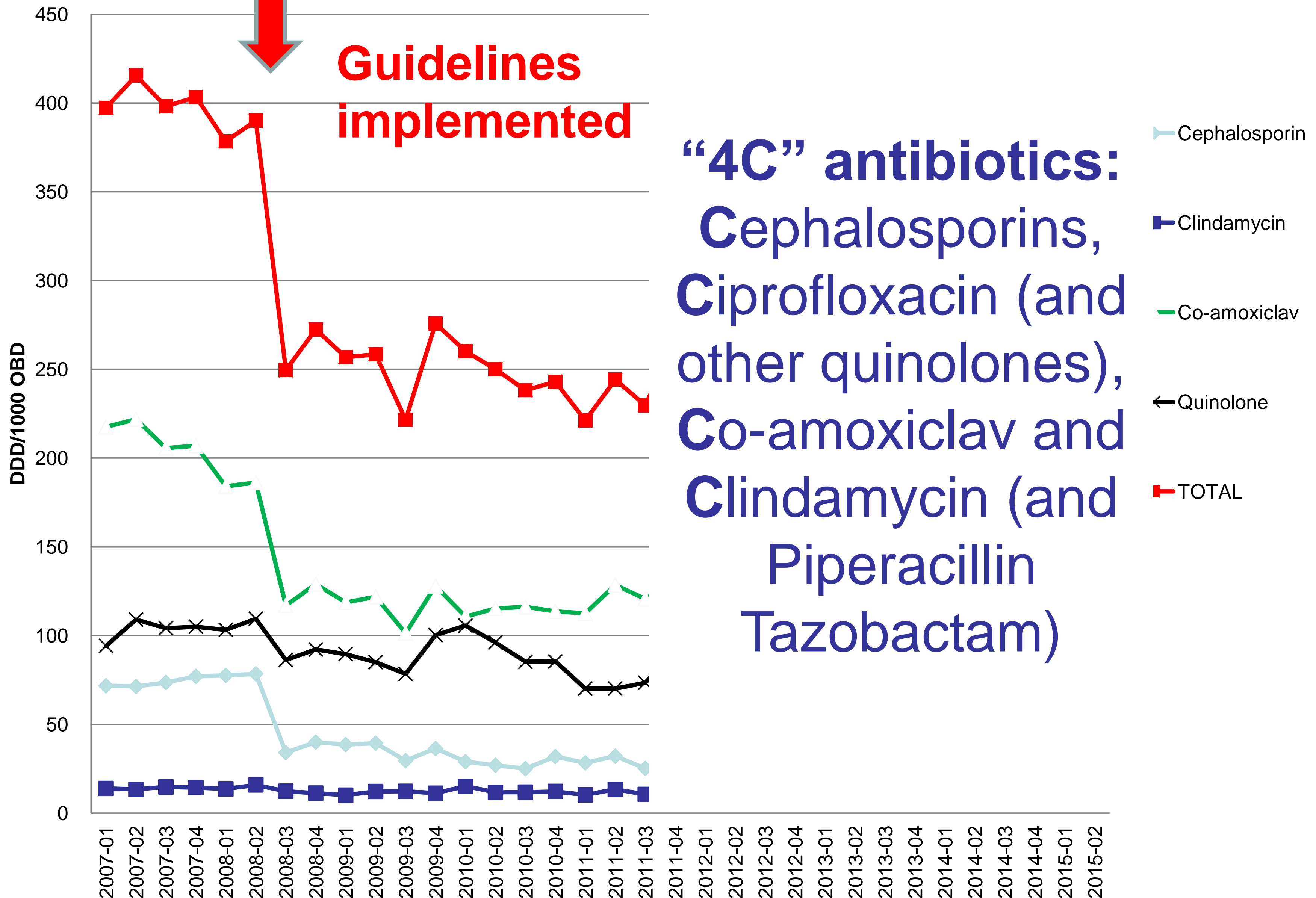
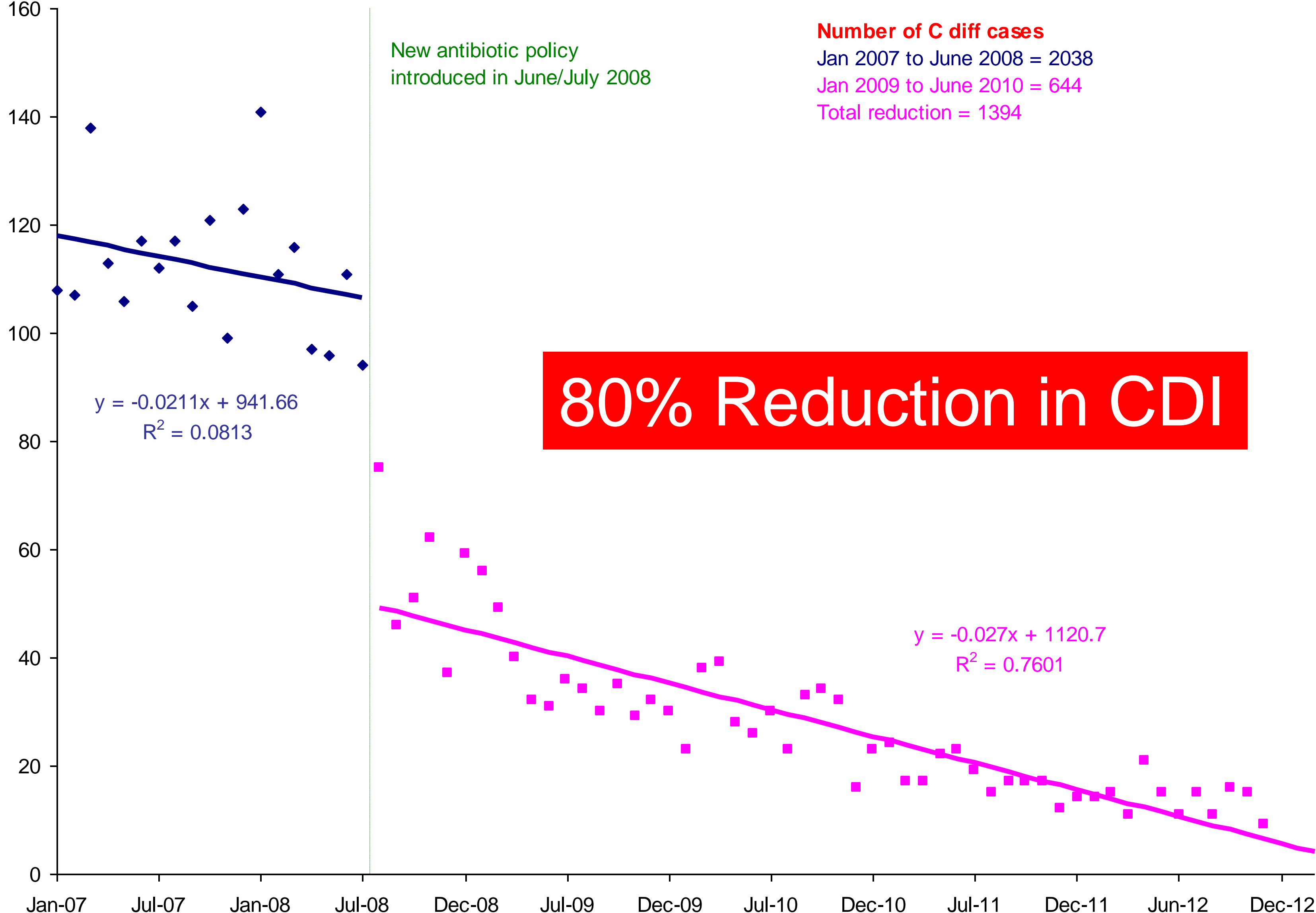
AMT/ Antimicrobial Stewardship Aims

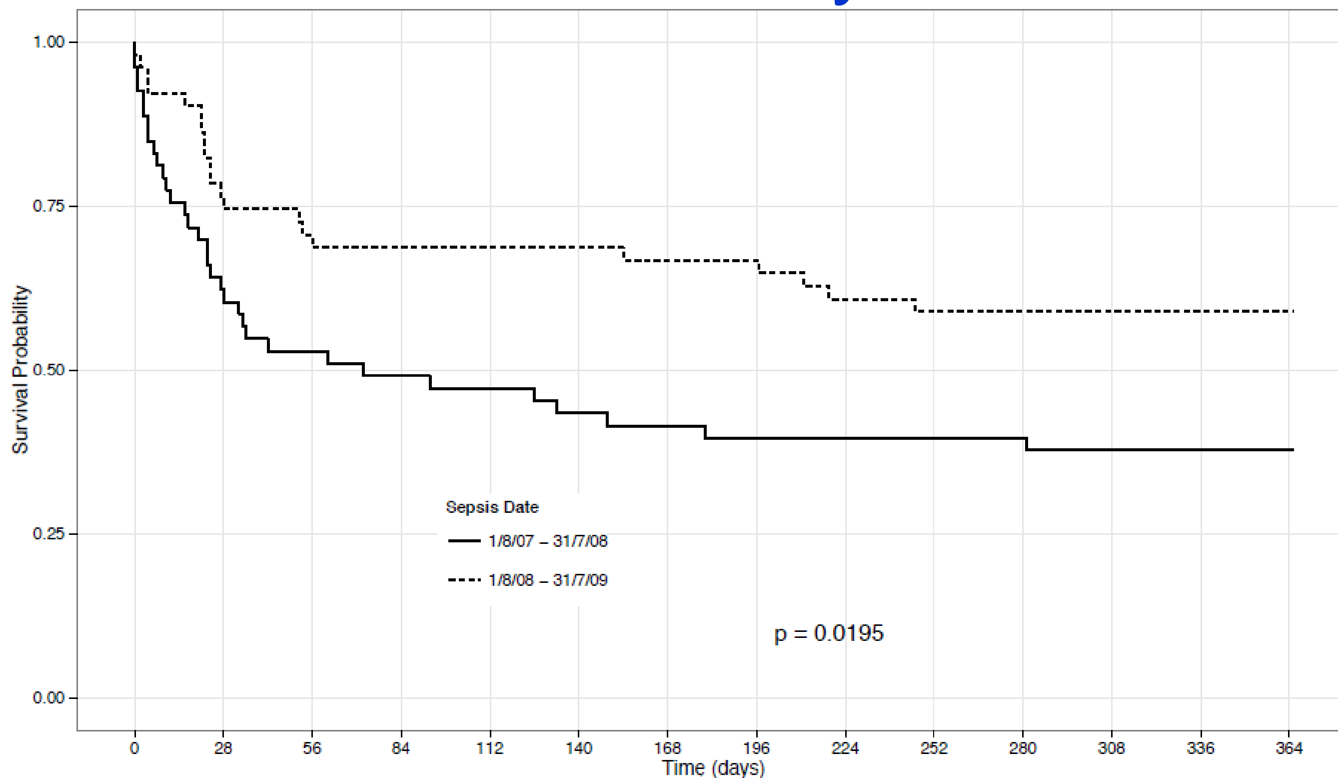
- Optimise infection management and patient outcomes
- Minimise collateral effects of antimicrobial use

Initial Successes of AMS




GG&C HAI C diff cases per month
160
140
120
100
80
60
40
20
0
Jan-07
Jul-07
Jan-08
Jul-08
Dec-08
Jul-09
Dec-09
Jul-10
Dec-10
Jul-11
Dec-11
Jun-12
Dec-12
New antibiotic policy
introduced in June/July 2008
Number of C diff cases
Jan 2007 to June 2008 = 2038
Jan 2009 to June 2010 = 644
Total reduction = 1394
80% Reduction in CDI
y = -0.0211x + 941.66
R^2 = 0.0813
y = -0.027x + 1120.7
R^2 = 0.7601
pre policy
post policy
Introduction of new antibiotic policy
Linear (pre policy)
Linear (post policy)

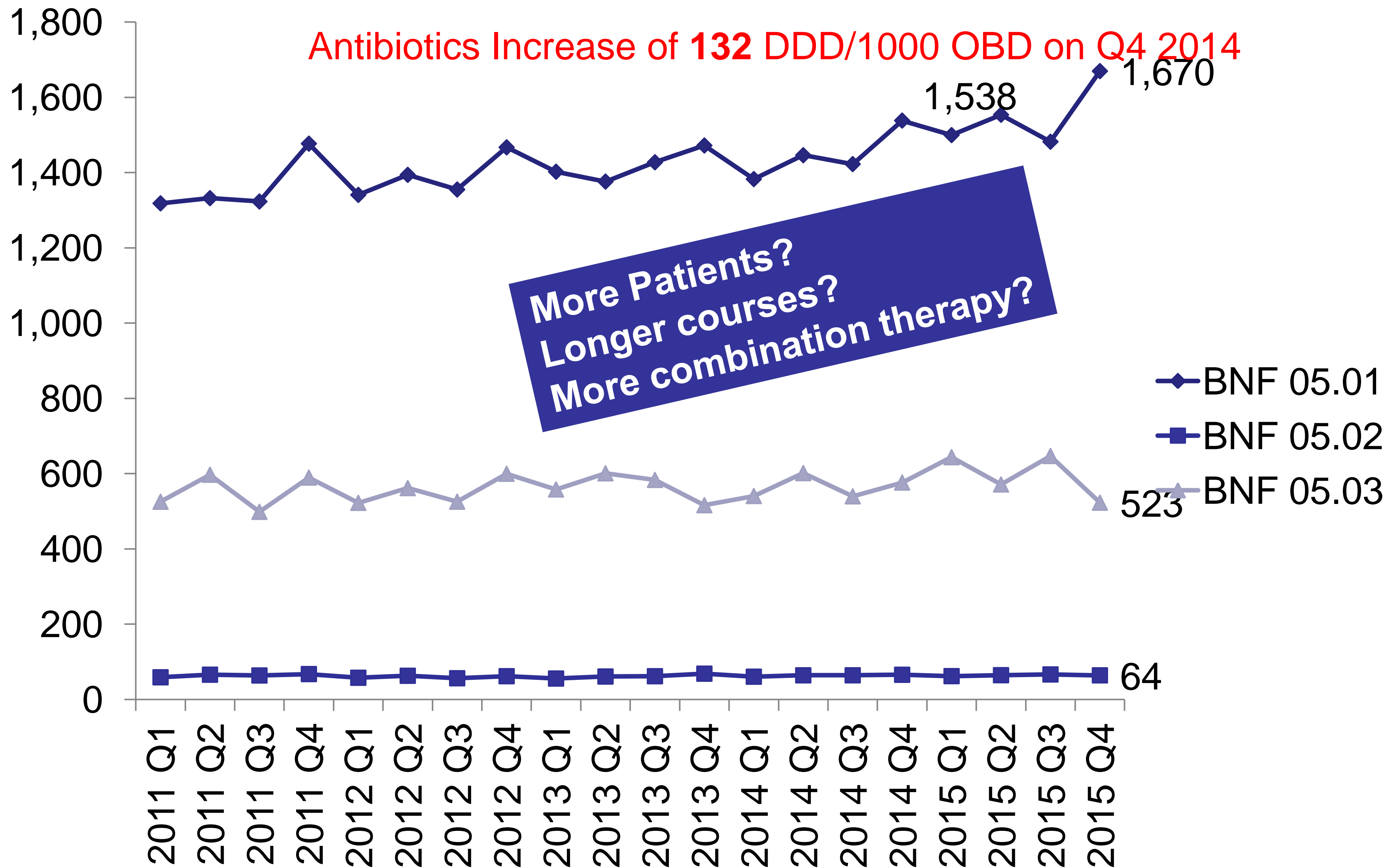
Gram-negative Bacteraemia Mortality:
Improved survival in Elderly Care Directorate



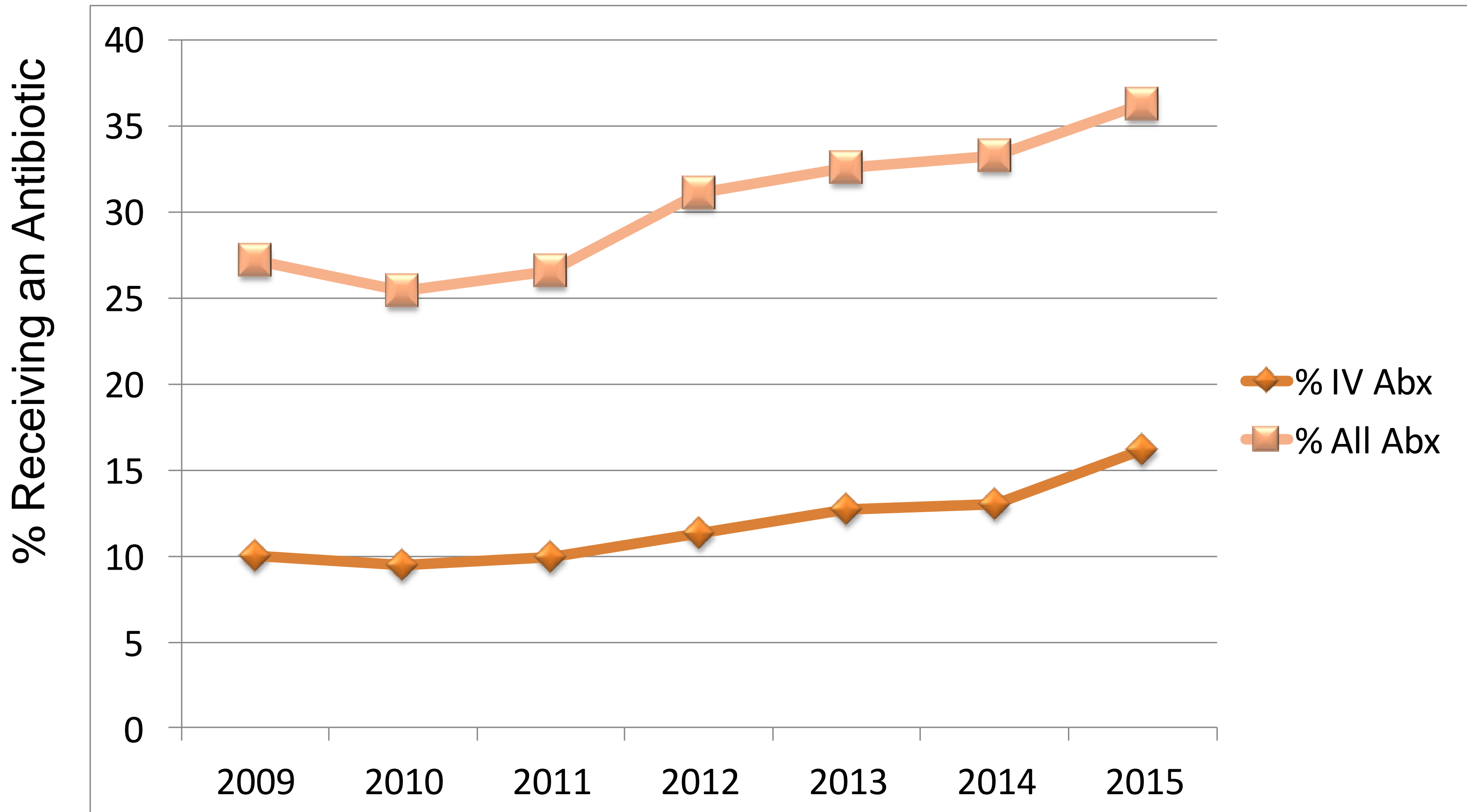
1/8/07 – 31/7/08	53	33	28	26	25	23	22	21	21	21	21	20	20	20
1/8/08 – 31/7/09	51	39	36	35	35	35	34	34	31	30	30	30	30	30

Ritchie et al Fed Infect Soc 2013

Antibiotic Prescribing Drift in Secondary Care

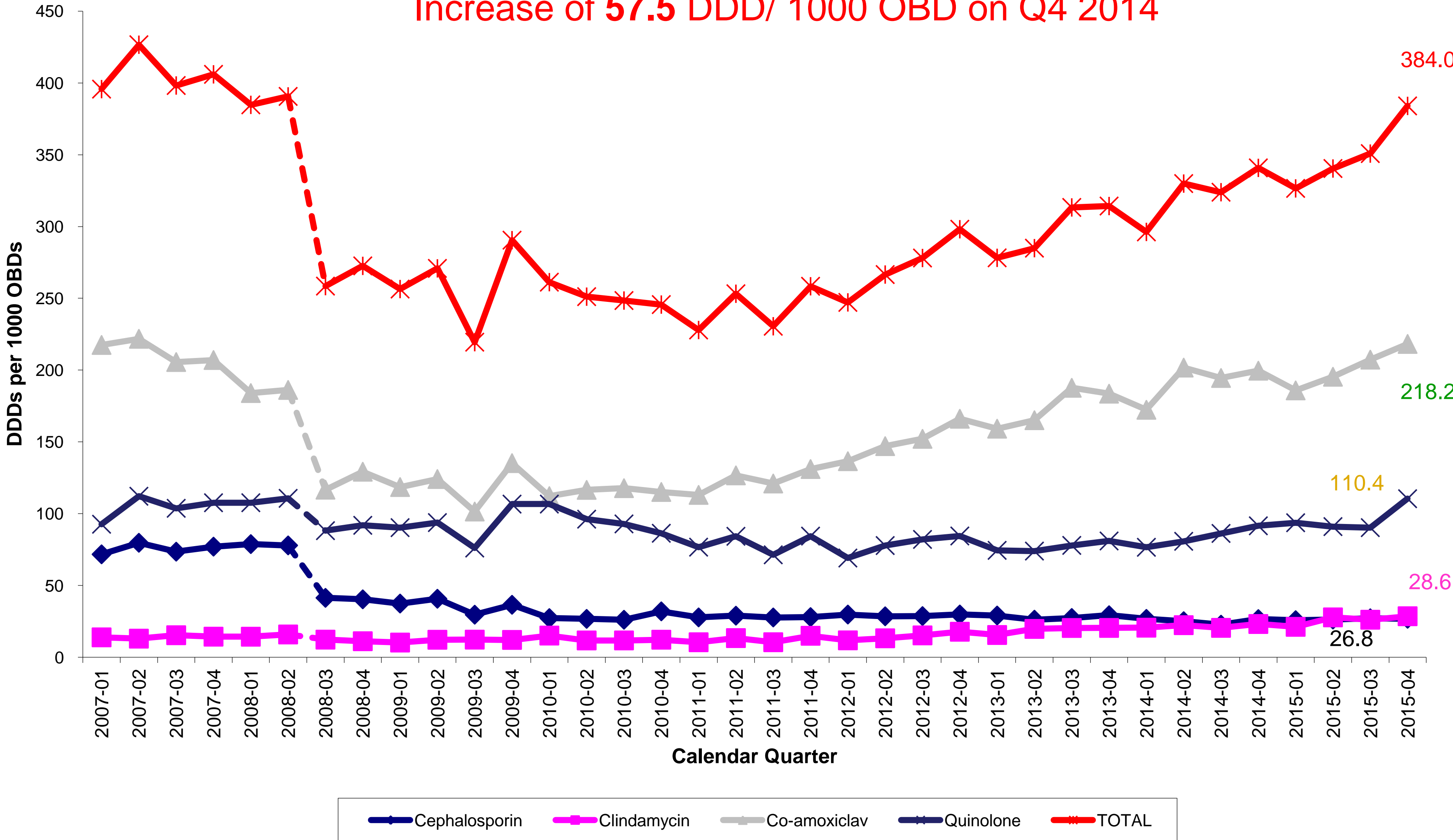


Proportion of Patients (n=3,700) Receiving Antibiotics in NHS GGC Hospitals



NHS GGC Annual PPS

The Return of Co-Amoxiclav



Challenges for delivering care in hospitals

- Increasing numbers of admissions
- Complex acute medical needs and comorbidity + polypharmacy in a growing elderly hospital population
- Revolving door of hospital admissions
  - Bed pressures, Social care
- Diminished, fragmented and ever changing medical teams
- Super-specialisation of clinical teams

Specific challenges for AMS in Hospitals

- A generation of prescribers now who do not remember CDI - “the way it was before”
- Evolution of practice through peer influence
  - Easy fix co-amoxiclav for “everything”
  - Problems with sepsis definitions and homogenisation of infection?
  - Toxicity concerns (gentamicin)
  - Guideline fatigue/ relevance?

Specific challenges for AMS in Hospitals

- **Failure of organisations to effectively “ingrain” AMS into clinical practice**
  - Still regarded as an organisational “policing” function?
  - Over-emphasis on “restriction” rather than “optimisation and preservation”
  - Education, communication and engagement
  - Time and Investment inadequate
  - Lessons from IPC structure

Where do we specifically go wrong in individual patients?

- Inadequate/ inappropriate investigation + assessment (e.g. severity, allergy)
- Failure to adhere to empirical guidance
- Too rapid ESCALATION without senior consultation/ source control
- Failure to review/ focus prescribing
- Failure to adhere to duration guidelines

Where do we specifically go wrong in individual patients?

- **Over promotion of and reliance on remote advice from infection specialists**
  - “Restrictions” may have led clinicians to abdicate some clinical decision making responsibility over difficult infection
  - Results in “Spiralling empiricism”

The following is an over simplification of a common situation…….

…….and no offence is intended

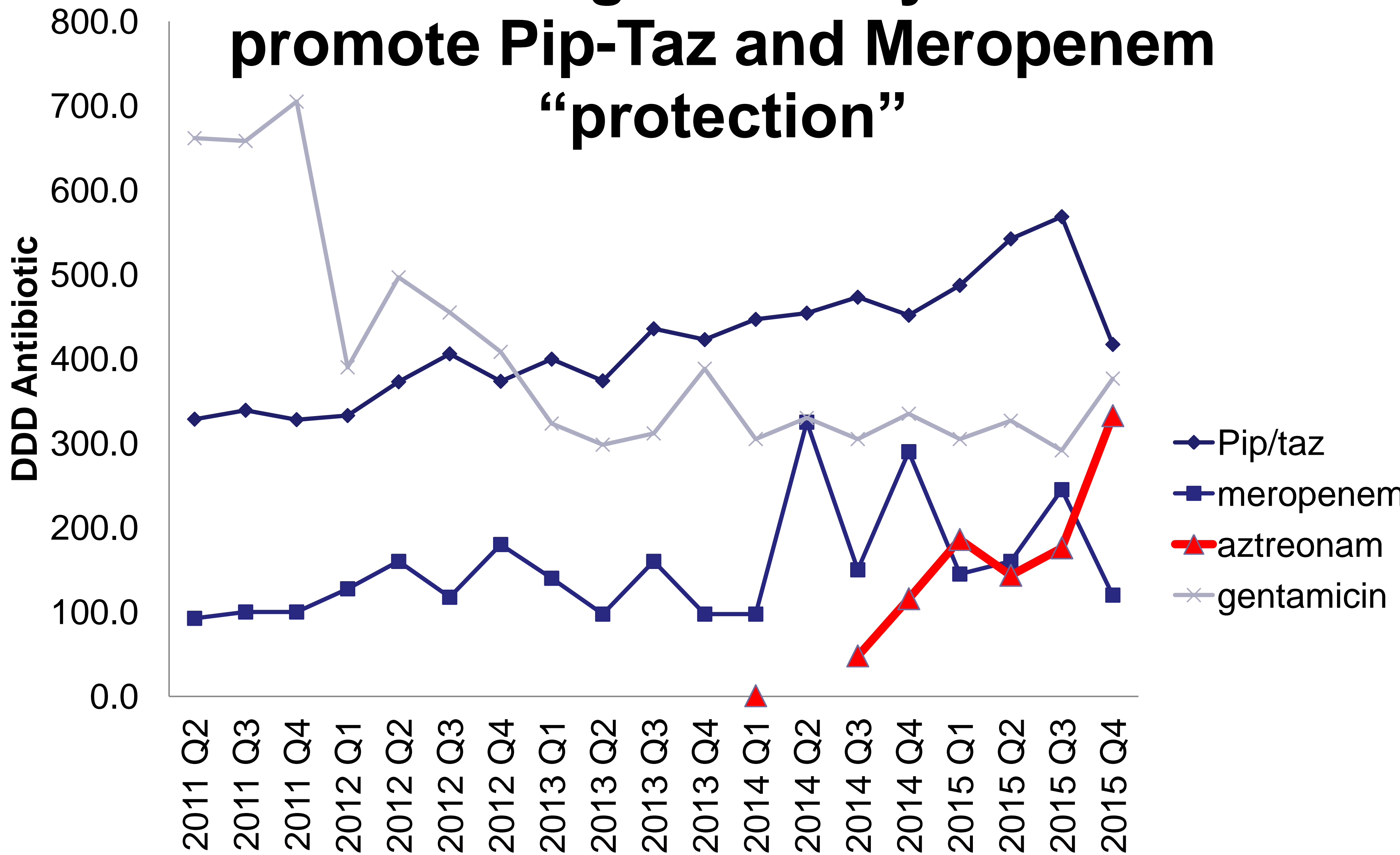
- About 90% of Meropenem use in my health board is on the recommendation of an infection specialist
- The majority of recommendations are empirical and in the context of a “deteriorating” patient or “penicillin allergy”

Challenges for improving Antibiotic use in Hospitals

- Organisational
  - AMS to be ingrained into clinical practice across the board. Not a “bolt on” or “policing function”
  - Needs investment and new ways of working
    - Role of nursing and non-infection specialist prescribers / champions

Challenges for improving Antibiotic use in Hospitals

- AMT
  - Smarter education and communication
  - Better decision support for prescribers
  - “Optimisation and Preservation” not Restriction
  - Acknowledgement and promotion of the role of the senior clinician in infection management



Senior surgeons “buy in” and promote Pip-Taz and Meropenem “protection”
DDD Antibiotic
800.0
700.0
600.0
500.0
400.0
300.0
200.0
100.0
0.0
2011 Q2
2011 Q3
2011 Q4
2012 Q1
2012 Q2
2012 Q3
2012 Q4
2013 Q1
2013 Q2
2013 Q3
2013 Q4
2014 Q1
2014 Q2
2014 Q3
2014 Q4
2015 Q1
2015 Q2
2015 Q3
2015 Q4
Pip/taz
meropenem
aztreonam
gentamicin