



Antibiotic misuse: More action, less resistance

REPORT FROM THE GLOBAL RESPIRATORY INFECTION PARTNERSHIP
Meeting held 10th February 2014, Royal College of Physicians, London

The Global Respiratory Infection Partnership Declaration



“We, the Global Respiratory Infection Partnership (GRIP), 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:

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

GRIP meeting attendees



Standing (left to right):

Mr John Bell,
Prof. Dr Necla Eren Tülek,
Prof. Sabiha Essack,
Prof. Attila Altiner,
Dr Laura Noonan,
Dr Alike van der Velden,
Ms Chongmas Nitsingkarin,
Dr Aurelio Sessa,
Prof. Antonio Carlos Pignatari

Seated:

Prof. Roman Kozlov,
Dr Martin Duerden,
Prof. John Oxford,
Mr Adrian Shephard

GRIP

Professor Attila Altiner, Head of the Institute of General Practice, University Medicine Rostock, Germany

Mr John Bell, Principal Advisor to the Pharmaceutical Society of Australia Pharmacy Self Care Programme; Practitioner/Teacher in Primary Health Care at the Graduate School of Health, University of Technology Sydney, Australia

Dr Martin Duerden, Part-time general practitioner (GP) in Conwy, and Deputy Medical Director at Betsi Cadwaladr University Health Board (BCUHB), Wales, UK; Clinical Senior Lecturer, Bangor University, Wales, UK

Professor Sabiha Essack, Dean of the School of Health Sciences and Professor in Pharmaceutical Sciences, University of KwaZulu-Natal (UKZN), South Africa

Professor Roman Kozlov, Director of the Institute of Antimicrobial Chemotherapy of Smolensk State Medical Academy; Director of the Scientific Centre for Monitoring of Antimicrobial Resistance; President of the Inter-regional Association for Clinical Microbiology and Antimicrobial Chemotherapy, Smolensk, Russia

Dr Laura Noonan, GP, Mullingar, Co Westmeath, Ireland

Professor John Oxford, Professor of Virology at St. Bartholomew's and the Royal London Hospital, Queen Mary's School of Medicine and Dentistry, UK (Meeting Chair)

Professor Antonio Carlos Pignatari, Professor of Infectious Diseases and Director of the Special Clinical Microbiology Laboratory of the Division of Infectious Diseases, Federal University of São Paulo, Brazil

Dr Aurelio Sessa, Family Physician and Senior Partner, Arcisate, Italy

Dr Alike van der Velden, Assistant Professor, University Medical Center Utrecht, Netherlands

Guest speakers

Turkey: Professor Doctor Necla Eren Tülek, Ankara Training and Research Hospital, Infectious Diseases and Clinical Microbiology, Ankara, Turkey

Thailand: Ms Chongmas Nitsingkarin RPh, President of the Community Pharmacy Association, Thailand

New GRIP member

Dr Laura Noonan has joined the GRIP panel for 2014 and is already actively involved in raising awareness of the appropriate use of antibiotics. Dr Noonan is part of the Respiratory Tract Treatment Forum in Ireland (www.respiratorytract.ie) and has developed HCP and patient materials for Ireland and provided interviews to the national press. Dr Noonan also won the AVIVA/ICGP Quality in Practice Award in 2011 for her research into antibiotic use in URTIs.

Introduction



Chair of the meeting, Prof. Oxford gave an engaging and insightful introduction to the on-going challenges around antibiotic stewardship across the globe. “Everyone can think of examples in almost every country of the world where antibiotics are prescribed, purchased or used inappropriately,” he said.

“This is an international problem, affecting the scientific community, healthcare professionals and the public at large. Part of the problem is the wide availability of antibiotics worldwide—usually via a prescription from a physician, but also over-the-counter in pharmacies or over the internet. Such availability is in part fuelling the misuse of antibiotics and unless we control or restrict access, resistance rates are destined to continue to rise.”

Discussing the seasonal cycle of use of antibiotics across Europe, Prof. Oxford identified higher rates of antibiotic prescriptions during the winter months compared to the summer months. “The only likely explanation seems to be linked to the yearly viral movement,” he said. “This strongly suggests inappropriate use/prescribing antibiotics for viral disease.”¹

Prof. Oxford reminded participants of the ‘chance’ discovery of penicillin. “The miracle discovery of penicillin has allowed better medical care for the last 70 years,” he said. Now however, resistance is a real threat to the future of antimicrobial use and the age of antibiotics may end as abruptly as it began² and medical care may be challenged as a result.³

Looking to the future Prof. Oxford said new opportunities for antimicrobial development may exist in taxa yet to be investigated—providing hope for the future. A new article published in *Nature* states that the majority of prokaryotes have not been researched, as they are hard to cultivate. Marine sponges carry many of these bacteria and have an important role in drug discovery, providing a unique opportunity to discover more about these uncultivated bacteria. While this provides some hope for new medicines, there is no certainty in this area of research and no room for complacency.⁴

“Studies of the new taxa and their interactions in metabolic pathways may provide new opportunities for the antimicrobial agent pipeline”

Prof. Oxford

Executive summary



- Antibiotic resistance continues as a leading healthcare priority worldwide.
- Since GRIP was formed in 2012, multiple publications and materials for primary care practitioners and patients have been developed to increase awareness of antibiotic stewardship, providing a framework to treat upper respiratory tract infections (URTIs) such as sore throat.
- Throughout 2013 GRIP members were involved in a number of activities at a local level, including Brazil, Germany, Italy, Switzerland/Austria, the Middle East, and the UK. The aim has been to drive forward the GRIP messages and to engage a broader community of experts in the challenge of managing antibiotic resistance by advancing antibiotic stewardship, using URTIs as a case study.
- A GRIP Summit was held in 2013, receiving impressive feedback with the majority of healthcare professional (HCP) attendees planning to change/adapt how they interact with patients in the future. GRIP aims to build on this engagement with a second Summit planned for summer 2014.
- In Germany, a new study has been initiated called the CHANGE 2 education intervention study which will investigate the effect of GP and pharmacy education on antibiotic prescription rates.
- Inappropriate antibiotic use in children is a concern due to unclear guidelines, the potential for rapid progression/severity of URTIs, and communication barriers (communication with parents instead of with the child/patient).
- For 2014, GRIP aims to widen its reach, to increase direct communication to patients, update the antibiotic resistance and stewardship messages, and improve communication skills for HCPs. There is also a drive to increase the GRIP digital presence for both HCPs and the general public.

For more information on the Global Respiratory Infection Partnership and to access the materials referred to in this report please visit www.GRIP-initiative.org



In 2011, discussions surrounding potential antibiotic resistance containment initiatives commenced and a small group of experts met to discuss the European situation.⁵ In 2012, GRIP was formed and shortly thereafter, the first GRIP report was developed, a paper published⁶ and the GRIP website launched.

In 2013, GRIP activities accelerated with the launch of the pentagonal (5Ps) framework, the development of an associated global toolkit for local adaptation and a suite of primary care materials to improve communication between HCPs and patients. This included a 3-step approach for prescribers, the pharmacy team and patients to guide the URTI consultation. The 5P framework, advocated for the non-antibiotic management of URTIs, highlights five key focus areas for antibiotic stewardship (policy, prevention, prescribers, pharmacy, patient). These were presented at a 2-day global Summit and a supplement of the 5P approach was published in the *International Journal of Clinical Practice*.⁷ Plans to rollout these materials and hold country-specific advisory boards are active in many countries—examples of which are outlined in this report.

GRIP aims to increase their global presence further afield with the initiation of additional local activities in 2014.

GRIP publications to date

- Essack S for GRIP. GRIP's *Pentagonal Framework for a Global Change in Antibiotic Resistance*. To be presented at the Geneva Health Forum 2014, Geneva, Switzerland, April 2014.
- Essack S and Pignatari AC. A framework for the non-antibiotic management of upper respiratory tract infections: towards a global change in antibiotic resistance. *Int J Clin Pract Suppl*. 2013;(108):4–9.
- GRIP. Antibiotic misuse – stop talking, start acting. Advisory board report. 2013. Accessible at: www.grip-initiative.org/downloadable-materials-all-resources.php.
- GRIP. Antibiotic misuse and sore throat treatment. Advisory board report. 2012. Accessible at: www.grip-initiative.org/downloadable-materials-all-resources.php.
- Oxford J and Kozlov R. Antibiotic resistance—a call to arms for primary healthcare providers. *Int J Clin Pract Suppl*. 2013;(180):1-3.
- Van der Velden AW, *et al*. Prescriber and patient responsibilities in treatment of acute respiratory tract infections – essential for conservation of antibiotics. *Antibiotics*. 2013;2(2):316–327.
- Van der Velden AW, *et al*. Sore throat: effective communication delivers improved diagnosis, enhanced self-care and more rational use of antibiotics. *Int J Clin Pract Suppl*. 2013;(108):10–16.

The GRIP 1, 2, 3 approach⁶

This 3-step approach from GRIP guides HCPs through their interactions with patients when discussing appropriate antibiotic use. These key points are memorable and can trigger further education points enhancing the doctor-patient communication. The 3-step approach has also been adapted for the pharmacy team and for patients.

1. **Address the patient's concerns**—identify patient concerns/expectations and determine the primary reason for consultation.
2. **Be vigilant: assess severity**—evaluate the seriousness of infection and risk of complications by checking for high-risk criteria and red flag symptoms.
3. **Counsel on effective self-management**—provide reassurance around the self-limiting nature of URTIs, recommend symptomatic relief and advise on next steps (expected duration of symptoms and reasons for re-consultation).

The GRIP 1, 2, 3 materials can be downloaded from the GRIP website—www.grip-initiative.org

Summit results

The GRIP Summit 2013 was a huge success with representatives from 24 countries in attendance. The GRIP framework and 1, 2, 3 materials were launched, receiving positive feedback from the HCP attendees. GRIP aims to build on this engagement with a second Summit in summer 2014.

- 63% of HCPs who attended did so to enhance understanding of best treatment practice for RTIs.
- 88% of HCPs either “strongly agreed” or “agreed” that the GRIP Summit 2013 was relevant to their day-to-day work.
- 96% of HCPs agreed that the information and material provided has given them some additional points to discuss with patients in relation to RTI management.
- 75% of responses for the presentations, by HCPs, rated them as either “excellent” or “very good”.
- 96% HCPs would share the GRIP materials and 1, 2, 3 approach. Ways of sharing materials included translation and distribution, peer review, treatment forums, inclusion in educational programmes or alongside antibiotic awareness days/weeks.

The 5P framework for the non-antibiotic management of URTIs⁷



A 5-part framework was developed to highlight key areas of focus for antibiotic stewardship to include prescribers, pharmacy staff, patients, policy and prevention.

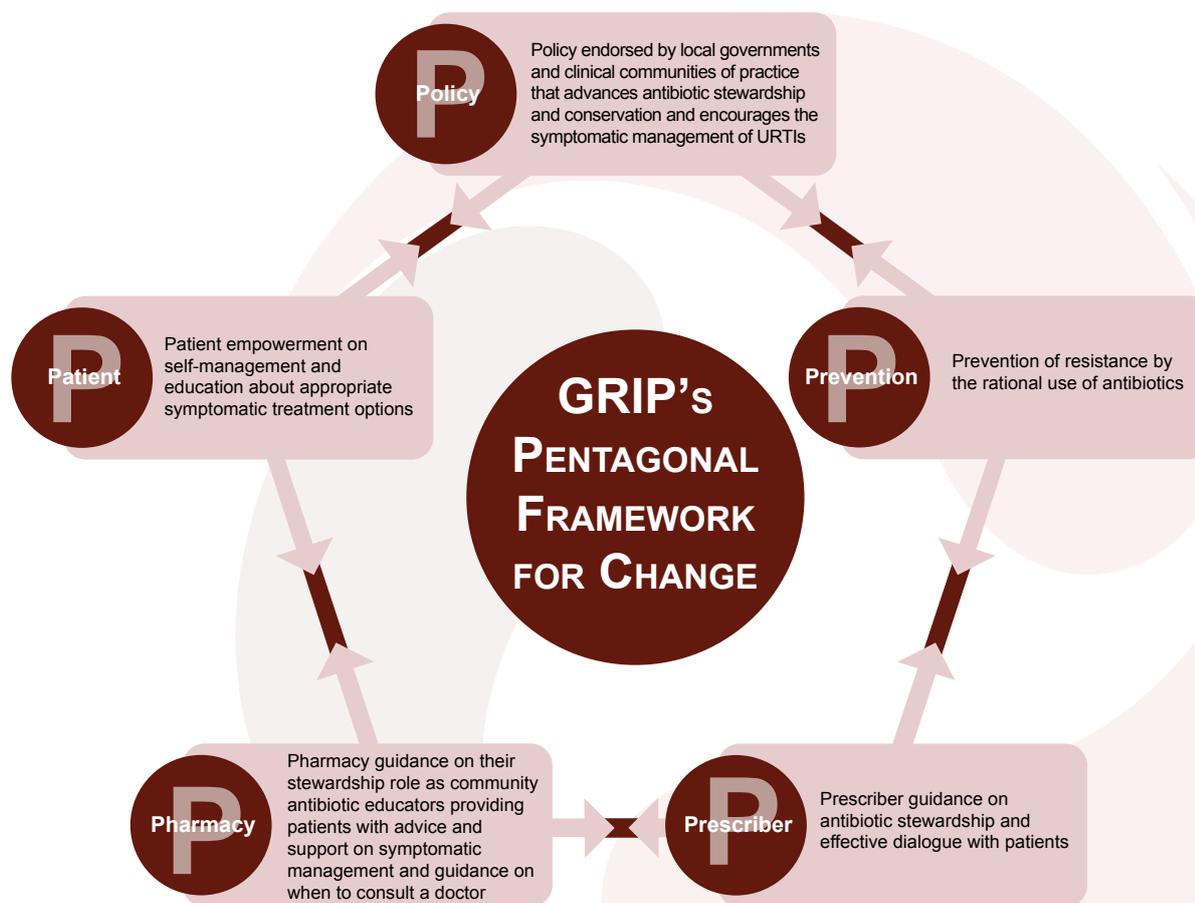


Figure 1: The GRIP's pentagonal framework for change encompasses five key areas—Policy, Prevention, Prescriber, Pharmacy and Patient

Local activations of GRIP messaging



Since the last GRIP meeting, members have been working to disseminate GRIP messages at a local level across the world. Members were asked to profile some of their activities, many of which have been developed in collaboration with RB representatives at a local level.



Brazil

Prof. Pignatari outlined how he had been working to extend the work of GRIP in Brazil. In 2013 he led a symposium at an ear, nose and throat (ENT) conference attended by over 130 clinicians. Looking at the challenges of antibiotic resistance, Prof. Pignatari's presentation was supported by a questionnaire that asked delegates about their challenges with antibiotic stewardship. Some 60 attendees completed the questionnaire from which:

- 72.6% of respondents agreed that it was difficult, but not impossible, to convince patients that antibiotics are not required for URTI
- 64.5% of respondents agreed the main responsibility lay with doctors when ensuring antibiotics were used appropriately for URTIs
- 100% of respondents rated the GRIP idea as a very good idea.

In 2014, Prof. Pignatari will be working on a number of symposia in São Paulo and Rio de Janeiro to help understand the position and acceptance of the GRIP concept amongst GPs.



Germany

In Germany, Prof. Altiner has been leading activities around changing antibiotic prescribing behaviours. Germany has a low prescription rate for antibiotics compared to other countries in Europe.⁸ However, there is still a need to educate HCPs in appropriate antibiotic use. Chairing the local advisory board, Prof. Altiner and colleagues discussed the need to enhance patient education around appropriate use of antibiotics with a pro-active, positive 'protect antibiotics' message. The group is now looking to raise awareness of the global GRIP initiative and develop a hard-hitting campaign, aligned with GRIP, to educate and improve the doctor-patient dialogue. The group hopes to inspire a change that prompts less antibiotic use and encourages trust in symptomatic relief as the first-line treatment in URTIs.

“In most cases of respiratory infections, you do not need antibiotics. You will recover as fast as without”

Prof. Altiner

Prof. Altiner also introduced a newsletter that will be developed in 2014 by the German group, who are called AHA! In addition, key messages around antibiotic use will be developed and translated into languages commonly spoken in Germany in order to improve communication where German is not the patient's first language.



Switzerland and Austria

In Switzerland and Austria two advisory boards have

been convened with local experts: 'NEXT' in Switzerland and 'ART' in Austria. The advisory boards met to discuss the GRIP messages in November 2013, aligned around European Antibiotics Awareness Day. Delivered and planned activities include scientific publications, training sessions and pharmacy lectures.



Middle East

GRIP member Dr Martin Duerden went to Saudi Arabia to give a presentation entitled: 'Antibiotic use in respiratory tract infections—local approaches to address the global problem of antibiotic resistance'. He addressed both a small meeting and a larger group of 100 healthcare professionals consisting of ENT specialists, microbiologists and Ministry of Health officials. This presentation introduced the GRIP 5P framework, the 1, 2, 3 approach and current activations worldwide. The GRIP toolkit was showcased and GRIP activities to date summarised.



Italy

Looking at activities in Italy, Dr Sessa gave an overview of a small study he conducted locally. At present, Dr Sessa said, the majority of patients visit their pharmacy to treat sore throat (60%) with the remainder visiting their GP (40%). His study set out to understand antibiotic prescribing behaviours within his practice, and to see if the GRIP resources could actually deter inappropriate prescribing behaviours.

Some 170 patients visited the surgery for sore throat during the time frame of the study. On average, patients presented with a sore throat three days post-onset of symptoms. Prior to visiting the doctor, the majority of patients had taken paracetamol (58%), while 11% of patients had not taken any medication.

Almost 60% of patients did not receive a prescription for antibiotics, 29% received amoxicillin and 9% received amoxicillin-clavulanate. One third of the antibiotic prescriptions were considered inappropriate, said Dr Sessa. The prescribing of antibiotics was considered appropriate if:

- exudate (pus) is observed on the first consultation;
- the patient consults for a second time;
- the patient has attended an emergency department;
- the patient was referred to a specialist;
- high-risk criteria are indicated, following suitable investigations.

The high number of inappropriate prescriptions shows that better antibiotic stewardship is needed. Fewer patients received antibiotics during consultations where the GRIP toolkit materials were used.

“One third of antibiotic prescriptions were considered inappropriate”

Dr Sessa



UK

Following the GRIP Summit 2013, GRIP member Dr Martin Duerden has been instrumental in bringing the initiative to life in the UK. Activities began with a UK advisory board comprised of Dr Emma Whitehouse, a GP and a Royal College of General Practitioners (RCGP) Clinical Support Fellow in Antimicrobial Stewardship; Dr Donna Lecky, Project Manager of the European e-Bug project within the Primary Care Unit,

Public Health England; Dr Terrence Maguire, pharmacist and Honorary Senior Lecturer, School of Pharmacy, Queens University Belfast; and Mr Jonathan Mason, a pharmacist currently working for NHS England.

The group discussed the issues within the UK and what could be done to address these at a GP, pharmacy and patient level. The group helped adapt the GRIP toolkit for the UK releasing this in time for Antibiotics Awareness Day in November 2013. Resources included a 'Call to Action' report around antibiotic stewardship and HCP and patient materials that were mailed to 9,000 GP practices in the UK. Positive feedback on the toolkit resulted in requests for 10,000 additional resources. Dr Duerden also authored a GP Fact File, which was distributed with a GP magazine, which has a reach of 34,500 GPs. Furthermore, an online CPD module which accompanied the piece will be available for the next 12 months. For pharmacy, an educational module was developed on antibiotic resistance with recommendations to change behaviour in this setting.

This is in the context of further work being undertaken to reduce unnecessary or inappropriate antibiotic use around the UK; the Chief Medical Officer for England has been highly active in raising concerns about antibiotic resistance and a UK Action Plan has been developed. The UK RCGP in collaboration with other partners has developed resources to support safe, effective, appropriate and responsible antibiotic prescribing (available at: www.rcgp.org.uk/clinical-and-research/target-antibiotics-toolkit.aspx). The National Institute for Health and Care Excellence (NICE) is in the process of developing a guideline on antimicrobial stewardship.

Other countries

- **Australia:** "The subject of antibiotic resistance has been a key topic in the Australian Prescriber, an independent journal providing evidence-based information for HCPs, and the issue of antibiotic stewardship in both hospitals and the community has been raised as one of major concern by the Australian Commission on Safety and Quality in Healthcare," said Mr Bell. The Resistance Fighter campaign, led by the National Prescribing Service, was involved with Antibiotic Awareness week in 2013, inviting HCPs and the public to take a pledge to fight antibiotic resistance. Resources are available to download from the NPS MedicineWise website (www.nps.org.au).
- **South Africa:** Prof. Essack is driving the GRIP approach in South Africa and has completed a baseline survey around antibiotic usage that is to be published. In total, 386 doctors completed the survey. The aim was to understand which first-line treatments and adjunct treatments are prescribed for various infections—including colds, flu and throat infections—and attitudes towards antibiotic use. A South African Advisory Board is in the process of being constituted.
- **Russia:** Prof. Kozlov said that major advances are being made in Russia with the Russian government listing antibiotic resistance as a top priority and one of six key parameters for health. Three large conferences are planned for 2014 and an action plan for antibiotic resistance is being developed.

Expanding horizons: Antibiotic challenges from around the world

Two guest speakers attended the GRIP advisory board to provide case studies from different countries and highlight their local challenges and the impact antibiotic resistance has in their contexts. Learning from these presentations allows GRIP to ensure materials and initiatives are suitable at a global level and can be adapted appropriately to address specific challenges at a local level.



Resistance Snapshot – Turkey by Prof. Dr Necla Eren Tülek

In Turkey, GPs are under significant pressure due to a shortage of consultant clinicians and a large patient load (1 physician for every 3,000 patients).



= 3000



Antibiotics have had restricted reimbursement since 2003 in order to reduce overall spending, promote rational use and preserve antibiotics for the future. Antibiotics can be requested from the pharmacy without prescription and the average number of prescriptions is increasing in Turkey. Overall, one third of prescriptions are antibiotics and 14% of reimbursed medicines are for antibiotics; amoxicillin with clavulanic acid is most frequently prescribed. The majority of antibiotics are prescribed for URTIs (pharyngitis 16%, bronchitis 12.5%, sinusitis 11%, tonsillitis 11%). This differs from other countries, such as the Netherlands, where antibiotic use for RTIs is comparable with antibiotic use for urinary tract infections (UTIs). One reason for high antibiotic usage is that many parents believe antibiotics will prevent complications—a belief held by 58% of parents in one study.⁹ Unnecessary antibiotic prescription is another contributing factor. A study showed 74% of patients treated for acute tonsillo-pharyngitis, in Turkey, received unnecessary antibiotics.¹⁰

«Overall, one third of prescriptions are antibiotics»

Prof. Dr Tülek

High prescription rates for antibiotics are found in GP practices, with paediatricians and specialists following close behind. The defined daily dose (DDD) per 1,000 inhabitants per day is 42 for antibiotics in Turkey with an outpatient prescription rate of 36%, meaning that of all patients who consult the doctor, 36% are prescribed an antibiotic. Reasons for such high antibiotic use include a lack of education in patients, ingrained prescribing behaviours, limited consultation times and patient pressure. Common misperceptions surrounding antibiotics in the patient population are that antibiotics also kill viruses, more rapidly cure URTIs and prevent URTI-associated complications. Prof. Dr Tülek said GPs believe they are doing the best for their patients by preventing a possible secondary (bacterial) infection.

Prof. Altiner noted that in Germany, Turkish patients actively share concerns regarding complications and make requests to their GP for antibiotics. This highlights how important it is to consider cultural differences when treating patients who do not share local beliefs and values.

«**Education for HCPs should include a range of cultural and country-specific beliefs and actions**»

Prof. Dr Tülek

Current initiatives in Turkey include establishing an online presence, brochures, leaflets and activities to coincide with European Antibiotic Awareness Day. The general message states: “If you have flu or a common cold, protect yourself—do not take antibiotics.” An Antibiotic Resistance Study Group, part of The Turkish Society of Clinical Microbiology and Infectious Diseases, is also working at developing local guidelines for Turkey.

«**Antibiotics are not antipyretics or analgesics**»

Prof. Dr Tülek



Resistance snapshot – Thailand

by Ms Nitsingkarin RPh

In Thailand, since 2000, antibiotics have been the most frequently sold medicines, and of the highest monetary value. The latest annual reports from the Food and Drug Administration for Thailand (2007) show that antibiotics contribute to 25–50% of total medicine use, with one quarter of diseases treated with antibiotics. Additionally, increasing numbers of patients are having longer hospital stays due to antibiotic resistance and harder-to-treat infections. Resistance is a huge problem and leads to 30,000 deaths per year.

In Thailand, patients purchase 73% of medicines themselves, even though there is a free advice and treatment service available through the Universal Coverage Scheme (UCS).

This is a government-funded scheme covering 74% of the population not enrolled on other schemes. Patients must register with a contracting unit (CUP) and care covers inpatient care, outpatient care, most curative services and preventive care. The Thai national drug policy for 2011–2016 focuses on medicine accessibility and achieving Rational Use of Medicines (RUM), particularly pertinent for antibiotics.

Antibiotic Smart Use (ASU)—a scheme primarily driven by hospitals, supported by the WHO—has been introduced in 2007, and has already demonstrated a reduction in antibiotic use with similar patient satisfaction in those not receiving a prescription for antibiotics.¹¹ ASU tries to remove common misperceptions such as ‘infections don’t get better without antibiotics’ and pharmacies dispensing antibiotics believing that they have an anti-inflammatory effect.

Pharmacies are divided into grade I, with an in-house pharmacist, and grade II, without a pharmacist. However, due to the lack of pharmacists nationally only 30% of the 12,000 grade I pharmacies have pharmacists working in them. New regulations stipulate that for every new grade I pharmacy that opens, a working pharmacist must be employed, with a drive to make existing pharmacies grade I over the next 5–10 years.

Private clinics and metropolitan clinics are under pressure to cure disease/offer premium treatments, as patients will pay a premium for enhanced care. However, when the patient has recurring symptoms they are likely to bypass private clinics and ask the pharmacist for medications they have used previously, often expensive antibiotics.

The Good Pharmacy Practice (GPP) guidelines are strictly enforced in Thailand. Training and accreditation in GPP also allows pharmacies to join the national health security office and benefit from paid incentive programmes.

Simple counter-top aids such as educational stands with mirrors that allow patients to assess their own sore throat symptoms (throat redness, presence of pus, etc.), and training flipbooks for pharmacist use with patients are available. These aim to urge patients to try and distinguish between bacterial and viral infections. The group commented on the similarity between the physical findings in the two presentations. Ms Nitsingkarin agreed with this and maintained this is the first step for patients; to understand antibiotics are not needed all the time. Local government has also tried to limit the sale of antibiotic lozenges to pharmacy as this was contributing to antibiotic resistance and redefine the word ‘antibiotic’ due to the incorrect association between antibiotic and anti-inflammatory action.

«**The first step in educating patients is to help them understand antibiotics are not needed all the time**»

Ms Nitsingkarin

Behaviour change in URTI consultations



Several models of behaviour change have been published that both support the development of effective interventions and assist clinicians in facilitating changes in behaviour in their patients, for example, in smoking cessation. The 2011 Michie behaviour change model is one example that is useful in helping understand the pathway for shaping and initiating behaviour change.¹² The model is based on the COM-B system: capability, opportunity and motivation, adapted from the US criminal law system. The behaviour model details the skills required to perform the behaviour, a firm intention to perform the behaviour and no environmental constraints preventing the behaviour. All three aspects must be fulfilled for behaviour change to occur.¹²

Capability: Possessing the skills and know-how to engage in the required activity both physically and psychologically.

Motivation: The way your brain implements change, to include emotional responses, habitual processes, conscious decision-making and evidence-based decisions.

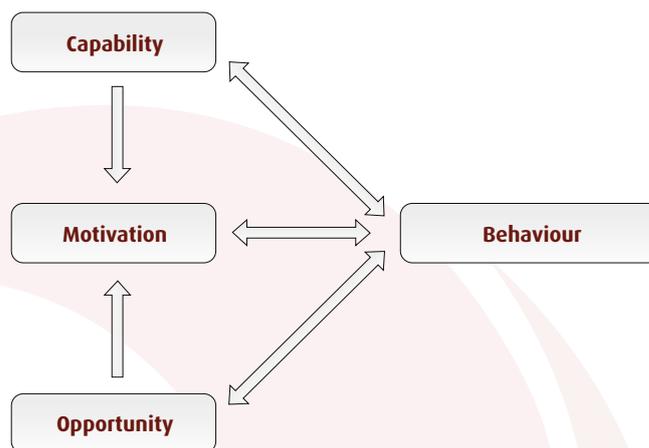


Figure 2: The intersection of three necessary conditions needed to achieve behaviour change¹²

Opportunity: External factors that bring about change, such as environmental and social components.

Discussion: Refining messages



Following the behaviour change presentation by Prof. Michie at the 2013 GRIP Summit, discussions surrounding behaviour and what factors are required to change behaviour in URTI management commenced. The COM-B model, along with other considerations of key behaviour change, and the review of existing materials, were used as a foundation for a meeting discussion and workshop. The aims of the discussion were to agree on a refined messaging plan for GRIP's HCP communications, review the best approaches for GRIP communications directly to patients and the public, and consider the challenges with antibiotic prescribing in children and while communicating with parents. It was agreed that there should be different key messages for professionals, patients (adult) and parents and children. These are outlined below:

Professionals

Antibiotics are not effective for most RTIs—As the majority of URTIs and lower RTIs are caused by viral infections, and antibiotics only affect bacteria, antibiotics are unsuitable for most patients.^{13,14} A sub-message was considered, stating that antibiotics do not provide symptomatic relief for most RTIs, however, it was agreed that a simple efficacy message was the priority communication.

Reserve antibiotics for high-risk patients—This describes the exclusion vs. inclusion concept where the majority of patients should be automatically excluded from a prescription for antibiotics, and antibiotics considered only when certain

'inclusion' criteria are met, such as older patients, pre-existing comorbidities, patients with immunosuppression, or patients who appear systemically very unwell.¹⁵ For the majority of cases that are not high risk, communication should be addressed in a positive language such as 'your throat is red, but does not appear swollen and there is no pus—a lozenge or analgesic will make your throat feel much better'.

Symptomatic relief is available and effective—A wide range of symptomatic relief products are available in different strengths, formulations, active ingredients and combinations. Dr Duerden mentioned that knowledge and advice on the full range and diversity of OTC symptomatic relief products is important knowledge for HCPs. It was agreed that discussing options or making specific recommendations for symptomatic relief is an effective way to treat patients with URTIs, in addition to providing a personalised approach. GRIP agreed that increasing access to information on symptomatic relief products, to improve HCP trust in the efficacy of these medicines would be of value.

The three messages above help support the appropriate use of antibiotics and HCP antibiotic stewardship measures. Other supporting messages considered in the discussion, specifically for sore throat, included reminding HCPs of the access to point of care diagnostics (POCD), identifying red flags/high risk patients and reinforcing the use of Centor criteria when identifying group A beta-hemolytic streptococcal (GABHS) infection.

GRIP discussed that POCD were not available in many countries and hence concluded this was not an appropriate key message for a global audience. The Centor criteria are embedded into the practice and guidelines of sore throat management in many countries and the group felt it was important not to discount their value as a consultation tool, despite information showing similarity between physical findings in viral and bacterial sore throats. The importance of reassuring patients that their condition had been taken seriously and fully examined was also agreed.

On selection of the three core messages it was noted that information explaining the cause or implications of antibiotic resistance and/or the imperative of antibiotic stewardship was absent. Following discussion, a consensus was reached that GRIP's information will always be framed by the background information on antibiotic resistance/for antibiotic stewardship, to provide a 'Why?' in each communication ensuring alignment to their declaration. Information will include latest resistance rates, national and global initiatives to address the global threat, research into new antimicrobials and possible consequences for future clinical practice.

Patients (adult)

GRIP agreed that patient messages are best delivered in a positive manner. For example, instead of using 'your infection is not severe enough to require antibiotics', use 'you will feel better with the appropriate symptomatic relief'. GRIP has committed itself to a more-focused approach towards patient messaging in order to improve recall.

Antibiotics are not effective for most coughs and cold symptoms and symptomatic relief is available and effective—These messages to HCPs also apply to patient communications. The group commented on existing campaigns and messages that focus on distinguishing between viral and bacterial infections. It was agreed that due to a similarity in symptoms and the complexities of explaining this to patients, this was not the most effective way to communicate this message. Instead a simplified message (as above) was agreed to.

Your immune system is very capable of dealing with most coughs and cold symptoms—The majority of RTIs are self-limiting and should resolve within 1–3 weeks.¹⁵⁻¹⁸ Primary infections are extremely common and healthy patients not at risk of complications only require products to relieve symptoms. Communicating the realistic duration of symptoms was agreed to be of value and an important aspect of GRIP's communication to date. As rates of complications vary by country and region, GRIP noted the importance of local adaptation of GRIP's messages to ensure higher risk situations are given due cognisance.

How can these messages be delivered effectively to patients?

GRIP plans to use motivational language and clear, concise information via digital media to engage with and mobilise the general public.

Antibiotics and children: Case study – The Netherlands



There are several difficulties in antibiotic decision-making in children with RTIs. This is due to more difficulties in the assessment of disease severity, the possible rapid progression of severity and fever, and the less clear guidelines for antibiotic treatment of children. Dr van der Velden stated that the communication between the doctor/pharmacist and the parent/child could be complicated. HCPs may speak directly to the parent and it is often the parent's worries and expectations that are then being addressed.

Antibiotic decision making in children is more complicated than for adults

Dr Van der Velden

Frequency of antibiotic prescribing for ear infections and URTIs decline with age, for tonsillitis and urinary tract infections (UTIs) increase with age, and for pneumonia and fever rates remain steady. The decision to prescribe antibiotics is up to the physician and depends on infection severity and the presence of fever.

Dr van der Velden said that for children, an antibiotic is prescribed in 32% of consultations for an RTI in the

Netherlands, with 31% of these considered to be over-prescribing. Inappropriate prescribing is related to a diagnosis of bronchitis or tonsillitis, presence of fever and GPs perception of the parents wish for antibiotics.

31% of antibiotic prescriptions for RTI treatment in children are inappropriate

Dr Van der Velden

In the Netherlands, the RAAK (rational antibiotic use for children) intervention study is being performed to investigate the effects of an online education for GPs and informative material for parents on the use of antibiotics in children at 40 primary care practices. Baseline measurements are to be observed and the intervention will occur in September 2014. Registration data, patient questionnaires and pharmacy data will then be used to measure outcomes. Dr van der Velden described a low antibiotic prescribing rate for children in the Netherlands with the majority prescribed for RTIs and ear infections. The youngest age group, 0 to 4 years, had the highest prevalence of antibiotic prescriptions, followed by 5–12 years and 13–18 years. Amoxicillin was the most commonly prescribed antibiotic.

Parents and children

There is a need for reassuring messages when treating a child with a URTI, as infections can be worrying for parents; so education is required to explain when antibiotics are appropriate for this patient group. The group felt different advice is required in this setting compared to adult consultations.

The group discussed messages for both parents and children and felt GRIP's initial messaging should be targeted at children aged 9 and older, using language that children can relate to. Educating children at a young age can help shape and eventually change behaviours. If children are made aware at home and at school (e.g. 'e-bug', a European initiative in schools to educate children about antibiotic awareness, accessible at www.e-bug.eu), the message would spread into the wider community.

The group developed reassuring messages to address this need in parent and child consultations. Dr Duerden referred to a parent information leaflet developed at Cardiff University and endorsed by the UK RCGP entitled 'When should I worry' (accessible at: www.rcgp.org.uk/shop/books/practice-library/when-should-i-worry-your-guide-to-coughs-colds-earache--sore-throats.aspx). It was agreed that this was an appropriate sentiment for GRIP information to parents. The selected messages for parents are:

- when your child is ill, it is natural to worry—your healthcare professionals can reassure you and help you identify more serious symptoms
- antibiotics should only be used for severe infections as they may not be beneficial for your child in all cases
- symptomatic relief will make your child feel better.

Aside from reassurance, the group discussed the communication between the HCP and the child. Children may find it difficult to articulate their symptoms and severity. This can make consultations difficult for HCPs. GRIP identified supporting the HCP and child dialogue—about the illness and treatment options—as a potential area for GRIP guidance.

What's next?

For 2014, GRIP has reiterated its commitment to disseminating focussed messages and increasing communication directly to the general public. This will be achieved through the development of further resources for HCPs, patients and parents for adaptation globally. By harnessing the power of digital media, further engaging existing local groups and initiating additional meetings across the world, GRIP hopes to increase its reach.

A framework for the 2014 Summit discussions was developed which links to the GRIP framework for change (proposed by Prof. Essack). This is based on the objective to further develop



For all audiences, GRIP agreed that messages should be carefully formulated and accurately communicated. To achieve this, an understanding of the levels of health literacy in the general public should be considered along with the type of language that will most effectively deliver the key antibiotic conservation messages. Improving the consultation skills of HCPs in various settings was believed by the group to be an important aspect of message delivery.

Communication and antibiotic use: Case study – Germany

Prof. Altiner shared information on a study that has begun in Germany which aims to show the effect of an intervention to educate HCPs in appropriate antibiotic use. Overall, 75 paediatricians and 90 GPs are included and split into three groups: a control group, a communication training group and a communication training plus POCD group. Baseline data is being gathered, an intervention to include webinars and patient education will then occur with and without POCD, and the data evaluated. Videos have been developed to train HCPs and objection handling and treatment algorithms have been designed.

new and existing materials for HCPs and create engaging events and seminars to assist HCPs in their learning, with the aim of changing both thinking and behaviour in URTI management.

In keeping with the 5P pentagonal framework, Prof. Essack suggested that the Summit follows a 5P format: *Priority* considers the need for urgent action and highlights combatting antibiotic resistance as a global priority; *Policy* summarises initiatives and/or guidelines available on a global or national scale; *Pilots* and *prototypes* presents case studies of local initiatives with the aim of sharing good practice; *Primary care implementation strategy* allows

participants to workshop aspects such as the suitability of the GRIP framework and toolkit for different country contexts, and how best to implement the strategy, engender endorsement from other HCPs and importantly how progress can be measured. The final area calls for a *Paradigm shift* to communicate that containing antibiotic resistance via antibiotic stewardship is everyone's responsibility and that

a 360-degree, multi-disciplinary, multi-stakeholder public-private-partnership is required.

The capability, motivation and opportunity aspects are applicable to pilots and prototypes and primary care implementation strategy, policy and priority, and, paradigm shift components respectively.

Conclusion

GRIP has an on-going commitment to raising awareness of antibiotic stewardship and rational antibiotic use. The momentum from existing work and initiatives will continue to build with a wider reach and rollout of key messages.

The GRIP members are helping to deliver these messages through several means, including direct testing of the GRIP material (Dr Sessa) and the investigations of themes, which help, leverage the strength of the message (Prof Altiner's

CHANGE 2 education intervention study).

The importance of educating HCPs, complemented with patient education and mobilisation remains key and this will now extend to parent and child communications.

In conclusion, 2014 will be a year of growth for GRIP with the potential to expand reach to several new countries, increasing engagement in the global fight against antibiotic resistance.

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