F-P3.10: Is it worthwhile to implement Antibiotic Stewardship Program in a regional hospital?

HA Convention 2018

Wu KL, Chow LL, Yeung WT, Tam KY, Yick PK, Lung KC, Mo CY, Wong LH, Liu WT, Lee RA, Cheng SY.

Background (1)

- Antibiotic Stewardship Program (ASP) rolled-out in HA since 2006
  - 6 "Big guns antibiotic" (BGA): ceftazidime/ cefepime/ cefoperazone-sulbactam/ piperacillin-tazobactam/ imipenem-cilastatin/ meropenem
  - HA-wide stock-take (Sept 2017): not all hospitals have fully implemented

- Ruttonjee and Tang Shiu Kin hospitals
  - No existing ASP; manpower implications and potential impact uncertain
  - ACHS gap analysis (criteria 1.5.2) PAI: retrospective baseline audit followed by action plan for implementation

Background (2)

- Inclusion criteria
  - Patients from 3 target departments
  - Put on any BGA for ≥2 (Ortho/ Surg) or ≥4 days (Med) consecutively
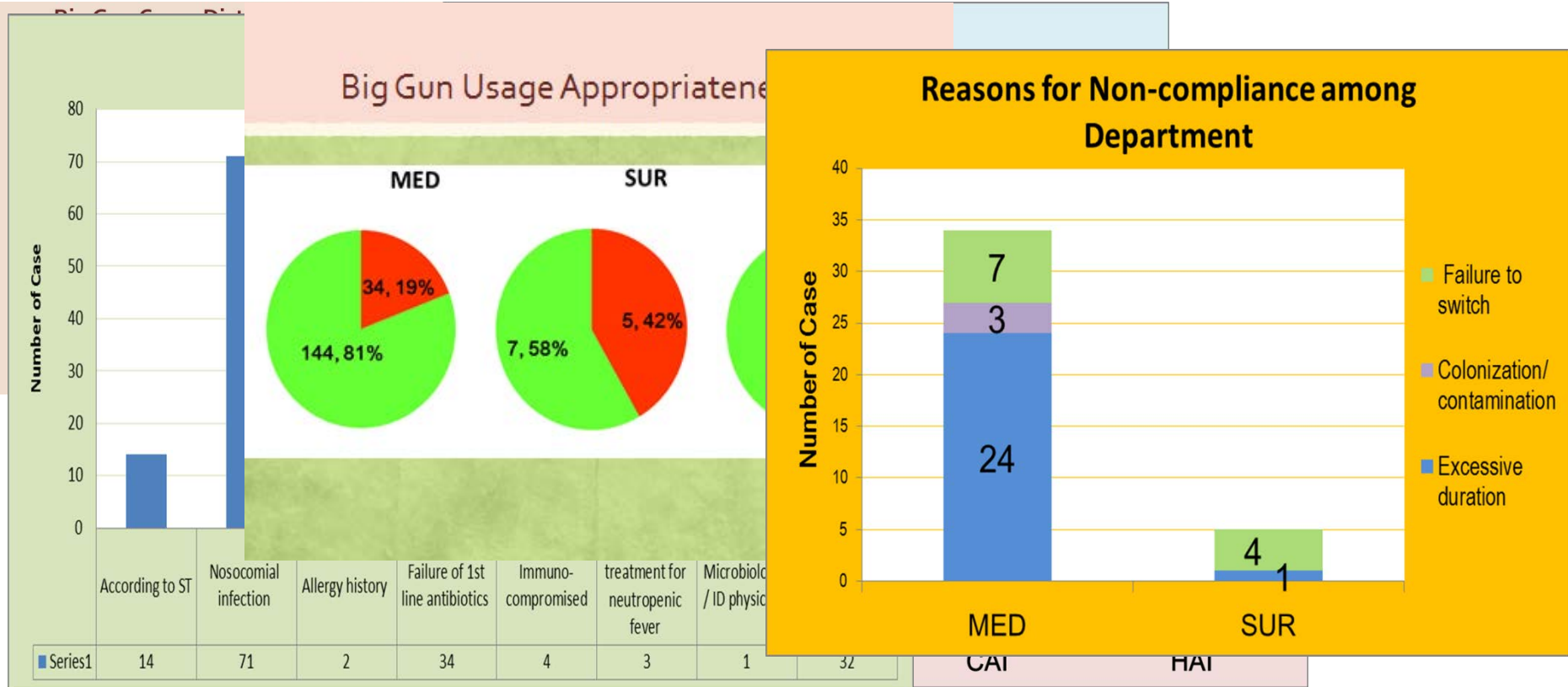 - Period: 1st – 30th April 2017

- Method
  - Pharmacy prepared patient list from CDARS
  - ICN borrowed case notes and prepared database
  - ICO performed audit and "dummy" immediate concurrent feedback (ICF) based on case notes and chart review

- Objectives
  - To determine the case load and indications of BGA usage in the target departments
  - To determine the baseline appropriateness and the reasons for inappropriate usage
  - To estimate the potential impact of ASP

Results (1)

Big Gun Usage Appropriateness

MED

SUR

34, 19%

144, 81%

5, 42%

7, 58%

Reasons for Non-compliance among Department

7

3

24

4

1

- Failure to switch
- Colonization/ contamination
- Excessive duration

MED   SUR

	According to ST	Nosocomial infection	Allergy history	Failure of 1st line antibiotics	Immuno-compromised	treatment for neutropenic fever	Microbiolo / ID physic	
Series1	14	71	2	34	4	3	1	32

Results (2)

- "Dummy" ICF given in 39 cases
  - Streamlining of therapy: 10
  - Stop drug: 29

- Assuming 100% compliance to ICF, potential 234 days of BGA could be spared in this cohort of patients

- For subset of cases with ICF given to "stop drug" (N=29)
  - Reasons: Excessive duration (26); colonization/ contamination (3)
  - Duration of use observed T_1= 6-19d (median 13, IQR 6.5)
  - Duration if ICF followed T_2 = 3-14d (median 7, IQR 2.5)
  - Difference $T_1 - T_2$ = 2-11d (median 5); Z= 4.35436, P < 0.00001.

Conclusions

- **Workload of ASP** estimated to be ~10 new cases per working day in a regional hospital

- Majority of BGA prescription from **Med (92%)**, followed by Ortho and Surg

- **Meropenem + piperacillin-tazobactam** accounted for >90% of BGA usage

- **Appropriateness vary from 58 – 100%**, with different patterns of inappropriate usage observed in different departments
  - Excessive duration > failure to streamline
  - May require different approaches for control

- **ASP can potentially impact** drug usage (sparing of BGA) and patient care (shortened duration of iv therapy)

Limitations: single center; retrospective nature; relatively short duration of study