Mediclinic Scenario Award:
Clinical pharmacy and antimicrobial stewardship:
a symbiotic relationship

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Introduction
Hospitals should be a safe haven where patients can recover from their illness. Unfortunately, this is not always the case. According to the British National Health Institute Patient Safety Agency, hospitals are probably as dangerous as bungee jumping.1 Hospitalised patients receive the recommended best care only 50-55% of the time.2 During hospital admission, adverse events affect nearly one out of 10 patients. While more than half of patients experience no or minor disability, 7.4% of events are lethal. A substantial part (44%) of them is preventable. Since a large proportion of in-hospital events are operation- or drug-related, interventions aimed at preventing these events have the potential to make a substantial difference.3 Pharmacists are in an ideal position to make a valuable contribution to safer pharmaceutical care in our hospitals.

What is antimicrobial stewardship?
Antimicrobial stewardship refers to a programme or series of interventions that monitor and direct antimicrobial use at a healthcare institution, thus providing a standard evidence-based approach to judicious antimicrobial use.4

The goals of antimicrobial stewardship are to optimise the safe and appropriate use of antimicrobials, enhance clinical outcomes while minimising unintended consequences of antimicrobial use (e.g. toxicity and resistance), and reduce healthcare costs without adversely affecting quality of care.5

The importance of antimicrobial stewardship in South Africa
Like the rest of the international community, South Africa is on the brink of returning to a situation of untreatable bacterial infections. A strong, coordinated and urgent response is needed to combat the threat of antimicrobial resistance.6

Inappropriate antimicrobial use is strongly associated with the emergence of antimicrobial-resistant pathogens. An effective antimicrobial stewardship programme, with appropriate drug product selection, dosing, route of administration and duration of antimicrobial therapy, applied in conjunction with a comprehensive infection prevention and control programme, has been shown to limit the emergence and transmission of antimicrobial-resistant microorganisms.5

The following should be noted:
- Studies indicate that nearly 50% of antimicrobial use in hospitals is unnecessary or inappropriate.
- The use of antimicrobials is a precious, life-saving resource that must be reserved to protect human and animal health.
- Antimicrobial resistance is a critical global concern that requires an immediate, sustainable, multidisciplinary global response.5,7

Pharmacist involvement is critical
The literature 4,5,7-9 highlights the importance of the involvement of a clinical pharmacist as a core member of the antimicrobial stewardship team.

The following organisations requested that pharmacists, in particular, become clinically involved in antimicrobial stewardship programmes:
The role of the pharmacist in antimicrobial stewardship\textsuperscript{4,10}

Promoting multidisciplinary collaboration

The pharmacist can identify certain cases that need review and communicate recommendations from the stewardship team to the healthcare practitioners.

Hospital antimicrobial stewardship team

As a core member of the team, it is important that there is pharmacy representation on meetings and antimicrobial ward rounds.

Review antimicrobial prescriptions and make recommendations

It is crucial that pharmacists record their interventions. If it has not been recorded, it has not been done!

Pharmacists can do the following:

- Review days of therapy
- Review appropriateness of therapy
- Monitor appropriate dosing
- Notify the medical practitioner when drugs with overlapping antimicrobial spectrum are prescribed for the same patient
- Recommend de-escalation from intravenous to oral drugs and to narrower-spectrum drugs based on culture results, where appropriate.

Surveillance and analysis of data on antimicrobial usage

Antimicrobial stewardship is a new evolving intervention in healthcare improvement. We need to know where to start and if the intervention is useful. Surveillance data and the analysis of data could measure progress and determine if an improvement occurred.

The Mediclinic approach towards clinical pharmacy

One of the Mediclinic core values is to strive towards a patient-centric culture, with patient safety as the main clinical concern. Implementing antimicrobial stewardship and clinical pharmacy in our hospitals is greatly supported by top management and is regarded as a way in which to execute our values. We are reacting to the urgent requests of WHO and FIDSSA to combat antimicrobial resistance.\textsuperscript{2,3} The necessity of pharmacists being more clinically involved, especially in the hospital wards, has been clearly identified. To complicate the situation, the specialty registration for clinical pharmacists at the South African Pharmacy Council is still pending. The same need for clinical involvement exists in all Mediclinic hospitals. With little qualified and no registered clinical pharmacists in South Africa, Mediclinic decided to take a different approach. A pharmacist was appointed to co-ordinate the antimicrobial stewardship, clinical pharmacy activities and to support the ward pharmacists from a central point.

Ward pharmacists with a special interest in clinical pharmacy were identified in the hospitals as they form an integral part of the multidisciplinary team. They assist with antimicrobial stewardship, ward rounds and provide information to healthcare colleagues.

Study on progress in clinical pharmacy

Study objective

The study objective was to investigate the present involvement of Mediclinic pharmacies in clinical activities and to determine the requirements and opportunities for clinical pharmacy in our practice.

Method

Electronic questionnaires were distributed to 51 pharmacies in the group on two different occasions, in February 2011 and again in March 2012. Current expectations regarding clinical pharmacy, the expectations about key outputs that a clinical pharmacist should deliver, and pharmacists’ current clinical involvement, were addressed.

Training of ward pharmacists commenced at regional level. Introduction training focused on a basic review of antimicrobials and antimicrobial stewardship.

Antimicrobial stewardship was introduced to the hospitals by creating awareness, distributing guidelines, holding workshops and developing antimicrobial stewardship tools.

Results

The response rate was 57% (29/51) in 2011. This improved to 76% (39/51) in 2012. Pharmacists’ ward rounds increased from five hospitals to 20 hospitals (Figure 1).

Pharmacists conducted 40% (8/20) of the ward rounds; the pharmacist and nurse practitioner, 30% (6/20); the pharmacist (as part of the multidisciplinary team) 20% (4/20); and the pharmacist and multidisciplinary team, 10% (2/20) (Figure 2).

The ward rounds were directed towards more than one output, such as antimicrobial stewardship and general audits, in 45% (9/20) of the rounds. Forty per cent (8/20) of the rounds focused on antimicrobial stewardship and 15% (3/20) on general audits pertaining to prescriptions and stock (Figure 3).
The pharmacists who carried out the ward rounds (20/51) indicated that they recorded their interventions in 70% (14/20) of the hospitals. The majority of pharmacists agreed that ward pharmacists were beneficial for safer patient care in their hospitals (Figure 4).

Discussion

The responses demonstrated enthusiasm by clinical pharmacists for clinical work and individual involvement in activities. The introduction of antimicrobial stewardship after the survey highlighted the need for pharmacist interventions in our group and the role of the pharmacist as part of the multidisciplinary team.

 Biggest challenges in the implementation of stewardship

We have experienced challenges in understanding exactly what to do and in having to gain more knowledge in order to implement stewardship successfully. The importance of team work in the pharmacy was highlighted as some pharmacists have to work in the pharmacy in order to dispense the prescription, while other colleagues carry out ward rounds. Working as part of a multidisciplinary team was also a challenge, as multidisciplinary ward rounds have not been carried out routinely in the private sector.

Stewardship is a time-consuming process and making time available in resource-constrained environments was challenging.

Overall change management, from the public to the pharmacists, medical practitioners and the hospital management, is required to make a success of this process.

Lessons learned

To reduce the prevalence of antibiotic resistance, change management is needed in all sectors of healthcare. Antimicrobial stewardship has been described as a marriage between appropriate prescribing and excellent infection control. It is a team effort and the collaboration between the medical practitioner, pharmacist, infection control practitioner and microbiologist, with support from the hospital management, is crucial to ensure a difference. As hospitals’ situations differ, a one-size-fits-all approach is not possible. The process has to be adapted to cater for a specific setting. Healthcare science has proven that it is best to start small and to build the programme from there.12 Most importantly, if we do nothing, we will definitely fail, so start with something today!

Antimicrobial stewardship is a golden opportunity through which to get clinically involved in your patients’ care.

Acknowledgements

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References are available on request.