Antibiotic prescribing for respiratory tract infections in primary care

Martin Duerden

GP and Clinical Senior Lecturer, North Wales, UK

World Congress and Exhibition on Antibiotics, Las Vegas, Nevada

September 2015

GRIP

Global Respiratory Infection Partnership

Martin Duerden: disclosures

- Clinical Senior Lecturer at Bangor University, part-time GP and Clinical Adviser for the UK Royal College of General Practitioners
- Member of the National Institute of Health and Care Excellence (NICE) *Clinical Guideline Group for Antimicrobial Stewardship* – England and Wales
- The consumer survey reported was conducted by RB
- The Global Respiratory Infection Partnership was convened by RB. All materials are sponsored by and developed in partnership with RB Healthcare.
- The views expressed in the GRIP materials are those of the Partnership

Introduction

- Antimicrobial resistance (AMR) is a global public health challenge that is being accelerated by the misuse of antimicrobials[1,2]
- In the UK this has become a 'hot topic' with much political and media attention
- Inappropriate use of antibiotics in primary care is a particular problem, with respiratory tract infections (RTIs) being one of the most common conditions for which antibiotics are prescribed[3]
- Based on behaviour change theory the Global Respiratory Infection Partnership (GRIP) has formulated a framework for an evidence-based, non-antibiotic approach in the management of RTIs[4]
- GRIP's 1, 2, 3 approach helps healthcare professionals (HCPs) to
  - Take a consistent approach to the management of sore throat
  - Put the patient at the centre of the consultation
  - Direct towards symptomatic treatment, where appropriate

1. Oxford J, et al. *Int J Clin Pract*. 2013;67(S180):1–3. 2. WHO. Antimicrobial resistance. Fact sheet 194. Updated April 2015. Accessed August 2015. Link: http://www.who.int/mediacentre/factsheets/fs194/en/ 3. ECDC. Accessed July 2015. Link: http://ecdc.europa.eu/en/eaad/antibiotics/pages/messagesforprescribers.aspx?preview=yes&pdf=yes
4. Essack S, et al. *Int J Clin Pract*. 2013;67(S180):4–9 5. van der Velden AW, et al. *Int J Clin Pract*. 2013;67(S180):10–16

The Post-antibiotic Era – a Worst-case Scenario[1]

- Simple infections become untreatable or even fatal
- Many medical procedures become impossible without effective antibiotic protection, e.g.
  - No heart surgery or transplantations
  - No immune-modulating therapy for rheumatoid arthritis
  - Chemotherapy becomes highly risky/dangerous
  - Limited routine operations such as hip replacements
  - Reduced survival of pre-term babies
- Shortages of food due to untreatable infections in livestock
- Restrictions on trade in foodstuffs
- Restrictions on travel and migration

1. World Economic Forum 2013. http://www3.weforum.org/docs/WEF_GlobalRisks_Report_2013.pdf

AMR in the UK

NEWS

Home | UK | World | Business | Politics | Tech | Science | Health | Education | Entertainr

Health

Antibiotic resistance rise continues

By James Gallagher
Health editor, BBC News website

10 October 2014 | Health



Antibiotic prescriptions and cases of resistant bacteria in England have continued to soar despite dire warnings and campaigns, figures show.

Public Health England found a 6% increase in prescriptions between 2010 and 2013 and warned that up to half may be "inappropriate".

NEWS

Home | UK | World | Business | Politics | Tech | Science | Health | Education | Entertain

UK | England | N. Ireland | Scotland | Alba | Wales | Cymru

Antibiotic resistance: 80,000 'might die' in future outbreak

6 April 2015 | UK



The rise of antimicrobial resistance could make currently routine medical procedures "high-risk"

About 80,000 people could die if there were a "widespread outbreak" of an antibiotic-resistant blood infection, according to a government document.

The **National Risk Register of Civil Emergencies** says such an outbreak could be expected to hit 200,000 people - and two in five of them "might die".

The document also says "high numbers of deaths could also be expected" from

NEWS HEALTH

Home | World | UK | England | N. Ireland | Scotland | Wales | Business | Politics | Health | Education | Sci/

2 July 2014 Last updated at 02:17

Share



Antibiotic resistance: Cameron warns of medical 'dark ages'

COMMENTS (1559)



David Cameron: "We are in danger of going back to the dark ages of medicine"

The world could soon be "cast back into the dark ages of medicine" unless action is taken to tackle the growing threat of resistance to antibiotics, Prime Minister David Cameron has said.

Related Stories

GRIP
Global Respiratory Infection Partnership

What is the incidence of AMR in England?

- Between 2010 and 2013 there has been an increase in the number of some bloodstream infections resistant to antimicrobials[1]
  - During this period the number of bloodstream infections caused by *E. coli* increased by 12%[1]
  - The number of bloodstream infections caused by *K. pneumoniae* increased by 10%[1]
- In the same time period, despite considerable efforts to contain use, total antibiotic prescribing increased by 6% overall[1]
  - Prescribing in general practice increased by 4%[1]
  - Use in hospitals increased by 12%[1]

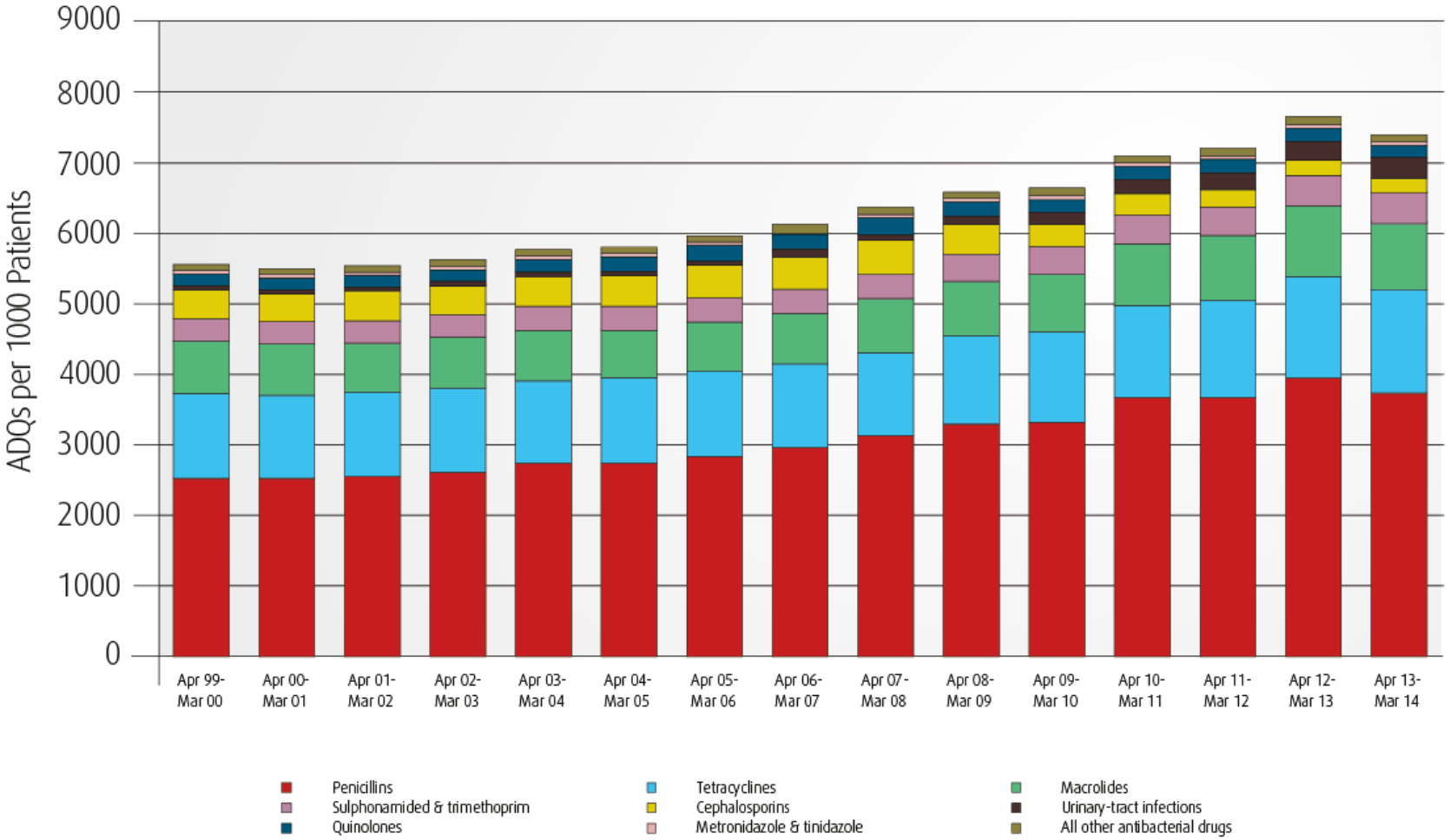
1. English surveillance programme for antimicrobial utilisation and resistance (ESPAUR) Accessed August 2015.
Link https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/362374/ESPAUR_Report_2014__3_.pdf

Antibiotic use in the UK

- 'Simple' RTIs account for a large proportion of antibiotic prescriptions
  - 60% of all antibiotic prescribing in UK general practice is for RTIs[1]
  - On average, a person in the UK takes *seven days* of antibiotics each year[2]
- Majority of RTIs do not need antibiotics
  - Depending on the condition, up to 90% or more are non-bacterial,[3-5] and most are self-limiting[3]
- In 2011, over 30% of patients who were prescribed antibiotics for sore throats had received one that was not recommended by national guidance[6]

1. Gulliford MC, et al. BMJ Open 2014;4:e006245. 2. NHS Business Service Authority Presciption Services. National Antibiotic Charts. Available at: http://www.nhsbsa.nhs.uk/PrescriptionServices/2587.aspx Accessed July 2015. 3. Foden N., *et al. Br J Gen Pract*. 2013;63:611-613.
4. Ah-See K., *et al. BMJ* 2007;334:358-361. 5. CDC. Accessed August 2015. Link http://www.cdc.gov/getsmart/community/materials-references/print-materials/hcp/adult-acute-cough-illness.pdf
6. Hawker J I, *et al. J Antimicrob Chemother* 2014;doi:10.1093/jac/dku291

Trends in Usage of Antibacterials on NHS prescriptions in England



1. NHS Business Service Authority Prescription Services. National Antibiotic Charts. Available at: http://www.nhsbsa.nhs.uk/PrescriptionServices/Documents/PPDPrescribingAnalysisCharts/Antibiotics_July_2014_National.pdf Accessed August 2015

GRIP
Global Respiratory Infection Partnership

CMO UK Action Plan, 2013-18

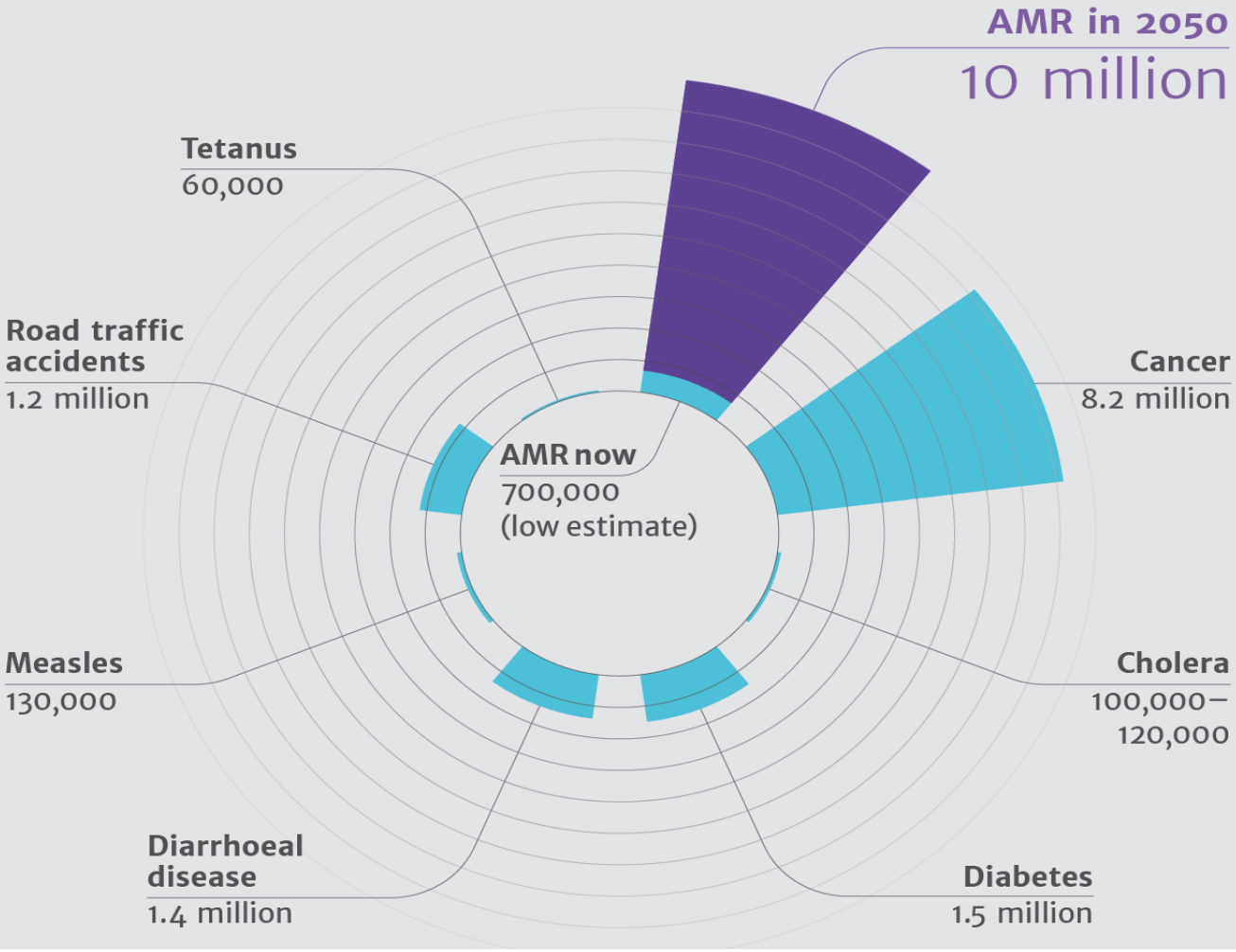
www.gov.uk/government/publications/progress-report-on-the-uk-five-year-amr-strategy-2014

Achievements: report on progress, December 2014

- Establishing baseline data to improve the way to monitor antibiotic prescribing and trends in resistance
- Publishing antimicrobial prescribing quality measures
- Launching an ‘antibiotic guardian’ campaign
- Improving the coordination of research into AMR
- Supporting the development of a new World Health Organization resolution on AMR
- Establishing an independent review on AMR

Deaths attributable to AMR every year compared to other major causes of death

The Review on Antimicrobial Resistance
Chaired by Jim O'Neill
December 2014



http://amr-review.org

Global initiatives

WHO 5-point action plan[1]

- Improve awareness and understanding of antimicrobial resistance
- Strengthen knowledge through surveillance and research
- Reduce the incidence of infection
- Optimise the use of antimicrobial agents
- Develop the economic case for sustainable investment that takes account of the needs of all countries, and increase investment in new medicines, diagnostic tools, vaccines and other interventions

Overall goal

*"ensure, for as long as possible, continuity of the ability to **treat and prevent infectious diseases with effective and safe medicines** that are quality-assured, used in a responsible way, and accessible to all who need them"*

1. Draft global action plan on antimicrobial resistance . Accessed July 2015. Link http://apps.who.int/gb/ebwha/pdf_files/EB136/B136_20-en.pdf

Patient behaviour in RTI consultation, Study methods

- Consumer survey: 33 countries, Nov/Dec 2014
  - Europe, Asia, Africa, Australasia, North/South America
  - 15-minute online questionnaire
  - Minor ailments in five categories* in previous 12 months
    - Pain
    - Cough, cold, respiratory
    - Gastric, bowel
    - Eye
    - Foot
  - 17,302 subjects had URTI symptom in the last year (24,561 URTI episodes)
  - Questioning:
    - Why they visited a HCP
    - Who they consulted (what kind of HCP)
    - Result of visit (recommendation, prescription – antibiotic, other)
    - If they obtained the product prescribed or recommended
    - Antibiotic use

* Subjects were also asked about blood pressure, cholesterol levels, eczema, and diabetes

UK results: consultation for URTI – why, who, outcome

- Who do they consult for URTI? (n=286)
  - 29% of subjects contacted a HCP
  - 71% of these HCP consultations were with a GP

- Most common reasons for consulting a physician for URTI (n=64):
  - "I needed a prescription" – 27%
  - "This person is the expert" – 20%
  - "This person knows my medical history" – 28%
  - "This is the person I trust the most" – 20%

- For subjects consulting a GP for a URTI (n=60):
  - 25% said they were prescribed an antibiotic

Results: GP prescribing rates for RTI

Countries	Brazil	Germany	India	Indonesia	Malaysia	UAE	UK	USA
Subjects with URTI								
% contacted a GP	47%	28%	61%	53%	60%	54%	**21%**	32%
% AB Rx†	14%	10%	14%	27%	18%	16%	**25%**	27%

†Proportion of patients contacting a GP and receiving a prescription for an antibiotic.

GRIP
Global Respiratory Infection Partnership

Patient consultation for RTI

- Physicians tend to over-estimate patients' desire for an antibiotic[1,2]
- Patients' expectations are usually not directly explored
  - Reassurance, diagnosis (based on physical examination)
  - Overall advice and/or with respect to pain/symptomatic relief[3]
  - Information on natural course and self-limitedness of disease
- Misperceived patient expectations, limited time, patients' pressure for antibiotics
  - Overprescribing of antibiotics for respiratory disease
- Patient consultations are a key opportunity for primary care to educate, advise and reassure:
  - Cause and duration of URTI symptoms
  - Efficacy of appropriate treatment options
  - Highlighting appropriate symptomatic treatment

1. van Driel ML, *et al. Ann Fam Med.* 2006;4:494–499. 2. Altiner A, *et al. J Antimicrob Chemother.* 2007;60:638–644. 3. Hansen M, *et al. Front Public Health* 2015;3:35.

Overprescribing remains a challenge in the UK

Reaction to NICE Antimicrobial Stewardship Guideline

jobs dating more UK edition

theguardian

Antibiotics

Doctors write 10m needless antibiotics prescriptions a year, says Nice

Guidance warns that patients' demand for antibiotics is fuelling crisis of antimicrobial resistance that threatens 'whole basis of medicine'

James Meikle

Tuesday 18 August 2015 08.05 BST



Shares 1,017 Comments 686

http://www.theguardian.com/society/2015/aug/18/soft-touch-doctors-write-10m-needless-prescriptions-a-year-says-nice Accessed August 2015

GRIP Global Respiratory Infection Partnership

Example: Antibiotic Use in Sore Throat

- USA and much of Europe – 60% get prescription
- Antibiotics are among the least effective treatment options for sore throat[1]
  - 21 patients have to be treated in order to see 1 patient benefitting from a course of antibiotics[2]
  - Over 4,000 courses of antibiotics need to be prescribed to prevent 1 complication[3]
- For sore throat, the efficacy of non-antibiotic treatments such as NSAIDs and paracetamol, in reducing throat pain, was substantially better than placebo – e.g. up to 93% reduction on Visual Analogue Scale[1]

1. Thomas M, et al. *Br J Gen Pract.* 2000;50(459):817–820.
2. Spinks AB, et al. *Cochrane Database Syst Rev.* 2013:CD000023.pub4.
3. Petersen I, et al. *BMJ.* 2007;335(7627):982.

Overcoming challenges: Sore throat example

- Better education is required regarding normal duration of symptoms
- Sore throat symptoms usually resolve without treatment
  - 40% of patients are symptom-free within 3 days
  - 82% of patients are symptom-free within 7 days[1]
- Even in the 10% of adults with bacterial sore throat, antibiotics have only a modest benefit[1]

Important role of Healthcare Professional (HCP) in recommending **effective symptomatic relief**

1. Spinks AB, et al. *The Cochrane Library*. 2013(11):CD000023

Sore Throat: Red-flag signs and symptoms requiring further investigation[1–3]

- Coughing up blood
- Shortness of breath
- Unilateral neck swelling unrelated to lymph nodes
- Great difficulty swallowing, e.g. unable to swallow food
- Very high temperature (>39°C) or night sweats
- Drooling or muffled voice
- Wheezing sounds when breathing

- Symptoms lasting more than one week may also need assessing by a physician[1]

1. Centor RM, et al. *Am Fam Physician*. 2011;83(1):26–28. 2. van Duijn HJ, et al. *Br J Gen Pract.* 2007;57(540):561–568. 3. The Merck Manual. Sore throat. Accessed August 2015. Link: http://www.merckmanuals.com/professional/ear-nose-and-throat-disorders/approach-to-the-patient-with-nasal-and-pharyngeal-symptoms/sore-throat

Patient Subgroups at Increased Risk of Complications[1–5]

- Patients aged >65 years
- Young children aged <2 years or born prematurely
- Patients with immunocompromizing condition (e.g. HIV, receiving chemotherapy)
- Patients with certain comorbidities, e.g. diabetes, chronic lung disease, cystic fibrosis
- Patients who are systemically unwell
- Patients with long duration of symptoms

1. van Duijn HJ, et al. *Br J Gen Pract.* 2007;57(540):561–568. 2. Borchardt RA, et al. *JAAPA.* 2012;25(10):19–20. 3. NICE. Clinical Guideline 69. July 2008. 4. Pelucchi C, et al. *Clin Microbiol Infect.* 2012;18(Suppl. 1):1–28. 5. CDC 2012. http://www.cdc.gov/flu/about/disease/high_risk.htm

Getting a GRIP

GRIP: Global Respiratory Infection Partnership

- Aim: To decrease inappropriate antibiotic use by developing a consistent global approach for behavioural change
  - Reducing antibiotic resistance
  - Securing antibiotic treatments and public health for the future



GRIP
Global Respiratory Infection Partnership

GRIP: Committed to Antibiotic Stewardship and Conservancy

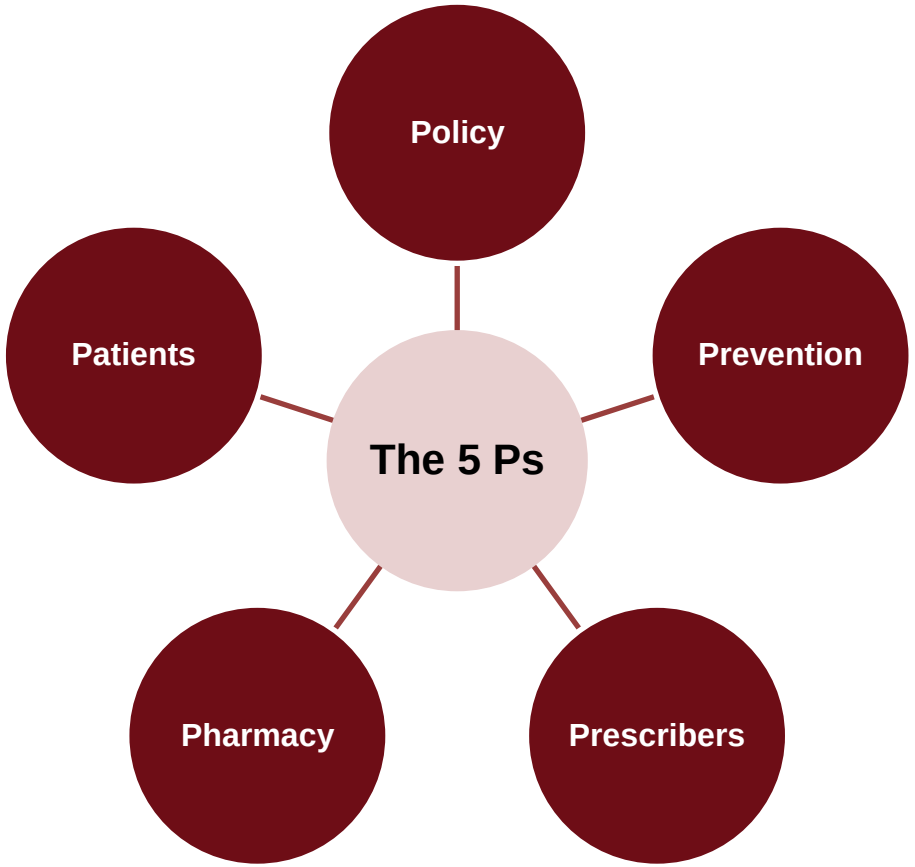
The Global Respiratory Infection Partnership Declaration

"*We, the* **Global Respiratory Infection Partnership**, *recognising the imminent onset of the post-antibiotic era and taking full cognisance of the declining numbers of new antibiotics in development hereby commit to:*

- Consistent, sustainable evidence-based advocacy and intervention for rational antibiotic use and antimicrobial stewardship
- Formulating a framework for non-antibiotic treatment options for respiratory tract infections, such as sore throat, common colds, influenza and cough
- Facilitating multi-stakeholder commitment to antibiotic stewardship and rational antibiotic use."

The GRIP 5P framework

- A framework to facilitate change towards appropriate use of antibiotics[1]
- The aim is to adopt a **patient-centered symptomatic management** strategy
  - Flexible, interlinking framework
  - Adaptable across countries
  - Can provide a global and regional framework for change



1. Essack S, *et al. Int J Clin Pract*. 2013;67(S180):4–9

Implementing GRIP's 1, 2, 3 approach

- GRIP's consistent approach to:
  - Address patients concerns
  - Be vigilant – assess severity
  - Counsel on effective self-management

- GRIP's 1, 2, 3 approach helps HCPs to:
  1. Take a consistent approach to the management of RTIs
  2. Put the patient at the centre of the consultation
  3. Direct towards symptomatic treatment, where appropriate

- A toolkit with template materials for HCPs and patients is available on the GRIP website[1]
- GRIP is committed to continue to bring to life its declaration

1. GRIP. Accessed July 2015 Link: www.grip-initiative.org

GRIP
Global Respiratory Infection Partnership

GRIP toolkit – see www.grip-initiative.org



GRIP Video - Bob



GRIP
Global Respiratory Infection Partnership

Summary and conclusions (1)

- Increasing antimicrobial resistance in UK (and world wide) threatens both economic and public health
- National and global initiatives are underway to address the impact of AMR
- Despite much effort, prescribing/use of antibiotics continues to increase
- 60% of antibiotic prescribing in the UK is for RTIs, but most of these are self-limiting
- A major change in both HCP and patient behaviour is needed to maintain viability of current antibiotics
- HCP consultations are driven by trust and confidence in the HCP and the assumption patients want a prescription
- Many patients with 'simple' RTIs will/still receive antibiotics
- Survey: GP encounters in the UK for URTI, 25% said they got antibiotic prescription

1. English surveillance programme for antimicrobial utilisation and resistance (ESPAUR) Accessed August 2015. Link https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/362374/ESPAUR_Report_2014__3_.pdf 2. Gulliford MC, et al. BMJ Open 2014;4:e006245. 3. Foden N., *et al. Br J Gen Pract*. 2013;63:611-613. 4. Ah-See K., *et al. BMJ* 2007;334:358-361. 5. CDC. Accessed May 2015. Link http://www.cdc.gov/getsmart/community/materials-references/print-materials/hcp/adult-acute-cough-illness.pdf; 6. Hansen M, *et al. Front Public Health* 2015;3:35.

GRIP
Global Respiratory Infection Partnership

Summary and conclusions (2)

- Patient and HCP education on appropriate expectations, and effectiveness of self-management needs reinforcing
- GRIP has formulated a framework for an evidence-based, non-antibiotic approach in the management of RTIs – this works in many countries
- Primary care physicians, nurses and pharmacies need to take an active approach to direct patients towards self-management strategies
- Based on behaviour change theory GRIP's 1, 2, 3 approach helps HCPs to:
  - Take a consistent approach to the management of sore throat
  - Put the patient at the centre of the consultation
  - Direct towards symptomatic treatment, where appropriate
- A toolkit with template materials for HCPs and patients is available on the GRIP website (www.grip-initiative.org)
- GRIP is committed to bringing its declaration to life, with the support of RB

1. Essack S, et al. *Int J Clin Pract*. 2013;67(S180):4–9. 2. van der Velden AW, et al. *Int J Clin Pract*. 2013;67(S180):10–16. 3. GRIP. Accessed July 2015 Link: www.grip-initiative.org