Building blocks for a sustainable antibiotic stewardship program and reduction of antibiotic utilisation

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Context
An antibiotic stewardship program (ASP) was launched in November 2011. The committee is a collaboration of physicians, pharmacists, microbiologists, unit managers, the infection prevention practitioner and is supported by hospital management.

The implementation process was discussed at the following forums which generated support for the programme:
- Physician’s advisory board (PAB)
- Infection prevention meeting
- Unit managers meetings
- Theatre forum

The aims of ASP are to combat antimicrobial resistance & ensure the prudent use of antibiotics by:
1. Ensuring all patients are prescribed the appropriate antibiotic, at the correct dose and time, for the correct duration of therapy, consistently
2. To preserve the antibiotics left in the dwindling armamentarium
3. To improve patient outcomes
4. Alignment with the Netcare Triple Aim Strategy.

Problem
Antimicrobial resistance is a key challenge faced by health care institutions around the globe including South Africa. An outbreak of Carbapenem Resistant Enterobacteriacea (CRE’s) in December 2011 caused concerns on the potential impact on morbidity and mortality of the affected patients as well as the disruption to the daily operations of the hospital. It galvanised the committee into action. We had met the ‘end of the antibiotic era’ head on.

Intervention
Following the launch of ABS:
1. An antibiotic stewardship prescription chart (ABS Rx) was implemented in March 2012 – currently at version 6.
2. Key focus areas were measured by the clinical pharmacist on her daily ward rounds
   - hang time within an hour of being prescribed
   - antibiotics (AB’s) prescribed > 7 & 14 days
   - > 4 AB’s prescribed concurrently
   - double gram negative/positive cover
   - inappropriate prescribing of antibiotic dosages
   - surgical prophylaxis process in main and labour ward theatres.
3. These interventions were implemented by the pharmacy team in December 2013 to ensure active surveillance of all ABS Rx’s dispensed by the pharmacy.
4. Early in 2014 it was decided to adopt an integrated approach to improving patient outcomes, combining both ABS and infection prevention measures.

These are the building blocks together with ABS:
- Early detection through screening of patients for MRSA & CRE if indicated
- Early isolation of patients identified with high alert organisms
- Development of a bundle strategy to improve hand hygiene compliance
- “The 12 Do’s of Destruction” strategy evolved initially to contain the outbreak and reduce the incidence of multi-drug resistant organisms, but is now entrenched in daily activities
- The Best Care Always Campaign focused on reducing device related healthcare infections.

Measurement of improvement
The Breakthrough Series: IHI’s Collaborative Model was used as a guideline for the development of the antibiotic stewardship programme.

1. Antibiotic stewardship interventions were monitored on a weekly basis and areas for improvement were addressed via active discussions at the unit managers, antibiotic stewardship meetings and with medical and nursing staff at the bedside.
2. The surgical prophylaxis process and outcomes was discussed at weekly huddles with the theatre nursing staff and at the theatre forum, antibiotic stewardship and PAB meetings.
3. A notice board of results and electronic communication were also used as vehicles of communication for all process measures
4. In short we discuss antibiotic stewardship all of the time with everybody at every available opportunity.

Antibiotic utilisation (DDD/100 bed days) was used as an outcome measure to evaluate improvements over the two and half years since the implementation of the ASP.

Data shows that there was a significant reduction of 11.11 DDD/100 bed days when comparing 2010-2011 with 2012-2014 YTD.

Further evaluation of the reduction of multi drug resistant organisms, including CRE is on-going. Reduction of device related infections is also under scrutiny.

Challenges & lessons learned
- Developing a quality culture remains challenging – it requires passion and the re-iteration of aims to change behaviour. We only learned this as we became more aware of quality science methodology.
- The change management strategy included the identification of “positive deviant’s” who embedded new processes in daily practice, but if we had done this sooner we could have accelerated the rate of change.
- An ambitious project of this size is only sustainable if the multi-disciplinary team have connected, converged and co-created new ways of working. This has evolved over time and now the team members are inter-dependant in many of the decision making arenas.

Message for others
We have learned that collaboration with representatives from each discipline - nursing, pharmacy, infection prevention and prescribers, are of paramount importance not only in ensuring a sustainable ABS programme but in driving a holistic approach to providing the Best Care Always for our patients.

A new platform has been created on which we now drive improved patient outcomes.

In order to put together the building blocks the channels of communication need to be opened where frequent and frank dialogue can take place and where everybody’s opinion is respected.