

Early antibiotic stewardship starts in the emergency department

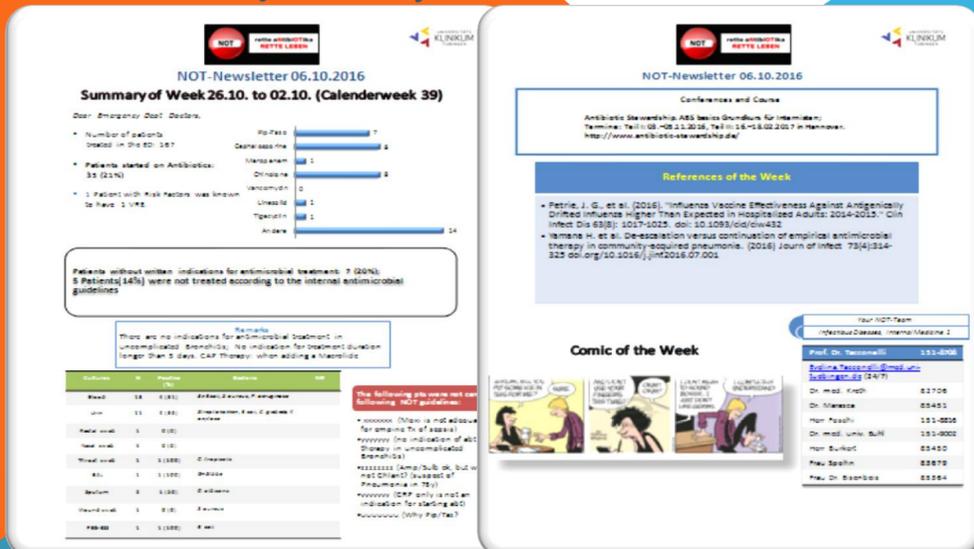
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Background: Since Emergency Departments (EDs) are at the crossroads of inpatient and outpatient care, they represent a critical setting for initiating interventions which could reduce inappropriate antibiotic (ATB) prescribing. Due to the transfer of patients under ATB to other wards, antimicrobial stewardship programs (ASP) in the ED could impact usage on afferent wards as well. However, the ED differs from inpatient care units primarily in the need for rapid patient turnaround. Clinical decisions are often based on preliminary laboratory results and microbiological tests are seldom rapidly available. Therefore in this setting ASP have been rarely implemented and a few evidence for effectiveness is available.

Objectives: Primary aims of this project were to reduce the ATB consumption (in particular carbapenems and piperacillin-tazobactam) in the ED of a 1541-bed university hospital. The second objective was to reduce the rate of *Clostridium difficile* infections (CDI) in the afferent wards.

Design: The study was designed as interrupted time series. An 8-week observational study was performed to define usage, indications and major problems in prescribing, followed by 52 weeks intervention and 24 weeks follow-up without ASP.

Example of weekly newsletter



NOT-Newsletter 06.10.2016
 Summary of Week 26.10. to 02.10. (Calendarweek 39)

Dear Emergency Dept. Doctors,
 * Number of patients treated in the ED: 187
 * Patients started on Antibiotics: 33 (21%)
 * 1 Patient with Risk factors was known to have a VRE

Patients without written indications for antimicrobial treatment: 7 (20%)
 5 Patients (48%) were not treated according to the internal antimicrobial guidelines

References:
 There are no indications for antimicrobial treatment in uncomplicated otitis media. No indication for treatment duration longer than 5 days. CAP therapy when adding Macrolide

Comic of the Week

Setting: A non-surgical interdisciplinary ED, with 20 beds and 6 emergency rooms and 10400 admission/year.

The Antimicrobial stewardship program included:

- online BSAC ATBS course for all ED fellows;
- local consented guidelines (LCG) for the most frequent indications tailored towards local epidemiology;
- weekly audit and feedback of therapy with the whole team of ED physicians and expert ID consultants;
- weekly newsletters reporting microbiological data, antibiotic usage, “LCG-non compliant” cases and an educational section with relevant ATB courses and articles.

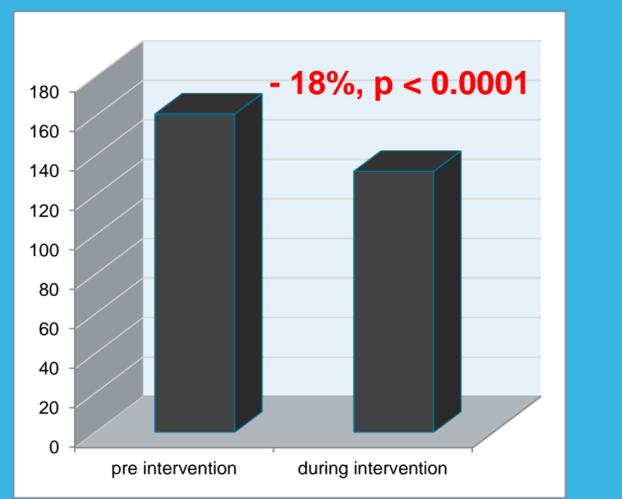
Results

Patients started on Antibiotics **1523 (21%)**

Patients admitted to the ED between Jan-Sep 2016: **7282**

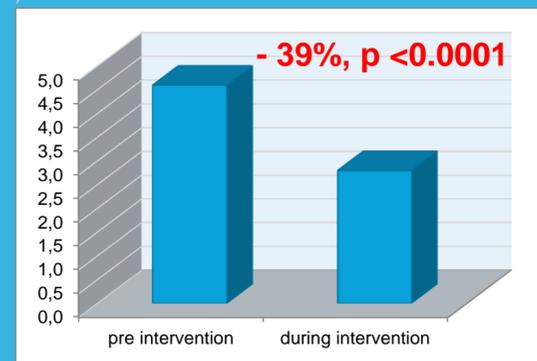
- 42 Newsletters (NL)
- 1523 Patients audited
- 172 Cases discussed in NL
- 6 HCW involved!

Overall ATB DDD*/100 pt-days

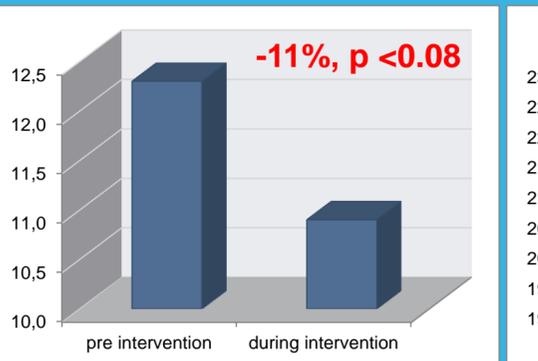


*Daily defined doses (DDD) according to the WHO-ATC/DDD index

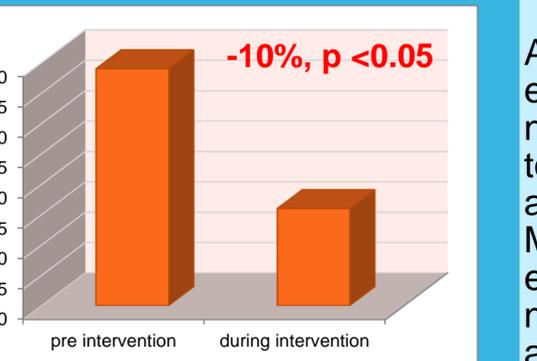
Hospital acquired CDI in the ED afferent wards showed a trend in reduction from 1.8 to 1.5/1000 pts



Carbapenems DDD/100 pt-days



Pip/Taz DDD/100 pt-days



Quinolones DDD/100 pt-days

Conclusions

ASP in ED can be feasible and effective. Our model, using nonrestrictive methods, can lead to antibiotic reduction in the ED and favorably impact on CDI. Multicenter studies in different epidemiological settings are needed to define generalizability and cost effectiveness.