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INTERNATIONAL  
SOCIETY  
FOR INFECTIOUS  
DISEASES

## Non-specialist Pharmacists as Stewardship Champions

Dr Dena van den Bergh

South African Antibiotic Stewardship Programme (SAASP)

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**Different  
Models of  
Antibiotic  
Stewardship  
in Low- and  
Middle-Income  
Countries**



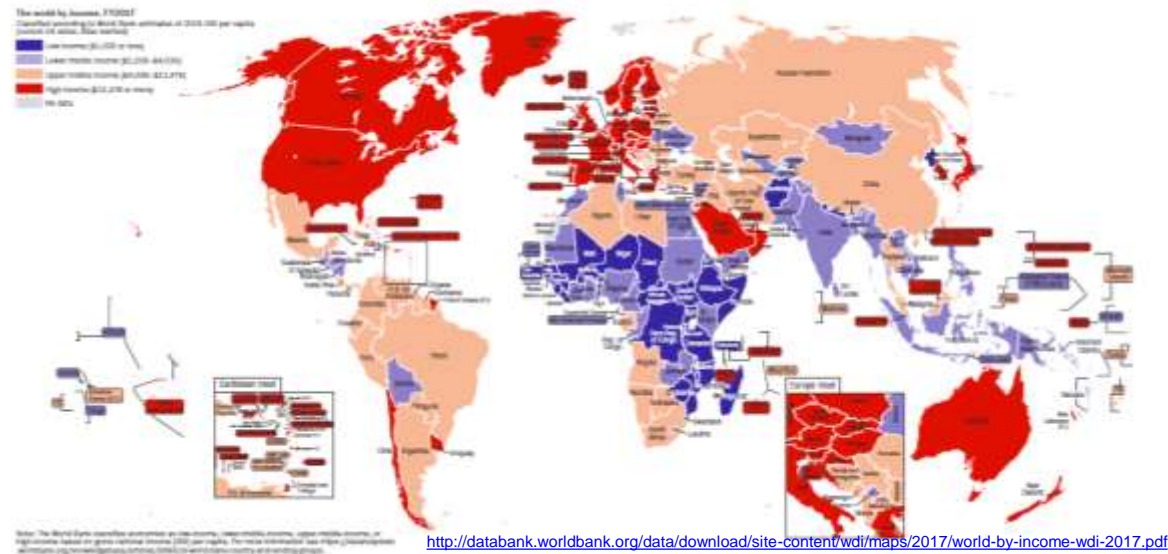
@inspired2leadQH

No conflict of interests to declare

Human resources estimates and funding for antibiotic stewardship teams are urgently needed\*

Antibiotic stewardship programmes should ideally be led by multidisciplinary professionals with specialist training in antibiotics and infectious diseases\*

Adequate resources to constitute these teams remain a challenge for effective change, especially in low-and middle-income countries(LMICs).



\* Pulcini C, et al., Human resources estimates and funding for antibiotic stewardship teams are urgently needed. Clinical Microbiology and Infection (2017), <http://dx.doi.org/10.1016/j.cmi.2017.07.013>

# Three multi-center antimicrobial stewardship initiatives led by non-specialist pharmacists

## AMS IMPLEMENTATION STUDY - 47 HOSPITALS

- QI model breakthrough series
- Pharmacist allocated time
- 116 662 patients reviewed, 7934 interventions,
- 104 weeks standardised measurement & feedback
- 18,1% reduction in antibiotic use

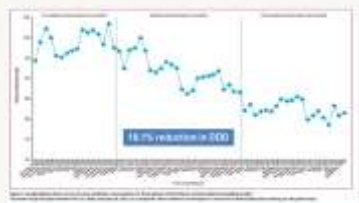
**Antimicrobial stewardship across 47 South African hospitals: an implementation study**

**Background:** The evidence base on antimicrobial stewardship programmes in Africa is sparse. The aim of this study was to assess the implementation of an antimicrobial stewardship programme in a setting with limited resources.

**Methods:** An implementation pharmacist (IP) provided real-time feedback during the antimicrobial stewardship programme in 47 hospitals across South Africa. The main aim was to assess the impact of the implementation of an antimicrobial stewardship programme on antibiotic use. Secondary objectives included assessing the impact of the programme on antibiotic use, antibiotic resistance, and antibiotic-related costs. Data were collected over 104 weeks. The IP provided real-time feedback to prescribers on antibiotic use. The IP also provided real-time feedback to prescribers on antibiotic use. The IP also provided real-time feedback to prescribers on antibiotic use.

**Results:** We implemented and assessed the antimicrobial stewardship programme between July 1, 2016, and July 1, 2017. The programme was implemented in 47 hospitals across South Africa. The programme was implemented in 47 hospitals across South Africa. The programme was implemented in 47 hospitals across South Africa.

**Conclusion:** Antimicrobial stewardship programmes can be implemented in South Africa. The programme was implemented in 47 hospitals across South Africa. The programme was implemented in 47 hospitals across South Africa.



## PHARMACIST-NURSE AMS COLLABORATION AB TIMELINESS - 33 HOSPITALS

- 32,985 patients who received IVI antibiotics assessed for hang-time compliance with first doses of new antibiotic orders over 60-weeks.
- “hang-time” compliance to protocol improved from 41.2% to 78.4%

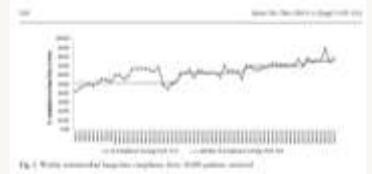
**Antimicrobial Stewardship with Pharmacist Intervention Improves Timeliness of Antimicrobials Across Thirty-three Hospitals in South Africa**

**Background:** Timely administration of antimicrobials is critical to the management of patients with infectious diseases. The objective of this study was to assess the impact of pharmacist intervention on the timeliness of antimicrobial administration in 33 South African hospitals.

**Methods:** A pharmacist-nurse collaboration was implemented in 33 South African hospitals. The pharmacist-nurse collaboration was implemented in 33 South African hospitals. The pharmacist-nurse collaboration was implemented in 33 South African hospitals.

**Results:** The pharmacist-nurse collaboration was implemented in 33 South African hospitals. The pharmacist-nurse collaboration was implemented in 33 South African hospitals. The pharmacist-nurse collaboration was implemented in 33 South African hospitals.

**Conclusion:** Pharmacist-nurse collaboration improves the timeliness of antimicrobial administration in South African hospitals. The pharmacist-nurse collaboration was implemented in 33 South African hospitals.



## PERI-OPERATIVE ANTIBIOTIC PROPHYLAXIS 34 HOSPITALS

- Pharmacist-driven, prospective audit & feedback
- 70 weeks standardized measurements, 24 206 surgical
- composite compliance from 66.8% to 83.3%
- SSI rate improvement

**From guidelines to practice: a pharmacist-driven prospective audit and feedback improvement model for peri-operative antibiotic prophylaxis in 34 South African hospitals**

**Background:** Peri-operative antibiotic prophylaxis (POAP) is a key component of antimicrobial stewardship. The objective of this study was to assess the impact of a pharmacist-driven prospective audit and feedback improvement model on POAP compliance in 34 South African hospitals.

**Methods:** A pharmacist-driven prospective audit and feedback improvement model was implemented in 34 South African hospitals. The pharmacist-driven prospective audit and feedback improvement model was implemented in 34 South African hospitals.

**Results:** The pharmacist-driven prospective audit and feedback improvement model was implemented in 34 South African hospitals. The pharmacist-driven prospective audit and feedback improvement model was implemented in 34 South African hospitals.

**Conclusion:** A pharmacist-driven prospective audit and feedback improvement model improves POAP compliance in South African hospitals. The pharmacist-driven prospective audit and feedback improvement model was implemented in 34 South African hospitals.



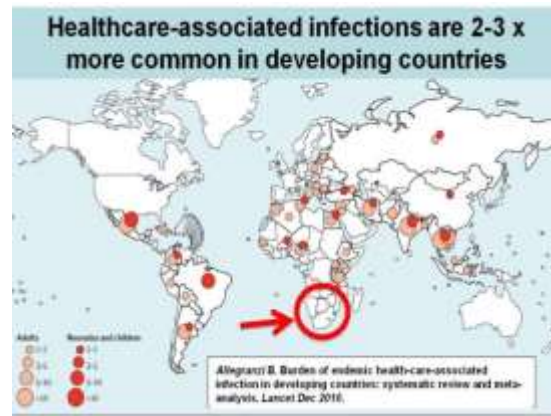
# Antibiotic Resistance: waking up to the growing crisis

## WHO urges countries to take measures to combat antimicrobial resistance

WHO media release Aug 2010

## Wake up, South Africa! The antibiotic 'horse' has bolted

S Afr Med J 2012



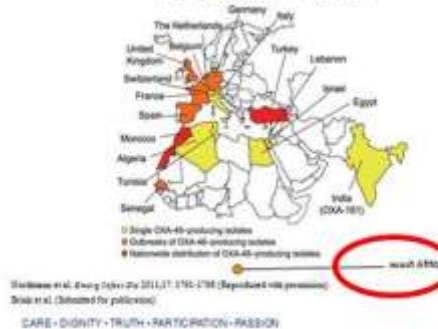
## EDITORIAL

## Wake up, South Africa! The antibiotic 'horse' has bolted

Decades of poor medical and veterinary antibiotic prescribing and a lack of regard for the practice of infection prevention and control (IPC) in our hospitals have left South Africa, like the rest of the international community, on the brink of a return to an era of untreatable bacterial infection. The recent emergence in South Africa of bacteria carrying the highly mobile New Delhi metallo- $\beta$ -lactamase-1 (NDM-1) gene,<sup>1</sup> which has been associated with rapid spread of carbapenem-resistant Enterobacteriaceae (CRE), and, for the first time in Africa, *Klebsiella pneumoniae* carbapenemases (KPCs),<sup>2</sup> will have a profound effect on the lives of our patients and on the health service. The acquisition of drug-resistant hospital-acquired infections (HAIs) increases morbidity, mortality and the cost of patient management in an already beleaguered health system

future in terms of IPC. The changes that need to be put in place are simple. They do not require complex systems or costly financial interventions. There are few unknowns in the field, and research and clinical findings from other countries are equally relevant in our setting. Each healthcare institution in this country must have administrative and environmental policies in place to enable them to correctly identify and isolate patients with MDR bacterial infections and must provide running water, soap and hand disinfectants as well as the personal protective equipment required to ensure standard precautions against spread. The adoption of evidence-based, simple bundles of care designed by the Best Care ... Always! campaign<sup>3,10</sup> simplifies the practice of IPC in the ICU and ward setting, and their adoption nationally would be another milestone for change.

## Spread of OXA-48 producing bacteria in the EU, ME and Africa



## Global spread of KPC-producing bacteria

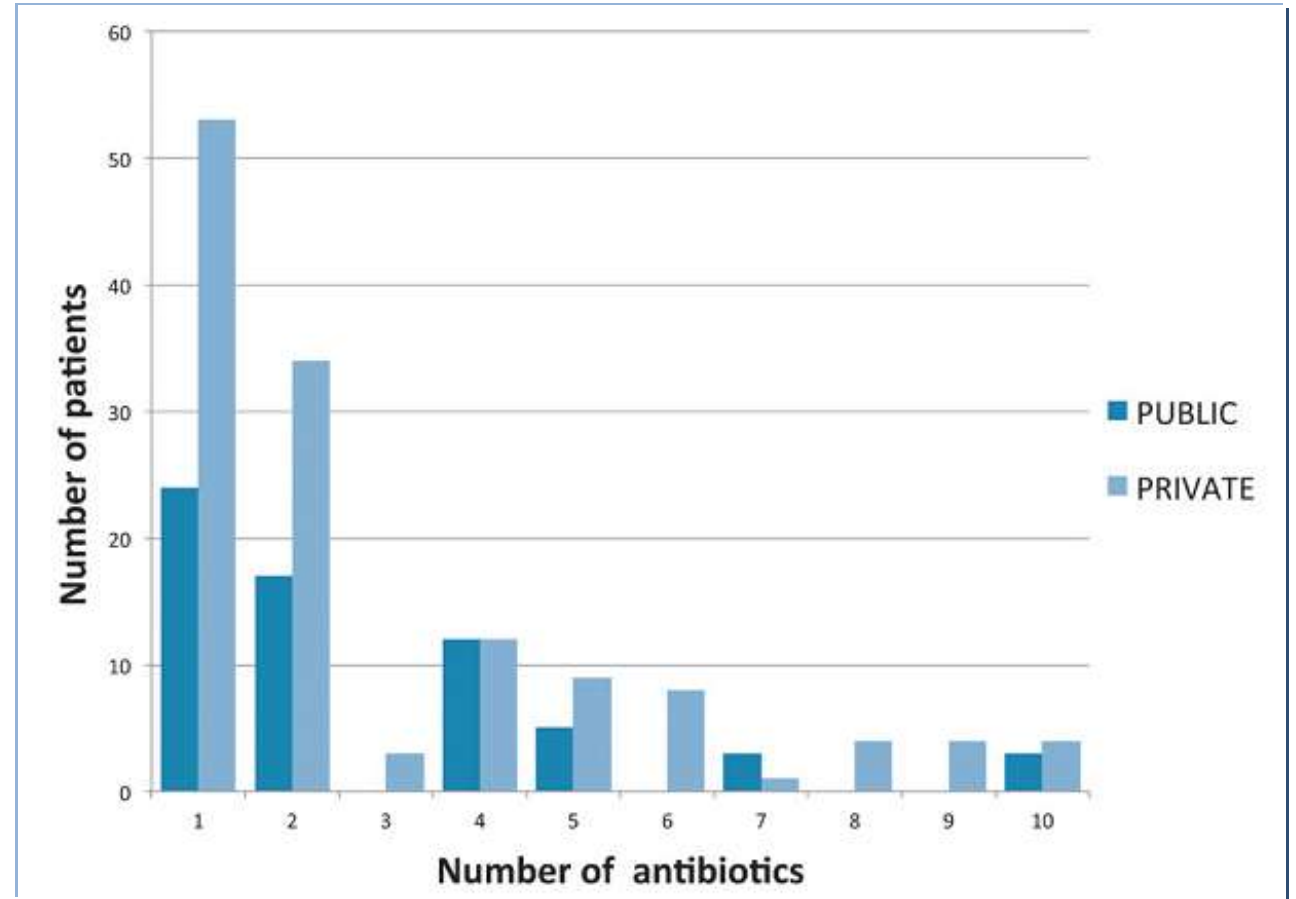


# Limited data on antibiotic prescribing in South African intensive care units



**Table 1. Antibiotic prescription in South African intensive care units**

	Public (n (%))	Private (n (%))	All (n (%))
Patients	85 (34.3)	163 (65.7)	248
Antibiotics prescribed	62 (72.9)	120 (73.6)	182 (73.4)
Inappropriate empiric antibiotic	27 (43.5)	73 (60.8)	100 (54.9)
De-escalation practised	9/27 (33.3)	12/61 (19.7)	21/88 (23.9)
Inappropriate duration of antibiotics	33 (53.2)	98 (81.6)	131 (72.0)



There are no prizes for predicting the rain  
Only for building an Ark

# Understanding the current system

The greatest challenge is not so much that we don't know 'what' needs to be done, but more and more leaders and healthcare professional are seeking better ways in which to understand 'how' to do it.

How to do it "always" for every patient.

How to do it collectively do we make a bigger impact.

"Every system is perfectly designed to achieve exactly the results it gets"

"All improvement needs a change"

"Not all change is an improvement"

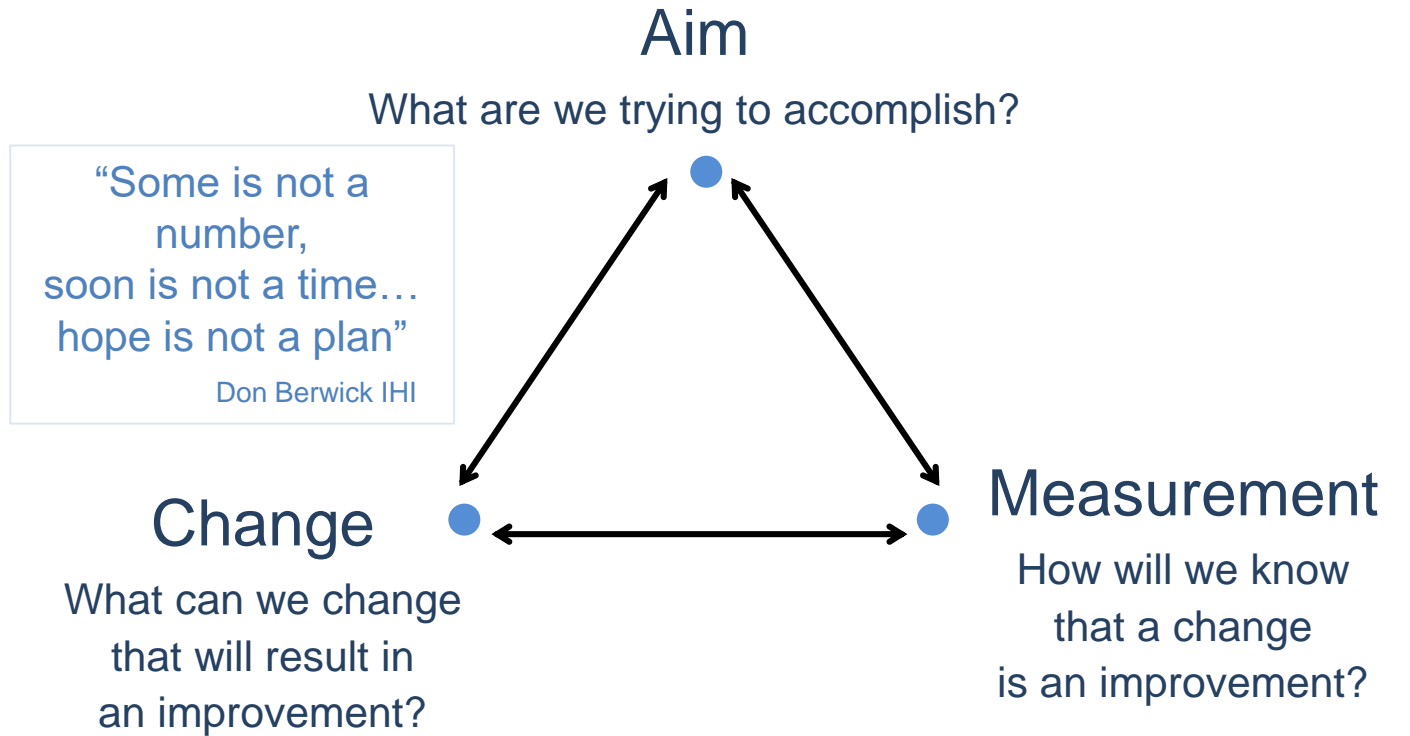
Paul B. Batalden, MD, Professor of Pediatrics, of Community and Family Medicine, Dartmouth Institute for Health Policy and Clinical Practice at The Dartmouth Medical School

# Model for Improvement



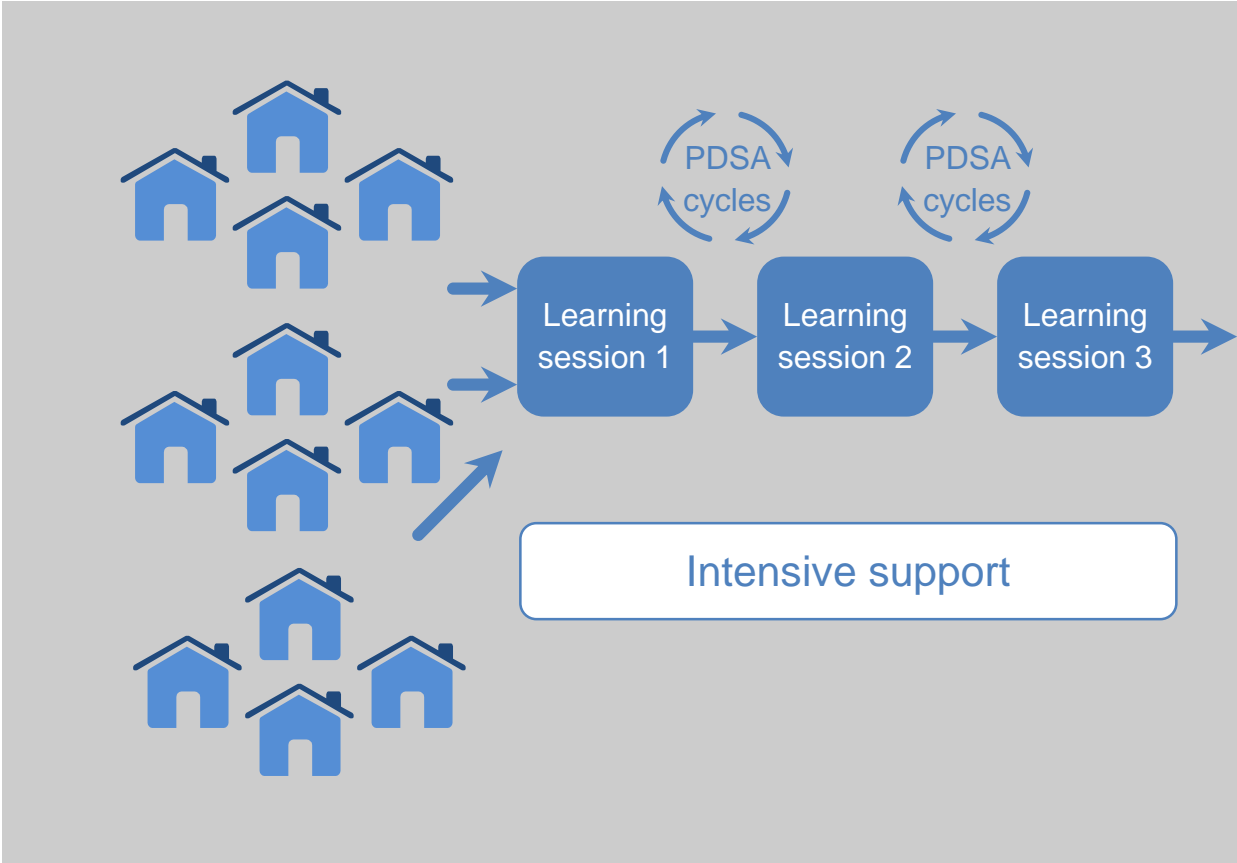
## Building Will

- Motivating health care professionals, leaders and frontline staff to be change leaders.
- Connect to WHY?
- A call to action





# Breakthrough Series: QI collaborative method



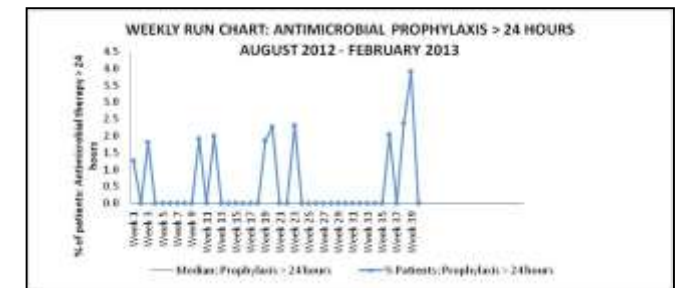
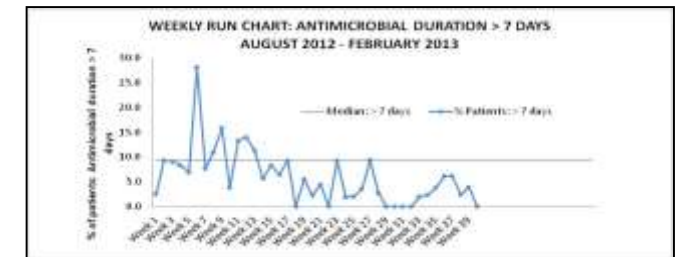
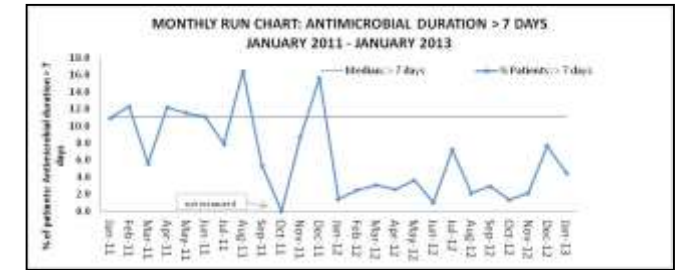
“Protected” stewardship time using existing pharmacist resources (one or more) allowed time, according to the size of the hospital, to conduct audit rounds of patients on antibiotics

# Standardized change ideas - weekly & monthly measurement tool for each



## Developing a tool to standardise antibiotic stewardship (ABS) data collection in order to measure the impact of implementing an ABS programme across multiple private hospitals in South Africa

Stephanou, AP<sup>1</sup>, Van Den Bergh D<sup>2</sup>, Gokool V<sup>3</sup>, Chengadoo A<sup>4</sup>. <sup>1</sup>Antibiotic Stewardship Project Manager, <sup>2</sup>Director: Quality Leadership, <sup>3</sup>General Manager- Pharmacy, <sup>4</sup>Manager: Quality Leadership, Netcare Limited, Johannesburg, South Africa



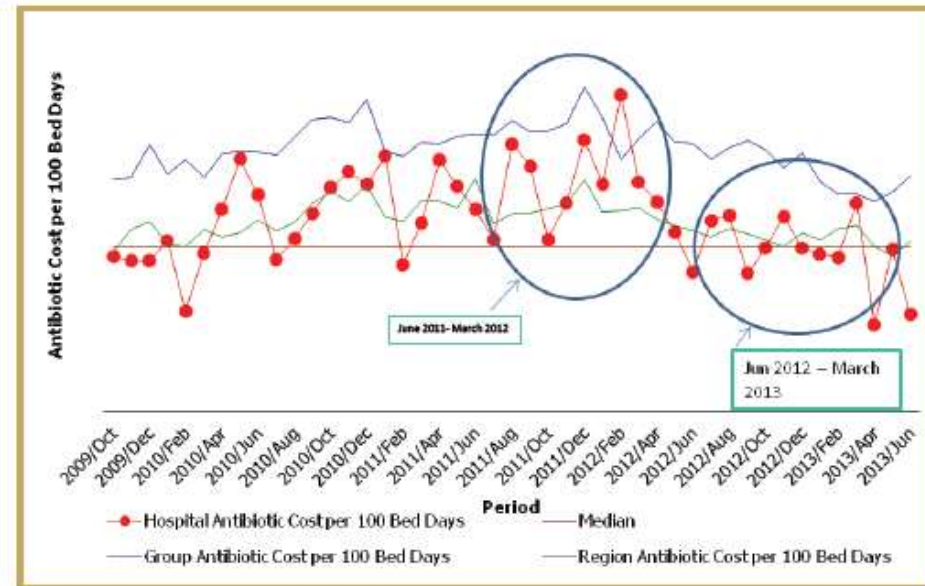
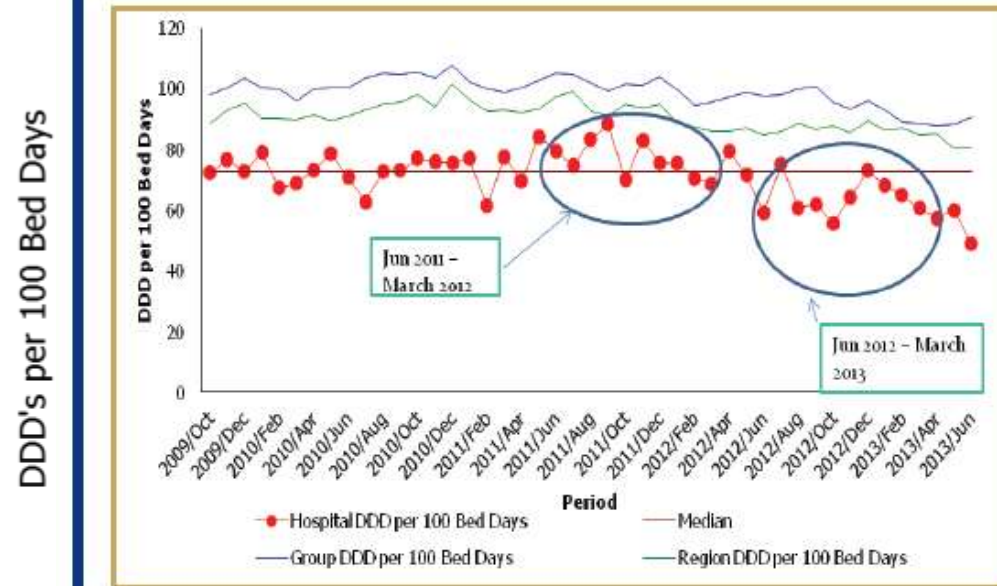
### Introduction

As health care providers we are mindful of the fact that internationally, as well as in South Africa, there is a risk of returning to the pre-antibiotic era. Excessive and inappropriate antibiotic prescribing is ever more recognised as a critical contributor to the increase in multi-drug resistant organisms in hospitals worldwide [1]. Netcare (Ltd), a private healthcare provider that owns 55 hospitals in South Africa, took a decision to implement the practice of antibiotic stewardship by launching its own pharmacist

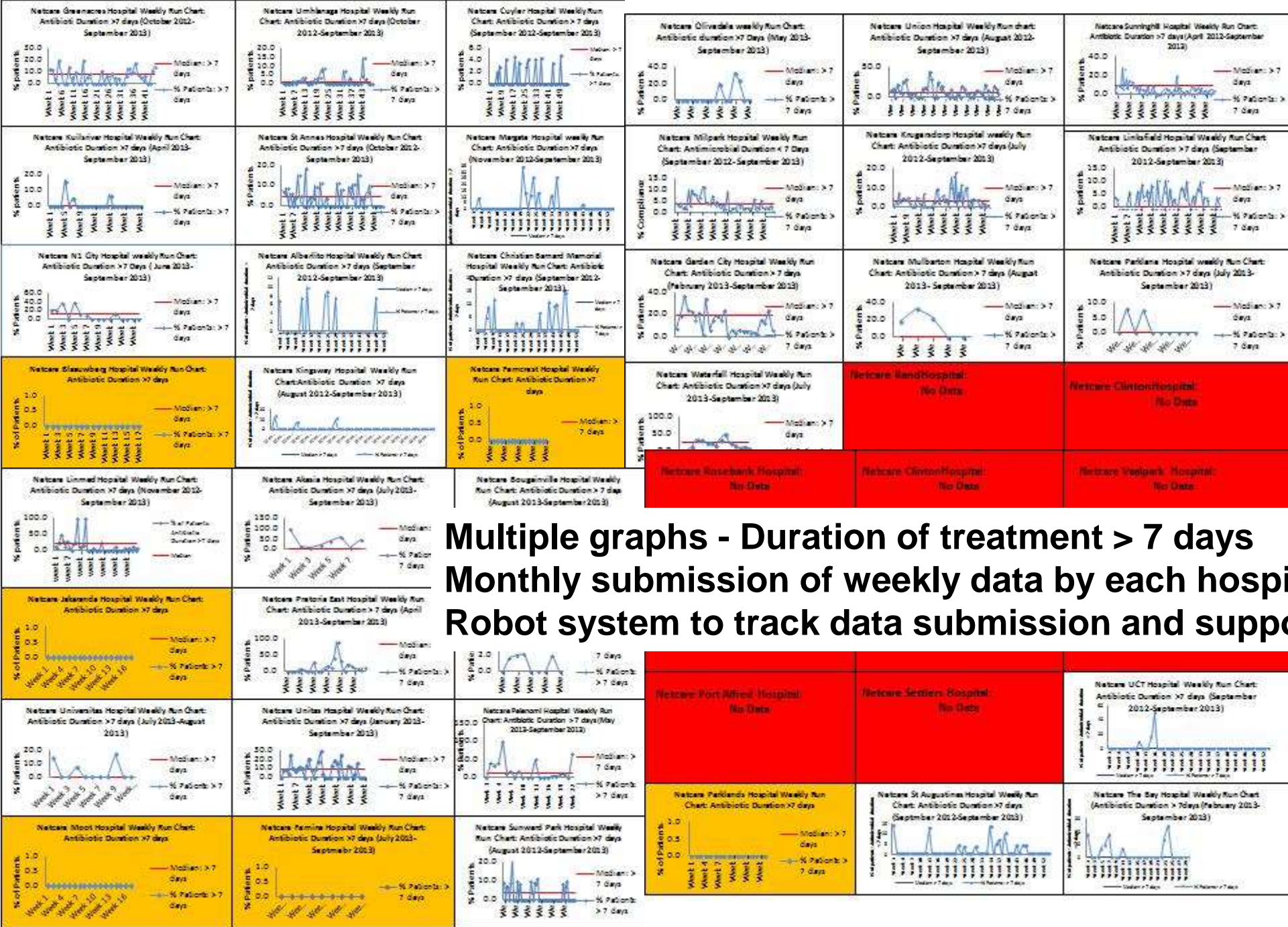
- 1 *Cultures not done prior to commencement of empiric antibiotics*
- 2 *More than 7-days of antibiotic treatment*
- 3 *More than 14-days of antibiotic treatment*
- 4 *More than 4 antibiotics at the same time*
- 5 *Double – redundant antibiotic cover*

## Results

There was a significant decrease in both antibiotic usage and cost since the implementation of the chart, when comparing DDD per 100 bed days ( $p=0.00015$ ) and cost per 100 bed days ( $p=0.0091$ ).



Longitudinal run charts over time – track overall and individual hospital trends and shift



**Multiple graphs - Duration of treatment > 7 days**  
**Monthly submission of weekly data by each hospital**  
**Robot system to track data submission and support required**

# 1. AMS IMPLEMENTATION STUDY - 47 HOSPITALS

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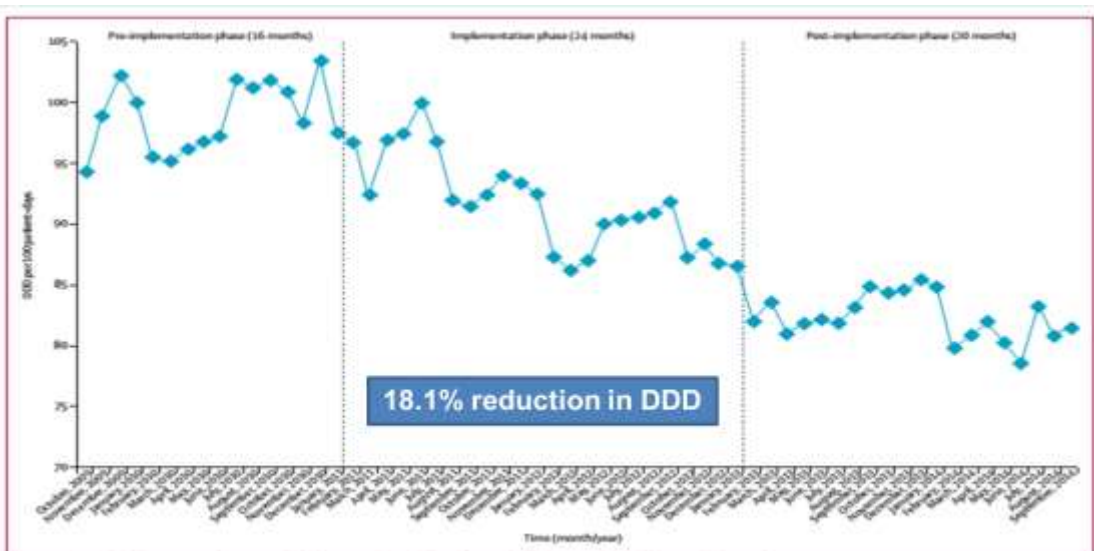


Figure 2: Longitudinal cohort survey of mean antibiotic consumption for three phases of the Netcare antimicrobial stewardship model. The entire study took place between Oct 10, 2009, and Sept 30, 2014, in 47 hospitals. Mean antibiotic consumption is measured in defined daily doses (DDD) per 100 patient days.

## Antimicrobial stewardship across 47 South African hospitals: an implementation study



Adrian J Brink, Angeliki P Messina, Charles Feldman, Guy A Richards, Piet J Becker, Debra A Goff, Karri A Bauer, Dilip Nathwani, Dena van den Bergh, on behalf of the Netcare Antimicrobial Stewardship Study Alliance\*

### Summary

**Background** The available data on antimicrobial stewardship programmes in Africa are scarce. The aims of this study were to assess the implementation of an antimicrobial stewardship programme in a setting with limited infectious disease resources.

**Methods** We implemented a pharmacist-driven, prospective audit and feedback strategy for antimicrobial stewardship on the basis of a range of improvement science and behavioural principles across a diverse group of urban and rural private hospitals in South Africa. The study had a pre-implementation phase, during which a survey of baseline stewardship activities was done. Thereafter, a stepwise implementation phase was initiated directed towards auditing process measures to reduce consumption of antibiotics (prolonged duration, multiple antibiotics, and redundant antibiotic coverage), followed by a post-implementation phase once the model was embedded in each hospital. The effect on consumption was assessed with the WHO index of defined daily doses per 100 patient-days, and the primary outcome (change in antibiotic consumption between phases) was assessed with a linear mixed-effects regression model.

Lancet Infect Dis 2016; 16: 1017-25

Published Online  
June 13, 2016  
[http://dx.doi.org/10.1016/S1473-3099\(16\)30012-3](http://dx.doi.org/10.1016/S1473-3099(16)30012-3)

See Comment page 982

\*Netcare Antimicrobial Stewardship Study Alliance members are given in the appendix

Ampath National Laboratory Services, Milpark Hospital, Johannesburg, South Africa (A J Brink MD); Department of Quality Leadership, Netcare Hospitals, Johannesburg, South Africa (A P Messina BPharm, D van den Bergh PhD); Faculty of Health Sciences, University of the Witwatersrand and Charlotte Maxeke Johannesburg Academic Hospital, Johannesburg, South Africa (Prof C Feldman DSc, Prof G A Richards PhD); Research Office, Faculty of Health Sciences, University of Pretoria, Pretoria, South Africa

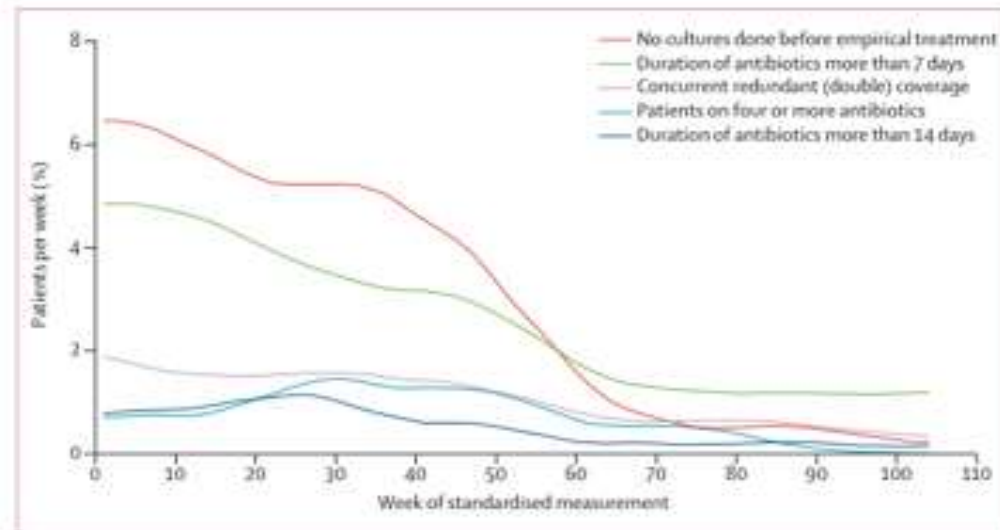
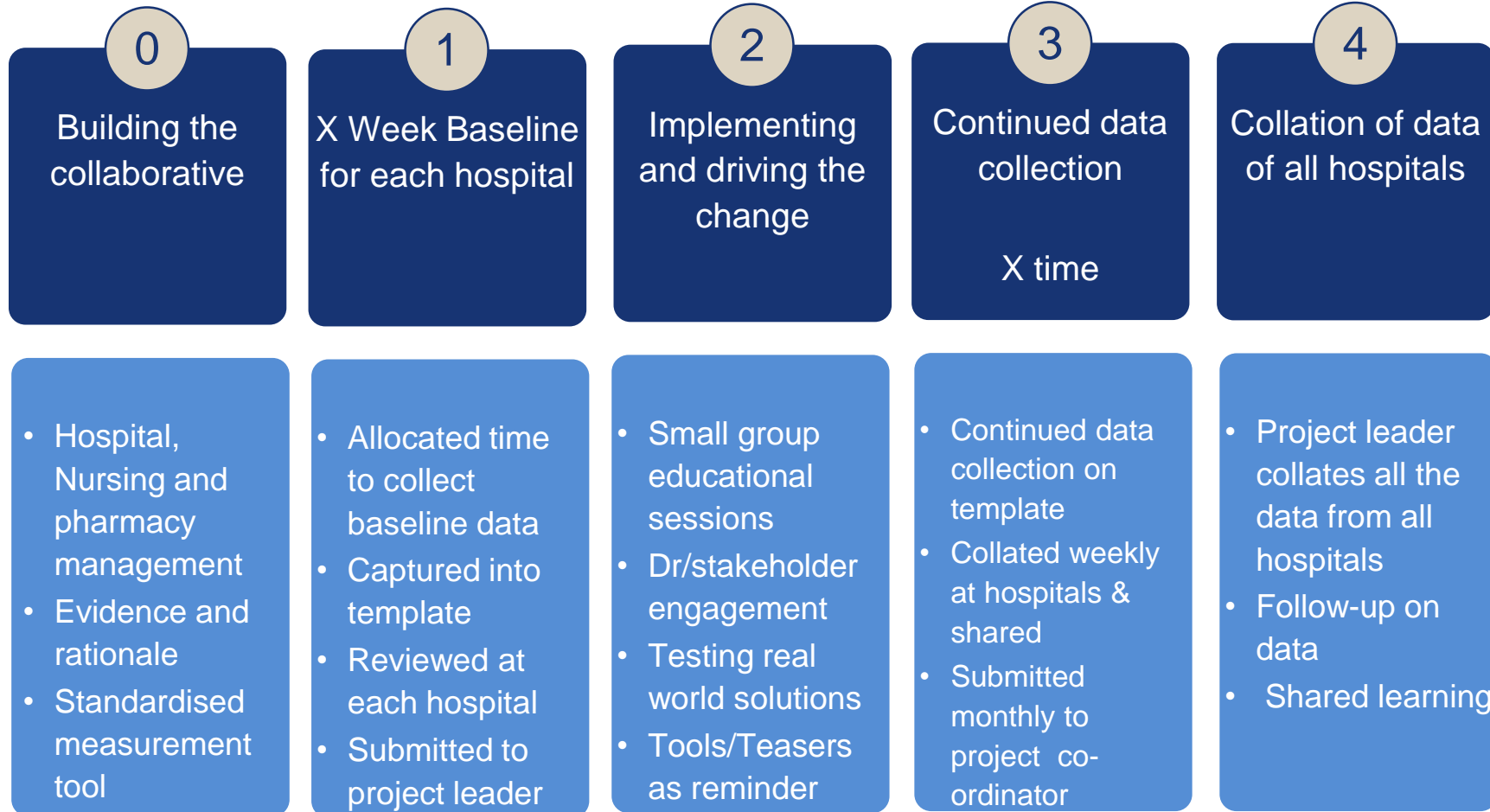


Figure 4: Local polynomial smoothed curves for the five parameters targeted for improvement (weeks 1-104). More detail is available in the appendix.

## Refining the model - Essential steps in collaborative change



# Early Adopters – testing new ideas and learning from ‘failure’

**Early adopters /innovators**  
**What is next ?**

Building the collaborative

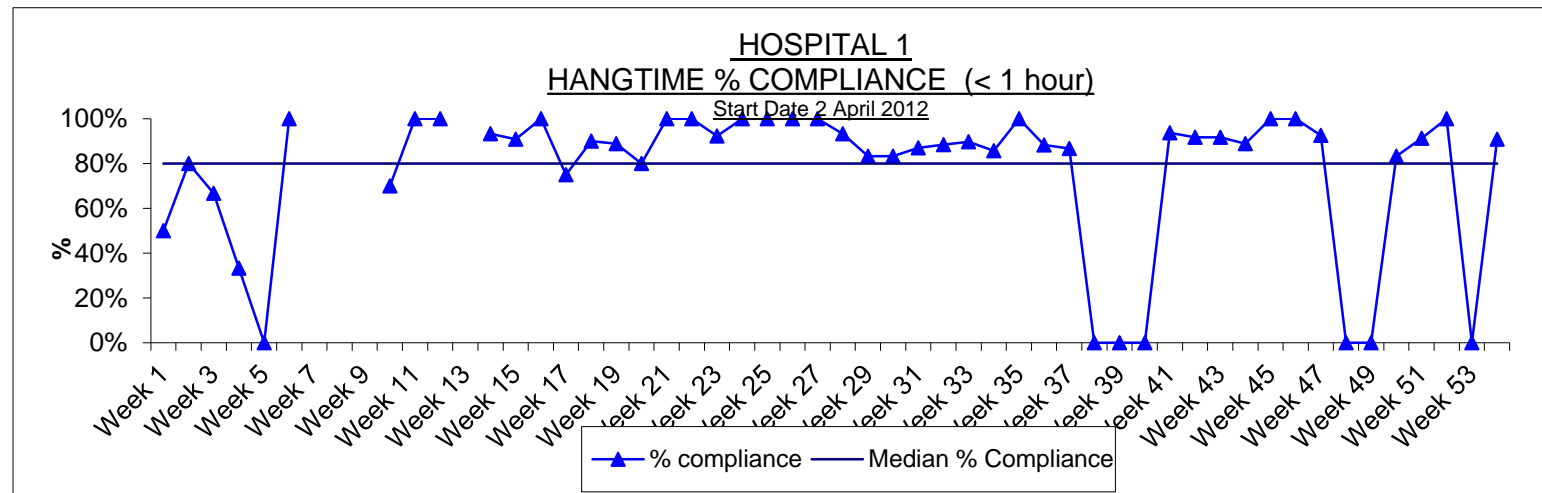
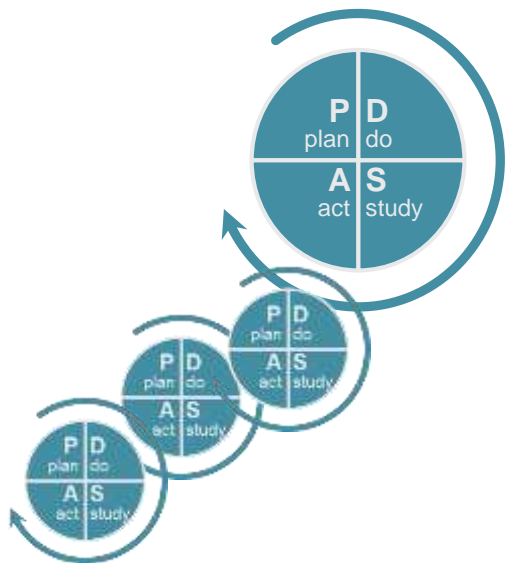
X Week Baseline for each hospital

Implementing and driving the change

Continued data collection

X time

Collation of data of all hospitals



## 2. PHARMACIST-NURSE AMS COLLABORATION AB TIMELINESS - 33 HOSPITALS

- 32,985 patients who received IVI antibiotics assessed for hang-time compliance with first doses of new antibiotic orders over 60-weeks.
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S10

Infect Dis Ther (2015) 4 (Suppl 1):S5–S14

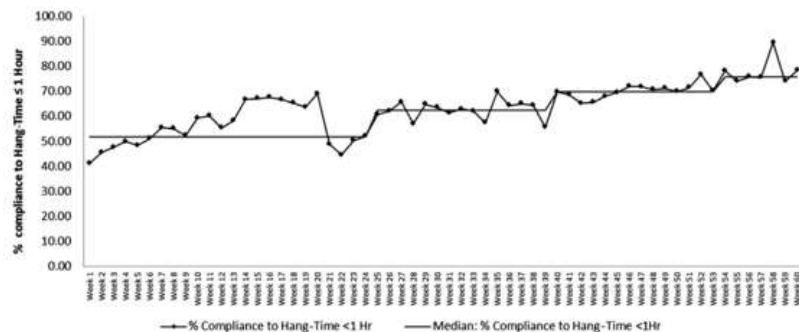


Fig. 2 Weekly antimicrobial hang-time compliance from 32,985 patients reviewed

Infect Dis Ther (2015) 4 (Suppl 1):S5–S14  
DOI 10.1007/s40121-015-0082-x



ORIGINAL RESEARCH

### Antimicrobial Stewardship with Pharmacist Intervention Improves Timeliness of Antimicrobials Across Thirty-three Hospitals in South Africa

Angeliki P. Messina · Dena van den Bergh · Debra A. Goff

To view enhanced content go to [www.infectiousdiseases-open.com](http://www.infectiousdiseases-open.com)  
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#### ABSTRACT

**Introduction:** Ensuring timely administration of antimicrobials is critical in the management of patients with infections. Mortality increases by 7.6% for every hour of delay in the administration of antimicrobial therapy in patients with sepsis. The time elapsed from the written antibiotic order to actual intravenous administration or ‘hang-time’ can often be several hours due to logistics within the hospital. Our purpose is to evaluate the change in compliance with administering antimicrobials within an hour of prescription after implementation of a national antibiotic stewardship pharmacist-driven hang-time process improvement protocol.

**Methods:** This was a prospective multicenter study in 33 South African hospitals from 1 July 2013–30 August 2014. Two pilot sites established the mechanism for noninfectious

disease pharmacists to make interventions and document hang-time data. Following this, a hang-time compliance assessment was initiated using the tools of healthcare improvement spread methodology. This consisted of five stages and an implementation toolkit was developed. The pharmacist study coordinator was responsible for implementation, the development of an implementation toolkit and real-time coordination of data with monthly feedback to all sites.

**Results:** A total of 32,985 patients who received intravenous antibiotics were assessed for hang-time compliance with first doses of new antibiotic orders. Over the 60-week period, 21,069 patients received antibiotics within an hour following prescription and were assessed as hang-time compliant. The change in improvement of hang-time compliance following implementation of a pharmacist-driven hang-time process improvement protocol was 41.2% pre-intervention week 1 (164/398) to 78.4% post-intervention week 60 (480/612;  $P < 0.0001$ ). Pharmacists reviewed and evaluated twice as many patients during the final 4 weeks (1680) compared to the first 4 weeks (834;  $P < 0.0001$ ).

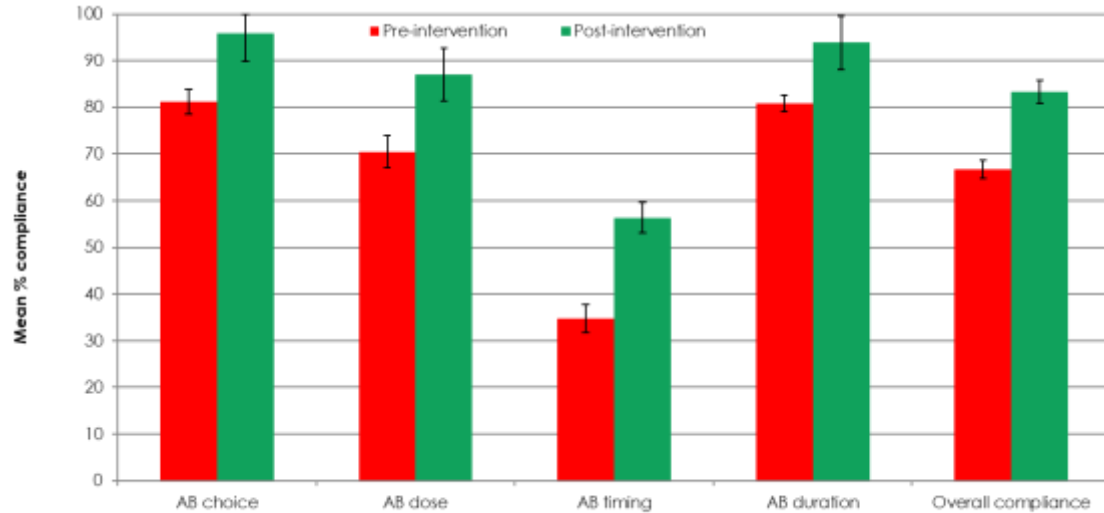
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### 3. PERI-OPERATIVE ANTIBIOTIC PROPHYLAXIS 34 HOSPITALS

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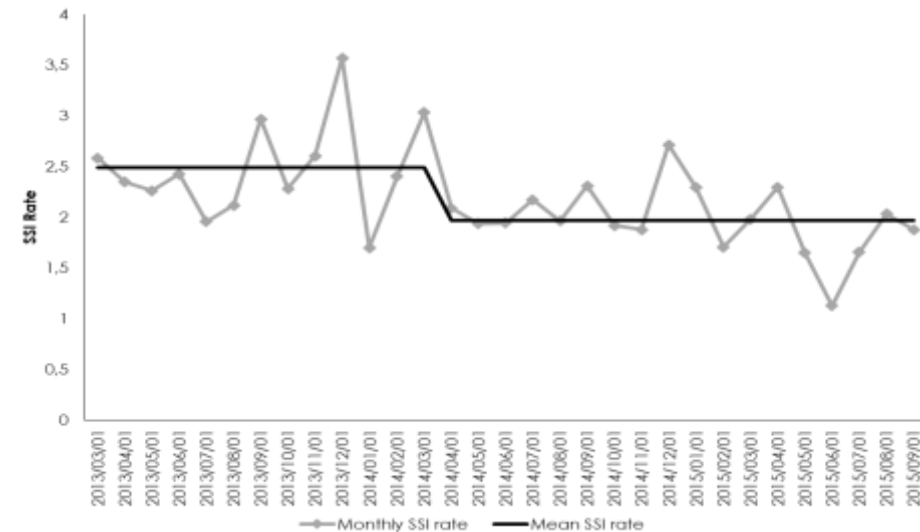
*J Antimicrob Chemother* 2017; **72**: 1227–1234  
doi:10.1093/jac/dkw523 Advance Access publication 19 December 2016

### From guidelines to practice: a pharmacist-driven prospective audit and feedback improvement model for peri-operative antibiotic prophylaxis in 34 South African hospitals

Adrian J. Brink<sup>1,2\*</sup>, Angeliki P. Messina<sup>3</sup>, Charles Feldman<sup>4</sup>, Guy A. Richards<sup>4</sup>, and Dena van den Bergh<sup>3</sup> on behalf of the Netcare Antimicrobial Stewardship Study Alliance

<sup>1</sup>Ampath National Laboratory Services, Milpark Hospital, Johannesburg, South Africa; <sup>2</sup>Division of Infectious Diseases and HIV Medicine, Department of Medicine, University of Cape Town, Cape Town, South Africa; <sup>3</sup>Department of Quality Leadership, Netcare Hospitals Ltd, Johannesburg, South Africa; <sup>4</sup>Charlotte Maxeke Johannesburg Academic Hospital and Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa

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# champion

***Person who voluntarily takes extraordinary interest in the adoption, implementation and success of a cause, program or project.***

***Also called a change advocate, change agent or idea champion.***

# Participating pharmacists: Share progress at professional conferences



“Every company, organization or group with the ability to drive change starts with a person or small group of people who were inspired to do something bigger than themselves.” – Simon Sinek

### Impact of an antibiotic stewardship program with emphasis on an antibiotic prescription chart in a private hospital setting in Netcare Blaauwberg, South Africa

H.A. Griesler, A. Uys, a. Ward clinical pharmacist at Netcare Christiaan Barnard Memorial Hospital, Cape Town;  
b. Pharmacist at Tygerberg Hospital, Cape Town

#### Introduction

The excessive use of antimicrobials has led to the increase in these drugs, raising concern that we might be approaching antibiotic resistance. A strategy to fight this war against antimicrobial resistance is the implementation of an Antimicrobial Stewardship program which has been shown to reduce cost, provide better outcome, reduce risk of adverse effects and decrease or stabilize antibiotic resistance. One of the interventions of the Antimicrobial Stewardship program is the implementation of an antimicrobial prescription chart.

#### Purpose of the project

The project was conducted in order to evaluate the impact of an antibiotic prescription chart. The areas of measurement were duration of therapy (7-14 days and more than 14 days), DD days and cost per event.

#### Method

In July 2012, Netcare Blaauwberg implemented an antibiotic prescription chart using a multidisciplinary approach supported by a stewardship committee of the hospital. The aim of this intervention was to reduce antibiotic resistance, improve antibiotic use, and change in prescribing patterns was analysed using the report derived from billing data in Netcare Pty Ltd.

#### Results

Pool of variance test was performed comparing the prevalence of IV antibiotics, DDD per 100 bed days and cost per time periods – July 2011 to December 2011 (No antibiotic chart) and July 2012 to December 2012 (after introduction of antibiotic prescription chart). No significant decrease was found in IV antibiotics for the two time periods, comparing before and after 7 and 14 days ( $p = 0.321$  and  $p = 0.44$ ), or the DD days ( $p = 0.9015$ ) and cost per event ( $p = 0.86$ ).



### Antibiotic Stewardship - An indispensable contribution to appropriate antimicrobial therapy

Netcare Quality Leadership  
fidssa

#### Introduction

Paruk et al (2012) in SA's own PISA study concluded that inappropriate antibiotic prescription practices in ICUs in the public and private sectors are common and associated with:  
• poor patient outcomes,  
• increased morbidity, mortality and cost and  
• increased resistance to antimicrobials.  
Antibiotic Stewardship has given pharmacists the opportunity to be major drivers in the emergence of antibiotic resistance, infection control and nursing staff as a drug therapy specialist and so make a positive contribution to patient care.

### Implementation of an Antibiotic Stewardship Program via a daily ICU ward round and an Antimicrobial Prescription Chart at a Private Hospital in KwaZulu-Natal

Moodley, P., Mthembu, U., Raghavan, P., Van Wyk, L.  
Netcare Atlantis Hospital Pharmacy, Bedfordview, KwaZulu-Natal, South Africa

#### Introduction

With an increasing awareness regarding the irrational use of Antibiotics and the development of resistant infectious organisms, an effective Antibiotic Stewardship Program was developed. There was a need to create a multidisciplinary team focus on the stewardship programme as our care was devoid of this 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. The Antimicrobial Prescription Chart was introduced to the Nursing Management team for approval. An effective training program 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 at ward level with the chart. 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 3 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 focus on the following interventions: Antibiotics > 7/14 days, > 4 antibiotics, Duplicate cover, Hang time and inappropriate administration.

#### Results

A successful implementation of the Antimicrobial 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 from 10.7% 2012 to 8.6% YTD 2013. 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 7 and 14 days, more than 2 or 4 concurrent agents and Antibiotic Utilisation per 100 bed days. The chart allowed for concise tracking as pharmacists were able to intervene before 7 and 14 days to determine intended duration. Since all antibiotics were scripted a single chart, it also allowed pharmacists to query cover. The ward round also allowed pharmacists to review culture and other relevant laboratory results and appropriately intervene. The majority of interventions have been accepted outcomes.

Hospital Antibiotics Utilisation - DDD Buckets Period: 2009/Oct - 2013/JanHospital = Alberlito	Hospital Antibiotics Utilization - DDD per 100 Bed Days Period: 2009/Oct - 2013/JanHospital = Alberlito
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# Part of a larger context



health

Department:  
Health  
REPUBLIC OF SOUTH AFRICA

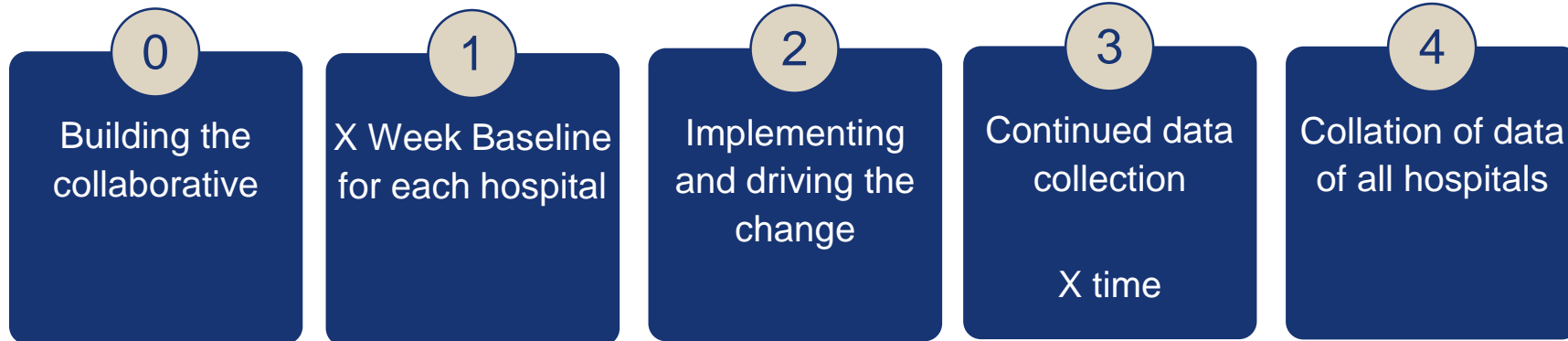
## IMPLEMENTATION PLAN FOR THE ANTIMICROBIAL RESISTANCE STRATEGY FRAMEWORK IN SOUTH AFRICA: 2014–2019



Governance			
National Intersectoral Ministerial Advisory Committee			
Health Establishment and District Antimicrobial Stewardship committees and teams			
Strategic objectives	Diagnostic Stewardship	Surveillance	Prevention Control Infection
	<ul style="list-style-type: none"> <li>Appropriate selection of microbial investigations and specimens</li> <li>Accuracy and timely testing by laboratories</li> <li>Accurate and timely reporting of results</li> </ul>	National surveillance system for animal and human health for— <ul style="list-style-type: none"> <li>Resistant bacteria</li> <li>Antimicrobial usage</li> <li>Medication error reporting structures</li> </ul>	Antimicrobial Stewardship (AMS)—Policies and Guidelines: <ul style="list-style-type: none"> <li>Formulary restrictions</li> <li>Pre-authorisation</li> <li>Antimicrobial prescription forms</li> <li>National prescribing guidelines</li> </ul>
			Immunisation against preventable infections <ul style="list-style-type: none"> <li>AMS—at point-of-care;               <ul style="list-style-type: none"> <li>Diagnosis of infection</li> <li>Appropriate antibiotic choice</li> <li>Dose optimization, de-escalation and discontinuation</li> </ul> </li> </ul>
Strategic enablers			
Legislative and policy reform for health systems strengthening			
<ul style="list-style-type: none"> <li>Ensure access to quality antimicrobials</li> <li>Control of use and prescribing of antimicrobials in animal and human health</li> <li>Minimum standards and norms for health care quality systems and process (National Core Standards)</li> </ul>			
Education			
<ul style="list-style-type: none"> <li>Incorporate AMR strategies into medical, nursing and allied health student curricula</li> <li>AMR/AMS CPD programmes for health care professions</li> </ul>			
Communication			
<ul style="list-style-type: none"> <li>Sustained public health campaigns on prevention of spread of diseases and social determinants of disease management</li> <li>Public awareness of appropriate antibiotic use</li> <li>Patient advocacy as part of a patient-centered care approach</li> </ul>			
Research			
<ul style="list-style-type: none"> <li>Infection Prevention and Control (IPC), AMS interventions, diagnostics</li> </ul>			

Figure 1. Strategic framework for the AMR national strategy

# PUBLIC-PRIVATE PHARMACIST COLLABORATIVE CAP STUDY



## Guideline

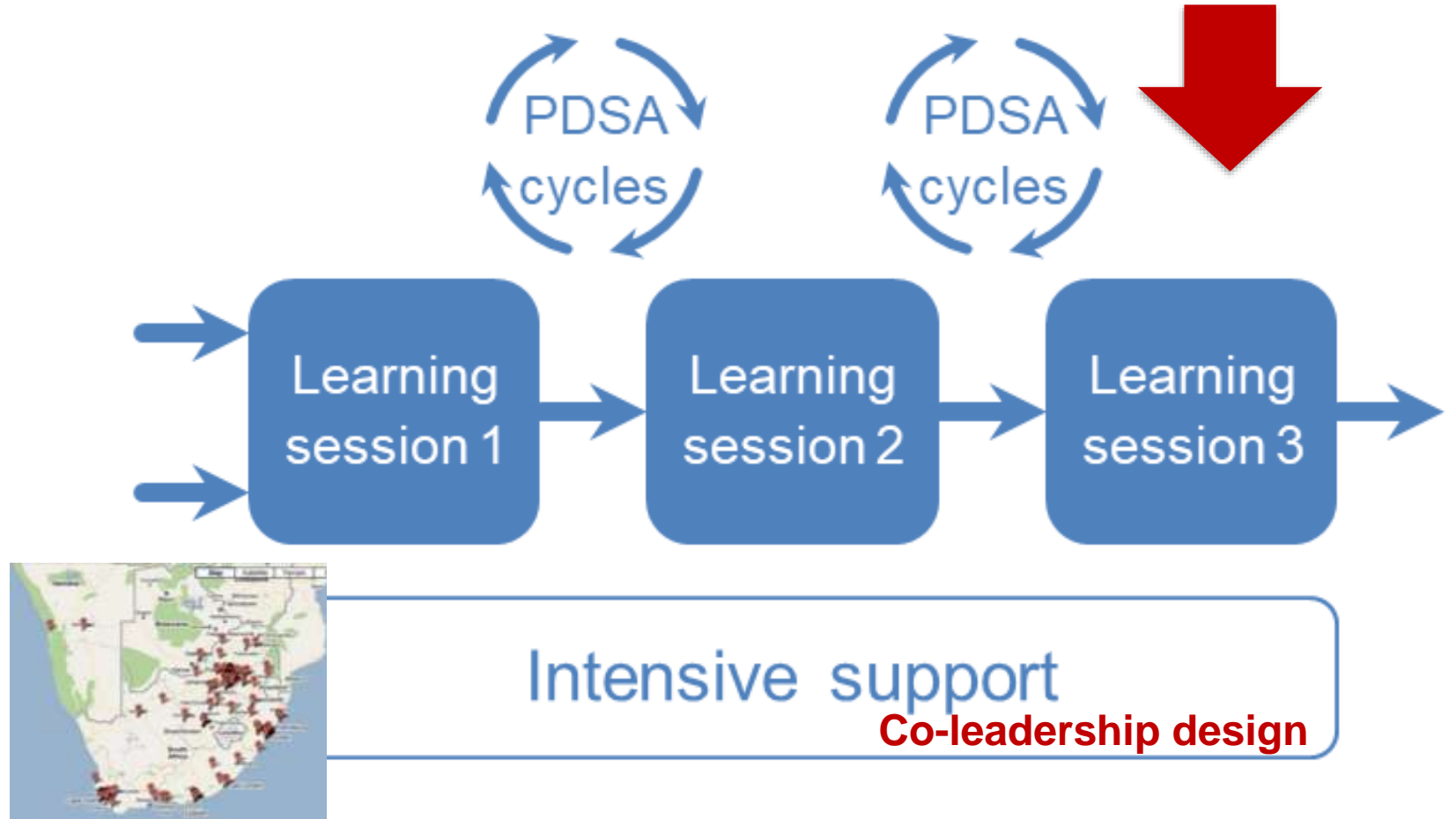
### South African guideline for the management of community-acquired pneumonia in adults

Tom H. Boyles<sup>1</sup>, Adrian Brink<sup>1,2</sup>, Greg L. Calligaro<sup>3</sup>, Cheryl Cohen<sup>4,5</sup>, Keertan Dheda<sup>3</sup>, Gary Maartens<sup>6</sup>, Guy A. Richards<sup>7</sup>, Richard van Zyl Smit<sup>3</sup>, Clifford Smith<sup>8</sup>, Sean Wasserman<sup>1</sup>, Andrew C. Whitelaw<sup>9,10</sup>, Charles Feldman<sup>11</sup>; South African Thoracic Society, Federation of Infectious Diseases Societies of Southern Africa

# 50 PARTICIPATING PHARMACISTS

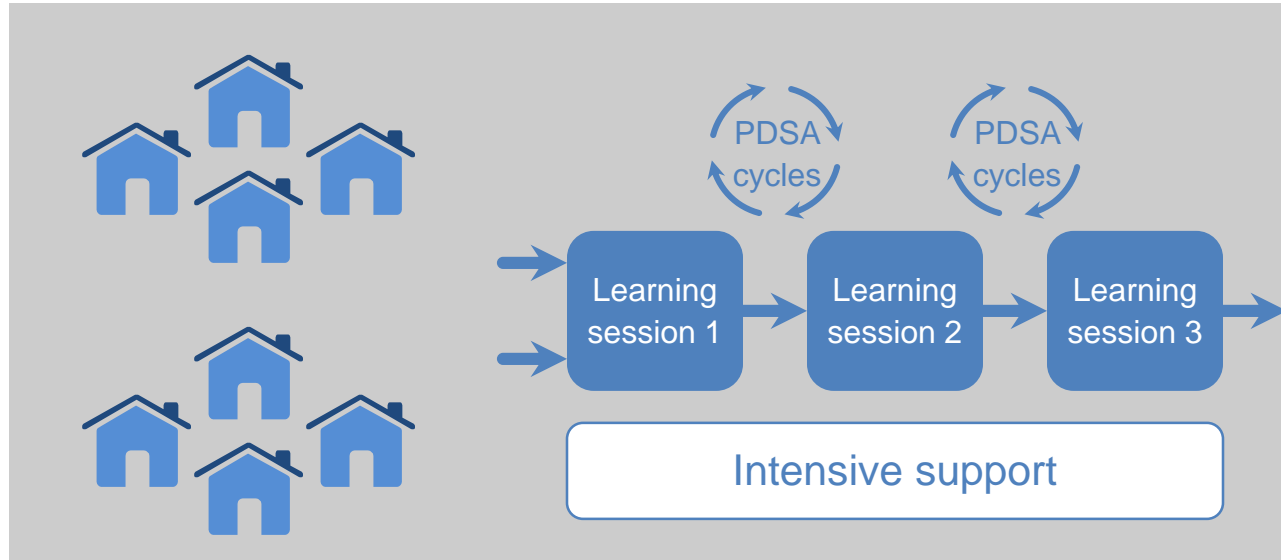


	Private	Public	TOTAL
Dip Pharm		1	1
BPharm	27	14	41
Masters	6	2	8
Total	33	16	50



# Harnessing the power of the collective

## Breakthrough Series: QI method for accelerating spread and impact



### Accelerating change “together”: creating a learning network

- Learn from each other so we can make a bigger impact faster
- Input of skills, tools and reflective learning
- Identify common challenges and opportunities that we can work on together
- Motivate and support each other to succeed
- Stretch the boundaries of what is possible

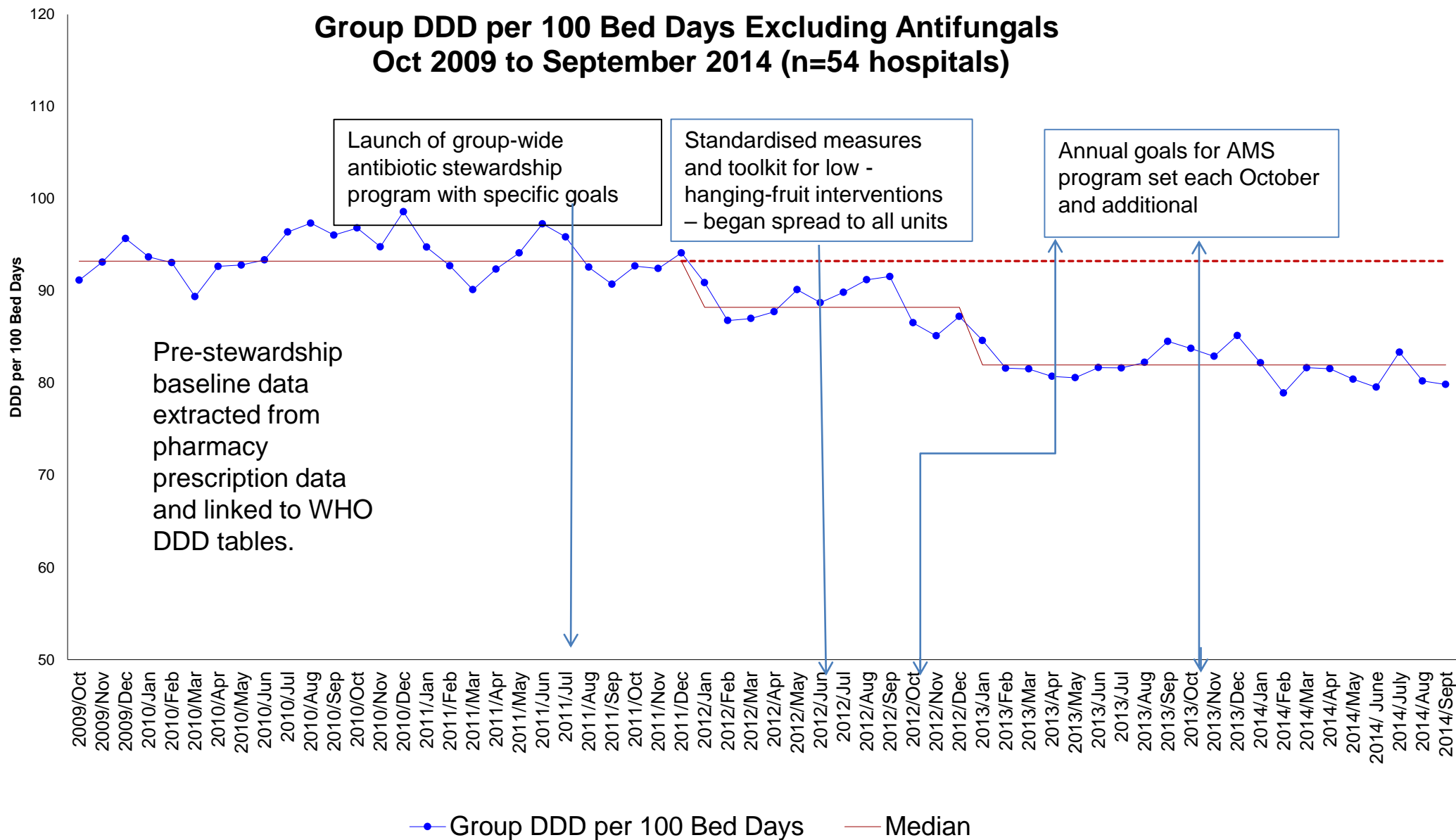
### What we also learnt

- Collaboration is not a passive process of sharing ideas and attending events
- Needs strong leadership and a tightly held container that drives movement and tracks impact
- Progress is not – “we are having a meeting”
- Strength of being part of something bigger
- Connecting to a significant “WHY”

***No-one wants to do your project but they do want to contribute to a problem that they agree needs to be solved***

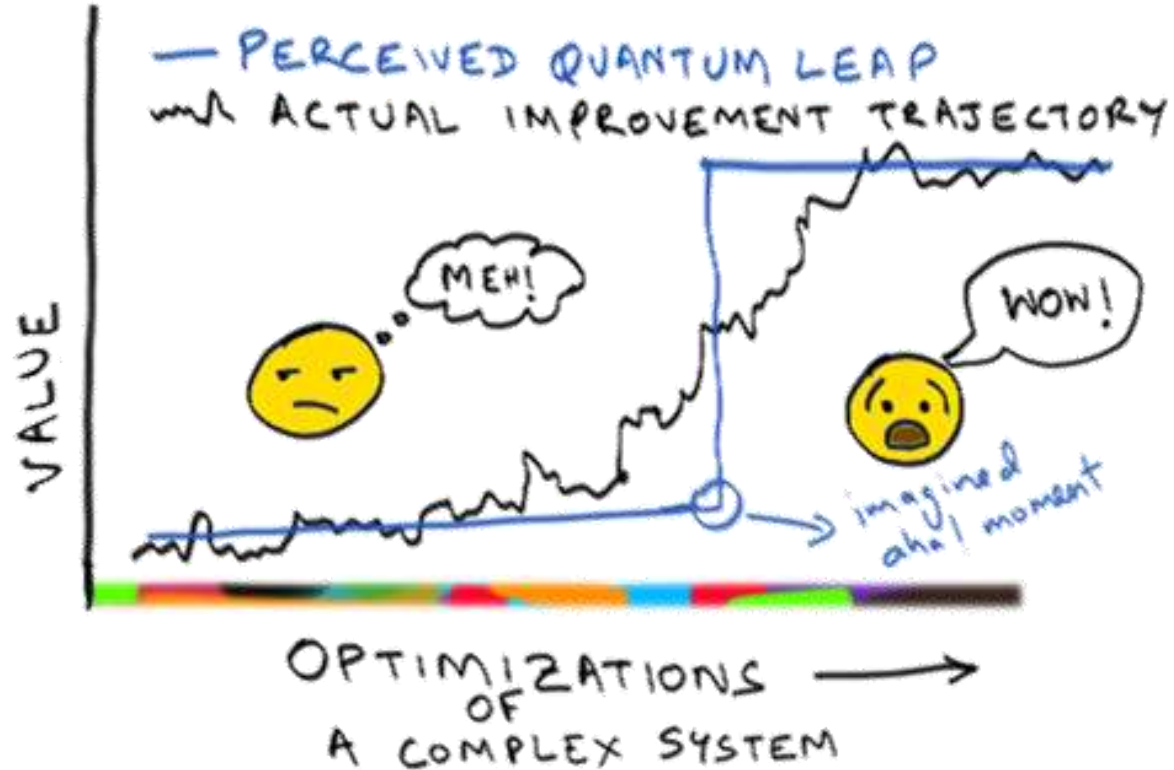


## Group DDD per 100 Bed Days Excluding Antifungals Oct 2009 to September 2014 (n=54 hospitals)





# “Small” optimizations over time versus one imagined aha! moment



53 telephonic and face to face learning sessions including 18 face-to-face regional workshops

Over 2 years of standardized measurement, 116 662 patients on antibiotics were reviewed, with 7934 interventions recorded

24 % of patients that were audited were in ICU and high care and 76% in wards

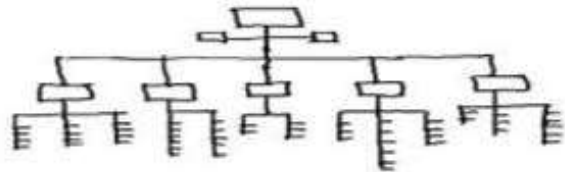
In a complex system, the cumulative effect of a large number of small optimizations is often indistinguishable from a radical leap. Keith Adams

<http://rev.vu/l3RO8>

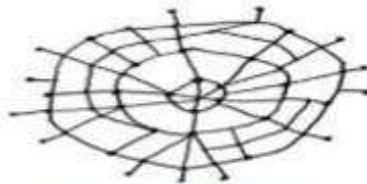
# Building an AMS Programme for high impact

## John Kotter: “Accelerate!”

- We won't create big change through hierarchy on its own
- We need hierarchy AND network
- Many change agents, not just the usual few
- Changing our mindset
  - From “**have to**” to “**want to**”
- Head and heart, not just head



Designed for  
**DIVISIONS**

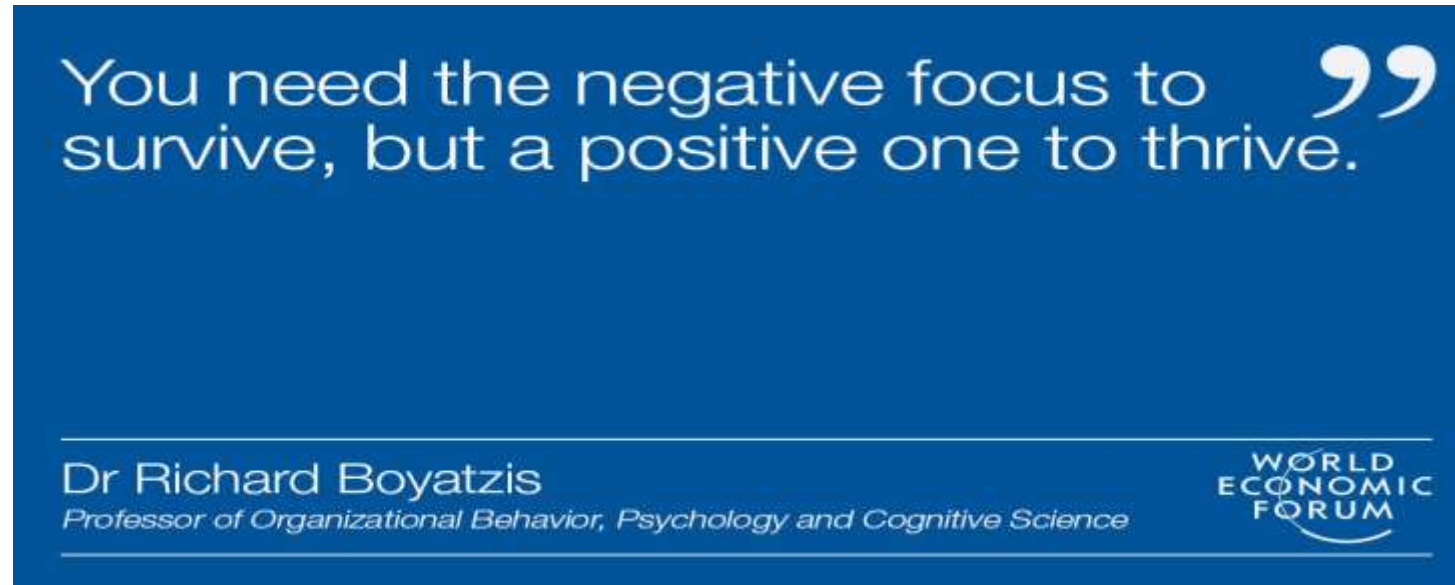


Designed for  
**CONNECTIONS**



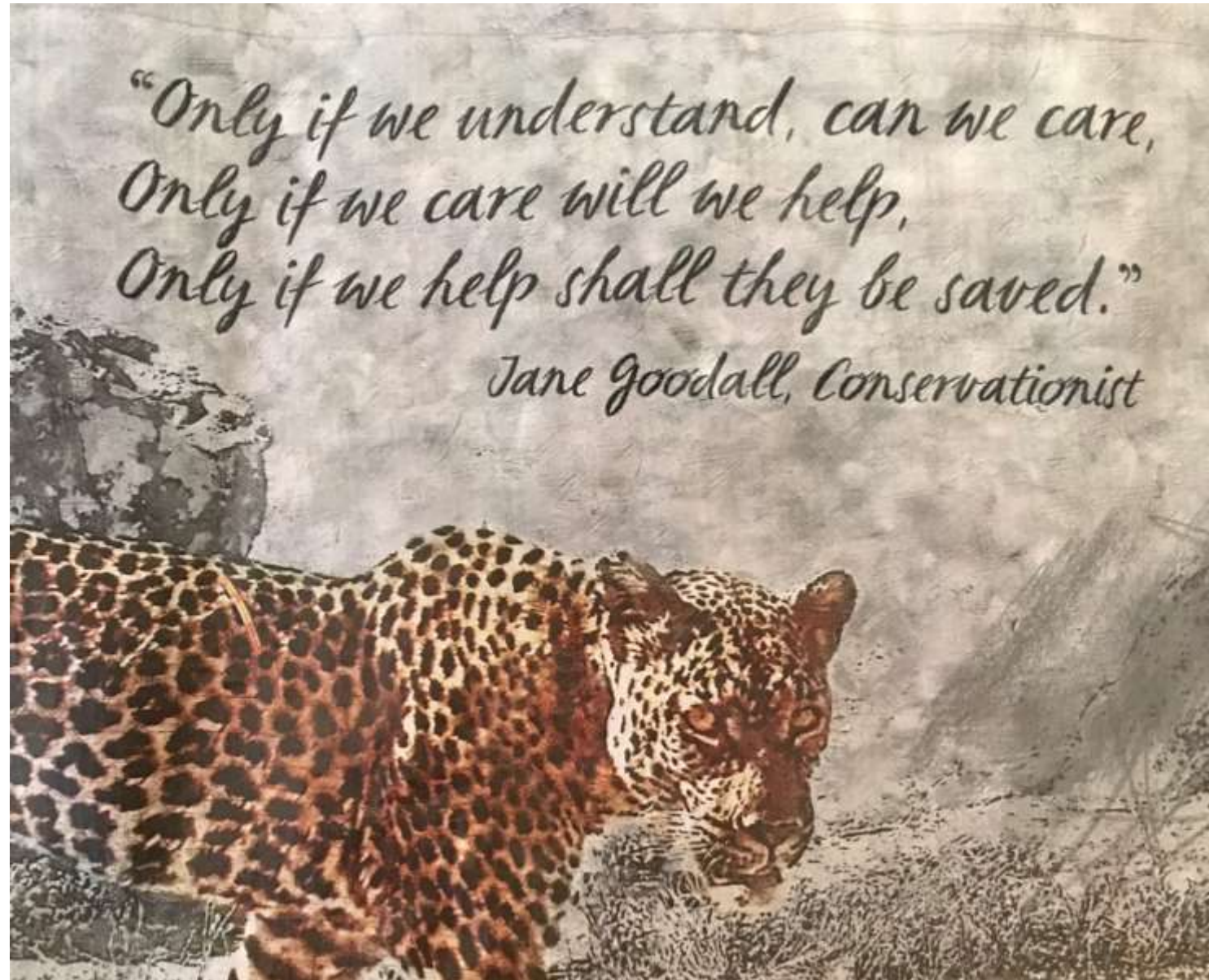
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image:[www.slideshare.net/mexicanwave/champions-trolls-10-years-of-the-cipd-online-community](http://www.slideshare.net/mexicanwave/champions-trolls-10-years-of-the-cipd-online-community)

## Next steps - more work on behavioural aspects



2013 study to assess contrasting approaches: **Negative Emotional Attractor (NEA)** – vs **Positive Emotional Attractor (PEA)**

**focussing attention on possibilities and dreams were shown to enhance behavioural change and increased the likelihood of achieving what was hoped for.**



INTERNATIONAL  
SOCIETY  
FOR INFECTIOUS  
DISEASES

**Different  
Models of  
Antibiotic  
Stewardship  
in Low- and  
Middle-Income  
Countries**



@inspired2leadQH