

28th

ECCMID

Madrid, Spain
21–24 April 2018



ESCMID

EUROPEAN SOCIETY OF CLINICAL
MICROBIOLOGY AND INFECTIOUS DISEASES

Advances in Antimicrobial
Stewardship

Breaking down barriers to antimicrobial stewardship programme (ASP) implementation



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programme **(ASP)** **implementation**



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Outline

- **Introduction**
- **Implementing ASP interventions:**
Behaviour change
- **Implementing an ASP programme:**
Cultural change

1. Introduction

ESCMID eLibrary
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Implementation Science

“The tasks of **medical science** fall into **three buckets**:



Peter Pronovost

1. **Understanding disease** biology

2. **Finding** effective **therapies**

3. **Insuring** those **therapies** are delivered effectively

- That **third bucket** has been **almost totally ignored** by research funders, government, and academia.
- It's viewed as the **art of medicine**. That's a mistake, a **huge mistake**”

Gawande A. “The Check-list”. New Yorker 2007

Implementation Science

Evidence

Practice

Basic
Research

Clinical
Research

Implementation
Science



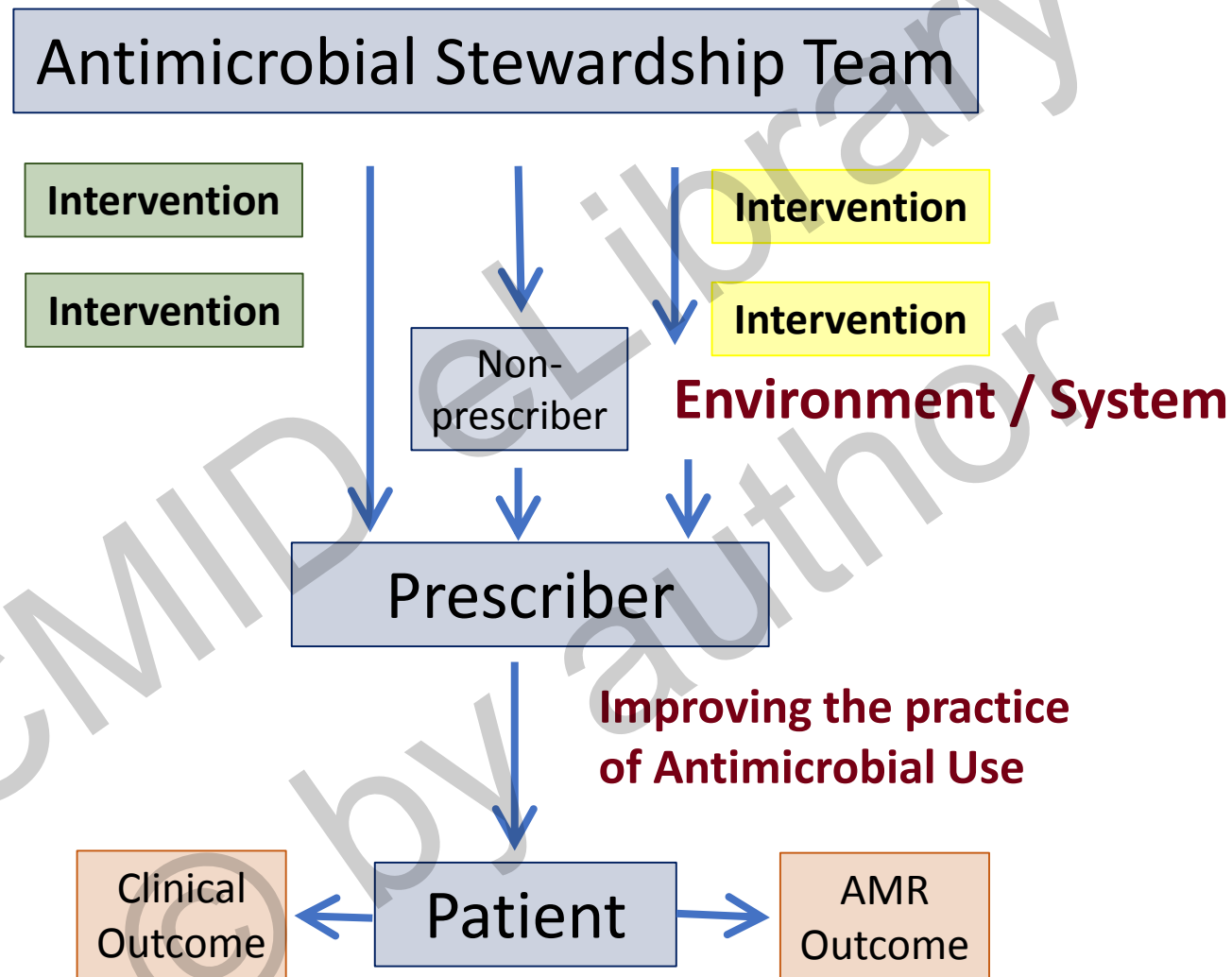
Health Outcomes

Implementation Science

- **Implementation science** is the study of methods to promote the **integration of research findings and evidence into** healthcare policy and **routine practice**
- It seeks to understand the **behavior of healthcare professionals and other stakeholders** as a **key variables** in the sustainable uptake, adoption, and implementation of evidence-based interventions

AKA: translation of evidence into practice

Antimicrobial Stewardship Programme-H



- ASP is a **tool to implement** the (evidence-based) principles of appropriate antimicrobial use

AS: Types of implementation

There are **2 types** of implementation in AS

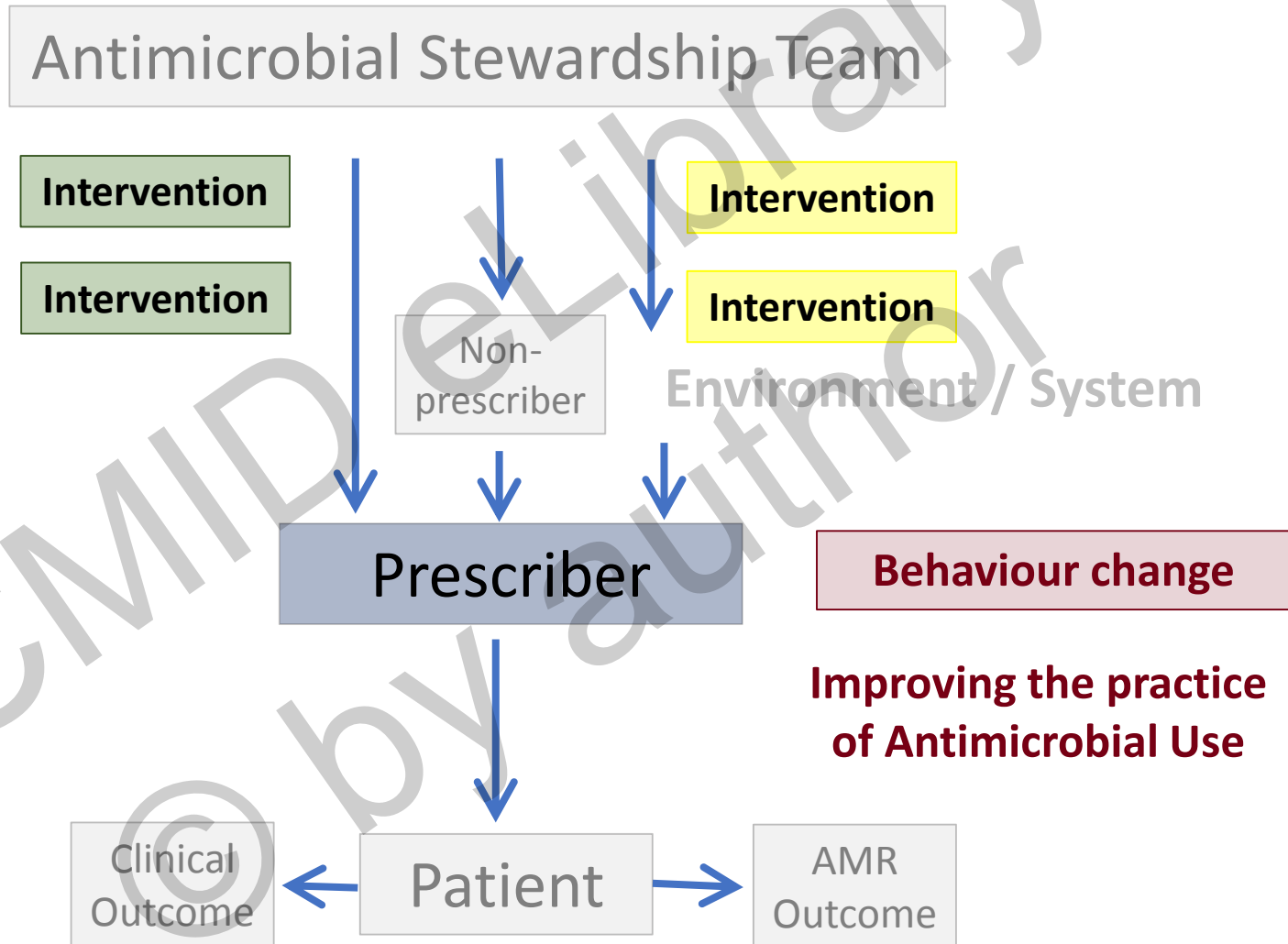
Implementation of the **interventions to improve antibiotic use**

Implementation of the **programme**



3. Implementing ASP interventions: behaviour change

Antimicrobial Stewardship Programme-H



Behavioral change models and theories

- “Attempts to explain why behavior changes”
- Lately, increased interest in the application of these theories in **health**, **education**, **criminology**, **energy** & **international development**...
- ...in order to **improve performance** in these areas

IS: Behavior change models

Health Belief Model

- Psychological behavior change model developed to explain and predict health-related behaviors, particularly in regard to the uptake of health services (**policy**)

Modifying variables: Demographic / psychosocial / ... variables

Problem* (perceived threat)

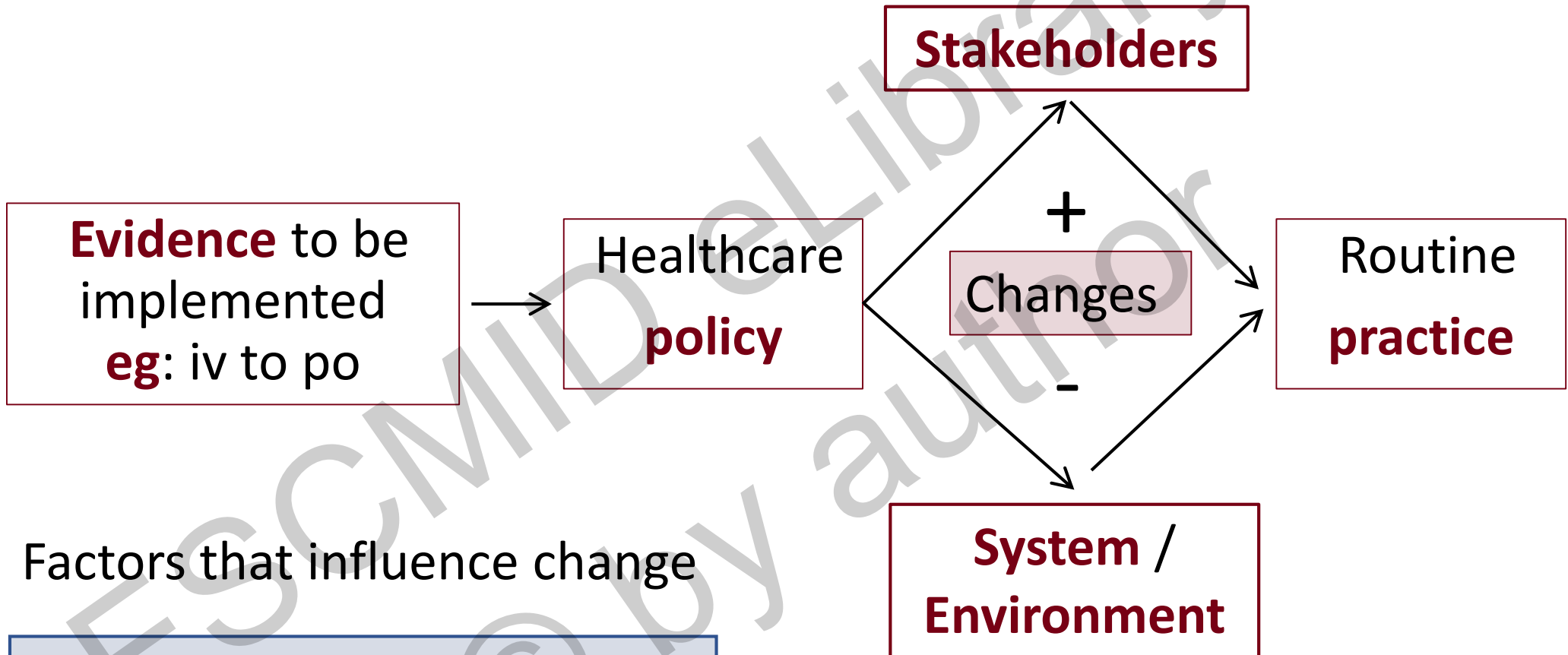
- Perceived **seriousness**
- Perceived **susceptibility**

Policy / Practice

- Perceived **benefits**
- Perceived **barriers**
- **Self efficacy**

* **Problem:** Antimicrobial Resistance

Implementing AMS interventions: **barriers**



Factors that influence change

+: enabler / promoter

-: **barrier**

Implementing AMS interventions: **barriers**

- **Interventions** that seek for behaviour change are **more likely to be successful...**
- ... **if determinants that influence behaviour** (barrier/enabler) **are considered** when choosing and shaping of the intervention (**tailored interventions**)

Implementing AMS interventions: **barriers**



Tailored interventions to address determinants of practice (Review)

Baker R, Camosso-Stefinovic J, Gillies C, Shaw EJ, Cheater F, Flottorp S, Robertson N, Wensing M, Fiander M, Eccles MP, Godycki-Cwirko M, van Lieshout J, Jäger C

OR = 1.56 (95% CI 1.27 to 1.93, P<0.001)

Implementing AMS interventions: **barriers**



Implementing AMS interventions: **steps**

Define appropriate care and measure current performance



Analyze determinants of appropriate care (or not)

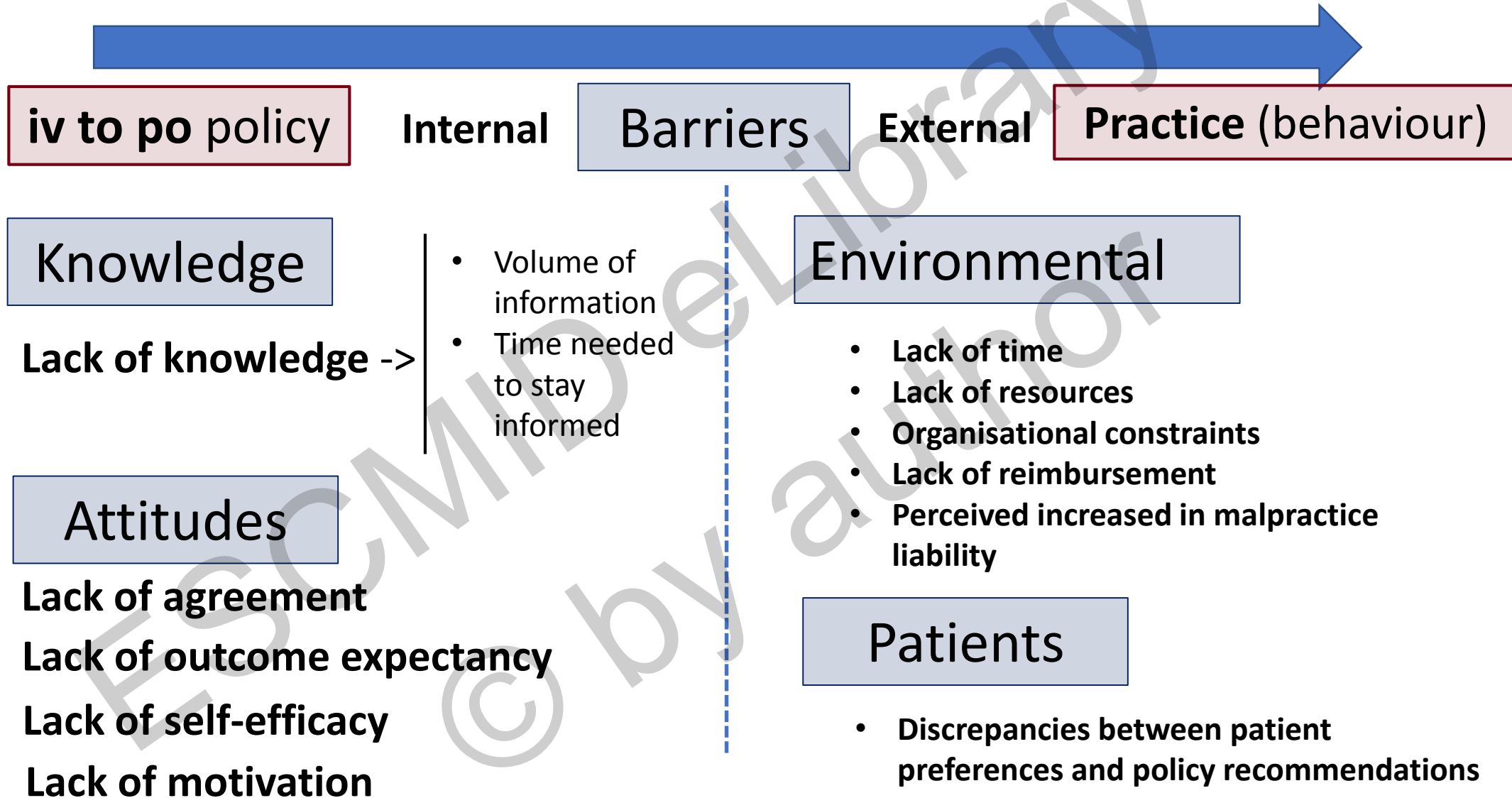


Develop an **improvement strategy** based on this assessment



Strategy: **E**ngage, **E**ducate, **E**xecute and **E**valuate

Implementing AMS interventions: **barriers**



Implementing AMS interventions: **barriers**

SYSTEMATIC REVIEW

Open Access

A checklist for identifying determinants of practice: A systematic review and synthesis of frameworks and taxonomies of factors that prevent or enable improvements in healthcare professional practice

- Systematic review of frameworks of determinants of practice
- Check-list summarizing determinants of practice (consensus)

Flottorp et al. Implementation Science 2013; 8:35

Implementing AMS interventions: **barriers**

Domain	Barrier
1. Policy /Practice	
2. Healthcare professional	
3. Patient Factors	
4. Professional Interactions	
5. Incentive and resources	
6. Capacity for organisational changes	
7. Social, Political, Legal	

Implementing AMS interventions: **barriers**

Domain	Barrier
1. Policy /Practice	<ul style="list-style-type: none">• Evidence• Clarity• Accessibility
2. Healthcare professional	
3. Patient Factors	
4. Professional Interactions	
5. Incentive and resources	
6. Capacity for organisational changes	

Implementing AMS interventions: **barriers**

Domain	Barrier
1. Policy /Practice	
2. Healthcare professional	<ul style="list-style-type: none">• Knowledge and skills• Attitudes: intention / motivation• Self efficacy
3. Patient Factors	
4. Professional Interactions	
5. Incentive and resources	
6. Capacity for organisational changes	

Implementing AMS interventions: **barriers**

Domain	Barrier
1. Policy /Practice	
2. Healthcare professional	
3. Patient Factors	<ul style="list-style-type: none">• Needs• Preference• Beliefs
4. Professional Interactions	
5. Incentive and resources	
6. Capacity for organisational changes	

Implementing AMS interventions: **barriers**

Domain	Barrier
1. Policy /Practice	
2. Healthcare professional	
3. Patient Factors	
4. Professional Interactions	<ul style="list-style-type: none">• Communication• Team processes• Referrals
5. Incentive and resources	
6. Capacity for organisational changes	

Implementing AMS interventions: **barriers**

Domain	Barrier
1. Policy /Practice	
2. Healthcare professional	
3. Patient Factors	
4. Professional Interactions	
5. Incentive and resources	<ul style="list-style-type: none">• Availability of resources• Financial incentives• Information system
6. Capacity for organisational changes	

Implementing AMS interventions: **barriers**

Domain	Barrier
1. Policy /Practice	
2. Healthcare professional	
3. Patient Factors	
4. Professional Interactions	
5. Incentive and resources	
6. Capacity for organisational changes	<ul style="list-style-type: none">• Mandates / Authority• Leadership• Priority of change

Implementing AMS interventions: **barriers**

Domain	Barrier
1. Policy /Practice	
2. Healthcare professional	
3. Patient Factors	
4. Professional Interactions	
5. Incentive and resources	
6. Capacity for organisational changes	
7. Social, Political, Legal	<ul style="list-style-type: none">• Healthcare budget• Legislation• Contracts

Implementing AMS interventions: **barriers**

Technical challenge	Adaptive challenges
Easy to identify	Hard to identify (easy to deny)
Solution is purely technical	Requires changes in values, beliefs & approaches to work
<i>A scratch on the car door</i>	<i>Recurrent scratches because driver is unfit</i>
Role of leader : to provide resources	To engage people to tackle the challenge

Implementing AMS interventions: **barriers**

The **most common cause of failure in leadership** is to treat adaptive challenges as technical problems

Ronald Heifetz The Practice of Adaptive Leadership. 2009.

Implementing AMS interventions: **barriers**

Barrier	Technical Solution	Adaptive Solution
Controversy (topic)	Choose a Guideline	Build consensus
Lack of Knowledge	Design a formal educational activity	Facilitate informal case presentations (random/alerts)
Diagnostic uncertainty	Introduce a new rapid diagnostics test	Integrate use of rapid diagnostics into clinicians practices

Implementing AMS interventions: **barriers**

Don't let the intervention be a barrier itself!!!!

- Make it easy to do the right thing
- Engage emotions

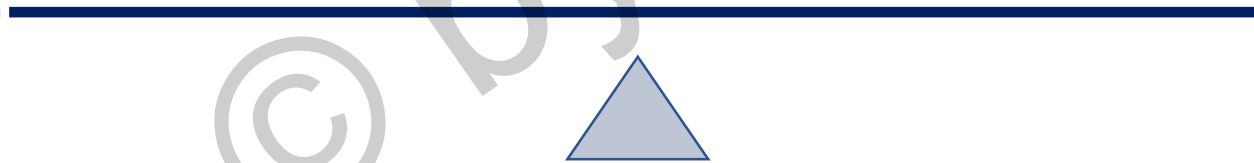
2. Implementing an ASP programme: cultural change

AS: Types of implementation

There are **2 types** of implementation in AS

Implementation of the **interventions to improve antibiotic use**

Implementation of the **programme**



a) Implementation of the **programme**

1. Lack of / Insufficient dedicated staff

Type of barrier

Solution

Agent

- **Financial**

↑ number/FTE of
AST core members

- Policy makers
- **Hospital administrators** (HA)

- **Organizational**

- **Empowerment** of **non-core AST**
- Ensure **communication** among AST members

- HA
- **Core AST**
- “Local” leaders

a) Implementation of the **programme**

2. Suboptimal Tools (IT) (**information feeds ASP**)

Type of barrier	Solution	Agent
• Financial	Purchase / implementation of IT tools	<ul style="list-style-type: none">• Policy makers/HCS• HA
• Organizational	<ul style="list-style-type: none">• Ada/option of AS tools• Recognition of IT as core AST	<ul style="list-style-type: none">• HA / HCS• Core AST• IT• Sci Soc

a) Implementation of the **programme**

3. Lack of /insufficient prescriber involvement

Type of barrier	Solution	Agent
<ul style="list-style-type: none">• Attitudinal / Motivational	<ul style="list-style-type: none">• Make “local leaders” ABX champions:<ol style="list-style-type: none">1. Expand AST2. Apply health belief model	<ul style="list-style-type: none">• Core AST• HA• Local leaders

a) Implementation of the **programme**

Hospital Administration

Goals of HA

- Decrease and control **costs**
- Optimize **patient safety**
- Regulatory **compliance**
- Stay **competitive**

Arguments to HA

- Potential for **cost-savings**/reduction in **LOS**
- Improved **patient safety**
- Ensure **compliance** with **regulations**
- Importance of offering the **same standard of care** as neighboring hospitals

Strategy

- **Face to Face**
- Use an **uncluttered memo**
- Literature and own **data**

How to Pitch an Antibiotic Stewardship Program to the Hospital C-Suite

Brad Spellberg,^{1,2} John G. Bartlett,³ and David N. Gilbert⁴

[Open Forum Infect Dis.](#) 2016 Oct 15;3(4)

Commentary

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

C. Pulcini^{1,2,3,*}, C.M. Morel^{4,5}, E. Tacconelli^{6,7}, B. Beovic^{3,8,9}, K. de With¹⁰,
H. Goossens¹¹, S. Harbarth¹², A. Holmes¹³, P. Howard^{3,14}, A.M. Morris¹⁵,
D. Nathwani^{16,17}, M. Sharland¹⁸, J. Schouten^{3,19}, K. Thursky²⁰, R. Laxminarayan²¹,
M. Mendelson²²

[Clin Microbiol Infect.](#) 2018 Jan 31. PMID: 29371137

a) Implementation of the **programme**

Regulatory bodies



+

**Hospital
Administration**



AST

Inclusion of **AMS standards**
into **hospital accreditation**

The screenshot shows the website of The Joint Commission. The header includes the logo and navigation links: Log In | Request Guest Access, Contact Us | Careers | JC, Forgot password? | Log In Help, and a search bar. The main navigation menu includes Accreditation, Certification, Standards, Measurement, Topics, and About Us. The page content is titled 'Topic Details' and features a 'Sign up for News and Alerts' box with a 'Sign up here' button. Below this is a 'Topic Library Item' section with the headline 'APPROVED: New Antimicrobial Stewardship Standard' dated July 19, 2016, and a 'Download This File' button.

a) Implementation of the **programme**

Local (clinical) leaders / Prescribers

Goals of LL

- **Cure** the patient
- Prescribing **autonomy**
- Patient **safety**
- Be/Look **competent**
- Regulatory **compliance**

Arguments to HA

- ASP is a **win / win** -> helps to make their lives easier:
 1. Drug allergy
 2. Complex PK/PD
 3. IV to PO (Discharge)

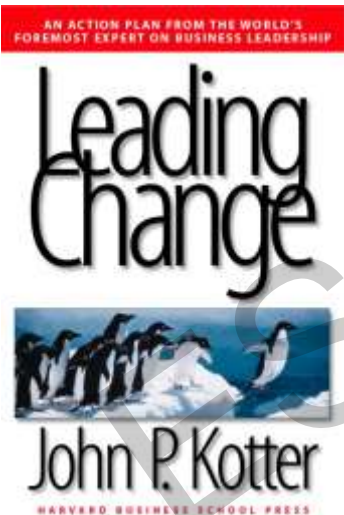
Strategy

- Start with **education**
- Give **+** **feed-back**
- **Expand** (invite to) **AST**
- Show **commitment**

a) Implementation of the **programme**

- All these actions should be part of an overall strategy: **Cultural Change**

To set hospital in “**Appropriate Antibiotic Mode**”



- **8-step** model to achieve institutional change
- Business perspective -> adapted to antimicrobial stewardship

Morris AM et al. Healthcare Quarterly. 2010;13:64-70.

Step 1: Create a sense of urgency

- "Houston, we have a problem"
 - Hospital administration
 - Local leaders & prescribing

Step 2: Form a powerful guiding coalition

- AS is a team sport: **A-team**
- Include members with **expertise, credibility, leadership**

Step 3: Create a compelling vision for change

- **Vision statement:** *“Not less, Not more. It’s your choice”*

Step 4: Communicate the vision effectively

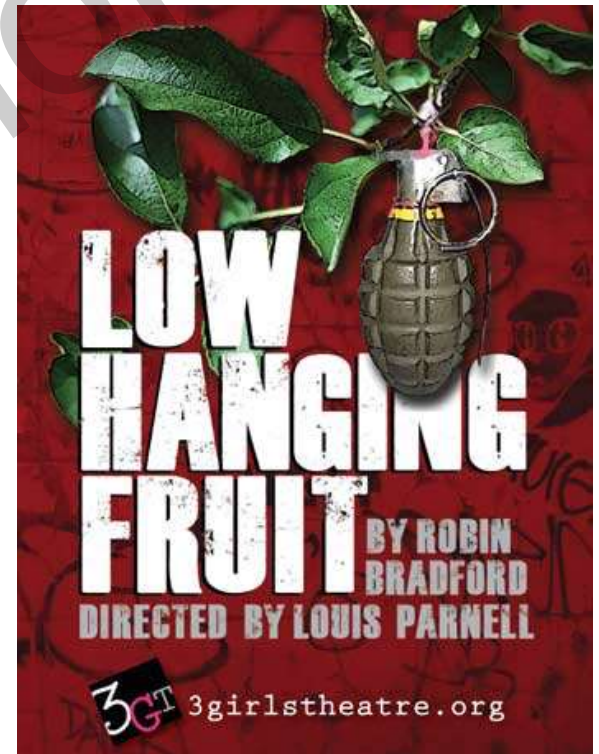


Step 6: Plan for and create short term wins

- Go for low **hanging fruits**...



- ...but **shortcuts** may be **dangerous**



Step 7: Consolidate improvements and create still more change

- Don't assume that gains will remain forever (maintenance)
- Evolve (it's good for you, the program and the team)

Step 8: Institutionalize new approaches

- Keep leadership informed

It is amazing what you can accomplish if you do not care who gets the credit.

Harry Truman

Conclusions

- ASP interventions have to **tailored** to prescribing needs and **barriers**
- **Barriers** should be systematically assessed, prioritized and addressed
- **Adaptive solutions** might seem costly at first but they lead to **more sustained** outcomes
- **Successful implementation of an ASP** benefits from an institutional cultural change: **vision, coalition** (all significant stakeholders), **communication**

Gracias!!!



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[@joserrapa](https://twitter.com/joserrapa)