IMPROVEMENT NEEDS TO BE CONTINUOUS: DEVELOPING A PHARMACY-DRIVEN APPROACH TO EVIDENCE-BASED ANTIBIOTIC PRESCRIBING

Ian Jordaan (1), Andriette van Jaarsveld (2)

1. Mediclinic Constantiaberg 2. Mediclinic Southern Africa

CONTEXT

Antibiotic resistance is a growing concern globally and also in South Africa. As part of an initiative to increase awareness among the prescribers of local antibiotic resistance, a retrospective study of all microbial isolates over a two-year time period was undertaken to get numbers statistically high enough to reflect real resistance patterns. A list of all extended-spectrum beta-lactamase (ESBL) isolates from the same time period was collected. The aim of this study was to determine the local level of general resistance at the institution, as well as the percentage of ESBL producing pathogens presenting to the different units in the hospital.

PROBLEM

Up until recently, no hospital antibiogram had been done with statistically significant numbers of bacterial isolates. Hence, the true level and extent of resistance in problem pathogens remained largely unknown. This has a direct impact on patient care, since lacking this knowledge often leads to incorrect empiric antibiotic regimens and dosing of antimicrobials. This could potentially lead to an increased length of hospital stay, with an increased risk of super-infections by multidrug resistant (MDR) pathogens.

INTERVENTION

With the help of the Infection Prevention and Control (IPC) practitioner, all bacterial isolates identified during the period 01 January 2012 – 31 December 2013 were extracted from the database called ICNet. A similar report was generated by the local microbiologist for the ESBL producing bacteria. All data was exported to Microsoft Excel®. The documents were screened for 'first isolates only', subsequent results from the same person were deleted in order to prevent over or underestimation of antimicrobial resistance. The primary focus was placed on the problem hospital pathogens, namely: *Enterococcus faecium*, *Staphylococcus aureus* (MSSA and MRSA), *Klebsiella* spp., *Acinetobacter baumanii*, *Pseudomonas aeroginosa* and *Enterobacteriaceae* spp.

Their sensitivities on a hospital-wide scale were given, as well as in the units with the most immuno-compromised patients, i.e. CCU, Haematology and the Bone Marrow Transplant Unit (BMTU).

ESBL data was broken down, percentage-wise, into the most common pathogens harbouring them, as well as their percentage distribution throughout all the units in the hospital.

All of this information was presented to the medical staff on a single occasion in May 2014, during one of the major Antimicrobial Stewardship ward rounds. The information was also sent to all the physicians afterwards.

MEASUREMENT OF RESULTS

Although line graphs are used to track prescribing behaviour, the data is only reported quarterly, which means we do not yet have data post the improvement initiative. However, the pharmacists did not observe any change in the prescribing habits of the physicians after the presentation, and do not expect any notable change to be evident in the quarterly data.

CHALLENGES AND LESSONS LEARNT

Once-off presentation of data, however accurate and elegantly delivered, is not enough to change prescriber patterns[1]. It is clear that without further support for prescribers, the knowledge gained from our research into the resistance patterns in our hospital will not be used to improve prescribing practices. Follow-up, especially by pharmacists, is essential to make sure that physicians adhere to the information presented. This is often very difficult in a situation where pharmacists are stuck in the pharmacy dispensing and cannot go on ward rounds. To overcome this problem, a position has subsequently been created for one of the pharmacists to become a ward pharmacist. This pharmacist will go on ward rounds with the other medical staff and spend minimal time dispensing. In this way, the pharmacist will often be present at the point of the physician writing up the regimen and can therefore advise them on the best regimen to prescribe, based on the hospital antibiogram (for empiric) or the individual results (for definitive therapy).

We intend to change from quarterly to monthly data to enable us to quickly assess whether this new change will have a positive impact.

MESSAGE TO OTHERS

Improvement needs to be continuous. We learnt that having the correct knowledge is not enough for pharmacists to make a noticeable impact. In this instance, merely presenting the information did not lead to any major changes in prescribing patterns. We have now changed to a more hands-on approach, with the pharmacist present at the bedside with the physician at the time of drug regimen selection, which offers the pharmacist more opportunities to make interventions.

CONFLICT OF INTEREST

None.

1. Timothy H Dellit. Infectious Disease Society of America and the society for Healthcare Epidemiology of America guidelines for developing an institutional program to enhance antimicrobial stewardship. Clinical Infectious Diseases: 2007 (44): 159-177.

POSTJ3683TSCK