

ipj

INTERNATIONAL PHARMACY JOURNAL

REDUCING THE GLOBAL BURDEN OF DISEASE

Natural disasters



Preparation and response

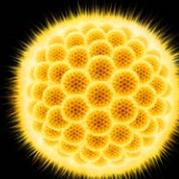


FIP CONGRESS 2016

Reports from Buenos Aires



YELLOW FEVER



Largest ever vaccination campaign

INTERNATIONAL PHARMACY JOURNAL

The *International Pharmacy Journal* is the official journal of the International Pharmaceutical Federation (FIP) and began in 1912 as the *Bulletin de la Fédération Internationale Pharmaceutique*. Subscription is a benefit to all members — individual or otherwise — of FIP, with readership spanning 132 countries. The *IPJ* is published electronically, three times a year. ISSN 2213-7890

SCOPE

The *IPJ* keeps its readership in touch with pharmacy around the world. The aim is to communicate developments and work in pharmaceutical science, practice and education & workforce in order to contribute to the mission of FIP: to improve global health by advancing pharmacy practice and science to enable better discovery, development, access to and safe use of appropriate, cost-effective, quality medicines worldwide. The *IPJ* reports on pharmacy matters affecting the global community or specific regions or countries, offering in-depth coverage, summaries and unique content. The *IPJ* strives to inform and inspire. It updates readers on FIP's position and work on important pharmacy issues as well as on relevant activities of FIP member organisations.

EDITORIAL POLICY

All articles published reflect the views of the authors and are not necessarily those of FIP. The use of specific names of companies or products does not imply endorsement or recommendation by FIP. Although all reasonable efforts have been made to verify information, the publisher accepts no responsibility for omissions or inaccuracies. In no event shall FIP be liable for any damages arising as a result of interpretation and use of published information.

COPYRIGHT & PERMISSIONS

Copyright ©2015 by the International Pharmaceutical Federation, The Hague, the Netherlands. All reproduction rights, including photocopying reserved. FIP members may download or print out one hard copy of the *IPJ* for personal non-commercial use or study only. Permission to copy articles must be obtained from the Editorial Office.

EDITORS

Lowell Anderson, Lin-Nam Wang

EDITORIAL ADVISORY PANEL

Luc Besançon (Netherlands), Kaushik Desai (India), Charles Alan Lyles (USA), Jose Manuel Martinez Sesmero (Spain)

EDITORIAL OFFICE

Andries Bickerweg 5, 2517 JP The Hague, the Netherlands

T +31 70 302 1987

F +31 70 302 1999

E publications@fip.org

ART DIRECTION/LAYOUT

NoSuchCompany, Rotterdam, The Netherlands

GUIDANCE FOR CONTRIBUTORS

Contact the Editorial Office.

ADVERTISEMENTS

Enquiries to the Editorial Office.



NO BETTER TIME TO ACT THAN **NOW**

We are all touched — personally and professionally — by the effects of ill-health. It places a colossal burden on our health systems, our economies, our environment and our societies.

Health is a hot topic at the global level. Last month, the UN General Assembly committed to combatting antimicrobial resistance ([p6](#)). And the High-Level Commission on Health Employment and Economic Growth delivered its report to Secretary-General Ban Ki-Moon calling for investments in health workforce ([p7](#)). FIP is working on these same issues. An FIP-organised stakeholders roundtable recently discussed antimicrobial resistance ([p20](#)) and next month the FIP Global Conference on Pharmacy and Pharmaceutical Sciences Education will produce a new plan for the pharmacy workforce.

Reducing the global burden of disease requires more than policies. It needs action. This issue of the *IPJ* is packed with reports from FIP's 76th World Congress of Pharmacy and Pharmaceutical Sciences showing how pharmaceutical scientists and pharmacist practitioners around the world are leading by taking action. Scientists are seeking to reduce the burden of dementia ([p28](#)). They are searching for better analgesics ([p30](#)). Pharmacist practitioners are considering the feasibility of recycling medicines ([p42](#)). They are expanding their roles in rapid diagnostic testing ([p36](#)). They are going into slums to tackle “forgotten diseases” ([p40](#)).

At the annual FIP congress, practitioners, scientists and educators gather to learn and share health care solutions. *IPJ* reports on these sessions to further disseminate this information. This year we also asked individual participants for their thoughts on what is needed to help our profession become a force in addressing the needs of our communities. Their ideas present an interesting snapshot ([p26](#)).

It appears that progress is being made in reducing the burden of disease. Congress speaker Carina Vetye, of Pharmacists Without Borders Germany, said that she does her job because she loves life. At the congress's plenary session Tana Wuliji, of the World Health Organization, observed “there is no better time to act than now”.

We hope this *IPJ* will inspire you to reflect on your own love for life and lives — and on the need to act.

In this issue

News round-up	4
Around the globe	10
Largest ever emergency yellow fever vaccination campaign completed	12
Interview Ana Martinez: Opening the way for pharmacists in clinical trials	16
FIP Roundtable Improving vaccination access, trust and coverage	18
Combatting vaccine sceptics	19
FIP Roundtable Achieving responsible use of antimicrobial medicines	20
Antimicrobial stewardship implementation	21



World Congress of Pharmacy and Pharmaceutical Sciences	
Presidential address Time to rethink health care	22
Plenary session Rising to the challenge of reducing the global burden of disease	24
Snapshot What pharmacists want	26
Science & drug discovery	
Stemming the tide of dementia in science	28
Nalfurafine: The first non-addictive opioid agonist	30
Translating -omics knowledge into benefits for cancer patients	31
USP launches programme to review quality assurance technologies	33



Practice

From acute respiratory syndrome to Zika:	
What can we do about emerging diseases?	34
Rapid diagnostic testing on the rise in pharmacies	36
How pharmacists are using rapid diagnostic tests for influenza	37
Regulatory approaches accelerate access to medicines	38
Stemming the tide of dementia in practice	39
Reducing the disease burden in slum areas	40
IT will create a novel health ecosystem	44



Education & workforce

Health care education and labour markets must change	46
Deans gather to share ways to strengthen pharmacy education	48

GROWING ACCEPTANCE OF IMMUNISATION IN PHARMACIES, NEW REPORT SHOWS

At least 940 million people live in countries where over 193,000 community pharmacies can potentially offer access to vaccination services, according to new research commissioned by FIP. Based on a global population of 7.4 billion, this represents at least one in eight people.

A survey of 45 countries conducted by the FIP Collaborating Centre at University College London found that nearly a half (44%) have community pharmacy premises offering vaccinations, demonstrating the expansion and growing acceptance of pharmacy immunisation services around the world. An increasing number of countries are introducing immunisation rights specifically for pharmacists. In 13 of the 45 countries, pharmacists have the authority to administer vaccines themselves and, therefore, the potential to reach 655 million people, the researchers estimate.

The findings of this study are presented in a global report *“An overview of current pharmacy impact on immunisation”* published in August. “The World Health Organization estimates that vaccination saves between two and three million lives each year. It is one of the safest, more efficient and cost-effective measures for preventing, controlling and eradicating life-threatening infectious diseases. The accessibility and distribution of community pharmacies make them a first point of contact for patients, providing an excellent opportunity to address low immunisation coverage,” said Helena Rosado, research scientist at UCL School of Pharmacy and co-author of the report.

“With the recognition of the role of pharmacists as immunisers in the latest FIP-WHO guidelines on good pharmacy practice [2011], we considered it a good time to see how far this has been implemented. This report offers, for the first time, an international overview of pharmacists’ activities to support immunisation. We look forward to a day when pharmacists all over the world are recognised for their full potential and can add to the immunisations offered by other health care professionals, especially in to hard-to-reach and high-risk populations,” said FIP President Dr Carmen Peña.

The report includes in-depth case studies from Argentina, Australia, Belgium, France, Ireland, Philippines, Portugal, South Africa, Switzerland, UK and USA, with advancement examples that can potentially be adopted by other countries to advocate for a national immunisation strategy that actively involves pharmacists as part of the public health agenda. The findings also highlight that, in some countries, vaccine administration is part of the pharmacy undergraduate curriculum and that the perceived competition threat to other health care professionals providing immunisation services is diminishing. A [video](#) of co-author Professor Ian Bates introducing the new report is available.

FIP SUPPORTS WORLD ANTIBIOTIC AWARENESS WEEK

FIP is encouraging pharmacists to take part in World Antibiotic Awareness Week, which will run from 14 to 20 November. This year’s World Health Organization campaign theme is “Antibiotics: Handle with care”, and FIP was asked to work with the WHO so that pharmacists in particular would be involved in raising awareness. FIP has already been supporting the campaign:

during its congress in August, the federation distributed leaflets on what health workers can do to fight antimicrobial resistance and held photo sessions with the speech bubble “Use antibiotics responsibly. Partner with your pharmacist”, so that pharmacists could spread the message on their own social media. “We ask all pharmacists to get on board with this campaign. Not only will this help communicate a really important message to the public — that antibiotics are a precious resource — but it is also right for pharmacists, as the guardians of antibiotics, to be seen

to be involved,” said Luc Besançon, FIP chief executive officer. More information and campaign resources are [available](#) on the WHO website.



HEALTH CARE PROFESSIONS ASK CONSUMERS TO IDENTIFY FAKE MEDICINES

Doctors, nurses, dentists, physical therapists and pharmacists are asking people if they would be able to tell a real medicine from a fake one in a new [video](#) launched by the World Health Professions Alliance (WHPA) last month. The video, which exploits an interactive function of YouTube, presents viewers with a scenario, asks them to choose between two products, and then shows them the consequence of their decision: recovery or hospital admission.

The project was led by FIP. “We’re seeing an increase in fake medicines around the world and they’re becoming harder to identify due to technological advances. We wanted, through this video, to confront people with a situation to which little thought is often given. We wanted to give viewers the responsibility for what happens and, in doing so, to send home the message that there is a need to think twice about the choices they make. The aim was to enable informed decisions,” said Luc Besançon, FIP chief executive officer.

The video is part of a new WHPA project, “Counter the counterfeits”, which is the latest work in the alliance’s long-running campaign to protect people from substandard or falsified medicines and medical devices. It is accompanied by three animated sets of measures that consumers, health professionals and policymakers around the world can take to get rid of fake medicines and which highlight the harm that they do.

Consumers, for instance, are given advice on how to make sure that medicines bought online are real, and health care professionals are reminded which features of medicines to inspect and how to meet the expectations of patients. Through the third set of measures, the WHPA calls on policymakers to strengthen laws against counterfeiting and to involve health care professionals in policy

decisions so that these are appropriate to real life and more likely to be put into practice. “The problem of fake medicines has not gone away and health professionals continue to be concerned. We encourage everyone to share this video in order to prevent harm from fake medicines,” Mr Besançon said.

A standalone, loop version of the video has been developed for use at meetings and conferences. It is freely available on request from fip@fip.org.

FIP ISSUES STATEMENT ON ROLE OF PHARMACISTS IN REDUCING MEDICINES’ ENVIRONMENTAL IMPACT

Pharmacists and pharmaceutical scientists must take responsibility for mitigating the environmental consequences of medicines, FIP says. An official policy statement adopted by the FIP Council in Buenos Aires, Argentina, specifies that this responsibility encompasses the entire course of medicines use, from manufacture and distribution to prescribing and dispensing, and to disposal and reduction of the discharge of metabolites of medicines into the environment.

The policy statement sets out a number of recommended actions for FIP member organisations, schools of pharmacy, individual pharmacists and governments. For example, it recommends that pharmacists work to encourage rational prescribing practices, such as the use of starter doses and starter quantities and limiting the general number of doses prescribed (and dispensed) to reasonable amounts, and that

they make counselling on the environmental impact of medicines part of their practice. The statement also highlights the contribution non-adherence makes to medicines waste.

The new FIP policy, “*Environmentally sustainable pharmacy practice: Green pharmacy*”, also says that “green” principles should be taught by pharmacy schools and it calls on governments to include appropriate environmental risk assessments as part of medicines approval processes.

“FIP urges pharmacists and pharmaceutical scientists, national organisations and governments to give meaningful leadership in conquering the challenge of the detrimental effect of pharmaceuticals on the environment, ensuring at the same time that access to medicines is not compromised,” said FIP Vice-President Ms Eeva Teräsalmi.

GLOBAL LEADERS COMMIT TO ACT ON AMR



H.E. Peter Thomson: Antimicrobial resistance requires global response

Heads of state committed to taking a broad, coordinated approach to address the root causes of antimicrobial resistance (AMR) at the UN General Assembly in New York last month. This is only the fourth time that the assembly has taken up a health issue (the other three being HIV, non-communicable diseases and Ebola). The World Health Organization called the attention given to curb the spread of infections that are resistant to antimicrobials “unprecedented”.

Countries reaffirmed their commitment to develop national action plans on AMR, based on the Global Action Plan on Antimicrobial Resistance — the blueprint for tackling AMR developed in 2015 by the WHO in coordination with the Food and Agriculture Organization of the United Nations and the World Organisation for Animal Health.

Leaders recognised the need for stronger systems to monitor drug-resistant infections and the volume of antimicrobials used in humans, animals and crops, as well as increased international cooperation and funding. They pledged to strengthen regulation of antimicrobials, improve knowledge and awareness, and promote best practices, as well as to foster innovative approaches using alternatives to antimicrobials and new technologies for diagnosis and vaccines.

The high-level meeting was convened by the President of the 71st session of the UN General Assembly, H.E. Peter Thomson. “Antimicrobial resistance threatens the achievement of the Sustainable Development Goals and requires a global response,” Mr Thomson said. “Member states have today agreed upon a strong political declaration that provides a good basis for the international community to move forward. No one country, sector or organisation can address this issue alone.”

In brief

DISASTER RESPONSE

Global guidelines that support continued access to medicines and pharmacy expertise during natural disasters, such as floods, heat waves and earthquakes, were published for the first time by FIP in July. “*Responding to disasters: Guidelines for pharmacy*”, was produced by FIP’s Pharmacy Emergency Management Working Group following extensive consultation. (See p 14.)

OVER SEVEN MILLION VACCINATED AGAINST YELLOW FEVER

A major part of the largest emergency vaccination campaign against yellow fever ever attempted in Africa was completed in September, with more than 7.7 million people vaccinated in record time in the city of Kinshasa, Democratic Republic of Congo. “This has been accomplished through an extraordinary network of partnerships and collaborations,” the World Health Organization said. (See p 12.)

COMMUNITY PHARMACY PHARMACOGENETICS SERVICE

Early Canadian experience of implementing a pharmacogenetics service in community pharmacy was shared in a poster session at FIP’s 76th annual congress, in Buenos Aires, Argentina. John Papastergiou of the University of Waterloo, explained how pharmacists performing buccal swabs and DNA analysis identified significant drug therapy problems. Forty patients were recruited. Their mean age was 60.2 years and they were taking a mean of 6.2 chronic medicines. Pharmacists cited the rationale for testing as ineffective therapy (55.6%), to guide initiation of therapy (18.5%), and to address an adverse reaction (25.9%). An average of 1.62 drug therapy problems were identified per patient. Recommendations included change in therapy (60.9%), dose adjustment (17.4%), discontinuation of a drug (17.4%), and increased monitoring (21.7%). The presentation was awarded one of three FIP Community Pharmacy Section Poster Prizes.

NEW INTERACTIVE MAP OF AIR POLLUTION

A new air quality model released last month by the World Health Organization confirmed that 92% of the world’s population live in places where air quality levels exceed WHO limits. Information is presented via interactive [maps](#), highlighting areas within countries that exceed the limit of 10µg/m³ annual mean of particulate matter with a diameter of less than 2.5 micrometres (PM2.5). Some three million deaths a year are linked to exposure to outdoor air pollution.

UN COMMISSION MAKES 10 RECOMMENDATIONS TO TRANSFORM HEALTH

Mounting evidence suggests that expenditures on health are not dead-weight drags on the economy, but rather can be associated with productivity gains in other sectors. This is the conclusion of the High-Level Commission on Health Employment and Economic Growth in its final report "*Working for health and growth: Investing in the health workforce*" delivered to the UN Secretary-General last month.

The report says that returns on investment in health are estimated to be 9 to 1, and points out that around one quarter of growth between 2000 and 2011 in low-income and middle-income countries is estimated to have resulted from improvements to health.

"For too long countries have seen health workers as just another cost to be managed, instead of an investment with a triple return for health, economic growth and global health security," said Margaret Chan, director-general of the World Health Organization.

The commission makes 10 recommendations in its report, among which is that service models concentrated on hospital care should be reformed and that focus should instead be put on prevention and on the efficient provision of high-quality, affordable, integrated, community-based, people-centred primary and ambulatory care, paying special attention to underserved areas.

FIP was among the stakeholders that took part in the consultations in the preparation of the report. "The recommendation to focus on community-based, people-centred care is welcome. It is precisely what many pharmacists do," said Luc Besançon, FIP chief executive officer.

The commission has called for action by March 2018 to secure commitments and accountability for accelerated health workforce investments. The vice-chairs of the commission will convene all relevant stakeholders by the end of 2016 to develop a five-year implementation plan for the 10 recommendations.

REPORT SHOWS HOW PROFESSION IS ADVANCING WITH HELP FROM FIP RESOURCES

Universities, professional organisations and authorities around the world have been enabled to take steps towards ensuring that pharmacists are capable and competent thanks to resources produced by FIP Education (FIPeD). A new report, "*Transforming our workforce*", released in August, offers a collection of 14 achievements ranging from the credentialing of advanced pharmacy practice in Australia and the set-up of a new pharmacy curriculum in Chile to the adoption of a competency framework in Croatia and the development of a model to evaluate health care professionals in Jordan. All six World Health Organization regions are represented through these pharmacy workforce development success stories.

"This report is the most comprehensive collection of evidence so far of the value of FIP's actions in the area of education and workforce. Since FIP started to focus on workforce and education in 2008, we have developed 23 resources and 10 strategic tools which are freely available to colleagues around the world," said Professor Ian Bates, FIPeD development team director and editor of the report.

FIP's *Global Competency Framework*, for instance, was an important reference for the Royal Pharmaceutical Society in developing support tools for the UK, and FIP's *framework for quality assurance of pharmacy education* has inspired the creation of a national taskforce to ensure quality education in India. Both are examples of FIPeD resources being used in steps to transform the pharmacy workforce.

Professor Bates added: "This new report is in itself a resource. We see it as a document that describes evidence-based and tested mechanisms, enabling policymakers and leadership bodies to advance the education of the pharmacy workforce."

NEW LINE-UP FOR FIP BUREAU

Tatsuro Irimura, project professor at Jutendo University School of Medicine, Japan, has been appointed chair of the FIP Board of Pharmaceutical Sciences (BPS), following Council elections held in Buenos Aires, Argentina, in August. The BPS chair has a place among 15 elected FIP Bureau officers. Since 1974 Professor Irimura has dedicated his career to research and education and has chaired the Science Board of his country's Pharmaceutical and Medical Devices Agency. He said: "Pharmaceutical sciences as a field has gained a great momentum. I want to connect pharmacists and pharmaceutical scientists and strengthen their contribution to society."



Tatsuro Irimura: Pharmaceutical sciences has gained a great momentum

In addition to Professor Irimura, two further positions were filled by new faces: Linda Hakes (Germany) and Tom Menighan (USA). Dr Hakes, originally from the UK and currently chair of the country's Academy of Pharmaceutical Sciences, is a pharmacist who has worked in drug development for 40 years. "FIP should strongly advocate the retention of science and scientific principles within the pharmacy curriculum while recognising that most graduates will eventually work in practice," she said in her election statement.

Dr Menighan has been chief executive officer of the American Pharmacists Association since 2009 and has been a pharmacy owner for 38 years. "We pharmacists have a responsibility to engage in global health issues. It is my honour to contribute the energy and perspectives of American pharmacists in all practice settings to work within FIP," he said.

Voting also saw Ross McKinnon, foundation director and professor in cancer research at Flinders University, Australia, and Eeva Teräsalmi, a community pharmacy owner and member of the faculty at Helsinki University, Finland, each elected for further terms as vice-presidents on the FIP Bureau.

SIXTH WORLD PHARMACISTS DAY SEES BIGGEST CELEBRATIONS SO FAR

From Papua New Guinea to Brazil and from the Bahamas to Ghana, pharmacists have shared with FIP how they marked World Pharmacists Day 2016. FIP has received reports of radio interviews in Libya, rallies in Indonesia, free patient screenings in India and many more. Some pharmacists produced their own videos — humorous and serious — to mark the day. Others used or adapted the official FIP resources to promote the profession. A number used World Pharmacists Day to take FIP's Oath/Promise of a pharmacist en masse. The weekend also saw #DMF2016 (*Día Mundial del Farmacéutico*) trending on Twitter.

In a special video message, FIP President Carmen Peña thanked colleagues around the world for the care they give to their communities. Dr Peña also said that the profession had "achieved tremendous success" in its goals to improve patients' quality of life.

"We are delighted with the great efforts of colleagues around the world to mark the day and promote our profession. This year's activities have been the biggest and best so far. We look forward to announcing the theme for WPD 2017 next spring," said Luc Besançon, FIP's chief executive officer.

Images from this year's activities are available in the WPD 2016 album on [FIP's Facebook page](#).



World Pharmacists Day Rally, Jakarta, Indonesia

“HEALTH DESTINATION PHARMACY” AND “RESPONSIBLE USE OF MEDICINES CAMPAIGN” CHOSEN AS BEST EXAMPLES OF PROFESSIONAL ASSOCIATION WORK

Work in Australia to develop the concept of pharmacies as health destinations in the community and of pharmacists as providers of total health solutions resulted in the Pharmaceutical Society of Australia (PSA) winning FIP’s first Pharmacy Practice Improvement Programme Award at the 76th World Congress of Pharmacy and Pharmaceutical Science in Buenos Aires, Argentina.

The Australian programme aims to improve business and financial planning, people and processes, marketing, layout and infrastructure. Participating pharmacies receive visits from a specially qualified PSA coach who provides practical advice and resources tailored to the pharmacy’s needs.

Pharmacies in the programme are enabled to provide a stronger focus on self-care and delivery of evidence-based professional services, and this has led to more clinical interventions and increased patient loyalty as well as average net profit increases of AUD 79,000 (EUR 52,000) per pharmacy in nine months. The programme is providing a solid platform for delivery of minor ailments and other services in the country, the PSA said.

“We are proud that this work has been celebrated at an international level. It shows that, as in many countries around the world, there are many opportunities for community pharmacies to play an enhanced role in patient care despite an increasingly uncertain financial future,” said PSA President Joe Demarte.

Portugal’s pharmaceutical society (Ordem dos Farmacêuticos de Portugal) was the recipient of FIP’s 2016 Health Promotion Campaign Award in recognition of its awareness campaign “Medicines use — We are all responsible”, which involved the creation of easy-to-grasp messages and materials, including a dedicated website, Facebook page and video. Wide dissemination through national and social media resulted in a large number of people being reached. For example, there were over 28 million television viewers and 884,000 website hits. Portuguese pharmacies actively promoted the campaign.

Partnership with the Healthy Generation Project, which educates around 13,000 primary school students a year on healthy lifestyles and preventable diseases, ensured that a young audience was also reached. The long-running campaign has been endorsed by Portugal’s National Authority of Medicines and Health Products (INFARMED) as well as authorities and professional associations from Portuguese-speaking countries.

“The positive impact of this campaign has been identified in population awareness and change. The campaign sets a first step in promoting best practices and habits in the responsible use of medicines among the population. Recognition of this work by FIP among so many campaigns around the world is an honour,” said the society’s President Ana Paula Martins.



New FIP fellows with FIP President Carmen Peña (Left to right):
Ralph Altieri, Michael Anisfeld, Parisa Aslani, Timothy Chen, Manjiri
Gharat, Dr Peña, Michiho Ito, Thony Björk and Lindsay McClure.

GLOBAL PHARMACY AWARDS GO TO PHARMACISTS IN SEVEN COUNTRIES

Eleven pharmacists and pharmaceutical scientists from seven countries were recognised for their services to pharmacy at the opening ceremony of the 76th World Congress of Pharmacy and Pharmaceutical Sciences in Buenos Aires, Argentina. They received the following FIP awards:

- **André Bédât Award** to Dr Ana I. Martinez (Puerto Rico, USA); see Interview, [p16](#)
- **Distinguished Science Award** to Professor Shinji Yamashita (Japan)
- **Joseph A. Oddis Award for Exceptional Service to FIP** to Dr Dieter Steinbach (Germany)
- **FIP Fellowships** —
 - Professor Ralph Altieri (USA)
 - Professor Michael Anisfeld (USA)
 - Professor Parisa Aslani (Australia)
 - Mr Thony Björk (Sweden)
 - Professor Timothy Chen (Australia)
 - Mrs Manjiri Gharat (India)
 - Professor Michiho Ito (Japan)
 - Ms Lindsay McClure (United Kingdom)

USA

TWO-THIRDS OF PHARMACISTS HAVE EMBRACED SOCIAL MEDIA, STUDY SUGGESTS

Community pharmacists in the USA using social media to keep in touch with their patients amount to 65%. 63% of them use Facebook and 24% use Twitter, according to a survey by RxWiki Inc. More than 68% of pharmacists reported that social media had a positive impact on their business by either helping them stay connected with patients, delivering health news to them, or driving visits to the pharmacy. Use of Instagram and Pinterest were 12% and 2%, respectively.



Twin Design / Shutterstock.com

CHINA

USE OF ANTIBIOTICS IN HOSPITAL CUT BY A FIFTH WITH HELP FROM PHARMACISTS

Use of antibiotics has fallen by a fifth at Shanghai General Hospital since the introduction of a scheme whereby pharmacists study medicines use through monitoring doctors' outpatient services and ward rounds. "Pharmacists are no longer sitting at the drug store to dispense medicines but are experts who participate in the whole treatment and give advice to doctors," said Li Qun, a hospital official, last month. Pharmacists at the hospital have the final say and can overrule a doctor's prescription.

BELGIUM

PHARMACIES JOIN FORCES TO COMPETE ONLINE

Around 100 Flemish pharmacies will work together to establish a single online pharmacy. The goal is to sell pharmacy products more efficiently and effectively online, and to compete with major online retailers. Many pharmacies want to start an online outlet, but it is time consuming and expensive to build, according to community pharmacist and project initiator Ellen de Smet. Under the initiative, community pharmacies will be used as a point of contact for customers, and the goal is for the online pharmacy to have a partnering community pharmacy in each Flemish municipality. The platform will be launched later this year.

UNITED KINGDOM

NHS FUNDING CUTS DRIVE UK TO PATIENTS BUY MEDICINE THROUGH FACEBOOK

People denied treatment due to National Health Service funding cuts are risking their health by forming "buyers groups" through platforms such as Facebook and buying and self-administering medicines from overseas, according to a report in *The Independent* last month. Buyers, sellers and pharmacists say the medicines are being supplied in this way to an increasing number of patients with hepatitis C, HIV or some forms of cancer. Experts have warned that people who buy these medicines have no way of knowing if the medicine that arrives is genuine.

ISRAEL

NEW REGULATION PERMITS PRESCRIBING OF 21 MEDICINES BY PHARMACISTS

Experienced pharmacists in Israel have been permitted to supply a number of prescription medicines, including sumatriptan and orlistat, without a doctor's prescription. After a debate and a vote (six to one in favour), the regulation was approved by the Israeli parliament's Social Welfare and Health Committee, *The Jerusalem Post* reported in August. Pharmacists are required to read the patient's medical information before prescribing. They are allowed to refuse supply and refer to a doctor. The regulation aims to cut medical costs — patients will not have to go to a physician for certain common medicines.

CANADA

NALOXONE NOW AVAILABLE IN NON-PHARMACY OUTLETS

In British Columbia naloxone is now available in non-pharmacy outlets, the College of Pharmacists of British Columbia announced last month. Emergency-use naloxone is now available anywhere and may be purchased by anyone. Its status was changed to ensure there are no regulatory barriers to access and in response to a rise in the number of opioid-related deaths in Canada. Emergency-use naloxone had already been made available without a prescription in March 2016. In April 2016, the British Columbia Provincial Health Officer declared the crisis a public health emergency.

ITALY

GOVERNMENT INVESTS IN COMMUNITY PHARMACY

Certain medicines that were previously dispensed by hospital pharmacies will be available from community pharmacies for the next three years according to an agreement signed by Federfarma and the Italian Ministry of Health in July. The agreement includes a project called “Services-based pharmacy”, through which pharmacists may be remunerated for providing care to elderly and chronically ill patients, promoting adherence, and offering health promotion and disease prevention. The role of pharmacies in providing influenza vaccination will also be promoted. The Ministry of Health is to invest EUR 6.5m over the next three years.

NETHERLANDS

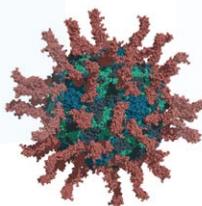
MEDICATION ERRORS IN CHILDREN REDUCED BY PHARMACISTS

Medication errors in children are significantly reduced when a pharmacist is part of the treatment team and is present every day, according to research by the University of Amsterdam. When a pharmacist was involved in the treatment at the paediatric intensive care unit, medication errors were decreased by a quarter; from 2.27 to 1.74 for every 100 prescriptions. The need to supply children with a type of care different from that for adults, such as dose adjustments or using appropriate formulations, hardly played a role in medication errors and the causes are largely the same as for errors in adults, said Jolanda Maaskant, head researcher at the university.

NIGERIA

WILD POLIO RESURFACES AFTER TWO INFECTION-FREE YEARS

Two children have been paralysed by wild polio, the Nigerian government reported in August. The cases appeared after more than two years without wild poliovirus infection in Nigeria. As an immediate priority, the government is collaborating with the World Health Organization and other partners of the Global Polio Eradication Initiative to respond urgently and prevent more children from being paralysed, says the WHO.



IRELAND

NEW PHARMACY ASSESSMENT SYSTEM AND PATIENT CHARTER LAUNCHED

A new pharmacy assessment system — comprising a self-audit for community pharmacies — that will play a key role in building a “risk-based model of inspection” is to be introduced in Ireland, the country’s pharmaceutical society said in August. The number of complaints received about pharmacists or pharmacies decreased by nearly a half last year, according to the society’s 2015 annual report. The society also launched its first pharmacy patient charter, “A patient charter — You and your pharmacist”, which it developed following a public consultation. The charter is intended to tell the public what they can expect from community pharmacists.

JAPAN

NEW ELECTRONIC MEDICINES HISTORY RECORD INTRODUCED

A new electronic medicines history record is to be rolled out in Japan, the Sony Corporation revealed in July. The paper booklet containing a patient’s medicines information, and which patients take to each health professional they visit, is to be replaced by an e-card. Once a patient hands this card to a health provider, it is held against a tablet and the patient’s medicines history appears. The system has been introduced in medical institutions and pharmacies at 880 locations in 10 cities. The card comes with a mobile phone application that reminds the patient to take medicines and allows the tracking of medicines intake. The app can also help family members monitor the medication adherence of their elderly relatives.

GERMANY

DEMAND TO END TENDERING FOR PHARMACIES MAKING CANCER MEDICINE

Pharmacists and doctors are working together towards more efficient care for patients with cancer. They are asking the legislature to change a procurement system which makes a limited number of pharmacies preparing cancer medicines exclusive to statutory health insurers. Such exclusive agreements, they say, jeopardise the quality of care, limit patients’ wishes, and increase the risk of shortages. Nationwide, about 300 pharmacies produce cytostatic medicines. “Exclusive contracts for cytostatic formulations destroy the comprehensive supply structure. After each bidding round fewer winners are left and specialised pharmacists increasingly give up,” said Fritz Becker, chairman of the German Pharmacists Association (DAV).

Largest ever emergency **yellow fever** vaccination campaign completed

It was a race against time. On 16 August this year, the government of the Democratic Republic of Congo mounted an operation with an ambitious aim: to vaccinate 7.5 million people in its capital, Kinshasa, against yellow fever before the start of the rainy season in September. Lin-Nam Wang reports.

“Personnel included vaccination experts, logisticians, epidemiologists, data managers, field coordinators, social mobilisation experts and administrators. Pharmacists, too, have contributed.”

© WHO/E. Soteras Jalili

A dose-sparing strategy for emergency use was recommended.

Outbreaks of yellow fever have become of increasing concern, with reports in Angola and the Democratic Republic of the Congo (DRC) since early 2016. Since then, cases have been confirmed in Kenya and China (linked to an outbreak in Angola), and Uganda and Peru, and there have been investigations of suspected cases in other countries.

The heavy burden of emerging diseases such as Zika and the resurgence of dengue is the price being paid for a “massive policy failure that dropped the ball on mosquito control in the 1970s”, said World Health Organization Director-General Margaret Chan in her address to the 69th World Health Assembly in Geneva, Switzerland, in May. Dr Chan pointed out that the price paid was “especially brutal” regarding yellow fever because the world had failed to use an “excellent preventive tool” to its full strategic advantage. “The world has had a safe, low-cost, and effective vaccine that confers life-long protection against yellow fever since 1937. That’s nearly 80 years. Yellow fever vaccines should be and must be used more widely to protect people living in endemic countries,” she said.

Plan of action

In June, the WHO released its *“Yellow fever strategic response plan”* to guide a coordinated international response to end the outbreaks in affected countries and limit international spread. Targeted vaccination and other public health measures would be implemented. Mass vaccination was recommended in Angola and the DRC. However, there is a fundamental problem with wanting to vaccinate over seven million people: insufficient stocks of the vaccine (a previous emergency stockpile had been exhausted in Angola). Manufacturers were asked to accelerate production but, in the case of the DRC, a dose-sparing strategy for emergency use was recommended by the WHO Strategic Advisory Group of Experts on Immunization in the short-term. One fifth of the full dose of the vaccine would be given, conferring protection for at least 12 months. This, however, would require the shipment of 10 million specialised syringes as well as over 40,000 people being trained to deliver the vaccine using the emergency method.

The campaign in the DRC involved over 50 international organisations working together. Personnel included vaccination experts, logisticians, epidemiologists, data managers, field coordinators, social mobilisation experts and administrators. Pharmacists, too, have contributed. Monitoring of adverse events following immunisation was also part of the WHO plan and pharmacist Jean-Pierre Mboyo Lokunya, who works at the country’s National Medicines Regulatory Authority, was asked to get involved. “I worked with the WHO representative in the DRC and with our National Centre of Pharmacovigilance to monitor for adverse events following immunisation as well as on ensuring cold chain management,” he said. There is a team of six pharmacists working in this area. “The pharmacist has an important role in all public health activities, and our contribution is precious in the use and quality assurance of vaccines,” he added. According to the WHO, there have been rare reports of serious side effects from the yellow fever vaccine. The rates for severe adverse events following immunisation, when the vaccine provokes an attack on the liver, the kidneys or the nervous system, leading to hospital admission, are between 0.4 and 0.8 per 100,000 people vaccinated. Mr Mboyo Lokunya has also been instrumental in developing a training programme on the side effects and proper storage of the vaccine. This programme is already being delivered to the medical directors of different provinces. “We are the experts in medicines and it’s about improving the quality of services and products,” he said.

By 28 August, the DRC Government reported that 7.7 million people had been vaccinated in Kinshasa, with a further 1.5 million vaccinated along the country’s border with Angola. The government has planned a new campaign next year using the full dose when global vaccine stocks have returned to normal.

WHAT IS YELLOW FEVER?*

Yellow fever is an acute haemorrhagic viral disease. In urban settings it is transmitted by the *Aedes aegypti* mosquito. Initial symptoms are indistinctive — fever, headache, fatigue, pain, nausea and vomiting — and, in most cases, disappear in three or four days. A small proportion of people, however, go on to develop jaundice, and bleeding from the mouth, nose, eyes or stomach can occur. Around half of these people die within 10 days. In its early stages yellow fever is difficult to diagnose. Blood tests can sometimes detect the virus at this time.

Yellow fever is endemic in tropical areas of Africa and Central and South America. Thirty-four countries in Africa and 13 in Central and South America have regions that are endemic for yellow fever. A modelling study based on African data sources estimated the burden of yellow fever during 2013 to be 84,000–170,000 severe cases and 29,000–60,000 deaths. For a number of years, the World Health Organization has warned that changes in demography and land use patterns, migration and rapid urbanisation in Africa have created ideal conditions for explosive outbreaks of urban yellow fever.

There is currently no specific antiviral for yellow fever. Care includes treatment of dehydration, liver and kidney failure, and fever. Vaccination is the most important way to prevent yellow fever. It provides effective immunity within 30 days for 99% of people vaccinated. Prompt recognition and control of outbreaks using mass immunisation (at least 80% of the population) is critical for preventing epidemics in cities.

*Adapted from World Health Organization Fact Sheet on yellow fever

Heatwaves, earthquakes, tsunamis: How pharmacists can lighten the load of **NATURAL DISASTERS**

Lin-Nam Wang reports on one pharmacist's experience of the 2015 heatwave in Pakistan and a new FIP resource on preventing, preparing for, responding to and recovering from such natural disasters.

For five days in June 2015, blistering heat took grip of southern Pakistan. At the peak of the heatwave a temperature of 44.8°C was recorded in Karachi, the country's most populous city. Surrounding areas saw temperatures soar to 49°C, but the hottest day saw the heat index rise to 66°C because of low air pressure, low wind speed and high humidity. The average maximum temperature was exceeded by 11°C and thousands sought help at hospitals.

"Just one day into the heatwave, our emergency department triaged over 300 people in our tertiary care teaching hospital, which has around 700 beds. Both human and material resources faced massive challenges," said Feroza Perveen, senior pharmacist at Aga Khan University Hospital (AKUH) in Karachi. Her hospital's 65-bed emergency department was overwhelmed. Its staff took on extra shifts to meet demand.

A post-event review at AKUH found that around 40% of heatwave patients were aged over 60 years, and the most

common symptoms were drowsiness, fever and cough. Twenty-one per cent of the patients needed intravenous fluids. During the heatwave, the hospital managed around 400 cases of heat stroke — the most ever in its disaster response history. "Undoubtedly pharmacists can play an important role during a natural disaster and they must know this. Despite the state of emergency, our pharmacists continued to secure the availability of all required medicines to all patients and ensure their safe use," Dr Perveen said. However, she added that the pharmacist's role in disaster management needs to be enhanced — especially in developing countries — and extra effort needs to be made by governments to mitigate such disasters.

Devastation

Pakistan's death toll from heat stroke and dehydration during the June 2015 heatwave was well over 1,200. Figures were, perhaps, increased by its occurrence during the month of Ramadan, when Muslims fast from dawn to dusk. Water and power shortages at the time were blamed for making matters worse. Experts have linked the phenomenon itself with climate change: Heatwaves in Pakistan have become more common in recent years and will grow more frequent, they warn. Only last May, Reuters reported Karachi residents digging mass graves in preparation for another heatwave.

"Just one day into the heatwave, our emergency department triaged over 300 people in our tertiary care teaching hospital, which has around 700 beds"

Unless we are better prepared to deal with extreme weather events, the devastation they cause to human life will also grow, Dr Perveen said. She added that the "pharmacy profession should take the lead in developing plans to deal with such mass casualties in coming years". FIP has done so: In July, it published the first global guidelines that support continued access to medicines and pharmacy expertise during natural disasters. The document, "*Responding to disasters: Guidelines for pharmacy*", was produced by FIP's Pharmacy Emergency Management Working Group following extensive consultation.



Heatwaves in Pakistan have become more common in recent years

“The working group was set up in response to an increase in pharmacists around the world requesting help during emergency situations. Making these guidelines available to all is one of the ways in which FIP is helping pharmacists to continue to provide safe and effective care, even when bad things happen,” said Régis Vaillancourt, co-chair of the working group.

“FIP is helping pharmacists to continue to provide safe and effective care, even when bad things happen.”

The document describes actions under each of the four phases of an emergency — prevention/risk mitigation, preparation/readiness, response and recovery. These actions are listed under different target groups, which comprise government, pharmacy organisations, manufacturers and distributors in terms of national implementation, and hospital and community pharmacy in terms of regional or local action. For example, the document calls on national governing bodies to consider providing authorisation, under emergency, for expansion of pharmacists’ scopes of practice. Last month, FIP invited governments to use the guidelines during the World Health Organization Regional Committee for Europe meeting in Copenhagen, Denmark.

Aid and advice

“Responding to disasters” also raises the issue of pharmacies keeping patient records protected. “This document it is not intended to answer all the questions but to raise awareness of what pre-planning to consider within the context of the pharmacist’s role,” said working group co-chair Jane Dawson, who is also director of defence health policy at New Zealand Defence Force and secretary of FIP’s Military and Emergency Pharmacy Section (MEPS).

Members of MEPS were among those who responded to an earthquake in New Zealand and a tsunami in Japan, both in 2011. “A lot of lessons were learnt at national levels on what was needed to continue to supply medicines safely to patients after such catastrophic events. Subsequently MEPS members have frequently been called on to supply aid and advice following other disasters. It was very clear that guidelines were needed to help pharmacists prepare and mitigate risks before an event occurred and to manage during an event,” Mrs Dawson said. “It is hoped that these guidelines will help keep pharmacies going during times of great challenge,” she added.

The FIP document contains practical tips and information on preparing the pharmacy in case of specific disaster types, and includes a list of medicines to stock for emergency situations. Dr Perveen called the FIP guidance “useful and relevant”.

At AKUH they now have a disaster management plan to manage large disasters — natural or manmade (such as bombing) — providing for the management of 100 casualties at a time, and the pharmacist is “an important member” of the hospital’s disaster management committee. Mock drills are conducted yearly to practise working in mass casualty situations.

Dr Perveen’s advice for fellow pharmacists who might one day find themselves facing a natural disaster is to be prepared. “Make sure you have completed all the training, especially for managing panic situations, and act now to spread awareness of the role pharmacists can play in disasters.”

PREPARING THE PHARMACY FOR A HEATWAVE

“Responding to disasters: Guidelines for pharmacy” includes the following tips for preparing a pharmacy for a heatwave:

- If air conditioning is available, consider keeping one on hand at all times or constructing central air conditioning in the pharmacy.
- Fans can be used if surrounding air is at a lower temperature than your skin temperature. However avoid using fans if the temperature is greater than 35°C, as it will cause people to feel hotter.
- Stay out of the heat between 11:00 and 15:00.
- Keep cold drinks on hand at all times.
- Consider replacing window coverings with lighter curtains or blinds to reflect heat absorption.
- Consider turning off non-essential lighting or electrical appliances that generate heat.
- If in areas of long-term heat waves, consider external shading of windows using reflective paint.
- Make sure temperatures of refrigerators are sustained at proper levels to maintain their stabilities, and where possible keep all medicines in a temperature-controlled environment.
- Consider providing a work/rest regimen for all employees to prevent heat stress.



OPENING THE WAY

for pharmacists in clinical trials



Since the beginning of the HIV/AIDS epidemic, over 70 million people have been infected with the HIV virus and around 35 million people have died from infection, according to the World Health Organization. The global burden of HIV infection continues to be significant, with 36.7 million people living with HIV at the end of 2015. But we have come a long way since research on the disease began, with a number of treatments being developed. One of these was zidovudine, also known as AZT. Pharmacist Ana Martinez was instrumental in the ACTG 076 study, which showed that AZT reduced the rate of maternal-infant transmission of the virus by two thirds. At the 76th World Congress of Pharmacy and Pharmaceutical Sciences, she received FIP's highest honour for pharmacy professionals (the André Bédât Award) in recognition for implementing the strong involvement of pharmacists in HIV/AIDS clinical trials.

You are the daughter of a pharmacist and grew up in the United States, where you became a hospital pharmacist before embarking on a career at the National Institute of Allergy and Infectious Diseases (NIAID) in 1991. How did you get into the field of HIV/AIDS?

I joined the NIAID AIDS programme at the beginning of the epidemic. At that time there was no treatment for the disease and there were only a few studies. Products were limited and there was a need to do research, keeping the use of each product as efficient as possible. The clinical knowledge of pharmacists was very important in implementing this goal. The product had to be labelled specifically for each participant and dispensed rather than having a number of treatment kits in a centre because if there were, perhaps, not as many participants as expected, the kits would be wasted.

At that time were other pharmacists participating in clinical trials in the United States?

There were pharmacists in our institute and at the National Cancer Institute but they did not participate directly in the way we started working when I entered the [NIAID] Division of AIDS.

How did your work in the institute's AIDS programme begin?

Seeing that the protocols of the studies had a list of doctors and other professionals but did not include pharmacists, I realised that it was important to have a pharmacist as a member of the protocol team from the very beginning of the development of the study. That person was designated as the Protocol Pharmacist.

The clinical trial model you conceived incorporated Division of AIDS pharmacists in the design of clinical trials and clinical site pharmacists in the conduct of research studies. You later successfully brought this model to fruition initially in the US and subsequently in Africa, Asia and Latin America, being

used in studies on the treatment of diseases associated with HIV/AIDS and on preventing infection. Has this model opened the door for pharmacists to participate in clinical studies in the industry?

The pharmaceutical companies have not adopted it. I would like to think that someday this could happen. We've been involved with many companies that have become accustomed to working with us, and are familiar with our model, but I do not know if they have decided to work this way. Other NIAID divisions have adopted this system because they have the same situation that we had: limited product and the need to find an efficient way to distribute it. We had an additional focus: how to initiate studies quickly and more efficiently. Working with pharmacists in the trial centres was the way we found to accomplish this.

What is your view on the challenges and opportunities for the pharmaceutical profession in the research arena?

I think there are many opportunities for the pharmaceutical profession if organisations responsible for studies see this and make it possible. The training and experience of pharmacists helps a great deal. We can apply what we learn in school and what we do daily in hospital and community pharmacies, for example, consulting with the patient, giving advice on how to take medicines — this helps in all aspects of the clinical trial. But organisations must realise that pharmacist involvement is worthwhile.

So pharmacists don't need special training to enter this area?

No, they just need the solid foundation of experience working in hospital — that gives the know-how and the ability to respond to multiple priorities. With this basic experience they can learn and meet the details of a study.

Will it be possible to find, in the near future, a vaccine for HIV?

There is a large study that is beginning in South Africa to investigate two different vaccines for HIV. Additionally, there is another study investigating a monoclonal antibody to prevent HIV in the Americas and several countries in Africa. But it will take five or six years to see the results of these studies. Meanwhile other methods of prevention are important. In the United States and other countries we use the combination of emtricitabine and tenofovir, which is preventive if taken as it should be and, obviously, the use of condoms is preventive. As for the vaccine, it is still a goal.

Your work has led to you being awarded FIP's André Bédât Award. How did that feel?

I was deeply honoured and humbled to receive the André Bédât Award. This represents the culmination of a long career

in research pharmacy. I share this award with my colleagues in all the programmes around the world in which I have been privileged to participate.

What advice can you give to the future generation of pharmacists?

Dedicate yourself to the profession and understand that you are a member of an important profession. Don't be intimidated if people try to tell you that you aren't important. Believe in yourself and you will be able to go anywhere you want. Pharmacy provides a broad and wonderful training and pharmacists can do so much.

This interview has been adapted from an interview by Andrea Joseph and published in the Argentinian journal Correo Farmaceutico.



ANA MARTINEZ QUICK FIRE

Ana Martinez is retired and lives in Nantucket, Massachusetts.

Significant milestones Participating in the development and implementation of the ACTG 076 study as well as the prevention studies HPTN 052 (reduction in transmission in HIV discordant couples) and the iPrEx study (reduction of transmission in men who have sex with men).

Inspiration My father and the investigators with whom I collaborated.

Perfect weekend A visit to New York City.

Visiting Nantucket? Don't miss The beaches and the whaling museums illustrating the industry which was vital to the island in the 19th century.

FIP ROUNDTABLE:

Improving vaccination access, trust and coverage

Immunisation is the most effective measure for preventing influenza and other vaccine-preventable illnesses. Yet in most countries, coverage is insufficient to prevent associated deaths and other detriments. A new FIP report concludes that pharmacists can play an important role in successful vaccination strategies [*see News p4*]. FIP organised a roundtable in Buenos Aires, Argentina, focusing on the value that immunisation by pharmacists adds to health care systems, and how this can be enhanced. Invited participants were Emma Andrews, director external medical affairs at Pfizer, Matthew Downham, representing the International Federation of Pharmaceutical Manufacturers & Associations, Peter Guthrey on behalf of the Pharmacy Guild of Australia, and Dale Cooney, deputy registrar at the Alberta College of Pharmacists, Canada. Gonçalo Sousa Pinto reports.

As highlighted in the 2011 *“Joint FIP-World Health Organization guidelines on good pharmacy practice: Standards for quality of pharmacy services”*, pharmacists have an educator, facilitator and immuniser role in advising on and administering vaccines. The panel agreed that it is paramount to increase vaccination coverage and access worldwide, and that pharmacies are ideally placed to play an important role in that process. Dr Andrews highlighted that pharmacy-based immunisation is not only convenient, but there is also a factor of trust, as people go to pharmacies to obtain reliable and evidence-based advice about vaccines and to be vaccinated, and surveys suggest a high level of patient satisfaction with that service. Influenza is a major burden on public health, causing up to one million deaths annually. However, “the involvement of pharmacists extends beyond influenza vaccination, and many patients will benefit from other vaccinations such as pneumococcal vaccines, shingles, etc,” Mr Cooney stated.

Yet barriers still exist to pharmacist-delivered vaccination around the world. According to Dr Downham, these include the potential reluctance from current administrators of vaccines, which will require close support and collaboration with physicians, nurses, regulators and government bodies to overcome. Mr Guthrey raised staffing issues as a

challenge, especially in rural and remote areas. He also said that the lack of appropriate private consultation areas with the necessary infrastructure and equipment needs to be overcome for the expansion of vaccination services.

Another major obstacle is the regulatory framework of each jurisdiction. Mr Cooney said that, in Alberta, Canada, a legislative amendment was required to provide pharmacists with the authority to administer injections.

“Following approval of legislation our college identified education and training requirements and developed a process for pharmacists to apply for and be granted authority to administer injections,” he added. This action was commended by Dr Andrews, who not only highlighted needs for robust undergraduate teaching on immunisation, but also for the training of practising pharmacists and the education of patients.



Emma Andrews:
Needs for robust undergraduate teaching on immunisation, training of practising pharmacists and patient education

Dr Downham also raised the need for the implementation of effective means for recording vaccinations into shared electronic patient records. Mr Guthrey agreed. He pointed to the importance of access to eHealth vaccination records, so that “other health professionals and the government will be aware of the impact of pharmacy services”.

“It is paramount to increase vaccination coverage and access worldwide.”

In conclusion, the roundtable addressed the issue of how to achieve effective support and collaboration among all members of the health care team. A comment from Mr Cooney summed up the consensus: “There is absolutely a role for pharmacy organisations to engage and communicate

with the regulators and advocacy organisations of physicians and other health professionals. However, the best examples of collaboration have been stimulated through communication, relationship building and mutual respect at the front line. When physicians, nurses and others know the pharmacist, know their knowledge, skills and abilities, and know that they have the best interests of the patient in mind, collaboration is stimulated.”



Peter Guthrey:
Importance
of access to eHealth
vaccination records

COMBATTING VACCINE SCEPTICS

African American children are less likely than white children to have received a rotavirus vaccine, the full Hib series, four or more DTaP (diphtheria and tetanus toxoids and acellular pertussis) doses and four or more doses of the pneumococcal conjugate vaccine. So said Yen Dang, assistant professor of pharmacy, University of Maryland Eastern Shore, USA, at a FIP congress session on achieving good public health across cultures. Dr Dang also pointed out that white children are less likely than Hispanic children to have received an influenza vaccine between six months and 17 years of age.

Similarities can be found in the adult population. African American adults are less likely than white and Hispanic adults to be vaccinated against influenza, and Hispanic adults are less likely than white, African American and Asian adults to be vaccinated against hepatitis B, Dr Dang said. Suffice to say, there are challenges in reaching certain groups of people for vaccination. And there is also the anti-vaccination movement. Dr Dang gave examples of misstatements such as: vaccines are not adequately tested; they may contain toxic additives; they may weaken or overwhelm the immune system; and they cause or worsen asthma and allergies.

Some faith groups are also against vaccination, Dr Dang said. For example, there have been claims from certain Christian groups that aborted fetuses are used to manufacture certain vaccines. Another example she provided was the moral dilemma of giving the human papilloma virus vaccine to teenage girls (and boys) to reduce the risk of infection. Dr Dang also raised the issue of cultural mistrust of vaccines. For example, in Cameroon in 1990, rumours were spread that public health officials were administering a range of childhood vaccines to sterilise women, and, in 2012, the Taliban in southern Afghanistan called the polio vaccine an American ploy to sterilise the Muslim population and an attempt to avert Allah’s will.

A tailored approach is required to address disparities in vaccination rates, Dr Dang said. One method could be the promotion of evidence-based approaches to improving rates for targeted populations. The impact of poverty, insurance status and other socioeconomic factors on immunisation rates should also be considered. A collective effort is required of all health care professionals and those in government to educate those who are sceptical or suspicious of vaccinations, she said. On a local level, Dr Dang suggested strategies to improve immunisation services, including keeping clinic staff up to date with current recommendations, maintaining and protecting vaccine supplies, and assuring that patient records are complete and up to date. — *Liam Williams*

FIP ROUNDTABLE:

Achieving responsible use of antimicrobial medicines

Antimicrobial resistance (AMR) is one of the greatest threats facing humanity and it has become more prevalent in recent years. It requires urgent action at several levels and all key stakeholders need to be involved. How can successful strategies be implemented worldwide? And how can pharmacists contribute to policies being translated into practice? These and other key questions were discussed at an FIP roundtable in Buenos Aires, Argentina, in August. Panel members were Sabiha Yusuf Essack, research chair in antibiotic resistance & one health at the University of KwaZulu-Natal, South Africa, José Luis Castro, regional adviser on rational use of medicines at the Pan-American Health Organization (PAHO), Per Troein, vice-president, strategic alliances, IMS Health, and FIP vice-president Eduardo Savio. Gonçalo Sousa Pinto reports.



Panel members (left to right): Sabiha Yusuf Essack, Eduardo Savio, José Luis Castro and Per Troein.

The World Health Organization Global Action Plan on Antimicrobial Resistance states that the health care workforce has “a vital role in preserving the power of antimicrobial medicines”. It also states that inappropriate prescribing and dispensing can lead to misuse and overuse of antimicrobials, especially where health professionals lack up-to-date information, cannot identify the type of infection, yield to patient pressure to prescribe or dispense antibiotics or benefit financially from supplying the medicines.

In November 2015, FIP published *“Fighting antimicrobial resistance: The contribution of pharmacists”* with a comprehensive international overview of pharmacists’ activities. But the importance of using antimicrobials responsibly cannot be stressed enough, and much remains to be done. Mr Troein started the debate by presenting data that links the appearance of bacterial resistance to the extent of antibiotics use in the same country. This is aggravated by the current research and development challenge, by which several new antibiotics may be launched, but they are “quite narrow” in indications, which leaves large areas without a replacement treatment. Mr Troein referred to the IMS Health report from 2012 “The benefits of responsible use of medicines: Setting policies for better and cost-effective healthcare”, which provided evidence of that promoting responsible use of antibiotics could result in annual global savings of USD 54bn.

“In 2015, less than 50% of the countries of each WHO region reported having a national plan for containment of AMR.”

Dr Castro added that bacterial resistance appears even with normal use of antibiotics because of selection processes but it is aggravated by irrational use. Yet, in 2015, less than 50% of the countries of each WHO region reported having a national plan for containment of AMR [see Box], and in three

of the five regions more than 50% of the countries still reported availability on antibiotics without a prescription.

Despite the daunting dimension of the problem, the roundtable also identified effective measures to contain AMR. Professor Essack said that this requires action at three levels: advocacy (raising awareness of the public, policymakers and health care professionals), policy (national strategies, treatment guidelines) and practice (particularly changing prescribing and dispensing of antibiotics, but also patient behaviours). In terms of the role of pharmacists, Dr Castro said that community and hospital pharmacists are instrumental for encouraging adherence and rational use. This was echoed by Professor Essack, who cited the Global Respiratory Infection Partnership, which recommends that pharmacists:

- Validate/confirm prescribing practice
- Effect behaviour change in terms patient demand for antibiotics
- Actively adhere to AMR policy and generate evidence

She also said that community pharmacists have a critical role in the non-antibiotic management of self-limiting infections such as viral upper respiratory tract infections.

Dr Savio pointed out that pharmacies can collect unused medicines, thus reducing the presence of antimicrobials in the environment. He also highlighted the importance of rapid diagnosis tests [see Report, pp36–7] and suggested that, by 2020, it should be mandatory for the prescription of antimicrobials to be informed by data and testing technology wherever available.

In hospitals, sterilisation and hygiene are fundamental to combat AMR. It is a frequent situation that sterilisation services are under the umbrella of the surgical or nursing services. “Our profession, with a strong background in microbiology, aseptic technique and sterilisation processes, has the required competence to manage these services,” Dr Savio said.

Mr Troein raised the issue of the use of antibiotics in the food industry. In the USA, for example, it is estimated that while 80% of all antibiotics are given to animals, only 10% is for sick animals. The rest is to prevent disease in cramped conditions or plainly to promote growth.

As a final remark, Dr Castro warned that the rational use of antibiotics requires the support of pharmacists through different roles and activities, but it will not be achieved without the engagement of professional organisations and health authorities. “We need to dare to dream outside the box,” he concluded.

Antimicrobial stewardship implementation

Ghana is gearing up to deal with the major threat of antimicrobial resistance (AMR) and its technical task team has been working on a draft national antimicrobial stewardship policy, Kwame Buabeng, of Kwame Nkrumah University of Science and Technology, told the audience at a FIP congress session on antibiotic stewardship.

Dr Buabeng shared the policy’s main features, which include increasing laboratory capacity, quality control processes, resistance surveillance, research for herbal antimicrobials and rational use in agriculture. Various studies were done on AMR and the knowledge, practices and beliefs of health providers and the public before formulating the draft policy, he said.

Steven Martin, of Ohio Northern University, USA, discussed the expertise and steps needed to lead antibiotic stewardship, some of which are: leadership commitment, accountability, tracking and reporting on antibiotic stewardship programme goals, education and drug expertise. He said that specifications for drug dosage, duration of treatment and indications should be made clear to all concerned, and pharmacy action plans could include dose optimisation/adjustment, switching from intravenous to oral medicines and alerts for duplicate therapy. Professor Martin presented a meta-analysis of 24 studies on antibiotic stewardship from nine countries (Australia, Brazil, China, France, Greece, Germany, Hungary, Tunisia and USA). Restriction or preapproval of antibiotics, guidelines for antibiotic prophylaxis or treatment, de-escalation protocols and computer-assisted decision support were some of the interventions, and significant reduction in antibiotic use was observed. The impact of antibiotic stewardship implementation is, therefore, encouraging and helps keep people motivated, he said.

Professor Martin went on to give examples of antibiotic stewardship policies. In France, there are financial penalties for poor outcomes and hospital accreditation may be affected if compliance with the policy is not reported. There are no global systems for stewardship and many differences exist among nations but acceleration is happening in various countries, he said. His advice on implementing antibiotic stewardship was: “Start with simple actions, pick one, prioritise, do it well and then go to the next one.” — *Manjiri Gharat*

Time to rethink health care, says FIP President



Reducing the global burden of disease was the theme of the 76th World Congress of Pharmacy and Pharmaceutical Sciences, which was held from 28 August to 1 September. Over 2,200 pharmacists, scientists and policymakers from 93 countries gathered in Buenos Aires, Argentina, to rise to this challenge.

FIP's 2016 annual congress was co-hosted by its member organisation the Argentinian Pharmaceutical Confederation (Confederación Farmacéutica Argentina; COFA). The following pages contain a mixture of reports from the congress. Abstracts and Powerpoint slides from the sessions can be accessed [here](#). Recordings of the plenary sessions are also available [here](#).



People was the focus of the second congress opening address of FIP President Carmen Peña during her four-year term. Here is a summary.

“We need to rethink health care,” Dr Peña told the audience. This is required in order to prevent patients becoming lost in labyrinths of specialties and bureaucracy. Today’s patients have new demands and new needs, she said. Their increasing age and number require action in areas of health care and home care where they should receive an integrated response to their health problems. “We need to be more concerned with continuity, integration of processes and socio-health coordination,” she said. And attention also needs to be paid to self-care, non-prescription medicines and complementary health care; sharing information and communication among different health professionals is an increasing priority. “The system should follow the patient rather than the patient following the system,” she stressed.

Dr Peña’s focus on patients in her address tied in with one of the key areas, namely, people, of her “Two times two” plan for pharmacy, which was developed in 2014. This calls for two actions (professional development and promotion of pharmacy) at two levels (individual and collective).

The key area of people also includes health care professionals (including pharmacists) and women, and Dr Peña went on to discuss these aspects.

She said that in 21st century society health care cannot be separated from social issues. So the work of health care professionals must advance with a holistic, transversal approach that allows close collaboration among all health care professionals and at all levels of care. “We have to deal with a different patient profile in a social panorama that did not exist before,” she explained. Patients should receive an integrated approach to their health problems, particularly in situations of dependence or incapacity.

“In 21st century society health care cannot be separated from social issues.”

Dr Peña told assembled pharmacists that FIP had for years been promoting the goal of collaboration between different health care professionals to improve patient care, generating coherence and continuity, increasing efficiency and promoting knowledge. That goal is shared by the World Health Organization and the World Health Professions Alliance. “Our aim is to establish cooperation models, enabled by policies that strengthen coordination for the benefit of patients, with generosity and responsibility, and always with respect for our corresponding functions,” she said.

“To do this, it is essential to generate trust among professionals, improve communication, share information systems about patients and their medication, and promote combined projects. We should expand this approach to non-health professionals, such as hospital managers, lawyers, economists, etc, who are essential to building this new concept of health care.”

She added that, once again, empowerment of patients with regard to their clinical records is essential. “They can decide the extent to which that information is shared among health professionals.”

“Today’s patients have new demands and new needs.”

Dr Peña then turned to women and, in particular, their empowerment through education. She pointed to a gender gap, one that begins in childhood, with 30% of girls worldwide not going to school, meaning women account for two-thirds of the world’s illiterate population. She referred to the words of Ban Ki-Moon, Secretary-General of the United Nations: “Women’s empowerment leads to society’s advancement.” She told the congress that FIP supports this view, and is trying to bring about alliances between women and pharmacists to ensure ongoing, quality access to medicines for all populations.

“Empowering women will create a better world,” she declared. FIP, she added, is working towards a better world: a better world where a strong workforce supported by a well connected society will result in a healthy population, and where health and social care policies are no longer separated.

Rising to the challenge of reducing the global burden of disease

Graeme Smith reports on the congress's plenary session.

There is no better time than now for pharmacists to take action to reduce the global burden of disease. So said Tana Wuliji, technical officer, health workforce, at the World Health Organization. Dr Wuliji mentioned the WHO Sustainable Development Goals (SDGs). She explained that these are ambitious, globally agreed goals for 2030 that are intended to be a compass for social progress that tackles the root cause of inequities, namely, poverty. There are 17 goals, 169 targets and 231 indicators. "And health care has pretty much something to do with everything," she said. The target is universal health coverage because health is seen as the engine of prosperity and many other gains in society. Pharmacy can be involved, Dr Wuliji told the congress. She went on to suggest how.

The number 1 SDG is "no poverty". With reduced poverty comes better health, and better health reduces poverty, she said. "It is a virtuous cycle." Poverty means reduced access to health and disease prevention services. All other SDGs feed into it.

For example, SDG 3 is "good health and well-being" and several other SDGs, which pharmacists can be involved in, feed into that. SDG 4, "quality education", covers schools, which are an ideal health promotion setting. Pharmacists can be involved in improving the health and nutritional status of schoolchildren leading to improved education outcomes.

SDG 10 is about "reduced inequalities". "To achieve this we need to look at how we can mainstream health in all policies to tackle socioeconomic gender, ethnicity, disability and sexuality inequalities," she said. What is pharmacists' role here? "Everywhere we are, pharmacists in the community — by not discriminating, by fighting prejudices, by making sure that everybody in society has access to the right services

and the right advice when they need it — are crusading against inequality. And that is incredibly powerful when done en masse."

Medicines are key to health, Dr Wuliji stressed, and "you have a critical role to play in transforming pharmacy services to make sure we are preventing future disease burdens and tackling existing causes. Pharmacists need to anticipate and address unmet needs and we must understand how we can best fit into strategies to meet these."

In championing women, she said that pharmacy may be considered exemplary in showing how workplaces can be transformed. "We need to show that women can break the glass ceiling, we need more women leaders — and generally pharmacy has been pretty good at this." She said that if we can transform our workplaces in terms of awareness of the things that prejudice women, then we can shift the whole culture around gender.

"There is no better time for transformation than now."

Another important role for pharmacists is advocacy. "We must be activists," she said. "There is a lot we can do in terms of social mobilisation and engagement, and in policy making and governance."

There is no better time for transformation than now, she said. According to the World Bank, the global economy is projected to create around 40 million new health care sector jobs by 2030. And the WHO predicts a shortage of 18 million health workers to achieve and sustain its SDGs. There is going to be an unprecedented demand for health care workers in the next

15 years. “So pharmacy has a once-in-a-generation opportunity to expand its workforce and to be agents of change.”

However, there are issues. In low-income countries in particular there is a huge need for health workers but at the same time there is little investment or demand. This means that these countries will have the resources neither to educate and train health workers nor to employ those that they need. “So even if we invest a lot in pharmacy education, market dynamics in those countries will not enable them to be employed. And if you’re not employed, you can’t make a difference. You can’t take on those transformative roles. Unless we tackle those workforce issues we are limiting the transformative power of pharmacy.”



Tana Wuliji: There is a lot we can do in terms of social mobilisation and engagement, and in policy making and governance.

What is holding back investment? One factor is what has been termed “the Baumol effect”, named for the author of a 1967 study from the USA which identified health as a “cost disease” and a drag on the economy. New research by Arcand and colleagues, soon to be published by the World Bank, however, challenges this view. It establishes the positive and significant economic growth-inducing effect of health sector employment. Productivity gains in the manufacturing sector, derived from greater health care employment, can be large — mainly through improvements in population health outcomes — and the resulting reduced disease burden catalyses economic growth overall, Ms Wuliji told the congress.

Preparing the profession

Pharmacists have to be prepared for practice in a manner that enables them to respond to the global burden of disease. In discussing that proposition, Henri Manasse, dean emeritus at the college of pharmacy at the University of Illinois at Chicago, USA, said that the profession’s long-desired future is

patient-centred practice, and pharmacy education is critical to preparing the workforce to achieve this.

“What does it take to understand medicines, and patients and all of the communications we have with them,” he asked. An array of knowledge, skills and behaviours are required. Achieving patient-centred practice requires a foundation in: chemistry, physics and mathematics; pharmaceutical sciences; medicinal sciences; social, administrative, legal and behavioural sciences; patient assessment, communications and laboratory data analysis; and basic and comparative clinical therapeutics.

But then the question of competence arises. Competence is the foundation point for the creation of pharmacy curricula. Professor Manasse said, for pharmacists, the meaning of competence was “to be a drug expert and be able to make autonomous decisions about medicines and therapeutics ... and to be responsible for the outcomes of drug therapy”. Tackling the global burden of disease requires a huge workforce and a set of skills that no one in the health care system has with respect to medicines use, apart from pharmacists.

“Pharmacists and other health professions are reclaiming what belongs to them.”

There was a time, he added, when everything to do with health was considered the practice of medicine. But now pharmacists and other health professions are reclaiming what belongs to them. “A profession is partly defined by its capacity to be autonomous, ie, making decisions about the patient based on scope of practice, knowledge, experience and skills, and not having to say ‘dear doctor, can I do this?’” Professor Manasse stressed. “As a profession we must preserve this autonomy.”

From an international perspective, notwithstanding that disease patterns are basically the same around the world, pharmacy education is “all over the place”, he said. “We have to think about that because if we’re going to have an impact on the burden of disease there are some universal skills that we need regardless of the population we care for.” He said there was a strong feeling among pharmacy deans that the profession should move in the direction of universal degrees, universal standards for pharmacy schools and universal competencies for pharmacists. Professor Manasse added that there could be scope for pharmacists who have been trained for specialism in particular diseases to be recognised from a global perspective.



What pharmacists want

We sent our student reporters Dana Duek and Tatiana Stepanovitch out into the congress to ask pharmacists what matters to them and what they would like to change. This is what they found.



"If I could change one thing in the pharmacy profession, it would be the mindset of the workforce in Ghana. The attitude towards work is a bit difficult. You keep training them all the time and they keep on making mistakes. On the other side, the business environment is not very good, because there is no real support from the government."

— Yaw Afrani, pharmacist at Lansah Chemist Ltd, Ghana



"The issue that concerns me is clinical pharmacy and pharmaceutical services. I'm particularly interested in medicines reconciliation, because it is a new area for pharmacists in Brazil, especially for pharmacists that are with patients in hospitals, and in pharmacies too. I hope pharmacists can develop and improve in this area, in matters of the relationship with patients, and improve the results of patients in healthcare."

— Carina Carvalho Silvestre, pharmacy student, Sergipe Federal University, Brazil



"The pharmacist's role in Argentina is still under development. We need a lot more training and we need to establish more relationships with other professionals from around the world in order to guide the Argentinian model in a better way. At an international level, what I see is that we are making great advances in multidisciplinary work and the intervention of the pharmacists in many aspects, not only in relation [to] hospitals and in the community, but also regarding emergencies and other situations that affect us all."

— Juan Eduardo Robledo, pharmacist, Farmacia Hospitalaria, Argentina



"Radiopharmacy is really important for diagnosis for cancer patients and their treatment. I hope this subject is developed further in the next congress. I'd like it if these topic sessions could be added to the programme again, since the importance of this field is increasing very much nowadays."

— Asuman Yekta Ozer, head of the Radiopharmacy Department, Hacettepe University, Turkey



"I would try to standardise what we are ordering concerning clinical pharmacy, because what happens in one part of the world is very different from [what happens in] another. Regarding clinical pharmacy, what pharmacists contribute clinically is very different across the countries in Europe, very different around the world, and we are currently planning a study to compare clinical pharmacy services in different parts of the world."

— David Terry, director of the Pharmacy Academic Practice Unit, Aston University, UK



"Unfortunately, many pharmacists are not convinced with the value of our profession. I really believe in it, it's a very precious profession. I'd like to increase this awareness to people all over the world by encouraging good practices. In Egypt, one of the problems we are facing is drug shortage, and clinical pharmacy has [only] been recently introduced, not more than about 14 years ago."

— Ragla Mohamad Awad Elsayed, pharmacist, Paediatric Surgery Unit, Alexandria University Hospital, Egypt



"One of the biggest pharmacy issues I'm most concerned about ... is mainly making sure that pharmacists have access to information that will ... guide the best evidence-based medicine decisions in their practices, and helping with patient outcomes by having that detailed information."

— Katie Carls, clinical pharmacist and writer/editor, Wolters Kluwer Clinical Drug Information, USA



"Who gets paid for counselling should be increased. They should be paid enough. In Korea, we want to change prescribing of [more products] to generic, the chemical name instead of the brand name."

— Lee Youngim, Korean Pharmaceutical Association



"In Japan, I think we need to [further] develop clinical pharmacy and so, of course, educational matter. In Japan, practice is very limited for students. We have a six year education system, but I think this is not enough to make a good pharmacist."

— Nahoko Kurosawa, professor, Hokkaido Pharmaceutical University, Japan



"In my country, we're not occupying all the fields that we could. We're letting other professions have more weight in matters in our own field. For example, in the industry, we let chemists or other professions occupy our space. Regarding community pharmacies, the problem is that we have a lot of pharmacy chains that are mere sales points for medicines. They lower prices and don't give any opportunity for the pharmacists to assess people and to provide care for them.... We are lacking personalised assessment for the patient, there is no pharmaceutical consultation or follow up, which is part of our profession. In hospitals we are trying to give more [emphasis] to pharmaceuticals so that people respect our formulation knowledge.... Luckily, we are achieving that. We are getting a lot of attention in the pharmaceutical care programmes.... We need to keep strengthening links and keep participating in multidisciplinary teams."

— María Angelina Zumbado Arroyo, pharmacist, Hospital San Juan de Dios, Costa Rica



"The area that concerns me the most is public health and the role of the pharmacist. [Pharmacists] need to bridge the gap in public health — we have a key role to play when it has to do with the health of our people.... I want us to be more proactive. Reporting and documenting events is important because we can then go into research, to see what more we can do.... Let us make our presence known!"

— Francisca Chisom Uchem, head of essential drugs, Anambra State Pharmacy Healthcare Development Agency, Nigeria

STEMMING THE TIDE of dementia in science

Dementia looks set to become a huge health burden globally and more advances in science are needed in this area. Scott Dalglish reports from a session jointly organised by FIP's Special Interest Group on Translational Research and Individualized Medicines.

Dementia is a growing public health issue and one which will increasingly affect low- and middle-income countries. Addressing its wider impact will require further advances in both screening and therapeutics, Kiyofumi Yamada and Eduardo Savio told the audience. More effective screening will allow patients to receive a confirmed diagnosis before symptoms become clinically apparent. Earlier identification may allow existing treatments to have more beneficial effect, particularly during the initial phases. However, both speakers also acknowledged the challenge of identifying and developing highly effective treatments.



Kiyofumi Yamada:
Many potential therapeutic
targets

Professor Yamada, who works in the field of neuropharmacology at Nagoya University Graduate School of Medicine, Japan, set the scene with figures from the World Alzheimer Report 2015. Current figures suggest that new cases will double every 20 years and the percentage of cases in low- and middle-income countries will rise from 58% to 68% by 2050. Global

costs of dementia are set to increase to one trillion USD by 2018 and to two trillion USD by 2030. He went on to focus on Alzheimer's disease, considering the significant risk factors and future therapeutic targets.

Risk factors for Alzheimer's disease that are well known include age and gender, but many genetic factors have been identified and include mutations in amyloid precursor protein (APP), and presenilin 1 and 2 (PSEN1 and PSEN2) which are direct causes of the disease. In addition the E4 form of apolipoprotein E (APOE4) is implicated in Alzheimer's disease. It is not an absolute indicator but homozygous individuals have a significantly increased risk.

The complex nature of Alzheimer's disease presents many potential therapeutic targets particularly in the amyloid cascade, including immune therapy through vaccines and antibody treatments, or inhibition of beta- or gamma-secretase. Addressing abnormal tau protein phosphorylation by inhibiting glycogen synthase kinase (GSK3 β) is a further therapeutic target.

Addressing a range of these potential targets, Professor Yamada identified 32 different drugs in various phases of development, of which only 17 trials are still ongoing. Sadly many of these treatments remain largely ineffective and clinical trials may be starting at too late a stage — once disease progression is significantly advanced, he said. Professor Yamada concluded by setting key priorities for pharmacists to help stem the tide of dementia. Pharmacists can help patients and their families by keeping watch on new research developments in Alzheimer's disease, by playing a role in recognising the early symptoms of dementia and by assisting patients with medication management, demonstrating empathy and providing clinical services that minimise drug-related problems, in dementia-friendly pharmacy environments.

Radiopharmacy advances

Dr Savio, head of radiopharmacy at the Uruguayan Centre of Molecular Imaging, highlighted progress in neuroimaging and biomarkers that could allow for earlier identification and diagnosis. He noted that Uruguay, along with Canada and Cuba in the Americas, has already reached a level where more than 15% of the population is aged 65 years or older, and 1% of



Eduardo Savio:
Better information can be
generated

the population is 80 years or older, and that more and more low- and middle-income countries are reaching a similar position. Based on World Health Organization information, the incidence of dementia was similar in countries at all income levels until around 80 years of age, at which point there are differences between, for example, Latin America and Europe and North America.

The direct medical costs of dementia are higher in middle- and low-income countries when compared with high-income countries so “those who have more need . . . have to spend more money looking after their older people”. A comparison of research funding also shows that funding for Alzheimer’s research is significantly less than for cancer, heart disease and HIV, he said.

Current detection and categorisation of dementia requires structural and functional imaging but too often we look only at one or the other. He likened this to “observing with only a single eye and if this happens we frequently obtain only partial information”. Fortunately, hybrid systems have been developed in the past few years so that both biological and anatomical images can be acquired and fused single images produced. By making use of positron emission tomography (PET) and computerised tomography (CT) images and using a range of radiotracers, much better information can be generated, he explained.

“Clinical trials may be starting at too late a stage — once disease progression is significantly advanced.”

You would not imagine arriving in a pharmacy where there is only one drug and yet this happens in a high number of imaging centres where they work only with fluorodeoxy-glucose (FDG) for PET-CT scans because it is useful for a range of indications, Dr Savio explained. But it is important to use a multi-tracer approach and not manage the patient with a single tracer, he pointed out. Dr Savio then presented examples of scans using both FDG to detect reduced glucose uptake in the brain and the gold-standard PIB (Pittsburgh compound B, developed by Pittsburgh University) linked with carbon-11 to give short half-life of around 20 minutes and which is able to highlight the beta-amyloid plaques that are implicated in Alzheimer’s disease. He related his comparison to the progress of Alzheimer’s disease and identified a critical time point in the clinical progression. Identification



As dementia continues to affect more patients in more countries, funding and early detection will be critically important.

using only FDG would occur after this critical point when cognitive decline is already apparent whereas the use of PIB can begin to detect amyloid deposits 10 years or so before clinical presentation, Dr Savio said. Further tracer compounds have been developed that can detect beta-amyloid plaques, including 18F-florbetapir and 18F-FDDNP. The value of 18F-FDDNP, developed in the USA, is that as well as identifying β -amyloid deposits it can also detect neurofibrillary tangles, another hallmark of Alzheimer’s disease caused by tau phosphorylation.

In response to questions, Dr Savio acknowledged that the detection of plaques does not necessarily indicate patients will go on to develop Alzheimer’s disease, but he said that this approach could be most useful in mild cognitive impairment present several years before Alzheimer’s disease becomes established. He also highlighted that, in some health jurisdictions, health systems or insurers may be reluctant to fund studies where cases are identified when there will be no effective treatment. In such cases the patient and family have to meet those costs for themselves. As dementia continues to affect more patients in more countries, funding and early detection will be critically important, and pharmacists have a very important role. [See [p39](#) for paired report “Stemming the tide of dementia in practice”.]

NALFURAFINE: The first non-addictive opioid receptor agonist

Liam Williams reports from a session entitled “No more pain! The rise of the non-narcotic opioids and medicinal marijuana”.



Hiroshi Nagase: Clinical trials of nalfurafine were carried out to treat pain in post-operative patients

Opioid receptor agonist drugs are often associated with a number of psychoactive side effects, including dependence and addiction. For example, addiction to opioid painkillers is a well documented growing problem in many parts of the world. The research and development of opioid receptor agonists that do not cause addiction is, therefore, of great interest to the

pharmaceutical industry. At one point, there were over 100 companies, including Pfizer, Sanofi-Aventis, Merck and AstraZeneca, researching κ -opioid receptor (KOR) agonists, which is known not to cause addiction, unlike μ -opioid receptor agonists, said Hiroshi Nagase, researcher at the International Institute for Integrative Sleep Medicine, University of Tsukuba, Japan.

The KOR is one of four related receptors that bind opioid-like compounds in the brain. It is responsible for mediating the effects of these compounds, which include changing nociception, consciousness, motor control and mood. Nalfurafine was the first KOR agonist to demonstrate that it did not cause addiction (preference) or major unpleasant side effects (aversion), explained Professor Nagase.

Derived from the opioid antagonist naltrexone, nalfurafine was first synthesised in 1998. It has been found *in vitro* to bind to the μ -opioid receptor and to possess weak partial agonist activity at this site, but with much lower affinity relative to the KOR. But *in vivo* nalfurafine has shown no μ -opioid receptor agonism or antagonism in animals or humans, and no evidence of rewarding or reinforcing effects or physical dependence.

Itching

Professor Nagase explained that, initially, clinical trials of nalfurafine were carried out to treat pain in post-operative patients. However, at the analgesic dose, many patients experienced unacceptable severe sedation and trials were stopped.

Interestingly however, said Professor Nagase, many patients administered morphine, a μ -opioid agonist, experienced severe itching, but none administered the KOR nalfurafine experienced this effect. It was this observed difference between μ and κ agonists that led to the application of nalfurafine, given at a lower dose than the analgesic dose, as a treatment for itching. At the time, Professor Nagase explained, there was no effective drug for uraemic pruritus in kidney dialysis patients (a condition that causes systemic and severe itching without inflammation on the skin and is not relieved by conventional treatments such as antihistamines). And so nalfurafine was tested in clinical trials to examine its antipruritic effects in this group.

In 2009, the drug was approved for use in Japan as an oral antipruritic drug for haemodialysis patients. Post-marketing surveillance studies have shown positive results (improvement of itch). Professor Nagase said that the clinical performance of nalfurafine was shared at the Meeting of Japanese Society for Dialysis Therapy in 2010 and demonstrated that over 80% of patients (across various hospitals and clinics in Japan) were satisfied with the effect of the drug.

Professor Nagase called the discovery of nalfurafine's antipruritic effects for dialysis patients a “major breakthrough” since there were no effective treatments previously available. He emphasised that there is evidence that severe itching in kidney dialysis patients is associated with depression and even suicide.

Last year, nalfurafine was also being used in clinical trials in Japan for the treatment of cholestatic pruritus in patients with chronic liver disease, said Professor Nagase, and it is also undergoing clinical trials for the treatment of uraemic pruritus in the USA. The search, however, for a non-narcotic opioid analgesic continues.

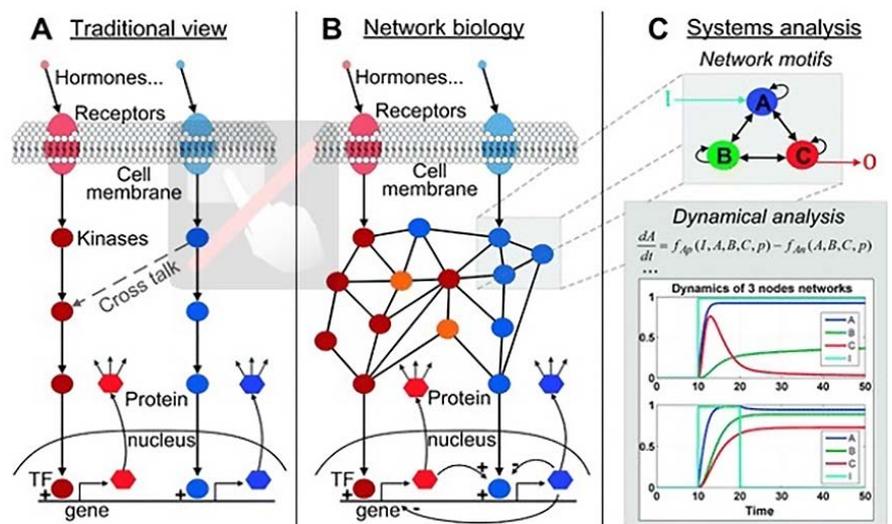
Translating -omics knowledge into benefits for **cancer patients**

Nowadays in the search for new medicines pharmacogenomics is a consideration. But other biological fields of study, such as metabolomics and proteomics, are also relevant. Cairo Toledano reports on a congress session devoted to personalised anticancer strategies — developments in science and current application in clinical practice.

Anticancer drugs are constantly monitored since the borderline between efficacy and toxicity is narrow. These features can depend on polymorphisms related to drug-metabolising enzymes, drugs transporters or receptors. Such information can optimise cancer treatment, and pharmacogenomic testing is currently performed in clinical laboratories around the world. “The more we study genes, the more discoveries in terms of [their] complexity we find,” said Aridaman Pandit, junior group leader (Radstake Group) at the Laboratory of Translational Research, UMC Utrecht, Netherlands.

symptoms or conditions, which may suggest that genes are affected very distinctively. We need to look at genes from a wide, complex point of view, Mr Pandit said, in order to understand their regulation and potential use in pharmacology. In this sense, the molecular characterisation of a gene may be implied through different techniques that enhance precise diagnosis, including the analysis of the microbiome, cytokines, DNA methylation, histone modifications, lipidomics or transcriptomics. >>

It is necessary to perform pharmacogenomics studies that result in potential data that may explain the drug response in patients, since there are polygenic determinants that affect pharmacokinetics and pharmacodynamics, and the metabolism of an anticancer therapy. In some cases, dosing patterns can be enhanced as a result. In addition, genotype to phenotype knowledge represents the foundation of further database applications. Research points to different genes — “pharmacogenes” — involved in the absorption, distribution, metabolism and excretion of drugs, and could eventually lead to a valuable collection of information to be applied in cancer treatment, Mr Pandit said.



As part of the clinical outlook, patients living with cancer can have overlapping

Pharmaceutical Sciences World Congress 2017 Stockholm, Sweden

21-24 May 2017



Future Medicines For One World

Systems approaches to drug discovery, development and clinical usage

Join leading pharmaceutical scientists from around the world to discuss cutting-edge research and up-and-coming developments at the Pharmaceutical Sciences World Congress 2017 in Stockholm, Sweden.

THE SYSTEMS THERAPEUTICS APPROACH

Systems biology has emerged as a novel scientific discipline, which focuses on the analysis of biological networks as the basis for the functioning of biological systems. Systems analysis will revolutionise medicines and health research.

This will impact on both the pharmaceutical sciences and pharmacy practice, says congress chairman Professor Meindert Danhof.

In research, systems biology offers a novel approach to:

- i) Identifying pathways of disease;
- ii) Discovering drug targets; and
- iii) Discovering biomarkers (for monitoring of the treatment response).

In practice, this will lead to the introduction of "systems therapeutics" interventions which are:

- i) Personalised (both with respect to the selection of drug(s) and dosing regimens);
- ii) Disease modifying (with emphasis on pre-emptive and preventive treatments); and
- iii) Complex (such as multi-target drugs, rational drug-drug combinations, drug-device combinations).

#FIPCongress



WHO NEEDS TO KNOW ABOUT IT?

The introduction of systems therapeutics will impact on the entire chain, from drug discovery and design through to development, regulation and use. This calls for a multidisciplinary approach with contributions from the entire spectrum of subdisciplines in the pharmaceutical sciences and pharmacy practice. We must join forces.

www.fip.org/pswc2017



Jane Pruemer:
Beyond traditional care

Some findings have resulted from the study of genomic signatures at whole genome level in certain types of virus, and sequencing technology has increased opportunities related to the identification of genes that alter expected anticancer results. Nevertheless, such analysis requires special attention to properly translate the information

for clinical purposes, Mr Pandit said. There are other challenges related to genetic data, however, such as the continuous update of pharmacogenomic information to include newly generated findings.

Mr Pandit also said that it is necessary to look to systems medicine as a wide network of potential solutions. Patients can have diseases with overlapping symptoms, for example, in rheumatoid arthritis, inflammatory bowel disease and psoriasis. “We need to study diseases and symptoms holistically,” he believes. He added: “Systems medicine is the way to achieve the four Ps: predictive, preventive, participatory and precision medicine.” A systems approach is currently being applied to researching into diseases that affect the whole body, such as systemic sclerosis and systemic lupus erythematosus, Mr Pandit said.

Despite remarkable progress in pharmacogenomics in the past few years, it is clear that technologies and techniques are not available for all and Mr Pandit highlighted the need for more funding in the development of new drugs and in -omics technologies. “Technologies should be translated into patient benefit,” he concluded.

Share pharmacogenomic advances

Cancer treatment has faced, over time, different approaches. Cancer is a chronic disease that often coincides with other illnesses and can predispose to other chronic conditions, leading to polypharmacy with its associated drug-drug interactions, drug-disease interactions and toxicity. So said Jane Pruemer, professor of pharmacy at the University of Cincinnati, USA.

Cancer therapy goes beyond traditional care and requires the collaboration of several health care providers. Patients need to receive information, advice and follow-up along the course of their disease from a professional workforce. Such clinical and care goals are susceptible to our knowledge of pharmacogenomics: “Pharmacists should explain decisions taken due to pharmacogenomic analysis to formulate patients’ medication,” Professor Pruemer believes.

Professor Pruemer described molecular studies on epidermal growth factor receptor (EGFR) related to non-small-cell lung carcinoma (NSCLC). EGFR mutation frequency is about 50% in Asian patients with NSCLC. Findings have allowed the identification of potential mutations that affect the efficacy of anticancer drugs. As a result the US National Comprehensive Cancer Network currently offers practice guidelines that help decisions over whether a chemotherapy should play a role in NSCLC treatment, the monitoring of possible toxicity and the performance of certain receptor mutations tests. “Genetic testing has taken a major role in the decision-making process to manage NSCLC,” she said. In a certain sense, this research has empowered the health care team to select treatment based on the results reported. Understanding the data offered by such tests is fundamental for pharmacists, Professor Pruemer said.

USP LAUNCHES PROGRAMME TO REVIEW QUALITY ASSURANCE TECHNOLOGIES

“The surveillance and screening of medicines is a crucial component of any sustainable approach to assuring the quality of medicines,” says Lukas Roth, associate programme manager, US Pharmacopeia. Watch the [video](#) to find out about the USP’s new “technology review” programme, which aims to disseminate objective information on the capabilities of different surveillance and screening technologies, such as those that assess chemical parameters and track and trace components built into products.

From acute respiratory syndrome to Zika: **What can we do about emerging diseases?**

Sarah Marshall reports from a session in which pharmacists shared their experiences of Ebola and Zika.

If we look at the past, the future may not be that much different if we do not prepare ourselves. That is the reality. This was the stark warning given by Régis Vaillancourt, director of pharmacy at the Children’s Hospital of Eastern Ontario, Canada. He reviewed the devastating historical impact of infectious diseases such as smallpox and the plague, and considered how it might inform our response to emerging diseases. The World Health Organization defines an emerging disease as “one that has appeared in a population for the first time or that may have existed previously, but is rapidly increasing in incidence or geographic range”. Although Ebola and Zika virus outbreaks are focuses of current international attention, other infections, such as dengue, Chikungunya virus and Middle East Respiratory Syndrome, are increasing on an unprecedented scale.

“Although pharmacists will be familiar with many means of mosquito bite prevention, additional precautions are necessary for Zika.”

One of the common features of these emerging diseases is that, although vaccines are in development for some, effective treatments are lacking. Control and prevention measures are therefore crucial, and perhaps particularly relevant because so many of the emerging viruses are mosquito-borne. Pharmacists have a vital contribution to play in tackling these emerging infections, Dr Vaillancourt said. This may include patient education and giving public health advice as well as participating in vaccination programmes when available.

Using the example of Zika, Dr Vaillancourt explained that pharmacists should offer up-to-date advice to vulnerable groups such as travellers and pregnant women about risks of travel and prevention means measures. Although pharmacists will be familiar with many means of mosquito bite prevention, additional precautions are necessary for Zika. For example, travellers to areas of high prevalence should avoid unwittingly introducing the virus into new regions by continuing to take mosquito bite prevention precautions for three weeks after their return home, so that local mosquitoes do not become vectors. Another precaution is safe sex. Colleagues should also be alert to signs and symptoms of Zika virus infection in those coming into the pharmacy, referring them as appropriate. Emerging infections are an ever-present danger and although we may not know what form future threats may take, it is vital that the profession is prepared, Dr Vaillancourt said.

Active role

Being prepared for and keeping the world safe from the threats of infectious disease is part of the global health security agenda. However, this in turn, depends on resource. “Global health security depends upon the health system. That health system’s capacity comes from the workforce that it has. If health systems don’t have health workers there is really very little they can do. This is not just a threat to achieving the Sustainable Development Goals. It is a threat to all of us because these are the countries who are not going to be able to adequately prepare and respond to emerging disease threats and this is in the interests of all countries, in global solidarity, to find ways to seriously invest in changing this situation,” said Tana Wuliji, technical officer at WHO.

However health workforce challenges can only be met at national level when there is sufficient political will. Dr Wuliji, who spent a year in Liberia as part of WHO's response to the Ebola crisis, described how even in the midst of a crisis, governments could work to improve the long-term resilience of the health system. Until the Ebola outbreak, Liberia had worked successfully to overcome a legacy of conflict and economic difficulties to improve the health of the population. The country achieved Millennium Development Goal 4 (to reduce child mortality by two thirds) through programmes focusing on vaccinations, although this came about through implementation of individual projects rather than by strengthening the health system as a whole. The unintegrated approach could not withstand the stress and shock of the Ebola outbreak, leading to a collapse of the entire system, Dr Wuliji said.

However in the midst of the Ebola crisis, which would kill almost 5,000 of Liberia's citizens, the government began to work on a plan to build a more resilient health system. This plan aims for universal health coverage, to ensure better preparedness and response for future threats. This work is ongoing but the main priority is to establish a productive health workforce, which can respond to the needs of the population.

“Pharmacists need to be incorporated into the disease surveillance system.”

Dr Wuliji challenged pharmacists to play an active role when infections emerge. These include “risk communication, educating the public, being aware of the trends and disease threats as they are occurring, being part of the supply chain, logistics, making sure that medicines are available in times of crisis and that systems are in place to quickly move medicines if they are needed”. Dr Wuliji emphasised that pharmacists need to be incorporated into the disease surveillance system, and have a vital part to play in disseminating and adopting guidelines (eg, on treatment), which may change rapidly as an outbreak evolves. She also challenged national pharmacy bodies to ensure that they have a means of rapidly communicating information to all their members in an emergency and the profession to gather evidence so that policymakers can recognise the value that pharmacy can bring to these situations.

Prevention measures are therefore crucial, and perhaps particularly relevant because so many emerging viruses are mosquito-borne.



Rapid diagnostic testing on **THE RISE IN PHARMACIES**

With many conditions, early diagnosis and, therefore, early action could reduce the burden placed on health systems in the long run. In addition to playing a part in disease prevention, around the world, pharmacists are increasingly performing rapid diagnostic tests. Cairo Toledano reports.



The value of the early identification of HIV infection was highlighted by Juan Hoyos, of the Institute of Health Carlos III, Spain. Although the number of HIV cases in Spain seems to have stabilised in the past 10 years, there are still several issues to resolve, one of which is increasing the availability of HIV testing. “Those with early diagnosis will have a longer and better quality of life,” Dr Hoyos said.

He went on to describe three regional pharmacy HIV testing programmes, which had resulted in 24,151 tests being performed in four years, contributing 11% to the total number of new diagnoses. “These programmes were [also] capable of unveiling certain behaviours [such as avoiding condom use] in low-risk groups such as heterosexual women,” Dr Hoyos said. Spain’s community pharmacies, therefore, have played

an important role in this testing. However, participation requires highly trained pharmacy staff to conduct the HIV fingerprick tests and to counsel patients after testing. People testing positive are referred to a medical centre to confirm the diagnosis. The tests take about 25 minutes and cost between 5 to 10 euros each. This is a valuable and feasible diagnostic option, and does not take a huge amount of community pharmacists’ time, Dr Hoyos added.

Malaria testing

In Uganda, the principle of universal access to malaria diagnosis has forced local health care systems to explore more affordable approaches to reach more people. So said Elizabeth Streat, of the Malaria Consortium’s Africa Regional Office in Kampala. Since the public system has limited

resources, the population often looks for assistance in the private sector. Nevertheless malaria testing is still uncommon and differential diagnosis in practice is limited. The rapid diagnostic test involved collecting a blood sample, placing it on a test cassette and reading the result.

To increase malaria diagnosis, private providers need to be trained to use the rapid diagnostic tests and to manage febrile cases, Mrs Streat said. An e-learning course consisting of 11 modules, six hours of content with interactive case studies and videos based on national guidelines for the diagnosis and management of febrile diseases, was developed. This course was provided to private clinics, pharmacies and drug shops over two days under supervision of expert personnel. “There are many challenges to overcome, like access to computers with internet and computer literacy for instance,” said Mrs Streat. After the e-learning course an increase in adhering to the rapid diagnosis test performance guidelines was observed over 18 months, and there was an improvement in case management practices. “Training courses are needed to allay the fears of stakeholders and to improve provider capacities,” Mrs Streat said. The training tool is being updated and is expected to be incorporated into continuous medical education in Uganda.

Streptococcus A testing

Allison Dering-Anderson, of the Nebraska Medical Center, USA, presented the case of a patient with several symptoms which, in the opinion of some health care professionals, might require an antibiotic. She then described a “brand new” practice in the US — a programme in which community pharmacists assess patients and help to ensure antibiotics are only used when necessary by a combination of rapid diagnostic testing and collaborative prescribing and dispensing.

Pharmacists taking part assessed patients’ symptoms and vital signs in order to calculate a Centor score, which indicates the likelihood of streptococcus pharyngitis. Those with one point or less were given symptomatic treatment only; those with a score of two or three points were offered a point-of-care rapid diagnostic test; and those with four points or more were treated empirically with an antibiotic, often a 10-day course of penicillin V 500mg *t.i.d.* Rapid diagnostic testing involved pharmacists performing a test for GAS (group A strep) antigen — taking a throat swab and using a test kit — with treatment depending on the result. In total, the testing takes around 35 minutes.

The study found that this initiative resulted in decreased antibiotic dispensing but did not decrease patient satisfaction. Dr Dering-Anderson said that the value of the programme is its availability when there is no health care access in some places (and patient is willing to pay for it, of course). However, she recognised “some people are too sick

to be managed in community pharmacy” and it is necessary to send them immediately to another clinical setting.

She also pointed out that the convenience of a proper diagnosis from the community pharmacy implies different levels of commitment. It means that pharmacists need skills and training in patient counselling and pathophysiology. But she said that the test itself was “quite easy to perform”.

HOW PHARMACISTS ARE USING RAPID DIAGNOSTIC TESTS FOR INFLUENZA

The annual burden of circulating influenza viruses is three to five million severe cases of illness and 250,000 to 500,000 deaths. And yet seasonal influenza vaccine is underused. In addition, the use of antivirals that may decrease symptoms and disease spread must be timely. Watch Kelly (Jean-Venable) Goode, professor at Virginia Commonwealth University School of Pharmacy, Richmond, USA, explain the rapid diagnostic influenza tests available, how they are being used today, their effects on prescribing decisions, and other benefits.



Regulatory approaches accelerate access to medicines

One way to reduce the global burden of disease is to tackle the problem of slow access to medicines. Sarah Marshall reports on what the regulators have been doing.

How do we balance getting rapid, affordable access to life-saving or innovative treatments to those who urgently need them while providing the regulatory authorities with adequate information on a medicine's risk-benefit profile? This was the question posed at a session on new regulatory approaches to accelerate access to medicines.



Ola Ghaleb Al Ahdab:
Close collaboration
essential

Ola Ghaleb Al Ahdab, pharmaceutical adviser to the United Arab Emirates Ministry of Health and Prevention, gave an overview of the strategies developed by the US Food and Drug Administration, the Medicines and Healthcare products Regulatory Agency in the UK and the European Medicines Agency, that can be used to accelerate access. These include giving pre-marketing

authorisations, with the aim of making unlicensed medicines that have completed phase III trials available to patients in emergency situations or where there is unmet medical need. Other schemes include fast tracking marketing authorisation approval, using economic evaluation methods such as health technology assessments to aid decision-making, and managed entry access methods. The managed entry access model shares financial risks between the payer and the manufacturer. For example, the performance of the drug is tracked in those treated and the level of reimbursement depends on the cost-effectiveness seen in these patients. Differential pricing can also be used to accelerate access to highly priced pharmaceuticals, with the cost of patients' medicines being shared with the pharmaceutical industry or non-governmental organisations.

Some of these mechanisms have been successfully applied by the Ministry of Health in the UAE, Dr Al Ahdab said. Fast tracking, for example, has been used to accelerate access to

fingolimod, the first oral therapy for multiple sclerosis, and the UAE became only the third country in the world to approve the innovative treatment. Differential pricing has also been used to assist patients in accessing novel treatments for macular degeneration, particularly targeting those who have little or no health insurance. Dr Al Ahdab highlighted that close collaboration between the regulator, health provider and manufacturer was essential in this process.

Pharmacists in regulation

Pharmacists have a vital role in regulatory authorities and, therefore, in directly supporting faster access to medicines, according to Balbiana Verazes Sampaio Oliveira, of ANVISA, Brazil's National Health Surveillance Agency. Established in 1999, it is responsible for the regulation of many different aspects of the country's health, including food, health services, tobacco products and customs. Its General Office of Drugs and Biologicals has almost 200 staff, which includes 160 pharmacists. Last year, the department approved 676 drugs, half of which were new generics.

“Pharmacists are eminently suited to the task of regulatory activities.”

Mrs Oliveira said that pharmacists are eminently suited to regulatory activities: “We have a very general education. So we can evaluate, for example, the active pharmaceutical ingredient, because we have a lot of chemistry in our university training. We can assess all the quality aspects because we have training in quality control, validation methods and pharmaceutical technology.” She added: “In Brazil we study pharmacology and evidence-based medicine so we can assess the efficacy and safety too. So we can work on all parts of the dossier”.

STEMMING THE TIDE of dementia in practice

Pharmacists can play key roles in working with patients with dementia, including support for healthy lifestyles and reducing risk, early recognition and intervention, and providing patient-centred pharmaceutical care. Scott Dalglish reports.

Community pharmacy has a clear opportunity to help patients and families who may not yet have a diagnosis of dementia, said Claire Anderson, professor of social pharmacy at the University of Nottingham, UK. This is particularly significant because, according to the Alzheimer's Society, only 43% of people living with dementia have a diagnosis. Support can be through providing the right environment for patients in the community pharmacy. For example, in the UK, the Greater Manchester Health and Social Care Partnership had just launched a Dementia Friendly Pharmacy Initiative, which provides a framework for pharmacy teams to support people with dementia. It can also be through helping with concerns or worries about managing medicines. Medicines can be a source of stress for patients and difficulties in managing medicines may be an early indication of changes in cognition, Professor Anderson said.

Carers and family members often realise when they think back, following diagnosis, that there were signs that hinted that something was amiss. Professor Anderson said that a case-finding approach in community pharmacy coupled with earlier diagnosis through advances in biomarkers/imaging may allow for earlier intervention. [See p28 for paired report "Stemming the tide of dementia in science".]

"Emerging evidence for 'de-prescribing' certain drugs with potential links to an increased risk of developing Alzheimer's disease."

Furthermore, given that that smoking doubles the risk of dementia, she also highlighted the opportunity for pharmacists to support patients through provision of advice to support healthy lifestyles, including stopping smoking and reducing cardiovascular risk. Regarding patients in care home settings, she cited the work of Great Britain's Royal Pharmaceutical Society to promote the role of pharmacists

and to call for a named pharmacist to be accountable for prescribed medicines for each resident alongside a designated doctor.

Prescribing and de-prescribing

Sean Jeffery, clinical professor at the University of Connecticut, USA, offered examples of pharmacists helping balance the risks and benefits of drug therapy, explaining these choices to patients and carers, and providing a holistic, patient-centred view of treatments including "de-prescribing" when necessary.



Sean Jeffery:
Evidence for de-prescribing
anticholinergics

New drug therapy for Alzheimer's disease has a high attrition rate; by one measure the success rate of experimental treatments in recent years was only 0.4% and currently available therapies have various associated risks, he said. The challenge for clinicians is to maximise the effective dose despite dose-dependent side effects, especially since lower treatment doses have no more effect than placebo. It is important, therefore, to have that discussion with patients and carers and to establish whether the maximum treatment dose can be tolerated.

Professor Jeffery also set out emerging evidence for de-prescribing certain drugs with potential links to an increased risk of developing Alzheimer's disease. This is notable and particularly focused on anticholinergic use. In one example, cumulative use of anticholinergic drugs at higher doses was associated with a 54% increased risk of dementia (and 63% when considering Alzheimer's disease specifically). Additional evidence was put forward for brain atrophy associated with use of anticholinergics, as well as deficits in recall. Other commonly prescribed drug groups, including benzodiazepines, also appear to show potential risks although study conclusions are mixed, he said.

The question has been posed in a number of studies as to whether de-prescribing can reverse signs of cognitive decline. The advice from Professor Jeffery was to "prioritise brain health when de-prescribing" as well as to provide appropriate adherence support for patients, recognising when patients are already struggling to manage their therapy and using best practice guidance such as the Beers Criteria when prescribing for elderly patients.



Reducing the disease burden in slum areas

With more people moving to cities in search of work, rural poverty has also moved and city health workers nowadays have to deal with the growing health problems of the urban poor. Lin-Nam Wang reports on one pharmacist's experiences.

Dental caries is among the diseases challenging health care in deprived areas of Buenos Aires, Argentina, Carina Vetye said during the humanitarian pharmacy session at the congress. Dr Vetye, who is a pharmacist with PSF Germany, has been working in the city's slum areas and described her experiences.

The situation is often bleak. Medicines are cheap but people still do not have access to them. In the slums there are few pharmacists and, therefore, few pharmacies save for in some health centres. And in some, you will often find the wrong medicines and expired medicines, which means the money has not been well invested, Dr Vetye said. You have to deal with diseases with only a few medicines and with medicines being used wrongly because no one has explained how they should be used. "It's impossible to work with chronic diseases. Because you don't need medicines now and again, but [for] the rest of your life, not one tablet per day for 30 days," she said. "You will find pharmacies outside the slums but you have to pay for the medicines," she added.

She pointed out that in the health centres, 75% of patients pick up treatments like enalapril to provide for fewer than four months per year. Moreover, she highlighted the difficulty of having to work with too wide a variety of brands and strengths of medicines. "Try to explain how to take the required dose of glimepiride from different brands of 2mg and 4mg tablets to a patient who cannot read. If it's difficult for a literate person, it's impossible for an illiterate person," she said.

Hearts and minds

Despite the odds, Dr Vetye's team constructed a pharmacy in a health centre. It was not easy: "The problem is that nobody knows the pharmacist outside of the pharmacy. I go to the rooms of the physicians. There is no trust. In Argentina, politicians often promise things and they don't appear. You must go time and time again and if you promise something, you must do it. You must win hearts and minds to get cooperation. You must work elbow to elbow with them. It took about a year to win trust and become part of the team." Her team produced a formulary so that physicians know that if they prescribe a medicine on the list, it is available and no time is wasted. However, Dr Vetye stressed that this work is about pharmacists working in primary care, not in pharmacies.

Chagas disease is, perhaps, to be expected in Latin America, but Dr Vetye called it "a forgotten disease". She described how screening of 400 patients found 20% to have the disease. Treatment is possible and government-funded but only 1% of the population have access to testing and therapy. Her team's activities, therefore, include outdoor work and training health care workers. "We have to put the different pieces of the puzzle together," she said.

Non-communicable diseases are also hitting the poor and as the population ages these diseases represent "a big challenge" for the public health system, Dr Vetye said. She went on to talk about the prevalence of dental caries in children and the compromise to their immune systems as a result. Her team has tried to tackle the problem in a number of ways. They work in kindergartens, showing children how to brush their teeth, and they show them what happens to their teeth in an innovative way using an egg and vinegar. When the egg is placed in vinegar, the shell disappears after 12 to 16 hours. However, if fluoride gel is placed on an area of the egg, this area remains intact for a few hours. It is an effective way of demonstrating to children what happens to their teeth if they do not brush them.

"This work is about pharmacists working in primary care, not in pharmacies."

The pharmacists also work with patients while they wait in the health centre's waiting room. There they show mothers pictures of sweets or drinks alongside a pile of sugar representing their sugar content. "They are shocked," Dr Vetye said. "Using simple pictures can be very effective." Diabetes among the urban poor has also become a major concern. "Slum people eat cheap foods. Too many carbohydrates, fats, sugars, soft drinks. They work on assembly lines so stay still. . . . We have young girls who are overweight. Problems include blindness, amputations and chronic wounds, with no one able to deal with them in the health centres," she said.

Dr Vetye urged fellow pharmacists to get involved in providing much needed services in deprived areas: "We have to participate, as pharmacists, in primary health care because if we don't do the right things at the beginning of life, later we will not be able to correct the consequences." She said that this type of work does not always mean working far from home since as more people come into cities, you will find poor people there. She added that this work also does not have to be undertaken permanently — people can volunteer the time they have. Pharmacists, being middle class people, might be afraid to go to slums. Sometimes they have been attacked in their pharmacies. But so much can be achieved, she said.

"Pharmacists are really needed. But you must be committed. This is a job we must do with professionalism and respect. It's not something you do for money; you do it because you love life," she said.

Combating the problem of **WASTED MEDICINES**

Wasted medicines have received increasing attention in recent years, being blamed for adding to the economic burden of health systems. Sarah Marshall reports from a session in which the problem and potential solutions were discussed.

Recycling patients' leftover medicines is not the solution to the problem of wastage according to Eeva Teräsalmi, co-chair of FIP's Working Group on Green Pharmacy Practice. Reusing pharmaceuticals that have left the controlled environment of pharmacies raises ethical and safety issues, risking harm to the patient and the possibility of introducing substandard, spurious, fake, falsified and counterfeit medicines into the supply chain, she said. In addition, recycling unused medicines is unlikely to benefit the environment significantly since the main contributors to environmental problems are the metabolic products of pharmaceuticals taken by patients and animals, she contended.

However, pharmacists can still play a pivotal role in reducing medicines waste by encouraging rational prescribing and adherence, and educating patients about the proper disposal of medicines, including the return of unused medicines to the pharmacy. "[Recycling leftover medicines] is so unsafe and so expensive, that it will never cover the costs incurred or solve the environmental and other problems associated with wastage," she said. She believes that governments seeking to save money by recycling patients' leftover medicines should look for other solutions to reduce drug wastage.

Medicines banks

One such solution could be medicines banks. A medicines bank is an effective, sustainable way of improving access to medicines for people living in poverty while reducing pharmaceutical waste, according to Maria Del Rosario Gómez, director of the Banco de Medicamentos in Colombia. It works with the simple but revolutionary idea that pharmaceutical companies could avoid the environmental and economic impact of destroying good quality drugs by donating them to the medicines bank, which can then distribute them to charities working with people who are unable to afford medicines.

“Recycling patients’ leftover medicines is not the solution to the problem of wastage.”

An estimated 125 million people in Latin America do not have permanent access to the medicines that they need. In Colombia, this lack of access may be because patients live in remote areas, are marginalised or vulnerable, or unable to afford the high costs of pharmaceuticals in the private sector, when the public sector supply is inadequate or unreliable. There is a huge need for medicines. Mrs Del Rosario Gómez explained that pharmaceutical manufacturers in Colombia may have good quality but



unusable stock for a number of reasons. For example, stock may be surplus, close to expiry, or the outer packaging may have been damaged. This is expensive to destroy as well as impacting on the environment. Banco de Medicamentos began in 2002, when the charity Misión Salud, partnered with six Colombian pharmaceutical companies and 16 non-governmental organisations (NGOs) to find an innovative solution to these interlinked issues.

Donating industry partners supply Banco de Medicamentos with a list of available pharmaceuticals, which would otherwise be destroyed. The bank requests from them any medicines that are needed and NGOs then place monthly orders at the bank. The medicines are subsequently supplied to patients who have been prescribed them by NGO staff. Careful monitoring of stock levels and usage allows products to be supplied and taken by patients before their expiry. The NGOs contribute to the running costs of the bank by paying a nominal fee. The project has grown in the past 14 years and currently works with more than 140 charities and 16 manufacturers.

Although drug recycling schemes can raise concerns about the quality of reused medicines, the Banco de Medicamentos scheme has sought to address this by tackling drug wastage earlier in the supply chain. The bank is able to guarantee the quality of medicines supplied by working according to World Health Organization Guidelines for Donations and following legal and regulatory frameworks. The bank adheres to strict criteria, accepting only medicines that are “factory fresh”, licensed, and labelled for use in Colombia. Banco de Medicamentos also only accepts medicines that it knows NGOs will need and use before they expire. This avoids costs of destruction simply being passed on to another organisation.

Since the establishment of the partnership, 27 million units of medicines for a range of diseases have been delivered to more than 45,000 people who otherwise would not have been able to afford treatment. In addition, this has avoided the destruction of 26,000 tons of medicines and saved USD 8m, said Mrs Del Rosario Gómez. As industrial efficiency has improved, sustainability of the project has been achieved by widening the list to include diapers and nutritional supplements, for which a small fee is charged. The revenue generated has also enabled the purchase of medicines from manufacturers at substantially reduced prices when needed. This model could be replicated in other countries, said Mrs Del Rosario Gómez.

Recent findings

Only 7% of patients store their tumour necrosis factor (TNF) alpha inhibitor products at the correct temperature, according to findings of the Dutch Wastage in Health Care

Initiative presented by Helga Gardarsdottir, assistant professor of pharmacoepidemiology at University Medical Centre in Utrecht, Netherlands. This research was only one part of a multifaceted project set up to explore issues around the recycling of medicines returned by patients. Having established that patients and stakeholders were in favour of recycling medicines, provided certain criteria were satisfied, her team began to investigate the practical implications of doing this. In one study they placed temperature recorders in packs of TNF alpha inhibitors dispensed to 255 patients by 10 pharmacies. Readings showed that storage temperatures in patients’ domestic refrigerators varied enormously, making it impossible to guarantee the quality of such medicines for reuse should they be returned. Some 25% of the patients stored their TNF alpha inhibitor preparations below 0°C for more than two hours. And 6% of patients stored their medicines for 24 hours or more at this low temperature. The project findings surprised the team and demonstrated how little is known at present about home storage practices and their effects on medicines quality. “We need to know what happens with drugs when they are not in our environmentally controlled storage facilities,” Dr Gardarsdottir said.

“Redispensing is financially unviable.”

“Wastage occurs at every step of the medicines chain,” Dr Gardarsdottir pointed out. She highlighted that responsibility for waste rests with all those involved, from prescribers and pharmacists to patients. The value of drugs returned unused to pharmacies in the Netherlands is estimated to be 2–4% of the country’s total expenditure on medicines and about a fifth of all returns are theoretically candidates for reuse. This led the Dutch Ministry of Health to establish a National Wastage and Healthcare hotline in 2013 for anyone wishing to contribute ideas on how wastage of medicines could be avoided. The hotline received over 23,000 calls, indicating significant interest in the subject. However, when Dr Gardarsdottir’s group set up simulations in four pharmacies to investigate the financial feasibility of redispensing returned medicines, the results indicated that the implementation costs of such a system would be EUR 200 for each product stored at room temperature and EUR 600 for each medicine requiring storage in a refrigerator. This makes redispensing financially unviable, since many of the medicines returned to community pharmacies had a value below these thresholds. Dr Gardarsdottir concluded that although stakeholders and patients were in favour of recycling unused medicines, there are a number of practical reasons as to why this should not be done. She agreed that waste should be tackled earlier in the prescribing and dispensing process.

IT will create a novel health ecosystem

After lagging behind in health care for almost five decades, information technology is now revitalising and transforming this sector faster than any other. A session entitled “eHealth, mHealth, smart health” discussed how the digital age will disrupt the pharmacy we know and lead the way to improved efficiency, better quality care, and significant savings. Pradeep Mishra reports.

In the Pan American Health Organization (PAHO) region, information and communications technologies (ICT) are impacting on and changing not only the economic, political and cultural landscape but also the public health landscape, according to Myrna Marti, eHealth adviser, PAHO. The rise in internet-connected users to 50% of the population along with the increased availability of mobile devices has fuelled the scope for eHealth, mHealth and telehealth. Universities are now training substantial number of students in ICT for health and in the use of social networks in health, thereby forcing governments to rethink eHealth policies, strategies and standards.

“Collaboration between stakeholders is the key to setting standards,” said Steve Mullenix, senior vice-president public policy & industry relations at the National Council for Prescription Drug Programs (NCPDP), USA. The NCPDP is taking a lead in problem-solving and setting standards in telecommunication, e-prescribing and e-formularies, which are being accessed up to six billion times in a year by various stakeholders.

Traditional systems and interfaces in pharmacy are rapidly converging to become faster, smarter, smaller, cheaper and better. The disruptions fuelled by IT are making the pharmacist speak the language of computational bioinformatics, artificial intelligence, wearable sensors, crowd sourcing, 3D printing and managing big data. New information layers are going to connect and share all the data generated through various ports and converge with the data in the cloud generated through various sources, and allow the

development of algorithms for individual patients. “Future health care trends are going to move towards proactive mitigation of disease risks with a shift from acute care to assisted care at home with substantial lowering of the cost of care,” predicted Lars-Åke Söderlund, of Apoteket AB, Sweden.

“All this and more will be possible with just one device that is going to transform everything around us: our very own smartphone,” he said. Mr Söderlund gave the stethoscope as an example. It has already become digital with the advent of ultrasound, and a mobile app prescription by physicians is not far away, he said. “The future of health is in your smartphone.”

Mr Söderlund also believes that new generation apps and sensors are rapidly moving from measuring and recording signals to integrating the data and meaningful interpretation. “Nevertheless,” he said, “eHealth is not about technology alone, but it is about health care from a patient’s perspective.” Nobody knows exactly how the new health ecosystem will emerge, but one thing is for sure: it will evolve outside the traditional health care model, with lot of new actors entering the scene.

The massive data generated through apps and sensors will be shared on the internet and will completely redefine the payer-patient-pharmacy-prescriber-pharma matrix. New “highways of innovation” are going to create new pharmacy landscapes, which will be all about disruptive convergence and emergence of new models of practice that will empower patients, enable clinicians, improve outcomes, and enhance adherence through communication and feedback ultimately to improve health and wellness.



Proteus Discover measures medicine-taking and rest patterns to support self-management and optimise therapy.
© Proteus Digital Health

More predictions

“The growth in digital age pharmacy seems to have finally descended from science fiction,” said Rob Moss, of FIP’s Hospital Pharmacy Section. He observed: “Not long ago in the epic American serial Star Trek, Dr Bones McCoy used the tricorder as a multifunction handheld device for sensor scanning, data analysis and recording data. This is no more an element of fiction; scientists are now working on something similar, which is going to be a general-purpose tool similar in functionality to a Swiss Army knife to take health measurements such as blood pressure, temperature, and blood flow in a non-invasive way.” Mr Moss said that this will diagnose a person’s state of health after analysing the data either as a stand-alone device or as a connection to medical databases via an internet connection.

A study published in the *Journal of American College of Cardiology* (April 2016) showed how Proteus Discover — a digital health offering consisting of sensor-enabled medicines, a wearable sensor, patient app and provider portal — directly measured medicine-taking and rest patterns to support patient self-management and optimise therapy. These sensors and new digital technologies are going to be the game changer in terms of health care delivery in low resource settings as well. An example is the sensors developed by Philips, which are being used in Africa for measuring respiratory rates in new born babies, Mr Moss said.

mHealth is also rapidly emerging as hospital wards generate enormous data. This brings us to the challenge of using this data and making sense of it. Health care standards-creating

organisations, such as Health Level Seven International, have developed data formats and an application programming interface for exchanging electronic health records. So, it is not only the generation of 24/7 data but the measure of change in the data and the context of the data that is important. This brings us to products like CareEvent, which is a mobile app that sends informative alerts directly to the smartphone so you can make informed decisions. Medicines reconciliation is now possible with apps like Redboundmc. Future possibilities in mHealth pharmacy include products that measure blood clotting factors and diagnose malaria using a mobile phone polarised microscope. Another interesting application of digital technology in pharmacy is coming through augmented reality-based clinical training tools (similar to the gaming craze PokemonGO) and use of Google Glass for teletoxicology consultations.

These new digital models are going to be the mainstay in our pharmacies. Rapid technological advances will require major structural shifts, upheavals and disruptions but will present incredible opportunities to advance the standards of care for our patients. Pharmacists must be receptive to new technologies and collaborate to build systems of value-enabling partnerships with actors well outside our pharmacies. Modern pharmacies have to transform from stores delivering diagnostics, care and supplies to patients to premises delivering the full spectrum of health care services, leading to a disease- and outcomes-focused approach with a more efficient delivery of products and treatments.

Health care education and labour markets **MUST CHANGE**

Creating a high-performing global health care workforce requires a multi-system approach across government and the private sector, and is necessary to address a predicted 18 million shortfall in the number of required health workers. Scott Dalgliesh reports.

Health care workforce development can be a driver for economic growth as well as a political and moral imperative but all countries need to take responsibility to meet the needs of their populations without undermining the labour markets of other countries. Furthermore, academia has a critical role to play in fulfilling this mission, said Tana Wuliji, technical officer, World Health Organisation.

She outlined the transformative and social accountability changes required in education, training and workforce planning, and provided insight into the work of the United Nations High-Level Commission on Health Employment and Economic Growth [see News, [pZ](#)]. In order to deliver transformative education, attention must be paid to issues of financing, gender equality and sustainability as well as changes to professional curricula and postgraduate education, she said.

Need for disruption

The predicted shortfall of health care workers and an ambition that countries should deliver universal health coverage by 2030 is a particular issue in low- and lower-middle income countries where statistics suggest that a minimum threshold of 4.45 doctors, nurses and midwives per 1,000 population is needed and where the labour market is currently failing to serve the health needs of the population. But the mismatch between health need, workforce supply and economic demand also applies to higher income countries such as Ireland, where it was recognised that future health care needs would require higher numbers of skilled health care workers. Educational provision was scaled up significantly with new schools opening and increased graduate numbers but the downturn in economic demand

meant there were insufficient jobs for these graduates resulting in increased migration. Dr Wuliji noted that “no labour market is closed off from other countries and we see a growing migration trend to meet demand in other countries”. This disproportionately affects low-income countries and, based on the status quo, the gap between forecast health need and workforce supply in these countries is expected to widen by 2030, even as demand and supply increase in upper-middle and high income countries.

According to Dr Wuliji “this is really concerning because even if we invest in transformative education unless we can employ this workforce they’re not going to be able to make a difference. . . . We obviously need huge disruption to the labour market — in a good way”. A necessary precursor to an effective labour market and the right pool of qualified health workers is sufficient progress in secondary school education to prepare students for professional education. There is still a huge challenge in low-income countries to raise the proportion of students completing secondary education, forecast by UNESCO to reach only 26% by 2050. In order to scale up the health workforce to the extent necessary then, we must also advocate for increased investment in secondary education to substantially increase the available people in the pool of potential health workers.

“Mismatch between health need, workforce supply and economic demand also applies to higher income countries.”

In addition to increasing the number of workers entering the labour market more must be done to address other market failures such as poor utilisation of the skill mix of health professionals.

Informal work — work without a contract/salary or according to labour laws or rules/procedures — is common in health and can be common in pharmacy in countries where workers may not have contracts, or instead very temporary arrangements. This may particularly affect younger pharmacists and women, Dr Wuliji said. She gave an example

from Liberia where many health workers went on strike during the Ebola crisis. Half of them were not salaried and had no insurance. How could they put themselves at risk without any protection if something were to happen to them? Based on the WHO Global Strategy for Human Resources for Health, we do need investment in human capital — in people and in infrastructure; we need investments to get the right kind of workforce to do the right things in the right places, she said.

Dr Wuliji added: “Transformative education is not isolated to a ‘box’ in the education sector — it’s not just about how we change curricula in pre-service education or even postgraduate education, but about how we extend that into lifelong learning systems across the working careers of health professionals.” She appealed to academic colleagues to set out the fundamental role that academia has to play in supporting lifelong learning together with professional and regulatory bodies and really supporting that change across entire labour markets. “If we only concentrate on new health workers — the job is pretty much half done,” she said.

Economic case

There is also a challenge to remind governments and policymakers that health is a massive economic sector, and a major employer and contributor to GDP. Too few countries with national funding schemes designed to build workforce capacity in key industries do so in health and social care, yet these sectors represent an average of 11% of total employment across OECD countries. We should press for changes and investment in health education on that basis, Dr Wuliji said. She added that education programmes are attractive to students because they know health sector jobs are relatively resilient to economic crises. Data from the USA demonstrated positive growth in employment in health compared with negative growth in other sectors that has still to return to pre-recession levels.

In consistently making the economic argument for investment in health workforce, Dr Wuliji also addressed the contribution of women to this sector. She cited statistics that show 67% of total workforce in health is female compared with 41% of overall employment in all sectors, yet up to 50% of women’s economic contribution is unpaid or unrecognised. By achieving transformative change in healthcare this will have real impact on the economy at large.

Health must now be seen as a multiplier for economic growth and discussions should include government ministers for economic affairs, labour and foreign affairs in addition to health and education. Dr Wuliji called on pharmacists to use the soon-to-be-released High-Level Commission on Health Employment and Economic Growth report to lobby for change in how pharmacy education is financed, how it is organised, and how it links to health needs and workforce planning.

Dr Wuliji said that money was a major focus because it will determine the content and the limits of what can be done. “It’s not about squabbling over the pieces of the pie — we need a bigger pie and we need to understand all the politics and financing around it so we can actually make change,” she said.

“A concept of a new generation of pharmacy schools, accountable for a social mission, must be set out.”



“We need a bigger pie and we need to understand all the politics and financing around it.”

She said that a concept of a new generation of pharmacy schools, accountable for a social mission, must be set out. As public funding becomes increasingly constrained in future, can we move to a model that balances a business case with a social purpose and where schools are incentivised based on how well they achieve this mission? For example, what proportion of graduates goes on to work in under-served areas, how well do they deliver inter-professional education, and how well do they address relevant population health needs, she asked. Dr Wuliji also noted a trend towards increasing student debt and that unaffordability risks crowding out students from underserved areas. In the USA, for example, of a total of USD 1.3 trillion in student debt it is estimated that some USD 200bn of that is owed by future health workers. This is not sustainable. “In education we don’t really like to talk about money, but I think we need to,” she said.

Deans gather to share ways to strengthen pharmacy education

Interprofessional education and international collaboration were among the topics discussed by over 50 deans and vice deans, or their representatives, from 15 countries. They gathered at the 7th Global Deans Forum under the banner “strengthening pharmacy education”. Andreia Bruno reports.

Marie-Claude Vanier, of the University of Montreal, Canada, is one of the leading role models for interprofessional education (IPE) and collaborative practice. Having been involved in embedding a mandatory undergraduate IPE curriculum across 13 different health professions at her university, she shared lessons learnt at the deans forum.

An operation committee was set up with representatives from 13 health professions, a patient representative and a student representative, so as to include all stakeholders as well as to have the point of view of the clinicians and professors built into the activities. The project was based on documents such as the World Health Organization *“Framework for action on interprofessional education and collaborative practice”*, Canadian IPE competencies and documents from accreditation bodies.

The project had four development phases, a pilot, embedding of the activities into the curriculum, engaging patients as co-trainers and, finally, upgrading the curriculum to a competency-based model in order to introduce communication technology as a new course. The novelty of this project was not the collaboration between several health care professions but the structure of the project itself.

Professor Vanier explained that the pilot phase used “four musketeers” to assess the feasibility of developing the programme: pharmacy, medicine, nursing and occupational therapy. Initially the focus was third-year students (via online modules) and the strategic thinking behind the project was shared with the students to gain buy-in.

Phase 2 quickly followed. With pedagogical development as a foundation, three courses were created to train professionals to become proficient collaborators, ready to integrate formal or informal collaborative teams in the workforce. In Phase 3, which aimed at patient-centred care with full patient partnership, a bank of 200 patients who were trained to support the initiative was created.

This partnership fostered shared values and acknowledgement of complementarity among all involved, Professor Vanier said.

Overall the project was a success, two new competencies — health education and clinical ethics — were added to the curriculum and the future is to see continued enrichment of the embedded curriculum.



Marie-Claude Vanier:
Foster shared values

International collaboration

Patricia Acuña, of Valparaiso University, Chile, shared instances of successful international collaborations as well as the difficulties of changing her country’s pharmacy curriculum to one with a patient-centred focus.

In Chile, there are 10 schools (public and private) producing a little over 250 pharmacists per year. To achieve a paradigm shift from a medicines focus to a focus on patients and their medicines, the pharmacy schools had to enable pharmacy practice and change their curricula. This started at a national level with six universities re-engineering their curricula to include this change in practice. The WHO/FIP seven star pharmacist concept was used as well as FIP Education tools such as the Global Competency Framework and “Quality assurance of pharmacy education”.

International collaboration with organisations such as FIP, the Accreditation Council for Pharmacy Education in the USA and the Canadian Council for Accreditation of Pharmacy Programs supported the work. Seminars, workshops and conferences were organised to gain momentum and to share the progress and lessons learnt, but there is still a long way to go and more support is needed, Professor Acuña said.

77th FIP World Congress of Pharmacy and Pharmaceutical Sciences

Seoul, Republic of Korea

10-14 September 2017



Medicines and beyond! The soul of pharmacy

New ways for pharmacy to provide more than just medicines

The 2017 FIP congress in Seoul, South Korea, invites an international audience of pharmacy professionals and pharmaceutical scientists to go beyond medicines and answer patients' demand for high quality help and advice.

At this FIP congress, the professional symposia will explore the many new ways that pharmacy professionals can add the value expected by modern health care systems and services. Sessions will show that tradition and dedication to patients' health – the true soul of pharmacy – can be coupled with innovation in technology, education and practice to deliver care fit for the 21st century.

WELCOME TO SEOUL
Seoul, the heart of the nation and home to 10 million national and foreign residents is a remarkable world-class city where contemporary lifestyle meets long-standing history. This vibrant city houses 266 cultural properties against a backdrop of towering skyscrapers, and serves as the proud epicentre of the Korean Wave pop culture phenomenon or Hallyu, attracting many from all over the world.

A > Nurturing the soul of pharmacy
 To nurture the soul of pharmacy, the profession needs to grow and be cherished. In this session, the congress will explore what is required for the profession to 'nurture' its profile, its role and its future in health care, and analyse the opportunities and challenges it will face on that journey.

molecular and cellular biomarkers to customise therapy to subpopulation patient groups. In contrast, personalised medicine refers to the tailoring of procedures and therapeutic interventions to an individual patient level. Pharmacists and pharmaceutical scientists are experts in applied therapeutics and they are uniquely positioned to transform the theories of precision and personalised pharmacotherapy into practice.

B > Precision pharmacotherapy
 Precision medicine is an emerging model that seeks to harness shared

C > Pharmacy services
 Pharmacy services, or value added services, are pharmacy's future. But the process of moving pharmacy into this new world where pharmaceutical care is measured in terms of return on investment and patient outcomes is fraught with challenge. Congress delegates will learn about global variations and implement service solutions.

these technologies have made, and understand the opportunities and challenges that are inherent in smart pharmacy and health care in the 21st century and beyond.

D > Smart pharmacy – medicines and beyond
 In this session, congress delegates will identify the key technologies that have transformed pharmacy and health care in recent years, describe the contribution that

E > Targeting special interests
 This topic covers the quality and regulatory background for natural medicines, the evidence base, prevalence of use, and it will use case studies. By the end, participants will be able to categorise natural medicines, and appreciate the customer base, understand the regulation and ethical considerations defining responsible use, and the evidence base that supports these products.



Please find more information:
www.fip.org/seoul2017

