GRIP
Global Respiratory Infection Partnership

Antibiotic misuse – stop talking, start acting

REPORT FROM THE GLOBAL RESPIRATORY INFECTION PARTNERSHIP

Meeting held 1st February, 2013, Royal Society of Medicine, Chandos House, London

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:

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, such as sore throat, common colds, influenza and cough
3. Facilitating multi-stakeholder commitment to antibiotic stewardship and rational antibiotic use."

GLOBAL RESPIRATORY INFECTION PARTNERSHIP MEMBERS

- **Professor Attila Altiner**, Head of the Institute of General Practice, University Medicine Rostock, Germany
- **Mr John Bell**, Principal Adviser, Pharmaceutical Society of Australia Self Care consumer health information programme, community pharmacist, Woollahra, Australia
- **Dr Martin Duerden**, Honorary Senior Lecturer at Cardiff and Bangor Universities, Wales, Clinical Adviser on prescribing for the UK Royal College of General Practitioners and family physician, UK
- **Professor Sabiha Essack**, Dean of the School of Health Sciences, University of KwaZulu-Natal, South Africa
- **Professor Roman Kozlov,** Director of the Institute of Antimicrobial Chemotherapy of Smolensk State Medical Academy and Director of the Scientific Centre for Monitoring Antimicrobial Resistance, Russia
- **Professor John Oxford**, Scientific Director and founder of Retroscreen Virology and 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**, Clinical Director the Special Clinical Microbiology Laboratory of the Division of Infectious Diseases, Federal University of Säo Paolo, Brazil
- **Dr Aurelio Sessa**, family physician, Italian College of General Practitioners, Florence, Italy
- **Dr Alike van der Velden**, Assistant Professor, Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, the Netherlands

GUEST SPEAKERS

- **Dr Laura Noonan**, GP, Mullingar, Co Westmeath, Ireland
- **Group Captain Jungrak Phromchairak MD**, Department of Otorhinolaryngology, Bhumibol Aduljadej Hospital, Royal Thai Air force, Bangkok, Thailand

Back row (left to right): Dr Alike van der Velden, Dr Martin Duerden, Prof. Attila Altiner, Prof. Antonio Carlos Pignatari, Group Captain Jungrak Phromchairak.

Front row: Dr Laura Noonan, Prof. Roman Kozlov, Prof. John Oxford, Mr John Bell, Prof. Sabiha Essack

INTRODUCTION

"We have to take up arms against antibiotic resistance as we are in a sea of trouble," said meeting Chair Prof. Oxford in his opening address. His call was universally echoed by the other members of the Global Respiratory Infection Partnership.

Prof. Kozlov summarised the situation: "We need to stop talking, and start acting."

The challenge remains, however, in how to shift the focus from a recognition that antibiotic resistance is a growing global public health issue to the implementation of measures that facilitate behavioural change at a local level.

> *"We need to stop talking, and start acting"*
>
> ***Professor Kozlov***

A hard-hitting approach has brought success in some countries. For example, in Brazil a change in the law that penalises pharmacies who sell antibiotics without prescription has been successful, said Prof. Pignatari.

Further measures may be needed. Prof. Oxford advocated greater political action and suggested that a strict limitation on the availability of antibiotics was necessary. "We need proper controls, like we do with Class A drugs. Antibiotics are much more important than cocaine."

> *"We need proper controls, like we do with Class A drugs"*
>
> ***Professor Oxford***

Prof. Kozlov added that the problem of antibiotic resistance begins in the community sector. Since the previous GRIP meeting, understanding and changing the primary care perspective has become an increasing area of focus around the globe. GRIP members shared learnings from local initiatives targetting antibiotic use, particularly for respiratory tract infections, such as sore throat, a common reason for antibiotic prescribing in the community.

EXECUTIVE SUMMARY

Overall

- Antibiotic resistance remains a significant global challenge.
- Among healthcare professionals (HCPs), there may be lack of awareness that this is not an issue confined to hospitals but is increasingly a community care issue.
- Interventions designed to reduce antibiotic prescribing can show a positive effect, even in countries with low rates.
- While guidance on measures to tackle antibiotic overuse exists, further work is required to change HCPs' behaviour in practice. This can include timely information on the professionals' individual antibiotic prescribing rates, incentivising/making mandatory Continuing Professional Education on antibiotic stewardship and adherence to antibiotic guidelines, as well as encouraging and facilitating behavioural change among patients.
- An overarching framework is needed that can be adopted across countries to create a consistent approach to change behaviour and increase knowledge in treating respiratory tract infections with or without antibiotics that provides the flexibility to meet individual country concerns.
- GRIP is committed to creating such a framework that will encompass a non-antibiotic, pro-symptomatic relief policy approach to respiratory tract infections, underpinned by guidance on appropriate antibiotic use and education for prescribers, pharmacists and other HCPs together with education for patients on self-management strategies.

Factors to consider in managing respiratory infections

- Antibiotic use should be reserved for patients with severe respiratory infections and for patients with increased risk for complications of RTIs: frail patients, those with pre-existing conditions or people with relevant co-morbidities.
- The need for confirming bacterial infections should be re-appraised, depending on the respiratory infection. For example, many bacteria-induced sore throats do not cause serious problems.
- Patients should be advised about "red flag"* symptoms that should prompt them to return for assessment.

Factors to consider in encouraging behavioral change in patients

- Patient concerns and needs should be taken seriously and treated with respect in an empathetic, understanding manner.
- HCPs should work in partnership with patients to create an individualised health-management plan. Use of a personalised patient leaflet can reduce consultation time, encourage symptomatic relief and prevent unnecessary consultation.
- As part of this plan, patients should be made aware of the normal duration of conditions and advised on red flag symptoms and when to re-consult.
- When recommending symptomatic treatment, HCPs should identify patient preferences and recommend effective management options that match these.
- Patients should be encouraged to utilise the pharmacy and non-prescription options for symptomatic relief.

*** Red flag symptoms:** This is when symptoms are not starting to settle in accordance with the expected course of the illness or symptoms significantly worsen.[1]

EDUCATING HEALTHCARE PROFESSIONALS: CASE STUDY

Guest speaker Dr Laura Noonan, a GP from Westmeath, Ireland, has been involved in a campaign to reduce antibiotic prescribing in primary care. Ireland is in 9th position in the rankings of European antibiotic use by country, with 21.7 defined daily doses (DDD)/1000 inhabitants/day. As with other countries, there are huge variations in doctor behaviour, often driven by the belief in primary care that failing to prescribe an antibiotic will adversely affect the doctor–patient relationship and patients will 'shop' for another doctor who will prescribe what they want.

Research among patients, in the surgery and online, on their knowledge and attitudes towards antibiotic use revealed the reasons why people consult a doctor in Ireland:

- 43% for symptom relief
- 30% for an antibiotic – "If they are told they are going to feel better or have advice on how to feel better when they leave, they will be happy without an antibiotic," clarified Dr Noonan
- 13% to clarify the diagnosis
- 13% to obtain a certificate for employment/school leave purposes

Almost 60% of patients who leave the surgery without a prescription do not feel that the doctor has been dismissive of their symptoms, although over one in four feels the doctor did not recognise the severity of their symptoms.

"Better public education reduces the presentation to the GP," said Dr Noonan. "Patients who understand the role of antibiotics are less likely to consult for an upper respiratory tract infection, with 45% trying an over-the-counter treatment first."

In Ireland a local education initiative, established by experts in respiratory tract infections and general practitioners in partnership with Reckitt Benckiser, has created a suite of materials for healthcare professionals. The first phase targeted general practitioners, providing clinical updates and patient materials for use in consultations for upper respiratory tract infections. These were complimented by educational features in the medical press.

"In a previous study I conducted, using a patient information leaflet was shown to shorten consultation time from 11 minutes to 10 minutes," Dr Noonan said. "The patient information leaflets in the Irish local educational initiative were also personalised and signed by the doctor, so it was a type of viral prescription," explained Dr Noonan.

Critical in helping doctors make appropriate symptomatic recommendations was the provision of a summary of all the available products, active ingredients and dosages used for the symptomatic relief of the seven most common viral upper respiratory tract infections.

A second phase provided educational materials aimed at the pharmacy sector.

There is more that needs to be done, said Dr Noonan, such as a patient-targeted campaign, access to rapid testing, timely antibiotic resistance data and feedback of personalised prescribing data. "Incentivising doctors to follow antibiotic guidelines and obtain Continuing Professional Development points would also be a positive approach," she later added.

Figure 1: Antibiotics and sore throat Irish GP education pack. Source: The Respiratory Tract Treatment Forum http://respiratorytract.ie/home.html

RESISTANCE IN AUSTRALIA

New research by the National Prescribing Service (NPS) among family physicians in Australia reveals 55% believe antibiotic resistance is a problem in their community, with 79% saying patients' failure to complete the course contributed to resistance. There is a lack of recognition in primary care, however, regarding where antibiotic resistance is prevalent. "A total of 46% of doctors thought antibiotic resistance was more problematic in hospitals, but evidence shows resistance in the community is equally problematic," said Mr Bell.

The consequences of resistance at an individual level were also not well known, with 43% not sure that antibiotic resistance could last for up to 12 months following a single dose. On the positive side, 90% of doctors discuss symptomatic relief with patients, which is now supplemented by a new pharmacy programme that reinforces the role of symptomatic treatment for respiratory tract infections.

This 'Resistance Fighter' toolkit has now been distributed to every community pharmacy in Australia and contains information for pharmacy staff. The in-pharmacy campaign has been enhanced with a patient awareness programme calling on 35,000 Australians to become resistance fighters.

Figure 2: NPS "resistance fighter" materials. Reproduced with permission, National Prescribing Service, NPS antibiotic resistance pharmacy kit, date of production 2012

RESISTANCE IN GERMANY

A multi-pronged approach to tackling antibiotic resistance is being spearheaded in Germany. First, an acknowledgement of its importance has come from the leading public health institution in Germany, the Robert Koch Institute for Public Health, which has created a new national advisory committee on anti-infectives and resistance. Second, a new initiative from the Bertelsmann Foundation called 'Fact-Check Antibiotics', is making available data on antibiotic prescribing rates in children. This has also fuelled a great deal of media coverage to patients, says Prof. Altiner, which was further bolstered by a media campaign on the overuse of antibiotics in livestock during the annual Antibiotic Awareness Day in November, 2012.

Changing behaviour in practice is a key issue. "Doctors fear if they do not provide what the patient wants they will go elsewhere, but we have no data on this," commented Prof. Altiner. A randomised, three-armed, cluster controlled trial is now underway in Germany and is the largest ever trial to encourage doctors to change their antibiotic prescribing for respiratory tract infections. It will measure antibiotic prescribing rates over three successive winters by those who have received communication skills training and among those with training plus the use of point-of-care testing, with usual care as the control.[2]

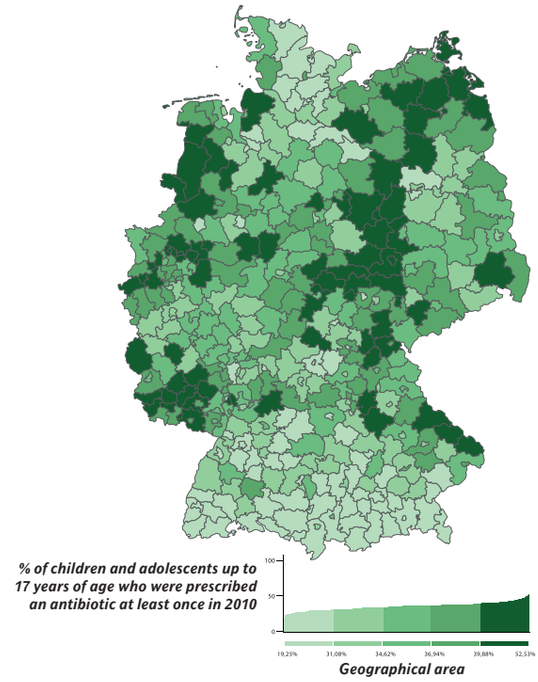

Figure 3: German Fact-Check Antibiotics map of children and adolescents prescribed at least one antibiotic in 2010 by region. Source: Faktencheck Gesundheit Antibiotika. Antibiotics in children: Regional differences https://antibiotika.faktencheck-gesundheit.de/ [Accessed 16th April 2013]

RESISTANCE IN BRAZIL

The implementation of legal restrictions on pharmacies selling antibiotics has been effective. Now antibiotics are only available with a prescription, which is valid for just one month and has to be retained by the pharmacist. This has also impacted on patient behaviour. "Patient pressure is changing. They understand that antibiotics are only for special occasions," explained Prof. Pignatari.

The Brazilian Government's next step is to have doctors add the diagnosis to antibiotic prescriptions. "This allows pharmacists to question antibiotics for pharyngitis, for example. It also means data can be captured and we can create a map of doctors, showing which doctors are prescribing amoxicillin for pharyngitis."

> ***"Patient pressure is changing. They understand that antibiotics are only for special occasions"***
>
> ***Professor Pignatari***

Within practice, however, he pointed out that there was little availability of rapid *Streptococcus* testing for those with sore throat, which could be increasingly used with patients to demonstrate the viral nature of infection.

While Prof. Pignatari believes these measures will work well, in reality "we don't really know if, in 5–10 years time, it will have affected resistance."

RESISTANCE IN ITALY

Italy faces some challenges in countering antibiotic resistance. Consumption of antibiotics in the community did not reduce between 2010 and 2011, with a 14% increase recorded in the hospital setting. However, an antibiotic awareness campaign in the autumn of 2012 aimed to reduce these figures.

Data on prescribing patterns revealed that the greater the deprivation (Southern Italy) and the more children per population, the higher the antibiotic resistance.[3] Said Dr Duerden, presenting on behalf of Dr Sessa: "The more community paediatricians, the less antibiotics used,[3] which could be a very good way of applying pressure."

In addition, antibiotics were responsible for over 1 in 10 of all recorded adverse drug reactions. The future is bleak. Dr Duerden added that, while the Italian National Observatory on Clinical Trials have approved 20 antibiotic trials, these were all on existing products and either confirmed efficacy or safety profiles or examined use in new indications.

RESISTANCE IN THE NETHERLANDS

Antibiotic use in the Netherlands is among the lowest in Europe. Latest prescribing data show 11 DDD/1000 inhabitants/day in the community, with use also stabilising in hospitals at 70 DDD/100 patient days. But this is masking some underlying trends, cautioned Dr van der Velden: "In the community, there is a marked shift from antibiotics for respiratory tract infections to those used for urinary tract infections. In hospital, we are seeing a huge shift towards quinolones, cephalosporins and carbapenems."

In contrast to the Netherlands' low antibiotic use in humans, it ranks among the highest countries for use of antibiotics in animals. Antibiotic use clearly correlates to resistance, with a wealth of data demonstrating this link in the Netherlands. In the hospital setting resistance to augmentin, quinolines and cephalosporins is increasing and "in the veterinary sector resistance is alarmingly high," Dr van der Velden added.

Results from the ARTI-4 randomised, controlled trial of antibiotic use for respiratory tract infection in primary care

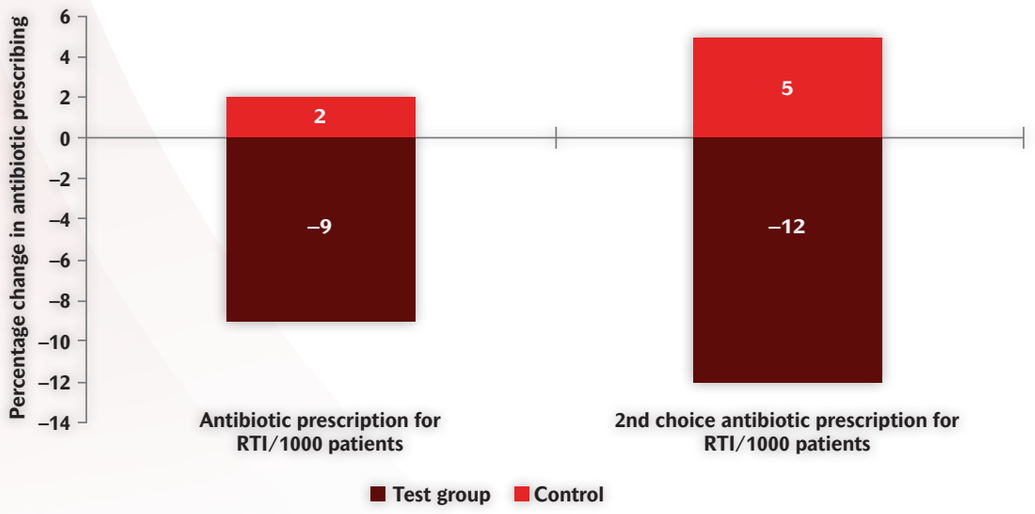

Figure 4: Results from the Dutch trial of antibiotic use for respiratory tract infections in primary care

Preliminary, unpublished results, with the permission of Dr AW van der Velden

found a 9% reduction in antibiotic prescribing among doctors who participated in practice-based educational training compared with a 2% increase in a non-intervention physician group. Results on prescribing of 2nd choice antibiotics were even more prominent.

> ***"In the vetinary sector resistance is alarmingly high"***
>
> ***Dr van der Velden***

This work is now being extended into a web-based intervention trial for doctors focussing on treatment of respiratory tract infections in children. In combination with such interventions we would like to "enhance effective and safe routing of patients with self-limiting diseases to the drug store or pharmacy" and are looking for research and implementation possibilities.

RESISTANCE IN RUSSIA

For Prof. Kozlov, the fundamental aspect of antibiotic resistance is insufficient knowledge. While physician guidelines focused on the right antibiotic selection, "the question is if the antibiotic is needed at all," he said.

Antibiotic resistant rates differ across Europe, but showing the problem at a national level does not influence how doctors prescribe in practice, added Prof. Kozlov. Changing this belief needs to begin early and his team has created a new Russian website that provides education at the medical school level.

Patients also have a low awareness of antibiotic resistance, with half of people believing antibiotics kill viruses. Another issue, advised Prof. Kozlov is that patients often store antibiotics, with up to 11 different antibiotics in the home medicine cabinet, and an average of 2.5 per household.

Switching from talking about what needs to be done to action is essential, he believed. With the upper Chamber of the Russian Parliament now considering the issue and determining what needs to be done, this may act as a prompt for change.

RESISTANCE IN SOUTH AFRICA

South Africa is seizing the mantle of antibiotic stewardship through two new groups. The Global Antibiotic Resistance Partnership (GARP) held its first global forum in 2011, with a South African working group now convened to implement recommendations. This considers the health and economic context, antibiotic supply chain, management in both humans and livestock, and antibiotic use and surveillance activities. A call to action has been endorsed by the South African Minister of Health, said Prof. Essack.

Another group, the South African Antibiotic Stewardship Programme (SAASP) is still in its infancy, she added, but has a number of goals that aim to provide leadership and direction for antibiotic stewardship in both the public and private sectors, via harmonising existing guidelines and creating new guidelines where these are absent, identifying knowledge gaps and engaging with the right stakeholders to advance its strategic imperatives.

A key area is education, said Prof. Essack: "To continue to be registered practitioners, doctors have to undertake CPD, and we want to introduce compulsory CPD on antibiotic stewardship."

Determining what is happening in clinical practice in primary care is also critical with research, undertaken in collaboration with Reckitt Benckiser, examining existing practice related to the treatment of common respiratory tract infections, particularly the use of confirmatory tests, antibiotic treatment choice and adjunctive treatment.

GRIP
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ANTIBIOTIC USE IN RESPIRATORY INFECTIONS: GLOBAL LEARNINGS FOR HEALTHCARE PROFESSIONAL EDUCATION

- Antibiotic resistance may erroneously be being perceived as a hospital problem, rather than a joint hospital/community issue.
- Healthcare professionals may not be aware that antibiotic use can contribute to the presence of resistant bugs for the next 12 months in an individual.
- Up-to-date data of local prescribing rates can identify and counter disparities in prescribing rates from different regions, within practices and between individual prescribers.
- Annotating antibiotic prescriptions with indications can identify physicians prescribing inappropriately and may allow pharmacists the opportunity to engage with doctors on appropriate use.
- Mandatory Continuing Professional Education on antibiotic use should be implemented.
- Patients should be given information on the risks of antibiotics: resistance and adverse effects.
- Interventions designed to reduce antibiotic prescribing, even in countries with low rates, often show a positive effect.
- Incentivising doctors, pharmacists and allied healthcare professionals to undertake antibiotic education or follow guidelines could be of merit.

RESISTANCE IN THAILAND

Antibiotics top the value league of drugs imported into Thailand, said guest presenter Group Captain Jungrak Phromchairak, Department of Otorhinolaryngology Bhumibol Adulyadej Hospital, Royal Thai Air Force, Bangkok, Thailand. In total, antibiotics account for 20% of all drug costs, and over half of all adverse drug reactions.

Antibiotic resistance has been examined in a number of studies.[4–6] National surveillance data showed rates of penicillin resistance in ***Streptococcus pneumoniae*** were constantly high, ranging from 42.4% in 2000 to 47.7% in 2005.[4]

> ***"We want to see what patients do once they get their prescription"***
>
> ***Group Captain Jungrak Phromchairak***

In terms of sore throat, while physicians are aware of antibiotic resistance, "it is difficult to separate viral from bacterial infections. Strep throat is seen in 7.9% of throat swab cultures," said Group Captain Jungrak Phromchairak. The potential for serious sequelae also raises concerns, he added, particularly among children.

Understanding the patient perspective is also important. Research was initiated to unravel the reasons why patients do not complete their antibiotic course. "We want to see what patients do once they get their prescription," added Group Captain Jungrak Phromchairak.

RESISTANCE IN THE UNITED KINGDOM

There has been a renewed focus on antibiotic resistance in the UK, with the Chief Medical Officer (CMO) recently stating that it was an "apocalyptic threat". The CMO also recommended the issue be put on the Government's risk register. This puts it, said Dr Duerden, "in the same context as a terrorist attack".

> ***"The problem is that GPs in the same practice have variability in antibiotic prescribing, and patients know it"***
>
> ***Dr Duerden***

To tackle the problem, the UK's Royal College of Physicians has launched a new website, called TARGET, with a range of tools for doctors to use in practice, but there remains an issue of improving doctor's awareness. "The problem is that GPs in the same practice have variability in antibiotic prescribing, and patients know it," he added, with patterns of antibiotic use varying in different parts of the country.

TARGETTING ANTIBIOTIC USE

Without concerted action there will be a crisis of care and a reversal of the medical advances made in the latter half of the 20th century. Dr Duerden warned that common health interventions could be adversely affected: "We won't be able to treat cancer as chemotherapy will be too dangerous and people will die. We won't be able to do neonatal surgery or hip replacement operations."

Dr van der Velden pointed out that the consequences already exist now. "Infection with resistant bugs leads to more severe disease, longer duration of illness, higher risk of complications, hospitalisation, death and higher costs."

Awareness, policy and mechanisms to address antibiotic resistance differ markedly between countries. A framework is needed to allow each country to work within defined parameters that can be localised to meet specific needs. Respiratory tract infections are one of the leading conditions where antibiotics are used inappropriately. As such, respiratory tract infections will be the focus for GRIP, with sore throat as the pilot condition highlighted within framework discussions.

> ***"Infection with resistant bugs leads to more severe disease, longer duration of illness, higher risk of complications, hospitalisation, death and higher costs"***
>
> ***Dr van der Velden***

It was agreed that a respiratory tract infection framework must encompass several distinct areas, all of which advance an underlying public health proposition (see Box):

AREAS FOR INCLUSION IN A RESPIRATORY TRACT INFECTIONS FRAMEWORK

- Policy on antibiotic resistance that promotes prudent antibiotic use and encourages symptomatic relief of respiratory tract infections.
- Prevention of resistance by providing guidelines when antibiotics are appropriate to use.
- Prescriber guidance on actions to take and how to communicate with patients.
- Pharmacists' role in educating patients on symptomatic relief and when to consult the doctor.
- Patient participation to encourage empowerment and appropriate symptomatic management.

CREATING A POLICY

Policy needs to be driven by the requirement to create an environment where antibiotic use for respiratory tract infections is *not* the norm. To this end, commitment from local government is required to put in place disincentives to antibiotic use alongside guidance that encourages and promotes self-management by symptomatic care as the primary treatment.

FACTORS TO CONSIDER IN MANAGING SORE THROAT

- The evidence base for treatment options for sore throat, including non-drug options.
- Patients' discomfort, treatment, desires (e.g. rapid relief) and worries. A range of formats to suit individual preference, such as oral analgesics, local analgesics, lozenges, sprays, gargles. Often the preference is driven by culture and drug availability in each country.
- Adopting a flexible approach to suggested treatments, within the confines of the self-limiting nature of sore throat, to find the one that best meets individual needs.

Working with national authorities to encourage their commitment is a challenge as there is a diversity of needs between countries. Prof. Kozlov commented that an evidence-based approach facilitated partnership, while Prof. Essack proposed working with leading figures in antibiotic resistance from national societies to help leverage discussions.

Guidance by means of a policy brief to secure buy-in from decision makers at a country level was also suggested by Prof. Essack. This could be supplemented by materials for use in clinical practice that promote a non-antibiotic, pro-symptomatic relief approach.

A further issue lies in cascading engagement from national societies down to those in primary care who are prescribing or selling antibiotics, said Dr van der Velden. In many developing countries, such as those in Africa, data may not exist for all respiratory tract infections, while even in developed countries, such as Ireland, there are a dearth of reliable, updated antibiotic resistance data. "Most developing countries have standard treatment guidelines and essential drugs lists mooted by the World Health Organization but mandatory only in the public health sector," pointed out Prof. Essack.

As part of the framework, a summary of the evidence of the effects of respiratory tract infection is required, with sore throat the initial respiratory tract infection of focus. Taking this condition as the pilot, Prof. Altiner said evidence is the first criteria and dismissed recommendations for patients to have honey and lemon or hot drinks to ease sore throats. "These are all areas where there is no evidence. A hot drink can induce pain."

> ***"Aspirin is not [safe], ibuprofen is safer and a local treatment is safer than a systemic"***
>
> ***Professor Pignatori***

Prof. Pignatari countered that sore throat was a mild disease with mild pain. What was important was efficacy and determining which drug was safe for the pharmacist to give. "Aspirin is not [safe], ibuprofen is safer and a local treatment is safer than a systemic."

Prof. Altiner added that the challenge lay in the range of drugs and formulations available. He suggested that therapeutic approaches used for other conditions, such as hypertension, should be adopted. "There are a lot of drugs, so try different ones. It's trial and error for the patient."

In terms of a first-line recommendation for sore throat, Dr Duerden believed individual preference was key. Dr Noonan added that doctors needed information on what each product contained in order to be able to guide a discussion on individual preference. She added that guidance was also needed for doctors on symptomatic relief recommendations for pregnant women and children under the age of six years.

PREVENTING RESISTANCE

Preventing resistance requires antibiotics to be used only when necessary. While many antibiotic campaigns focus on differentiating between infections of bacterial and viral origin, Prof. Altiner was unconvinced this was the right approach. "It's not taking the patient seriously to say it's just a virus. Also, it's not true to suggest that only bacteria cause problems as there are many that don't."

Dr van der Velden added that the policy in the Netherlands was to manage illness based on the seriousness of the infection, rather than on the basis of viral or bacterial origin.

> ***"It's not taking the patient seriously to say it's just a virus"***
>
> ***Professor Altiner***

Prof. Altiner concurred that the healthcare professional should focus on excluding the risk of serious infection. Dr Duerden pointed out that it often did not matter if the infection was bacterial in nature, as "people will get better without treatment."

The panel agreed that the key to preventing resistance when treating respiratory tract infections was to reserve antibiotic use for serious bacterial infections and for patients with increased risk of complications. Determining what is a serious infection required

FACTORS TO CONSIDER IN PREVENTING RESISTANCE

- Reserve antibiotic use for serious infections. Determine the risk of serious infection by identifying and excluding red flag signs and symptoms.
- Be alert to those patients at increased risk of complications of a respiratory infection, e.g. people who are immunocompromised, those with HIV, frail patients, young children, patients with relevant co-morbidities.
- Testing for bacterial infections is not a necessity, but can have merit in some cultural settings as a means of guiding doctors' prescribing behavior and facilitating discussion about non-antibiotic treatment.
- Provide patients with guidance on when to return for further investigation to identify secondary infections or deteriorating infections.

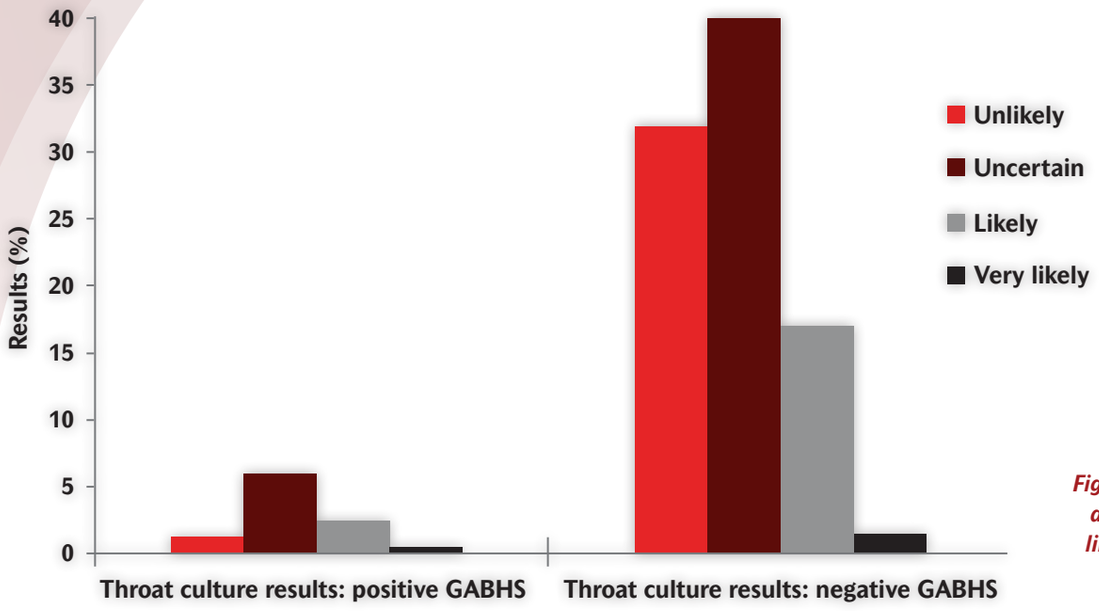

Figure 5: Investigator assessment of Strep likelihood vs culture tests, results from two studies[8]

further consideration, however. For example, emerging data show 46% of doctors cannot accurately predict the cause of a sore throat based on a physical examination.[8]

In sore throat, the Centor criteria provide an immediate gauge of the likelihood of the risk of Group A beta-haemolytic *Streptococcus*, or Strep throat infection, which can have serious complications, but the accuracy of the result was not perfect. Dr Duerden pointed out that the risk of serious consequences was much reduced in the 30 years since the Centor criteria had been introduced.

Opinions were divided as to whether modified Centor criteria taking into account age under 15 years and over 45 years would be more useful in aiding treatment of a potential Strep throat. In addition, certain other patient groups at increased risk of infection should be considered, such as the immunocompromised, those with HIV, those who have underlying disease or specific local populations, e.g. Aboriginal or Torres Strait Islanders in Australia. Dr Duerden advocated that healthcare professionals should be alert for frail patients, who often have underlying disease.

Using the Centor criteria in conjunction with a Strep test would be of value. New research shows that of those cases confirmed with culture as Group A ***Streptococcus***, physicians correctly identified 27% (11/40) of cases. Physicians correctly believed Group A ***Streptococcus*** was unlikely in 32% (133/401) of all cases and a further 18% (74/401) of all cases were diagnosed incorrectly as likely or very likely due to Group A ***Streptococcus***. For 46% (183/401) of cases, physicians were uncertain whether Group A ***Streptococcus*** was the cause.[8] It was recommended that testing should only be undertaken where a positive response would change management, but Dr Pignatari added that, in countries where antibiotic prescribing rates are high, testing can be instrumental in dissuading doctors from prescribing.

Providing guidance on the normal duration of the various respiratory tract infections and offering alerts on worsening and red flag symptoms was also recommended, to ensure concerns around secondary infections could be addressed. Other factors to consider were frequency of infection, criteria for tonsillectomy and current epidemics.

CONSISTENT APPROACH TO MANAGEMENT

Helping prescribers, pharmacists and patients adopt a consistent approach to managing respiratory tract infections was recommended. These should broadly divide into four areas:

- Assessment of condition
- Determining the seriousness of the condition

FACTORS TO CONSIDER IN MANAGING RESPIRATORY TRACT INFECTIONS

- Take patient concerns seriously and treat with respect in an empathetic, understanding manner.
- Acknowledge the primary symptoms, likely course and duration of the infection.
- Work in partnership to create an individualised self-management plan.
- Make patients aware of the normal duration of conditions and advise on red flag symptoms and when to re-consult.
- Identify patient's preferences and recommend symptomatic treatment that meets these.
- Educate on antibiotic resistance and what it can mean to patients at a personal level and their family members.

- Communicating the correct and helpful messages
- If not serious, then knowledge on how to manage through symptomatic relief and when to return for further investigation or alternative treatment.

Assessment

For prescribers, it is important to ensure that the condition is not trivialised and that a real interest is taken. "This needs to be mindful of cultural and personal diversity," reminded Prof. Essack.

Patients' primary symptomatic concern should be taken into account, such as throat pain, difficulty in swallowing and throat swelling in those with sore throats. Determining what action the patient has already taken and what they expect from a consultation is important in uncovering whether the desire for an antibiotic is the real driver. Research has shown that the primary concern for patients with sore throats is to establish the cause, receive pain relief and obtain information on the course of the condition. Hopes for an antibiotic ranked 11th out of 13 reasons.[7] Dr Noonan added that Irish research had found that less than a third of patients consulted for an antibiotic.

Identifying the main reason for consultation can help open up a discussion on whether antibiotics are appropriate, with prescribers referring/deferring to the pharmacist for symptomatic relief and advising patients to return if symptoms worsen or red flags appear.

For pharmacy staff the assessment should be similar, but less clinically focused. Their core role is to advise patients on symptomatic relief, that antibiotics are often not required and to suggest a course of action, including when or if to see the doctor.

For all healthcare professionals, there is a need for effective communications to achieve a balance in being informative, effective and empathetic.

Severity

Many respiratory tract infections are self-limiting in nature. Not only can this trivialise complaints, but it also undermines the key issue of deciding whether infection is severe. Therefore, a more in-depth assessment of symptoms, sometimes in combination with physical examination or testing, is required to eliminate the risk of serious infections.

> ***"Liability and litigation are unfortunate drivers; until we have better ways of being sure something is not serious we will continue to see antibiotics being used"***
>
> ***Dr Noonan***

Dr Noonan pointed out that the fear of missing serious infection was often a reason for antibiotic use. "Liability and litigation are unfortunate drivers; until we have better ways of being sure something is not serious we will continue to see antibiotics being used," she said.

Furthermore, antibiotics are safe and cheap drugs with relatively low direct harm, which patients like to use, and therefore a prescription is easily given, Dr van der Velden added.

Awareness of red flag symptoms and normal duration of illness should also be taken into account.

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Knowledge

Communicating to patients effectively on how to manage a non-serious respiratory tract infection without an antibiotic requires skill. Effective communication skills are needed to help to promote a partnership approach between practitioner and patient, rather than a paternalistic, hierarchical relationship.

Encouraging self-management should be the focus of consultations, with both the patient and healthcare professional negotiating and agreeing on a treatment plan and discussing suitable symptomatic relief options.

Using a personalised patient leaflet during the consultation can be a valuable tool as it allows a dialogue around antibiotic expectations, establishes symptomatic treatment preferences and provides an advocacy opportunity for antibiotic stewardship. Advising patients that a condition such as sore throat can be treated with analgesics with little risk of serious problems also helps reinforce a self-management strategy.

Raising awareness of antibiotic resistance as a public health issue can also be covered. Patients oblivious to the impact of resistance on other people to be treated in the future, or that, by taking an antibiotic now, the likelihood of being infected themselves with resistant bugs is increased for up to a year.

For pharmacy staff and nurses it is important to match patient expectations. For example, in the pharmacy, patients are already choosing a self-management option, but they may need advice on suitable formulations to meet individual preferences and how to use them, as well as what course of action to follow. Where patient leaflets are used, these should be the same as those used by the doctor.

PATIENT PARTICIPATION

Tools to encourage patient participation in non-antibiotic strategies for respiratory tract infections would be valuable for healthcare professionals. These should be consistent for use across all healthcare disciplines; Dr van der Velden proposed that these should encompass all common respiratory tract infections, rather than having different tools and materials for each condition.

Educating healthcare professionals must be complemented by patient education. Manufacturers could play a role in providing funding for resources to meet healthcare professional and patient needs.

Underpinning everything, advised Prof. Oxford, was "the need for political action. This is the crux."

A framework that brings all of these elements together will be the focus of future GRIP activities to help countries meet the challenge of antibiotic resistance.

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