

# THE CHALLENGE OF CHANGING PRESCRIBING PRACTICES

HOW ADDRESSING OUR USE OF COLISTIN CHANGED OUR PERSPECTIVE ON THE CORRECT UTILISATION OF ANTIMICROBIALS.

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## CONTEXT

Mediclinic Bloemfontein is a 377-bed private hospital in the Free State, South Africa, with 72 critical care beds.

## PROBLEM

A concern was raised by clinical managers about the high utilisation of antimicrobials, far above the norm for Mediclinic Southern Africa. In particular, our use of colistin far exceeded that in other hospitals of similar size and case mix in the group.

## ASSESSMENT OF PROBLEM AND ANALYSIS OF ITS CAUSES

To understand the problem, ward rounds were implemented in two specific Critical Care Units (CCUs) where the use of antimicrobials was the highest.

We found that, as a referring hospital, patients were frequently admitted with gram-negative resistant organisms and that long-term CCU patients, pressure from family members and the ethical-moral problem as to when to stop medication, all contributed to the overwhelming use of antimicrobials.

In addition, our doctors had established antimicrobial prescribing patterns formed over many years and last resort drugs, like colistin, were sometimes being inappropriately used.

## INTERVENTION

The worldwide threat of antibiotic resistance made a strong business case for our intervention<sup>1</sup>, as did an alarming development of pan-resistant gram-negative organisms in our region suggesting that healthcare in Bloemfontein was heading for disaster unless we could keep colistin and tigecycline as antibiotics of last resort. Our aim was to reduce inappropriate antimicrobial usage, including colistin.

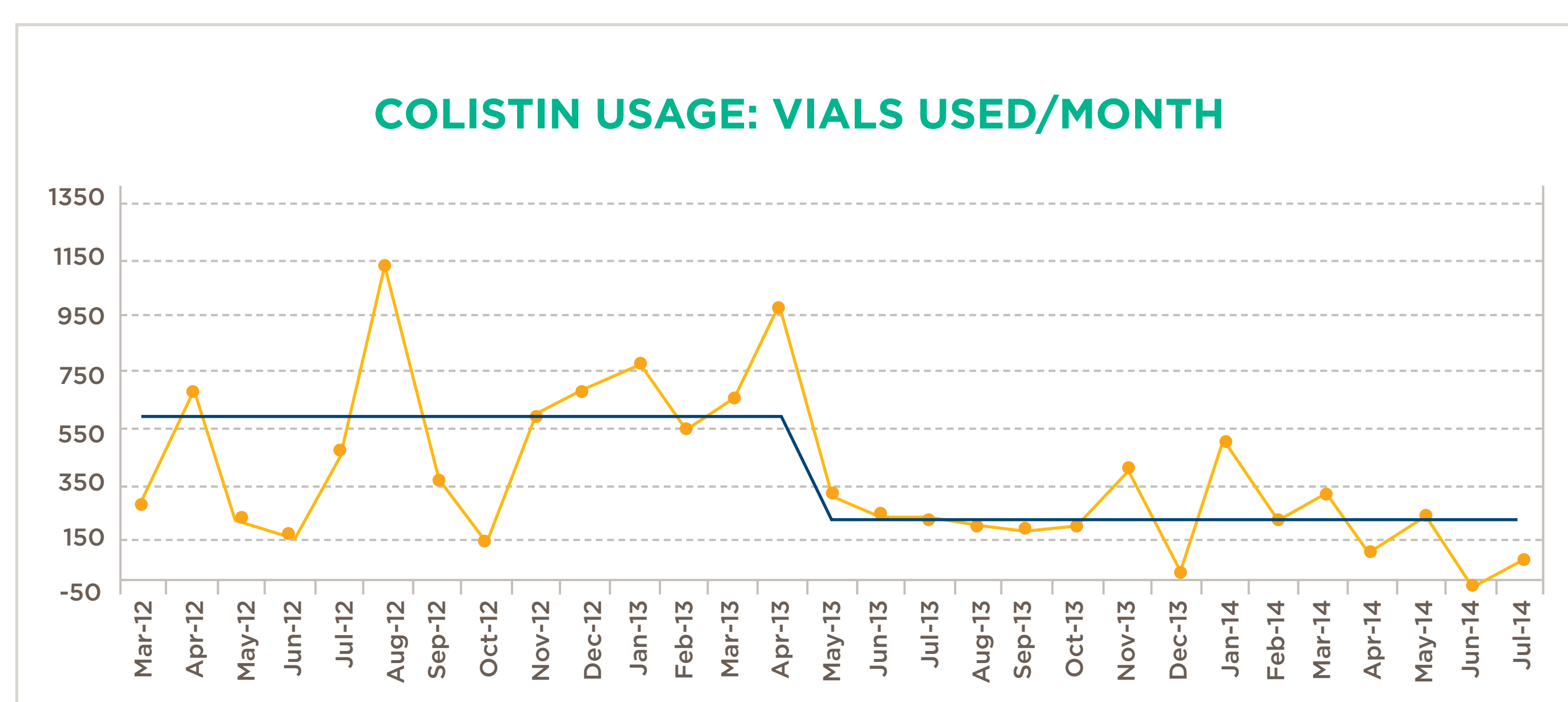
The ward pharmacist started ward rounds in July 2011 and then later included a microbiologist and the medical practitioners who the majority of physicians were consulting. The intervention centred on limiting unnecessary antimicrobials and not treating colonisations or microbiological cultures without clinical signs.

These ward rounds did not change the prescribing behaviour. De-escalating, multi-cover or stopping antimicrobials was confronted by fear of change and years of practice.

A checklist for clinical indications for colistin, to be filled out by any physician prescribing colistin, was then introduced as a measure to limit colistin usage. It was when this colistin checklist was discussed privately with the physicians that the heart of the problem was identified. The possible solution, that an infectious diseases physician be appointed by the hospital on a non-admitting consultation basis, was recommended by a number of these physicians. This idea had to be strongly motivated by the Antibiotic Stewardship Committee as it would incur additional costs for the hospital. Hospital management felt that the hospital's financial expenditure exceeds the budget and that the additional cost of appointing the Infectious Diseases (ID) consultant was a risk for the hospital's budget.

The ID physician started consulting in the hospital in July 2013. Increasingly, he became the specialist that physicians would consult for CCU patients. By February 2014 he was leading a multidisciplinary antimicrobial ward round once a week, with two microbiologists, the pharmacist and an infection prevention and control nurse to ensure appropriate antimicrobial usage.

Figure 1: Colistin use dropped from a baseline median of 579 to 232 vials/month



## MEASUREMENT OF IMPROVEMENT AND RESULTS

Run charts were used to assess antibiotic usage. A rapid improvement was demonstrated from when the ID physician started doing ward rounds. Colistin prescribing dropped significantly (Figure 1) as did multi-cover (Figure 2) and prolonged treatment (Figure 3). This occurred even for patients not consulted by the team, as the physicians became confident in the new prescribing behaviours. Patients that usually had colonisation of gram-negative organisms, were not treated at all.

## CHALLENGES AND LESSONS LEARNT

By focussing on changing the prescribing practice for one 'last resort' antibiotic we learnt about our prescribing practices and how to change them. Engagement of physicians was key to changing behaviour. Bringing in an outside infectious diseases expert had a dramatic impact on prescribing behaviour. Although this intervention was initially met with some resistance, this resistance faded when physicians were able to see that changing the prescribing habits did not worsen patient outcomes (although a minority of specialists have still not changed their prescribing habits).

CCU staff were initially very sceptical about the reduced number of antibiotics prescribed, because they were used to the idea that patients in CCU needed to receive four to five antimicrobials at the same time. The staff now embrace the change because, according to one registered nurse, they now have more time to attend to patients' needs, rather than mixing antimicrobials and deciding what to hang first.

## MESSAGE FOR OTHERS

Each physician has a certain way of practising medicine, and the old way might change to the wrong way, as time goes on. We need to adapt to changing organisms and resistance patterns, because this is what organisms are doing. The authority of an ID physician, together with a multidisciplinary team, has major power in changing physician behaviour.

## CONFLICT OF INTEREST

None.

Figure 2: Multi-cover improved from a baseline median of 6.4 to 5.7/1 000 patient days.

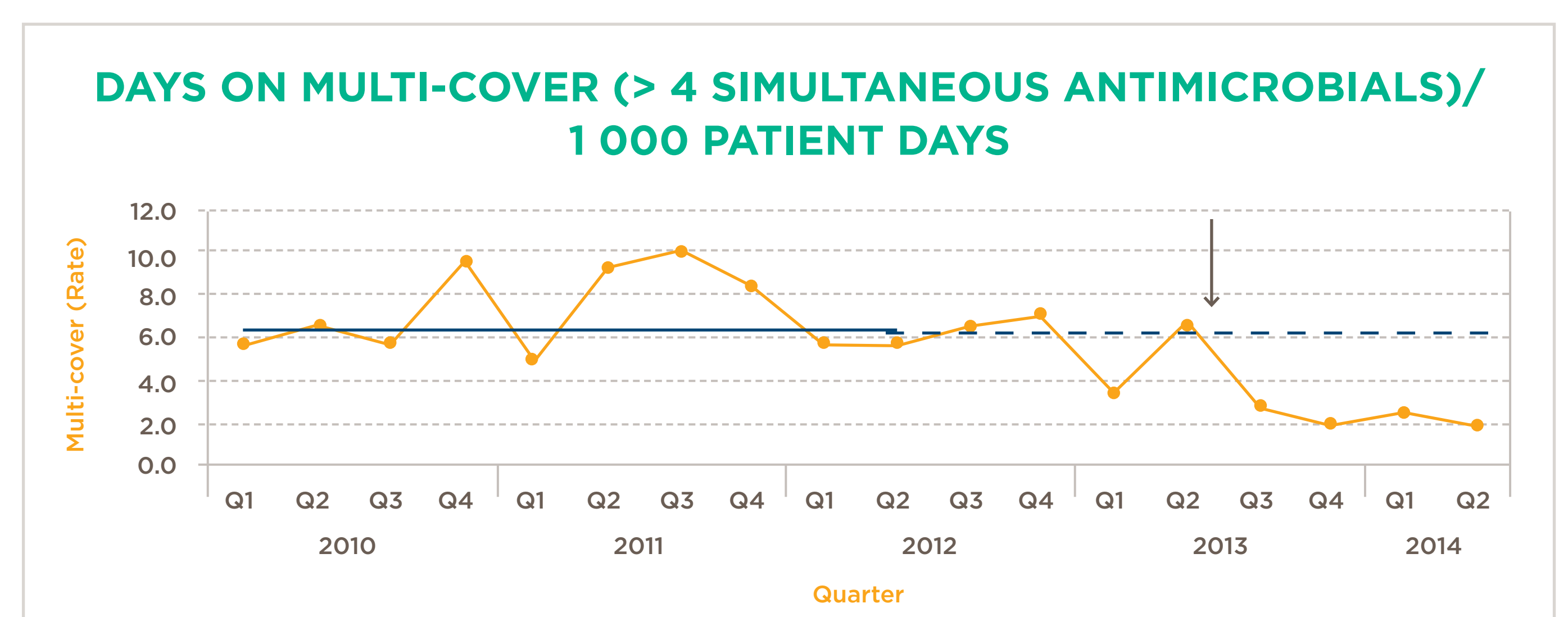


Figure 3: Prolonged treatment improved from a baseline median of 20 to 13.8/1 000 exposures.

