



# Antimicrobial Stewardship in Hospitals and Communities:

A Pharmacy Perspective  
Abu Dhabi, September 2019

Report on the Workshop Preceding  
the 2019 FIP World Congress

  
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**On the 22<sup>nd</sup> September 2019, the first Antimicrobial Stewardship (AMS) Workshop was held as part of the 79<sup>th</sup> FIP World Congress of Pharmacy and Pharmaceutical Sciences in Abu Dhabi.**

Over 130 hospital and community pharmacists, academics, students and technicians from around the world came together for a workshop to discuss the establishment and/or improvement of stewardship services in both the hospital and community setting.



# Implementing the Global Action Plan on AMR: The Leadership Role of the Pharmacist



**Prof**  
**Sabiha Essack**

UNIVERSITY OF KWAZULU-  
NATAL, SOUTH AFRICA

Opening the workshop, Prof Sabiha Essack framed the problem of antimicrobial resistance (AMR), explaining that by using antibiotics, selection pressure is applied for mutations conferring antibiotic resistance that allow bacteria to survive and thrive. There is resistance to every single antibiotic currently in clinical use, including the new combination therapies. Indeed some bacteria have become pan-resistant. These are collectively called the ESKAPE pathogens and pose a significant threat to human health.

Prof Essack presented data from the World Bank that estimates that by 2050, 28 million people will fall into poverty because of AMR, and healthcare costs will increase by up to US\$1 trillion. It is clear that the impact of AMR is going to be felt globally and will have a specific impact on many of the Sustainable Development Goals, specifically those relating to health, agriculture, animals, the environment and food.

Although the WHO has been working on AMR as far back as 1998, it became a specific focus in 2011, when the six point AMR policy package was launched, explained Prof Essack. That was followed by the global surveillance report which basically showed that every single WHO region has a problem with AMR and a situational analysis showed that a substantial number of countries are not properly equipped to adequately deal with AMR.

In 2015, the Global Action Plan was created by the tripartite alliance of the WHO, the Food and

Agriculture Organisation of the United Nations (FAO) and the World Organisation for Animal Health (OIE). Prof Essack went on to explain that the greatest achievement of the Global Action Plan was when it was endorsed at the United Nations in 2016 as part of a political declaration on AMR, where all the heads of state agreed to create national action plans based on the Global Action Plan.

*There is resistance to every single antibiotic currently in clinical use, even some of the very new combination therapies that have recently been introduced.*



**Prof Sabiha Essack**

Outlining the five strategic objectives of the Global Action Plan on AMR (Box 1), Prof Essack emphasised how pharmacists can actually take the leadership in each of these objectives. The pharmacist is either the first point or the last point of contact with the healthcare system, and as such, is ideally placed to create awareness

## **BOX 1: Strategic objectives of the Global Action Plan on AMR**

- 1.** Improving awareness and understanding of AMR
- 2.** Strengthening knowledge through surveillance and research
- 3.** Reducing the incidence of infection through effective hygiene and infection prevention and control
- 4.** Optimizing the use of antimicrobial medicines in human and animal health
- 5.** Ensuring sustainable investment through research and development



and educate both the prescribers and patients on appropriate use. The social behavioural aspects of AMR containment and stewardship are really quite a challenge. “For us as pharmacists and as prescribers in some country contexts as well as dispensers, we need a solid education on antimicrobial stewardship and we also need the patient to be aware of the importance of taking antibiotics only when they are required”, said Prof Essack.

The Pentagonal Framework to address AMR from the Global Respiratory Infection Partnership (GRIP) speaks to 5 P’s - policy, prescribers, pharmacists, patients and prevention of AMR (Figure 1). Prof Essack explained that the pharmacist is the critical person in this framework as s/he has oversight of the prescription decision made by the doctor, the ability to educate and effect patient behaviour change, to implement and generate evidence for policies and to prevent resistance by impacting on prescribers, patients and policy.

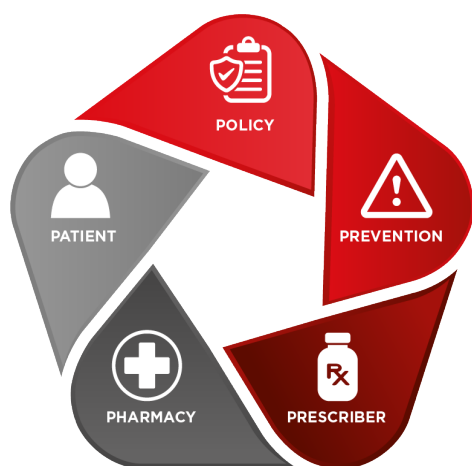


Figure 1: GRIP Pentagonal Framework for Change

The community pharmacist is well-placed to speak about the prevention of AMR through hygiene, sanitation and vaccinations to reduce the risk of infection and therefore reduce the need for antibiotics. Prof Essack went on to explain that pharmacists have an important role to play in infection prevention and control (IPC). Although this is often seen as the domain of the infectious diseases specialist, it is

important that pharmacists participate in the IPC committee, to ensure the availability of cleaning and disinfecting agents and personal protective equipment (PPE), establish pharmacy quality control (QC) programmes to prevent contamination of pharmaceutical products, and recommend proper labelling, dating and storage of sterile products.

*The impact of antimicrobial resistance is going to be felt globally.*



### Prof Sabiha Essack

Prof Essack went on to emphasise the need for pharmacy leadership in ensuring optimal antimicrobial use via the 8D framework of AMS (Figure 2), an extension of the well-known 4R framework of right dose, right time, right antibiotic, right duration.

Prof Essack concluded that the pharmacist has immense capacity to contribute to the stewardship and conservation of dwindling antimicrobial resources and finished with a strong call to action, that “pharmacists should actively mobilize and entrench their leadership roles in the prevention and containment of AMR both individually and collectively through pharmacy associations, organizations and regulatory bodies in both policy and practice domains”.

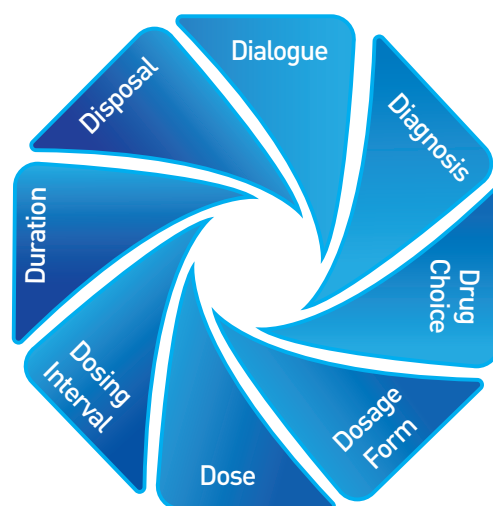


Figure 2: 8D Framework for Antimicrobial Stewardship

# Panel discussion: Translating FIP's policy statement on AMR



**Prof**  
**Philip Howard**

BRITISH SOCIETY  
OF ANTIMICROBIAL  
CHEMOTHERAPY AND  
UNIVERSITY OF LEEDS, UK

Opening the panel discussion, Prof Philip Howard described AMR as a global challenge and stated that pharmacy plays a major role in influencing this agenda. The FIP Policy Statement on AMR was first written in 2008 then updated in 2017, and predominantly comprises direction for governments in order to mobilize ministries to address AMR (Box 2). However the policy statements can also be applied to ensure all key stakeholders, including pharmacists, are involved in the development of National Action Plans to drive global action against AMR.



## **BOX 2: FIP statement of policy control of AMR – guidance for pharmacists:**

- As Governments, but at an individual level
  - Follow laws & regulations for humans and animals
  - Source antimicrobials from a reliable source
  - Be involved in the activities including education, immunisation, returns
- Actively discourage inappropriate antimicrobial use
- Participating in microbiology informed therapy or diagnostic stewardship
- Encourage diagnostic tools & evidence to inform empiric use
- Correct (narrowest spectrum), drug, dose, duration is prescribed
- Counselling & written advice to improve adherence
- Recommend non-antibiotics for viral or self-limiting conditions
- Provide up to date information to prescribers, including consumption
- Be actively involved in IPC, hygiene, sanitation in communities & health care settings
- Discourage self-medication or keeping left-overs for future use. Disposal.
- Research: biomedical, clinical, socio-behavioural, policy, diagnostics & discovery



### South Africa

MR ANDY GRAY  
ACADEMIC PHARMACIST

**Providing some information on the situation in South Africa, Mr Andy Gray focused on a couple of issues faced when implementing FIP's policy statement on AMR. One particular problem is the lack of information on antibiotic use.**

For example in November last year, the first national report on antimicrobial consumption was issued. Mr Gray explained that "frustratingly this reported antimicrobial use in IQVIA standard units, a unit that is difficult to compare. Even once this data is converted to comparable units, there is reason to believe that the available data may not be accurate." Mr Gray countered that there is very high use of sulphonamides and cephalosporins, but information on the use of colistin is lacking because it is an exceptional, unregistered medicine that has to be imported directly for individual patients.

Another area of concern in South Africa is the dispensing of antibiotics without prescription. In South Africa it is believed that pharmacists generally do not issue antimicrobials without prescription but there is a lack of strong data to support this. On this basis, Mr Gray warned that that inappropriate antibiotic dispensing behaviour may be far more prevalent than they would like to believe.

*I worry that inappropriate antibiotic dispensing behaviour is far more prevalent than we'd like to believe.*

”

**Andy Gray**

Mr Andy Gray ended with one cautionary note, "we all can recite 'the right drug to the right patient in the right dose at the right time for the right duration', but do we do it? I'm afraid we don't". Far too many prescriptions are getting past the pharmacist - the inappropriate prescription of an antibiotic followed by supply, without intervention is common. This is something pharmacists should look at and ask why we are still not fulfilling our role in addressing AMR.

*We all can recite - the right drug to the right patient in the right dose at the right time for the right duration - but do we do it? I'm afraid we don't.*

”

**Andy Gray**



## Australia

MR JOHN BELL  
COMMUNITY PHARMACIST

**Mr John Bell opened by reflecting that the FIP statement on AMR is comprehensive and extremely broad in order to cover all aspects relevant to all countries and all pharmacists. This means that it isn't feasible for every country to implement every aspect of the guideline, but it does enable everyone in each individual country to take the specific parts that are most relevant.**

Setting some context on the situation in Australia, Mr Bell explained that despite having a good regulatory framework, for a number of years Australia has been prescribing and dispensing double the number of antibiotics than Scandinavia, without a measurable additional benefit for patients. "To address this, in 2012, the Australian Government funded an independent body called the National Prescribing Service to undertake a five year awareness programme for healthcare practitioners that has been quite successful", said Mr Bell.

*For a number of years, we were prescribing and dispensing double the number of antibiotics than were prescribed in Scandinavia and for no measurable additional benefit to our patients. So we've got a long way to go.*

**John Bell**

What the FIP statement has done in Australia is to reaffirm the pharmacists' important role in addressing AMR and raise awareness of the issue. In Australia, Mr Bell explained the Therapeutic Guidelines organisation recently published a summary on the use of antibiotics for common infections. What is clear is that the need for symptomatic treatment for simple self-limiting infections is sometimes

overlooked. "Certainly in terms of conditions such as acute rhinosinusitis, acute otitis media, acute laryngitis, tonsillitis and acute bronchitis, the recommendations from the Therapeutic Guidelines is that symptomatic treatment is the first choice treatment and sometimes the only necessary treatment", said Mr Bell.

Dialogue is exceptionally important, particularly in community pharmacy, Mr Bell emphasised. In Australia, it is rare that antibiotics are provided without a prescription. The pharmacist can triage and determine very effectively whether patients need antibiotics and should be referred to a doctor. However, it is equally important that the community pharmacist determines whether that patient needs symptomatic treatment, this is a clear role for pharmacists to play.

In summary, Mr Bell concluded that AMS advocacy, policy and practice are things that all pharmacists can be involved in. In Australia, there is still a way to go, "we are still working to rules - the WHO and the FIP statements - but we're heading in the right direction"

*We've still got a way to go, we're still working to rules - the WHO and the FIP statements, - but we're heading in the right direction.*

**John Bell**





## Thailand

DR WIRAT TONGROD  
PHARMACIST

**Giving some perspective on the situation in Thailand, Dr Wirat Tongrod explained that each year nearly 40,000 Thai people die from an antibacterial resistant infection. As a consequence, the Thai government takes this issue extremely seriously and has implemented a 5-year strategic plan to address AMR.**

*Each year nearly 40,000 Thai people die from an antibacterial resistant infection.*



**Dr Wirat Tongrod**

Dr Tongrod went on to explain that the five year plan to tackle AMR contains 6 strategies:

1. AMR surveillance using the One Health approach
2. Regulation of antibiotic distribution
3. Infection prevention and control, and AMS
4. AMR containment and antimicrobial use in agriculture and animals
5. Public awareness on AMR, and appropriate use of antimicrobials
6. Governance mechanisms to implement and sustain AMR actions

AMR-related targets included to reduce deaths from AMR by 50%, reduce the human consumption of antibiotics by 20% and increase public awareness of AMR by 20% within five years. To address the use of antibiotics in agriculture, there is work being done by the Thai government to control the use of the medicines in animal husbandry. In parallel, huge efforts are being made to raise public awareness on the use of antibiotics via many media channels, including traditional printed campaigns and the use of digital, as well as training implemented

across the country. In addition, AMR is included in the pharmacy student curriculum to ensure that future pharmacists continue to address the problem of AMR, Dr Tongrod concluded.

*Goals were set to reduce deaths from AMR by 50%, reduce the human consumption of antibiotics by 20% and increase public awareness of AMR by 20% within in five years.*



**Dr Wirat Tongrod**







## India

MS MANJIRI GHARAT  
PHARMACIST

**India is one of the top consumers of antibiotics in the world, stated Ms Gharat. This is due to three main factors; the irrational prescribing of antibiotics where standard treatment guidelines are not generally followed, the sale of prescription medicines without prescription, and the low level of health literacy meaning that consumers are not aware about the need for the responsible use of antibiotics.**

Reflecting on the overall situation in India, Ms Gharat explained that it is alarming to see that resistance to any new antibiotic is often observed within just a few months.

To tackle the problem of AMR, the Indian Government has taken inspiration from FIP's policy on AMR. In 2015, Schedule H1 was introduced to control the indiscriminate use of antibiotics in India by forcing community pharmacists to keep the record of the antibiotics dispensed. Although a good idea in theory, Ms Gharat warned that the lack of enforcement of this policy means that its effectiveness is hampered.

In parallel, campaigns have been run in order to raise awareness of AMR. For example in 2015 and 2016 the Indian Pharmaceutical Association ran a campaign the Indian Pharmaceutical Association ran a campaign with the slogan "responsible use of antibiotics saves lives". In summary, Ms Gharat concluded that although at government level, there are definitely initiatives being put in place, AMR remains a significant challenge in India.

*The situation is quite alarming...* ”

**Manjiri Gharat**

Another campaign run by the government of India is the Red Line campaign. This means that antibiotic labels carry a bright red line and also feature box stating that these are prescription medicines in order to create awareness among consumers. Although these are important steps taken by the Government of India, the sheer size of the country means that it has not been implemented country-wide, restricting impact amongst pharmacists and consumers.



## Country Perspectives



### Kenya

DR YAAKUB ABDULHAMID  
HOSPITAL CLINICAL PHARMACIST

In 2017 the Kenyan National Action Plan (NAP) was developed in line with the WHO Global Action Plan, explained Dr Abdulhamid. The NAP comprises a coordinated approach between the Ministry of Health and the Ministry of Fisheries, Agriculture and Livestock, to form a technical working group able to form and implement a number of recommendations and guidelines.

A recent survey revealed that 54% of pharmacists and pharmaceutical technicians have dispensed an antibiotic without a prescription. When asked why, 80% responded that it was based on the needs of the patient, revealing a large gap in terms of public awareness.

Consequently a number of public awareness campaigns were implemented in collaboration with the Ministry of Health during the World Pharmacist Day celebrations. In addition, a take back campaign of expired medicines was run to address the incorrect disposal of antibiotics and 12 tonnes of expired medicines were destroyed.

*We did a take back campaign of expired medicines and managed to destroy 12 tonnes of expired medicines across the country.*



**Dr Yaakub Abdulhamid**

Speaking in terms of surveillance and monitoring, a national strategy was developed, and Kenya is working closely with the WHO to determine antimicrobial consumption. Dr Abdulhamid concluded that there are still major challenges to be overcome but important steps forward have already been taken.



# Implementing hospital stewardship in different resource-constrained settings



**Prof  
Debbie Goff**

THE OHIO STATE  
UNIVERSITY WEXNER  
MEDICAL CENTER, USA

Changing the focus to hospital pharmacy, Prof Debbie Goff opened by explaining that there are many faces of global AMS. However, even in countries facing significant barriers, all that is needed are motivated, passionate people and AMS will work.

*I don't care what the barrier is,  
you can find a way around it if  
you want to.*



**Prof Debbie Goff**

Prof Goff went on to emphasise the interconnected nature of the One Health Triad

comprising healthy people, healthy animals and healthy environment. AMR is a global problem, “antimicrobial resistance anywhere prompts antimicrobial resistance everywhere”, said Prof Goff. Therefore we need a cooperative cross-sectional approach to effectively address AMR.

However there are many barriers in both the community and the hospital setting that obstructs the implementation of AMS. This includes aspects such as lack of infectious diseases training, lack of dedicated time, and lack of microbiology data (Box 3). It may be that some of the barriers are overwhelmingly large and complex, but there will be other things in the hospital that can be improved. Prof Goff stated “it is important we don't simply admit defeat and state ‘the problem is so big I don't know where to start. I don't have all the tools’ - everybody can start today and do something better”. For example in hospitals where staffing on wards is inadequate to administer medicines, patients often miss antibiotic doses. Therefore it is


## **BOX 3: Discussion question - What are your current barriers to implementing AMS?**

Summarising the feedback from a group of stakeholders from hospital and community pharmacy, academia and from the pharmaceutical industry, Dalal Hammoudi from Lebanon listed several barriers to implementing AMS, namely a lack of sufficient information systems, financial barriers and a lack of awareness about AMR, despite numerous antibiotic awareness campaigns being run. Next, Aliaksendr Savin from Canada summarised feedback from another mixed group from different practice settings and countries. The barriers to implementing AMS included communication gaps between pharmacists and doctors, patient demand

for antibiotics combined with low health literacy, as well as a lack of guidelines in some countries.

Adding to the debate, Adebola Lawal from Nigeria emphasised the main problem that they face is a lack of antibiotic availability. While Mujahidhussein Valji from Tanzania added that a lack of microbiology data is a key challenge. Rounding out the session, Arlette Rosine Samini Tchaleue, a community pharmacist working in Sweden emphasised that although Sweden is doing well in the implementation of AMS, it is important to ensure that other countries learn from what is working well to effectively tackle AMR on a global scale.





important to customise stewardship according to the hospital environment you work in – in this case it is appropriate to recommend using an antibiotic that has a once daily dosage, as this is more likely to maintain the antibiotic at a therapeutically relevant concentration.

However, what is important to remember is that despite all these barriers, it is possible to enact change. Quoting Steve Jobs, the inventor of the iPhone, Prof Goff stated “The ones who are crazy enough to think that they can change the world are the ones who do.” Relating this to AMS, it is absolutely possible for pharmacists to change the world through stewardship; AMS is a golden opportunity for the pharmacy profession to do something that will change the world.

*Antimicrobial resistance  
anywhere prompts antimicrobial  
resistance everywhere.*



**Prof Debbie Goff**

One particularly prevalent issue is the perceived hierarchy between physicians and pharmacists, meaning that physicians can be reluctant to listen to the pharmacist. The solution here is for the pharmacist to demonstrate that they bring important skills and knowledge that will help the patient. It's a slow process to build and

establish trust but it's eminently possible and it starts by the pharmacist taking that first step and demonstrating that they can provide value to them taking care of their patient. Pharmacy is an evolving role, Prof Goff explained, “We go from dispensing medicines to actually joining patient care rounds as part of multi-disciplinary patient care team”.

*You can't just sit back and go,  
“The problem is so big I don't  
know where to start. I don't have  
all the tools.” Everybody can start  
today and do something better.*



**Prof Debbie Goff**

Although some physicians and surgeons may be quick to see the benefit of working closely with a pharmacist, for others there may be some initial resistance. There may be comments or questions asked when the pharmacist goes to the ward to do AMS; for example the physician asking “why are you looking at my chart?” or the microbiologist questioning “why do you need the culture results?” (Box 4). Oftentimes, Prof Goff reflected that the best way to start breaking down those barriers is to make a personal introduction to the microbiologist/ physician/ nurse and explain your role, as they may not understand why a pharmacist needs this information.

#### **BOX 4: Discussion question - What type of comments have you heard from physicians/ nurses/infection control/microbiologist when you go to the wards to do AMS?**

Reflecting on some of the conversations each member has had with physicians, Salamatu Orakwelu from Nigeria recalled that during a clinical meeting where they were about to give a presentation a doctor asked “I hope you are not coming to tell us how to count drugs”. This gave them the incentive to present information on drug interventions that impressed the

physicians to the extent that they were asked to join the next patient rounds.

Giving perspective on the situation in UAE, Ward Saidawi explained that physicians may challenge when a pharmacist suggests a different course of treatment, stating “it's always been done this way, why are talking about changing it?”

*It doesn't matter what role you have in the hospital; everything we do has the potential to make a difference. You have to be the voice for change.* ”

**Prof Debbie Goff**

Drawing an analogy between cigarettes and AMS, Prof Goff emphasised that it is absolutely possible to use public advocacy to change perceptions. Through public campaigning it was possible to change perception about cigarettes, resulting in a behaviour change with smoking banned in public places. Yet despite a significant number of public awareness campaigns to raise awareness of AMR, somehow the imminent threat posed by AMR is yet to translate to most consumers.

Even in resource-rich countries, there is insufficient resource for the infectious disease team to tackle AMS alone. The solution is to mobilise every pharmacist in the hospital to be part of AMS. One tangible example of how AMS can be put into action is through addressing hangtime – the time elapsed between the written antibiotic order and intravenous administration. It is well known that every hour effective antibiotic therapy in the management of a patient with sepsis is delayed translates to 7.5% increase in mortality. “Implementing a project to reduce hangtime is a quick way to demonstrate your value as a pharmacist and may start the

beginnings of a positive working relationship between physician, nurse and pharmacist to implement AMS”, explained Prof Goff.

*We've got to mobilise people to do stewardship; you lead the ship, bring the others on board and it will work.* ”

**Prof Debbie Goff**

Reflecting on some of the most effective ways to reduce hangtime, Prof Goff revealed that after South African pharmacists assessed hangtime for 32,985 patients, compliance increased from 41.2% pre-intervention to 78.4% post-intervention by regularly updating dashboards to encourage friendly competition between HCPs (Box 5).

Concluding the hospital pharmacy session, Prof Goff emphasised that pharmacists have a very key role improving patient care through AMS. “I hope this workshop has helped to inspire you to realise that it doesn't matter what role you have in the hospital; everything we do has the potential to make a difference. You have to be the voice for change” said Prof Goff, stating that as pharmacists, “we've got to mobilise people to do stewardship; you lead the ship, bring the others on board and it will work”.

#### **BOX 5: Discussion question - What can be done to improve hangtime compliance in hospitals?**

Reflecting on ways to improve hangtime compliance, a hospital pharmacist from Sri Lanka recalled implementing a dashboard to keep track of the time elapsed from the written antibiotic order to actual intravenous administration and publishing this data to encourage friendly competition to see who could reduce their hangtime the furthest.

Bringing insight from Nigeria, Chinenye Ohudugo explained that a common reason for patients missing doses of an IV antibiotic is because there are insufficient physicians available to administer the antibiotic. Therefore, they were able to discuss transferring this responsibility to the nurses to dramatically reduce hangtime.

# Defining the stewardship role for community pharmacy



**Prof Philip Howard**

**BRITISH SOCIETY  
OF ANTIMICROBIAL  
CHEMOTHERAPY AND  
UNIVERSITY OF LEEDS, UK**

Prof Philip Howard, President of the British Society of Antimicrobial Chemotherapy, opened the session by discussing the ongoing problems facing the world around AMR. Prof Howard explained that typically two groups are blamed for AMR: farmers for using antibiotics extensively in animal husbandry and pharmacists because they are perceived to hand out antibiotics carelessly to everyone.

Prof Howard discussed results from countries' self-assessment of their National Action Plan to address AMR. Results showed that 34% of the world had no system at all for monitoring their antimicrobial consumption and only 21% produce data on appropriate prescribing from public and private health. Overall, there is extensive variation in how countries monitor antibiotic use.

Additionally, these results shed light on another problem, the illegal sale of antibiotics worldwide. In 89% of countries it is illegal to sell antibiotics over-the-counter but lack of policies nor strict enforcement means some pharmacies continue to sell antibiotics illegally. Even in Europe, where it is illegal to sell antibiotics without a prescription, 7% are taken without a prescription. In Kenya, one survey found that over 50% of antibiotics are obtained over-the-counter each year. With such a high percentage of antibiotics being obtained illegally or without prescription, this is clearly a significant global problem that needs to be addressed.

Prof Howard went on to explain that at least 80% of antibiotics are supplied by community pharmacies and therefore it is imperative that AMS strategies are implemented, barriers and enablers of stewardship identified, and social and/or behavioural aspects addressed.

*And wherever I go, they blame two groups of antimicrobial resistance. They blame farmers for giving it to all the animals they're breeding and they often blame pharmacists, because they think often community pharmacists are just giving antibiotics out willy-nilly to absolutely everybody.*



**Prof Philip Howard**





## Stewardship Strategies

Outlining the stewardship strategies that can be implemented at a community pharmacy level, participants at the workshop agreed on several initiatives, with further detail contributed from numerous individual attendees (Box 6). Agreed upon initiatives included checking why antibiotics were being prescribed and challenging if there is deviation from guidelines, ensure prescriptions are filled with the correct dosage, patient counselling and safety-netting for sepsis, offering vaccinations, directly observed antibiotic therapy (e.g. DOT), promoting hand and food hygiene, offering general education on good antibiotic use, and initiating an antibiotic amnesty to return unused antibiotics.

## Barriers to Stewardship

Outlining the barriers of stewardship at the community pharmacy level, participants at the workshop unanimously agreed that time is often a barrier with busy pharmacists sometimes being unavailable to participate in AMS. Additional barriers included a lack of incentives (pharmacists are not paid to do AMS), pressure from patients to prescribe or they will go elsewhere, doctors inappropriately recommending antibiotics, financially vulnerable patients unable to pay for a full course of antibiotics, and patients using left-over antibiotics (Box 7). Additionally, internet sales of antibiotics, unavailability and inaccessibility of good antibiotics and unauthorized drug stores dispensing antibiotics are all barriers of stewardship.

## Enablers of Stewardship

Participants at the workshop agreed that enablers of stewardship in community pharmacies included educational campaigns for community pharmacy staff, triage for self-care, access to infection treatment guidelines, accreditation of dispensers, information leaflets for patients, antibiotic prescription dispensing checklist to target intervention and access to medical records (Box 8).

## Social and Behavioural Aspects

Participants outlined the social aspects to be addressed and agreed that these included AMR campaigns at the international, national and local levels as well as community dialogue through training local volunteers to lead discussions on AMS in places such as Bangladesh, and use of social media to share messages (Box 9). Behavioural aspects were grouped under the three categories of the COM-B model for behaviour change; capability, opportunity and motivation (Michie et al, 2011). To ensure capability, education on AMR for all pharmacists is needed, as well as training to diagnose infections. Patient education can provide the opportunity to implement AMS through informing patients about the harms of inappropriate antibiotic use, providing information leaflets and educational materials. Pharmacist education can provide the motivation necessary to stop the illegal sale of over the counter antibiotics or stop recommending antibiotics where not appropriate and instead promote public health interventions to reduce AMR.



### BOX 6: Stewardship strategies that can be implemented at community pharmacy level

Members from Lebanon and Nigeria stated the most important strategy is to educate and counsel patients to ensure they adhere to the prescription. Subsequent follow up with the patient and communication between the pharmacist and the physician is key. They added that typed prescriptions should be utilized as they have less errors. Finally, they noted that public awareness through campaigns on TV and in pharmacies with proper use of antibiotics for patients could help increase compliance and decrease resistance.

Adding to the conversation, Sandra Carey from Canada emphasised that if community pharmacists are not having effective conversations with patients then AMS will never be effective. John Bell from Australia added that while talking to the patient is important, it

is important to recognise patients fall into two groups; those who already have an antibiotic prescription and those who simply want to alleviate symptoms. “Those who do not have a prescription should be given support, advice and symptomatic relief, while those with a prescription should be shown all their options, which doesn’t always mean an antibiotic”, said Mr Bell.

*We can put in place all of the programmes that you want, but if we’re not triaging the OTC, we’re not talking to patients that are coming in to get prescriptions, and we’re not having those conversations, then all of this is for naught.*

**Sandra Kerry, Canada**

### BOX 7: Barriers of stewardship at community pharmacy level & how they can be overcome

Feedback from participants initially identified barriers predominantly from patients and physicians. Patient barriers included non-adherence and patient preference in terms of antibiotic selection. Physician barriers included a lack of education in infectious disease, a “profit-making” mind-set, pressure to prescribe certain (often newer) antibiotics and a lack of guidelines at a national level to help and guide the physician.

Representatives from Oman made several suggestions on how to overcome these barriers, such as introducing the ICD-10 codes on prescriptions in more countries so that pharmacists can see the code linked to the diagnosis and can assess if antibiotics are appropriate or not. Furthermore, it was

suggested to monitor or watch the patient over 24-48 hours to decide if they actually need the antibiotic or not and dispense the antibiotic for the exact duration of therapy at that point, if necessary.

*We’re one of the few health professionals where a patient can walk in and take up potentially a substantial amount of our time and walk out with sometimes not having purchased anything... offering symptomatic relief is one way to incentivise community pharmacy to implement AMS.*

**Pharmacist, Nigeria**

### BOX 8: Enablers of stewardship in community pharmacy

Representatives from Singapore, Nigeria, Zimbabwe, Mongolia, and Papua New Guinea identified enablers in four broad groups: policy makers, regulators, non-government organisations, and educators.

They suggested policy makers could enact health, insurance, and education systems to govern guidelines. Regulators could introduce prescribing and dispensing guidelines and enforce adherence by regularly inspecting pharmacies and only renewing licenses when guidelines are consistently followed. They suggested NGOs could provide patient information leaflets and start conversations when the patient steps into the office. Educators could instil the importance of antibiotic surveillance in training programs and offer continuing education for pharmacists.

Additional groups suggested that pharmacists team up with the media to write publications and raise more awareness around AMS. Where this is not possible, pharmacists need to look from within to gain trust with the community and use their knowledge to educate and spread the word.

*Enablers are media and publications... We should use this to raise more and more awareness regarding antimicrobial stewardship.* ”

**Pharmacist, Lebanon**

*We believe that pharmacists should be educators. It all starts with you, the pharmacist.* ”

**Pharmacist, Iraq**

### BOX 9: Social (local community changes) and behavioural aspects that should be addressed to advance stewardship

Participants from Nigeria suggested the main problem that needs to be addressed is the ignorance of people who use an antibiotic when they do not need to. “We, as the pharmacist, need to ensure we are properly educating them”, they said. Additionally, it was stated that there is a need to enforce a system of regulations and guidelines.

A member from Cameroon discussed that influencing social behaviours can take either a punitive or a non-punitive approach and that both are needed to address different types of pharmacies and pharmacists, while taking care to strike a balance between the need and access to antibiotics.

*People do not know what is good for them and as professionals, especially pharmacists, it is our duty to educate them and enlighten them on the proper use of antibiotics to instil confidence and trust in the profession.* ”

**Pharmacist, Nigeria**

*We also talked about creating a balance. It's not just setting policies, but also to get a balance between the need and access to antibiotics.* ”

**Pharmacist, Cameroon**



## Closing remarks/ Final Steps



**Prof**  
**Philip Howard**

**BRITISH SOCIETY  
OF ANTIMICROBIAL  
CHEMOTHERAPY AND  
UNIVERSITY OF LEEDS, UK**

Prof Philip Howard closed out the entire day by reflecting that sign-up for this workshop exceeded capacity by 300%, revealing a clear desire for appropriate AMS in both the hospital and community pharmacy. In a final discussion session with participants, suggestions for next steps could be grouped into three broad categories. There was a large number of requests for additional resources and training; an online resource centre guiding the user to existing country-specific resources, mentorship and collaboration with physicians on both a national and international level, basic undergraduate-type training (i.e. on bacteria and antibiotics), and train the trainer sessions for both hospital and community pharmacy.

There were a couple of suggestions for additional research, namely to collect robust data on antibiotics and how they are dispensed in each country and to forecast the economic impact of the implementation of different AMS strategies. Lastly, there were a couple of suggestions for future FIP meetings, including a request to repeat this workshop at every FIP conference and to form a FIP subcommittee on AMS.



*How do we start having conversations that allow us, with the regulators, and the people who fund the system to drive away from payment for prescriptions and towards payment for good care?*

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**Prof Philip Howard**

### References

Michie, S., van Stralen, M. M., & West, R. (2011). The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implementation science*. Apr 23;6:42. doi: 10.1186/1748-5908-6-42

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