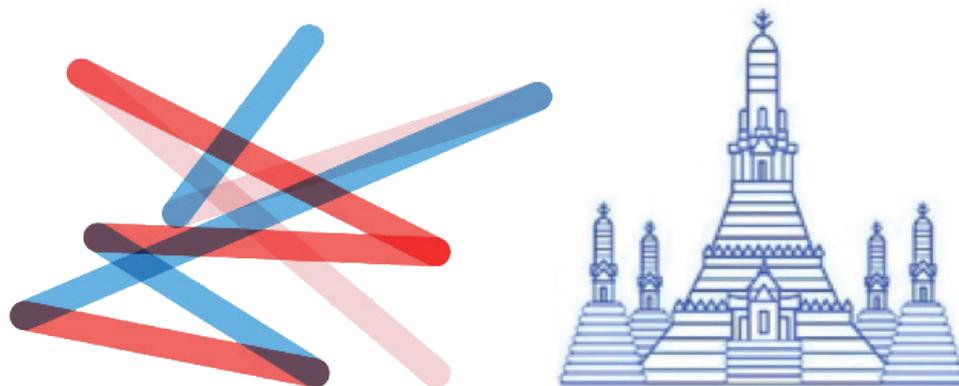


International Society to Improve the Use of Medicines

People Improving the Use of Medicines:
What we know and don't know

Mandarin Hotel, 662 Rama IV Road, Bang Rak, Bangkok

January 26 – 28, 2020



ISIUM BANGKOK 2020

Table of Contents

Welcome	5
People and organisations	7
About the conference	9
Scholarships and prizes	11
Program overview	12
Working session program	16
Public exhibition	22
Abstracts	23
List of participants	90

An explanation!

At the time this program was prepared for publication it had not been possible to obtain complete, accurate and consistent information regarding the titles of all those named throughout the program.

Therefore, we made the decision to publish all names without titles. We do hope we are not inadvertently offending anyone in so doing!

Welcome to the Conference!

From Arturo Quizhpe

Organizing an international conference on popular empowerment to improve the use of medicines is itself a difficult task, constituting a complex social, ethical and scientific challenge, but when resources are very limited or non-existent, it becomes a dream.

The first meeting of the organizing committee marked the beginning of the conference. Solidarity and contagious enthusiasm, feminine energy, wisdom of grandmothers and grandparents present and not present, life lived in different latitudes and collective joy, characterized the environment, and predicted the success of this our conference, the conference of people who seek to learn, get organized and empower.

'Many small people, in small places, doing small things, can change the world' said Uruguayan poet Eduardo Galeano, to refer to dreamers who yesterday, today and always fight for a better world.

Small people, doing small things, which together take a global dimension, are: Mary Murray (Australia / Sweden), Mary Hemming (Australia), Niyada Kiatying-Angsulee (Thailand), Eva Ombaka (Kenya), Kathleen Holloway (United Kingdom), Nucharin Tomacha (Thailand), Natalia Cebotarenco (Moldova), Debra Rowett (Australia), and Budiono Santoso (Indonesia).

This group of people turned their dream into a feasible, achievable project; they decided to empower people to walk together, to recover and make visible the wisdom and hidden energy within communities, to recognize that health is only possible with dignity and freedom; with the participation, organization and empowerment of the community.

This conference is an act of generosity, of planting seeds, a silent work after all done by all of us. Now, so that these seeds can flourish and multiply in new projects in each of their scientific, social, and work associations, it requires your decision, enthusiasm and commitment.

From Mary Murray

Welcome to the conference! We are very happy to know that so many committed people from so many parts of the world made such an effort to come to the conference to share their work, to listen and converse with presenters and each other. This is the core of what we hope ISIUM will be: an active evolving platform to connect, to analyze, to collaborate and to inspire and learn from each other.

We hope this kind of energy will flow along through our wider networks and beyond to help reinvigorate a movement for improving the use of medicines and their proper place in society. Our dream in ISIUM is to create a world where it is possible to enjoy health and harmony for all. For this, we are dependent on harmony with each other and the ecosystems around us. Thus our challenge to improve the use of medicines lies within this context, where we must address the underlying causes of ill health and also work to understand, promote and adopt a variety of ways to involve people, learn from them and also help people choose and use medicines in appropriate ways for active lives in all places and circumstances. This includes us – walking the talk!

There are many more who wished they could attend but were unable. We welcome them also, through social media and through the communication channels we will use after the conference to connect and inform people of our work here.

From Niyada Kiatying-Angsulee

Welcome to ISIUM Bangkok 2020!

I am very happy and grateful to welcome you from all over the world to the ISIUM Bangkok 2020. Hope you find the conference interesting, exciting, and joyful.

Rational medicines use is one major factor in health. There are still lots of things to be done. Learning and sharing of practices by various people at different angles in the community can be one step forward to reach health for all. Please feel free to use this platform to enhance your dream and your passion.

Finally, I hope you will spare some time to enjoy Bangkok and vicinity. During the 24-28 January 2020, there will be a Chinese New Year celebration in Thailand. So be prepared to visit China Town in Bangkok.

The People

Conference organising committee

Dr Arturo Quizhpe – former Dean of The Faculty of Medical Sciences at Cuenca University in Ecuador, former Coordinator of Latin American Peoples Health Movement, and presently Coordinator of ReAct Latin America – is the chair of the Conference Organising Committee with Dr Mary Murray supporting him in this role. The other members of the Committee are:

Natalia Cebotarenco	Board member of ISIUM; Coordinator of Coalition for Rational and Safe Use of Medicine (CORSUM) – based in Moldova
Mary Hemming	Board member of ISIUM (company secretary); Board member of TG Foundation; former CEO Therapeutic Guidelines Ltd
Kathleen Holloway	Formerly WHO Geneva and SEARO, Essential Medicines Programs; presently at Institute of Development Studies, University of Sussex
Niyada Kiatying-Angsulee	Board member of ISIUM; chair of local Bangkok organising committee, representing her program – Drug System Monitoring and Development Centre (DMDC), Chulalongkorn University, Bangkok
Mary Murray	Board member of ISIUM (chair); former Global Network Coordinator for ReAct - Action on Antibiotic Resistance; former chair Pharmaceutical Health and Rational Use of Medicines Committee, Australia; Coordinator program and regional mobilising teams, First People Health Assembly, 2000.
Eva Ombaka	Former coordinator of The Ecumenical Pharmaceutical Network based in Nairobi; former Board member of Health Action International; presently Senior Lecturer, St John's University of Tanzania, Dodoma
Debra Rowett	Board member of Therapeutic Guidelines Limited; Professor of Pharmacy, University of South Australia; former President Australian Pharmacy Council
Budiono Santoso	Board member of ISIUM; former head of WHO Essential Medicines Program (WPRO); former Head of Clinical Pharmacology and Director of the WHO Collaborating Centre on Research and Training on Rational Drug Use, Centre of Drug Policy Studies, Gadjah Mada University, Yogyakarta, Indonesia
Prasit Watanapa	Dean of Medicine, Siriraj Hospital, Bangkok; chair of Thai RDU National Subcommittee

Mary Hemming and Mary Murray have undertaken the role of the conference secretariat.

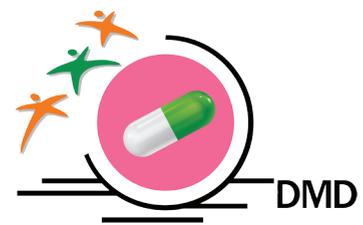
The Organisations

Partner organisations

This meeting is being organised in collaboration with our local Thai partners, the Drug System Monitoring and Development Centre (DMDC) and the Thai Food and Drug Administration (FDA).

Drug System Monitoring and Development Centre

The Drug System Monitoring and Development Centre (DMDC) is based in the Department of Social Pharmacy at the Pharmacy Faculty, Chulalongkorn University in Bangkok. This Centre focuses on consumer protection, empowering the local community in medicine, medicines policy, the drug monitoring system and regulation policy.



Thai Food and Drug Administration

Thai Food and Drug Administration (FDA), the Ministry of Public Health.



สำนักงานคณะกรรมการอาหารและยา
Food and Drug Administration

Supporting organisations

Therapeutic Guidelines Foundation

Part funding for this conference has been obtained from Therapeutic Guidelines Foundation – a charity that promotes the quality use of medicines and supports the creation and dissemination of independent, therapeutic information. Therapeutic Guidelines Foundation aims to improve health outcomes in low- and middle-income countries by providing local health professionals with access to high quality guidelines and guideline development training programs.



Thai Health Promotion Foundation



About the Conference

Purpose and objectives

The broad aim of this conference is to reinvigorate a movement for improving the use of medicines around the world, to share information and propose perspectives from which ideas can grow. Part of this is to build ISIUM as an ongoing connecting platform to contribute to this aim. Hence building ISIUM's network, its visibility and its strength as a platform to connect people is a key aim. Our intention is not only to revitalise efforts to improve the use of medicines but also to foster a critical approach to the assessment of the place of medicines in society.

The objectives of the meeting are:

- To understand rational use of medicines and therapeutic practices in terms of new knowledge and perspectives.
- To share experiences in peoples' education and empowerment in improving the use of medicines and therapeutic practices.

This conference will not be like many others – we have high expectations! We want to build a community of practice to take rational use of medicines forward.

- To explore what governments and other stakeholders should and could do to ensure the safe and effective use of medicines, and how they may be held to account.
- To define priority areas for future ISIUM work on improving the use of medicines and its promotion, with a focus on people's empowerment.

... and we want everyone to join with us to plan for future ISIUM work.

The themes of the meeting

The impact of poor use of medicines on society, health and well-being are serious and lasting for individuals and their families, for communities, for countries and for refugees caught between countries or communities.

Vested commercial interests are closely involved in every aspect of the medicines supply chain and these interests have a considerable and sometimes inappropriate influence on critical decisions such as defining the criteria for diseases, developing research agendas, funding continuing education for health professionals.

We believe there needs to be better decision-making regarding the use of medicines. Good choices depend on context, on underlying determinants of ill health and on independent information and reliable advice and a 'medicines-smart' community. We believe it is essential that we put people's needs at the centre of our efforts to define the place of medicines in society, to provide equitable access to medicines and to ensure they are used properly.

The meeting is not just about bringing people together to listen! We want people to come together to share their experiences, showcase their work and new knowledge on how to improve medicines use. We want to explore key issues particularly from the community perspective, such as: What is Health? What is Medicine? How aware are communities and health professionals of the influence of vested interests, and how can they best appraise and deal with them? How do we manage the unequal knowledge between providers and consumers to ensure appropriate use of medicines? Is a two-way process between the different kinds of knowledge and experience embodied by health professionals and 'lay' people needed?

These are some of the questions which require objectivity, transparency and broad dialogue at community level, in the facilities of the official health system and in policy-making processes.

This meeting is a starting point to take up the new challenges in science and in the empirical experiences of communities that struggle for access to medicines as part of the right to health that belongs to every human being on the planet. We want to use this meeting to expand our network and promote tools and strategies suited to different country and community contexts.

Intertwined with this overall theme are some specific issues that the Organising Committee would like considered throughout the meeting and, possibly addressed in each working session. These are:

- Empowering people to improve the use of medicines, taking into account both community and provider, education and empowerment.
- Universal health coverage and use of medicines, including access, insurance and related issues.
- Antimicrobial medicine use, including antimicrobial resistance, stewardship and related issues.
- Government and stakeholder roles, health system infrastructure and policies, and the role of community in holding governments to account.
- Innovation, new and interesting initiatives to improve the use of medicines.

We have a big bold vision ... we want to build a better world where everyone has access to the medicines they need, and where medicines – if they are the best treatment option – are used wisely and safely.

We have all thought deeply about the structure of the conference, the themes and topics proposed, the issues we want to cover and the types of presentations we have encouraged in the hope that this conference will be not only memorable but meaningful and as interactive as possible so we get to know each other and the variety of ideas and approaches that we bring to the field.

Therefore we encourage each person to contribute and share your knowledge and expertise generously and respectfully, especially in the working sessions. These sessions are NOT designed to enable people to move between sessions as in a normal conference. We want the working sessions to be interactive and come up with some real insights into the work being presented and the challenges people are facing. This will be best achieved if people remain in their chosen session for the whole session.

Scholarships and Prizes

Scholarship winners

ISIUM was fortunate in being able to obtain some funding for this conference from the Australian-based organisation, Therapeutic Guidelines Foundation. A condition of the grant was that most of the funding could only be used to support travel, accommodation and registration costs of people from middle- and low-income countries who submitted the best abstracts.

The Scientific Committee selected abstracts based not just on quality but also on global or local relevance, and value as a learning focus. The people who were successful in winning a scholarship are:

- Emiliano Mariscal: *Dialogue of Shared Knowledge. What is Health? What is Medicine?* ARGENTINA
- Sarah Kibira: *Antibiotic Prescribing Patterns at the Outpatient Department in a Regional Hospital in Kenya.* KENYA
- Luh Putu Wulandari: *Inside the Black Box of Antibiotic Dispensing by Private Drug Sellers in Indonesia.* INDONESIA
- María Belén Mena: *Multimodal Strategy for Teaching Antimicrobial Pharmacology in Medical Schools.* ECUADOR
- Erick Venant: *Participation of Youth and School Children as Agents of Change in Fighting Antimicrobial Resistance.* TANZANIA
- Anita Kotwani: *Access Versus Excess Situation of 'Access' and 'Watch' Group of Antimicrobials in India.* INDIA
- Tial Awi Thang: *Guiding and Transforming Health Care in Rural Myanmar: Current Practices of the Socially Engaged Monastery Schools Network.* MYANMAR (Due to personal reasons he was not able to attend the meeting and take up the scholarship).

Poster prize

In addition to these scholarships, a prize will be awarded for the most popular poster among conference participants.

People Improving the Use of Medicines: What We Know and Don't Know

Program overview

Sunday 26th January 2020

Setting the scene

08:30 - 08:45	<p>Welcome and Introduction Chairs: Mary Murray, International Society to Improve the Use of Medicines, and Niyada Kiatying-Angsulee, Drug System Monitoring and Development Centre, Chulalongkorn University, Thailand Rapporteurs: Kris Weerasuriya, Ravi Shankar</p>
	<p>Welcome and conference objectives (video) (95) Arturo Quizhpe, Chair, International Conference Organising Committee</p>
08:45 – 09:15	<p>Keynote Address: Reinvigorating a movement for improving the use of medicines Mongol Na Songla, Former Minister for Health, Thailand</p>
09:15 – 09:45	<p>Keynote Address: Medicine use today (39) Kathleen Holloway, Institute of Development Studies, University of Sussex, UK</p>
09:45 – 10:15	<p>Working with governments and communities in Africa: 30 years of experience (82) Mirfin Mpundu and Eva Ombaka, former Directors of the Ecumenical Pharmaceutical Network</p>
10:15 – 10:30	<p>Question and answer session</p>
10:30 – 11:00	<p>Morning Tea</p>
	<p>Initiatives to Improve the Use Of Medicines: Country Experiences Chairs: Hans Hogerzeil, Raikhan Tuleutayeva Rapporteurs: Wilbert Bannenberg, Liliya Ziganshina</p>
11:00 – 11:20	<p>Australia (100) Libby Roughead, University of South Australia</p>
11:20 – 11:40	<p>Kazakhstan (20) Ubaidilla Datkhayev, Vice-Rector for Corporate Development, S.D. Asfendiyarov Kazakh National Medical University</p>
11:40 – 12:00	<p>Cuba (7) Dulce Calvo, Consultant to the Regulatory Agency of Bolivia (formerly Ministry of Health, Cuba)</p>
12:00 – 12:20	<p>Thailand (122) Prasit Watanapa, Dean of Medicine, Siriraj Hospital, Mahidol University</p>
12:20 – 12:40	<p>Question and answer session</p>
12:40 – 12:50	<p>Conversation Starter: Medicines quality and improving the use of medicines A link to the parallel public exhibition, What is in your Medicines? (see p. 22) (83) How can we design effective 'wide' public engagement activities and evaluate their impact, to tackle widespread issues around medicine quality and use? Anne Osterrieder, Bioethics and Engagement, Mahidol Oxford Tropical Medicine Research Unit (MORU), Centre for Tropical Medicine and Global Health, Nuffield Department of Medicine, University of Oxford, Oxford, UK</p>

Program overview (contd.)

Sunday 26th January 2020

Setting the scene

12.50 – 14.00	Lunch
	Universal Health Cover (UHC): Three Perspectives Chairs: Budiono Santoso, Zuzaan Zulzaga Rapporteurs: Dinesh Meena, Wilbert Bannenberg
14:00 – 14:20	Does the medical insurance system really help the population of Moldova? (132) Natalia Cebotarenco, Coordinator, Coalition for Rational and Safe Use of Medicines (CoRSUM), Moldova
14:20 – 14:40	Inefficiencies of health service delivery system as possible barriers for UHC policy (Indonesia) (34) Firdaus Hafidz, Department of Public Health, Faculty of Medicine, Gadjah Mada University, Indonesia
14:40 – 15.00	Keeping consumers at the centre of medicines use in Australia (10) Kathryn Briant, Health Care Consumers Association, Australia
15.00 – 15.15	Discussion
15.15 – 15.45	Afternoon Tea
	Antimicrobial Resistance: Three Perspectives Chairs: Niyada Kiatying-Angsulee, Meenakshi Gautham Rapporteurs: Mieke Hutchinson-Kern, Kadir Alam
15:45 – 16:05	Global situation and initiatives to contain antimicrobial resistance (75) Mirfin Mpundu, Head, ReAct Africa and International Centre for Antimicrobial Resistance Solutions (ICARS)
16:05 – 16:25	Antibiotic SMART use program in Thailand (107) Nithima Sumpradit, Senior Pharmacist, Food and Drug Administration, Thailand
16:25 – 16.45	Initiatives to improve antibiotic use in China (108) Sun Jing, School of Public Health, Chinese Academy of Medical Sciences and Peking Union Medical College, China
16.45 – 17.00	Discussion
	Medicines and Vested Interests in Society Chairs: Kathleen Holloway, Natalia Cebotarenco Rapporteur: Agnes Vitry
17.00 – 17.20	Keynote Address: Medicines and vested interests in society (69) Barbara Mintzes, School of Pharmacy and Charles Perkins Centre, University of Sydney, Australia
17.20 – 17.30	Discussion
18.30 - onwards	Conference Dinner

Program overview (contd.)

Monday 27th January 2020

Bottom Up Approaches

	People as the Focus Chairs: Niyada Kiatying-Angsulee, Steven Lanjouw Rapporteurs: Satya Sivaraman, Kris Weerasuriya		
08:30 – 08:45	Keynote address: Mobilising, organising, empowering communities (video) (96) Arturo Quizhpe, Director of ReAct Latinamerica, former Dean, Faculty of Medical Sciences, University of Cuenca, Ecuador; former Coordinator, People's Health Movement Latinamerica, Ecuador		
08:45 – 09:55	Storytelling: Personal stories of building communities to solve problems and overcome obstacles in relation to health and the use of medicines Mrs Kadesinee, community member, Saraburi Province, Thailand Somchart Sutjaritrungrsee, Soahai District Hospital, Thailand Erick Venant, pharmacist, Tanzania Thai representative of the International Network of Engaged Buddhists (tba) Silvina Alessio, primary school teacher, Argentina Yong Kwok, consumer health activist, Australia/USA		
9:55 – 10:15	Question and answer session		
10:15 – 10:45	Morning Tea		
	Empowering People to Improve the Use of Medicines		
10:45 – 12:30	Concurrent working sessions (see pp. 16-17 for details about topics and presenters) Each working session will be comprised of a mix of different types of presentations plus time for discussion		
	Working session #1 Medicines in society	Working session #2 Improving use at local level: Education and empowerment	Working session #3 Antimicrobial medicine use (from local context perspective)
12:30 – 13:30	Lunch		
	Empowering People to Improve the Use of Medicines		
13:30 – 15:15	Concurrent working sessions (see pp. 17-18 for details about topics and presenters) Each working session will be comprised of a mix of different types of presentations plus time for discussion		
	Working session #4 Communicating in the 2020s	Working session #5 Improving use at local level: Empowerment	Working session #6 Methods and tools for generating knowledge
15:15 – 15:45	Afternoon tea		
15:45 – 17:15	Results and Discussions of Working Groups 1 – 6 Chairs: Kris Weerasuriya, Yupadee Sirisinuk Rapporteurs: Debra Rowett, Luh Putu Wulandari		
	What Do We Know and Not Know About People Improving the Use of Medicines? Implications for communities, health professionals, governments, stakeholders, health systems and policies and ISUIM. Six working session presentations by rapporteurs followed by interactive discussion distilling cross-cutting issues and preliminary contributions to the outcomes of the meeting in relation to its four objectives.		
17:30 – 18:30	Skills workshop 1: How to write an abstract (38) Hans Hogerzeil		
18:45 – 20:00	Skills workshop 2: Communicating in the 2020s Anna Coretchi, Paula Nersesian	Opioid workshop: Availability and rational use of opioid medicines in low- and middle-income countries (120) Agnes Vitry, Barbara Mintzes	

Program overview (contd.)

Tuesday 28th January 2020

Top Down Approaches

	Universal Health Coverage and Improving the Use of Medicines: Government and Stakeholder Roles, Health System Infrastructure and Systems, Policies and Regulation		
08:30 – 10:15	Concurrent working sessions (see pp. 19-20 for details about topics and presenters) Each working session will be comprised of a mix of different types of presentations plus time for discussion		
	Working session #7 Improving the use of antimicrobials to contain antimicrobial resistance	Working session #8 Methods to generate knowledge	Working session #9 Improving the use of medicines for universal health coverage (UHC)
10:15 – 10:45	Morning Tea		
	Universal Health Coverage and Improving the Use of Medicines: Government and Stakeholder Roles, Health System Infrastructure and Systems, Policies and Regulation		
10:45 – 12:30	Concurrent working sessions (see pp. 20-21 for details about topics and presenters) Each working session will be comprised of a mix of different types of presentations plus time for discussion.		
	Working session #10 Essential medicines selection, formularies and guidelines	Working session #11 New roles for pharmacists	Working session #12 Role of governments, policies and systems in improving the use of medicines
12:30 – 13:30	Lunch		
13:30 – 15:00	Results and Discussions of Working Groups 7 – 12 Chairs: Kris Weerasuriya, Natalia Cebotarenco Rapporteurs: Kathy Holloway, Budiono Santoso		
	What Do We Know and Not Know About People Improving the Use of Medicines Through Government and Stakeholder Roles, Health Systems and Policies and Through Universal Health Care Approaches? Implications for communities, health professionals, governments, stakeholders, health systems and policies and ISIUM. Six working session presentations by rapporteurs followed by interactive discussion distilling cross-cutting issues and preliminary contributions to the outcomes of the meeting in relation to its four objectives.		
15:00 – 15:30	Afternoon tea		
15:30 – 17:00	ISIUM's Future Agenda Chairs: Mary Murray, Niyada Kiatying-Angsulee		
	Discussion and Development of Priorities for ISIUM's Future Work Two 15-minute theme presentations (Day 1 and Day 2) with summary lessons learnt. The presentations will be followed by discussion to draw cross-theme conclusions in relation to the meeting's four objectives.		

Working session program

Monday 27th January 2020

Empowering people to improve the use of medicines

Working session 1: Medicines in society

10:45– 12:30

Chairs: Mary Murray, María Belén Mena (tbc)

Rapporteurs: Satya Sivaraman, Steven Lanjouw

Presenter	Title of presentation (abstract number)	Type/length
Libby Roughead	Achieving quality use of medicines: It's about the person, not the medicine 99	15-minute oral
Emiliano Mariscal	Dialogue of shared knowledge: What is health? What is medicine? 66	10-minute oral
Alice Gilbert	Are we delivering sickness care or health care: What is health? 33	10-minute story
Chair	Breather: Discussion of key points from presentations and posters	15 minutes
Lisa Pont	Opioid use among Australian nursing home residents from 2014-2015 88	10-minute oral
Supanai Prasertsuk	Border medicine: Border crossing and situation on problems of medicine and health products along Thailand's borders – the case of corticosteroids 93	7-minute rapid-fire
Yong Kwok	Improving the use of medicines in the humanitarian sector 130	7-minute rapid-fire
Posters to be considered: <i>Call for systems approach in promoting rational use of medicines: Lesson learned from zooming out irrational antimicrobial use in Thailand (Siritree Suttajit) 110</i> <i>Self-medication of stroke patients can lead to poor kinesiotherapy results (Anatolie Dolgov) 24</i> <i>Pattern of adverse drug reaction reporting by community pharmacist in Dharan, Nepal (Kadir Alam) 2</i>		
Chair	Discussion and conclusion	30 minutes

Working session 2: Improving use at local level: Education and empowerment

10:45 – 12:30

Chairs: Debra Rowett, Arnupap Lekhakula

Rapporteurs: Josephine Maundu, Yupadee Sirisinuk

Presenter	Title of presentation (abstract number)	Type/length
Ravi Shankar	Improved 'medicine' knowledge using a gamified approach in second-year medical students from two medical schools 5	10-minute oral
Ravi Shankar	'Lived' experiences in 'teaching' medical students to use medicines rationally 104	5-minute story
María Belén Mena	Multimodal strategy for teaching antimicrobial pharmacology in medical schools 67	10-minute oral
Silvina Alessio	School gardens and the microbial world: Healthy nutrition – an educational project to improve the use of antibiotics 4	10-minute video
Chair	Breather: Discussion of key points from presentations and posters	15 minutes
Liliya Ziganshina	Establishing medicine use monitoring and training program at a tertiary multidisciplinary hospital: Impact on antibiotic consumption and expenditure 3	7-minute rapid-fire
Nisha Jha	Knowledge, attitude and practice about antimicrobial resistance and prevention strategies among healthcare professionals before and after an educational intervention 45	7-minute rapid-fire
Elmira Satbaeva	The role of problem-based learning in improving the effectiveness of antibiotic use 103	7-minute rapid-fire
Posters to be considered: <i>Project-based learning to transform pharmacy students to be a system manager in promoting rational use of medicine in a community (Puckwicka Suwannaprom) 111</i> <i>Drug therapy-related problems among critical care patients in a tertiary care hospital in Nepal (Kadir Alam) 1</i>		
Chair	Discussion and conclusion	30 minutes

Working session program (contd.)

Monday 27th January 2020

Empowering people to improve the use of medicines

Working session 3: Antimicrobial medicine use (from local context perspective)

10:45 – 12:30

Chairs: Nithima Sumpradit, Anita Kotwani

Rapporteurs: Mona Kheng, Erick Venant

Presenter	Title of presentation (abstract number)	Type/length
Joe Hessell	Implementation of antimicrobial stewardship in a resource-limited setting: Experience of Siem Reap Provincial Referral Hospital, Cambodia 35	10-minute oral
Luh Putu Wulandari	Inside the black boxes of antibiotic dispensing by private drug sellers in Indonesia (PINTAR study) 126	10-minute oral
Sarah Kibira	Antimicrobial stewardship in a regional hospital in Kenya 53	10-minute oral
Chair	Breather: Discussion of key points from presentations and posters	10 minutes
Meenakshi Gautham	A study of the multiple drivers of antibiotic use by informal healthcare providers in rural India 32	7-minute rapid-fire
Ragil Setia Dianingati	Society knowledge and perception evaluation of antibiotic use without prescription in Ungaran, Central Java, Indonesia 124	7-minute rapid-fire
Susi Ari Kristina	Public knowledge and awareness towards antibiotics usage in Yogyakarta: A cross-sectional survey 109	7-minute rapid-fire
Posters to be considered:		
<i>Dispensing practice and controlling system of antibiotics among medicine retailer in Butwal and Bhairawaha town – an intervention study (Kadir Alam) 101</i>		
<i>Findings of an antimicrobial point prevalence survey performed in Battambang Provincial Referral Hospital, Cambodia (Mona Kheng) 72</i>		
<i>Antibiotic prescribing patterns at the outpatient department in a regional hospital in Kenya (Sarah Kibira) 52</i>		
Chair	Discussion and conclusions	40 minutes

Working session 4: Communicating in the 2020s

13:30 – 15:15

Chairs: Pornpun Prajaknate, Anna Coretchi

Rapporteurs: Yong Kwok, Lynn Weekes

Presenter	Title of presentation (abstract number)	Type/length
Satya Sivaraman	Communicating health messages: Medicine and mythology 105	10-minute oral
Natalia Cebotarenco	Strengthening and empowering network activities by Internet conferences 11	10-minute oral
Anna Coretchi	Media coverage of drug information: How to work more productively with journalists 17	10-minute oral
Chair	Breather: Discussion of key points from presentations and posters	10 minutes
Liliya Ziganshina	Cochrane Russia Wikipedia Initiative to empower Russian-speaking community in evidence-informed improving use of medicines 90	10-minute oral
Ubaidulla Datkhayev	Open discussion within society is a modern way for decision-making to introduce new specialties such as clinical pharmacist in Kazakhstan 19	10-minute oral
Paula Nersesian	Empowering patient communication 131	10-minute oral
Posters to be considered:		
<i>Communication skills in the multidisciplinary committee work in Moldova (Radu Demcenco) 22</i>		
<i>Community empowerment for surveillance and management of inappropriate drug in Tungkaoluang District, Roi Et Province (Supawadee Plengchai) 86</i>		
Chair	Discussion and conclusion	30 minutes

Working session program (contd.)

Monday 27th January 2020

Empowering people to improve the use of medicines

Working session 5: Improving use at local level: Empowerment

13:30 – 15:15

Chairs: Niyada Kiatying-Angsulee, Alice Gilbert

Rapporteurs: Siritree Suttajit, Luh Putu Wulandari

Presenter	Title of presentation (abstract number)	Type/length
Erick Venant	Participation of youth and school children as agents of change in fighting antimicrobial resistance 118	10-minute oral
Raikhan Tuleutayeva	Modern realities of the use of medicines in children from the point of view of schoolchildren and their parents 116	10-minute oral
Dwi Endarti	An effort for improving knowledge and perception regarding contraceptive drugs and devices among community in Yogyakarta, Indonesia 27	10-minute oral
Chair	Breather: Discussion of key points from presentations and posters	10 minutes
Lisa Pont	Consideration of patient need in opioid prescribing at hospital discharge 87	10-minute oral
Zuzaan Zulzaga	Descriptive analysis on case for chronic obstructive pyelonephritis at smallest provincial level, Mongolia 106	10-minute oral
Ali Kusnadi Satibi	Analysis of drug availability of community health centre (Puskesmas) in the era of national health insurance and the factors that influence 97	10-minute oral
JanJaree Dokbua	Development of community participated drug management system in child development center: Case study of Pathum Ratchawongsa, Amnat Charoen, Thailand 23	7-minute rapid-fire
Posters to be considered: <i>Cochrane Russia Wikipedia Initiative to empower Russian-speaking community in evidence-informed improving use of medicines (Liliya Ziganshina) 90</i> <i>A key role of a geriatric nurse in the treatment of elderly patients (Natalia Dolgov) 26</i>		
Chair	Discussion and conclusion	25 minutes

Working session name 6: Methods and tools for generating knowledge

13:30 – 15:15

Chairs: Kris Weerasuriya, Tuan Anh Nguyen

Rapporteurs: Libby Roughead, Sampathkumar Madhusudhan

Presenter	Title of presentation (abstract number)	Type/length
Jessica King	Does the patient's voice matter? A randomised experiment exploring the role of patient knowledge in antibiotic prescribing in Tanzania 55	10-minute oral
Sampathkumar Madhusudhan	Strategies to improve medication adherence among tuberculosis patients towards better therapeutic outcomes 61	10-minute oral
V P Maheshkumar	Improving the use of medicines in geriatrics: What should we do? 62	10-minute oral
Chair	Breather: Discussion of key points from presentations and posters	10 minutes
Surat Wannalerdsakun	Effect of multidisciplinary approach for antibiotic control program in a tertiary hospital in Northern Thailand 121	10-minute oral
Bharat Gajjar	Analysis of findings of prescription audit performed for indoor cases in tertiary care hospital 31	10-minute oral
Kadir Alam	Dispensing practice and controlling system of antibiotics among medicine retailer in Butwal and Bhairawaha town – an intervention study 101	10-minute oral
Nazira Narmukhamedova	Compliance to statin treatment in patients of ischemic heart disease in combination with diabetes 79	5-minute rapid-fire
Posters to be considered: <i>Medication adherence of Latino children and caregivers in the United States: An integrative review (Paula Nersesian) 29</i> <i>The treatment of East Kazakhstan patients with antihypertensive medicines should be switched from compliance to adherence strategy (Aigerim Mussina) 78</i> <i>The assessment of pharmacotherapy in elderly patients in the cardiological hospital (A Mussaspirova) 76</i>		
Chair	Discussion and conclusion	30 minutes

Working session program (contd.)

Tuesday 28th January 2020

Universal health coverage and improving the use of medicines: Government and stakeholder roles, health system infrastructure and systems, policies and regulation

Working session 7: Improving the use of antimicrobials to contain antimicrobial resistance

08:30 – 10:15

Chairs: Anita Kotwani, Sarah Kibira

Rapporteurs: Mirfin Mpundu, Alli Patterson

Presenter	Title of presentation (abstract number)	Type/length
Anita Kotwani	Access versus excess situation of 'Access' and 'Watch' group of antimicrobials in India 56	10-minute oral
Paula Nersesian (for Sergiu Tchebotarenko)	Building antibiotic rational use policy in Moldova based on WHO 'AWaRe' classification of antibiotics 113	10-minute oral
Sarah Kibira	Antibiotic prescribing pattern at the outpatient department in a regional hospital in Kenya 52	7-minute rapid-fire
Nisha Jha	Dispensing practices of antibiotics by community pharmacies in two districts of Nepal 46	7-minute rapid-fire
Chair	Breather: Discussion of key points	15 minutes
Chutimaporn Chaiyasong	Effects of rational drug use policy on antibiotic prophylaxis use in normal vaginal delivery in Mahasarakham Hospital, Thailand 14	10-minute oral
Mona Kheng	Findings of an antimicrobial point prevalence survey performed in Battambang Provincial Referral Hospital, Cambodia 72	10-minute oral
Siritree Suttajit	Call for systems approach in promoting rational use of medicines: Lesson learned from zooming out irrational antimicrobial use in Thailand 110	10-minute oral
Chair	Discussion and conclusion	25 minutes

Working session 8: Methods to generate knowledge

08:30 – 10:15

Chairs: Libby Roughead, David Boettiger

Rapporteurs: Lisa Pont, (tba)

Presenter	Title of presentation (abstract number)	Type/length
Kathleen Holloway	Impact of essential medicines policies on outpatient public sector primary care prescribing in South-East Asia 42	15-minute oral
David Boettiger	Cost-effectiveness of pravastatin and pitavastatin for atherosclerotic cardiovascular disease prevention in people living with HIV in Thailand 9	10-minute oral
Liliya Ziganshina	ABC/VEN monitoring for improving use of medicines at a municipal out-patient clinic 54	10-minute oral
Chair	Breather: Discussion of key points	15 minutes
Akash Das	Prospective study on application of six sigma DMAIC methodology in assessing and improving antimicrobial stewardship in a major trauma care centre 115	7-minute rapid-fire
Simon Bell	Medication safety and effectiveness in dementia: Neurodegenerative diseases global epidemiology network (NeuroGEN) 44	7-minute rapid-fire
Suzana Soares Hendriques	Antimicrobial resistance awareness survey in Timor-Leste period 2018 57	7-minute rapid-fire
Ramesh Sharma Poudel	Validity of the ISMP Medication Safety Self-Assessment® for long-term care tool in Australian nursing homes: a RAND appropriateness method study 91	7-minute rapid-fire
Chair	Discussion and conclusion	25 minutes

Working session program (contd.)

Tuesday 28th January 2020

Universal health coverage and improving the use of medicines: Government and stakeholder roles, health system infrastructure and systems, policies and regulation

Working session 9: Improving the use of medicines for universal health coverage (UHC)

08:30 – 10:15

Chairs: Hans Hogerzeil, Katrina Perehudoff

Rapporteurs: David Newby, Suntaree Watcharradamrongkun

Presenter	Title of presentation (abstract number)	Type/length
Hans Hogerzeil	The impact of insulin donations for children in 43 low- and middle-income countries 37	10-minute oral
Anna Kemp-Casey	Using sales data to examine utilisation of diabetes medicines in India, Indonesia, Sri Lanka and Thailand 48	10-minute oral
Dinesh Meena	Cost analysis of different antibiotic brands available in India with reference to NLEM and Prime Minister's Jan Aushadhi Scheme 68	10-minute oral
Chair	Breather: Discussion of key points	15 minutes
Hans Hogerzeil	Promoting quality use of insulin 36	10-minute oral
Katrina Perehudoff	Legislating for universal access to medicines: A rights-based cross-national comparison of UHC laws in 16 countries 84	10-minute oral
C S Verma	Policies for access to essential medicines for a sustainable universal health coverage and the realisation of the right to health 119	10-minute oral
Chair	Discussion and conclusion	30 minutes

Working session 10: Essential medicines selection, formularies and guidelines

10:45 – 12:30

Chairs: Rob Moulds, David Woods

Rapporteurs: Anna Kemp-Casey, Jane Robertson

Presenter	Title of presentation (abstract number)	Type/length
Rob Moulds	Adapting 'point of care' prescribing guidelines for local use 73	10-minute oral
Rob Moulds	Linking guidelines to an essential medicines list 74	7-minute rapid-fire
Natalia Cebotarenco	It is a time for proper standard treatment guidelines design in NIS countries based on the evidence-based sources? 12	7-minute rapid-fire
Mieke Hutchinson-Kern	Guideline host app: supporting access to local standard treatment guidelines in Fiji and Solomon Islands 43	7-minute rapid-fire
Didar Baidullayeva	Kazakhstan National Medicines Formulary 128	7-minute rapid-fire
Chair	Breather: Discussion of key points	15 minutes
David Woods	A subjective analysis of the current status of national drug formularies – the case for a dynamic, open access global resource 125	10-minute oral
Barbara Mintzes	Domperidone use for breast milk supply: Does benefit outweigh harm? 94	7-minute rapid-fire
Carolina Romasco	Comparison of the recommendations on paracetamol and ibuprofen prescribing in children in Moldova with WHO and Australian Therapeutic Guidelines 98	7-minute rapid-fire
Natalia Cebotarenco	What is the motivation for inclusion of Nimesulide in the insurance list of Moldova as for adults and as well for children especially? 13	7-minute rapid-fire
Chair	Discussion and conclusion	20 minutes

Working session program (contd.)

Tuesday 28th January 2020

Universal health coverage and improving the use of medicines: Government and stakeholder roles, health system infrastructure and systems, policies and regulation

Working session 11: New roles for pharmacists

10:45 – 12:30

Chairs: Budiono Santoso, Dilmi Wickramasinghe

Rapporteurs: Alice Gilbert, Thitima Pengsuparp

Presenter	Title of presentation (abstract number)	Type/length
Didar Baidullayeva	The competencies of clinical pharmacists: A literature review and assessment 129	10-minute oral
Puckwipa Suwannaprom (with Siritree Suttajit)	Project-based learning to transform pharmacy students to be a system manager in promoting rational use of medicine in a community 111	10-minute oral
Dilmi Wickramasinghe	Clinical pharmacists' medication counselling can reduce CKDu disease progression and improve medication adherence in pre-dialysis CKDu patients 123	10-minute oral
Kadir Alam	Pattern of adverse drug reaction reporting by community pharmacist in Dharan, Nepal 2	7-minute rapid-fire
Chair	Breather: Discussion of key points	15 minutes
Ubaidilla Datkhayev	The role of a pharmacist in rational use of medicines 21	7-minute rapid-fire
Josephine Maundu	The role of accreditation standards in improving use of medicines: Experiences from the Australian Pharmacy Council (APC) 16	10-minute oral
Dulce Calvo Barbado	Cuba and Bolivia: Pharmacoepidemiology improving the use of medicines 8	10-minute oral
Chair	Discussion and conclusion	25 minutes

Working session 12: Role of governments, policies and systems in improving use of medicines

10:45 – 12:30

Chairs: Kathleen Holloway, Bibikhan Yerallyeva

Rapporteurs: Hans Hogerzeil, Anita Kotwani

Presenter	Title of presentation (abstract number)	Type/length
Kathleen Holloway	Identifying the most effective policies to encourage quality use of medicines in public sector primary care from three WHO datasets 41	10-minute oral
Sasitorn Eua-Anant	Strategies to promoting rational drug use hospital policy of governmental hospitals in Khon Kaen Province, Thailand 28	10-minute oral
Bibikhan Yerallyeva	Pharmacoeconomic analysis of drug supply in the paediatric hospital in Almaty 127	10-minute oral
Chair	Breather: Discussion of key points	15 minutes
Liliya Ziganshina	Prevention of mother-to-child HIV transmission: Barriers and enablers at a Russian regional HIV management centre 49	10-minute oral
Judith Mackson	Developing policy and regulation for use of cannabis-based medicines in Australia – challenges of community, industry and health practitioner knowledge and expectations 60	10-minute oral
Kathleen Holloway	Starting to implement Resolution WHA60.16 on rational use of medicines: A story about remaining focused, developing trust and overcoming fear 40	10-minute oral
Chair	Discussion and conclusion	30 minutes

Art exhibition: What's in your medicines?

(Pharmacide Arts)

A public exhibition

The art exhibition 'What's in your medicines?' showcases the artwork of 11 South East Asian artists. Their paintings explore how substandard and falsified medicines affect people, society and public health in low- and middle-income countries (LMICs) in South East Asia. The exhibition features artwork by Amphonesouk Paisourin, Ketsada Thammavongsa, Malisa Dalasavath and Mongkham Boualavanh (Laos), Hen Sophal, Sokuntevy Oeur and Sukuntak Piteak (Cambodia), Adhya Ranadireksa, Iwan Effendi and Iwan Wijono (Indonesia), and Nguyen Anh Tuan (Vietnam).

Originally called 'PHARMACIDE ARTS – Fake medicine : the disease of greed', it first toured South East Asia in 2012. Its production was supported by the French Ministry of European and Foreign Affairs, the Promoting the Quality of Medicines program funded by USAID, Soho Film & The Cecil and Hilda Lewis Charitable Trust, and Meta House.

Its current tour is organized by the Medicine Quality Research Group (led by Professor Paul Newton and Dr Céline Caillet) from the Lao-Oxford-Mahosot Hospital Wellcome Trust Research Unit (LOMWRU) in Vientiane, Laos, and the Infectious Diseases Data Observatory (IDDO) in Oxford, United Kingdom. It is funded by a Wellcome Trust Provision for Public Engagement and supported by the Mahidol Oxford Tropical Medicine Research Unit (MORU) in Bangkok, Thailand.

The exhibition will be open to the public from 26th-28th January 2020 from 10:00 – 17:00 (free entry), and to ISIU attendees during the whole time of the conference.

For more information, please contact:
anne.osterrieder@ndm.ox.ac.uk

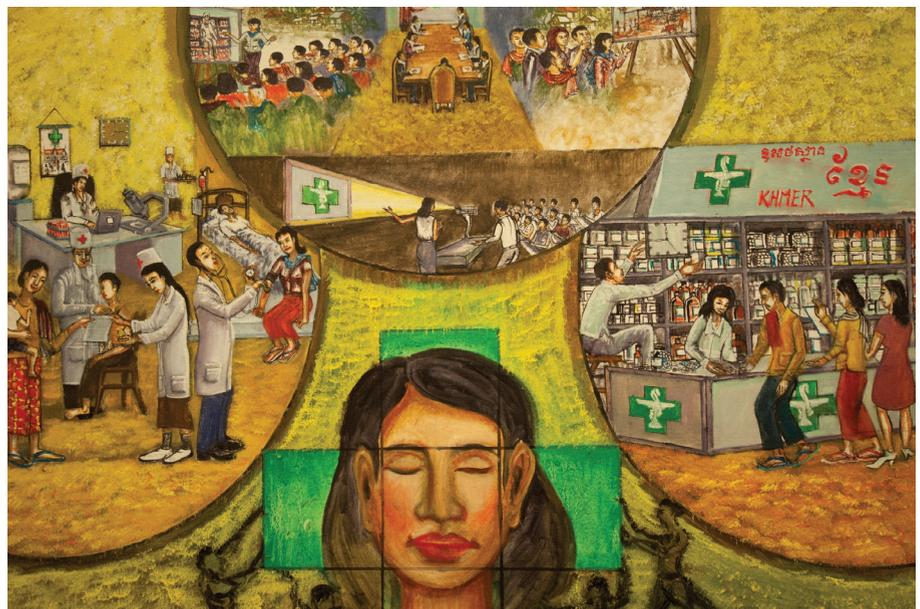


Image credit: Sukuntak Piteak

Abstracts

1. Drug therapy related problems among critical care patients in a tertiary care hospital in Nepal

Kadir Alam¹, Nilanjan Ghosh², Yugal Kishor Sharan²

¹Department of Pharmacology and Therapeutics, BPKIHS, Dharan, Nepal

²Department of Pharmacy, Guru Ram Das Institute of Management and Technology, Utrakhand University, Utrakhand, India

Problem statement: Adverse Drug Reaction (ADR), Medication errors and Drug-drug Interaction (DDI) are major drug therapy related problems (DRPs). DRPs have shown contribution negative clinical and economic outcomes in several international health care systems. A multicentre study in Nepal suggests 0.64% hospitalization because of DRPs.

Objectives: To study the pattern and nature of ADRs, Medication Errors and Potential drug Interactions (PDIs) in critical care patients.

Materials and Methods: Prospective study was conducted in critical care inpatients between September-November 2015 at Manipal Teaching Hospital Pokhara, Nepal. Data from patients and their medication record was collected in predesigned data collection form. Naranjo Algorithm, modified Hartwig & Siegel and modified Shumock & Thornton Scales were used for causality, severity and preventability assessment for ADR respectively. Prescribed medications were analyzed for potential drug interactions (PDIs) using Micromedex 2.0.

Results: Among 316 patients, 27 have experienced ADRs. Rashes (22.22%), Edema (11.11%), Fever (7.40%) were common ADRs. ADRs incident were higher with Antibiotics (51.85%) and cardiovascular drugs (25.92%). Dermatological (22.22%), Gastrointestinal (18.52%) and Cardiovascular (18.52%) systems were more affected. About 77.78% drugs were continued, 14.81% were stopped and 48.15% needed medical treatment. Antipruritic (17.65%), antihistamine (11.76%) and corticosteroids (11.76%) were used to treat ADRs. Forty two medication errors were noticed consisting 19 prescription errors, 7 Administration errors, 14 transcription errors and 2 documentation errors. 61.90% of medication errors are Category B i.e. medication did not reach to the patients and more than 2/3rd of errors were clinically significant. PDIs was found in 21.2% of prescriptions. Altogether 92 interactions were found. Majority of PDIs were Moderate severity (59.78%).

Conclusion: Study finding suggest the existence of drug therapy related problem even at critical care setting which need to be addressed. Hence, education, awareness and careful monitoring are very much essentials for its minimization.

2. Pattern of adverse drug reaction reporting by community pharmacist in Dharan, Nepal

¹Kadir Alam, ²Yogendra Baral

¹Department of Pharmacology, B.P. Koirala Institute of Health Sciences, Dharan, Nepal ²Department of Pharmacy, Purbanchal University, Gothgaon, Nepal

Problem Statement: In developing countries like Nepal, there are weak regulatory systems to monitor ADR. Studies suggests that 0.64%-0.86% of the hospital admission were identified with drugs in the past. Although, there are 11 regional pharmacovigilance centers to report ADR, all of them are located in tertiary care hospital and most of them are non-functional. ADR reporting from community where majority of population reside are lacking.

Objectives: Aimed to study pattern of ADR reporting, common drugs causing the ADRs, types of ADRs and causality, severity and preventability assessments of the reported ADRs.

Methods: A descriptive cross-sectional study was conducted from June to September, 2018. Potential 15 community pharmacies were identified from the list of registered community pharmacies in Dharan. Community pharmacists from those pharmacies were provided one day training on identification and reporting system of ADR. Self-developed ADR collection form was distributed those community pharmacies. Researcher visited the trained community pharmacists every alternate day and collected the filled ADR reporting forms. Ethical approval was obtained from Nepal Health Research Council.

Results: Altogether 200 ADRs were reported by community pharmacist. Common drug causing ADRs were antibacterial 28.0 % (n=56) followed by non-steroidal anti-inflammatory drugs 25.5% (n=51)]. The most common type of ADR was Nausea/Vomiting [27.71 % (n=92), followed by abdominal discomfort [19.28 % (n=64)]. About 35.5% (n=71) of the patients required medical treatment to manage the ADRs. Over 72.5 % of the ADRs had a 'possible' association with the suspected drugs and 71.5% was of 'mild (level 1)' type. All of the ADRs reported were 'definitely preventable'.

Conclusion: Study suggests ADRs are very much prevalent in community which remains unnoticed. Strengthening this program might improve ADR reporting system and help safe use of medicines in the community.

3. Establishing medicine use monitoring and training program at a tertiary multidisciplinary hospital: Impact on antibiotic consumption and expenditure

Aleksandrova E.G., Abakumova T.R., Titarenko A.F., Khaziakhmetova V.N., Ziganshina L.E.
Cochrane Russia, Kazan Federal University, Penza Central Hospital, Russia

Problem statement: Antibiotics accounted for major hospital medicine expenditures and consumption in 2010-11, were misused and abused, contributing to the growing problem of antimicrobial resistance and nosocomial infections. Individual case analyses revealed major problems in fluoroquinolone use.

Objective: To establish antibiotic monitoring and training program tailored to identified drug use problems using consumption and expenditure data as impact measures over the period 2011-2014.

Method: A team of clinical pharmacologists delivered the monitoring and training program, and carried out analysis of antibiotic consumption and expenditure over 4 years at a tertiary regional multidisciplinary hospital using the WHO ATC/DDD methodology.

Results: We focused on the issue of fluoroquinolone over/misuse. Over the four program years, fluoroquinolone consumption and expenditure decreased by 2 and 6 times (2011: 11.4 DDD/100 bed-days and 22% of total antibiotic expenditure (TAE); 2014: 5.6 DDD/100 bed-days and 3.5% TAE) with most important reduction in ciprofloxacin consumption: from 8.4 to 2.8 DDD/100 bed-days. Cephalosporins remained the most prescribed antibiotics: 14.4 and 15.6 DDD/100 bed-days in 2011 and 2014, with 2 times expenditure reduction due to preferred generic procurement (from 51% to 22% of TAE). Ceftriaxone and cefotaxime were the most used. Despite tripled aminoglycoside consumption (from 4.2 to 14.0 DDD/100 bed-days), their share in TAE decreased from 4.5% to 2.7%. The most often prescribed was amikacin. Carbapenem use increased from 0.1 to 0.4 DDD/100 bed-days accounting for the expenditure growth (from 6.7 to 47% of TAE) primarily due to doripenem (0.2 DDD / 100 bed days).

Conclusion: Over a four-year program period we achieved marked reduction of fluoroquinolone use and expenditure, increase of aminoglycoside and carbapenem consumption with no changes to cephalosporin use. Cephalosporins and carbapenems accounted for increase of total antibiotic expenditure. Further efforts and research into carbapenem use and clinical outcomes of patients, prescribed with antibiotics, is needed.

4. School gardens and the microbial world: Healthy nutrition. An educational project to improve the use of antibiotics

Silvina Alessio
ReAct Latinoamérica

The 'School Garden and Microbial World: Healthy Eating' project was developed and promoted by ReAct Latin America as part of its strategy to engage children and teachers in the underlying causes of infection and antimicrobial resistance (AMR) and the social and economic determination of health. The school Garden project as an inter-institutional proposal', aims to ensure that children and school teachers discover the microbial world that lives in the school garden, know the importance of its role in the fertility of the soil, its characteristics and diversity, and carry out a didactic sequence that contains different activities that relate the garden with the care of one's own and community health.

1 *ReAct Latin America joins the proposal 'Our School Garden', a project that the Ministry of the Community executes jointly with the Ministry of Culture and Education of the City of Formosa, Argentina. The project is part of the project 'Alforja Educativa: School Health and Microbial World' (Educational Saddlebag), educational material of ReAct Latin America, on proper use of antibiotics and bacterial resistance.*

The garden is an educational strategy for children to: understand the importance of health care to prevent infectious diseases and reduce the use of antibiotics; develop a critical look at the determinants that affect health (water, pesticides, pollution, food) and acquire healthy, self-managed and sustainable practices. In addition, the project includes learning how to prepare healthy foods with the vegetables produced in the garden.

The project relates the activities of construction and care of the garden with the learning of science (natural, mathematical), literature, art, music, communicational activities, cooperation, research and solidarity group work, from a transversal approach.

The children, empowered in the themes of the proposal, are the 'health promoters' in their community, through dissemination, communication and inclusion of their families in the activities.

5. Improved 'medicine' knowledge using a gamified approach in second year medical students from two medical schools

Sarah Aynsley, Pathiyil Ravi Shankar, Russell Crawford

Dr Sarah Aynsley, Medical School, Keele University, United Kingdom; Dr Pathiyil Ravi Shankar, Oceania University School of Medicine, Samoa; Dr Russell Crawford, Medical School and Keele Institute for Innovation and Teaching Excellence (KIITE), Keele University, United Kingdom

Problem statement: Medical students often have difficulty learning to use medicines properly and find pharmacological principles and concepts difficult to understand and extrapolate to patient practice. Braincept is an educational card-based, role-playing game.

Objective: The present study aimed to measure learning gain among two cohorts of medical students in two different countries (Keele University in the United Kingdom and American International Medical University in Saint Lucia) after playing Braincept. Their perceptual feedback was also obtained.

Methods: A total of 132 students participated. Students worked in groups of 4 to complete three patient scenarios from the respiratory system, including the use of antibiotics. Players are provided with a short introductory video on how to play the game and with a printed sheet containing instructions. Pre- and post-game play all participants completed an anonymous questionnaire to collect perceptual data. Learning gain was also assessed immediately pre- and post-game and three days post-game using short quizzes.

Results: There was a significant increase in knowledge immediately after the session and the gain persisted three days post-session. Student perception regarding the game was positive. Free text comments were also obtained. Among these were 'Good visual way of learning', 'Playing physically we are interacting with others. We are getting to know each other's thoughts and our mistakes', 'Mimics traditional doctor-patient consultation. Face to face.', 'Really enjoyed this game! Felt like applying pharmacology in a clinical setting in response to an actual patient disease.'

Conclusion: Our data shows that this style of gamified learning has a reproducible positive effect on student pharmacological knowledge as well as measurable learning gains post-game play in both cohorts of students leading us to conclude that gamification of pharmacology learning may be a pedagogically valuable transnational educational intervention. Further studies are required. This could help students use medicines better as future practitioners.

6. Study of rational medication and cases of medical errors in Armenia clinics

Anahit Ayvazyan and Gayane Aslanyan

Scientific Centre of Drug and Medical Technology Expertise after Emil Gabrielyan, Armenia

Problem statement: Problem of rational use of medicines is very actual in the world. The analyzing of antibiotic therapy found many cases of the inappropriate use of medicines and medication errors.

Objective: To determine efficacy and safety of prescribing medicines in different patients and outcomes of treatment.

Method: It was study and analyses the medical histories and cards of patients with different diagnosis (610) in 3 hospitals on bases the guidelines of rational therapy.

Results: A significant number of disadvantages were found: 84.7% - polypharmacy (more than 5 drugs to one patient, in 32% of patients - more than 3 antibiotics), 47% of patients received antibiotics parenteral and after stabilization, they were not transferred to oral administration of drugs. Microbiological determination the sensitivity of microorganisms to antibiotics was carried out only in 15.4% of cases and half of the prescribed antibiotics did not correspond to laboratory data. In 40.7% of cases a combination with other drugs was found as irrational or dangerous with the risk of development of side effects. Pharmacokinetic

ic properties were not taken into account (for example, the administration of penicillin G and erythromycin for meningitis, while sensitivity to ceftriaxone and cefotaxime was established). The most common errors of antibiotic therapy in RA were: unreasonable use of broad-spectrum antibiotics, simultaneous administration of antifungal agents for the prevention of candidiasis (22.7%) while there are special indications for their prescribing, the combination of bacteriostatics with bactericidal drugs, combination of antibiotics from the same chemical group, improper posology and regimen of medication, etc.

Conclusion: It is necessary to provide systematically monitoring the rationality of treatment, organization of discussions, permanent education of medical professionals and implement modern treatment guidelines in medical practice.

7. Cuba and Bolivia: Pharmacoepidemiology improving the use of medicines

Dulce Maria Calvo Barbado, MD

Adviser of Regulatory Agency of Medicines and Device, Bolivia

Problem statement: Cuba has a unique health system which has free, high quality health services as core principles. In spite of some idiosyncrasies in the system, there is much to admire and emulate. Bolivia as data that can allow to make drug utilization research.

Objective: To describe the methods used for this health system to improve the use of medicines.

Method: It will describe the different tools that are used for Cuba health system during last 17 years to improve the use of medicine. And some strategy that it is new in the rational use of medicines for the Regulatory Agency in Bolivia from 2018 to 2019.

Results: Cuban National Health System was to establish the Centre for the Development of Pharmacoepidemiology (with a network that allows it to reach all levels of care) and its network. Over a period of more than 20 years there has been an increase in the quantity and quality of suspected adverse drug reaction reports in Cuba's pharmacovigilance system. There have also been significant advances in drug information with high quality of drug information as manuals such as Good Prescription, clinical practice guidelines, drug information bulletins for primary health care, therapeutic guidelines for primary level and the National Formulary of Medicines (first published in 2002). The pharmacoepidemiology network produce and coordinates research and has also done some work with the general public. Bolivia in this two year develop project of research with Consumption studies, made the compilation of the National Formulary that wasn't update since 1999. And finally develop activie system of Pharmacovigilance.

Conclusion: the pharmacoepidemiology and his tools contribute to the rational use of medicine

8. Cuba: Policies and initiatives to improve the use of medicines

Dulce Maria Calvo Barbado, MD

Formerly with the Cuban Ministry of Public Health, Presently Adviser to the Regulatory Agency of Medicines and Device, Bolivia

Problem statement: From 1994 to now, Cuba, through its pharmaco-epidemiology network, has implemented different policies and initiatives to give Cuban people access to to medicines and to encourage their quality of use. .

Objective: To describe the policies adopted by Cuban health system to improve the use of medicines.

Method: The different policies and initiatives used in the Cuban health system during last 17 years to improve the use of medicine will be described.

Results: Since 1994 when the access to medicines was very limited, the Cuban National Health System implemented the National Program of Medicines, that tried to solve the problem of access and the use of medicines. The pharmaco-epidemiology strategy was one of the initiatives that developed a network that allows it to reach all levels of care. The process of selection of medicines, advice to the Cuban pharmaceutical industry, and education of the public and professionals were some of the ideas developed and implemented during this period.

Conclusion: The Cuban health system implemented over a decade a lot of policies that exhibit good results in the area of rational use of medicines.

9. Cost-effectiveness of pravastatin and pitavastatin for atherosclerotic cardiovascular disease prevention in people living with HIV in Thailand

David C Boettiger^{1,2}, Anthony T Newall³, Pairoj Chattranukulchai⁴, Romanee Chaiwarith⁵, Suwimon Khusuwan⁶, Anchalee Avihingsanon⁷, Andrew Phillips⁸, Eran Bendavid⁹, Matthew G Law¹, James G Kahn², Jeremy Ross¹⁰, Sergio Bautista-Arredondo¹¹ and Sasisopin Kiertiburanakul¹²

¹ Kirby Institute, UNSW Sydney, Australia; ² Institute for Health Policy Studies, University of California, San Francisco, USA

³ The School of Public Health and Community Medicine, UNSW Sydney, Australia; ⁴ Cardiac Center, Chulalongkorn University, King Chulalongkorn Memorial Hospital, Bangkok, Thailand; ⁵ Research Institute for Health Sciences, Chiang Mai University, Chiang Mai, Thailand; ⁶ Chiangrai Prachanukroh Hospital, Chiang Rai, Thailand; ⁷ The Thai Red Cross AIDS Research Centre and Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand; ⁸ Institute for Global Health, University College London, UK; ⁹ Center for Health Policy and the Center for Primary Care and Outcomes Research, Stanford University, USA; ¹⁰ TREAT Asia/amfAR–Foundation for AIDS Research, Bangkok, Thailand; ¹¹ Center for Health Systems Research, National Institute of Public Health, Cuernavaca, Mexico

¹² Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Problem statement: People living with HIV (PLHIV) have an elevated risk of atherosclerotic cardiovascular disease (CVD) compared to people without HIV. Expanding statin use may help alleviate this burden. However, the choice of statin in the context of antiretroviral therapy (ART) is challenging. Pravastatin and pitavastatin improve cholesterol levels in PLHIV without interacting substantially with ART but they are also more expensive than most statins.

Objective: Evaluate the cost-effectiveness of pravastatin and pitavastatin for the primary prevention of CVD among PLHIV in Thailand who are not currently using lipid-lowering therapy.

Method: We developed a model that randomly selected (with replacement) individuals from the TREAT Asia HIV Observational Database (TAHOD) cohort aged 40-75 years, receiving ART in Thailand, and not using lipid-lowering therapy. The model simulated individual's probability of experiencing CVD over 20 years. We evaluated: 1) treating no one with statins; 2) treating everyone with pravastatin 20mg/day (drug cost 7,568 Baht [\$US 250]/year); and 3) treating everyone with pitavastatin 2mg/day (drug cost 8,182 Baht [\$US 270]/year). Direct medical costs and quality-adjusted life-years (QALYs) were assigned in annual cycles and discounted at 3% per year. We assumed the Thai healthcare sector perspective.

Results: Pravastatin was estimated to be less effective and less cost-effective than pitavastatin and was therefore dominated (extended) by pitavastatin. Patients receiving pitavastatin accumulated 0.042 additional QALYs compared with those not using a statin, at an extra cost of 96,442 Baht (\$US 3,187), giving an ICER of 2,300,000 Baht (\$US 76,000)/QALY gained. These findings were sensitive to statin costs and statin efficacy, the burden associated with taking an additional daily pill, and the targeting of PLHIV based on CVD risk. At a willingness-to-pay threshold of 160,000 Baht (\$US 5,287)/QALY gained, we estimated that pitavastatin would become cost-effective at an annual cost of 600 Baht (\$US 20)/year.

Conclusion: At current drug prices, neither pravastatin nor pitavastatin were projected to be cost-effective for the primary prevention of CVD among PLHIV in Thailand who are not currently using lipid-lowering therapy.

10. Keeping consumers at the centre of medicine use in Australia

Kathryn Briant

Health Care Consumers' Association, Australian Capital Territory (ACT), Australia

Medicines can help us to address health problems and improve our quality of life. But medicines often cause confusion for consumers. We don't always get the information we need, or know what questions to ask about our medicines. This can result in difficulty managing our medicines, as well as adverse events, preventable hospitalisations, and unnecessary dependency on medicines.

The consumer experience of medicines is important in shaping health systems towards the quality use of medicines. In Australia, the consumer voice is heard through a number of national and state-based organisations. Consumers were pivotal in developing Australia's National Medicines Policy. This provides a framework for balancing a partnership between consumers, government and industry under Australia's universal health care system. It aims to achieve:

- timely access to the medicines that Australians need, at a cost individuals and the community can afford;
- medicines meeting appropriate standards of quality, safety and efficacy;
- quality use of medicines; and
- maintaining a responsible and viable medicines industry.

A key part of Australia's universal healthcare system is the Pharmaceutical Benefits Scheme (PBS). The PBS aims to ensure that all Australians can access high quality and affordable medicines when they need them. To help balance safety efficacy with financial sustainability, comprehensive cost-effectiveness evaluations are undertaken by Australia's Pharmaceutical Benefits Advisory Committee.

Despite these relatively robust processes, Australia still has some way to go in achieving quality use of medicines. Current challenges include:

- fostering a culture of shared decision making in health care
- developing individual and community health literacy
- Australia's increasingly multicultural society and how we address information needs
- addressing access with rising inequity and the barriers of costs to consumers

Addressing these challenges will be key to improving the consumer experience and ensuring quality use of medicines.

11. Strengthening and empowering networks activities by internet conferences

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The leadership role in promoting rational use of medicines requires networks to campaign for the essential ideas of this concept to different stakeholders from policymakers to people at the community level. The success of such networks depends on multidisciplinary and multinational groups with a common ideal, and motivation. Large networks unite people from different countries and even continents. The Coalition on Rational and Safe Use of Medicines (CoRSUM) links a wide range of health care providers, medicine policymakers, NGOs and FBOs, consumers mainly in the Newly Independent States using Russian as the main language for communication. The International Society to Improve the Use of Medicines (ISIUM) has established a platform to connect people with different backgrounds and expertise, from all continents, to share information on any activities relating to improving the use of medicines using English as the main working language.

The execution of activities for such large networks is fraught with difficulties, especially in most circumstances where finances are severely limited. However, with the opportunities that new technology offers, digital communications and digital media can be extremely powerful tools to facilitate the development of complex networks.

Even though nothing can completely replace face-to-face communication and the accompanying human interaction, collaboration using technology such as videoconferencing is extremely valuable. Despite the geographical barriers, it allows personal interaction without the cost and time of travel. A further development is multipoint videoconferencing, which allows participants to sit in a virtual conference room and communicate as if they were sitting right next to each other. However, such technologies can only be used if participants are sufficiently adept at using the software. Knowledge and trust of each other, however, benefits from personal interaction in parallel with the videoconferencing process through small group or one to one video connection. Opportunities to meet face-to-face, however, increase the understanding of each other, our different situations and constraints, and provide moments of greater collective inspiration and unhurried interaction.

The ability to hold meetings without the need for travel can help drive networks' productivity. Because people are calling from different locations, defined start and end-times are often agreed upon prior to the video call. This allows for a more efficient discussion with less chit-chat, and participants are more likely to stay alert and focused on the business of the meeting. Expressions of satisfaction, concern, or understanding can be addressed more easily and quickly than through many emails. As a result of improved communications, participants are more in sync, decisions are able to be made faster, and the activity of the networks increases. Video conferencing in the network's activities as for ISIUM as well for CoRSUM has reached the stage where it is considered to be a necessity.

12. It is a time for proper standard treatment guidelines design in NIS countries based on the evidence-based sources.

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Problem statement: Currently, many countries from the Newly Independent States, including Kazakhstan and Moldova, are faced with the challenge of creating qualitative standards treatment guidelines (STGs). CoRSUM together with Semey Medical University organized in December 2017 two weeks training program on the rational use of medicines for public health specialists. Participants of the training analyzed STGs from Moldova and Kazakhstan.

Objective: The training participants had a task: o assess STGs from Moldova and Kazakhstan in order to identify problems in their development and elaborate recommendations for their improvement.

Method: The initial analysis of existing STGs from Kazakhstan and Moldova randomly selected by the participants of the workshop. The information received from STGs was compared with independent sources such as BNF, WHO Formulary for children, Martindale and Australian Therapeutic Guidelines.

Results: The analysis of STGs revealed the following problems: Nimesulide in children in pediatrics form for acute rheumatic fever (Kazakhstan), Benzylpenicillin twice per day instead 4-6 times per day (Moldova), Ibuprofen in many forms for fever but not Paracetamol (Moldova), Cephalosporin 3-4 generation for pneumonia in children (WATCH Group according WHO) in Kazakhstan.

Conclusion: Participants of the workshop made conclusions: The main obstacles for qualitative STGs developing are – low level of use international sources of evidence-based information, lack of standard operation procedures (SOPs), the insufficient composition of the expert group, health care practitioners are not involved in the decision-making process, and therefore as a result low adherence to the developed STGs by the health care practitioners.

13. What is the motivation for inclusion of nimesulide in the insurance list of Moldova as for adults and as well for children especially?

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Problem statement: Nimesulide is a non-steroidal anti-inflammatory drug (NSAID) with antipyretic and analgesic properties, was first launched in Italy in 1985. It is a selective cyclooxygenase-2 inhibitor and has been used in the treatment of a variety of inflammatory conditions for the last three decades. Nimesulide has never been approved for use in countries like the USA, UK, Canada, Australia New Zealand, Japan, and other countries in view of concerns over its safety profile. Due to concerns about the risk of hepatotoxicity, Nimesulide has been withdrawn from the market in Spain, Finland, Belgium, France, Singapore and Ireland in earlier 2000th.

Methods: The analyze of the last versions of Moldavian Insurance List from January 24, 2019, and the List of the registered medicines in Moldova (Classificator), from July 10, 2019.

Result: Nimesulide is registered in Moldova in 23 different medicine forms, including eight are for children. In Insurance List Nimesulide is included as for adults 'Nimesulide (839)' - 100 mg in tablets, as well for children - Nimesulide (939) - 100 mg in powder, oral solution, granules for oral solution. Manufactures countries are Italia, India, Romania, Republic of Moldova, Georgia, Belorussia.

Conclusion: Nimesulide is not approved for use worldwide but it is registered in Moldova. There is a need for an explanation of the inclusion of Nimesulide in the Insurance List of the Republic of Moldova in general, especially the large number of dosage forms for children. In developing nations like Moldova, where Pharmacovigilance monitoring systems are inadequate it is difficult to collect adverse drug reaction reports, especially reports on ADR that occurred in children. In this situation, evidence-based information and WHO alert information should be a pillar stone for the decision about the inclusion of medicines in the Insurance List and in Therapeutic Guidelines. Nimesulide use must be banned in Moldova and excluded from the Insurance List.

14. Effects of rational drug use policy on antibiotic prophylaxis use in normal vaginal delivery in Mahasarakham Hospital

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Problem statement: Ministry of Public Health introduced 'antibiotic use in vaginal delivery of normal term labor' as an indicator of rational drug use (RDU) service plan with target goal of not more than 10% use.

Objective: To examine effects of the RDU policy on antibiotic use, expenditure on antibiotic and infection rate after implementing the policy among vaginal delivery of normal term labor in Mahasarakham Hospital.

Method: A retrospective study was conducted using hospital data of vaginal delivery of normal term labor during October 2015 to April 2018. Antibiotic use and expenditure were obtained from the 43-file standard dataset. Infection rate was collected from readmission record of obstetrics and gynecology department. Patterns of antibiotic use after implementing the policy were investigated from medical record reviews between October 2017 and April 2018. Mann-Whitney U test was performed to compare antibiotic use rate and expenditure and infection rate between before (October 2015 – October 2016) and after (November 2016 – April 2018) policy implementation. Segmented regression of interrupted time-series analysis was applied to examine policy effects.

Results: Comparing before and after policy implementation, the policy significantly decreased antibiotic use rate (-82.1%, 95%CI: -87.3 to -76.9, $p < 0.001$) and decreased monthly-expenditure of antibiotic use (-6,663.2 baht, 95%CI: -8,396.7 to -4,929.8, $p < 0.001$) but no effects on infection rate by month (0.063%, 95%CI: -0.280 to 0.406, $p = 0.709$). From chart review of 721 vaginal normal deliveries, 45 women (6.2%) used antibiotics. The major reason of antibiotic use was the 3rd - 4th degree tear (14 women, 31.11%). Amoxicillin and Cefazolin were mostly used antibiotics.

Conclusion: The findings of this study indicate that implementation of the RDU policy significantly reduced antibiotic use and expenditure and did not increase infection rate. The policy could improve rational use of antibiotic prophylaxis in vaginal delivery of normal term labor.

15. Impact of a prospective audit and feedback antimicrobial stewardship programs in pediatric units in tertiary care teaching hospital in Thailand

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Problem statement: Antimicrobial stewardship programs (ASPs) have proven beneficial in reducing the use of antimicrobials, antibiotic resistance, and health care costs. The data supporting the utility of ASPs has come largely from adult centers, but few children centers have implemented the ASPs.

Objective: To assess the impact of ASPs in pediatric units in tertiary care teaching hospitals.

Methods: We conducted a retrospective chart review study to compare pre- and post-ASP over a six-month period. An ASP has been fully implemented in the hospital since July 2017. Meropenem, vancomycin, and colistin were selected to be monitored. ASP rounds were conducted twice a week to assess and provide feedback on the antimicrobial prescriptions. Antimicrobial utilization was measured as day of therapy (DOT) per 1,000 patient-days, comparing before and after ASP using independent t-tests.

Results: Hospitalized children in antimicrobial treatment pre-ASP (44.3%) and post-ASP (41.7%) were enrolled. The percentages of children receiving selected antimicrobials did not differ among pre- and post-ASP. During the post-ASP period, a significant reduction of DOT of vancomycin and colistin was observed, vancomycin decreased from 58.5 to 40.2 DOT/1,000 patient-days ($p = 0.038$), and the use of colistin decreased from 36.3 to 13.8 DOT/1,000 patient-days ($p = 0.026$). Meropenem utilization demonstrated a reduction trend from 126.8 to 111.2 DOT/1,000 patient-days ($p = 0.467$). Between the two periods, there was no effect regarding length of stay and mortality. Antimicrobial cost trended to decrease during post-ASP period. The overall acceptance of the recommendations was 43.5%.

Conclusions: ASPs can lead to a significant reduction in selected antimicrobial use in hospitalized children without changing the length of stay or mortality rate.

16. The role of accreditation standards in improving use of medicines: Experiences from the Australian Pharmacy Council (APC).

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Problem statement: Australia has an established National Strategy for Quality Use of Medicines (QUM)¹ which is one of the core objectives of the National Medicines Policy². Despite the long history of medicine use policy, medication related problems continue to be a challenge. According to a recent report, 250,000 Australians are admitted to hospital each year due to the medicines they use at a cost to the health system of 1.4 billion Australian dollars³. Australia has eighteen Universities delivering accredited pharmacy degree programs, which presents a unique opportunity to strengthen the education of future pharmacist practitioners to better respond to medicine use problems.

Objective: To describe how the concept of social accountability has been embedded in accreditation standards accompanied by a Performance Outcomes Framework as mechanisms for empowering training of Australian pharmacists.

Method: Between February and July 2019, the APC held wide ranging stakeholder consultations to review the 2014 Accreditation Standards for degree programs in Australia and New Zealand. The open consultation process elicited feedback through discussion papers, round table discussions and nationwide 'road shows.'

Result: The robust consultative process contributed to rapid and successful acceptance of social accountability as an underlying principle for the new accreditation standards including the development of four performance outcomes within the Framework encompassing quality use of medicines.

Conclusion: Accreditation standards can empower education providers to produce pharmacists who are effective in promoting better use of medicines.

17. Media coverage of drug information: How to work more productively with journalists

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Problem statement: Different modern digital sources of information about medicines have become increasingly popular in all parts of the world. Human society is much more open to new information as before. Despite the digital sources of information, one of the best forms of communication is done through interpersonal interactions. Interpersonal communication is considered as the most powerful method of effective communication because it can easier influence decisions and behaviors of the population. CoRSUM and CTC Mega TV Channel started collaboration seven years ago. Due to the personality factor, both sides - journalists and doctors were able to come to a decision on mutual interest in promoting information about the rational use of drugs to the population.

Objective: To describe the key components of effective communication skills between healthcare providers and journalists.

Method: The analysis of the 15 video programs on CTC Mega TV Channel Republic of Moldova about different aspects of rational use of medicines.

Conclusion: Presently new media channels such as Youtube, Twitter, Facebook as well as TV channels and radio are the most powerful ways to reach people. Mutual collaboration on improving the rational use of medicines can be greatly facilitated by the active involvement of journalism, which remains a poorly used source of education of the population.

The skills and knowledge of how to work with journalists is essential for health care advocates.

18. Butiki Bituka Botika Botanika: Conception and birth of a people's bulletin on improved use of medicines and other health products in the Philippines

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The bulletin's name derives from a children's wordplay *butiki bituka botika* which refer to lizard, intestine, and drugstore, respectively, with the proponents adding a fourth word *botanika* which is self-explanatory. The 4 words in the title of the bulletin have reference to the four groups of health products: traditional medicines (for butiki=lizard), food supplements (for bituka=intestine), medicines (for botika=drugstore), and botanicals (for botanika).

The bulletin is the only known Philippine publication, written in Filipino, that caters to the Filipino lay. Richly complemented by visuals, the texts give concise information on the rational use of medicines, traditional medicines, botanicals, and food supplements and foods.

Our presentation will describe the conception and first outing of the lay publication even as plans are being drawn for an online and app version of the bulletin.

19. Open discussion within the society is a modern way for decision making to introduce new specialties such as clinical pharmacist in Kazakhstan.

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Problem statement: In 2004 the article 'Pharmaceutical care, European developments in concepts, implementation, and research: a review' described a call for a new movement in the specialty of pharmacists: Pharmacists should move from behind the counter and start serving the public by providing care instead of pills only. There is no future in the mere act of dispensing. Since the 80th year of the last century, many developed countries showed evidence of the effectiveness of pharmaceutical care, obviously, the patients need more than just medications; they need expert advice on how to take them, as well as an advocate to make sure the medicines they receive are right for them. The Republic of Kazakhstan, together with international experts, began preparing documentation for the introduction of a new specialty.

Objective: to establish the value and necessity of the new specialty 'clinical pharmacist' in Kazakhstan

Method: Conducting conferences, round tables, and workshops with the participation of international experts and a wide range of journalists to highlight the need for a new specialty and how to change the pharmacy education and a new learning approach.

Results: As a result of a wide discussion in the medical community, as well as the coverage of resolutions of conferences and round tables by journalists, it was decided to introduce a new specialty as a Clinical Pharmacist in Kazakhstan.

The crucial role played the Resolution of the International Scientific and Practical Conference 'Clinical Pharmacy: International Experience and Features of Development in the Health Care of Kazakhstan' (decision of the Scientific Council of the Institute of Pharmacy of KazNMU 'Asfendiyarova' dated 08.12.2015, No. 4), which was widely covered by the media.

The educational program in clinical pharmacy was introduced in the 2016-17 academic year at the undergraduate, Master's degree and PhD levels at KazNMU 'Asfendiyarov'.

20. The role of the pharmacist in the rational use of medicines in Kazakhstan

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In the past century, the pharmacists were more involved in compounding and manufacturing of medicines, but this role has significantly reduced. In the new century profession as a pharmacist, it has changed to an advanced patient-focused basis.

Pharmacists are in the ideal position to make the patient aware of rational drug use, to improve the patient's quality of life, and also to help the patient to choose affordable and safe medicines. Correct and appropriate use of medicines is one of the most important facets in the therapy of disease.

Education in pharmacy schools in Kazakhstan are based on a program that provides skills and knowledge to develop competence with the changing role of the pharmacist. The education provides ability for critical thinking, improves problem-solving skills and decision making during pharmacotherapy and consultancy in the pharmacy.

The main documents were adopted in Kazakhstan in aim to develop new educational programs and increase the role of pharmacists in the rational use of medicines.

National Pharmaceutical Policy with implementation plan until 2020 and Strategy for Development of Outpatient Drug Benefits System until 2020 - aimed at improving population access to high-quality, effective and safe drugs. Population in rural areas received better physical access to medicines due to organizing the sale of medicines through rural primary care facilities in more than 3000 villages and mobile pharmacy units.

Order of the Minister of Health of the Republic of Kazakhstan dated May 6, 2019 No.67 'On approval of the Rules for the assessment of the rational use of medicines' – for the regular monitoring to assess the rational use of drugs in healthcare organizations is carried out by conducting internal and external evaluations of the rational use of drugs;

Order of the Minister of Health of the Republic of Kazakhstan dated October 2, 2012 No. 676 'On approval of standards for accreditation of medical organizations';

The National Project to establish the Center for Rational Use of Medicine with 16 regional branches and Call Center to increase the drug literacy of the people, promote rational drug use among health professionals and population, disseminate information on drugs quality, effectiveness and safety with the pharmacists as a key personal.

'On approval of the Rules for conducting pharmacovigilance of medicines and monitoring side effects of medicines, medical devices and medical equipment', dated May 29, 2015 No. 421 (as amended on May 27, 2019 No. 88).

21. The role of a pharmacist in rational use of medicines

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Problem statement: In medical practice, patients have to receive medicines that satisfy clinical indications, individual needs, for a sufficient period at the lowest possible health care cost determined by authorities that ensure the rational use of medicines (RUM).

The WHO recommends 12 key points contributing to RUM. In this context, the role of pharmacists is important. In another word, the pharmacist is the last eligible point that interacts with patients before they take medicines. The most practicable approach to achieve RUM is to enhance their knowledge, so the importance of making appropriate changes in the education program for junior pharmacist students cannot be overestimated.

Objective: Studying the pharmacist's role in RUM strategy implementation.

Method: A targeted article review was conducted to analyze the current state and existing strategies of RUM, highlighting the pharmacist role in particular situation. In addition, the relevant guidelines of different countries and international organizations were compiled and analyzed.

Results: The crucial role is given to pharmacists in implementing of the key points. The main issues that should be addressed is increasing the motivation of pharmacists to optimize the consultation quality on RUM provided to consumers and other health professionals, increasing the participation level of pharmacists in Hygiene and Infection control in healthcare organizations. The results of the targeted article review shows that in most countries (USA, Netherlands, India, etc.), the discipline 'Strategy for the rational use of medicines' is included in the curriculum for medical and pharmaceutical from the beginning of their professional careers.

Conclusion: Educating pharmacy students from the beginning of their professional careers contributes to the effective implementation of the guidelines of RUM.

22. Fresh breath needed in the national multidisciplinary committee work in Moldova

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Problem statement: WHO advocates 12 key interventions to promote more rational use of medicines. One of these pillar stones which are aimed at the improvement of rational and safe use of medicines is the establishment of a multidisciplinary national body to coordinate policies on medicine use. In response to 'The Resolution on Rational use of Medicine WHA 60.16, the Government of the Republic of Moldova established in November 2011 the National Multidisciplinary Committee, including representatives of civil society and professional health care organizations, to monitor and promote the rational use of medicines. The themes of the agenda included: quality-assured second-line antituberculosis medicines in correspondence to the approval of the Green Light Committee and WHO Prequalification List, access to pneumococcal vaccination for children of Moldova, national policy on antimicrobial resistance establishing.

Objective: To strengthen the capacity of the national multidisciplinary committee in rational use of medicines by generating new knowledge and promoting a better understanding of the importance of the collaboration between different stakeholders.

Method: Desk review and analyze of the previous work of the multidisciplinary committee on rational and safe use of medicines in the public health issues of Republic of Moldova based on WHO Resolution 60.16.

Conclusion: In Moldova most efforts to improve the use of medicines have been fragmented during the last years. One of the reasons for that fact is the lack of continuity in the work when changing the government. There is the need for a comprehensive, sustainable, national and multidisciplinary approach to promote the rational use of medicines in Moldova. In an aim to reinvigorate activities of the work of the National Multidisciplinary committee there is a need for strategic plan development involving a broad spectrum of members: health care workers but also the journalist, lawyers, church leaders, nurses and other representatives of civil society.

23. Development of community participated drug management system in child development center: The case study of Pathum Ratchawongsa, Amnat Charoen, Thailand

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In Pathum Ratchawongsa, there are 36 child development centers (CMC). Data revealed that 0.1% of drug allergy incident was admitted to hospital. Moreover, most of CMC have no first aid room, difference drug list, inappropriate drug storage and low-quality control leading to drug related problems. This qualitative study was conducted in 2019 to develop community participated drug management system in CMC using semi-constructive interview and group discussion method and analyzed by content analysis. The results showed that co-operation of community network (CN) and government officer could provide various strategy and methods to develop drug management system in CMC by provided 8 drugs list in CMC, drug procurement protocol, drug dispensing and drug quality control form, created child transfer system, organized academic conference and created media for CMC. Furthermore, in each community, CN created evaluation system and achievement contest which could strengthening drug management system in their CMC. From 36 CMC, 33 CMC were passed the evaluation and received honorary board form district chief in community leader meeting. The success of drug management system in child development center should support by CN. This guideline should implement in province and health region level for other centers which promote drug safety in CMC.

24. Self-medication of stroke patients can lead to poor kinesiotherapy results

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Problem statement: Stroke is the second most common cause of death worldwide and is the leading cause of long-term disability in adults. Although pharmacotherapy can treat diseases and improve the well-being of patients, its benefits may be undermined due to drug-related problems. Effective stroke care does not end with acute treatment during hospitalization, but extends through rehabilitation and secondary stroke prevention.

Objective: To assess the possible risk of self-medication to the kinesiotherapy for patients with stroke.

Method: Descriptive observational study, based on the WHO document: How to investigate the use of medicines by consumers. The study involved a group of 67 patients after ischemic stroke.

Result: Drug use without family doctors' prescription was defined in all households of patients with stroke. The therapeutic agents most implicated were anti-inflammatory agents (Diclofenac, Ibuprofen, Nimesulide), antibiotics (Erythromycin, Ciprofloxacin, Ceftazidime), antiplatelet agents (Aspirin and Clopidogrel), antianxiety – benzodiazepines (Diazepam, Lorazepam), an antidepressant (Fluoxetine). A wide range of food supplements were procured in aim to treat stroke by the advice of relatives and caregivers. NSAIDs are known for multiple adverse effects, including gastrointestinal bleeding, cardiovascular side effects, and NSAID induced nephrotoxicity. Most of others medications can potentially cause adverse drug reactions, with a focus on central nervous system functioning, which can directly influence the low effect of kinesiotherapy.

Conclusion: The management of a patient's healthcare requirements with stroke should be an integral part of the rehabilitation program, including the management of medications. Pharmacists can play an important role in identifying drug-related problems (DRPs), resolving actual DRPs and preventing potential DRPs through pharmaceutical care practices. Pharmacists should be involved in patients' education on their medications and harm of self-medication.

25. Pharmacists should play an important role in the multidisciplinary stroke team in Moldova.

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Problem statement: In developing countries over the past forty years there has been a trend for pharmacists practice to change the activities from the focus on medicine supply towards a focus on patient care. But in Moldova, as in other developing countries, this new approach is still discussed and needs more evidences supporting the role of pharmacists in the care of patients with different diseases.

Objective: To describe the role of pharmacists in the multidisciplinary team providing clinical care in stroke patients.

Method: Study international evidence-based literature evaluating the impact of a pharmacist intervention in patients with stroke.

Result: In developing countries pharmacists have become an integral member of the multidisciplinary patient stroke care teams, because such patients seek medication and health-related advice from their primary care providers and also require medicines treatment during long period of time. Stroke patients interact with healthcare providers at many points throughout the course of their disease management. Available literature evidence suggests that a variety of pharmacist interventions can have a positive impact on stroke patient outcomes. Pharmacists may use their knowledge in medicines and medication management expertise to make valuable contributions to use of evidence-based therapies, medication adherence, risk-factor target achievement, and maintenance of health-related quality of life. Pharmacists can play an important role in identifying and resolving drug-related problems through pharmaceutical care practices. Pharmacists can be involved in patients' education on their medications and harm of self-medication.

Conclusions: In developing countries pharmacists are considered an integral member of the stroke patient care team. Moldavian stroke guidelines do not include pharmacists on the stroke team members. Some efforts at the national level should be made in aim to change the educational program for pharmacists in medical schools and to provide the opportunity for pharmacists to play their important role in stroke team.

26. A key role of a geriatric nurse in the treatment of elderly patients

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Problem statement: Older people are rapidly increasing in number throughout the world, in both developed and developing countries, and among this age group multiple chronic and degenerative disorders are highly prevalent.

Objective: To describe the specific role of the geriatric nurse in the treatment of older people.

Methods: Systematic literature review

Result: The medication administration process involves multiple decision points that increase the potential for error. Older patients, who have complex clinical problems and take multiple treatments, are particularly susceptible to medication errors. They may, of course, have a genuine need for more medications; however, they are often victims of a prescribing cascade, have increased risks of drug–drug and drug–disease interactions, and often suffer inappropriate use of medications. The traditional approach to medication administration includes the 'five rights.' According to a strong consensus, these five rights are the right patient, drug, dose, route, and time. In this situation the role of nurse is crucial.

Conclusion: There is a lack of specialists in geriatrics and particularly nurses specialized in geriatrics in both developed and developing countries yet. There are specific practices in medication administration for elderly patients not well known to all nurses. Giving medications through a feeding tube can be fraught with errors that occur more often than they are reported or recognized. Oral medications that are intended to be taken by mouth must be prepared for enteral administration. Tablets must be crushed and diluted, capsules must be opened so the contents can be diluted, and even many commercially available liquid forms of drugs should be further diluted before being administered enterally — The training of nursing staff in appropriate pharmacotherapy for the elderly is paramount for rational and safe use of medicines for those categories of patients.

27. An effort for improving knowledge and perception regarding contraceptive drugs and devices among community in Yogyakarta, Indonesia

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Problem statement: In order to control population growth and to improve its quality, the government of Indonesia has conducted Family Planning Program (FPP) since 1968 and in addition established the FP village program in 2016. However, community participation in FPP is not yet optimum. Literacy regarding contraceptive drugs and devices might contribute to the adherence and successful of FPP.

Objective: This study aimed to evaluate the effectiveness of such intervention for improving knowledge and perception regarding contraceptive drugs and devices among community in Yogyakarta, Indonesia.

Methods: This study used one group pretest-posttest design conducted in two FP village in Yogyakarta Municipality, Indonesia. The study began with instrument development to measure knowledge and perception regarding contraceptive drugs and devices and followed by development of education material in forms of power point presentation and leaflet as tools to deliver the intervention. Pretest-posttest to measure knowledge and perception regarding contraceptive drugs and devices were conducted before and after the intervention.

Results: Out of 50 participants of intervention, 44 respondents completed the pretest-posttest forms. Regarding knowledge some items were needed to be improved for instances safety of contraceptive drugs and devices and procedure to get contraceptive pill. Meanwhile perception was lack in terms of shy to discuss contraception with spouse and contraception reduces sexual satisfaction. The intervention significantly improved knowledge (mean pretest score 77.99 ± 12.55 and mean posttest score 84.80 ± 8.96). However, there was no significant improvement of perception (mean pretest score 2.71 ± 0.24 and mean posttest score 2.74 ± 0.22).

Conclusion: Knowledge regarding contraceptive drugs and devices was quite good, in contrast the perception tended to negative. Intervention using education method to community was effective to improve knowledge regarding contraceptive drugs and devices but not for the perception. This study suggests such strategy for improving perception of community regarding contraceptive drugs and devices to support successful of FPP.

28. Strategies to promoting rational drug use hospital policy of governmental hospitals in Khon Kaen Province Thailand.

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Problem statement: Antibiotic resistance is among the major concerns problems in Thailand. The Ministry of Public Health (MoPH) of Thailand launched Rational Drug Use Hospital (RDU Hospital) Policy to enhance appropriate use of medicines and ensuring patient safety in health care settings since October 2016. Under the policy, different strategies may be implemented based on contexts of setting areas.

Objective: To study strategies used by Khon Kaen Provincial Health Office for promoting RDU Hospital and indicator outputs in 26 districts of Khon Kaen during 2017 to 2019.

Method: The Qualitative study conducted by reviewing meeting minutes, official document and regulation regarding the RDU Hospital policy. The indicator output data was collected from electronic database of Health Data Center of the MoPH.

Results: KKPHO announced the apparent goal and strategies to all health care settings for RDU Hospital policy in three fiscal years starting from 2017 to 2019. Three strategies have been agreeable, including Management, Educational and Regulatory strategies and driven by working group network model as a RDU Hospital provincial committee which a senior pharmacist at KKPHO was a major coordinator. Key interventions found were orientation and training of healthcare professionals, development of tools and program for enhancing awareness of prescribers as well as benchmark feedback and close monitoring among the board of hospital directors. All output indicators that set from the national level were improved continuously since the strategic implementation and met indicator targets. Particularly the rates of antibiotics prescribed in four infectious conditions; upper respiratory tract infection/acute bronchitis, acute diarrhea, fresh traumatic wound, and antibiotic prophylaxis in vaginal delivery of normal term labor were decreased dramatically.

Conclusion: Three strategies with various interventions for promoting RDU Hospital policy of KKPHO were effective and can be the model to promote RDU in other settings of Thailand.

29. Medication adherence of Latino children and caregivers in the United States: An integrative review

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Problem statement: There are significant disparities in medication adherence among underserved minority groups in the United States of America (US), such as Latinos. (Latinos are people of Hispanic ethnicity.) Adherence with prescribed medication therapies is a primary determinant of treatment success. However, little is known about medication adherence among Latino children in the US.

Objective: This review was conducted to describe what is known about medication adherence among Latino children in the US and explore barriers and facilitators to medication adherence.

Methods: This review was guided by Whittemore and Knaf's (2005) method of integrative review and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement (2009). Specific indexed databases of peer-reviewed literature were searched for studies conducted over the last five years. The databases included in the study were: CINAHL, PubMed, PsychInfo, and Health Management.

Results: Analysis of the 20 studies included in this review that reported medication adherence among Latino children revealed four major themes: 1) low adherence to prescribed treatment, 2) low adherence associations (i.e., age, gender, socioeconomic status, type of medication, and limited knowledge of medication use and disease condition, severity of the disease, beliefs about medication use, and acculturation/language barriers/low health literacy) 3) child outcomes (i.e., disease-related expenditures and psychological distress) and 4) effective interventions.

Conclusion: Health practitioners should consider factors associated with medication adherence and use interventions that have shown to be effective in improving medication adherence when collaborating with Latino family caregivers to improve child outcomes.

30. How can civil society ensure participation in health policy formulation and decision making?

Michele Forzley

Problem statement: Civil society is an essential voice in policy and decision making but too often civil society is not heard or allowed to participate in health policy formulation and decision making.

Objective: To describe the different methods of civil society participation in health policy formulation and decision making, with an emphasis on how civil society input can be organized and the mechanisms by which transparency and accountability of decisions and discussions by the ministry of health and medicines regulatory agency can be improved or established. In addition, mechanisms available outside the purview of the ministry of health will be described.

Method: A comparative policy and legal analysis conducted by a desk top review of one to two LMIC countries from the PAHO, SEARO and WPRO WHO regions and a two case studies from countries in the AFRO region. There is no compilation of these methods in any one source.

Conclusion: There are several mechanisms civil society can take advantage of or promote for adoption to enhance their opportunity to participate in policy and decision making and to enhance accountability of government agencies responsible for health. This presentation and resulting paper will serve as guide to civil society.

31. Analysis of findings of 'prescription audit' performed for indoor cases in tertiary care hospital

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Problem statement: Our hospital is accredited by NABH (National Accreditation Board for Hospitals & Healthcare Providers). We are having our 'Hospital Formulary', prepared on the basis of 'WHO Model List of Essential Medicines' and updated regularly. The prescription audit is an ongoing activity in our institute, under the aegis of 'Quality improvement group' for the fulfilment of NABH norms. Audit of medication orders is carried out to check for safe and rational prescribing of medications, so that corrective actions can be taken based on findings of analysis wherever applicable.

Objectives: To analyse the findings of prescription audit performed for indoor cases in tertiary care hospital, to provide appropriate feedback to the prescriber

Methods: During the period of October 2018 to September 2019, total of 1809 indoor case files were collected randomly from various departments like Medicine, Surgery, Obstetrics & Gynaecology, TB & Chest, Orthopaedics, Ophthalmology, Skin, Otorhinolaryngology and Psychiatry. Prescriptions were analysed for the parameters like documentation including final diagnosis, number of medicines per prescription as well as use of unnecessary drugs, irrational drugs and hazardous drugs.

Results: On evaluating case files for diagnosis and various details required for audit, 1553 case files were found to be suitable for prescription audit. Average number of formulations/ medicines prescribed per prescription were found to be 8.18. A total of 12543 formulations were prescribed, of which 03 (0.02%) were unnecessarily prescribed and 690 (5.50%) formulations were irrational fixed dose combinations.

Conclusion: Development and implementation of 'Hospital Formulary' based on 'WHO Model List of Essential Medicines' is having satisfactory impact on rational use of medicines, though needs some compliance.

32. A study of the multiple drivers of antibiotic use by informal healthcare providers in rural India

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Problem statement: In many low- and middle-income countries, people obtain their antibiotics from unlicensed healthcare providers who lack formal medical training. There is limited comprehensive understanding about the drivers of antibiotic use by these informal providers (IPs).

Objective: To investigate the intrinsic (provider specific) and extrinsic (community, health system and pharmaceutical industry related) drivers of antibiotic use by IPs in two contrasting districts in rural West Bengal, India.

Method: Using mixed methods, we first surveyed a total of 291 IPs and then interviewed a subset of 30 IPs in-depth. To obtain the perspectives of other stakeholders we conducted eight focus group discussions with male and female community members and 17 key informant interviews with medical representatives, drug wholesalers and retailers, formal doctors and regulatory officials.

Results: IPs' intrinsic drivers resulted from an interplay between knowledge, attitudes and economic incentives. With limited understanding of antibiotics, they viewed these as the most effective therapeutic choice for most illnesses without which they would lose their patients and income. Extrinsic drivers resulted from IPs' role as indispensable healthcare -and antibiotic providers- for the rural population. For pharmaceutical companies and antibiotic supply chain stakeholders, IPs constituted an expanding commercial segment, making them prime targets for aggressive drug marketing and incentivisation. Formal doctors trained and mentored IPs, often in return for patient referrals and were also guilty of over prescribing antibiotics themselves. Regulators feared that restraining IPs would seriously compromise access to health services by rural populations, and hence overlooked their antibiotic use. We will present the interdependencies between IPs and multiple stakeholders using a systems framework that we have adapted for this purpose.

Conclusion: Multi-stakeholder interventions are needed to establish antibiotic stewardship in these community settings. In a subsequent, ongoing study we are working on co-designing an intervention with different stakeholders in the same setting.

33. Are we delivering sickness care or health care; what is health?

Alice V Gilbert

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As the first Clinical Pharmacist to join the Mental Health Service in the Northern Territory (NT), Australia, it was evident that the focus was on ill health, not wellbeing. The stories I would like to share are from my learnings, whilst working in the NT, where 30% of the population identify as Aboriginal (n=74546). It is well known that Aboriginal people are over-represented in the health system with 60-70% of patients within NT hospitals identifying as Aboriginal at any given time.

In Aboriginal society there is no word, term or expression for 'health' as understood in western society. The word as used in western society almost defies translation in an Aboriginal context, but the nearest translation would be a term such as: 'life is health is life'.

Individual health is not thought to be as important as the wellbeing of the community. It is not just the physical wellbeing of the individual but the social, emotional, spiritual and cultural wellbeing of the whole community and the land around it which measures wellness.

People are often thought to be mentally healthy when there is an absence of illness. People become unwell when illness affects their thinking, feeling, and behaviour. Many Aboriginal people believe that mental health and mental illness focus too much on problems and do not describe all factors that influence wellbeing. Because of this, the term social and emotional wellbeing is preferred as it fits with a holistic view of health.

This presentation will cover the importance of understanding different world views, causality of illness, treatment options, and the need for different ways to communicate effectively. These skills are essential for ensuring that the use of a medicine is necessary, and if it is, that the individual and the community have the knowledge to use it safely and effectively.

34. Inefficiencies of health service delivery system as possible barriers for universal health coverage policy – Perspective from Indonesia

Firdaus Hafidz

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Problem statement: Health outcomes in Indonesia remain lower than expected given the national income and an increasing share of national health expenditure being spent in health facilities. Evaluating the efficiency of health facilities as part of health system is a key to achieve universal health coverage.

Objective: The aim of our study is to examine the factors determining the relative efficiency at hospitals and health centres.

Method: Using linked national data sources from facility-, household-, and village-based surveys, we measured the efficiency of hospitals and primary care in Indonesia. We used output-oriented of frontier analysis to measure efficiency. Physical inputs applied were number of personnel in different categories and beds. For outputs, we used the number of outpatients, and inpatient days. We then assessed internal and external contextual characteristics influencing health facility performance

Results: Our results indicate a wide variation in health facilities' efficiency. In this empirical analysis, it has been possible to conclude robustly that health facilities' contextual factors, such as size of hospitals, geographic location, medicine disruptions and health insurance coverage are significantly associated with the estimated efficiency

Conclusion: There is significant potential to improve efficiency across health facilities. We draw together the findings and highlight health insurance policy implications to improve efficiency across health facilities using multiple stakeholders perspective and interests.

35. Implementation of antimicrobial stewardship in a resource-limited setting: Experience of Siem Reap Provincial Referral Hospital, Cambodia

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Problem statement: Poor practices of antimicrobial prescribing among Cambodian doctors have been portrayed by formal surveys and focus group discussions.

Objective: To introduce antimicrobial stewardship (AMS) activities in a strategic, stepwise manner in a Cambodian government hospital.

Method: Diagnostic Microbiology Development Program (DMDP), an NGO that strengthens capacity in Cambodian government hospitals, embedded long-term laboratory and clinical mentoring at Siem Reap Provincial Referral Hospital (SRPRH) in June 2014. To showcase the issue of inappropriate antimicrobial prescribing, initial AMS activities involved performing baseline assessments by hospital-wide antimicrobial point prevalence survey (PPS) and antimicrobial consumption (AMC) monitoring in 2017. After creating a multidisciplinary AMS committee, interventions directed towards specific issues revealed by baseline assessments were implemented. This involved improving diagnostic stewardship by increasing necessary microbiology specimen collection, development and implementation of surgical prophylaxis guidelines, and restriction of specific antimicrobials for targeted and empiric use. A follow-up PPS and AMC monitoring were performed to assess the impact of AMS interventions.

Results: A follow-up PPS conducted in early 2019 revealed 58% of patients on the day of survey were prescribed antimicrobials, a decrease from 81% observed from the initial PPS performed two years prior. Microbiology testing was performed on 30% of patients on antimicrobials, an increase from 13%. A total of 2,232 blood cultures were collected in 2018, an increase from 219 in 2014, when the microbiology laboratory was first established. AMC monitoring revealed a decrease in total inpatient consumption from 1,612 defined daily doses (DDDs) per 1,000 patient days for the year 2016 to 944 DDDs per 1,000 patient days in 2018, a 41.4% decrease.

Conclusion: Introduction of AMS activities in a stepwise manner with a multidisciplinary team proved to be effective at SRPRH. Even in a resource-limited setting, implementation of a few key interventions can make significant impacts on antimicrobial prescribing.

36. Promoting quality use of insulin

Hans Hogerzeil

Health Action International, Amsterdam

Insulin was discovered in 1921 and yet about 1 in 2 diabetes patients world-wide cannot access and afford this life-saving medicine. In Tanzania, the cost of insulin, syringes and glucose monitoring for one child with diabetes consumes 53% of the family income.

Three pharmaceutical companies (Novo Nordisk, Eli Lilly and Sanofi) produce and sell around 95-97% of all insulin consumed in the world. This virtual monopoly leaves little room for meaningful competition. Animal insulin has largely been replaced with recombinant 'human' insulin. Since the 2000s human insulin is aggressively being replaced by insulin 'analogues'. Analogues are 5-10x as expensive as human insulin. All positive cost-effectiveness studies are funded by the industry. The WHO has, on three occasions, rejected analogues for the Model List of Essential Medicines because of lack of clinical benefit to justify the large price difference. Yet in Kyrgyzstan, 12% of diabetes patients on analogues represent about half of public insulin expenditure.

Patents on analogues have recently expired, and some biosimilar human and analogue insulin have appeared on the market. However, quality and safety standards for biosimilars are not yet fully developed and the low number of biosimilars has only resulted in modest price differences with originator products. Commercial pressure remains strong to prescribe insulin rather than oral medication, analogues rather than human insulin, and originator products rather than biosimilars. The case of insulin is illustrative for the new aspects of essential medicine policies specific for non-communicable and chronic diseases in low- and middle-income countries.

37. The impact of insulin donations for children in 43 low and middle-income countries

Hans V. Hogerzeil

Health Action International, Amsterdam

Introduction: Diabetes mellitus is rapidly becoming one of the major diseases affecting people's health globally. Over half of 100 million diabetes patients who need insulin to survive, especially in low and middle-income countries (LMIC), are not able to get this life-saving medicine. Since 2000 the three major insulin-producing companies have started support programmes, some with a component of insulin donations, to children and youth with type 1 diabetes in 43 LMIC. The impact of these programmes has rarely been studied.

Aim: Study the impact of support programmes with a component of insulin donation in 43 Low- and Middle Income countries, over the period 2009-2016. This study is part of Health Action International's ACCISS study (Addressing the Challenges and Constraints of Insulin Sources and Supply).

Methods: Literature review of company and foundation websites, annual reports, peer-reviewed and grey literature, and conference presentations; discussions with key stakeholders from national diabetes programmes in LMIC and international experts.

Results: Public reporting is scattered, incomplete and sometimes inconsistent. Most programmes report large increases in the number of diabetes treatment centres. The estimated number of children and young adults benefitting from insulin donations rose from 8'193 in 2009 to 35'382 in 2015. The average body weight and/or body mass index increased from 4-23% over three years. The median reported HbA1c value after 1-3 years of treatment was 8,4% (range 7,9-9,8%), and 9,5% (range 8,2-10,43%) after 6-8 years. In several programmes the frequency of serious and fatal complications was reduced. Insulin donation programmes can lead to changes in national health systems.

Conclusion: We conclude, contrary to common belief, that the diagnosis, treatment and prevention of fatal complications in children with type 1 diabetes in LMIC is very well possible in practice. Medicine donations can never offer a sustainable solution and we now propose a ten-step transition process towards a fully sustainable national diabetes care and prevention programme for children and youth with diabetes type 1.

38. How to write an abstract that gets your work accepted

Hans V. Hogerzeil

Department of Health Sciences Global Health, University Medical Centre, University of Groningen, The Netherlands

The key tool to getting your scientific work accepted for publication, in journals or at conferences, is to present a good abstract that catches the eye of the editor. Top-authors Hans Clevers and Henk Brinkhuis: 'Most of the work goes into the title. That is a sort of Haiku, with an absolute maximum of 102 characters. Besides that, the summary must be excellent; in a nearly ritual way you have mention everything you have found in 150 words. Every word must be a direct hit. All good papers have one thing in common: you get it directly.'

This workshop is intended for young researchers from low- and middle-income countries. Practical advice and training will be given in writing a good abstract with a catching title, using concrete examples. The possibility will be given to participants to submit one of their own abstracts, for comments and improvement where necessary.

39. Medicines use today

Kathleen A Holloway

Institute of Development Studies, Sussex University, UK

Problem statement: Irrational use of medicines remains a global problem today despite decades of effort by WHO and international partners to promote rational use of medicines (RUM), since it was first defined by WHO in 1985.

Aim: To review RUM (quality use of medicines [QUM]) now and in the past and what strategies, policies and interventions have been effective in promoting RUM.

Methods: A review of the literature was undertaken, covering systematic reviews, previous international conferences on improving the use of medicines, and WHO documentation.

Results: In 1985-6, rational use of medicines (drugs) was first defined in an international conference and WHO adopted a resolution to promote rational use. Following this, many high-income countries started to monitor medicines consumption, but data remained scarce in low/middle-income countries. The International Network for the Rational Use of Drugs (INRUD) was established and worked with WHO to develop methods to monitor medicines use in low/middle-income countries and identify interventions to promote rational use. This included monitoring progress through a database of published medicines use surveys and questionnaires sent to Ministries of Health on what pharmaceutical policies were in place to promote RUM. The results of this work and other initiatives were presented at three international conferences on improving the use of medicines (1997, 2004, 2011), and a second WHO resolution on progress in the rational use of medicines was adopted in 2007. It was found that over time less than half of patients were treated in compliance with standard treatment guidelines (STGs), that the problem existed in all regions and was worse in the private sector. The effectiveness of interventions was: printed materials alone (none), health worker training or supervision alone (small); provider training and supervision (modest); multi-pronged interventions including drug supply, health worker training and supervision, and consumer education (large). Implementation of policies to promote RUM is poor in many countries. Comparison of medicines use in countries implementing and not implementing specific pharmaceutical policies found that effective policies included: medicines free at the point of care; a government unit to promote RUM; implementation of STGs; antibiotics not available over-the-counter; generic substitution; hospital drug and therapeutic committees; national strategy to contain antimicrobial resistance; no prescriber revenue from drug sales; updated national formulary; and recent public education on RUM.

Conclusion: Much is known about what policies and interventions promote RUM but many countries are still not monitoring medicines use or implementing policies to promote RUM

40. Starting to implement Resolution WHA60.16 on rational use of medicines: A story about remaining focused, developing trust and overcoming fear.

Kathleen A Holloway

Institute of Development Studies, Sussex University, UK

Background: In 2007, countries adopted WHO Resolution WHA60.16, which recommends the establishment of multi-disciplinary national programs to promote rational use of medicines (RUM). Unfortunately, global interest for action was low and effective processes for multi-disciplinary action remained elusive.

Story: WHO continued to collect global data on medicines use from published surveys and essential medicines policies from questionnaires sent to Ministries of Health – which showed little monitoring of medicine use and poor policy implementation but did identify effective policies and demonstrated that countries implementing more such policies had better RUM. Opportunities to develop country RUM programs remained few until an opportunity arose in SE Asia, when participants at a regional meeting (2010) decided country action was needed. Agreement was made for countries, with WHO help, to undertake rapid appraisals of medicines management, to understand all factors influencing medicines use, stimulate health system changes and build country capacity to promote RUM. A mandate from countries was acquired by the adoption of two Regional Resolutions, one to start the process (2011) and another to continue it and publish the results (2013).

Twenty 2-week country appraisals ending with one-day dissemination workshops were conducted during 2010-2015. A workbook tool was developed to facilitate rapid systematic data collection on drug supply, selection, use, regulation and policy, and form the template for country reports. Initial stakeholder distrust was overcome by involvement of government-nominated multi-disciplinary local teams in data collection and analysis, conducting immediate dissemination workshops, publishing reports approved by government, and use of a strict non-blame approach. The process was quick and cheap, empowered many people to make changes through better understanding of their own health systems, and provided snapshot data sufficient to identify regional policies associated with better RUM.

Conclusion: Multi-disciplinary capacity-building process to promote RUM was developed with minimal resources using a collaborative non-blame approach.

41. Identifying the most effective policies to encourage quality use of medicines in public sector primary care from three WHO datasets

Kathleen A Holloway¹

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Problem statement: Little is known about which essential medicines (EM) policies are most effective in encouraging QUM.

Aim: to identify the most effective EM policies to promote QUM in public-sector primary care.

Methods: Data from low/middle-income countries on QUM from published surveys between 2006 and 2012 and 40 policies from questionnaires sent to MOHs in 2007 and 2011 was analysed. QUM scores (based on 13 validated indicators) were compared between countries that reported policy implementation and non-implementation. Regression analysis of composite QUM scores versus the number of policies (significantly associated with better QUM) implemented was undertaken. The ranking of policies for their association with better QUM was compared between this study and two previous studies (one using the same global databases for 2003-7, and the other using data obtained from country visits in SE Asia during 2010-2015). Correlation for the rankings of a common set of 17 policies was done and consistently highly ranked policies identified.

Results: QUM and policy data were found for 53 countries. Eighteen policies were significantly ($p \leq 0.05$) associated with >5% better QUM. Composite QUM scores were correlated with the number of policies (out of 18) implemented, (r) 0.437 (95% CI 0.188 to 0.632). The policy rankings for QUM impact in this study (2007-11) were correlated with those found in the previous study using WHO global data (2003-7), Spearman's rank correlation coefficient 0.498 (95% CI 0.022 to 0.789).

Of 17 common policies measured in all three studies, nine were consistently associated 4-10% better QUM, and five policies consistently ranked top - drugs free at the point of care; government QUM unit; undergraduate prescriber training on clinical guidelines, antibiotics not available without prescription and public sector generic substitution.

Conclusion: Certain EM policies are consistently and significantly associated with better QUM and should be implemented by all countries.

42. Impact of essential medicines policies on outpatient public sector primary care prescribing in South-East Asia

Kathleen A Holloway¹

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Problem statement: Poor quality use of medicines (QUM) and low implementation of essential medicines (EM) policies to encourage QUM is widespread in South-East Asia.

Aim: to identify which EM policies are associated with better QUM and to assess whether public-sector QUM in primary care is better in countries implementing more EM policies as compared to those implementing fewer policies.

Methods: Twenty 2-week country visits were made during 2010-2015. Data was collected by government teams on 25 EM policies and six QUM indicators, using a standardised workbook tool. Policy data was collected by observation, document review and stakeholder interview and QUM data by review of 30 general and 30 upper respiratory tract infection prescriptions per facility. For each QUM indicator the mean difference (as percent) between countries implementing versus not implementing specific policies was calculated. Regression analysis of a composite QUM score (based in the six QUM indicators) versus the number of policies (associated with >1% better QUM) implemented was undertaken.

Results: QUM was >1% better with 22 policies, and 3.6-9.5% better ($p<0.05$) with: not charging fees at the point of care; implementing standard treatment guidelines; government unit to promote QUM; continuing health worker education on prescribing by government; limiting over-the-counter (OTC) availability of systemic antibiotics; monitoring adverts of OTC medicines; disallowing public-sector prescriber revenue from medicines sales; public education on QUM; a good drug supply system; and availability of an updated national formulary. Correlation was significant between the composite QUM score and the number of policies implemented ($r = 0.71$, $r^2=0.50$, $p<0.05$).

Conclusion: 2-week country visits allowed the rapid collection of snapshot data that identified EM policies with better QUM. Countries implementing more EM policies had better QUM and all countries should implement these policies.

43. Guideline Host app: Supporting access to local standard treatment guidelines in Fiji and Solomon Islands

Mieke Hutchinson-Kern, Leigh-Anne Claase

Problem statement: Standard treatment guidelines (STGs) are intended to assist prescribers in making appropriate decisions about which medicines or other treatments to prescribe for specific clinical indications. In low and middle income countries barriers to printing and distribution often result in poor dissemination, and therefore poor usage, of STGs.

Objective: To assist with improving the dissemination of STGs, we created a mobile app, known as Guideline Host. Bypassing the need for printing and distribution, the app aims to make STGs accessible and easy to use at the point-of-care. In making STGs more accessible, Guideline Host is expected to improve adherence to guideline recommendations.

Method: Guideline Host apps were developed for Fiji (population 898 000; doctors 739) and Solomon Islands (SI) (population 595 000; doctors 148) in collaboration with their respective Ministries of Health, and launched in May 2018. The app is free to download for users and works offline. Data on the number of people installing the app for the first time is monitored. Feedback has been obtained through surveys, emails and visits, with a large survey of health practitioners about the use and useability of the apps at the national referral hospitals being conducted in November 2019.

Results: Download numbers at 18 months (Fiji=2074, SI=565) represent a large proportion of health practitioners in both countries. The surveys currently being conducted will provide more information on the number of prescribers using the apps and how the apps are being used.

Conclusion: Guideline Host has shown that health practitioners in Fiji and Solomon Islands are embracing technology to better access local STGs. Further research is required to determine the impact of this access on prescribing practice and guideline adherence.

44. Medication safety and effectiveness in dementia: Neurodegenerative diseases Global Epidemiology Network (NeuroGEN)

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Problem statement: Vulnerable older people are often excluded from randomised controlled trials. Rapid advances in the availability of administrative data provide new opportunities for medication safety and effectiveness research. More than 10 million people are diagnosed with dementia worldwide each year.

Objective: To report the establishment of the Neurodegenerative diseases Global Epidemiology Network (NeuroGEN). NeuroGEN aims to generate high quality evidence to inform medication management in dementia, including maintaining quality of life, alleviating behavioural symptoms and managing comorbid conditions.

Method: A multidisciplinary group of >30 researchers from China, Hong Kong SAR, Korea, Taiwan, Australia, USA, United Kingdom and Finland participated into the first NeuroGEN roundtable in Hong Kong in October 2018. Data mapping and research priority setting were undertaken. An expanded roundtable was conducted in London in August 2019. Distributed network approaches including common study protocols and a common data model (CDM) are being developed to facilitate multi-database observational studies. The NeuroGEN CDM is being standardised to the Observational Medical Outcomes Partnership (OMOP) CDM in order to apply the same analytical code in different countries. An initial project will investigate adherence and persistence to cholinesterase inhibitors. Investigating the same or similar research question across multiple administrative databases will help establish the generalisability of research findings.

Conclusion: NeuroGEN includes a large and representative sample of data for >100 million people with and without dementia in Asia, Australia, Europe and North America. This resource will facilitate high quality, reproducible and generalisable medication safety and effectiveness research suitable for inclusion in clinical practice guidelines.

45. Knowledge, attitude and practice about antimicrobial resistance and prevention strategies among healthcare professionals before and after an educational intervention

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Problem statement: Use of antibiotics as an over the counter medicine is very common in Nepal. In a developing country like Nepal, the implementation of the existing antibiotic use guidelines is very difficult. Various factors contribute to irrational use of antibiotics including self-medication, irrational prescribing and dispensing. Knowledge, attitude and practice of healthcare professionals is also important.

Objectives: To assess knowledge, attitude and practice towards preventing antimicrobial resistance and prevention strategies among the healthcare professionals.

Methodology: The study was a pre post interventional one where KAP scores were measured before and after an educational intervention conducted from 17th to 19th April 2019 at KIST Medical College, Kathmandu. The study included physicians, nurses, pharmacists and academicians. A structured questionnaire was framed for data collection and was divided into twelve sections having various themes. Each section was having three set of statements and respondents' degree of agreement was measured using Likert scale. The data was analyzed using SPSS.

Results: The post intervention scores improved for six sessions - rational use of antibiotics, (P=0.023), infection prevention and control for limiting AMR, (P=0.003), monitoring the use of antibiotics in Nepal, (P<0.001), effectiveness of various programs to prevent antimicrobial resistance, (P<0.001), familiarity with microbes to tackle AMR, (P=0.004), and role of government, media and NGOs for preventing antimicrobial resistance, (P=0.003).

Conclusion: Healthcare professionals are one of the important stakeholders for using antibiotics rationally. Safe and rational use of antibiotics are an important step to be taken by a team effort. Hence, promoting safe use of antibiotics is a combined effort and all healthcare professionals involved in healthcare delivery services should act responsibly.

46. Dispensing practices of antibiotics by community pharmacies in two districts of Nepal

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Problem statement: Antibiotics are one of the most commonly used medicines but are often used irrationally. The present study was conducted to evaluate the antibiotic dispensing practices of community pharmacies and the association, if any, between the educational qualification, experience, professional license and the location of the pharmacy with the antibiotic dispensing practices.

Method: A cross sectional prospective study was conducted in Kathmandu and Lalitpur districts from October to November 2018 among the community pharmacies listed in different directories. The sample size was 78 with a 5% margin of error, 95% confidence level, and 50% response distribution and random sampling method was used. Data was collected using a questionnaire. Written informed consent was obtained. The data was analyzed using SPSS for Windows.

Results: Out of 78 pharmacies, 12 (15.4%) were not present in the list maintained by Department of Drug Administration and 54 (69.2%) were located in Kathmandu district. Antibiotics dispensed without a prescription were 67 (85.9%). Fifty-two (66.7%) pharmacists did not ask for prescription before dispensing antibiotics. The practice of brand substitution was seen in 43 cases (55.1%). Antibiotics per prescription was three in 51 cases (65.4), followed by two antibiotics in 27 (34.6%). Advice regarding completing the course of antibiotics was given by 59

(75.6%) pharmacies and insufficient number of antibiotics dispensed was 23 (29.5%). Nine pharmacists (11.5%) replaced prescribed antibiotics with cheaper brands. Azithromycin 69 (88.5%) was the most commonly dispensed antibiotic followed by amoxicillin 68 (87.2%).

Conclusion: Dispensing antibiotics without a prescription is seen in majority of pharmacies which can be a big threat towards using antibiotics rationally. The findings of this study may necessitate re-evaluation of the guidelines framed for improving safe and rational use of antibiotics.

47. Rational use of medicines - past, present and future

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INRUD-Nepal

Problem statement: The outcomes of poor use of medicines are harmful and serious. It is necessary to analyse previous activities undertaken to improve situation.

Objectives: The objective is to share the experiences of international and national level efforts on rational use of medicines.

Methods: Desk review of activities of international and national organizations including documents, publications, trainings/meetings, conferences, tools used, strategies tested on prescribers, dispensers and consumers, public and private sector

Results: International meetings/publications WHO (List of Essential Medicines, meetings on Essential Medicines and Rational Use of Drugs), formation of INRUD, training on Promoting Rational Drug Use (PRDU), meetings of International Conference on Improving Use of Medicines (ICIUM), Asia Pacific Conference on National Medicines Policies (APCNMP), publication of different documents and articles

Methods, Presentations / publications from Nepal -Use of surrogate patients on drug retailers' practices, Validity of last customer interview on drug retailers practices, Better primary health care delivery through strengthening the existing supervision/monitoring, Training school teachers and journalists for improving the use of medicines in the community, Regulatory intervention on drug availability, Sustainability and effects evaluation of a successful intervention, Community intervention on drug use, Strategies for improving medicine access and use : from research to policy decision and implementation, National training course on Rational Use of Drugs, Asia Regional Course on PRDU, Improving the drug sellers' practices for managing common health problems, Implementation status of self-assessment/peer-group discussion programme in improving quality of health services

Conclusion: Publications/ reports, use of methods/ strategies, and meetings/conferences conducted to promote RUM in public/ private sector, and consumers. A challenge is with sustainability of successful intervention in the health system and community. ISIU should move forward to meet the challenges with methods/ tools and interventions design in public and private sector and users.

48. Using sales data to examine utilisation of diabetes medicines in India, Indonesia, Sri Lanka and Thailand

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Problem statement: National-level medicines utilisation data are essential to evaluate the appropriateness of medicines use and to identify areas for intervention. This information is lacking for many low- and middle-income countries, hindering the efforts of countries and organisations to assess and improve use of medicines.

Objective: The aim to this study was to use compared the use of diabetes medicines in India, Indonesia, Sri Lanka and Thailand; using sales data as a proxy for utilisation.

Methods: Pharmaceutical sales data were used to compare the utilisation (volume of units sold) and expenditure (in United States dollars) on diabetes medicines in each country during 2016. The number of unique diabetes products and proportional use of different categories of diabetes medicines were calculated for each country. The individual medicines accounting for the top 50% of all diabetes medicine utilisation and expenditure were also identified.

Results: India had a very large number of diabetes medicines on the market (2346) compared with the other countries (<350). Older-generation diabetes medicines (insulins, sulfonylureas and biguanides) comprised the majority of use in all countries (>70%), while use of gliptins was higher in Sri Lanka and Thailand than the other countries (~20% vs. <10%). Utilisation of herbal and traditional preparations for diabetes was observed only in India and Indonesia. Combination metformin products accounted for most of the top 50% of medicines by utilisation (3/5 medicines) and expenditure in India (5/7). In Indonesia, insulin products were among the top 50% of medicines by expenditure but not by utilisation.

Conclusions: The findings indicate variation in the appropriateness of diabetes medicines utilisation between countries. The areas of potentially inappropriate or low-value consumption identified here can assist policy makers and regulators to improve diabetes management.

49. Prevention of mother-to-child HIV transmission: Barriers and enablers at a Russian regional HIV management centre

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Problem statement: The proportion of HIV-infected middle-age people, as well as the number of HIV-infected women of reproductive age has dramatically increased and reached significant rates in Russia recently. Preventing vertical mother-to-child transmission becomes crucially important, for which antiretroviral therapy (ART) is an effective intervention. However, vertical transmission persists and the problem exacerbates with time despite centralised ART provision, free for HIV community.

Objective: To determine the barriers and enablers to the success of vertical mother-to-child transmission in an administrative region of the Russian Federation.

Method: We used official HIV registry (electronic and hard copies of patient charts) for the Mari-El Republic to follow-up all registered HIV-infected pregnant and postpartum women and their children born from 2000 to 2018 and assess their ART during pregnancy, labour, delivery, postpartum period, compliance and outcomes, starting with the first registered case of HIV-infected woman in pregnancy. All HIV-exposed infants/children were followed-up for 2 years with enzyme immunoassay (EIA) or Western Blot test results to confirm or refute HIV.

Results: We identified 299 HIV-infected women and 359 children born within the study period with 70 (23,4%) women having more than one child. There were 17 (4,7%) children with confirmed and registered HIV infection. HIV-positivity of a child was associated with late mothers' HIV diagnosis: third trimester of pregnancy (one case, 5.9%), during or shortly after delivery, when maternal ART-chemoprophylaxis was not fully traversed (5 cases, 29.4%), since several years after childbirth, when chemoprophylaxis was not provided and breastfeeding was not cancelled (11 cases, 64.7%).

Conclusion: Over 9-year study period 4.7% of all delivered children were HIV-positive due to late HIV-diagnosis, delays with commencement of ART-chemoprophylaxis and late cancellation of breastfeeding. Timely HIV-diagnosis and full implementation of maternal ART together with social facilitators of treatment compliance were effective for prevention of mother-to-child HIV transmission.

50. The role of the clinical pharmacology service in an effective management strategy for antibacterial drugs in a multidisciplinary hospital

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Problem statement: The irrational use of antibiotics contributes to the growing antibiotic resistance. Antibiotic resistance is elevated to the level of problems threatening national security.

Objective: Improvement of the antibacterial agents' usage in a multidisciplinary hospital, through the introduction of measures for the rational use of antibacterial drugs, initiated by the clinical pharmacology service.

Methods: Analysis of the sensitivity spectrum to antibacterial agents before and after the introduction of the rational use of antibacterial drugs in comparison with 2014–2015; conduction of a pharmacoeconomic analysis of the costs of antibacterial agents, mortality rates and postoperative complications.

Results: As a result, in comparison with 2014, in 2015:

- the number of microbiological studies decreased by 34.2% ($p < 0.05$);
- infections caused by *St.aureus* decreased by 18.2% ($p < 0.05$); *Pseudomonas aeruginosa* by 55.6% ($p < 0.05$); *Klebsiella pneumonia* by 41% ($p < 0.05$); *E. coli* by 40.5% ($p < 0.05$);
- the costs for antibacterial drugs decreased by 25%;
- in general, there is an improvement in antibiotic sensitivity, depending on the drug: *Staphylococcus aureus* from 2.5% to 38.8% ($p < 0.05$), *Pseudomonas aeruginosa* from 1.1% to 12.5% ($p < 0.05$), *Klebsiella pneumoni* from 5% -40.3% ($p < 0.05$), *Escherichia colli* from 1.1% -32.2% ($p < 0.05$);

Conclusion: The implementation of measures for the rational use of antibacterial agents in a multidisciplinary hospital, initiated by employees of clinical pharmacology, is an effective drug management strategy.

The effectiveness of the implementation of these measures is justified by: 25% reduction in the cost of antibacterial agents; decreased consumption of 22 antibacterial agents;

Problematic issues for further improvement of the research strategy were: *Acinetobacter spp* antibiotic resistance increase (up to 9.6 %%).

51. Estimation of quality of the rational destination of medicines in elderly patients

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Problem statement: The rational and safe pharmacotherapy of elderly patients is complicated by the polymorbid state of most patients, which leads to polypharmacy. The use of tools aimed at identifying the possible prescription of potentially not recommended medicines (Beers criteria, STOPP / START) allows to increase the safety and quality of pharmacotherapy for elderly patients.

Objective: To assess the quality of pharmacotherapy for elderly patients at the outpatient stage of medical care and the analysis of the data obtained on the basis of the criteria for restrictive lists of Beers 2012 and STOPP / START version 1.

Method: The design of the study - a retrospective analysis of 505 outpatient elderly patients within the period from 1 January to 30 June 2019, received outpatient treatment at the urban clinics in Samarkand, including 316 women and 189 men. The average age of the patients was 68.8 years. The analysis of the obtained data was carried out on the basis of the criteria for the restrictive lists of Beers 2012 and STOPP / START version 1.

Results: It was found that 310 (61.5 %) of elderly patients received more than 4 drugs, which is a risk factor for undesirable drug reactions. The structure of the incidence of patients was dominated by cardiovascular diseases, as well as diseases of the osteoarticular system and type 2 diabetes. Oncological diseases, thyroid diseases, bronchial asthma, cataracts, pancreatitis, anemia, peptic ulcer were diagnosed in single patients. Polypharmacy (more than 5 drugs) is observed in more than half of the elderly outpatients. Based on the criteria of the Beers restrictive lists in 2012, irrational drug therapy was detected in 20% of elderly patients, based on the STOPP and START criteria in 41, 3 and 65, 6%, respectively.

Conclusion: An association has been established between the frequency of hospitalizations, the presence of concomitant illnesses, and the administration of potentially not recommended medications. The lack of prescription of drugs in accordance with the START criteria is associated with an increase in mortality in elderly patients. Such a situation requires an individual approach to each elderly patient with an assessment of the risk and benefit of all prescribed drugs.

52. Antibiotics prescribing patterns at the outpatient department in a regional hospital in Kenya

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Problem statement: The use of antibiotics at the Nyeri County Referral Hospital (NCRH) has not been extensively studied thus no data is available for continuous quality improvement of prescribing patterns. Antibacterial resistance is accelerated by misuse and overuse. Improving antimicrobial prescribing is necessary to delay resistance.

Objective: To evaluate antibiotics prescribing patterns, compliance with treatment guidelines and the cost implications in order to guide the establishment of an Antimicrobial Stewardship (AMS) Program.

Method: A cross sectional study was carried out at the hospital which targeted prescriptions generated at the outpatient department for one week. The data collected was tabulated in an MS Excel sheet indicating the following parameters: age, diagnosis, prescribed antibiotics, formulation, dosage, duration of administration, errors in antibiotics prescribed, cost of the antibiotics prescribed and appropriateness of the antibiotic prescribed.

Results: 62% of prescriptions contained an antibacterial agent. Adult prescriptions accounted for 73% of all prescriptions (total 1556). Thirty four percent of the prescriptions adhered to recommended standard treatment guideline. Of the prescriptions with antibacterial agents, 44%, 27% and 29% had prescribing errors in terms of duration of treatment, inappropriate dosages and incorrect dosing frequencies. The cost of antibiotics consumed in that week was \$2,001.55 (Pediatric - \$500.39 (25%) and Adults - \$1,501.17 (75%)). The cost of rationally used antibiotics was \$ 950.15 (Pediatric – \$228.03 (24%); adults \$722.11 (76%)). The cost of antibiotics inappropriately prescribed was \$793.05 (40%), where prescribing errors accounted for 37% (\$291.89) and non-adherence to treatment guidelines was 63% (\$501.16).

Conclusion: There was inappropriate antibiotic prescribing in the hospital with many prescribers not adhering to standard treatment guidelines. Inappropriate antibiotic prescribing introduced unnecessary treatment costs. Establishing an AMS program can help mitigate these.

53. Antimicrobial stewardship in a regional hospital in Kenya

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²*Monitoring and Evaluation unit, health department of Nyeri County*

Problem statement: The proportion of prescriptions containing antibiotics at the Nyeri County Referral Hospital (NCRH) was estimated to be at 61% as of May 2019. This was beyond the recommended ceiling of 26.8% by World Health Organization (WHO). Inappropriate use of antibiotics contributes to emergence of antimicrobial resistance and can lead to wastage of resources thereby negating efforts towards achieving universal health coverage.

Objective: To set up an Antimicrobial Stewardship program in a regional hospital with the aim of promoting appropriate antibiotic prescribing.

Method: The Medicines and Therapeutics committee established an Antimicrobial Stewardship program within the regional hospital. The Antimicrobial Stewardship program focused on: (1) classifying antibacterial agents in the hospital's formulary using the WHO's AWaRe approach, (2) mentoring prescribers on rational prescribing of antibiotics, (3) developing pre-authorization requirements for selected antibacterial agents, and (4) developing an antibiogram to guide in antibiotic prescribing.

Results: Antibiotics listed in the hospital's formulary were classified based on the AWaRe criteria. An Antibiotic pre-authorization request form was developed and shared with prescribers in the hospital. The tools are currently in use and the Medicines and Therapeutics Committee reports monthly to the Hospital Management Team. In addition, the prescribers have mentorship sessions once a month on Good Prescribing Practices of antibiotics. An Antibiogram showing sensitivity patterns of select antibiotics listed in the hospital's formulary is under development and progress will be shared during the conference.

Conclusion: Implemented optimally, the program has the potential to improve quality of patient care; improve patient safety by improving infection cure rates, and increase appropriate antibiotic prescribing.

54. ABC/VEN monitoring for improving use of medicines at a municipal out-patient clinic

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Problem statement: ABC/VEN analysis as a method to assess and control medicine expenditures has also become an integral instrument for improving use of medicines at health decision-making level.

Objective: To apply ABC/VEN methodology to monitoring medicine expenditures within the government supplementary medicines programme at a municipal out-patient clinic for the period of three years.

Method: We performed ABC/VEN analysis using information on all medicine prescriptions at a multidisciplinary out-patient clinic for 3 years (2015 – 2017). We assigned VEN categories after a thorough review of all available evidence on effectiveness, safety and cost of treatment.

Results: Overall medicines expenditures within the government supplementary medicines programme were: 2015 – 3,151,093.86 roubles; 2016 – 2,491,438.00 roubles; 2017 – 3,936,408.88 roubles. The number of medicines used within the Programme by International Non-proprietary Names (INN) at the out-patient clinic reduced from 2015 to 2017: 2015 – 96 INNs, 2016 – 66, 2017 – 61. In 2017 nearly 65% of the allocated funds were spent on Vital medicines; in 2015 – 39%, and in 2016 – 41%. Bosentan was responsible for the highest expenditures in 2015. In the years 2016 and 2017 human insulin was on top of the expenditure list. In 2017, due to limited reliable information for the use of the endothelin receptor antagonists, bozentan, was excluded from the Programme.

Conclusions: The application of ABC/VEN methodology and evidence-based principles allowed us to assess the appropriateness of medicines procurement over the 3-year study period and resulted in a number of changes towards more rational medicine use.

55. Does the patient's voice matter? A randomised experiment exploring the role of patient knowledge in antibiotic prescribing in Tanzania

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Problem statement: Tanzania has a high rate of antibiotic usage among outpatients, which may contribute to antimicrobial resistance. In order to address the high antibiotic prescription rate, it is important to understand what drives this behaviour and how it can be reduced.

Objective: To test the hypothesis that inappropriate antibiotic prescription is reduced by patients demonstrating their knowledge of rational antibiotic use.

Methods: Undercover standardised patients (SPs) visited 227 private health facilities in Tanzania to seek care. The SPs were trained to present a case of uncomplicated upper respiratory tract infection (URTI), with symptoms of a cough, sore throat and headache lasting three days. SPs were randomised to 'informed' (n=114) or 'uninformed' (n=113) roles; informed SPs made a statement that they had heard antibiotics were not necessary for a simple cough, and uninformed patients made no statement.

Results: 93.8% (95% CI: 89.13-98.3) of uninformed SPs were prescribed an antibiotic compared to 85.1% (95% CI: 78.4-91.7) of informed SPs ($p=0.033$). There was no difference in the overall prescription rate (98.2% in both groups, $p=0.99$), mean number of drugs prescribed (2.68 in uninformed vs 2.70 in informed, $p=0.87$) or the mean drug expenditure (USD3.57 in uninformed vs USD3.75 in informed, $p=0.59$).

Conclusion: There was an extremely high rate of antibiotic over-prescription, with over 90% receiving an unnecessary prescription. Patients who signalled knowledge of correct antibiotic prescription practices were less likely to be prescribed an antibiotic. However, signalling this knowledge did not reduce overall prescription rates of any drug, mean number of drugs prescribed or mean expenditure. SPs are a novel tool which could be used in further work to explore how variations in presentation of patients affects antibiotic misuse.

56. Access versus excess situation of 'Access' and 'Watch' group of antimicrobials in India

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Problem statement: World Health Organization recommended categorization of antimicrobials into Access, Watch and Reserve (AWaRe) group for optimal use to contain antimicrobial resistance.

Objective: To determine the trend of antimicrobial use, availability and resistance pattern in the community and hospitals for Access and Watch antibiotics.

Method: Secondary analysis for availability, price, use/consumption of antimicrobials was done from the surveys conducted by authors as per AWaRe classification. Related literature was collated for trends of antimicrobial use, consumption, availability and resistance pattern for commonly used Access and Watch group of antibiotics.

Results: Antimicrobial sales data in India indicate rapid increase in consumption of Watch antibiotics compared to Access. Use of third generation cephalosporins (Watch) is increasing rapidly, and a national scale study showed approximately 80% of *E. coli* isolates were resistant to third generation cephalosporins. Surveys conducted in 2004 and 2007 indicate increased second and third cephalosporin (STCs) consumption. Numbers of manufacturers producing STCs are far greater than penicillins indicating higher 'demand-supply' situation. Poor availability of Access antibiotics was evident from antibiotic availability studies in public and private pharmacies: benzathine penicillin was not available at any facility, ampicillin suspension was available only in 25% of primary care facilities whereas, STC which were not for primary care were available. Interestingly, the median price ratio of STCs belonging to Watch group was lower when compared to amoxicillin (Access) in both public sector procurement agencies and private retail pharmacies. Recent trends indicate that penicillins are increasingly substituted by STCs for treatment of respiratory tract infections (RTIs) in spite of penicillins being active against the common bacterial pathogens causing RTIs. Similarly, recent data indicate that *S. Typhi* has become susceptible to older antibiotics like amoxicillin, trimethoprim/sulfamethoxazole and chloramphenicol (Access group).

Conclusion: Current situation demands adoption/revision of country EML utilizing AWaRe categorization for optimum use of antibiotics.

57. Antimicrobial resistance awareness survey In Timor-Leste, period 2018

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Problem statement: No data available or survey conducted on Antimicrobial Resistance awareness and use of antibiotics among populations in Timor-Leste, Nationwide AMR awareness survey was conducted by MOH with support by WHO in May 2018, A total of 1309 valid questionnaires collected from 13 municipalities.

Objectives: To understand the knowledge, perceptions and practices of AMR and antibiotics use among populations in Timor-Leste. To help design and produce IEC materials and messages relevant to the context and level of awareness in Timor-Leste. To help policymakers and public health workers develop AMR containment policies, guidelines and programmes relevant to the country

Method: Focus Group Discussion - Doctors (GPs, pediatrician, specialists including veterinarians from both public and private sector) Pharmacists both public and private; public; policy makers and regulators.

Results: A total of 1309 valid questionnaires have been collected, of which 413 males and 896 females. Most of the patients (83%) taking antibiotics prescribed by a doctor or nurse, regardless of sex and age. About 40% of the people think it is okay to use antibiotics given by a friend or family member. Some perceptions: antibiotics can cure body ache (25%), cold and flu (44%), headache (24%). Few people even heard of the terms AMR (18), antimicrobial resistance (23%), antibiotics resistant bacteria (25%), and antibiotics resistance (55%). Regarding what we need to do to contain AMR, people do have correct knowledge. For example, 79% suggest wash hands regularly; 78% know children should be vaccinated; 81% agree that they should use antibiotics when prescribed by a doctor or nurse. At the meantime, 22% of people said they can keep antibiotics and use later for other illness.

Conclusion: This is first nationwide survey on public awareness of antibiotics and antimicrobial resistance. There are widespread misconceptions about antibiotics, such as stop taking antibiotics when feeling better; use antibiotics given by friend or family; and buy or request the same antibiotics if they are sick.

58. Direct medical burden of antimicrobial resistant healthcare associated infections-empirical evidence from China

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Problem statement: Antimicrobial resistance (AMR) and healthcare-associated infections (HAIs) are among the biggest global public health challenges, and overlap widely. These infections cause significant morbidity and mortality, put pressure on health systems, and incur rising direct and indirect costs. Gaps remain in generating evidence for reducing HAIs and containing AMR. Quantifying the economic outcomes of HAIs with AMR will help Chinese policy-makers and healthcare professionals to set priorities.

Objective: This study estimated the direct economic burden attributable to antimicrobial resistant healthcare-associated infections in China. The potential cost savings through reducing these infections are expected to be used to inform both the medical regulators and hospital managers for better control of HAI and containment of AMR.

Method: The propensity score matching method (=0.25, nearest neighbor 1:1 matching) was applied to conduct a retrospective cohort study in five tertiary public hospitals in Hubei province of China during 2013-2015. Descriptive analysis, Pearson Chi-Square test, Mann-Whitney U test, Wilcoxon signed-rank test and paired/independent Z/T test were conducted. The statistically significant level was set at $P < 0.05$.

Results: From 2013 to 2015 in overall, the additional total medical expenditure per HAI-AMR inpatient was US\$ 15 557.25 compared with that of the non-HAIs, and the additional length of per hospital stay of the HAI-AMR inpatient was 41 days compared with that of the non-HAIs ($P < 0.001$).

Conclusion: In combination with AMR, HAIs caused significant additional medical expenses and affected the turnover rate of hospital beds. Most of the increased medical costs fell to patients and their families. These findings call for more effective control of HAI and containment of AMR. A national study is needed to estimate the medical, social and economic burden of HAI in combination with AMR.

59. Guiding and transforming health care in rural Myanmar: Current practices of the Socially Engaged Monastery based Schools network (SEMS)

Steven Lanjouw, Tial Awi Thang

Socially Engaged Monastery based Schools Network (SEMS)

Problem statement: In rural areas of Myanmar, the modern medical system remains dysfunctional. Efforts to improve the system fail to take into account existing health care practices based on Buddhist traditions which are often holistic and stress therapeutic efficacy.

Objective: To understand the intersection between Buddhism and medicine, and its impact on the health seeking behavior of a community of Buddhist abbots, monks and staff in monastery based schools of SEMS, a network grounded on transformative learning in education, focusing on ecology, engaged spirituality and local wisdom.

Method: An exploration of Buddhist traditions in health and a descriptive analysis of qualitative data collected through key informant interviews with clergy from 30 SEMS schools on health seeking behavior and patterns of recourse within their community.

Results: Buddhism and medicine have a close relationship. Healing, the body, diet, medicine and therapy are all central to Buddhist traditions. In a reflection of the indivisibility between personal and social in Buddhist thinking, there is a non-duality and inseparability between the religious and scientific realms, between spiritual and medical caregivers and between traditional and modern medicine. The SEMS school communities seek to address all aspects of health – the physical, emotional, social, spiritual and intellectual – comprehensively in a holistic and spiritual fashion. They thus place emphasis on traditional and herbal remedies, the 5 Ayurveda elements, health inducing and seasonal foods to supplement basic modern medicines when needed.

Conclusion: In efforts to introduce essential medicines through the modern bio-medical system, health practitioners and policy-makers must understand and maintain the positive traditional community practices which can reduce the need for modern medicines, and consequently the misuse of such medicines. The Buddhist traditions in Myanmar preserved to date, in part due to the failure of the public health system (conceivably a blessing in disguise), should continue to be supported.

60. Developing policy and regulation for use of cannabis-based medicines in Australia – challenges of community, industry and health practitioner knowledge and expectations

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Problem statement: Community advocacy regarding inadequate access to cannabis based medicines led to governments considering regulation and access pathways.

Objective: To describe the policy approach, regulatory framework, stakeholder issues and ongoing risks with the scheme.

Method and context: Medicines are regulated through Commonwealth law (international conventions, product registration and advertising) and State law (prescribing and supply of medicines). The existing medicines regulation framework is used to regulate cannabinoids. The Commonwealth refined the licensing regimen for importation, cultivation and manufacture. Given the limited and variable evidence, bias in media reports, and the lack of clinical guidelines or product information, there was a critical need for evidence based advice for prescribers and consumers. An insufficient level of scientific literacy contributed to public distrust. Advocates, pre-clinical researchers and the emerging industry raised concerns of over regulation and poor access. Food regulation did not limit cannabinoid content other than for THC. Driving laws impact on therapeutic use.

Results: Cannabinoids have appropriate access controls and can be prescribed as unregistered medicines through special access schemes. Systematic reviews to guide therapeutic use are published. Technology enhancements streamline permit requests. An Advisory Service is available for practitioners and a help line operates for consumers. Extensive information for industry, health practitioners, consumers and travellers has been published. An evidence review on driving impairment was undertaken. A new food standard sets limits on various cannabinoids in foods. Regulations address storage of refrigerated controlled substances. Advisory groups meet to manage ongoing or emerging stakeholder issues. The development of telehealth clinics has resulted in concerns over quality of clinical practice.

Conclusion: The scheme operates as intended. Tensions remain, as prescriber and consumer knowledge and expectations in using these unregistered medicines with limited benefits continues to require further information resources and management of perceptions of access barriers.

61. Strategies to improve medication adherence among tuberculosis patients towards better therapeutic outcomes

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Problem statement: Tuberculosis (TB) is the world's top infectious disease killer and 5000 people die every day globally (WHO). Non-adherence to tuberculosis treatment can lead to prolonged periods of infection, relapse, emergence of drug resistance, develop and spread drug resistant TB to others, failure of Anti-Tuberculosis Treatment (ATT) and increased morbidity and mortality.

Objective: The objective is to improve medication adherence among tuberculosis patients during the treatment to promote better therapeutic management.

Method: 282 tuberculosis patients, enrolled in five DOTS centers of Orathur TB Unit were included in study and data were collected in the validated data collection form. The Anti-Tuberculosis Treatment (ATT) was recorded from treatment card and adherence was noted and patients were counselled through face to face contact and through telephonically. The non-adherent patients were contacted, counseled and motivated to comeback to DOTS centre for continuing treatment.

Results: Among total 282 subjects, 74.8% were employed (bread earners) and majority (77.3%) suffered from pulmonary Tuberculosis. Migration for earning and lack of awareness about adherence, habits like smoking and alcoholism may be the reasons for non-adherence among patients (39%) with low socio-economic status. However, after counseling and intervention, percentage of improvement of adherence was 23.6%. Non-adherence among HIV co-infected patients was more (46.7%) than HIV negative (31.3%) patients and they have shown more importance to ART treatment than ATT. Various reasons for non-adherence were feeling better (28.7%), migration (22.3%), adverse drug reactions (19.1%), alcoholism (18.1%) and duty schedule (11.7%).

Conclusion: Present study revealed that the socio-demographic factors such as age, gender, education, occupation, socio-economic status, personal habits and place of residence, disease like HIV were significantly associated with non-adherence. Our intervention and counseling showed improvement in adherence and outcome of therapy.

62. Improving the use of medicines in geriatric: What should we do?

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Problem statement: The older people are increasing in many countries, both developed and developing, the consequences of improper use of medicine are likely to increase the DRP. A Drug- Related Problem is an event or circumstance involving drug therapy that actually or potentially interferes with desired health outcomes.

Objective: To assess the outcomes of clinical pharmacists' interventions in solving drug related problems in geriatric patients.

Methods: This study was carried in the Medicine ward of Rajah Muthiah Medical College and Hospital, Annamalai University, Tamil Nadu, India. PCNE v 6.2 DRP System classification tool was used in this study.

Results: Demographic analyses of this prospective study revealed that out of 520 patients, 342 (65.76%) were males and 178 (34.23%) were females. The maximum patients were in the age group of 60-64 (38.84%) range lead to a significant increase in the number of medications. The most common diseases associated systems were cardiovascular system 147 (28.26%) patients. The study reveals that 56.53% of geriatric patients were prescribed 6-8 drugs for their treatment of diseases followed by 9-12 drugs (23.84%), ≤ 5 drugs (11.73%) and > 12 drugs (7.88%). The drug selection is the most frequently identified cause for the DRPs. More interventions were provided to the intervention in the study. Interventions proposed by a clinical pharmacist to tackle or avert medication related issues are to a huge degree acknowledged and endorsed by the prescribers. Most of the interventions are of high clinical importance.

Conclusion: Outcomes of interventions indicate that almost 87.45% of problems are totally solved, by pharmacists' interventions in this study: it is expanding proof that supports and intercession of clinical pharmacists in geriatric health care have a positive influence on clinical outcomes.

63. Undesirable and dangerous drug combinations of statins in the treatment of patients with cardiovascular diseases

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Problem statement: Hypolipidemic drugs from the group of statins have a significant effect on the metabolism of the human body. An important aspect of their safe use is the consideration of the pharmacokinetic characteristics of statins and interactions with this group of drugs. Medicines (drugs) prescribed simultaneously with statins can be inducers or inhibitors (substrates) of liver cytochrome P450 isoenzymes CYP3A4 / A5, it should be taken into account in everyday clinical practice when managing this category of patients

Objective: to study the frequency and pattern of administration of undesirable combinations of statins with other drugs in Semey city.

Method: Design: cross-sectional study. The study included 2790 outpatient records of patients with a diagnosis: Coronary heart disease with concomitant hypercholesterolemia. We analyzed the frequency of the simultaneous administration of statins with other drugs. We took into account the peculiarities of their interaction at the level of metabolism of CYP3 isoenzymes of cytochrome P450 and transport systems of protein transporters of P-glycoprotein and OATP1B to identify potentially dangerous and significant drug combinations. The methods of descriptive statistics were used.

Results: The presence of undesirable and dangerous combinations was detected in most patients receiving statin therapy (63.7%). The frequency of very dangerous combinations in the study was relatively low (7 cases, 0.25%). In 72.5% of cases, we did not find a safety control in cases where it is recommended to take statins with caution and under the control of biochemical and other indicators.

Conclusion: We determined a rather high frequency of prescribing undesirable combinations of statins with other drugs with a competitive metabolism at the level of CYP3A, OATP1B1 and P-glycoprotein in absolute terms and compared with data from studies conducted in developed countries.

64. The frequency of allelic forms of predictor genes of reduced effectiveness and complications of statin therapy in the Kazakh population

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Problem statement: The appointment of dangerous and undesirable combinations of drugs takes special place in the health systems of most countries. Among the drugs with the highest risk in combinations, statins are considered, since they have significant metabolic activity. In the healthcare system of Kazakhstan the structure of the genetic predisposition to negative effects is unknown.

Objective: To determine the frequency of administration of atorvastatin in undesirable combinations with other drugs in the presence of various polymorphisms of the cytochrome CYP3A5 genes and transport proteins SLCO1B1 and MDR1 in patients with coronary heart disease of the Kazakh population.

Method: A transverse comparative clinical and genetic study was not accompanied by active intervention in the structure of the current treatment of patients by primary health care physicians. The study was conducted in the period 2017-2019. The medical documentation is analyzed and contained information about appointments. The presence of CYP3A5 (A6986G) polymorphisms of the cytochrome gene, SLCO1B1 (c.521T> C) of the OATP1B1 transport protein gene, and MDR1 (C3435T) and (C1236T) polymorphisms of the P-glycoprotein transporter protein gene was analyzed.

Results: The study included 178 people, including 108 men and 70 women aged 40 to 70 years (mean age - 61.1 ± 7.8 years). All patients were Kazakh. Undesirable drug combinations were identified in 112 cases (62.9%). Their frequency did not differ from the equilibrium distribution in any of the studied polymorphisms. Amlodipine accounted for the largest number of undesirable combinations in CYP3A5 polymorphism, clarithromycin in SLCO1B1, and clarithromycin and digoxin in MDR protein gene polymorphisms.

Conclusion: In the studied group of patients there is a very high frequency of undesirable combinations of atorvastatin with other drugs. There was no relationship between the presence of such combinations and genetic predictors of complications.

65. Understanding underreporting of adverse drug events for improving the pharmacovigilance system in the Philippines

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Problem statement: Strong pharmacovigilance systems are needed to ensure the safe use and quality of medicines. In low- and middle-income countries, pharmacovigilance systems aim to incorporate broader aspects of medicines safety, including prescribing, dispensing, storage, administration, and medicines consumption. In the Philippines, despite the existence of an established national spontaneous reporting scheme—a cornerstone for collecting safety data— weak adverse drug event (ADE) reporting practices by healthcare providers (HPs) is a limitation of the country's pharmacovigilance system. The Philippines Food and Drug Administration's attempt to understand the factors that contribute to ADE underreporting practices is a necessary step for ensuring the safe use of medicines.

Objective: Assess the knowledge, prevailing attitudes, and current practices on ADE reporting among HPs.

Method: The study employed a mixed-method approach with two sequential phases. Phase 1 consisted of an electronic survey targeting physicians, nurses, and pharmacists from nationwide tuberculosis treatment centres and selected government hospitals. Phase 2 consisted of facilitated group discussions with stakeholders to allow in-depth analysis of the phase 1 findings.

Results: Results to date show that 53% of HPs (n=36) were aware of the national ADE reporting system. Although 42% (n=27) of HPs have reported ADEs throughout their career, 93% (n=57) indicated they would be more likely to report an ADE if they knew how to report it. Main reasons identified for ADE underreporting include never seeing a patient with a suspected ADE, uncertainty about the use of a particular medicine causing a reaction, and not knowing to whom or how to send an ADE report form.

Conclusion: Findings suggest a gap between HPs' knowledge and their practices. Developing interventions for strengthening HPs reporting would be critical to support the implementation of a fully functional pharmacovigilance system, which will enhance safety decisions and ultimately help improve the use of safe medicines.

66. Dialogue of shared knowledge. What is health? What is medicine?

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Problem statement: Bacterial resistance to antibiotics is a complex problem that needs to be treated as a whole. The concept of One Health must contain the relationships with ecosystems and with the healthcare of Mother Earth. A dialogue was proposed to answer these questions. Answers and new questions were obtained based on common sense, ancestral and academic knowledge. The purpose was to improve and share the concepts, visions and practices for people to get involved in actions sustained over time.

Objective: To promote a reflexive place for a dialogue of shared knowledge to discuss different ways of understanding medicine from an ecological and contextual perspective in order to improve the concept of health.

Method: Workshops were held at universities from four Latin American countries during 2018 and 2019 with the participation of students and professors from different life science careers. They were organized through the creation of discussion groups where questions were prepared to trigger the discussions and to later analyze the conclusions as a group. Conclusions were systematized in a final document, which was used in the following workshop.

Results: The concepts of health that were obtained showed a deep commitment to an integral, universal and holistic vision based on their experience. They called for coherence between all the elements for health. The paradox of antibiotics causing harm when they are meant to cure was raised. We need to make it visible. Medicine is making the earth sick. How do we repair this? Do we each need to recreate our lives?

Conclusion: Sharing knowledge and visions allows to expand the possible answers and solutions to a problem as complex as bacterial resistance to antibiotics, to produce synergies capable of promoting actions at all levels, to repair the harm, we need to maintain, promote and conserve health.

67. Multimodal strategy for teaching antimicrobial pharmacology in medical schools.

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Introduction: '*... and then, the 30 S ribosomal subunit is inhibited, affecting protein synthesis*'; long phrases of mechanisms of action, resistance genes, dozens of non-essential and disused active principles. How many of us learned basic pharmacology in this way? Memorizing doses and looking forward to 'passing an exam with the correct answer.' How do we connect tomorrow's prescribers with the proper use of medications? ¹⁻²

Methodology: With the purpose of to innovate in educational strategies, a multimodal pilot project was addressed to medical students in the 5th and 6th semesters of the Central University of Ecuador, between 2017 and 2019, consisting of three components i) Social Determination of bacterial resistance ii) Playful-participatory learning iii) Use of the Good Prescribing Guide to promote the appropriate use of antibiotics.

Results: For the section related to the social determination of bacterial resistance, students were asked to explore stores selling animal growth promoters that contain antibiotics and bring them to the classroom, where they analyzed the impact of the use of these substances on global health. The students verified that it is possible to acquire with just one dollar an envelope of 'colistin + vitamins' in Ecuador, despite the prohibiting regulations.³ They discussed large-scale development models and how that way of income generating resulted in people's quality of life impairment. This induced public outrage.

For recreational-participatory learning, once the theoretical part of antibiotics has been reviewed, focusing on mechanisms of action, pharmacological effect, dose, use and main adverse reaction of antibiotics used in first and second level of care considered essential in Ecuador, students were invited to create or modify games, 'memes' contest (images with a certain degree of humor and leave a message) that strengthen the integral learning of the correct use of antibiotics, 20 different games were created, 200 questions of multiple option related to the theme, 50 memes and an exhibition fair was organized, with prizes and bonuses'. Students could participate 'n' number of times to complete 100% of games and accumulate bonuses that would later be added to a test with traditional methodology. This sparked the imagination.

Finally, to contextualize the appropriate use of medications in routine clinical practice, the application of the six steps suggested by the World Health Organization in the process of reasoned therapy were taught.⁴ These steps focused on the resolution of clinical cases of infectious disorders of epidemiological relevance in the local environment, frequent in the first level of attention, linking the learning of the two previous points, transmitting thoughts and knowledge what we consider essential to 'learn to do': a prescription.⁵⁻⁶ A prescription that reflects a comprehensive prescription. This aroused the awareness of rational therapy.

The satisfaction of the students and teachers who participated in the initiative was evaluated in a global way, with a significant reduction in the repetition rate in the 5th and 6th semester for the integrated courses compared to previous years. The learning and curriculum development objectives were carried out efficiently. This methodological modification of integral education was a challenging, fun, low-cost and high-impact teaching experience.

Conclusions: The integration of multimodal strategies for teaching antimicrobial pharmacology in medical schools based on the debate and analysis of the social determination of bacterial resistance, integrating playful, reflective methodologies and contextualizing in the resolution of clinical cases, based on the recommendations of the guide to the good prescription of the World Health Organization, are methodologies that awaken interest and avidity for critical learning, contextualized with a comprehensive approach.

68. Cost analysis of different antibiotics brands available in India with reference to NLEM and Prime Minister Jan Aushadhi scheme

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Problem statement: Antibiotic consumption is increasing day by day. About 60-90% of healthcare spending in India is on medicines which is mainly out of pocket. Almost all the drugs are available as brands with variable cost. Government of India launched Jan Aushadhi Scheme (JAS) in 2008 to provide low cost generic medicines to the public. Awareness on benefit of this scheme is limited.

Objectives: To analyse percent cost variation of different antibiotic brands available in Indian market with reference to National List of Essential Medicines (NLEM), JAS and non-NLEM

Method: For cost circulation we prepared three lists of antibiotics i.e. JAS, NLEM and non NLEM (not listed in NLEM) depending upon inclusion and exclusion of antibiotics in these lists. Cost of antibiotics of various brands available in Indian market was listed. Percentage cost variation and cost ratio was calculated for each antibiotic. Cost variation of selected strength of antibiotic was compared for (i) JAS antibiotics and cheaper brand, cheaper and most expensive brand for antibiotics in (ii) NLEM and (iii) non NLEM.

Results: Cost variation ranged from -40 to 2111.5%, 7.34 to 1049.82% and 17.67 to 2784.46% for JAS, NLEM and non NLEM groups respectively. It was found that 60% antibiotics in JAS are cheaper than least costly brands of same available in Indian market. In NLEM group minimum cost variation was 7.34% (for ciprofloxacin 200mg/100ml vial) and maximum 1049.82% (for azithromycin 500mg tablet). In non NLEM group, minimum cost variation was 17.67% (for cefaclor 500mg tablet) and maximum 2784.46% (for ofloxacin 400 mg tablet).

Conclusion: JAS generic antibiotics are cheaper as compared to branded ones. NLEM antibiotics have lower cost variation as compared to non NLEM. Patients must be encouraged to purchase drugs from JAS outlets. Prescribers must prescribe cheaper brands to ensure rational use.

69. Medicines and vested interests in society

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Access to rigorous and unbiased evidence on the benefits and harms of medicines is fundamental to quality medicine use. However, the role of commercial interests in skewing the research evidence on which medicine use decisions are based is the 'elephant in the room' that remains unaddressed in many initiatives to improve medicine use. This presentation includes an overview of the research evidence on the effects of the pharmaceutical and medical device industry funding on research results, clinical practice and professional education, and proposes needed changes to support independent evidence and clinical care decisions.

70. Print media as a tool to improve public knowledge on use of medicines: An Indian experience

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Problem statement: It has been reported that around 50% consumers do not take medicines appropriately. The studies have shown that the consumers in general know very little about the medicines. The regular print media usually focuses on diseases or health conditions and very little on the appropriate use of medicines. Whether the consumers use formal health care channel or decide to self-medicate, they are the ultimate decision maker. Public education has an important role to play to influence these decisions.

Objective: To write public education materials on medicine use in English through regular column and feature in Newspapers.

Method: As newspapers are read by average consumers (though literacy level is poor in India), the author attempted to write consumer education materials in one of the widely circulated and read English daily, The New Indian Express's fortnightly supplement 'The Health'. A new column 'KNOW YOUR MEDICINE' was initiated and contributed for four years. Thereafter, theme based articles have been contributed in another newspaper. The columns and writes up covered wide range of themes ranging from consumers' right on medicine use, storing medicine at home, threat of antimicrobial resistance to clinical trial to the use of individual medicine. A book on medicine use 'What everyone should know about medicine' was also published. Articles were written in simple and users friendly way.

Results: The articles have been widely accepted and appreciated by various sections of the society. The appreciation and enquiry ranged from asking to continue to seek information on various aspects of medicines and their use. Some of them were replied in the column itself. One of the district collector and joint director of public health, government of India, called me for encouragement and information. The general readers used to provide feedback and seeking more information through postcards, telephones and some through e. mail. The readers' queries were replied through the column using a theme. The pensioner's association asked permission to reproduce one of the articles relating the use of medicines in elderly in their newsletter. The book was sold in reasonable number and thus the second edition could be published within short time of four years.

Conclusion: Though no quantitative measurement on the impact of the articles on public knowledge was studied, the continuation of the column for four years and subsequent writing including book publishing can be viewed as success and signify usefulness among the public. Writing in newspapers can be used as a tool for promoting public education on medicine use.

71. Impact of private pharmacists participation in national programme for tuberculosis for improving the use of anti-tubercular medicines in India – a case study

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Problem statement: Non adherence to anti-tubercular medicines is a major issue and DOTS therapy has been introduced in India's National TB programme to promote treatment compliance. Lack of easy and convenient access to medicines is the main factor for treatment non-adherence. The TB programme introduced public – private initiative permitting retail pharmacies as DOTS providing facilities on a project mode.

Objective: To determine impact of retail pharmacist assisted DOTS program in Bengaluru City, India.

Method: New Sputum Positive (NSP) patients consented to take DOTS medicine Category-I in neighborhood pharmacy had been enrolled for the study under Group A-Interventional arm. Patients who were interested in conventional DOTS method were enrolled under Group B-Control arm. The retail pharmacist trained in providing DOTS and conventional DOTS provider under National programme were responsible for DOTS provision & maintenance of medication administration records for Group-A and Group B, respectively. Follow up of the patients' therapeutic outcomes in terms of serum conversion rate and their knowledge, attitude and practices after 24th dose was compared with the base line data. The difference in data at the baseline with two follow ups at the end of Intensive and Continuous Phase treatment schedule is used as indicator for measuring impact of pharmacist's contribution.

Results: 74 patients were enrolled in the interventional group-A and 79 patients in control group B. The patients allocated to group-A had more favorable clinical outcome (serum conversion) after 24th dose of anti-tubercular regimen than the controlled group. (92.3% vs. 83.5%, $p < 0.01$). The analysis revealed significant unfavorable clinical outcome in Group B and the patients in the group had extensive treatment due to serum conversion failures after 24 dose of intensive phase treatment. There has been substantial improvement in KAP among the interventional group A compared to the patients of control group B.

Conclusion: The improved treatment outcomes and KAP of patients opted for DOTS under private pharmacist's supervision shows the scope of engaging retail pharmacists to further strengthening India's TB programme through the public – private partnership.

72. Findings of an antimicrobial point prevalence survey performed in Battambang Provincial Referral Hospital, Cambodia

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Problem statement: Inappropriate antimicrobial prescribing can lead to numerous hazardous effects. In order for a hospital to improve antimicrobial prescribing, microbiology laboratory utilization, and quality of care, specific areas that need improvement should first be identified.

Objective: To investigate the baseline antimicrobial prescribing practices of Battambang Provincial Referral Hospital (BPRH) by performing an antimicrobial point prevalence survey (PPS) to identify target areas for improvement.

Method: A PPS tool was adapted from internationally recognized PPS tools and customized for the local Cambodian context. BPRH staff performed the PPS across 9 inpatient wards between May and June 2019. Data was collected on paper forms, then entered and analyzed in an Excel database. Diagnostic Microbiology Development Program (DMDP), an NGO, created the PPS tool, trained BPRH staff, and facilitated performing the PPS.

Result: At 8 am on the day of survey, 74 out of 164 admitted patients (45.1%) were prescribed antimicrobials. 47 of those 74 patients prescribed antimicrobials (63.5%) had no infectious disease diagnosis recorded. Only 12 patients of those prescribed antimicrobials (16.2%) had a request for microbiology testing. Only 2 out of 18 operations (11.1%) had a prophylactic antimicrobial administered within 1 hour prior to incision, whereas all patients that underwent surgery had antimicrobials prescribed postoperatively. A total of 111 antimicrobial prescriptions were ordered. Of these, 47 prescriptions (42.3%) were written incompletely, missing either the necessary dose, route, or frequency. The most commonly prescribed antimicrobials were intravenous (IV) ceftriaxone (24), IV gentamicin (18), oral ciprofloxacin (17), oral amoxicillin (14), and IV ampicillin (7).

Conclusion: Performing a PPS can provide valuable insight into a hospital's antimicrobial prescribing behavior, revealing specific areas to focus antimicrobial stewardship efforts. BPRH identified microbiology laboratory utilization, surgical antibiotic prophylaxis, documentation of infectious disease diagnosis, and prescription completeness as target areas for improvement.

73. Adapting 'point of care' prescribing guidelines for local use

Robert Moulds, Mieke Hutchinson-Kern

Prescribing by local practitioners according to agreed standard treatment guidelines (STGs) for use at the 'point of care' ensures patients receive appropriate standards of care, and also facilitates local reliable drug availability.

Most countries do not have the financial or human resources required to write 'point of care' guidelines that cover as many as possible of the myriad clinical situations likely to confront local practitioners. However international 'point of care' guidelines will never be able to provide advice which cover all local situations, especially when local resources are limited.

From our experience in assisting several Pacific Island countries write their own STGs we propose the following:

- Reputable international 'point of care' guidelines covering the relevant conditions are initially identified
- Local clinicians agree for these to be used as a 'template' for adaptation to the local clinical environment
- A respected senior local clinician agrees to take overall responsibility for the adaptation
- The clinician is supported by an experienced consultant (eg a retired clinician with international and local expertise) and a project manager (usually a pharmacist)
- The consultant identifies possible changes, and liaises with local clinicians and the potential users about the proposed changes
- A workshop or similar meeting, facilitated by the consultant, is held to gain local consensus before finalisation of the adaptation
- After approval by the appropriate drug (or other) committees, the final version is appropriately promulgated to the proposed users

If funding is required, eg for the consultant and/or project manager or for the workshop, it should be sought from appropriate donors.

74. Linking guidelines to an essential medicines list

Robert Moulds, Mieke Hutchinson-Kern

In principle, every medicine recommended in approved standard treatment guidelines (STGs) should be available on the essential medicines list (EML). However it can be difficult to harmonise the EML with STGs. We suggest the following as a basis for consideration:

- STG writers should not be limited to drugs on the current EML
- For drugs not currently on the EML, writers should make a preliminary judgement on the priority of adding the drug to the EML based on:
 - the seriousness of the relevant condition
 - the current availability and suitability of alternative treatments
 - other relevant factors
- Drugs judged as low priority should have appropriate alternative treatment recommended
- Drugs judged as high priority should be referred to a subcommittee of the National Drug Committee (NDC) for assessment of:
 - Whether or not the drug is on the WHO model EML
 - Whether or not the new drug will be replacing a drug on the EML
 - Local clinician experience about the condition being treated and their thoughts on current treatment
 - The likely acquisition cost of the drug
 - Any major offsetting factors (eg less hospital visits, less monitoring requirements)
- Those drugs judged as having a reasonable likelihood of acceptance by the NDC for addition to the EML should then have:
 - An assessment of likely usage based on the best available information on the prevalence of the condition
 - A review of available international cost-effectiveness analyses of the drug for that condition
 - As detailed a cost-effectiveness analysis as practicable, including cost savings resulting from better efficacy, possible savings elsewhere in the system, costs caused by harms, and the acquisition cost of the drug

The subcommittee should then make a specific recommendation to the NDC for a decision on the inclusion or otherwise of the drug on the EML.

75. Global situation and initiatives to contain antimicrobial resistance

Mirfin Mpundu

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Antimicrobial Resistance (AMR) is one of the major public health challenges we are facing. Its major drivers being overuse and misuse of antimicrobials both in the human and non-human sectors. Effective antimicrobials especially antibiotics are critically important for providing basic healthcare and treating common infections such as pneumonia, UTIs and gonorrhoea. Bacteria becoming increasingly resistant threaten the continued effect of antibiotics. Without effective antibiotics, modern medicine – cancer treatments, surgery, care of preterm babies – will also be threatened and the world could risk reversing important advances in global public health achieved over the last 70 years. AMR is not a future threat; the world already faces certain infections that are completely resistant to all existing types of antibiotics.

Every year ABR, including drug-resistant tuberculosis, claims more than 750,000 lives. While ABR affects all of us, people living in LMICs will feel the consequences the most. The World Bank has estimated that AMR (including bacterial infections, HIV and malaria) can cause countries to lose more than 5% of their GDP which may push up to 28 million people into poverty by 2050. A loss of effective antibiotics would also seriously threaten the achievement of several of the Sustainable Development Goals such as SDG 1, 2, 3, 6, 8 and 12.

ABR cannot be eliminated – it can only be managed and requires a multi-sectoral approach.

Against this background the WHO's World Health Assembly passed the Antimicrobial Global Action Plan that mandated member countries to develop National Action Plans within 2- years to address AMR in 2015. The GAP has 5 strategic objectives that include,

- Improve awareness and understanding
- Strengthen knowledge through surveillance & research
- Reduce the incidence of infections
- Optimize the use of antimicrobial medicines
- Ensure sustainable investment

This was followed by the UN Secretary General convening the Interagency Coordination Group (IACG) on Antimicrobial Resistance after the UN High-Level Meeting on Antimicrobial Resistance in 2016

While more countries have developed their NAPs, implementation has remained a major challenge especially for LMICs. AMR is a One Health issue that cuts across sectors and calls for a multisectoral approach and action. It calls us to act now or pay later.

76. The assessment of pharmacotherapy in elderly patients in the cardiological hospital

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Problem statement: According to the data of World Health Organization since 2000y. to 2050y. the population over sixty years old in the world will double, from 11% to 22%. Aspiring to improve the effectiveness of treatment a large number of drugs are prescribed, it is a huge risk factor for unwanted adverse reactions.

Objective: To study the prevalence and structure of drug interactions in older patients pharmacotherapy.

Method: The retrospective analysis of 94 medical histories of Semey Cardiological hospital's patients aged 65 years and older. Average age was 71 years old, of these 36% were women, 64% were men. Pharmacotherapy was evaluated according to the STOPP/START criteria, Beers criteria.

Results: The average number of drugs received by one patient is 10.5 drugs, 6 drugs - 4 patients (4.2%), 7-8 drugs - 21 (22.4%), 9-10 drugs - 28 (29.8%), 11 and more - 41 (43.6%). The following drugs were used that are undesirable for people of the older age group: central antihypertensive drugs - 16 patients (17%), spironolactone + ACE inhibitors without plasma potassium control - 40 (42.5%), NSAIDs + vitamin K antagonists, direct thrombin inhibitor, factor Xa inhibitor - 10 (10.6%), NSAIDs for moderate to severe hypertension - 9 (9.5%), NSAIDs for chronic heart failure 10 (10.6 %), NSAIDs with GFR <20-50 ml/min/1.73 m² - 2 (2%).

According to Beers criteria (USA 2015y.): amiodarone 7 (7.4%), ketorolac 7 (7.4%), diclofenac 3 (3.1%), metoclopramide 4 (4.2%), NSAIDs for CKD stage IV-V (GFR <30 ml/min /1.73^{M2}) - 1 (1.1%), aspirin for primary prophylaxis of cardiac events 8 (8.5%), diuretics - 8 (8.5%).

Conclusion: Patients of the older age group of a cardiological hospital have a number of comorbid conditions. Unfortunately, the drugs that are contraindicated in this age group are prescribed most often. There is practically no control over the safety of prescribed drugs.

77. Arterial hypertension at young age: Level of adherence –mirror of treatment's effectiveness

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Problem statement: Essential hypertension is disease that predominantly common at persons of older age groups. At the same time, the results of studies of recent decades indicate a tendency to 'rejuvenate' arterial hypertension (AH), i.e. increasing its prevalence among young people. It is known that adherence to taking medications in young people at many diseases is inferior to the average population indicators.

Aim: To determine the indicators of adherence to drug therapy in young patients with arterial hypertension (AH) and the correlation between the indicators and therapy management.

Materials and methods: The study enrolled 514 patients aged 25 to 45 years diagnosed with essential hypertension. We studied the structure of antihypertensive pharmacotherapy and adherence to treatment using the Moriski–Green test. The patients were distributed depending on the degree of blood pressure increase, administered treatment, age, economic factor, and drug source.

Results: The adherence level by Moriski–Green test was 36.8%: high adherence level was 38.3%, incomplete adherence — 33.7%, and poor adherence — 28.0%. The monotherapy with ACE inhibitors predominated in the majority of cases; the fixed combinations were more typical for the treatment of the stage II AH, drug combinations — for stage III AH. The highest therapy adherence was registered in patients with stage III AH, receiving treatment with combinations of drugs in a single dosage form. The life quality of respondents and the drug source did not influence the adherence significantly.

Conclusion: In young patients with arterial hypertension, some features of treatment structure determine the therapy adherence. The greatest contribution to the formation of adherence was made by the level of blood pressure, and the type of drug therapy.

78. The treatment of East Kazakhstan patients with antihypertensive medicines should be switched from compliance to adherence strategy

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Problem statement: Worldwide is known that many patients with chronic arterial hypertension, either do not take their medications correctly or completely stop taking them for various reasons. In Kazakhstan only recently have been initiated scientific discussions about the differences between compliance and adherence, with the focus on identifying purposeful and unintentional reasons for nonadherence treatment in antihypertensive treatment. It is known that 'adherence' and 'compliance' have different meanings. Compliance is defined as 'the extent to which the patient's behavior matches the prescriber's recommendations'. Compliance refers to a process where the clinician decides on a suitable treatment, which the patient is expected to comply with unquestioningly. Adherence refers to a process, in which the appropriate treatment is decided after a proper discussion with the patient.

Objectives: The aim of the study was to analyze the existing rate of the patients' compliance with the antihypertensive treatment prescribed to patients in the East Kazakhstan region. The long-term aim was to introduce the adherence strategy instead of compliance in aim to achieve better results of the treatment.

Methods: The study included 2346 patients with arterial hypertension aged from 25 to 80 years, including 1281 men (54.6%) and 1065 women (45.4%). The average age was 55.2 ± 1.1 years. In the study, we used the four-item Morisky – Green Medication Adherence Scale, which includes questions with yes/no response options. We modified the Scale with 4 additional questions, which helped us to identify the factors affecting to following the prescribed treatment regimes.

Results: Full compliance to medication therapy occurred only in 41,1% cases, the lack of compliance accounted in 26,9% of all cases, in 32.1% of cases were partial compliance with the treatment regime.

Conclusion: The conducted study emphasizes the importance of patients' perspectives in medication-taking, based on their own beliefs, their personal circumstances, the information and resources available for them. Adherence should be used as a replacement for compliance in an effort to place the clinician-patient relationship in its proper perspective.

79. Compliance to statin treatment in patients of ischemic heart disease in combination with diabetes

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Problem statement: Reducing low-density lipoproteins is an important component in the combined treatment of patients with coronary heart disease in combination with diabetes.

Objective: To evaluate the adherence of patients with coronary heart disease (CHD) in combination with diabetes mellitus (DM) to treatment with statins in a polyclinic to reduce the level of low density lipoproteins (LDL) in the blood.

Materials and methods. For a retrospective study, we took outpatient cards of dispensary patients with coronary artery disease in combination with diabetes mellitus, registered in the clinic for more than 5 years. Patients were invited for a consultation, questioned on the questionnaire (Moriski test) about taking the drugs and offered to donate blood to assess the lipid spectrum. Among the examined, 86 patients with coronary heart disease in combination with diabetes were selected, among them there were 37 men and 49 women. The average age is 57.1 ± 5.3 years.

Results: Among the examined patients, 42.4% took statins ($n = 35$), prescribed during inpatient treatment at a cardiology clinic, other patients ($n = 51$) did not accept them, although they were recommended to take statins. In the group of patients taking statins, people under 50 years prevailed, while in the group of patients not taking statins, there were more people over 50 years old. In the group taking statins, women predominated - 62.8% ($n = 22$), in the group of people not taking statins - men 72.5% ($n = 37$). After measuring the level of low density lipoproteins, it turned out that in the group of people taking statins, the level (LDL) was on average 2.51 ± 0.2 mmol / l, and in the group of patients not taking statins it was on average 5.2 ± 0.7 mmol / l. Of the statins, more than half took rosuvastatin, one third atorvastatin, and the rest were other drugs. According to the Moriski test, 62.3% of patients were committed to treatment - 4 points on a scale.

Conclusion: According to clinical protocols based on evidence-based medicine, patients with coronary heart disease in combination with diabetes should take statins to lower their lipid profile, but as the results of the examination showed, less than half of the examined patients took statins recommended by cardiologists during cardiac treatment at the clinic. Among the patients receiving statins, women predominated, in the group of people who did not accept them - men. There is a low drug adherence detected in 2/3 of patients. But even in individuals taking statins, the average lipid level on average did not reach the target level.

80. Potentially inappropriate medication use in people with dementia in China and its associated factors

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Problem statement: Medicine use in people with dementia is challenging.

Objective: To examine the use of potentially inappropriate medicines that may affect cognition (PIMcog) or reduce the effectiveness of cholinesterase inhibitors (CEIs) in people with dementia.

Method: A cross-sectional study of people with dementia admitted to hospitals in Shandong, China between 31st Dec 2014 and 31st Dec 2016 was conducted. Patients' medical records were reviewed and their medicine use assessed. Polypharmacy was defined as use of five or more medicines in the same hospital episode. Concomitant use of CEIs with anticholinergic medicines was assessed using a list of medicines with clinically relevant anticholinergic property based on a consensus combination of different anticholinergic scales. Use of PIMcog was assessed against a list of PIMcog developed based on relevant Beers 2012 and STOPP 2014 criteria. Variables associated with having a PIMcog were assessed using a multiple logistic regression.

Results: Of the 453 participants with a mean age of 75.9 years, 98.7% used polypharmacy, 56.1% used a PIMcog, 30.7% used CEIs concomitantly with anticholinergics, and 32.2% used antipsychotics. PIMcog use was associated with higher number of comorbidities (adjusted OR 1.14; 95% CI: 1.04 - 1.33), higher number of other medicines prescribed rather than PIMcog (adjusted OR 1.07; 95% CI: 1.01 - 1.13) and types of prescribers.

Conclusions: Use of polypharmacy and medicines that can further impair cognition or reduce the effectiveness of CEIs in people with dementia was prevalent. Efforts to improve quality use of medicines for this population are warranted.

81. Situation analysis of carbapenem-resistant *Klebsiella pneumoniae* in Uttaradit Hospital between 2015 and 2017

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Problem statement: Carbapenem-Resistant *Klebsiella pneumoniae* (CR-KP) is an important pathogen of hospital acquired infection that is one of major global health problems. Carbapenems are the class of highly effective antimicrobials used for the treatment of multidrug-resistance. Therefore, it is an important challenge in health-care setting.

Objective: To study the prevalence and antimicrobial susceptibility of carbapenem-resistant *Klebsiella pneumoniae*.

Method: A retrospective study of CR-KP isolates from Uttaradit Hospital between 2015 and 2017. The prevalent rate and antimicrobial susceptibility profiles of CR-KP were analysed. Furthermore, 41 random sampling to detect carbapenemase genes by multiplex PCR.

Results: CR-KP isolates presented were 8.2% (114 out of 1,393 *K. pneumoniae* isolates) and most isolates were found in urine sample (41.2%) of patient at the medicine ward (58.8%). Most isolates (95.6%) resisted all 4 carbapenems (ertapenem, imipenem, meropenem, and doripenem) with high minimum inhibitory concentration (MIC) levels. Levels of MIC₅₀ and MIC₉₀ were similar at 28 mg/L for ertapenem and doripenem and at 216 mg/L for imipenem and meropenem, respectively. Approximately 20% CR-KP isolates were susceptible to fluoroquinolones with the high MIC₉₀ levels at 24 mg/L and 28 mg/L for ciprofloxacin and levofloxacin, respectively. Amikacin was the most active drug against CR-KP isolates (87.8%) with MIC₅₀ and MIC₉₀ levels at 62 mg/L and 264 mg/L, respectively. Thirty-nine out of 41 random sampling CR-KP isolates (95.1%) harboured carbapenemase genes and all isolates carried the New Delhi Metallo- β -lactamase (NDM) genes. Furthermore, the OXA-48 like carbapenemase genes and the mobile colistin resistant genes (*mcr1*) were also presented in 2 isolates and 1 isolate, respectively.

Conclusion: Carbapenemase and *mcr-1* genes were found in CR-KP isolates. These target genes were most mediated via plasmid that make easily transfer to other stains. Thus, it is necessary to monitor and identify for setting up the policy of rational drug use, prevention and control in the hospital.

82. Working with Governments and Communities in Africa: 30 years of Experience

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Addressing health care needs requires a multi-sectoral approach and more players beyond the government. The challenges to multisectoral action may be more acute in low-income and middle-income countries (LMICs) where institutions are frequently weak, and fragmentation, even within the health sector, can undermine coordination.

The faith-based sector plays a major role in the provision of health care in many low- and middle-income countries (LMICs) and often tries to bridge the gap. In sub-Saharan Africa between 40 – 60% of health care is provided by the faith-based sector for example. FBOs provide health care in often rural, hard to reach areas where government institutions are often lacking. The care they provide is viewed different from government institutions as most view their work as a calling with a deep sense of Christian values guiding their work.

The Ecumenical Pharmaceutical Network (EPN) is one example of a faith-based organization that works in communities and complements government services by providing pharmaceutical services that include quality-assured medicines and other medical products. EPN is a Christian non-profit organization of over 35 years, comprising of over 100 members of healthcare providers and professionals. EPN traces its beginnings in the Christian Medical Commission (CMC) of the World Council of Churches (WCC) who in 1981, assigned a pharmaceutical adviser to provide technical support in the area of pharmaceuticals to church health programmes in Africa. Later in 2000, the supported church health organizations jointly agreed to become a Network through membership. Its membership include 20 Church Health Associations (CHAs) and 23 Drug Supply Organizations (DSOs), 28 Church Health Institutions (CHIs), 31 Individual members and 11 independent organizations, making a total of 115 members spread over 37 countries.

Governments in LMICs face many challenges to meet the health care needs of their citizens and often rely on faith-based organizations, for-profit and other non-profit organizations. Working with governments poses its own challenges from political, economical and social challenges. FBOs have to navigate these challenges in their work. They understand their role, the need to work with governments who set the health agenda, the strength of working with communities and empowering them, the role of health information and navigating through often weak health systems.

83. How can we design effective 'wide' public engagement activities and evaluate their impact, to tackle widespread issues around medicine quality and use?

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Substandard (resulting from errors in manufacturing, transportation or storage) and falsified (deliberately or fraudulently misrepresenting their identity, composition or source) medicines and vaccines are a global problem, particularly affecting low- and mid-income countries (LMICs). The World Health Organisation estimates that ~10% of medicines in LMICs are substandard and falsified (SF), but the full extent of the problem remains unknown. They can cause serious side effects, prolong illness, contribute to antimicrobial resistance, put pressure on health care systems, and affect people's trust in medicines and health care.

There is a need for effective public engagement activities to raise awareness about SF medicines, and empower people to make informed decisions about their health care without discouraging them from taking good quality medicines. Meaningful engagement creates opportunities for dialogue and learning about the factors and constraints that affect people's decision-making.

'Deep' engagement activities such as advisory groups or participatory workshops can be very effective, but are also resource-intensive and usually confined to small participant numbers. 'Wide' engagement activities, such as exhibitions or social media, have the potential to reach larger audiences. However, interactions might be more transient and shallow, and need to pay attention to avoid the 'deficit model' mode, in which we wrongly assume that people would change their behaviour if they only knew all the facts.

How can we design and evaluate effective 'wide' engagement activities around medicine use that reach relevant larger audiences, are feasible and sustainable and at the same time provide a platform for people to share their perspectives and stories?

This 'Conversation Starter' aims to bring together conference attendees with a shared interest in public and community engagement, exchange ideas and create new collaborations. To stimulate discussion on this topic, we invite conference attendees to visit the exhibition 'What's in your medicines?' (Pharmacide Arts).

84. Legislating for universal access to medicines: A rights-based cross-national comparison of UHC laws in 16 countries

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Problem statement: Universal health coverage (UHC) aims to ensure that all people have access to health services including essential medicines without risking financial hardship. Yet, in many countries inadequate UHC fails to ensure universal access to medicines and protect the poor and vulnerable against catastrophic spending in the event of illness. A human rights approach to essential medicines in national UHC legislation could remedy these inequities.

Objective: This study aims to identify and compare legal texts from national UHC legislation that promote universal access to medicines in the legislation of 16 mostly low- and middle-income countries: Algeria, Chile, Colombia, Ghana, Indonesia, Jordan, Mexico, Morocco, Nigeria, Philippines, Rwanda, South Africa, Tanzania, Turkey, and Tunisia, Uruguay.

Method: The assessment tool was a policy checklist developed based on principles for medicines affordability and financing in WHO's policy guidelines for essential medicines and international human rights law. It consists of 12 principles in three domains: legal rights and obligations, good governance, and technical implementation. Relevant legislation was identified, mapped, collected, and independently assessed by multi-disciplinary, multi-lingual teams.

Results: Legal rights and State obligations towards medicines are frequently codified in UHC law, while most good governance principles are less common. Some technical implementation principles are frequently embedded in national UHC law (i.e. pooled contributions and financial coverage for the vulnerable), while others are scarce (i.e. sufficient government financing) or almost absent (i.e. seeking international assistance and cooperation). Generally, affluent countries tended to embed explicit rights and obligations with clear boundaries, and universal mechanisms for accountability and redress in domestic law.

Conclusion: This research presents lawmakers with a policy checklist that also serves as wish list for legal reform for access to medicines, and examples of legal texts. It may support the WHO Medicines & Health Products Strategic Programme 2016-2030 to develop model legislation for medicines reimbursement (goal 7).

85. Comparative analysis of medicines safety warnings issued by regulators in Australia, Canada, the United Kingdom and United States.

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Problem statement: Medicines regulators use post-market safety warnings to convey emergent risks of medicines. It is unknown how often regulators communicate this information, the characteristics of these warnings and whether different regulators communicate about the same medicines and risks (concordance).

Objective: To determine the frequency, characteristics and concordance of post-market warnings issued by regulators in Australia, Canada, the United Kingdom (UK) and the United States (US).

Method: This retrospective study analysed medicines safety warnings from the US, Canada, Australia and the UK from 2007 until 2016. A database of medicine safety warnings obtained from regulators' websites was developed and classified by communication type, drug or therapeutic group, and safety concern, using ATC and MedDRA codes. These warnings include drug safety alerts and bulletin articles posted on regulators' websites and letters sent to individual health professionals ('direct health professional communications'). Warnings identifying the same drug or therapeutic class and risk, were further combined into groups termed 'drug-risk issues' for comparisons between regulators.

Results: We identified 1441 warnings issued by the 4 regulators (Food & Drug Administration (US) = 382, Health Canada = 370, Medicines and Healthcare products Regulatory Agency (UK) = 469 Therapeutic Goods Administration (Australia) = 220). Single drugs received the most focus (n=1029) and alerts posted on the websites were the most common communication method (n=846). Of the 680 drug-risk issues, only 70 (10%) had a safety warning issued by all regulators where the medicine was approved.

Conclusion: In this analysis of post-market regulatory safety warnings from four countries, decisions to issue advisories varied greatly between regulators and could potentially lead to differences in safety information available to prescribers and patients.

86. Community empowerment for surveillance and management inappropriate drug of Tungkaoluang District, Roi Et Province

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Problem statement: Antibiotics, NSAIDs, YACHUD (3-5 drugs in the pack) have been sold in groceries. Easily accessible to these drugs were the cause of adverse drug reaction to people in community such as cushing's syndrome, allergic rash and drug resistance from unreasonable use of antibiotics. In 2018 Tungkaolung consumer protection network surveyed in 103 groceries in 5 Tambons of Tungkaoluang district, Roi Et. The finding showed drug distribution were antibiotics (12.5%), NSAIDs (7.5%) and YACHUD (3.8%)

Objective: The purpose of this study was to create awareness in drug used for network leader to integrate people network, local government organization and health team for community empowerment in managing the problems on inappropriate drugs.

Method: Community meeting in 5 Tambons. Participants in meeting platform were head of Local Administrative Organizations, headman village, health volunteers, grocery owner, and health team. Then workshop for community leaders about adverse product reaction from inappropriate drugs and health products.

Results: The community meeting had been agreement that grocery can only sale common household drugs. Team offered dangerous drugs banned for groceries and adverse product reaction poster. Prohibiting of drug car enter the village poster were posted at village entrance in all 51 villages in 5 Tambons. And set the role of the network sector to investigate inappropriate drug and health products sales in community. Drug distribution of each type of drug decreased from 2018 as antibiotics (8.2%), NSAIDs (2.7%) and YACHUD (0%)

Conclusion: After stakeholders' meeting in 5 Tambons, measures in surveillance and management of inappropriate drugs had been proposed and implemented, community can strengthen consumer protection from inappropriate drugs.

87. Consideration of patient need in opioid prescribing at hospital discharge.

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Problem statement: Opioid use is rising internationally, and opioid prescribing on discharge from hospital has been associated with long-term opioid use.

Objective: To quantify the prevalence of opioid prescribing on discharge, determine if opioid prescribing on discharge is associated with use in the 24 hours prior to discharge.

Method: A retrospective cross-sectional snapshot of opioid prescribing on discharge from a large metropolitan teaching hospital in Sydney Australia over a 48-hour period was conducted in September 2018. Opioid use, in oral Morphine Equivalent Daily Doses, was calculated for each patient 24 hours period prior to discharge and compared with opioid prescription on discharge. Multivariate linear regression used to explore the relationship between inpatient opioid use and discharge opioid prescribing.

Results: 145 patients were included in the study (mean age 53.9 years, 50% male). 22.1% were prescribed an opioid on discharge. Oxycodone was the most commonly prescribed discharge opioid (67.5%). 33.7% received paracetamol and 4.8% received a NSAID as a co-analgesic on discharge. 72.7% of patients who received an opioid 24 hours prior to discharge were prescribed an opioid. There was no association between age, gender, length of stay or surgical procedure and the prescription of an opioid on discharge ($p=0.289$). For those patients prescribed an opioid on discharge, after adjusting for age, gender, length of stay and surgical procedure, the quantity on discharge was approximately double that used prior to discharge ($\beta=2.08$, $p=0.007$).

Conclusion: One in four patients received an opioid on discharge. The quantities supplied on discharge were higher than those used prior to discharge and did not appear to consider individual need. Strategies to ensure patient pain needs are considered at the point of discharge are needed to promote rational opioid use and reduce long term use

88. Opioid use among Australian nursing home residents from 2014–2015

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Problem statement: Globally Opioid use among older adults has more than doubled over the past decade. Nursing home residents are high medications users and at high risk of medication related harm yet little is known about the trends in opioid use among nursing home populations.

Objective: To explore trends in opioid use among Australian nursing home residents from 2014-2015.

Method: A time series analysis, using pharmacy individual resident supply data for residents of 35 Australian nursing homes between April 2014 and March 2019 was conducted. The data source included all medications, both prescribed and over the counter, for all residents of the 35 nursing homes. The rate of opioid use per 100 residents was calculated quarterly for use of any opioid, as well as for individual generic agents. A generalized additive model with polynomial smoothing was fitted to the data. Polynomials of increasing order were fitted, until the model fit (R^2) was maximised. The rate of change, averaged across the entire time period, was determined using linear regression.

Results: The study cohort included 4759 nursing home residents throughout the 5-year period. The average resident age was 81.2 years and 61% of residents in the cohort were female. Opioid use increased by 2.77 residents per 100 residents throughout the study period, increasing from 29.6% of residents in 2014, to 73.9% in 2019. The increasing use was driven primarily by increasing use of oxycodone and morphine.

Conclusion: Opioid use among nursing home residents increased considerably between 2014 and 2019. The increase is primarily driven by increasing use of oxycodone and morphine. Future research to determine the appropriateness and harms associated with increasing opioid use in the vulnerable nursing home population is needed.

89. Patient information needs regarding opioid medications on discharge from hospital

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Problem statement: Understanding patient information needs regarding their medications is critical for provision of suitable medication related information to empower patients and support rational drug use yet despite little is known about the information needs of patients regarding opioid medications.

Objective: To explore surgical patient information needs regarding opioid medications supplied on discharge from hospital.

Method: A qualitative study of patient information needs was conducted among patients being discharged following surgery at a large metropolitan teaching hospital. Face to face semi structured interviews were conducted with patients being discharged on opioids. Interviews were conducted by a single trained researcher on the day of hospital discharge. Recruitment continued until data saturation, defined as three consecutive interviews with no new themes emerging, was reached. Thematic analysis of field codes was conducted.

Results: Saturation was reached after 13 interviews. Four main themes regarding opioid use were identified: self-efficacy, expectations regarding pain and medications, knowledge of opioids and information needs. In general patients were experiencing minimal pain on discharge yet most expected to be discharged with medications. Most patients had little understanding or knowledge of their medications. While patients raised concerns regarding adverse effects and addiction, they were unaware of what information might be useful when using opioids.

Conclusion: Understanding patients' medication information needs is critical for supporting patients using opioids on hospital discharge. Patients identified that information on opioid adverse effects and harms would be useful to support optimal opioid use. Evidence based strategies to build self-efficacy and empower patients on opioids in their medication management on hospital discharge are needed.

90. Cochrane Russia Wikipedia Initiative to empower Russian speaking community in evidence-informed improving use of medicines

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Problem statement: Improving use of medicine would only be possible if unbiased synthesized research-based information would be available to all. Plain language summaries (PLS) of Cochrane Reviews answer this challenge. Billions of people use Wikipedia as a source of medicine information. Russian-language Wikipedia is becoming increasingly important in Russian-speaking countries. In 2014, Cochrane concluded partnership with Wikipedia to support the exchange of relevant Cochrane data in Wikipedia health articles and develop strategies to keep Wikipedia content up-to-date, impartial, and high quality.

Objective: To initiate Cochrane Russia Wikipedia Initiative as means of empowering Russian-speaking people to improve the use of medicines through evidence-informed decisions.

Method: We used Cochrane evidence from systematic Reviews and their PLS translations into Russian for a limited number of the most commonly used medicines to ensure that the content within Russian-language Wikipedia medicine articles is accurate and unbiased and promotes quality use of medicine by health professionals and community. We created 9 new articles, including 4 general Cochrane, EVBRES, GRADE articles and improved over 58 Wikipedia articles, including on antimigraine (12), hypoglycemic (10), and nonsteroidal anti-inflammatory (NSAID) medicines (21). We used Cochrane Russia Wikipedia Initiative dashboard for page-views statistics to compare uptake before and after Cochranising Wikipedia articles.

Results: Compared to baseline, after editing, the number of NSAIDs page-views increased by 16% (total page-views (TPV) before/after): 2,521,104/2,969,658), antimigraine medicines - by 18% (729,777/897,554), and hypoglycemic drugs - by 15% (259,377/308,244). This was accompanied by nearly threefold increase of access to Cochrane PLS from Russia by numbers of users and new users from the start of the year 2019 to its third quarter.

Conclusion: We plan to expand penetration of Cochrane knowledge through Wikipedia articles and hope the Initiative will improve the quality of Russian-language Wikipedia and use of medicines to be measured in future.

91. Validity of the ISMP Medication Safety Self-Assessment® for long-term care tool in Australian nursing homes: a RAND appropriateness method study

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Problem statement: Medication safety is a fundamental part of rational medicine use. Multiple tools exist for assessing medication safety in the hospital setting but few exist for use in aged care homes. The Medication Safety Self-Assessment for long term care (MSSA-LTC) is routinely used to assess medication safety in Canadian aged care homes, yet the validity of this tool for use outside Canada is unknown.

Objective: To determine the validity of the Medication Safety Self-assessment for long term care for assessing medication safety culture in Australian nursing homes.

Methods: A modified 2-round RAND/UCLA Appropriateness Method was used to assess the validity of 133 criteria of MS-SA-LTC. The expert panel consisted of 9 registered nurses and pharmacists with expertise in medication management in the aged care setting. The panel rated each criterion separately for two attributes: importance for medication safety and applicability to the Australian context. For validity, criteria needed to be considered both important for medication safety and applicable to the Australian context.

Results: 108 of the 133 criteria were considered valid for use in the Australian nursing homes. Of those not considered valid, one criterion (using barcoding to identify residents) was not considered important for medication safety, and 25 criteria were not considered applicable to the Australian setting.

Conclusion: In general, the MSSA-LTC appears valid for assessing medication safety in Australian nursing homes. Future work to examine the feasibility and impact of the tool in the Australian context is needed.

92. Mothers' behaviour towards the adverse events of child's medications

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Problem statement: Adverse event associated with medicines is one of the factors which contribute to medication non-adherence. Children are more vulnerable to adverse drug events since their substantial changes in body proportion and composition occurring during the growth and development. Parents are more concern when child receiving medicines. It is important to explore their behaviour towards adverse events of child medications in order to identify issues and enhance the drug adherence to child medications.

Objective: To explore mothers' behaviour towards adverse events of child's medication.

Method: A qualitative study conducted in two Public Health Midwife (PHM) areas; Godakanda (East) and Uluvitike, Galle, Southern Province, Sri Lanka. Mothers who had children aged between one to five years were purposively selected for the study. Focus groups discussions (FGDs) were used to data collection. Thematic analysis was used to analyze data.

Results: Mothers behave different ways once they identify adverse events from child medication and those were including; wait and observing the unusual behavioural changes, immediately seek medical advice, return to the same physician with prescribed medicine, change the physician and seek advice for adverse events from people who are reliable. Communicate about previous side effects with physicians, communication about the child's weight with physicians, cross-checked prescribed doses with another reliable person, clarified about medication before administering, close observation when the child is on new drug therapy were some of the good practices which mothers followed to reduce and prevent adverse events. Reduce the prescribed dose of medication at the beginning or when after realizing symptoms are recovering and stop the drug therapy before completion of the prescribed duration which leads to non-adherence.

Conclusion: Mothers more concerned to prevent adverse drug events from their child medication. However, some of their practices lead to medication non-adherence.

93. Border Medicine: Border crossing and situation on problems of medicine and health products along Thailand's borders – the case of corticosteroids

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Problem statement: Border medicine is a new problem that has recently emerged and does not affect those living along the border only. Steroidal medicine, for instance, is currently a problem. At present, Thailand has strict control over it, but the medicine was smuggled across the border and entered into the center of local communities situated in an urban area.

Objective: This study shows some situations that reflect current problems on medicine and health products along the boundary line which is not limited to areas between two countries only.

Methodology: The study uses a qualitative methodology and collects data via documentary review, field records, in-depth interview and role plays by representatives. The data underwent triangulation validation before passing content and thematic analyses. They were also discussed from time to time by specialists between February, 2017 and September, 2019.

Results: The situation on border medicine problems is new and complicated owing to socio-cultural difference and economic and geographical diversities. The problems come with health problems along the border and their mobility results from people travelling from the border to an urban center where jobs and income are better. Medicine circulation also faces with socio-economic context and various people. As a result, definition, regulation and enforcement as well as reasons and objectives of medicine use by people differ according to the context, as well. Steroids found in a set of medicine of military doctors crossed the border in a container with Chinese labels. They were found much frequently during the period when the Thai Public Health Ministry was strict with an influx of steroidal medicine in the country. The medicine was smuggled across the border throughout Thailand, such as in Chiang Rai, Nong Khai, Muk Da Han and Ubol Ratchathani. It was also found in the center of Chiang Mai, Prachuab Khirikhan, Khon Kaen and was illegally combined with other drug used in the south of Thailand, such as in Songkhla and Yala.

People living along the border valued and defined steroids as a magical medicine which can ward off some diseases 'miraculously'. When they enter into an urban area in the form of a medicine set, the price will become higher whereas the value is merely a pharmaceutical object for treatment and relief of pain and sickness only. Along the border, steroids were classified as magical medicines and were given a 'license' which permits distribution, selling and forwarding without any law enforcement. However, such situation does not take place in urban areas, so steroids are secretly distributed and forwarded. Besides, strict law enforcement against a group of risky medicine related to steroids as 'a factor' that affects its use along the border.

Conclusion: The case of steroidal medicine and health products along the border does not limited only to the boundary line between two nations. It also comes along with other medicine products and users living in different areas. Consequently, definition as well as border crossing, law and regulation enforcement and medical knowledge vary according to the route where medicine is transported

94. Domperidone use for breast milk supply: Does benefit outweigh harm?

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Problem statement: The World Health Organization recommends exclusive breastfeeding as healthiest for babies up to six months of age. However, breastfeeding difficulties are common. Domperidone is often used 'off-label' to stimulate breast milk supply. In 2011, 19% of new mothers in British Columbia, Canada, were prescribed domperidone, mostly after full-term births. There have been clinical trials in Thailand, India, Pakistan and Iran, but the extent of postpartum use in clinical care is unknown outside of Canada, Australia and the UK. Domperidone is subject to regulatory warnings due to QT prolongation, cardiac arrhythmia and sudden death, but there is controversy over the relevance of these risks to reproductive-aged women.

Objectives:

1. To describe the evidence on benefits and harms of domperidone use in new mothers and their infants;
2. To promote evidence-based shared decision-making for breastfeeding difficulties.

Methods: We conducted a systematic review on the benefits and harms of domperidone for lactation. For efficacy and frequent harms, we included randomized controlled trials (RCTs) comparing domperidone to placebo or other treatments following pre-term or full term births. For cardiac harms, RCTs and observational studies were eligible if they included women of reproductive age and/or infants < 2 years.

Results: 16 efficacy RCTs were identified, 10 pre-term. On average, there is a modest (83 ml/day) increase in milk production over placebo after pre-term birth but no evidence of infant or maternal health benefits or improved breastfeeding rates. There is insufficient RCT evidence to support domperidone use following full-term births. Based on observational data, risk of arrhythmia extends to women of reproductive age.

Conclusion: Most difficulties with milk supply, especially following full-term birth, can be addressed through supportive non-drug interventions. There is no clear evidence that benefits of domperidone use outweigh harms. More judicious prescribing, shared informed decision-making, and access to lactation support are needed.

95. People improving the use of medicines: What we know & don't know (Welcome session)

Arturo Quizhpe Peralta

(NB: Google translation) Unos meses atrás, conversamos con Mary Murray, intercambiamos ideas, discutimos conceptos, trazamos caminos, elucubramos posibilidades, con mucho optimismo y alegría, reímos mucho. Después, vino la primera reunión del comité organizador; energía, imaginación y fraternidad completa; ideas, propuestas y sueños abundantes; financiamiento casi ausente.

A few months ago, I talked with Mary Murray. We exchanged ideas, we discussed concepts, we traced paths, we discovered possibilities, we fed our dreams with optimism and joy, we laughed a lot. Then came the first meeting of the ISIUM organizing committee; energy, imagination and complete fraternity; abundant ideas, proposals and dreams; Almost absent financing.

Organizar una conferencia internacional sobre empoderamiento popular para mejorar el uso de los medicamentos, de por sí es una tarea difícil, constituyendo un complejo desafío social, ético y científico, pero cuando los recursos son muy limitados o no existentes se convierte en un sueño.

Organizing an international conference on popular empowerment to improve the use of medicines is itself a difficult task, constituting a complex social, ethical and scientific challenge, but when resources are very limited or non-existent, it becomes a dream.

Aprender cosas nuevas, buscar respuestas a las interrogantes de nuestro cotidiano caminar es también un desafío personal y colectivo. La primera reunión del comité organizador, marcó el inicio de la conferencia. Solidaridad y entusiasmo contagioso, energía femenina, sabiduría de abuelas y abuelos presentes y no presentes, vida vivida en distintas latitudes y alegría colectiva, caracterizaron el ambiente, y auguraron el éxito de esta nuestra la conferencia, la conferencia de la gente que buscar aprender, organizarse, y empoderar. Con personas que aprendieron a mirarse y amar lo que son, qué hace porque si pueden hacer lo que aman, lo que les apasiona, proyectos como esta conferencia que hoy abrimos serán siempre posible.

Learning new things, finding answers to the questions of our daily life is also a personal and collective challenge. The first meeting of the organizing committee marked the beginning of the conference. Solidarity and contagious enthusiasm, feminine energy, wisdom of grandmothers and grandparents present and not present, life lived in different latitudes and collective joy, characterized the environment, and predicted the success of this our conference, the conference of people who seek to learn, get organized and empower. With people who learned to look at each other and love what they are, what they do because if they can do what they love, what they are passionate about, projects like this conference that we open today will always be possible.

'Mucha gente pequeña, en lugares pequeños, haciendo cosas pequeñas, puede cambiar el mundo', decía el poeta uruguayo Eduardo Galeano, para referirse a los soñadores que ayer, hoy y siempre luchan por un mundo mejor. Gente pequeña: es la que cuida la salud de la Madre Tierra para que todos disfrutemos de plenitud de vida; la que hace posible nuestra presencia en Bangkok; que promueve la salud de los ecosistemas y trabaja todos los días por la preservación de antibióticos efectivos para las presentes y futuras generaciones; los niños y niñas que comprenden el rol de las bacterias en la fertilidad del suelo a través de cultivar su propia huerta; el niño que acaricia un animal dormido; los académicos que han llegado a la conferencia superando todas las barreras y dificultades, que harán luego todo lo imposible por empoderar a la gente para el mejoramiento del uso de los medicamentos,

'Many small people, in small places, doing small things, can change the world,' said Uruguayan poet Eduardo Galeano, to refer to dreamers who yesterday, today and always fight for a better world. Small people: the one that cares for the health of Mother Earth so that we all enjoy fullness of life; the one that makes our presence in Bangkok possible; that promotes the

health of ecosystems and works every day for the preservation of effective antibiotics for present and future generations; children who understand the role of bacteria in soil fertility through cultivating their own garden; the child that caresses a sleeping animal; academics who have reached the conference overcoming all barriers and difficulties, who will then do everything possible to empower people to improve the use of medications,

Gente pequeña, haciendo cosas pequeñas, que sumadas toman una dimensión global, son: Mary Murray (Australia/Sweden), Mary Hemming (Australia), Kathleen Holloway (United Kingdom); „Eva Ombaka, Niyada ang,Natalia Cebotarenco,Nucharin Tomacha, Natalia Cebotarenco (Moldova), Niyada Kiatying-Angsulee (Thailand) Eva Ombaka (Kenya), Debra Rowett (Australia), and Budiono Santoso (Indonesia).

Small people, doing small things, which together take a global dimension, are: Mary Murray (Australia / Sweden), Mary Hemming (Australia), Niyada Kiatying-Angsulee (Thailand), Eva Ombaka (Kenya), Kathleen Holloway (United Kingdom Nucharin Tomacha (Thailand), Natalia Cebotarenco (Moldova), Debra Rowett (Australia), and Budiono Santoso (Indonesia).

Este grupo de personas, convirtió su sueño en proyecto factible, realizables; decidió: empoderar a las personas sencillas de a pie, recuperar y visibilizar la sabiduría y energía oculta en el seno de las comunidades, reconocer que la salud solo es posible con dignidad y libertad; con la participación, organización y empoderamiento de la comunidad.

This group of people turned their dream into a feasible, achievable project; They decided to empower people to walk together , to recover and make visible the wisdom and hidden energy within communities, to recognize that health is only possible with dignity and freedom; with the participation, organization and empowerment of the community.

No me voy referir al programa sino a la realidad misma de la conferencia, que ustedes están ya viviendo, sintiendo, pensando, comprendiendo y comprometiéndose. El empoderamiento centrado en la comunidad para mejorar el uso de los medicamentos y de la medicina, requiere del esfuerzo y compromiso de todos ustedes.

I am not going to refer to the program but to the reality of the conference, which you are already living, feeling, thinking, understanding and committing to. Community-centered empowerment to improve the use of medicines and medicine requires the effort and commitment of all of you.

Esta conferencia es un acto de siembra generosa, un trabajo silencioso a deshoras realizado por el comité organizador y todos ustedes. Ahora, para que estas semillas puedan florecer y multiplicarse en nuevos proyectos en cada una de sus comunidades científicas, sociales, gremiales, requiere de vuestra decisión, entusiasmo y compromiso.

This conference is an act of generous planting, a silent work after all done by the organizing committee and all of you. Now, so that these seeds can flourish and multiply in new projects in each of their scientific, social, and work associations, it requires your decision, enthusiasm and commitment.

Podríamos decir, parafraseando a Facundo Cabral, cantautor argentino, esta conferencia es una oportunidad para aprender, compartir, general nuevos proyectos, visibilizar nuevas opciones para facilitar el empoderamiento de la comunidad y de la sociedad, es una oportunidad también para 'cantar, para reír, para volver a ser feliz' Bienvenidos, a dialogar, aprender, empoderar, soñar, reir Facundo Cabral, Este es un Nuevo Día'

We could say, paraphrasing Facundo Cabral, Argentine singer-songwriter, this conference is an opportunity to learn, share, generate new projects, make visible new options to facilitate the empowerment of the community and society, it is also an opportunity to 'sing, to laugh, to be happy again'

96. Mobilizing, organizing, empowering communities

Arturo Quizhpe Peralta

Director of ReAct Latinoamerica; Former Dean of the Faculty of Medical Sciences, University of Cuenca; former coordinator of the People's Health Movement (PHM), Latinamerica

The problem: We live an aggressive process of medicalization of life. Power designs human existence. Medicine invades aspects of society and life. Normal situations become pathological. Healthy people are transformed into sick people. Beauty, grief, adolescence, old age, menopause, sadness, hair loss, tiredness, hyperactivity, and certain hobbies all fall into the medical agenda. Death has also lost its human dimension.

In health systems, the consequences are expressed in increasing demand for services, costs of care, frustration of staff, iatrogenesis, over diagnoses, treatments, excessive medication, and deterioration in the quality of care.

What can we do to change this situation?

Walking on your own feet, building the well-being of everyone, promoting autonomy, health, and human dignity, are the essence of social empowerment. People's health is determined much more by politics and the concentration of power than by medical care and prevention.

On the contrary, authoritarian models paralyze community dynamics and stimulate dependence. Empowerment and community participation overcome fragmented interventions, seek harmony between human beings and nature, promote the preservation of different life forms, seek to realize the fullness of life.

In this context, social and popular empowerment for improvement in the use of medicines requires a strategy that recovers the vision of the native peoples and the cooperation between the academy, the community and the health professionals. It requires community participation, mobilization and organization. It requires people's participation in decisions to solve the problems that affect their lives throughout the entire process, planning, execution, and evaluation.

Some practical examples of joint work between academia, social movements, professionals from various areas of knowledge, environmental activists, artists and native peoples to face antibiotic resistance in Latin America are presented through projects promoted by ReAct. Emphasis is placed on multidisciplinary, multilateral, holistic approaches and the vision of One Health, as requirements for a real process of social empowerment that can improve the use of medicines.

97. Analysis of drugs availability at community health center (Puskesmas) in the era of national health insurance and the factors that influence

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Problem statement: Puskesmas is one of the first level of health facilities that provides health services. Therefore, the quality of drugs services there must also be good. The availability of drugs at Puskesmas in the era of National Health Insurance (JKN) becomes the priority aspect to create the quality of pharmaceutical services. Level of drugs availability is influenced by various factors, one of which is the characteristic of Puskesmas.

Objective: To analyze level of drugs availability at the Puskesmas and identify factors that influence the availability of drugs. This study is conducted because there are no other studies that examined the relationship between drugs availability and the characteristics of Community Health Center completely.

Methods: This analytical descriptive study was conducted in 12 Puskesmas-es in Yogyakarta Municipality, Sleman and Bantul Regencies that were selected by convenience sampling. Data was collected retrospectively through document tracking in 2017. The variable study is the level of drugs availability and factors that influence it, namely the characteristics of the Puskesmas (number of Pharmacists, number of Pharmaceutical Technical Personnel (Technical pharmacy), accreditation, the presence/absence of Supporting Puskesmas and Inpatient Services). Data is analyzed statistically and descriptively using Mann-Whitney test.

Results: From the results obtained, it can be seen that among the three districts the results did not differ much. The availability of drugs in the three districts is included in the excess category (> 18 months). Availability of drugs in the Yogyakarta Municipality Health Centers, Sleman Regency and Bantul Regency is in a row, namely $23,48 \pm 4,03$ months; $18,36 \pm 1,01$ months; and $25,82 \pm 8,89$ months. The best level of drugs availability is at the Sleman Regency Puskesmases. This shows that the management of drugs has not run efficiently. From the result of this study the availability of drugs is influenced by the location of Puskesmas and the presence/absence of Supporting Community Health Center (Pustu), but not influenced by the characteristics of the Puskesmas such as the number of Pharmacists, number of Technical pharmacy, accreditation, and Inpatient services.

Conclusions: that drugs management in Puskesmas is not efficient enough. Number of pharmacists, number of Technical pharmacy, accreditation, and Inpatient service factors are not affected by drugs availability. But, location factor and presence or absent of Supporting Puskesmas influence toward the drugs availability.

98. Comparison of the recommendations on paracetamol and ibuprofen prescribing in children In Moldova with who and Australian Therapeutic Guidelines.

Carolina Romasco

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Problem statement: Ibuprofen and Paracetamol are two of the most widely used medicines for pain and fever relieve in children according to the recommendation of WHO (Essential Medicines List for Children, 2019). Paracetamol is approved for use from one month of age. It can be used to treat mild to moderate pain and fever in children. Ibuprofen is one of the most common non-steroidal anti-inflammatories (NSAIDs) used in children.

Objective: To evaluate the Therapeutic Guidelines (TG)s and the Insurance List for children (ILC) in Moldova in the context of Paracetamol and ibuprofen.

Method: Comparison analyze of TGs (PCN-50, 2017) and ILC of Moldova (2019) to treat virus infection in children with WHO and Australian Therapeutic Guidelines (ATGs).

Result: According to WHO and ATGs, Paracetamol and Ibuprofen are safe and effective forms of analgesia and fever treatment in children. Paracetamol is generally the preferred first-line drug due to fewer adverse effects. In Moldova, the most often recommended medicine in children in TGs is Sol. Metamizole 50%, despite the prohibition of its use in developed countries for more than 40 years. Paracetamol has unpredictable absorption with rectal administration and this route is no longer recommended in children, but in Moldova, Paracetamol is included in three suppositories forms in ILC. No reasons for the inclusion of seventeen various dosage forms of ibuprofen for children in the ILC (WHO – one oral liquid and three tablets forms). The lack of recommendations for maximum doses and frequency of administration may explain the low commitment of doctors to prescribe Paracetamol in Moldova in comparison to ATGs recommendations: maximum 4 doses (60 mg/kg) per day for up to 48 hours. The absence of an injectable form of Paracetamol in Moldova leads to the use of other, less safe NSAIDs in hospital settings, unlike ATGs recommendations.

Conclusion: The TG and ILC in Moldova should be revised according to the evidence-based sources of information.

99. Achieving quality use of medicines: It's about the person, not about the medicine

Libby Roughead

Quality Use of Medicines and Pharmacy Research Centre, School of Pharmacy and Medical Sciences, University of South Australia

This presentation will explore the multifactorial nature of ill-health and discuss how developing a multifactorial perspective of health can assist our efforts to improve use of medicines. The presentation will include a case study of the person in chronic pain and the challenge of improving opioid use in these circumstances. The discussion aims to highlight the importance of integrating biomedical, psychological, social and environmental contributors to ill health in our efforts to improve use of medicines. Discussion will focus on the limitations of focusing solely on medicine use as the problem, and explore, through the lens of social cognitive theory, how a patient centred approach to recovery could be used to support improvements in medicine use.

100. Initiatives to improve the use of medicines: Australia's experience

Libby Roughead

School of Pharmacy and Medical Sciences, University of South Australia

Australia established a national response to achieve quality use of medicines in the early 1990's in response to consumer advocacy, research and national inquiries highlighting the extent of problems with medicines. The Ministry of Health established a multidisciplinary expert advisory group to create a national response to overcome problems with medicines. At the time, Australia had limited resources to support quality use of medicines, which included antibiotic guidelines, the national therapeutics bulletin, known as Australian Prescriber, and the Adverse Drug Reaction Advisory Committee Bulletin. The expert advisory group responded to the challenge, creating a stakeholder agreed national strategy that included the definition of quality use of medicines, principles for working and the resources required to improve use of medicines, as well as a national evaluation framework. There were two other notable developments established by the government that supported the goal. The first was a representative stakeholder advisory committee that was able to provide agreed advice on policy issues concerning implementation, barriers and enablers to actions necessary to support quality use of medicines. The second was a funding program, enabling development, testing and trialling of the many interventions and strategies required nationally and locally. Almost thirty years later and Australia has many national programs with widespread reach across health care, including the Australian Medicines Handbook, Therapeutic Guidelines for all the major conditions, consumer medicines information, medication management review

services for primary and residential care, medication reconciliation services, and NPS Medicine Wise, which provides national services and interventions including audit and feedback and academic detailing across the country. Even with the development of all these resources, problems with medicines are still frequent in Australia. This presentation will explore the major challenges, barriers and enablers to achieving quality use of medicines confronting Australia today.

101. Dispensing practice and controlling system of antibiotics among medicine retailer in Butwal and Bhairawaha town—an intervention study

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Problem statement: In Nepal, antibiotics are prescription only medicine by act but it is not been practiced. Majority of Nepalese population resides in rural area where community pharmacy is the first point of contact. Situation of antibiotic use and resistance in community is unknown.

Objective: Aimed to study dispensing practice and controlling system of antibiotic among medicine retailer in Butwal and Bhairahawa two towns of Nepal.

Method: Mixture of quantitative and qualitative study designs were used based on conceptual framework of Donabedian model of quality of medical care. At first, simulated patient survey with a fictitious case of common cold was conducted among calculated sample of randomly selected community pharmacy of two towns. Secondly, educational intervention was conducted for community retailer of Butwal. Latter, post intervention simulated patient survey and semi-structured interview were conducted. Crosstab chi-square and Mc. Nemar test were used. Ethical Approval was taken from Nepal Health Research Council.

Result: Commonly dispensed medicines in Butwal before and intervention were antihistamine 30.13% and 30.32%, Analgesic 21.23%, and 28.68% (P=0.793) ANS drugs 19.17% and 22.95% (P=0.051), Antibiotics 13.01% and 12.29% (P=0.131) Similarly, commonly dispensed medicine in Bhairahawa pre and post intervention were antihistamines 24.40% and 26.97% (P=0.530), Analgesic 23.62% and 24.34% (P=0.007), ANS drugs 19.68% and 18.42% (P=0.199), antibiotics 8.66% and 14.47% (P=0.029). Average numbers of antibiotic per prescription were found 0.59, 0.34 and 0.46, 0.68 in pre-intervention and post intervention study in Butwal and Bhairahawa respectively. None of the patient receives complete drug information of dispensed antibiotic. Structure (personnel, policy, guideline and surveillance) and process (knowledge, attitude, process of antimicrobial checking) were either non existence or poor.

Conclusion: Conclusively, antibiotics are easily available as OTC medication. Educational intervention alone is not sufficient to change the practice. Strict policy enforcement along with education may help to bring change.

102. Pilot study on the effect of 'Rational Drug Use Clinic Project' on drug utilization in a community care clinic in Bangkok

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Problem statement: 'The Network of Rational Drug Use Clinic (RDU Clinic)' campaign implemented in March 2015 to promote rational drug use in community caring clinic operated under National Health Security Office (NHSO) in Bangkok. The intervention composed of various measures such as education, managerial intervention, regulatory, and financial incentive. The purpose of the project is to evaluate and monitor the program effectiveness.

Objective: To propose the pilot data on the effects of the intervention on the quality of drug use in one of community care clinic in Bangkok.

Method: Quasi-experimental study using interrupted time series analysis was applied to compare the outcome variables before and after intervention. The aggregated weekly prescriptions data from one clinic was extract from NHSO medical claim database between October 2015 to November 2016 as pilot data. The period from week number 1 to 26 was treated as pre-intervention, while the data from week number 27 to 52 was treated as post-intervention. Auto Regressive Integrated Moving Average (ARIMA) model was developed to estimate the level and trend in the pre-intervention data segment compare with the estimated changes in level and trend in post-intervention.

Results: Five indicators are selected as outcome of interest for ARIMA model; 1) antibiotics utilization, 2) percentage of encounters with antibiotics prescribed, 3) percentage of prescriptions of antibiotics in accordance with clinical guidelines, 4) average medicines cost per encounter, and 5) percentage of drug costs spent on antibiotics. All models provide MA model parameter. There is no statistically significant difference on coefficient before and after the intervention in any model.

Conclusion: The estimated model suggested that there are no changes in outcome trend before and after the intervention. The assumption of the pre-intervention period may not provide the real effect on the intervention. It required more observations to provide robust data. The pilot data provide only the rough estimation for future model development.

103. The role of problem based learning in improving the effectiveness of antibiotic use

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Problem statement: The problem of rational use of medicines is relevant for practical health care. Nowadays very important is the effective and safe use of antibacterial agents.

Objective: To identify the pharmacological groups of drugs that causes the significant difficulties in prescribing and to suggest ways to solve this problem.

Method: The study was conducted by anonymous survey among 320 different medical specialists (general practitioners, cardiologists, surgeons, obstetrician-gynecologists) in Almaty and statistic analysis of results.

Results: It was revealed that antibiotics are used quite often. 62% of respondents noted that this group of drugs causes the significant difficulty in choosing in specific clinical situations. 78% of doctors noted that they focus mainly on drugs used in accordance with their specialty. 95% of respondents noted the importance of continuing education on the rational use of antibiotics. A key component of solving this problem is the continuity in teaching the rational use of antibiotics during both graduate and postgraduate level of education.

Therefore, we have updated educational programs in pharmacology for bachelors. In particular, when studying the section on antibacterial drugs, the training has a clinical focus: students are studied through solving clinical cases in which all factors affecting the rational choice of antibiotics are reflected. A training computer program has also been developed to assess the correctness of the choice of the drug and its dosage regimen taking into account the etiological factor, age, pharmacological characteristics of the drugs etc. This program can be used to train practicing doctors.

Conclusion: Thus, the problem of rational use of antibiotics is relevant, updating the training programs at all levels of doctors' training using computer technology will help to improve the skills of choosing medicines.

104. 'Lived' experiences in 'teaching' medical students to use medicines rationally

Pathiyil Ravi Shankar

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Medical students as future doctors have an important role to play in the rational use of medicines (RUM). I have been involved in teaching RUM for nearly two decades at medical schools in Nepal and the Caribbean. In this session I will talk about my experiences and challenges and aim to create linkages with other educators involved/interested in teaching students about RUM.

Among the areas we focused on were: selecting medicines using objective criteria, understanding and responding to pharmaceutical promotion, counseling patients regarding the use of medicines, critically appraising information sources and analyzing prescribing using simple indicators. 'Guide to good prescribing', 'Teachers guide to good prescribing', 'How to investigate drug use in health facilities', 'Ethical criteria for medicinal drug promotion' by the World Health Organization and the Health Action International publication 'Understanding and responding to pharmaceutical promotion' were the major textbooks.

Small group sessions were conducted on personal drug selection, critical analysis of drug advertisements and promotional materials, ethical issues in drug promotion, disease mongering, and analysis of prescriptions among others. The sessions were started at Manipal College of Medical Sciences in 2001 and conducted during pharmacology small group sessions during the first two years of the course. They were also assessed as a component of the pharmacology practical exam. Similar sessions were also initiated at KIST Medical College in 2008 and at Xavier University in 2013 and American International Medical University in 2017.

Some clinician educators were involved in certain sessions. I would like to obtain information regarding similar sessions conducted by other educators and inputs regarding making the sessions more effective. The possibility of conducting similar sessions during the clinical years and before the start of internship training can be discussed. Prescribing skills should be considered as a component of licensing exams and continuing professional education for health professionals.

105. Communicating health messages: Medicine and mythology

Satya Sivaraman

Communication Advisor, REACT Asia Pacific

Problem statement: Among the interventions often suggested for lowering antimicrobial use in different settings are increased regulation of antibiotic sales and increased public awareness. Behind these suggestions is the assumption that efficient implementation of appropriate regulations, training and adequate dissemination of information will be sufficient to achieve the objective of lowering antibiotic use. However, worldwide there are many examples of such interventions failing to make any impact or certainly being well below optimum in their results, because of which antibiotic use – even where not needed- continues to increase.

Objective: Finding a broader framework of health and medicine and also communication needed, to ensure health communication activities are more effective.

Method: Desktop review of studies in philosophy of medicine, medical anthropology and cultural studies that give insights into the different factors that shape human health-seeking behavior.

Results: Health seeking behavior is shaped by a variety of factors, including faith, cultural traditions, economic and social considerations and choices are made based on constantly shifting priorities of individuals and their contexts.

Conclusion: Insights and information into the specific cultural, social and very importantly anthropological backdrop in which such interventions are being made are critical to designing appropriate health communication activities and messages.

106. Descriptive analysis on case for chronic obstructive pyelonephritis at smallest provincial level of Mongolia

Otgonbyamba Sukhee, Zuzaan Zulzaga

Problem: There is an increasing number of patients diagnosed with ICD-10 classification N11 (Chronic tubulo-interstitial nephritis) in Tarialan soum (smallest administrative unit, located near with 4 seasonal snowy mountains in Uvs province, Western Mongolia). The soum has a population of 3873 in 904 households, at 1600-4200 m above sea level, with extreme climate.

Objective: The objective of this descriptive analysis was to study interprofessional collaboration between pharmacist and doctors to start reliable forecast for essential medicines for the common disease.

Method: Patient history book was used for gathering data of diseases with code N11 for the 18 patients diagnosed so far in 2019. ABC analysis was performed on all medicines prescribed for the 18 patients. Comparison was done between prescribed medicines and the official treatment guideline.

Results: The soum doctors diagnosed increasing numbers of the disease in each year: In 2016- total 38 cases, 9 male/29 female; In 2017-49 cases, 12 male/37 female; In 2018 – 69 cases, 27 male/42 female. Until June, 18 patients were diagnosed in 2019. Ampicillin 1g injection and Cefazolin 1g injection were most used essential medicines for the treatment of N11. 7 patients used 111 flacons of ampicillin 1g injection and 9 used 148 flacons of cefazolin 1g injection. Ofloxacin, Ciprofloxacin, Pefloxacin, Oxolinic acid, Lactic acid bacillus, folic acid and Vit B12 or Nalidixic acid mentioned in the standard treatment guideline, were not prescribed.

Conclusion: Soum doctors did not follow standard treatment guideline for their prescribing practice.

No long-term treatments were prescribed to prevent recurrence. The study helped the pharmacist to follow up medication adherence of patients as they stopped medication after the acute phase of the disease. More research is needed as to the high incidence of the disease. Antibiotic resistance test and other tests might also be needed for treatment options, as the current diagnosis based on urine test and anamnesis only.

107. Antibiotic SMART use program in Thailand

Nithima Sumpradit

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The Antibiotics Smart Use program (ASU) was introduced in Thailand in 2007 as a model to promote the rational use of medicines and counteract antimicrobial resistance. The guiding principle of ASU is that antibiotics should not be used to treat non-bacterial infections. This notion derives from a fundamental precept of the rational use of medicines, i.e., medicines (especially antibiotics) should be used appropriately, in accordance with clinical needs. The ASU focuses on reducing unnecessary use of antibiotics in three self-limited diseases such as upper respiratory infection, acute diarrhea and simple wound with the ultimate goal for creating new social norms on antibiotic use in Thailand. The presentation focuses on the development of ASU, the scaling up ASU toward sustainability and the contributions of ASU for rational use of medicines in Thailand.

108. Efforts and progress of improvement of AB use and containment of AMR in China

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Key contents: A comprehensive review of the efforts of the China in improving human and animal antimicrobials use, controlling hospital acquired infection, and containment of both human and animal origin antimicrobial resistance. The review covers the policy framework of the National Action Plan for AMR containment (2016-2020), joint working mechanism across different government agencies, national targets set, and the monitoring & evaluation of progress made during the past years.

For AB human use, HAI and AMR:

Regulation of human AB use in hospitals:

A series of targets were set for 2020; a national monitoring network was established since 2003, and there were 351/2340 tertiary/secondary hospitals as core members, 2860/10762 tertiary/secondary hospitals in total covered by the network; the proportion of outpatients using antimicrobials in hospitals continuously dropped from 16.2% in 2011 to 7.9% in 2018 (2020 target <20%); the proportion of inpatients using antimicrobials in hospitals continuously dropped from 59.4% in 2011 to 36.4% in 2018 (2020 target <60%); the consumption density of antimicrobials continuously dropped from 77.6 to 45.9 DDD/100 inpatient days (2020 target <40 DDD/100 inpatient days).

2. Controlling hospital acquired infections:

1990 tertiary & secondary hospitals participated the national point of prevalence survey every two years, the infection rate continuously dropped from 3.22% in 2011 to 1.98 in 2018.

3. Containment of human origin antimicrobial resistance:

1307(26%)/10762 (74%) tertiary/secondary hospitals participated the national monitoring network, the isolation rates of key resistant microbes were continuously dropped from 2013 to 2018, 35.7% to 30.9% for methicillin-resistant *Staphylococcus aureus* (MRSA), 5.5% to 1.8% for penicillin-resistant *Streptococcus pneumoniae* (PRSP), 66.6% to 56.6% for cefotaxime drug resistance of *Escherichia coli* (CTX-R-ECO). However, the isolate rate of carbon penicillium vinyl resistant *Klebsiella pneumoniae* continuously increased from 4.9% to 10.1%.

For AB animal use and animal origin AMR:

1. Regulation of veterinary medicines use: the policy frameworks of the National Action Plan of strengthening veterinary medicines regulation (2015-2019) and the Work plan of veterinary antimicrobials consumption reduction (2018-2021) were reviewed. A series of targets were set for the planned period, a monitoring of veterinary antimicrobials production and consumption, as well as the residue of veterinary antimicrobials in animal and animal products were conducted.

Containment of animal origin AMR: the National Action Plan for animal origin AMR containment

(2017-2020). The national monitoring of animal origin AMR of 5 major microbes and 16 antibiotics was conducted since 2008 in 29 provinces by 10 national labs.

109. Public knowledge and awareness towards antibiotics usage in Yogyakarta: A cross sectional survey

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Problem statement: Irrational use of antibiotics is a public health problem. To appropriately address the magnitude of antibiotic misuse, it is essential to understand the main factors driving irrational use of antibiotics.

Objective: To evaluate knowledge and awareness of antibiotics, and to examine its' associated factors.

Methods: We conducted a cross sectional survey. The questionnaire was adapted from WHO Multi-country survey. Adults aged 18 years old and were receiving prescription from eight outpatient clinics and pharmacies in Yogyakarta province completed the survey. The questionnaire was consisted of three sections, i.e. socio-demographic factors, knowledge of antibiotics, and experiences in using antibiotics. Scores on questions and data were presented descriptively and analyzed using logistic regression to evaluate the influence of variables on knowledge of antibiotics.

Results: Out of 268 respondents, a cumulative 76% of them used antibiotics in last six months. Majority of respondents (58%) had low level knowledge on antibiotic use and awareness, and incorrectly identified that cold and cough are treatable with antibiotics (75%). Interestingly, 71% of participants agreed that internet is a major source of information on antibiotics (71%), while only 58% and 45% of respondents see pharmacists and medical professionals respectively. The antibiotics were received from prescription (79%) and 70% of respondents completed the full course of antibiotics prescribed, but only 32% of them became more cautious about antibiotic use. We found the highest association between gender, age, education level, with the knowledge of antibiotics.

Conclusion: The overall level of knowledge and awareness on antibiotics use among residents in Yogyakarta is low. This mandates public health awareness intervention programs to be implemented on the use of antibiotics.

110. Call for systems approach in promoting rational use of medicines: Lesson learned from zooming out irrational antimicrobial use in Thailand

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Problem statement: For decades, Thailand has been promoting rational use of medicines and moving towards the 'Rational Drug Use (RDU) country' policy. However, irrational use of medicines still be an ongoing problem. Classic and significant examples are irrational use of antibiotics in community and multidrug-resistant tuberculosis (MDR-TB). Recent studies suggested that a single and universal intervention is deficient to solve these complex problems.

Objective: To reflect the complexity systems surrounding a drug use problem that challenges the national campaign in promoting RDU.

Method: Two qualitative studies employing Ecological model of health and systems complexity framework to explore how irrational use of antibiotics and MDR-TB were intertwined with multi-level factors, ranging from individual, family, community to national policy were analyzed. The 2 studies were 1) antibiotic use among ethnic groups living in Maechaem, a remote district of Chiang Mai, and 2) medical non-adherence leading to MDR-TB in Mae Sot, a Thai-Myanmar border district of Tak, Thailand. Both studies used in-depth interviews with key informants, observations and documentary research.

Results: Irrational drug use was not only an action, but it was driven by multi-level influential factors ranging from individual's value, beliefs, potentials, and past experiences. Family's socioeconomic contexts, relationship within the community, community resources in health and welfare, geographical setting, access to healthcare, and public policies were all affected people's drug use behavior, directly and indirectly. No one single bullet can cure chronic symptoms of irrational drug use.

Conclusion: 'RDU country' campaign brings a light of opportunity to integrate the concept of systems thinking into the framework. Expanding the focus from only on 'drug' and 'health' systems to a bigger picture of its' surrounding contexts allow us to observe other possible stakeholders and their interactions that might serve as an effective leverage point in developing a tailored intervention serving the real-life problems.

111. Project-based learning to transform pharmacy students to be a system manager in promoting rational use of medicine in a community

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Problem statement: Thai pharmacy curriculum is heavily focusing on manufacturing pharmaceutical products and providing pharmaceutical care for individual patients. Only a few courses are designed for introducing pharmacy students to be competent as a system manager for rational use of medicine.

Objective: To design a course for enabling pharmacy students to be a systems manager in promoting rational use of medicine in community.

Method: Concepts of systems thinking, systems complexity and design thinking, primary healthcare, and community-based learning were used for designing a course for fifth-year pharmacy students. A group of 7-8 students were assigned to develop a project to promote rational drug use in an assigned village in a 3-month course. Students, faculty members and community leaders worked together to understand drug and health systems in the community before designing a relevant project and performing necessary services. They were guided through the following steps: community diagnosis, issue identification and prioritization, system diagnosis, service design, service implementation, project evaluation, presentation in community meeting, and self-reflection.

Results: Along the course, pharmacy students had learned that any drug use phenomena were complex resulting from many intercorrelated factors, and a single-linear intervention was unable to solve the problem. Pharmacists was a member of interdisciplinary team to promote rational drug use. Students had improved a range of personal, interpersonal, and work skills. Community leaders appreciated learning to work systematically in the issues relevant to them. However, the course was unable to fully transform a student to be a system manager. Integrating the concept of systems thinking in other courses was recommended.

Conclusion: Community-based course with the aim to promote rational drug use in community is a win-win. Students learn various skills in working with real people in real problems to solve the problem systematically. Community gets benefit from an intervention designed specifically for them.

112. Antibiotic use for caesarean section prophylaxis at a specialized regional perinatal centre

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Problem statement: Antibiotic prophylaxis (ABP) reduces postoperative infectious complications of caesarean section (CS) and is universally included in clinical guidelines. However specific medicines used for prophylaxis often differ from guideline recommendations and may contribute to adverse nosocomial events.

Objective: To study antibiotic use in caesarean section cases: elective and emergency.

Materials and methods: In 2017 we performed a retrospective analysis of 250 patient clinical charts undergoing caesarean section at the Perinatal Centre of the Republican Clinical Hospital. We used the entire sample for 2017. Statistical processing of the results was performed using Microsoft Excel 2010.

Results: Elective caesarean section was performed in 138 (56%) cases, emergency – in 112 (44%). The first preoperative dose of antibiotic was administered to almost all women undergoing both elective – 129 (94%) and emergency – 104 (93%) caesarean section. In all patients it was cefazolin 2 g intravenously 30 minutes prior to skin incision (with the exception of one case when ceftriaxone was used). In postoperative period ABP was continued in 41 (30%) elective and 45 (44%) emergency cases. The following antibiotics were used after elective CS: ceftriaxone in 34 (26%) cases, cefazolin in 6 (4%) cases. In one woman a combination of levofloxacin and metronidazole was used. After emergency CS ceftriaxone in 29 (26%) cases and cefazolin in 17 (15%) cases were used. ABP was completed within 24-48 hours in 3 (2%) elective cases and 7 (6%) emergency cases.

Conclusions: Antibiotic prophylaxis of elective and emergency caesarean section was the same. We identified ceftriaxone use and its prolonged administration in postoperative period as the problem to be addressed by the tailored interventions for improving antibiotic use.

113. Building antibiotic rational use policy based on WHO AWaRe classification of antibiotics.

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Problem statement: Improving use of antibiotics through antibiotic stewardship is one of the key interventions necessary to halt the spread of antimicrobial resistance (AMR). It is also important for ensuring appropriate treatment at all levels. For that reason, WHO in 2017 introduced the Access, Watch, Reserve ('AWaRe') classification of antibiotics in its Essential Medicines List. The classification is a tool for antibiotic stewardship at local, national, and global levels with the aim of reducing antimicrobial resistance. On October, 1, 2019 WHO AWaRe Classification Database was developed on the recommendation of the WHO Expert Committee on Selection and Use of Essential Medicines. It is intended to be used as an interactive tool for countries to better support antibiotic monitoring and optimal use. According the classification system, the 'Watch' group includes first or second choice antibiotics used only when indicated for a limited number of specific infective syndromes that are more prone to be a target of antibiotic resistance and thus are prioritized as targets of stewardship under programs and through monitoring. Concisely, these antibiotics are recommended for specific conditions with strictly limited indications.

Methods: Analyze the last version of the Moldovan Insurance List from January 24, 2019, and the Therapeutic Guidelines to treat pneumonia in Children in Moldova (Protocol Clinic N100, 27.11.2009) with a focus on Watch Group antibiotics from the AWaRe WHO classification of antibiotics.

Result: In the Therapeutic Guidelines to treat pneumonia in children in Moldova, five antibiotics from the Watch group of WHO AWaRe Classification were included. According to WHO these antibiotics are indicated for certain conditions, but not for pneumonia in children: Azithromycin is the first choice for cholera and enteric fever, and second choice for acute invasive bacterial diarrhea/dysentery; Cefixim is only indicated as a second choice for acute invasive bacterial diarrhea/dysentery; Cefuroxime is the second choice for surgical prophylaxis; Ciprofloxacin is a first choice for acute invasive bacterial diarrhea/dysentery, low-risk febrile neutropenia, pyelonephritis (mild to moderate), and enteric fever, and it is second choice for cholera, complicated intra-abdominal infections (mild to moderate); and Clarithromycin is second choice for pharyngitis.

In the Insurance List in Moldova these medicines are included to treat respiratory infection in children. It includes 30 forms of Azithromycin, 22 forms of Cefuroxim, 5 forms of Cefixim, 21 forms of Ciprofloxacin, and 12 forms of Claritromycin.

Conclusion: The National antibiotic policy in Moldova should be revised and updated according to the standards established in the WHO AWaRe Classification system to contain antibiotic resistance

114. Developing a standardized tool to assess acceptability of pediatric oral drug formulations

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Problem statement: Patient willingness and overall ability to use medicines as intended is essential to their safety, their effectiveness and long-term adherence. For children, palatability, swallowability, dosing frequency, and ease of use for caregivers, are critical to product's acceptability. Acceptability is rarely a consideration for medicine selection. To date, there is little regulatory guidance nor standardized approach for assessing acceptability.

Objective: To develop a standardized tool to evaluate acceptability of pediatric oral drug formulations

Method: A set of questionnaires and observation items was developed from literature review and interviews of health professionals, children and caregivers. A list of pediatric formulations was established by a panel of pharmacists and clinicians based on prescription frequency and therapeutic importance. Data relative to taste, swallowability and ease of use of the formulations were collected as part of standard of care by interviewing caregivers and children, and directly observing caregivers administering the medicine to the child. 10-point visual analog scale and 5-point hedonic scale were used to capture caregivers and children opinions, respectively. The study, funded by UNITAID, was undertaken in Chiang Mai, Thailand, at different hospital/clinic sites.

Results: More than 600 caregiver-child pairs were interviewed for a wide variety of formulations (syrups, tablets, powder for suspension, capsules, solutions and suspensions). Formulation had different acceptability profile, including within the same therapeutic group. 29% of caregivers reported incidents upon medicine intake including choking, vomiting and spitting out part of the dose. Unhappy face, crying, fighting, were observed. Research findings and data collection experience were used to develop simple to operate tablet-based tool for the systematic field evaluation of the acceptability of pediatric oral drug formulations.

Conclusion: Acceptability of pediatric oral drug formulations can be assessed systematically by survey and direct observation and should become an essential consideration for selecting the most appropriate formulations for child care.

115. Prospective study on application of six sigma DMAIC methodology in assessing and improving antimicrobial stewardship in a major trauma care centre

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Problem statement: As being well acknowledged major trauma care and orthopaedics hospital, antimicrobials especially higher end antimicrobials like Meropenem, Teicoplanin, Colisitin etc. were used in abundance at GMCH hospital for prophylactic, empirical and specific therapy which could have lead to emergence of more AMR resistance and increase in health care costs of the patient.

Objective: To observe and enhance antibiotic stewardship activities

- To compare the prescribing practices with the standard guidelines
- Identify variables to measure the antibiotic stewardship and thus the levels of six sigma
- To make recommendations if any, for rational use of antibiotics.

Method: Cases of patients prescribed with antimicrobials were taken and divided into 4 Phases of Define, Measure, Improve and Control according to Six Sigma methodology containing 100,400,400 and 100 patients respectively. Errors were identified in 'DEFINE' phase as STG errors, follow up errors, wrong selection errors and prescribing errors. Further, in 'MEASURE' phase data were collected and DPU, DPMO and Sigma levels were calculated. In 'ANALYSIS' potential root causes were identified for the errors using Ishikawa diagram. In 'IMPROVE' phase, the proposed action plans for minimizing errors were implemented and the DPU, DPMO and Sigma levels were calculated and compared with that of 'MEASURE' phase. At last, the tangible results of the success of Asp programme was evaluated using 'CONTROL' phase with 100 subjects.

Results: In measure phase, the targeted errors i.e. STG errors, follow up errors, Wrong selection errors and Prescribing errors were calculated to be 38,15,9 & 30 and the corresponding DPMO were found to be 23750, 9375,5625 & 18750 respectively; further the Sigma values were 3.4,3.8,4.03 & 3.6 respectively. In IMPROVE phase, the 4 corresponding errors described above were calculated as 22,10,6 & 18 respectively; the DPMO values were 13750,6250,3750 & 11250 respectively; corresponding Sigma levels were 3.8,4.0,4.2 & 3.8 respectively. Significant decrease in targeted errors were achieved in IMPROVE phase due to successful interventions and implementation of action plans using Six Sigma which showed increase in Sigma levels, thus validating the study and measuring the tangible outcomes.

Conclusion: Six Sigma DMAIC methodology is an efficient and useful tool for quantifying, measuring and improving the efficacy of antimicrobial stewardship in a health care setting.

116. Modern realities of the use of medicines in children from the point of view of schoolchildren and their parents.

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Problem statement: Acute respiratory infections are very significant problem in modern pediatrics. Annually, up to 70 thousand cases are recorded per 100 thousand of the population, and this indicator is 2.7-3.2 times higher in children. It is necessary to clarify the risk factors and causes of increased respiratory morbidity in every child.

Objective: to study the practice of treating colds and flu in children of different age groups.

Method: A survey of 350 middle and high school students and their parents was conducted.

Results: 17.1% of children (n = 60) reported episodes of colds 3 times, 62.9% (n = 220) once, 14% (n = 49) twice during the winter and 6 % (n = 21) noted the absence of any signs of a cold. All of 109 frequently sick children (31.1%) received antibiotics, 84 of them (24%) twice. 76 of them (69.7%) believed that antibiotics helped them to treat colds, 27 (24.8%) responded that they did not help, and 6 (5.5%) found it difficult to answer. In 86.9% of cases (n = 286) they took the medicine as recommended by the doctor, 12.8% of cases (n = 42) by the grandmother, 0.3% (n = 1) decided how to treat themselves. 89% of children and 74% of parents believe that antibiotics kill viruses. 64% of parents received information about antibiotics from a doctor, 21% from a pharmacist, and 15 % from advertising. Majority of parents marked need in training programs, measures for the prevention and treatment of influenza (76%), 18% of them found it difficult to answer, and 6% of adults did not consider it necessary.

Conclusion: Thus, awareness of the antibiotics use in the treatment of colds and flu among schoolchildren and parents is rather low. It is necessary to carry out large-scale measures to prevent the irrational use of antibiotics in pediatric practice.

117. Analytical performances of microbiology laboratories participating in AMR surveillance system, Cambodia: Critical analysis of 4 years of proficiency testing results

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Background: Establishment of sustainable and evidence-based surveillance systems are recommended for prevention of microbial resistance by the World Health Organization (WHO). As a necessity of these surveillance systems, all medical microbiology laboratories are required to participate an external quality assessment (EQA) program that covers antimicrobial susceptibility testing (AST). Clinical Microbiology EQA panels with three isolates have been provided three times per year to AMR sentinel laboratories in Cambodia since 2012. This study aimed to evaluate laboratory testing performances implemented between 2016 and 2019, based on four years EQA results in order to highlight the main sources of unsatisfactory analytical processes and to suggest areas for improvement project plan.

Method: The results of Microbiology EQA in seven AMR surveillance sentinel laboratories from 2016 to 2019 which were coordinated by the National Institute of Public Health (NIPH) under the program of Pacific Paramedical Training Centre (PPTC) from New Zealand were analysed. All participating laboratories were required to identify bacteria to the species level, to verify AST results and to answer a question of case study on parasitology. Feedback results and appropriate corrective actions were reviewed to identify the root cause of non-conformity and suggest areas for improvement.

Results: Proficiency test results of participating laboratories from a total of nine cycles with twenty seven isolates were analysed. The overall average of EQA result is 94.0%. The laboratories failed to identify the isolated pathogens in 7.0% of the tests and failed to interpret the inhibition zone of AST (resistant, intermediate and susceptibility) in 6.0% of tested strains. The main causes of erroneous of PT results were either pre-analytical (handling of the samples, timing of analysis, equipment and reagent management), analytical (quality control, unsuitable methods, confusion of samples, errors confirmation) or post analytical mistakes (interpretation guideline, cross-checking of results, information management system). Followed by corrective actions, it was determined that internal quality control and inventory management are the priority suggestions for improvement project plan.

Conclusion: This study revealed that all participating laboratories have a good performance on EQA result for evidence-based AMR surveillance, that the national antimicrobial resistance data quality is sufficiently good and that the data can be shared on national and international platforms. However, the regular monitoring of national AMR surveillance system should be conducted for quality improvement.

118. Participation of youth and school children as agents of change in fighting antimicrobial resistance

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Introduction: Antimicrobial resistance continues to threaten the healthcare system worldwide. As part of their contribution towards addressing this threat, members of Tanzania Pharmaceutical Students Association (TAPSA) organized a campaign titled 'Tokomeza Usugu wa Dawa' antimicrobial resistance holiday campaign between September to November 2017. The aim was to raise awareness on Antimicrobial Resistance in 23 regions of Tanzania, with special focus on secondary school students. One hundred and twenty two (122) voluntary ambassadors, aged between 19 – 23 years of age conducted the campaign in different regions.

Objectives: The main objective of the campaign was to raise antimicrobial resistance awareness within the general society and imparting early AMR knowledge to the younger generation in at least 100 schools.

Methodology: The campaign used different methods which included visiting secondary schools and conducting antimicrobial resistance awareness sessions; use of illustrative pictures, drawings and fliers which delivered simple and easy to understand messages; use of 20 radio stations that ran educative information sessions on Antimicrobial resistance; publications on social media accounts and use of community gatherings as venues for raising awareness.

Results: The campaign successfully reached 48,567 secondary school students in 23 regions in 114 secondary schools, 643 secondary school teachers and 1052 people in community gatherings. It is estimated that more than 6,240,000 people were reached through the radio stations.

Conclusion: The campaign was considered as a success as the target was reached and exceeded. It is suspected that the broadcasted message in the local radio stations reached even more people in untargeted areas with great potential for change.

119. Policies for access to essential medicines for a sustainable Universal Health Coverage and the realisation of the right to health

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Problem statement: The enormous expenditures on medicines- US\$1,000 billion globally every year, accounting for up to 67% of total health expenditures in LMICs, necessitates rethink and redirect action in the field of medicines. The fact that this is mostly paid out-of-pocket by consumers, makes the situation graver. Despite that to date medicines are not a central component of UHC debates.

Objective: To explore what policies are needed that ensure equitable access to affordable essential medicines leading to Universal Health Coverage and right to health for all.

Method: Review of available literature on the subject including UN agency documents, Case Studies, Research Articles, books and project reports of leading Civil Society Organisations.

Results: After the Nairobi conference in 1985, the 1986 World Health Assembly resolution on the Revised Drugs Strategy represented a major milestone. Since then policies have been driven by changes in disease burdens and marked by transformations in health systems. Finally, advances in the development of new medicines include an increase in targeted therapies, with the 225 new molecular entities expected ending 2020, most will be cancer medicines and 90% of those will be targeted medicines. The SDGs, goal 3.8 acknowledged medicines access, to strengthen health systems and to advance universal health coverage.

Conclusion: International public policy would be needed in setting R&D priorities and financing, and in coordinating new approaches to promote accessibility and affordability of new essential medicines leading to UHC.

120. Availability and rational use of opioid medicines in low and middle income countries

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International drug conventions aim to prevent the abuse of substances that can induce dependence including the diversion of medicines from licit to illicit markets in international trade. Opioid medicines are included in Schedule I of the Convention on Narcotic Drugs of 1961. The availability of opioid medicines has been shown to be inadequate in many countries in Africa, Asia and South America. Lack of access to opioid medicines has a significant impact on population health by limiting access to surgery, palliative care, and emergency situations. Limited financial resources, lack of training and awareness among health professionals, as well as complex international trade controls and national regulations all contribute to inadequate access in low and middle income countries. On the other hand, high consumption of opioid medicines in a number of high income countries, in particular the United States and Canada, has contributed to rapid growth in prescription opioid dependency and related fatalities. Aggressive marketing for common non-cancer pain conditions has contributed to this overuse. Interventions to improve access also need to consider how to best avoid inappropriate use. The World Health Organization is currently updating its guidelines on the development of balanced national policies to ensure access to and appropriate and safe use of controlled medicines. The workshop aims to explore the factors that influence access and rational use of opioid medicines and examine potential policies to improve the current situation. The workshop will start with a brief presentation of the current situation on access and use of opioid medicines. Participants will then be split in smaller groups by region to discuss the main barriers to access and potential solutions to improve access and quality use. Each group will share their findings and proposals. Potential avenues to support long-term collaboration between participants will be discussed at the end of the workshop.

121. Effect of multidisciplinary approach for antibiotic control program in a tertiary hospital in Northern Thailand

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Problem statement: The inappropriate use and overprescribing antibiotics are increasing problems. The inappropriate antibiotic use results in the increased rates in both antibiotic resistance and medical costs. The current antibiotic control program is limited and ineffective.

Objective: We compare the incidences of the number of antibiotic usage, antibiotic costs, drug-resistant organisms and mortalities in the Naresuan University Hospital in 2013-2015 before the antibiotic evaluation program with 2016-2018 after the intervention was performed.

Method: This is the study from 2013 to 2018. In 2016-2018, we had implemented the antibiotic evaluation program which multidisciplinary team approach included the medical personnel training about the antibiotic use in the common diseases, the consultation system with the pharmacists or infectious disease specialists, the antibiotic prescription forms, the antibiogram usage, the stricter control of antibiotic prescription and the direct feedback to the physicians who prescribed the drugs.

Results: After the intervention, there was a 48.75% reduction in the rate of antibiotic prescription (511.03 vs 261.75 Antibiotic prescriptions/ 1,000 admissions; $P < 0.05$). The antibiotic expenses had reduced approximately total 500,000 US dollars during the study period and each antibiotic prescription was also reduced. For example, Meropenem (48.59 vs 26.65 DDD/ 1,000 patient-day; $P < 0.05$), Vancomycin (20.87 vs 11.81 DDD/ 1,000 patient-day; $P < 0.01$), Colistin (4.34 vs 3.12 DDD/ 1,000 patient-day; $P < 0.05$). The total hospital acquired infection rate also decreased (1.67 vs 1.52; $P = 0.052$). Even though the all-cause mortality in the inpatient care per month had slightly increased from 1.98% to 2.17% but not statistical significant ($P = 0.17$, 95%CI; -0.5 to 0.12).

Conclusion: This study showed that the antibiotic evaluation program used by the multidisciplinary team were effective in controlling the antibiotic overprescribing and saving the hospital costs particularly in the inpatient setting. Moreover, this could directly help to reduce the antibiotic resistance but would not increase the mortality.

122. RDU Country: A global goal from Thailand's propose

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This presentation will invite and inspire all participants to set a global goal for Rational Use of Medicine system through 'RDU country' concept.

Irrational use of medicines has been a global and national problem for decades. It has an effect on the drug safety and the financial stability of the country. The World Health Organization states that more than 50 percent of drug use in developing countries is inappropriate and wasted. Since 1986 the WHO has urged Member States from time to time to recognize the importance of this issue, and made global situation assessment.

Since 2002, the universal health coverage (UHC) scheme was implemented in Thailand, almost 50 percent of people have gone to public health care facilities; while the purchasing drugs for self-medication is reduced from 60 percent to only 20 percent. But about half of the outpatients received more medicines than they needed. As a result, the country posted a fiscal loss of around 2,350 million baht/year. Moreover, nearly half of the causal medication related problems (MRPs) in outpatients and nearly ninety percent of these problems in patients at home were preventable MRPs. Although the access to government health care services is increasing but the purchase of vitamins and supplements by high-income persons grows exponentially due to the influence of advertising. Therefore, in December 2018, the National Drug System Development Committee chaired by a Deputy Prime Minister, announced a national policy to move Thailand towards the rational drug use country (RDU country). The ultimate goal of this policy is the quality of life of Thai people based on rational drug use in order to ensure access to safe, effective, quality and affordable essential medicines and sustained healthcare system, and Rational Drug Use is fundamental rights for Thai people get from quality of healthcare service and becomes Thai social norms.

RDU country means a country that has a mechanism to create rational drug use in compliance with the guidelines of the World Health Organization from upstream (pharmaceutical company / pharmaceutical manufacturer), midstream (health care facilities / health professions), to downstream (people, patients and society). In addition there are 3 main elements of the mechanism, i.e. self-consciousness / individual awareness, good administrations and effective regulatory system. These three elements are linked together to ensure continuous development and improvement and covers all modern and herbal medicines. A community centered is practical approach toward a RDU country. A community is the center of RDU development through RDU community mechanism with the goals of medication safety, medication knowledge and primary self-care ability equipped with the people in all areas of Thailand. Each district has policies or measures established by the committee on the Quality of Life Development at the district level, local government organization, and community participation.

123. Clinical pharmacists' medication counseling can reduce CKDu disease progression and improve medication adherence in pre-dialysis CKDu patients

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Problem statement: Poor medication adherence is associated with an increased risk of progression of Chronic Kidney Disease of uncertain etiology (CKDu).

Objective: To demonstrate that CKDu disease progression and medication adherence among stage 4 or 5 pre-dialysis CKDu patients can be improved by clinical pharmacists' counseling

Method: A randomized controlled interventional study was conducted in the renal clinic of the Teaching Hospital, Anuradhapura, Sri Lanka from January 2016 to December 2017. Stage 4 and 5 pre-dialysis CKDu patients were randomized to control or intervention arms. A trained clinical pharmacist (CP) conducted the study. The intervention group received usual care plus medication counseling by the CP at four consecutive clinic follow-up appointments over one year, while the control arm patients received usual care at clinic follow-up. Estimated glomerular filtration rate (eGFR), medication adherence and demographic data were collected at baseline and one year from the date of recruitment for patients in both arms. Medication adherence was measured using modified Brief Medication Questionnaire (BMQ).

Results: One hundred and twenty-nine patients were recruited to the intervention and 127 patients to the control arm. Demographic data were similar in the two groups. Baseline eGFR was 17 (12-21.5) and 18 (12.25-23) mL/min/1.73m² (p=0.2477) for control and intervention arms, respectively. After one year, patients in the control arm had a statistically significantly lower eGFR compared with patients in the intervention arm, of 15 (12-21.25) versus 18 (14-23) mL/min/1.73m² (p=0.049) respectively. Baseline medication adherence scores were similar, 5 (4-5) (p=0.8082) for both arms. After one year, medication adherence improved in intervention arm compared to the control, with BMQ scores of 5 (4-5) and 3 (2-4) (p<0.001) in control arm and intervention arms respectively. (Lower scores denote better adherence).

Conclusion: Medication counseling by a CP can reduce CKDu disease progression and medication adherence.

124. Society knowledge and perception evaluation of antibiotic use without prescription in Ungaran, Central Java, Indonesia

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Problem statement: Antibiotics are drugs that used to treat infections caused by bacteria. But in low and middle-income countries, such as Indonesia, many people use antibiotics without prescription unwisely, which can cause bacterial resistance.

Objective: This study aimed to describe the knowledge, perceptions and factors that might influence the use of antibiotics without prescription among people in Ungaran, the capital city of Semarang region in Central Java province, Indonesia.

Method: This study was a descriptive observational using questionnaire. The sample was 115 respondents taken by accidental and purposive method. The data obtained was analyzed through percentage calculations and a score system referring to the Likert Scale.

Results: Results showed that people in Ungaran had a sufficient level of knowledge with an average score of 10.82 or 67.6% but most people had a negative perception (56.6%). That means that they knew they have misused the antibiotics but they are still seeking antibiotics without prescription even though now in Ungaran is prohibited to give antibiotics without prescription. From the bivariate test using chi result showed that there was a significant relationship between the knowledge and perception with education level with p-value less than 0.05.

Conclusion: People in Ungaran had sufficient knowledge about antibiotics but most of them have negative perception, which was influenced by the economic, distance, and experience factors.

125. A subjective analysis of the current status of national drug formularies – the case for a dynamic, open access global resource.

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Problem statement: Many countries have created their own national drug formularies or drug compendia to promote rational drug use. Some countries use resources published in other countries either by paid subscription or by use of old donated publications. Few countries can sustain development of a national formulary and there is a lack of open access quality drug information. The WHO model formulary is out of date and is not sufficient to fill this gap.

Objective: To evaluate the status of *national drug formularies in the following geographical areas; Africa, Central Asia, Europe, Middle East, North America, South America, South and East Asia and Australasia. In addition the WHO model formulary was evaluated. The status was defined as currency, accessibility (e.g. hard copy, digital, open access), transparent plan for ongoing development, content intended for consumer reference and subjective comparison with the BNF which is an accepted gold standard drug information resource. *The initial analysis focused mainly on formularies published in English.

Method: Information on drug formularies was obtained from an internet search, reference to the WHO web site, a bibliographic search of Medline and a request for information posted on the E-Drug discussion forum. A summary of the status of drug formularies for each geographical region was compiled. These findings were used to provide a subjective analysis of the status of world formularies and provide evidence and justification for the development of a global open access resource.

Results: The initial analysis evaluated approximately 80 national formularies; in some cases the nature and scope of the publication was unclear. Most countries that initiate the publication of a national drug formulary do not sustain development and most are several years old. With one exception formularies did not provide open access consumer information. Access was variable ranging from paid subscription, to open access IP blocked for that specific country, to open access PDF worldwide. Only 2 resources incorporated an integrated drug interaction checker. In most cases the editorial process was not available and there was no plan for ongoing development. Content was variable ranging from simple therapeutic notes and basic drug monographs to more comprehensive treatment guidelines and more complete drug monographs.

Conclusion: Most national drug formularies do not provide the tools to promote rational medicines use. An open access resource should be developed which is constantly updated to meet the needs of health professionals and consumers.

126. Inside the black box of antibiotic dispensing by private drug sellers in Indonesia (PINTAR study).

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Problem statement: A major driver of Antimicrobial Resistance (AMR) is uncontrolled use of antibiotics. In many low-and-middle-income countries including Indonesia, private drug sellers (PDS) such as community pharmacies and drug stores are a major source of antibiotics. Despite their prominence, little is known about the antibiotic dispensing practices of these providers in Indonesia.

Objective: The objective of the PINTAR (Protecting Indonesia from the threat of antimicrobial resistance) study is to develop and evaluate interventions to improve antibiotic dispensing in Indonesia. This presentation reports on our formative research on the antibiotic dispensing practices of PDS and the quality of care given to PDS clients.

Method: A cross-sectional survey of PDS was conducted in one rural (Tabalong) and one urban district (Bekasi) in Indonesia. A total of 166 randomly selected PDS were visited by 'standardised' patients (SPs), also known as mystery clients. The SPs portrayed 3 different clinical scenarios for which antibiotics are not recommended: suspected Tuberculosis (TB), of Upper Respiratory Tract Infection (URTI), and child diarrhoea. The SPs varied by gender and age. Immediately after visiting the PDS, SPs recorded details of the interaction including history taking, advice and treatment provided, length of interaction, and any out of pocket payments.

Results: 121 community pharmacies and 45 drug stores were surveyed across the two sites, with a total of 495 interactions with SPs. Among the interactions, 342 (69%; 95%CI: 64.8% - 73.1%) resulted in the dispensing of antibiotics without a prescription. The proportion of antibiotics dispensed without a prescription by pharmacies was significantly higher (76%) compared to drug stores (50.4%). Antibiotic dispensing was also shown to be higher in suspected TB (80.6%) and URTI cases (79.4%) compared to child diarrhoea (47.3%).

Conclusion: Antibiotic dispensing without a prescription poses a threat to public health as it leads to excessive antibiotic consumption. This study found a high rate of unprescribed over-the-counter dispensing of antibiotics among PDS in Indonesia. Interventions are urgently needed to address this issue.

127. Pharmacoeconomic analysis of drug supply in the pediatric hospital in Almaty

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Summary: The irrational distribution of funds for the purchase of drugs in this medical organization has been revealed in the results of the analysis. In this regard, it is recommended to plan the purchase of medicines on the basis of evidence.

Introduction: Kazakhstan National Drug Formulary (KNF) is a unique project in the territory of the Republic of Kazakhstan, which was approved in December 2016, with the support of the World Bank for Reconstruction and Development. The KNF was based on WHO guiding principles for the creation of national formularies around the world.

Objective: to conduct a comparative analysis of the structure and cost efficiency on the basis of ABC / VEN analysis in a multi-specialty children's hospital in Almaty

Methods: The balance statements in this medical organization for 2015 and 2017 were used. To assess the cost rationality a pharmacoeconomic study method — ABC/VEN-analysis was used to conduct comparative analysis before and after introduction of KNF.

Results: in 2015 and 2017, only 329 and 312 drugs were used, respectively. Of these, in 2015 class A included only 19, B – 31 and C-269 drugs, and in 2017 class A included 53 drugs, B-49, C-210.

VEN analysis showed that in 2015 V was only 36.8%, E-40.7% and N-22.4% for class A, which indicates inappropriate purchase of drugs. And in 2017 there is an improvement, V was only 48.4%, E-42.7% and N-8.9%.

In class B and C respectively 42,5%- 63,4%, 19,9%-28,4% and 37.8% - 9.2%. And in 2017, respectively, 52.7% -78.6%, 25.9% -14.1% and 21.4% -7.3%.

Conclusions:

- Irrational distribution of funds for the purchase of drugs in this medical institution in 2015, i.e. before the introduction of the KNF.
- The presence of secondary drugs in the high-cost group-do not have a clear evidence base.

The ABC / VEN analysis for 2017 showed that there is a positive trend in the above parameters, after the introduction of KNF, which confirms the role of the clinical pharmacist in the rational use of drugs.

128. Kazakhstan National Medicines Formulary

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Problem statement: To address the issues of quality, safety and availability of medications provided to the population. In 2015, the Ministry of Health of the Republic of Kazakhstan in collaboration with experts from the World Bank, Europe and Australia developed the Kazakhstan National Medicines Formulary (KNF).

Objective: To provide information on the rational use of medications to medical workers and patients and strengthen the entire formulary system, as well as to promote the use of evidence-based medications.

Method: The KNF was based on WHO's fundamental principles of creating national formularies worldwide. The following databases were used to form the KNF: British National Formulary; British National Formulary for Children; WHO Model Formulary; Cochrane Library; Martindale, and Stockley's Drug Interactions.

Results: Prior to the release of the first KNF, the Republican Medicinal Formulary (RMF) was used as a restrictive and recommendatory list of medications for Guaranteed Volume of Free Medical Care. When creating the first KNF with RMF in 2015, an analysis that had been conducted for clinical efficacy of each position excluded 167 drug positions. Consequently, 1198 INN and 2909 trademark names (TN) were included in the KNF. In 2017, the second KNF was released consisting of 767 INN and 3035 trademark names. The current KNF incorporates 945 INN and 2019 TN, which make it possible to formulate the Medications's List for medical workers and Kazakhstani citizens in a transparent and accessible way. The KNF's List has its inclusion/exclusion criteria for medications.

Conclusion: The KNF is a unique project in the territory of the Republic of Kazakhstan and the CIS. It contains evidence-based medications registered in the Republic of Kazakhstan. Each doctor has free access to its content and can obtain information on how to prescribe and use medications correctly.

129. The competencies of clinical pharmacists: A literature review and assessment

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Problem statement: Relatively new specialty of health care in the Republic of Kazakhstan - 'Clinical Pharmacy', allowed to expand the responsibilities of pharmacists in the clinic practice. In this regard, there is a need to define the scope of their behavior and competencies in cooperation with patients and medical staff.

Objective: To analyze the competencies of clinical pharmacists based on literature data.

Method: A comparative analysis of the level of competence of clinical pharmacists in medical organizations examined 34 sources of literature, of which 65% (22) - abroad, 23% (8) neighboring countries and 12% (4) domestic literature. The literature review includes international, national standards of clinical pharmacists' practice and WHO guidelines on rational use of medicines.

Results: Studies from neighboring countries have determined the need for the introduction of clinical pharmacists at the stationary level, as well as their need for 1 post per 150-300 beds (Pharmaceutical Ukraine Gazette, 2011). Meanwhile, the functional responsibilities of a clinical pharmacist include checking prescriptions, monitoring adverse reactions and drug interactions in patients. Clinical pharmacist has skills in conducting pharmaco-economic analysis of drug costs. Annually, 40,000 clinical pharmacists in the U.S. are certified by clinical pharmacy practice standards in 13 areas based on competencies in integrated drug management and patient care (American Pharmacy Council, 2019). WHO/FIP-approved European standards include general clinical pharmacist competencies and skills, such as: expertise in therapy; knowledge of pharmaceutical products; good understanding of disease processes; in-depth knowledge of medical terminology; and the ability to evaluate and interpret physical and laboratory research. Clinical pharmacist's competencies include the harmonization of drug forms, prescribing drugs and advising patients on pharmacotherapy.

Conclusion: Thus, according to the above, ensuring the rational use of medicines requires a multidisciplinary approach by team members (physician/pharmacist/patient), as well as the evaluation and expansion of pharmacists' competencies in clinical practice.

130. Improving the use of medicines in the humanitarian sector

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Problem statement: Refugees and internally displaced people (IDPs) are increasing in number due to conflicts, climate change and natural disasters. Historically, the humanitarian sector in providing health care to this population has focused on the supply side of medicines and not so much on how medicines are used by health workers and the people they care for. In addition, the refugee and IDP populations are increasingly found living among host communities as well as in refugee camps. In this increasingly complex humanitarian scenario, we can hypothesize that the goal of achieving rational use of medicines is more challenging than ever.

Objective: To bring a focus on the prescribing, dispensing and use of medicines in the humanitarian environment. To gather policies and practices of medicines use among major actors in this sector and share the findings. To advocate for better use of medicines in this sector with relevant bodies.

Results and conclusions: Not applicable

131. Empowering patient communication to achieve treatment goals

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Problem statement: Literacy, numeracy, and health literacy can be facilitators or barriers to effective communication between health care providers and patients. When health care providers approach their patients with knowledge of the patient's treatment goals and their skills in obtaining and using health information, then providers can support patients to achieve treatment goals.

Objective: Examine methods to empower patient communication considering a patient's level of literacy, numeracy, and health literacy.

Methods: In this presentation, we will: define literacy, numeracy, and health literacy and describe how these skills impact individuals, populations, and the healthcare system; consider an emancipatory approach for empowering patients; discuss strategies to strengthen health interventions with individuals and populations with low literacy, numeracy, and health literacy; and review methods to evaluate literacy levels of written materials and the suitability of health education materials.

Expected outcomes: Empowered communication between health care providers and patients may: improve adherence to prescribed treatment; expand patient knowledge of health conditions and prescribed medications; and increase health care provider understanding of patient beliefs about their health and medications used to improve health.

Conclusion: Empowered communication between health care providers and patients supports mutual understanding of health conditions, treatment recommendations, and treatment goals. In every interaction with patients, health care providers must consider the patient's literacy, numeracy, and health literacy and use methods to empower patient communication.

132. Does the medical insurance system really help the population of Moldova?

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Problem statement: The Republic of Moldova is a lower-middle-income country in eastern Europe with a population of 3.5 million. The gross domestic product of US\$ was \$3,189 per capita in 2018.

In 2004, the Moldovan government introduced mandatory (social) health insurance (MHI) with the goals of sustainable health financing and improved access to services for poorer sections of the population. The Medical Insurance program provides access to an essential package of emergency, primary, and inpatient services without charge. The package of services includes drugs in inpatient settings and a limited list of reimbursable medicines for outpatient care.

Objective: To analyze the Moldavian Reimbursement List of Medicines (RLM) (January 24, 2019)

Methods: The analysis is based on published articles, official reports and the last version of the Reimbursement Medicines List of the Republic of Moldova.

Result: A single purchasing agent, the National Health Insurance Company (NHIC), is responsible for the creation of the Reimbursement List of Medicines. An important issue in the work of this agency is the lack of stable management and transparency in the decision-making process about the selection of medicines in MRLM. According to a published survey, sixteen percent of outpatients and 30% of inpatients report that they made out-of-pocket payments when seeking care at a health facility in 2012 in Moldova. Patients perceive that payments are driven by the limited list of reimbursable medicines, a desire to receive better treatment. The conducted analysis of the existing list shows places for better use of the budget for the reimbursement list of medicines. A crucial issue is that of the quality and safety of medicines which are included in the Reimbursement List. Some medicines included in RLM are forbidden for use in developed countries, such as nimesulide and methimazole. The RLM includes drugs of the same INN name with a large number of different forms and dosages (30 forms of azithromycin and 31 forms of diclofenac), with a large difference in price, for example, for one tablet of enalapril 5 mg, the difference in price is 5 times.

Conclusion: This abstract is expected to stimulate debate about the proper and thoughtful selection of medicines in the insurance reimbursement list of Moldova with the aim to provide more sufficient assistance to the population.

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