

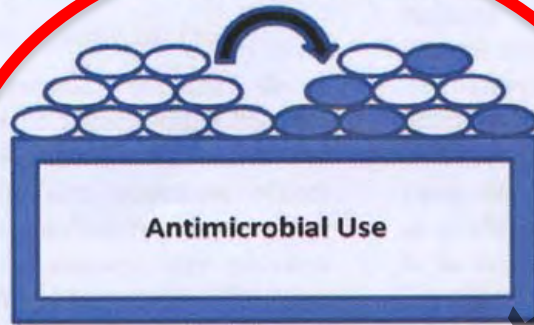
Antimicrobial Stewardship in Humans

Dilip Nathwani; Ninewells Hospital and
Medical School, Dundee, UK



Prevention & stewardship

Antimicrobial exposure (dose, duration, type of antibiotic*)

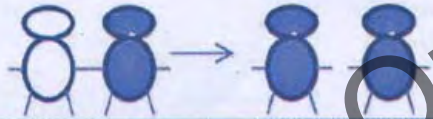


INFLUENCERS:

- Human antimicrobial consumption
- Agriculture antimicrobial consumption

Rationale for cohorting, private rooms, handwashing, active surveillance...

Double Room Room A Patient A Double Room Room A Patient B Double Room Room A Patient A Double Room Room A Patient B



Infection Control

INFLUENCERS:

- Hand hygiene
- Epidemiology
- Outbreak investigations
- Cohorting
- Active surveillance

Germicides, Sub-MIC residues, ionic surfactants

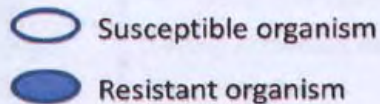


Bedrail, call button, telephone, commode, doorknob

Environment

INFLUENCERS:

- Germicides
- 10% hypochlorite (sporicidal) for *C. difficile*
- Policy & Practice
 - What surfaces?
 - How often?
 - Is terminal enough? (NO!)



*Antibiotics have a different propensity to select for resistance. For example, only a handful of high level resistant isolates of MRSA have become resistant to vancomycin in 4 decades of use. More MRSA strains have become resistant to daptomycin than to vancomycin in a single clinical trial.

Society's failure to protect a precious resource: antibiotics

Jean Carlet, Peter Collignon, Don Goldmann, Herman Goossens, Inge C Gyssens, Stephan Harbarth, Vincent Jarlier, Stuart B Levy, Babacar N'Doye, Didier Pittet, Rosana Richtmann, Wing H Seto, Jos W M van der Meer, Andreas Voss

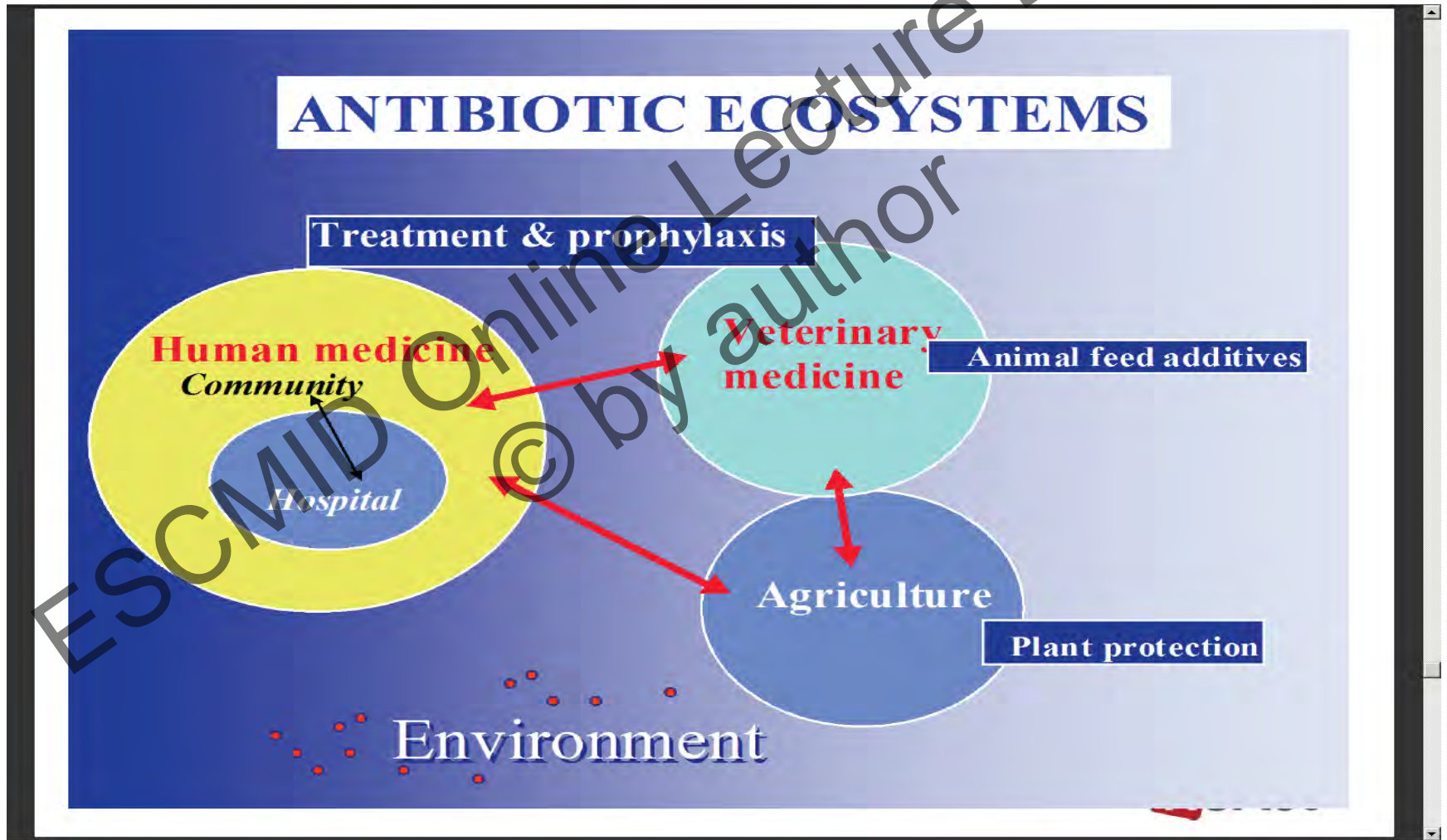
Since their discovery last century, antibiotics have recently introduced agents, such as daptomycin and served society well by saving tens of millions of lives. oxazolidinones. Community-acquired MRSA strains have

We have watched too passively as the treasury of drugs that has served us well has been stripped of its value. We urge our colleagues worldwide to take responsibility for the protection of this precious resource. There is no longer time for silence and complacency.

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THE MULTI-DIMENSIONAL APPROACH



A Sense of Perspective

Where used

Human (50%)

Animal (50%)

Types of Use

20% Hospital

80% Community

20% Therapeutic

80%

Prophylaxis/growth promotion

Questionable use

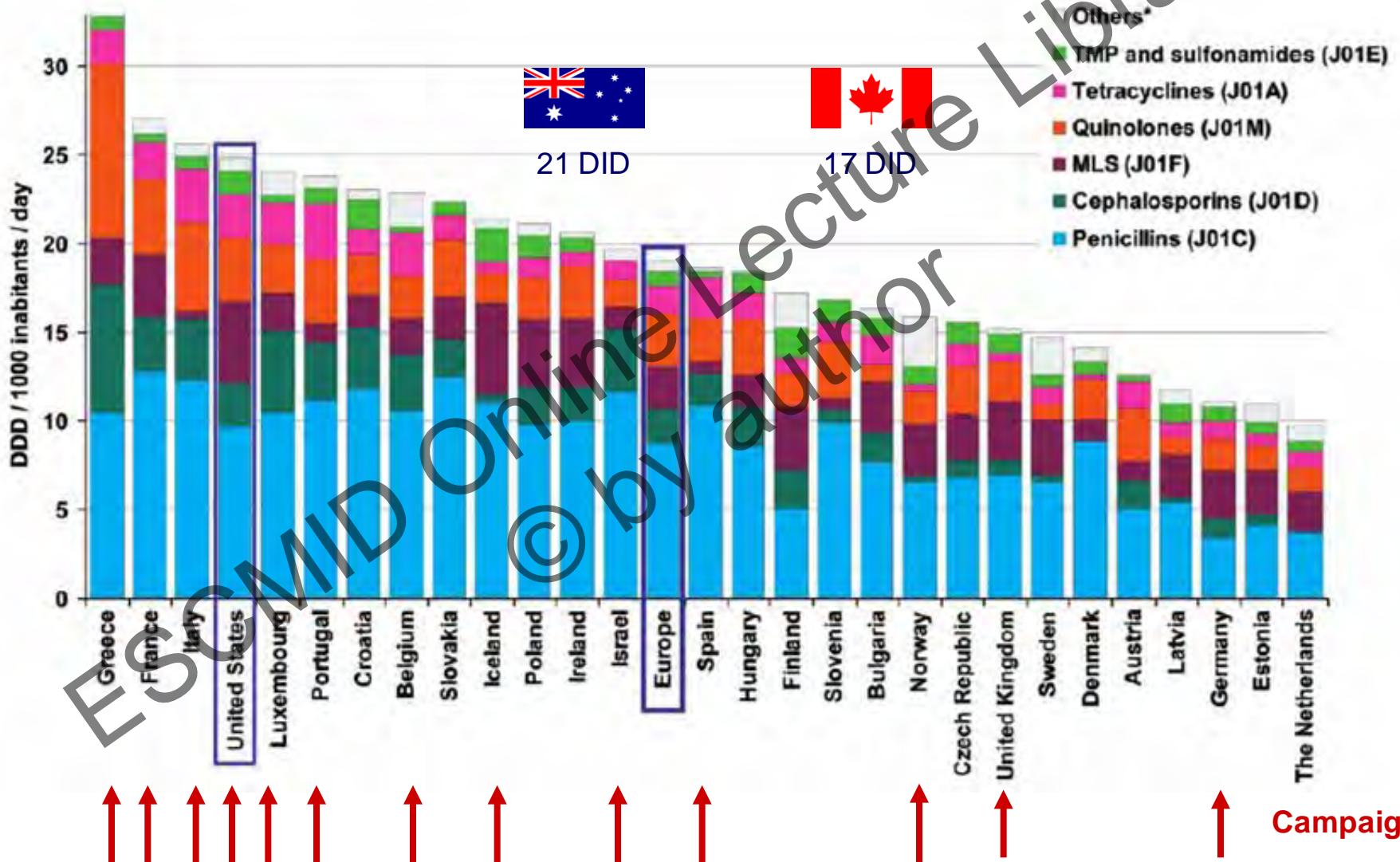
20-50%

unnecessary

40-80%

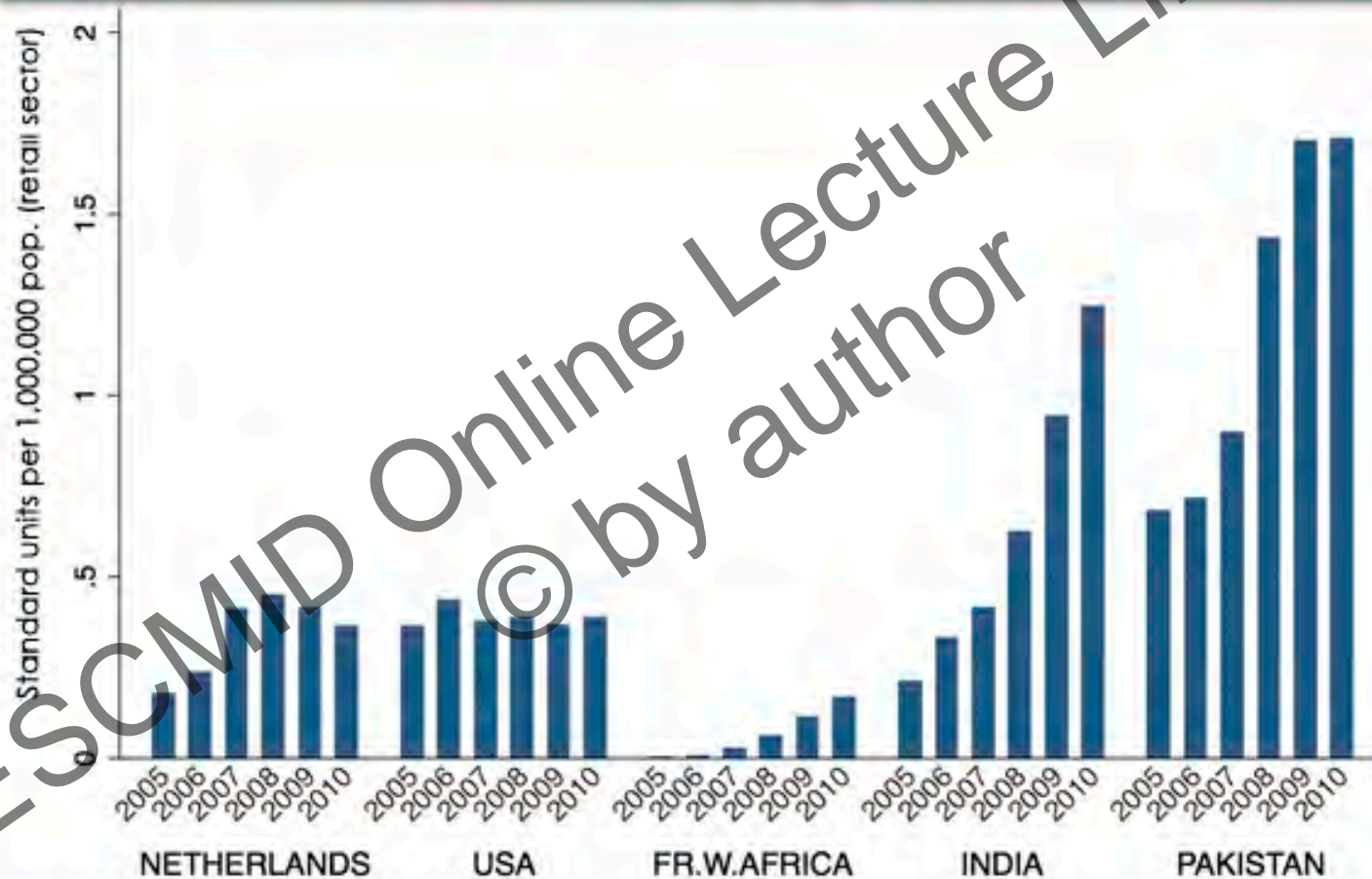
highly questionable

Outpatient Antibiotic Use



Total outpatient antibacterial use in the United States and 27 European countries in 2004

Retail sales of carbapenem antibiotics to treat Gram-negative bacteria are increasing rapidly in India and Pakistan



Source: Based on data obtained under license from IMS Health MIDAS™ (January 2005 - December 2010). IMS Health Incorporated. All Rights Reserved.



CDDEP

THE CENTER FOR
Disease Dynamics,
Economics & Policy

WASHINGTON DC • NEW DELHI

Non-prescription use occurred worldwide and accounted for 19–100% of antimicrobial use outside of northern Europe and North America.

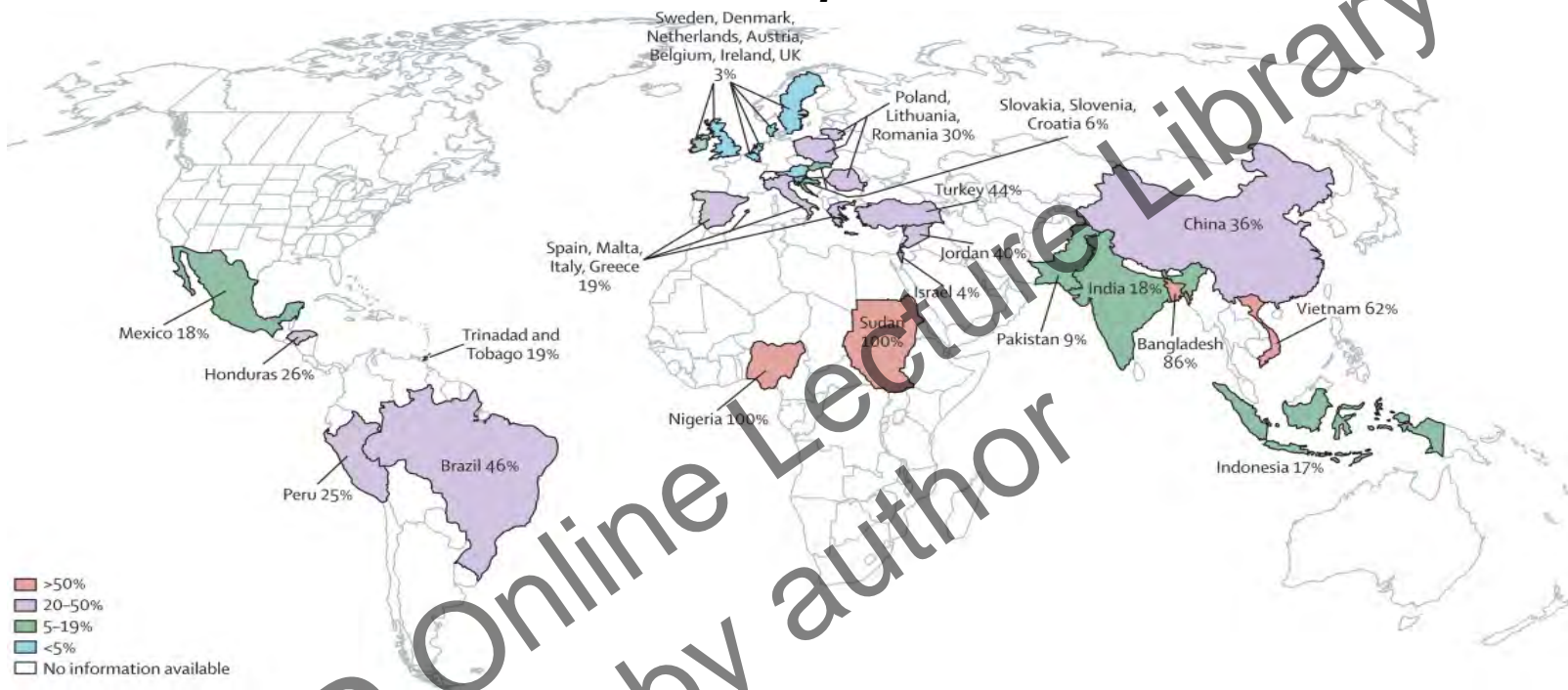


Figure 2 Frequency of non-prescription use of antimicrobials in the general population based on published works. In small areas, countries with similar frequency of non-prescription antimicrobial use have been grouped.

Daniel J Morgan , Iruka N Okeke , Ramanan Laxminarayan , Eli N Perencevich , Scott Weisenberg

Non-prescription antimicrobial use worldwide: a systematic review

The Lancet Infectious Diseases Volume 11, Issue 9 2011 692 - 701

[http://dx.doi.org/10.1016/S1473-3099\(11\)70054-8](http://dx.doi.org/10.1016/S1473-3099(11)70054-8)

Hospital Prescribing

National Point Prevalence Study 2009 (ESAC-3)

Scottish data

31 hospitals (8732 patients)

27.8% patients on antimicrobials

50.5% given intravenously

76.1% reason recorded in case notes

57.9% compliant with local guidelines

30.3% surgical prophylaxis more than one day



some room for improvement

OUTLINE OF PRESENTATION

- **What is stewardship ?**

ESCMID Online Lecture Library
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ANTIMICROBIAL STEWARDSHIP

Sandora & Goldmann. NEJM 2012; 367:23:2168-2170

- **“Structured guidance and support for responsible selection and utilization of antimicrobial agents”**

OUTLINE OF PRESENTATION

- What is stewardship ?
- **Why stewardship ?**

ESCMID Online Lecture Library
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THE TRIPE AIMS OF STEWARDSHIP

- 1. IMPROVED PATIENT OUTCOMES

An activity that **optimises antimicrobial management** and includes selection, dosing, route and duration of antimicrobial therapy and prophylaxis

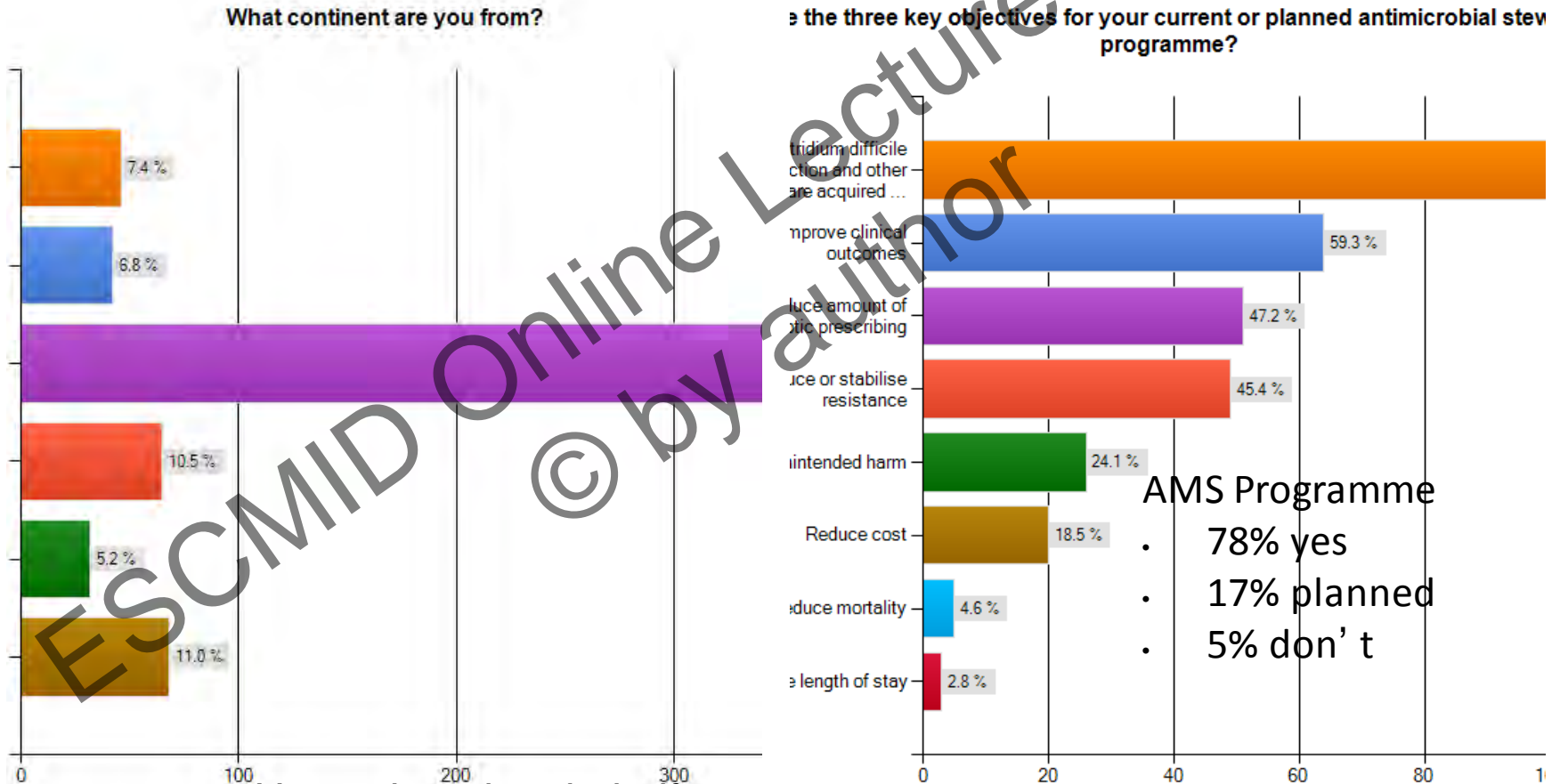
Also include clinical infection management and improving clinical **outcomes** : “*beneficience*”

- 2. IMPROVED PATIENT SAFETY AND REDUCE RESISTANCE

Selection of antimicrobials from each class of drugs that does the least **harm through collateral damage** e.g MRSA, ESBLs, *C.difficile* and **does not cause unintended harm [more complications, toxicity]** : “*maleficience*”

- 3. REDUCE COST

ESGAP/ISC Global stewardship survey by continent



AMS Programme

- 78% yes
- 17% planned
- 5% don't

Howard et al on behalf
 Of ESGAP/ISC ECCMID 2013
 Poster 2448

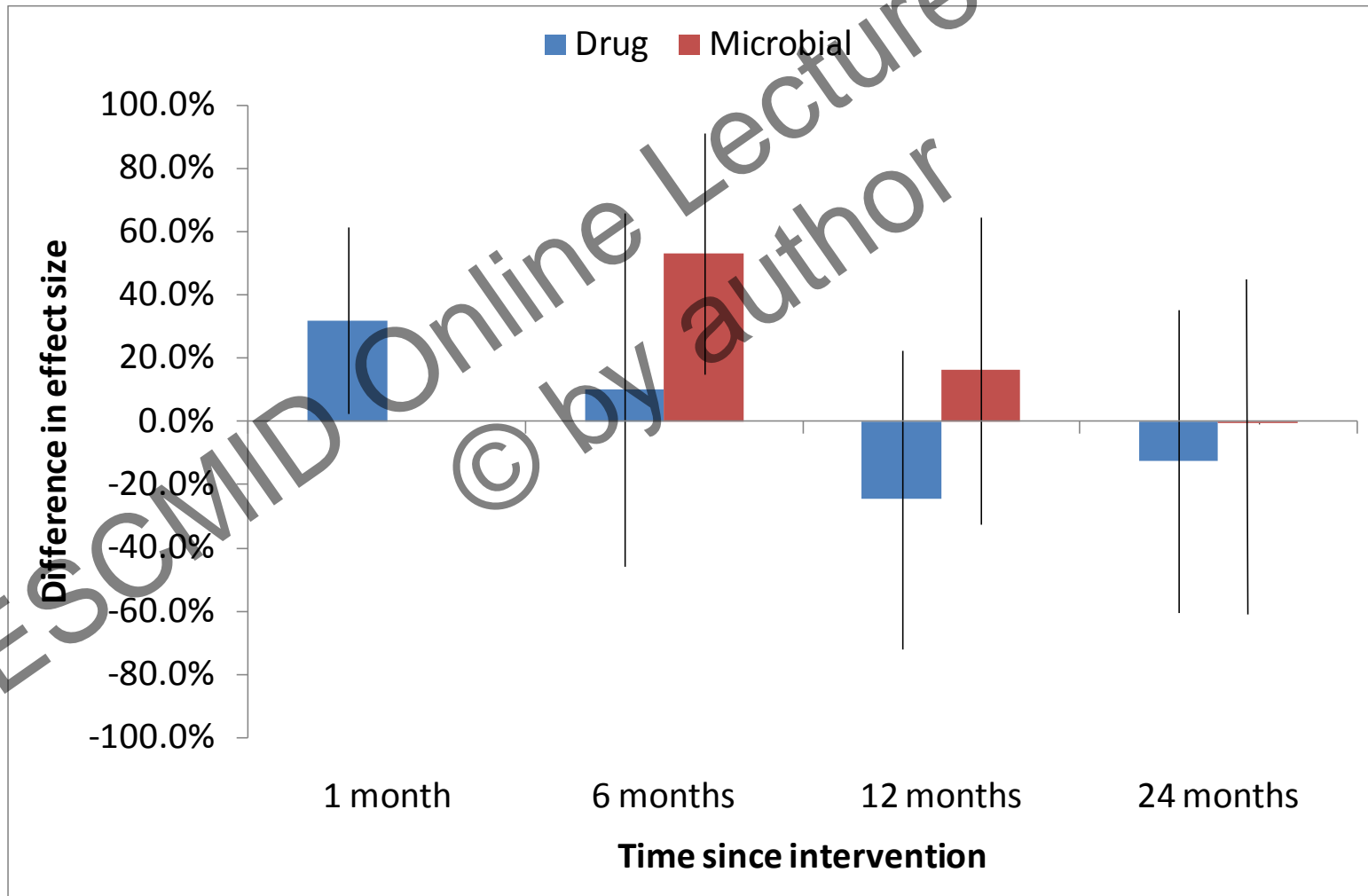
INTERVENTIONS TO IMPROVE ANTIBIOTIC PRESCRIBING IN HOSPITALS

- 89 STUDIES [till 2006]
- 55 FROM N. AMERICA; 37 EUROPE, 3 FAR EAST, 3 SOUTH AMERICA & 2 AUSTRALIA
- PERSUASIVE AND RESTRICTIVE INTERVENTIONS
- Davey P et al Cochrane systematic review Update April 30th 2013
- Evidence to support beneficial impact on :
 - Better quality of evidence and study design
 - Decrease in antibiotic use does not increase mortality and can improve clinical outcomes
 - Better use of antibiotics will reduce SSI's
 - Decrease and better use of antibiotics reduces resistance and *C. difficile*
 - Emerging data on cost-reduction

Longevity of Value of Interventions

Mean and 95% CI;

Restrictive – Persuasive [Davey et al Cochrane review update 2013]



Approaching zero: temporal effects of a restrictive antibiotic policy on hospital-acquired *Clostridium difficile*, extended-spectrum β -lactamase-producing coliforms and methicillin-resistant *Staphylococcus aureus*

S.J. Dancer^{a,*}, P. Kirkpatrick^a, D.S. Corcoran^b, F. Christison^a, D. Farmer^c, C. Robertson^{d,e,f}

450-bed district hospital in UK

1. **Restriction**: banning routine use of ceftriaxone and cipro (starting Aug 2008)
2. Plus **Educational** campaign

Outcomes:

1. Cipro monthly consumption: 72.5% reduction
109.8 \rightarrow 30.2 DDD/1000 pt-occupied bed-days
2. *C. difficile* reduction of 77% (2.4 \rightarrow 0.5 cases/1000 pt-bds)
3. MRSA reduction of 25% (1.2 \rightarrow 0.9 cases/1000 pt-bds)

Impact of Quinolone Restriction on Resistance Patterns of *Escherichia coli* Isolated from Urine by Culture in a Community Setting

Bat Sheva Gottesman,^{1,2} Yehuda Carmeli,^{2,3} Pnina Shitrit,^{1,2} and Michal Chowers^{1,2}

¹Infectious Diseases Unit, Meir Medical Center, Kfar Saba, and ²Sackler Medical School, Tel Aviv University, and ³Division of Epidemiology, Tel Aviv Sourasky Medical Center, Tel Aviv, Israel

Outpt Israeli population (167 000 inhabitants)

Nov 2001-May 2002

Intervention: **RESTRICTION** of cipro & preapproval

Outcome: reduction -1827,3 DDD/month (50% reduction in consumption)

Decreased cipro-R in *E.coli* isolates from urine by 36% (12% →9%)

Post-intervention: back to previous situation

Impact of Stewardship on SAFETY?

The reductions in antimicrobial utilization associated with stewardship interventions have not been associated with any worsening in nosocomial infection rates, length of stay or mortality among intensive care patients.”

- **“Stewardship interventions were associated with ... fewer antibiotic adverse events.”**

Kaki R, et al. Impact of antimicrobial stewardship in critical care: a systematic review. J Antimicrob Chemother 2011 (June); 66: 1223-1230

COST V QUALITY BEFORE 2001-2004; DURING 2005-2008; AFTER 2009-2010

- MEASURES :
 - PRE-AUTHORISATION
 - GUIDELINES/POLICY WITH ADHERENCE
 - DISCONTINUE UNNECESSARY DOUBLE COVERAGE
 - IV-ORAL
 - ID CONSULT FOR COMPLEX CASES
- **45.5% DECREASE IN ANTIMICROBIAL COSTS**
- **QUALITY : NO INCREASE IN MORTALITY, READMISSIONS AND LOS**
- **POST STEWARDSHIP PROGRAMME LED TO 32.3% INCREASE IN COSTS IN 2 YEARS**

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY APRIL 2012, VOL. 33, NO. 4

ORIGINAL ARTICLE

Antimicrobial Stewardship at a Large Tertiary Care Academic Medical Center: Cost Analysis Before, During, and After a 7-Year Program

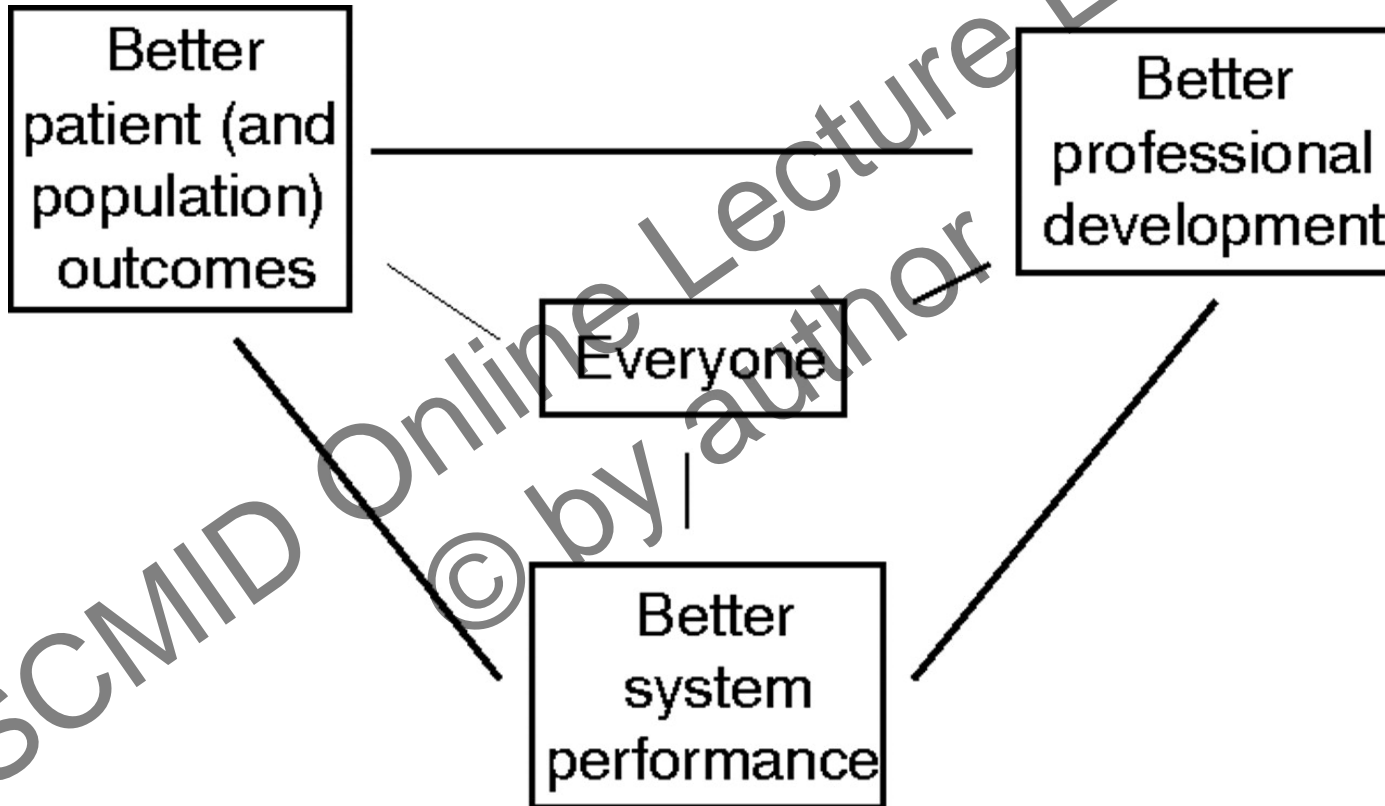
Harold C. Standiford, MD;^{1,2} Shannon Chan, PharmD;³ Megan Tripoli, BA;¹ Elizabeth Weekes, PharmD;⁴ Graeme N. Forrest, MBBS⁵

OUTLINE OF PRESENTATION

- **How stewardship ? Emphasis on implementation**

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Linked aims of improvement



Batalden et al. Qual Saf Health Care 2007;16:2-3

Antibiotic Stewardship

Essential: All Healthcare facilities

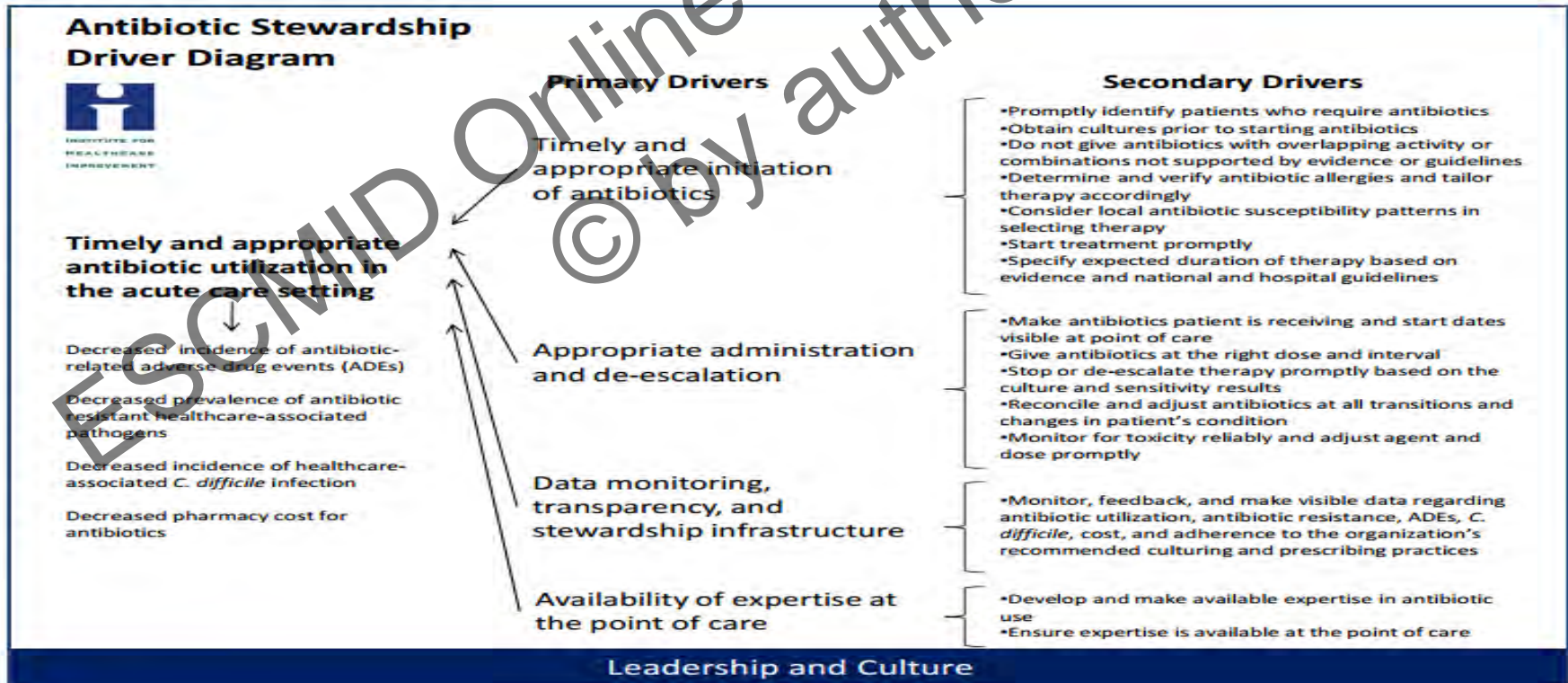
A PATIENT SAFETY PRIORITY

- Clear vision with **aims, objectives and measurables** [identify quick wins, focus] – identify benefits to all key stakeholders – consider the patient voice
- Organisational and clinical leadership, accountability, structure and organisation [**networks** of support- local, regional and national]
- Operational **multi-disciplinary stewardship team** with clinician champion; important role of pharmacists and nurses
- Key **effective intervention tools** adopted for local needs, geography, organisation and resource [key is to reduce diagnostic uncertainty]
- Multi-faceted implementation efforts: improvement science, socio-behavioural methods, human factors
- **Measurement** [improvement v scrutiny], external inspection, **feedback**
- **Education** : BETTER LEARNING = BETTER CARE face to face, e-learning, reflective learning in the workplace
- **Communication**

Driver Diagram for Antimicrobial stewardship

http://www.cdc.gov/getsmart/healthcare/pdfs/Antibiotic_Stewardship_Driver_Diagram_10_30_12.pdf

Antibiotic Stewardship Driver Diagram



Structure + Process = Outcome

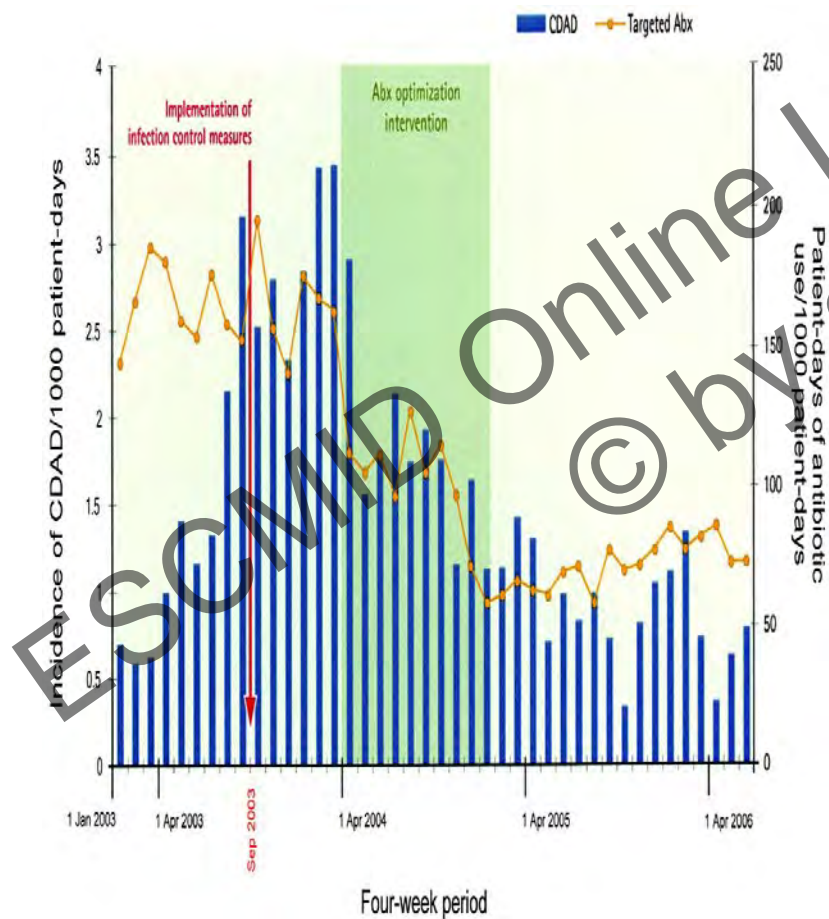
Quality of healthcare can be assessed on the basis of structure, process (how care is delivered), and outcome (mortality, functional status, quality of life, and patient satisfaction)

- good measures of the first two are those that have a clear relationship to the third
- structure must proceed process which must proceed outcome

Organisational Approach required

- Addressing AS as an organisational change issue need to consider :
- Issues and agendas: Political science concept of a crowded decision making agenda;
- Power and influence: Specialists and generalists, Who 'owns' antibiotic stewardship? Coalition building needs?
- Governance framework
- Roles and relationships: difficult move from a narrow technical role to a broader strategic role, coalition of supporters
- Organisational culture and learning
- Supporting Knowledge bases
- E Ferlie.et al 2003 *British Journal of Management*, 14, S1: S1-14. courtesy of a.holmes

IMPORTANCE OF COMBINING INFECTION PREVENTION AND ANTIMICROBIAL STEWARDSHIP



American Journal of Infection Control 40 (2017) 94-5

Contents lists available at ScienceDirect

American Journal of Infection Control

Journal homepage: www.ajicjournal.org

ELSEVIER

American Infection Control Society (AICS)

Special article

Antimicrobial stewardship: A collaborative partnership between infection preventionists and health care epidemiologists

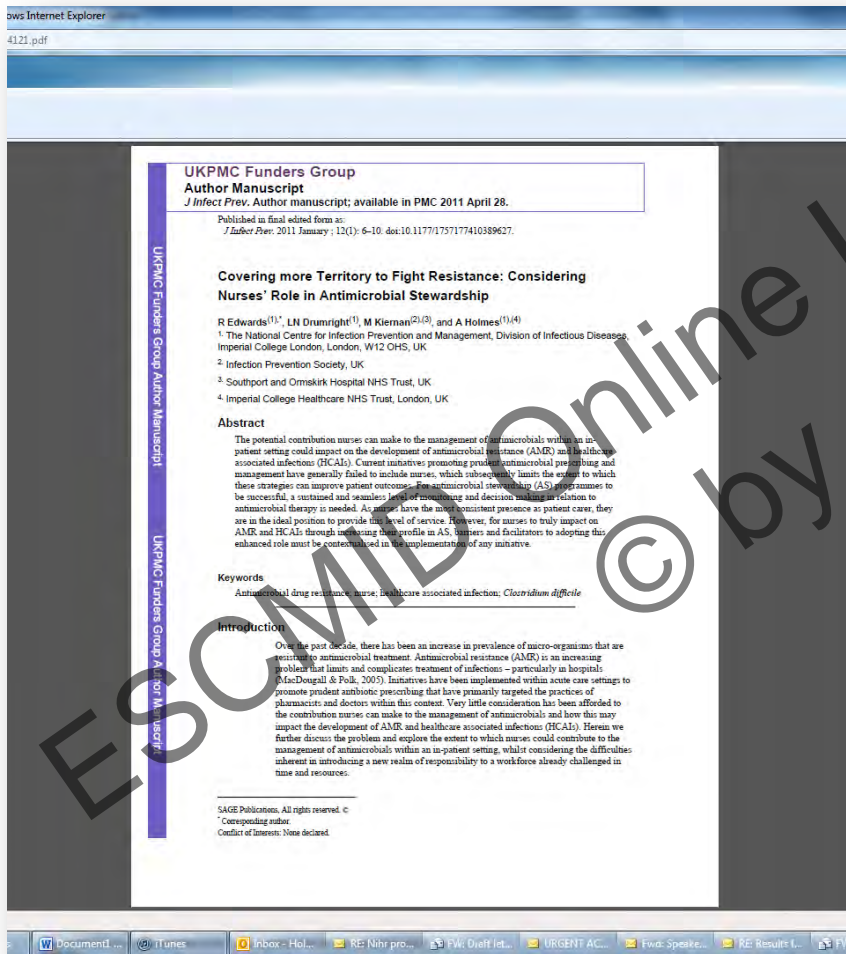
Julia Moody MS, SM(ASCP)^{a,*}, Sara E. Cosgrove MD, MS^b, Russell Olmsted MPH, CIC^c, Edward Septimus MD, FACP, FIDSA, FSHEA^d, Kathy Aureden MS, MT (ASCP)SI, CIC^e, Shannon Oriola BSN, RN, CIC, COHN^f, Gita Wasan Patel RPh, PharmD, BCPS^g, Kavita K. Trivedi MD^h

^aMidgroup Clinic, NCA, Inc., Nashville, TN
^bJohns Hopkins Medical Institutions, Baltimore, MD, SHEA Affiliate
^cPriddy Health, San Diego, CA, 2013 APIC President
^dNCA, Inc., Nashville, TN, SHEA Affiliate
^eShoreline Hospital, Ilwaco, OR
^fStony Brook Medical Center, Stony Brook, NY
^gNCA Supply Chain Services, Dallas, TX
^hCenter for Health Care Quality, California Department of Public Health

APIC-SHEA Position Paper

and WHO are leading voices working towards an international solution with a three-pronged focus: 1) optimizing use of existing

Organisational memory and role of nurses in stewardship



- Prescribing most commonly performed by junior doctors
- Outside area of expertise with varying levels of senior support
- High rotation of junior doctors
- Loss of local knowledge
- Antibiotic prescribing sits outside one specialty
- However, nurses can contribute to this local knowledge as the least transient population

Edwards, R, et al. (2011) *J. Infection Prevention* 12: 6-10

Charani E, et al. (2010) *J. Antimicrob Chemotherapy* 65: 2275-2277

INTEGRATED NETWORKS

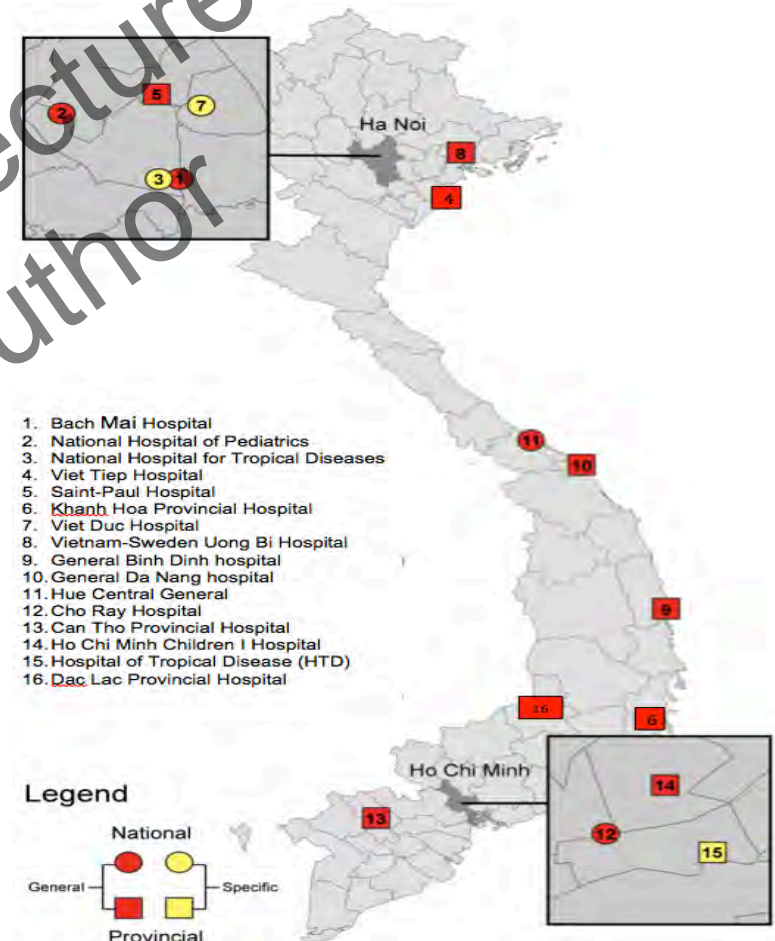
Evidence based interventions including Antibiotic Stewardship program in Vietnamese hospitals.

1. Indicators

- antibiotic use,
- resistance,
- health care associated infections
- infection control

2. Improved Susceptibility Testing

3. Antibiotic Stewardship groups 16 hospitals



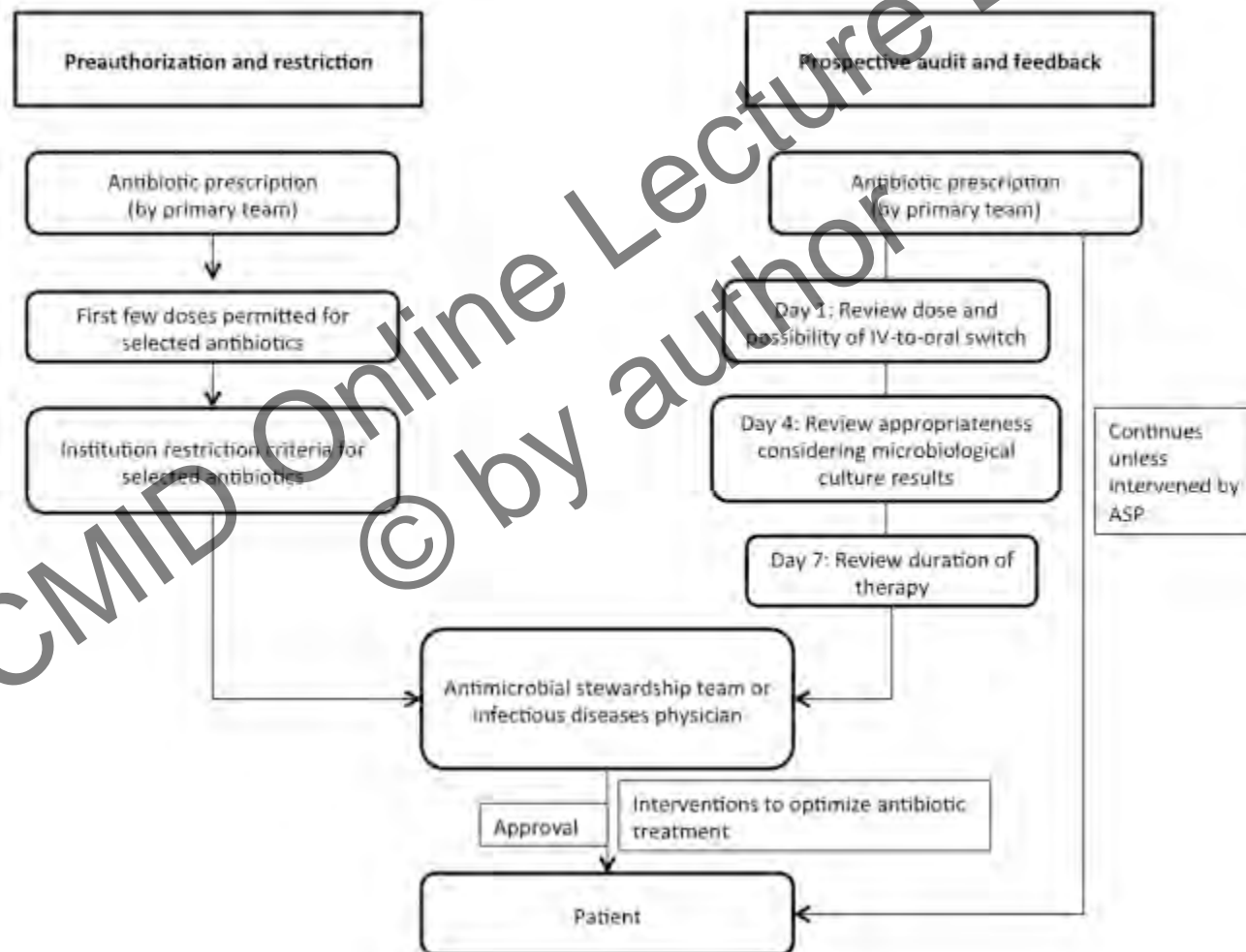
Antimicrobial Stewardship Toolkit:

Quality of Evidence to support interventions

- **Prospective audit with intervention and feedback AI**
- **Education BIII [Education with an active intervention AIII]**
- **Formulary restriction and pre-authorisation**
 - All for rapid decrease in antibiotic in use**
 - BII for control of outbreak**
 - BII/III may lead to unintended increase in resistance**
- **Guidelines and clinical pathways AI**
 - With education and feedback on outcomes AIII
- **Antimicrobial cycling CII**
- **Antimicrobial order forms BII**
- **Combination therapies CII**
 - In critically unwell patient with high risk of MDRO AI
- **De-escalation-review AI**
- **Dose optimisation AI**
- **Parenteral to oral conversion AIII**
- **Computerised decision support, surveillance BII**
- **Laboratory surveillance and feedback BII**

General workflow schematic for a two-step prospective audit and feedback strategy as well as formulary restriction and preauthorization strategy for antimicrobial stewardship.

Chung GW et al. Antimicrobial stewardship: A review of prospective audit and feedback systems and an objective evaluation of outcomes
Virulence ; 2013, 4(2):1-7.



“Low Hanging fruit” [LARGE EFFECT BUT LOW COST] as Antimicrobial Stewardship Initiatives

- **GENERAL**
- IV-ORAL CONVERSION
- THERAPEUTIC SUBSTITUTION
- BACTCHING IV ANTIMICROBIALS
- **FORMULARY RESTRICTIONS**
- SINGLE DOSE SURGICAL PROPHYLAXIS
- DURATION OF VANCOMYCIN AND AMINOGLYCOSIDES

Adapted from Goff DA et al CID 2012; 55(4): 587-92
Morris AM et al Healthcare Quality 2010; 13(2): 64-70

Policies and guidelines are not enough.....

J Carthey et al BMJ 2011; 343

BMJ

BMJ 2011;343:d5283 doi: 10.1136/bmj.d5283

Page 1 of 5

ANALYSIS

Breaking the rules: understanding non-compliance with policies and guidelines

Healthcare organisations use policies and guidelines to standardise and clarify care and improve efficiency, productivity, and safety. But **Jane Carthey and colleagues** are concerned that their burgeoning number makes it impossible to distinguish the essential from the irrelevant and is affecting compliance

Jane Carthey *human factors consultant*¹, Susannah Walker *anaesthetic registrar*², Vashist Deelchand *research associate*², Charles Vincent *professor of clinical safety research*², William Harrop Griffiths *consultant anaesthetist*³

¹Imperial College London, London, UK; ²Department of Biosurgery and Technology, Imperial College London; ³Department of Anaesthesia, Imperial

THE IMPLEMENTATION GAP

17 years to apply 14% of research knowledge
to patient care!

“Think and work smarter-Improvement
science”

*Balas EA, Boren SA. Managing clinical knowledge for health care improvement. Yrbk of Med Informatics
2000; 65-70*

Right drug, right time, right dose & right duration

• Start smart

- initiate effectively antibiotic **ASAP** for serious infections
- send appropriate specimens prior to starting treatment
- **use local and national guidance**
- document in notes
- shortest course
- **choose narrow spectrum with least ecological damage**
- TDM when relevant to reduce toxicity e.g aminoglycosides
 - single dose for surgical prophylaxis

• Then Focus

- at 48-72 hours review
 - stop if no infection
- **streamline according to micro results**
- iv to oral switch

ANTIBIOTIC CARE

“BUNDLES”

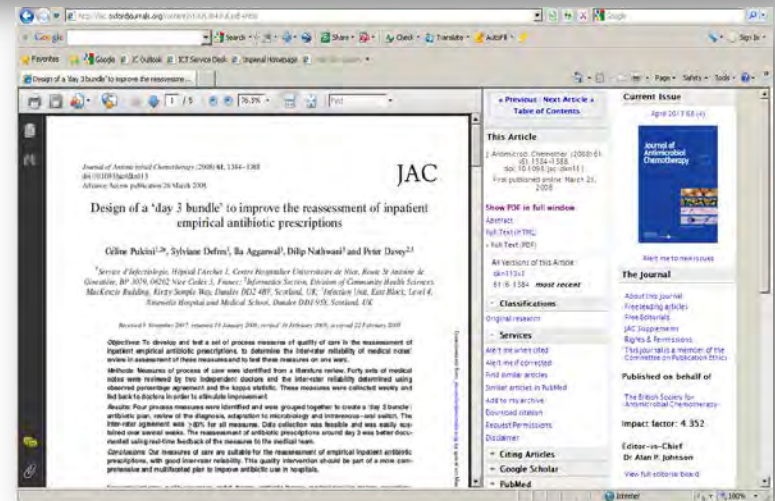
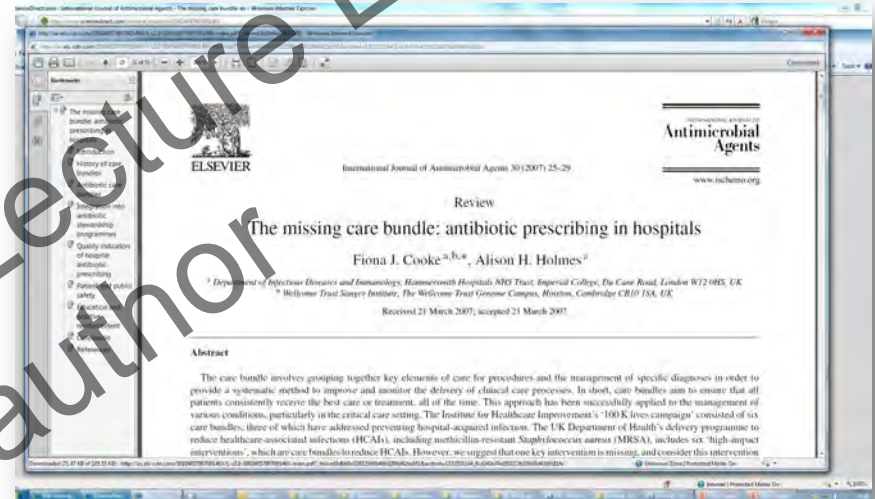
On initiation of prescription:

1. Clinical rationale for initiation
2. Appropriate specimens sent for MC&S
3. Adherence to local prescribing guidelines
4. Additional clinical interventions to manage infection (e.g. remove indwelling device, surgical procedure)

On continuation of prescription:

1. Daily review based on clinical response and laboratory results regarding: De-escalation, IV to Oral switch, Stopping
2. Correct therapeutic drug monitoring

- *Cooke, F.J., Holmes, A.H. (2007) The missing care bundle: antibiotic prescribing in hospitals. Int. J. Antimicrobial Agents; 30: 1, 25–29*
- *Toth NR, Chambers RM, Davis SL. Am J Health Syst Pharm. 2010 May 1;67(9):746-9.*
- *Pulcini C, Defres S, Aggarwal I, Nathwani D, Davey P. JAC 2008 Jun;61(6):1384-8.*



Review Bundle: The effect of Force and Function

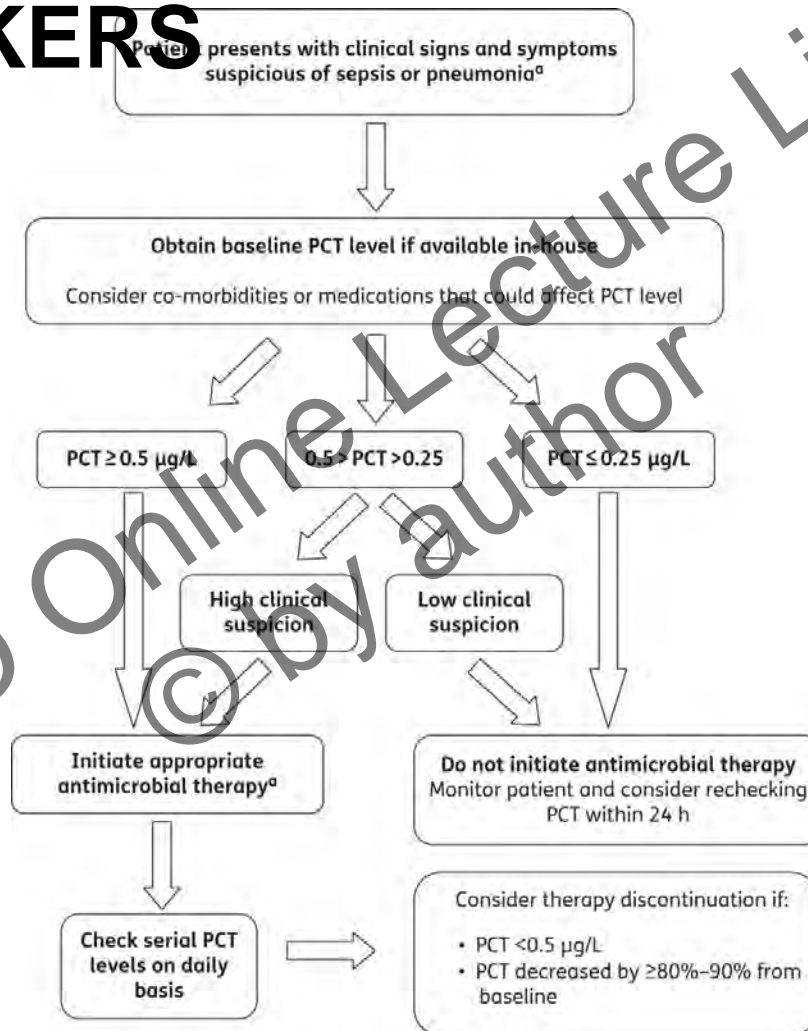
• The 3 Day Antibiotic Bundle

REGULAR THERAPY		Date	19/5	20/5	21/5	22/5												
		Time																
Medicine / Form		6																
Amoxicillin		8																
Dose	Route	12																
1gram	IV	14																
Signature	Start Date	18																
<i>[Signature]</i>	19/5/10	22																
Pharmacy																		
Medicine / Form		6																
Amoxicillin		8																
Dose	Route	12																
1gram	Oral	14																
Signature	Start Date	18																
<i>[Signature]</i>	22/5	22																
Pharmacy																		
Medicine / Form		6																
		8																
Dose	Route	12																
Signature	Start Date	14																
		18																
Pharmacy		22																

INDICATION: Empirical Treatment
 Start Date: 19/5
 Review Date: 22/5
Action Taken on Review
 Check Central Vision for Results
 Review patient & initial diagnosis
 Consider IV to Oral Switch

ESCPMD Online Lecture Library

RAPID DIAGNOSTICS & BIOMARKERS



Foushee J A et al. J. Antimicrob. Chemother.
2012;jac.dks265

Changing behaviour?

Antibiotic prescribing in hospitals: a social and behavioural scientific approach

Lancet Infect Dis 2010;
10: 167–75

Marlies EJ L Hulscher, Richard PT M Grol, Jos W M van der Meer

Panel: Examples of potentially effective strategies to improve antibiotic use in hospitals

Improvement strategies at the organisational level

Antibiotic policies

- Provide an antibiotic formulary
- Provide an antibiotic order form
- Provide an antibiotic order form including restriction requiring prior authorisation of prescriptions by infectious disease physicians, microbiologists, pharmacists
- Provide automatic stop orders
- Install an infection prevention committee
- Provide written antibiotic guidelines
- Provide an antibiotic booklet

Strategies to improve coordination, collaboration, communication, teamwork, and care logistics

- Introduce pharmacists to review orders and to contact physicians to reinforce appropriate use
- Introduce ward rounds to stimulate collaboration between doctor and pharmacist or microbiologist
- Introduce telephone advice for doctors to discuss prescriptions with the pharmacist or microbiologist
- Introduce flow sheets regarding the coordination of care
- Improve the logistics of care, for example, to reduce the time between requesting laboratory diagnostics and prescribing antibiotics

Improvement strategies at the individual level

- Distribute educational materials (eg, guidelines)
- Provide group education including conferences, seminars, and skills training programmes
- Provide small group education
- Stimulate local consensus processes
- Use local opinion leaders
- Provide individual instruction at the physician's office (outreach visits or academic detailing)
- Provide feedback (provision of summary of clinical performance, based on, for example, medical records)
- Provide reminders (prompts to perform specific actions), including decision support by computer

But – remember, not all prescribers are equal or equivalent...

Greater Understanding Antimicrobial Prescribing Behaviours

The screenshot shows the journal's homepage with the article title and author information. The journal title 'Clinical Infectious Diseases' is at the top. Navigation links include 'ABOUT THIS JOURNAL', 'CONTACT THIS JOURNAL', 'SUBSCRIPTIONS', 'CURRENT ISSUE', 'ARCHIVE', and 'SEARCH'. The article title is 'Understanding the Determinants of Antimicrobial Prescribing within hospitals: The role of 'Prescribing Etiquette''. The authors listed are E. Charani¹, E. Castro-Sanchez¹, N. Sevdalis², Y. Kyratsis¹, L. Drummond¹, N. Shah¹, and A. Holmes¹. The article is published in Clin Infect Dis. (2013) with doi: 10.1093/cid/cit212. It is an accepted manuscript, first published online April 9, 2013. The article is open access, with abstract and full text (PDF) available for free. It is classified as a major article and has services like alerts when cited or corrected.

1. **Non-interference with the prescribing decisions of colleagues:** Reluctance to interfere with the prescribing decisions of colleagues. In the case of antimicrobial prescribing there is a reluctance to intercept antimicrobial prescriptions started by colleagues. This recognises the autonomous decision making process of prescribing.
2. **Accepted non-compliance to policy:** Deviations from policy recommendations are tolerated and put in the context of the prescriber's experience, expertise and the specific clinical scenario. This leads to hierarchy and expertise, and not policy as determinants of prescribing practice behaviours.
3. **Hierarchy of prescribing:** Prescribing as an activity is performed by junior doctors. But it is the senior doctors who decide what is prescribed.

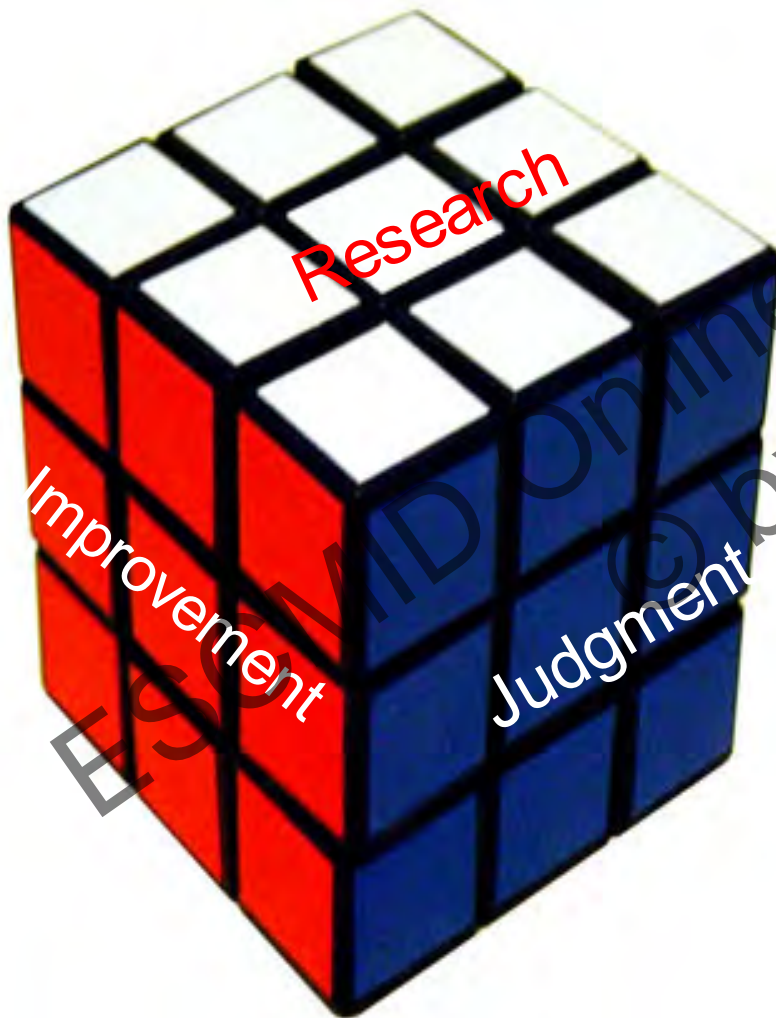
Measuring Impact of a stewardship programme: success or failure



www.shutterstock.com · 30820903



Integrating the Three Faces of Performance Measurement



The three faces of performance measurement should not be seen as mutually exclusive silos. This is not an either/or situation.

All three areas must be understood as a system. Individuals need to build skills in all three areas.

Organizations need translators who and be able to speak the language of each approach.

The problem is that individuals identify with one of the approaches and dismiss the value of the other two.

We are increasingly realizing not only how critical measurement is to the quality improvement we seek but also how counterproductive it can be to mix measurement for accountability or research with measurement for improvement.

PERFORMANCE MEASURES AND MEASUREMENT

The Three Faces of Performance Measurement:

Improvement, Accountability, and Research

LEIF J. SOLBERG, MD

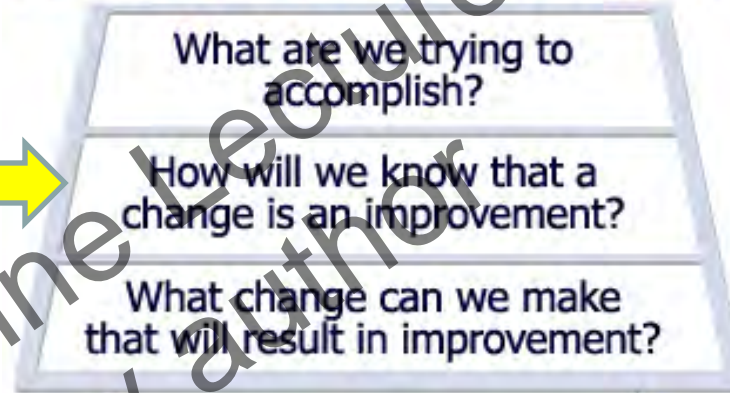
GORDON MOSSER, MD

SHARON McDONALD, RN, PHD

Data for Improvement

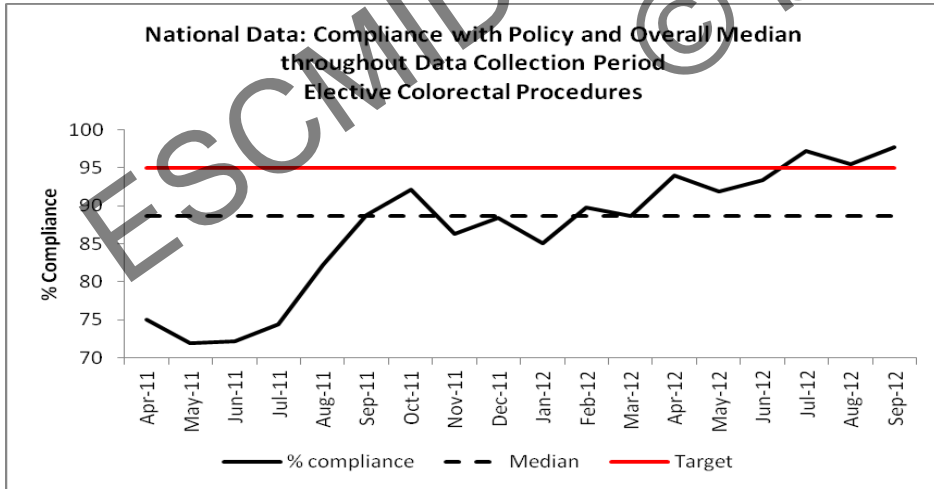
Using Data to understand progress toward the team's aim

Model for Improvement



Using Data to answer the questions posed on in the plan for each PDSA cycle





Antibiotic Measures : Process, Outcomes and Balancing

PROCESS

Amount of antibiotic in DDD/100 bed days

- Promoted antibiotic
- Restricted antibiotics

Compliance with acute empiric guidance – documentation in notes and compliance with policy

Compliance with surgical prophylaxis- < 60 min from incision, < 24 hours and compliance with local policy

Compliance with “ other bundles” – all or nothing [3 Day antibiotic review bundle, VAP, CAP bundle’ s]

Outcome measures

CDI rates

SSI rates

Surveillance of resistance

Mortality [SMR’ s]

Balancing measures

[unintended consequences]

Mortality

SSI’ s

Readmissions to hospital within 30 days of discharge

Admissions to ICU

Rate of complications

Treatment related toxicity- e.g aminoglycoside related toxicity

DEVELOPMENT OF QUALITY METRICS FOR ASP' S THROUGH A MODIFIED DELPHI TECHNIQUE ICHE 2012; 33[3]: 500-506

- ANTIMICROBIAL
CONSUMPTION MEASURES

- Days of therapy per 1000
patient day

- ANTIMICROBIAL
RESISTANCE MEASURES

- No of patients with specific
drug resistant
organism/total number of
patients admitted to
ward/unit

- PATIENT OUTCOME
MEASURES

- Mortality related to AR
pathogens
- Conservable days of
therapy among
CAP.SSTI,BSI & sepsis
- Unplanned hospital
readmission within 30 days
after hospital discharge

ACCOUNTABILITY MEASURES/PUBLIC
REPORTING
TARGETS WITH AUDIT AND FEEDBACK

QI MEASURES/INTERNAL
USE

2012 theory-based Cochrane review of Audit & Feedback

Ivers et al 2012 Courtesy of

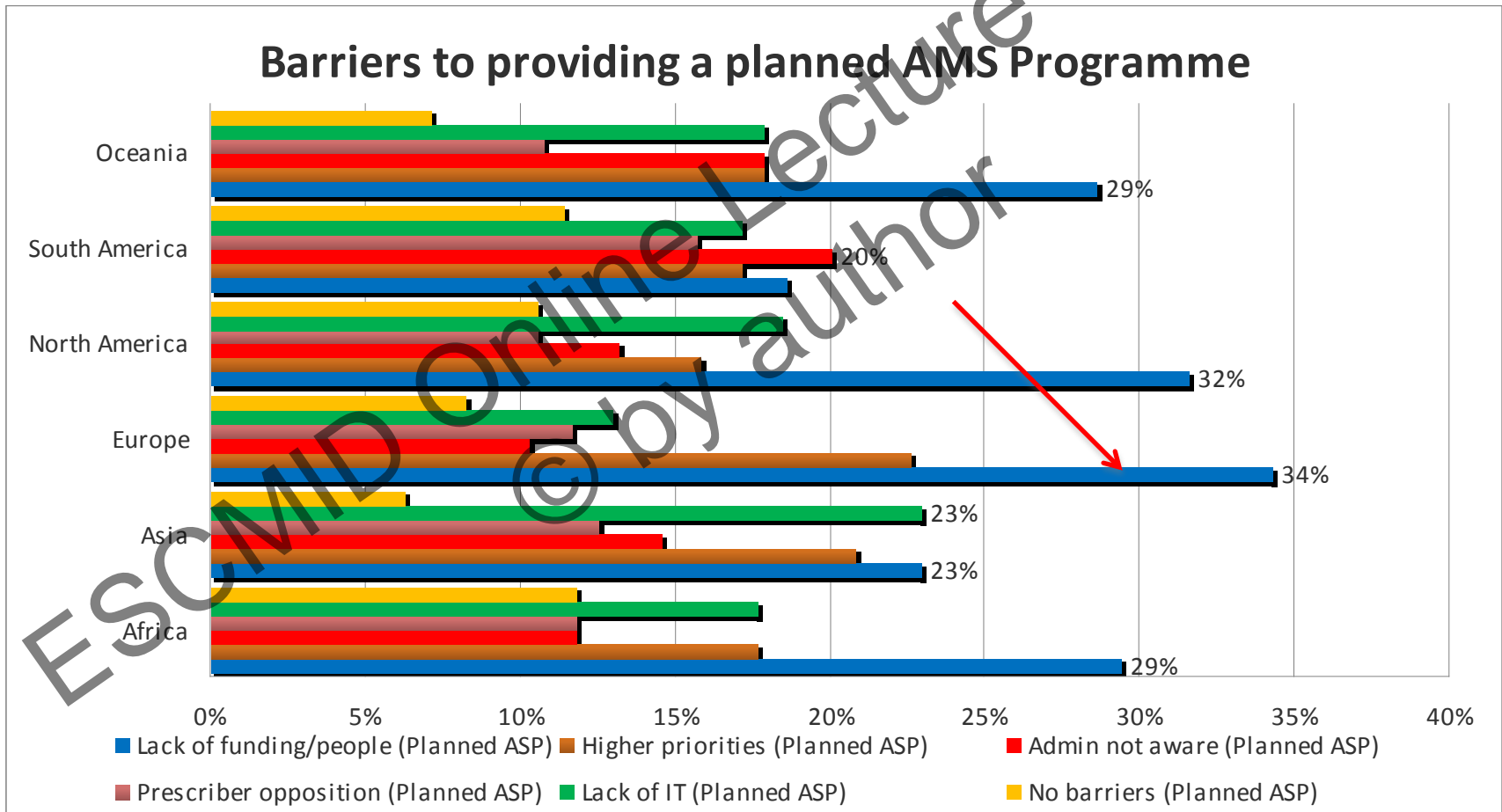
Susan Michie UCL

- Median 4.3% increase in compliance (IQR 0.5% to 16%)
- A&F is more effective when combined with
 - Explicit targets and an action plan
- In addition,
 - the target was prescribing
 - the source was a supervisor or colleague
 - it was provided more than once
 - it was delivered in both verbal and written formats

GLOBAL STEWARDSHIP SURVEY

2012: Barrier's: ESGAP/ICC

Howard P, Nathwani D et al ECCMID 2013, POSTER 2448



SOLUTIONS TO BARRIER'S

- Funding/personnel shortage : Team working, single & shared budget, targeted ASP's & ICT's are cost-effective
- Higher priority initiatives : AMR& Prescribing a patient safety priority, use patient[patient stories] and political leverage, senior leadership /champions
- Opposition for prescribers: concentrate on improving patient outcomes without harm; show "quick wins" to get rapid engagement
- Administrator reluctance : engage them in safety and cost consequences of AMR; involve senior and middle managers
- IT: do simple & most meaningful measurement; paper first; road [testing] before technology

THANK YOU
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