Implementation of an Antibiotic Stewardship Programme via a daily ICU ward round and an antimicrobial prescription chart at a private hospital in KwaZulu-Natal

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Introduction

With an increasing awareness regarding the irrational use of antibiotics and the development of resistant infectious organisms, an effective Antibiotic Stewardship Programme was developed. There was a need to create a multidisciplinary team focus on the stewardship programme to ensure active collaboration. This allows our patients to receive quality care.

Method

A daily ward round commenced and pharmacists increased their knowledge on the various antibiotic classes, infectious organisms and analysis of laboratory data. An antimicrobial prescription chart was introduced to the nursing management team for approval. An effective training programme commenced to introduce the concept of antibiotic stewardship and the antimicrobial prescription chart to nursing staff. All doctors were introduced to the chart and made aware of their responsibility for successful implementation. Clinical facilitators and shift leaders were trained to offer assistance with the chart at ward level. All wards were assessed to determine ward stock requirements of antibiotics and the concept of hang time was emphasised. The chart was implemented in ICU for a three week period and then rolled out to all nursing units in the hospital. Weekly audits commenced on these charts to determine compliance and ongoing training sessions became a focus to increase understanding of the prescription chart. Daily ward rounds continued in ICU, involving daily interaction with microbiologists regarding antibiotics, infection/sepsis markers and monitoring of lines. All prescription charts were then assessed on a daily basis to ensure optimal prescribing and administration. All interventions were recorded with a focus on the following interventions: antibiotics > 7/14 days, > 4 antibiotics, duplicate cover, hang time and inappropriate administration.

Results

Successful implementation of the antimicrobial prescription chart was achieved and the ICU ward round continued. All antibiotics are now scripted on antimicrobial prescription charts at the hospital. It was possible to offer the service of antibiotic stewardship to all patients in all wards. The chart created a new focus on stewardship and allowed all staff including doctors to review antibiotics with attention to appropriate selection, duration, culture results and infection markers. Staff are better informed with respect to antibiotics and meaningful clinical conversations commenced within a multidisciplinary team. The percentage of total hospital cost for antibiotics decreased. This was the result of appropriate intervention categories as discussed in methodology. Decreases were also noted with admissions with antibiotics, patients on antibiotics greater than seven and 14 days, more than two or four concurrent agents and antibiotic utilisation per 100 bed days. The chart allowed for concise tracking as pharmacists were able to intervene before seven and 14 days to determine intended duration. Since all antibiotics were scripted in a single chart, it also enabled pharmacists to query cover. The ward round also made it possible for pharmacists to review culture and other relevant laboratory results and intervene appropriately. The majority of interventions have been accepted outcomes.

Measurement of improvement

% of total hospital cost for Antibiotics decreased from 12.1% (2010) to 8.6% (2013 YTD) and antibiotics > 7/14 days decreased from 15.9% (2010) to 13.3% (2013 YTD). Patients on antibiotics > 14 days decreased from 5.5% (2010) to 2.1% (2013 YTD).

Note: The report includes Immuno-Compromised Patients and excludes Anti-Fungal Products. Definition of Period: Final billing period; when the account’s bill is sent to the medical aid. Definition of Median: Numerical value separating the higher half of the first 12 months of the defined period, from the lower half. The value is obtained by selecting the middle value after arranging all the observations from lowest value to highest value.

Conclusion

The significant improvement in crucial areas concerning antibiotics is indicative of the value of an Antibiotic Stewardship Programme. The creation of knowledge and awareness regarding antibiotics amongst health professionals at the hospital has been phenomenal and the success is due to the pharmacy-nursing collaboration. Antibiotic stewardship remains a focus area for pharmacy and nursing staff, with continuous training and the implementation of improvement methods to ensure a successful programme. Since administration of antibiotics can be monitored at a pharmacy level by means of the antimicrobial prescription chart, it is now possible to create awareness and make valuable changes in other areas. Hang time and ensuring that our patients receive the prescribed antibiotic dose within an hour of prescription is the new focus. The Antibiotic Stewardship Programme will undoubtedly grow to new heights due to unstinting commitment of key roleplayers.