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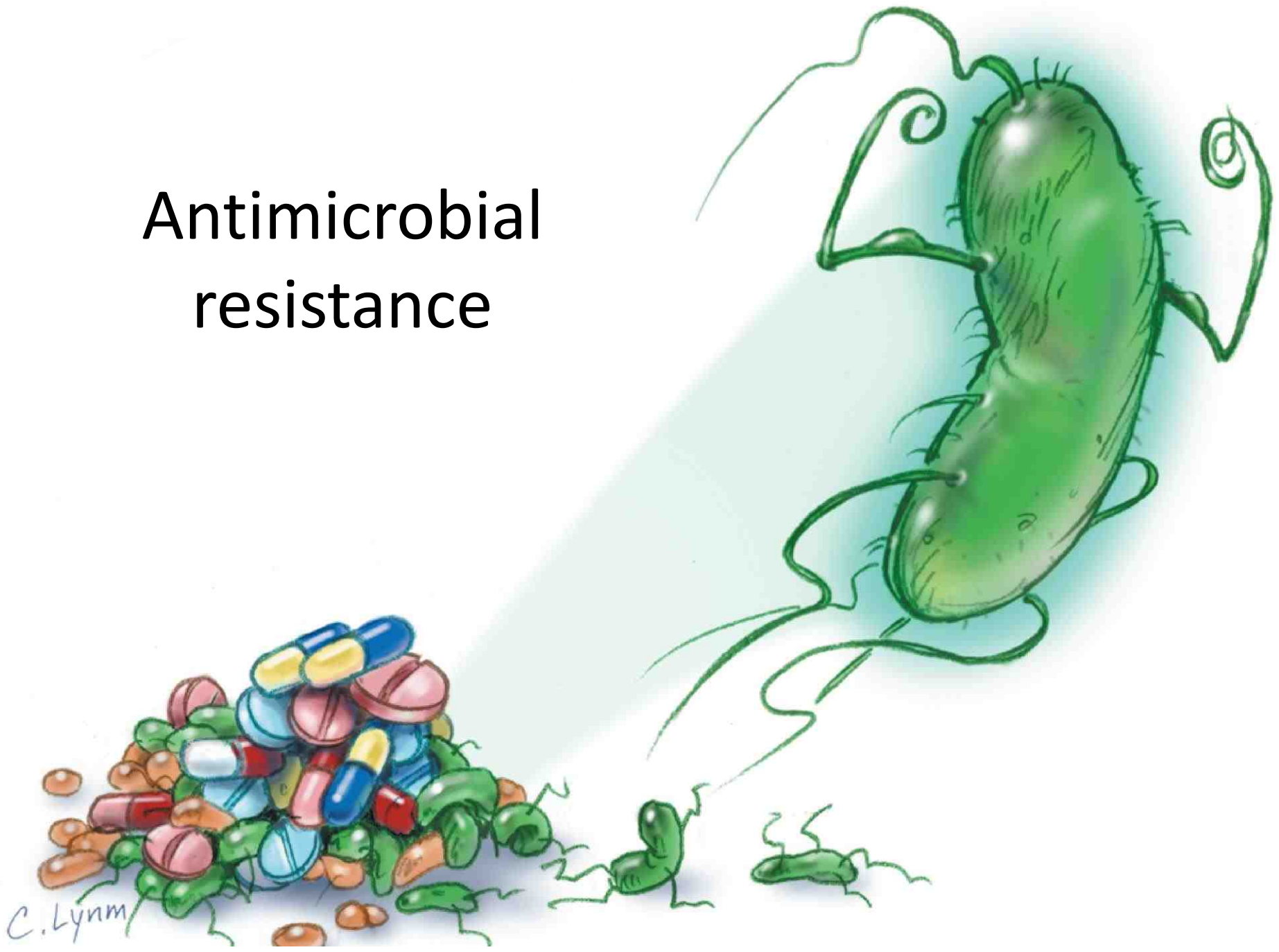
# Behavioural Change in Antimicrobial Stewardship

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# Antimicrobial resistance

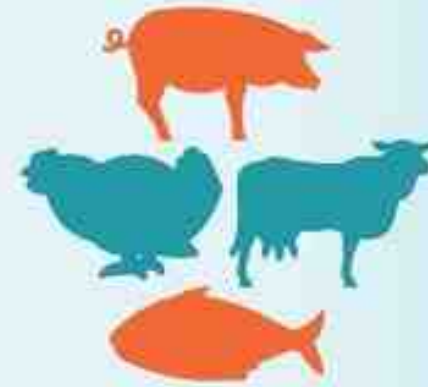




Over-prescribing  
of antibiotics



Patients  
not taking  
antibiotics as  
prescribed



Unnecessary  
antibiotics used  
in agriculture



Poor infection  
control in hospitals  
and clinics



Poor hygiene  
and sanitation  
practices



Lack of rapid  
laboratory tests



**70%**  
**Necessary Prescriptions**

The infographic features a central circular graphic divided into two segments. The left segment is olive green and contains the text '70% Necessary Prescriptions' and '(Still need to improve drug selection, dose and duration)'. The right segment is red and contains the text 'At least 30% Unnecessary Prescriptions'. In the center of the circle is a clipboard with a patient form and a pill bottle with an 'Rx' symbol. The background of the circle is decorated with various colorful pills and capsules.

(Still need to improve drug selection, dose and duration)

At least  
**30%**  
**Unnecessary Prescriptions**

*In U.S. Doctor's Offices and Emergency Departments*

# Reducing over-use of antibiotics

Requires behaviour change...

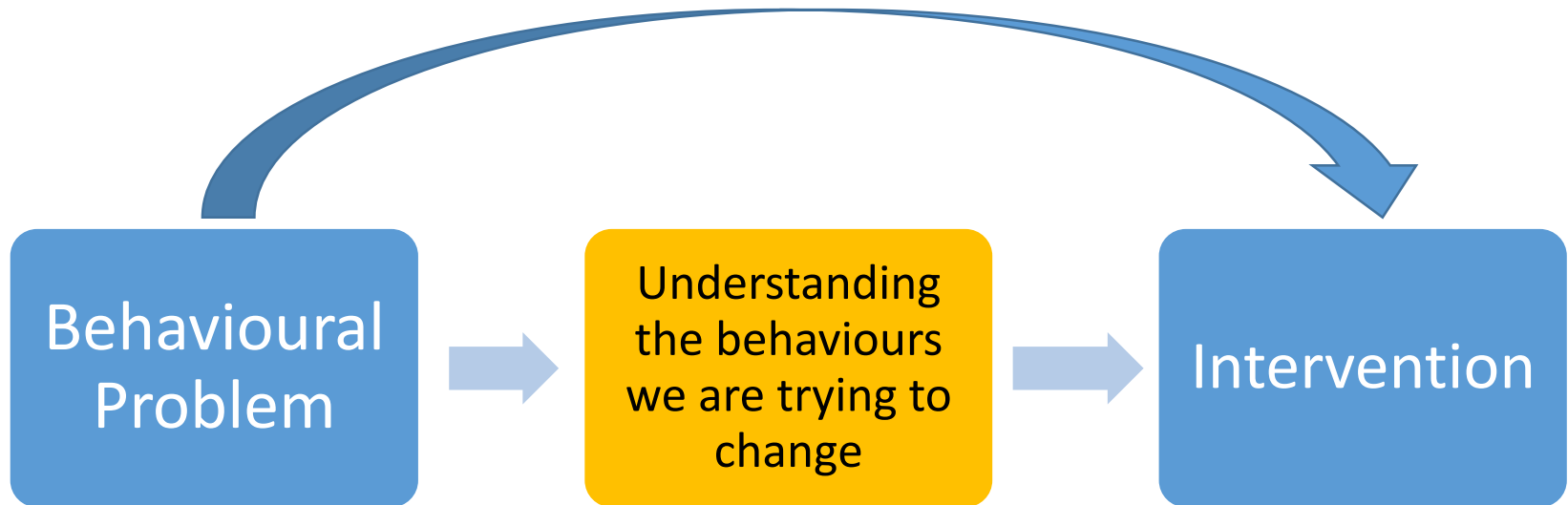
**BUT** this is not easy

There are established scientific theories  
of behaviour...

**BUT** these are rarely applied to  
programmes and interventions to change  
practice (e.g. Charani et al 2011)

# Interventions commonly designed on the ISLAGIATT principle

**It Seemed Like A Good Idea At The Time**





**Cochrane**  
**Library**

Cochrane Database of Systematic Reviews

## **Interventions to improve antibiotic prescribing practices for hospital inpatients (Review)**

Davey P, Marwick CA, Scott CL, Charani E, McNeil K, Brown E, Gould IM, Ramsay CR, Michie S

# Systematic use of behaviour change theory in improvement

1) defining the problem in behavioural terms and understanding current behaviour in context

2) adopting a theory-driven, systematic approach to intervention design





**RESEARCH**

**Open Access**

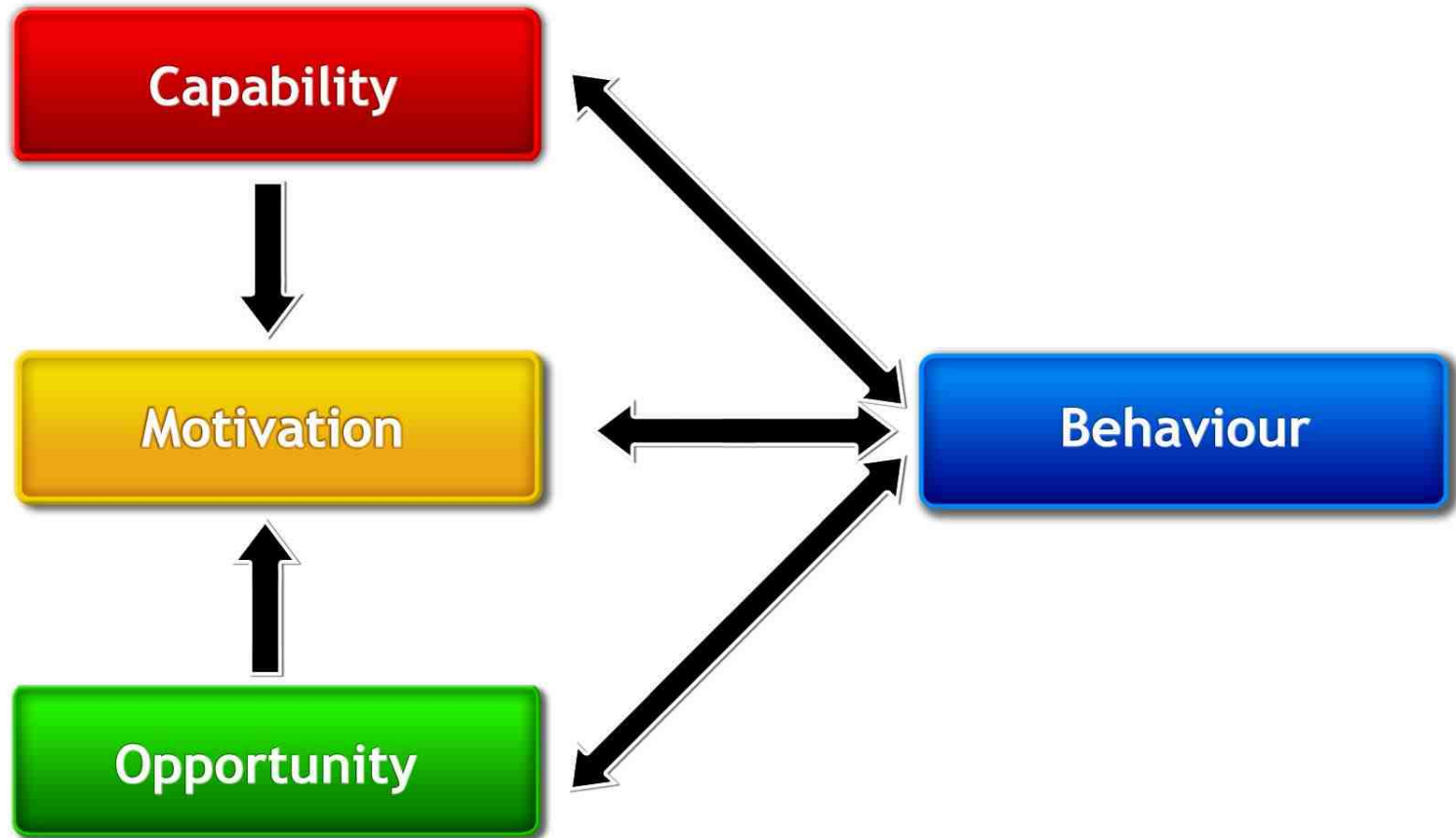
# The behaviour change wheel: A new method for characterising and designing behaviour change interventions

Susan Michie<sup>1\*</sup>, Maartje M van Stralen<sup>2</sup> and Robert West<sup>3</sup>

# Defining the problem

- Antimicrobial stewardship
  - highly complex set of behaviours, multiple stakeholders
  - involves multiple actions, performed at different time points across the care continuum, including: adhering to guidelines, assessing benefit/risk, decision-making around initiation (drug choice, route, dose, duration, and timely drug administration) and review (switching or stopping) of treatment

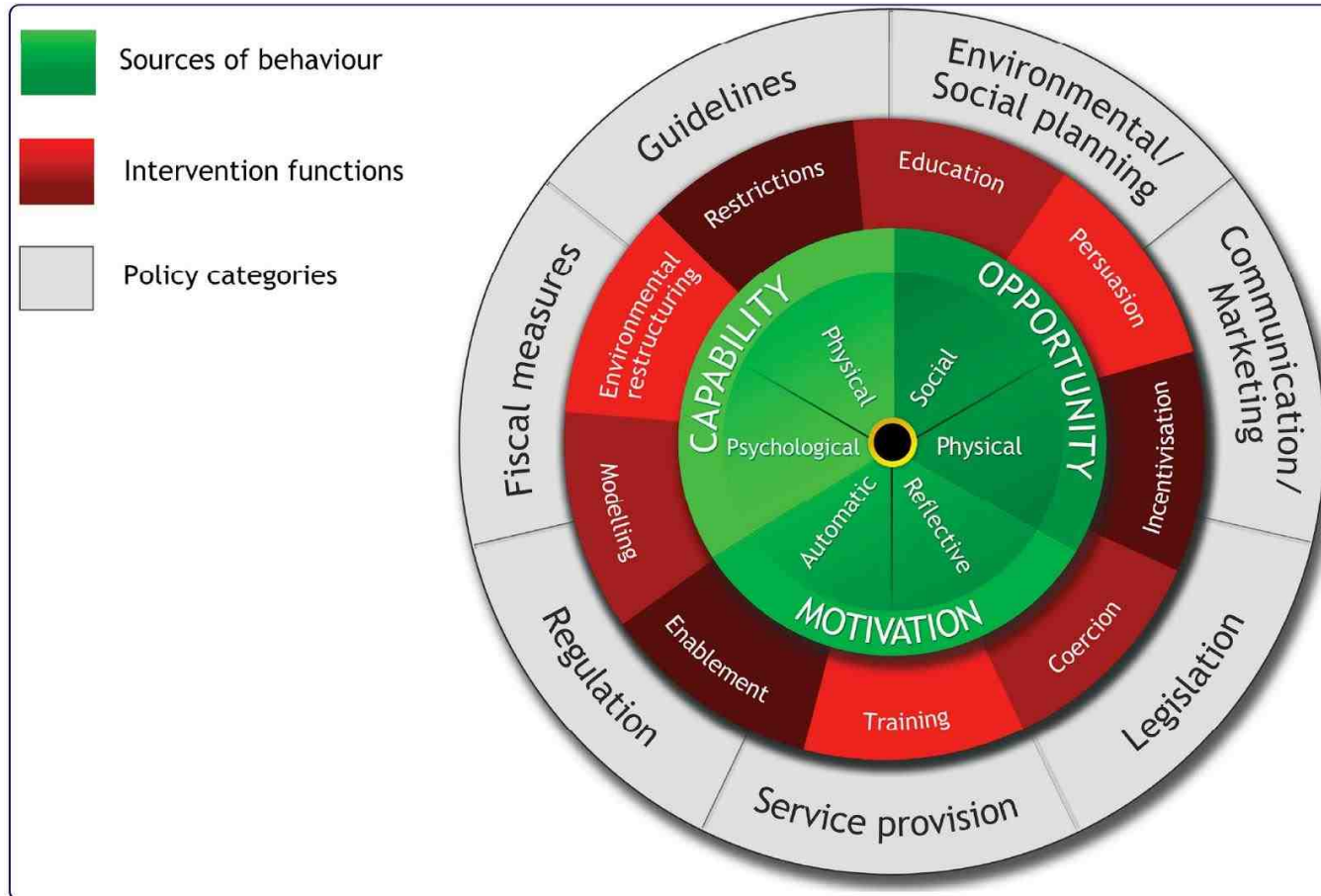
# What needs to change?





<b>CAPABILITY</b> (psychological and physical)	Knowledge	An awareness of the existence of something, for example, procedural knowledge	<p>‘Poor clinical microbiology knowledge’</p> <p>‘Lack of awareness of clinical guidelines around appropriate antimicrobial prescribing practices’</p>
	Skills	An ability or proficiency acquired through practice, for example, competence	<p>‘<u>Vacomycin</u> doses are incorrectly adjusted by doctors’</p> <p>‘Lack of training specific to geriatric pharmacotherapy and lack of communication of clinically relevant information on drugs to avoid for older patients’</p>
<b>MOTIVATION</b> (reflective and automatic)	Goals	Mental representations of outcomes or end states that an individual wants to achieve, for example, goal/target setting	‘Lack of clear targets for antibiotic usage and use of antibiotic care bundles’

# Intervention design



	Intervention function	Recommended technique	Suggested intervention
<p>'Lack of clear targets for antibiotic usage and use of antibiotic care bundles' (goals/behavioural regulation)</p>	<p>Enablement, Persuasion</p>	<ul style="list-style-type: none"> <li>-Feedback on outcome of the behaviour</li> <li>-Discrepancy between current behaviour and goals</li> <li>-Social comparison</li> </ul>	<p>Audit and feedback outlining deviations from guidelines/evidence-based practice, and benchmarking antibiotic usage against other long-term care facilities</p>



Over-prescribing  
of antibiotics





# Antibiotics as a scarce resource



# Conservation of resources

- Restriction and control as strategies to reduce over-consumption of the resource
- But theory points to the value of interventions that promote collective, cooperative action (Ostrom 1990)
  - Requires 'recognition of necessity' (Hardin 1968)
  - Establishing agreement about common goals and acceptable practice
  - Using social forms of control (social norms, use of reputation)

TOGETHER WE CAN AVOID  
**DAY ZERO**



Wash hands less frequently and use sanitiser instead.



Only flush when you really need to.



Take short, stop-start showers.



Collect your shower and basin water. Re-use it for flushing.

**THINK WATER**

CARE A LITTLE. SAVE A LOT.

FOR MORE VISIT [CAPETOWN.WO.XA/THINKWATER](http://CAPETOWN.WO.XA/THINKWATER)

FOLLOW @CPTWATER ON FACEBOOK AND TWITTER



CITY OF CAPE TOWN  
SIBINGI SIKHANYA  
THABAKHAYO

WATER EFFICIENCY UNIT

HOTEL

WE ARE COMMITTED TO BEING  
**ECO-CONSCIOUS**

PLEASE USE WATER SPARINGLY

To re-use towels hang them up.

To have towels washed leave  
them on the floor.





— A map showing water usage by household in Cape Town.

The city's website publishes a map showing a street by street and house by house measure of water usage.



“there is nothing so practical as a good theory”



**Driving sustainable change in antimicrobial prescribing practice – How can social and behavioural sciences help?**

Fabiana Lorencatto,<sup>1</sup> Esmita Charani,<sup>2</sup> Nick Sevdalis,<sup>3</sup> Carolyn Tarrant<sup>4</sup> & Peter Davey.<sup>5</sup>

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Journal of Antimicrobial Chemotherapy



# Projects, funding

- Tarrant C, Colman C, Chattoe-Brown E, Jenkins D, Perera N, Mehtar S. Antimicrobial resistance as a social dilemma: Approaches to reducing broad-spectrum antibiotic use in acute medical patients internationally (AMiRE)  
Funded by the Global Challenges Research Fund, and awarded by the Economic and Social Research Council (ESRC) on behalf of the Research Councils UK (RCUK), .

<http://tiny.cc/amrdilemma>

- Hayward A et al. Preserving Antibiotics through Safe Stewardship: PASS  
Funded through the antimicrobial Resistance Cross Council Initiative supported by the seven research councils, ES/P008321/1

<http://gtr.ukri.org/projects?ref=ES%2FP008321%2F1>