Containing Antimicrobial Resistance to Realize the Goals of Universal Health Coverage

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Theme: “Antimicrobial Resistance and Non-communicable Diseases – Pharmaceutical Challenges in the 2030 Agenda”
Outline of the Presentation

• Goals of UHC and SDGs
• Medicines and UHC
• AMR – a Challenge on the Path to UHC
• Containing AMR to realize the Goals of UHC
  • Access, optimal use and affordability of antimicrobials
  • Safety and quality dimensions in service
  • Governance and system-strengthening
• Conclusion

UHC – Universal Health Coverage; SDGs – Sustainable Development Goals AMR – Antimicrobial resistance
Universal Health Coverage (UHC)

• “I regard universal health coverage as the single most powerful concept that public health has to offer.”
  - Dr Margaret Chan, Director-General of WHO

Source: WHO
http://www.who.int/universal_health_coverage/en/
Antimicrobial Resistance (AMR)

• “Antimicrobial resistance is a crisis that must be managed with the utmost urgency. As the world enters the ambitious new era of sustainable development, we cannot allow hard-won gains for health to be eroded by the failure of our mainstay medicines.”

  - Dr Margaret Chan, Director-General of WHO

Source: WHO
http://apps.who.int/iris/bitstream/10665/193736/1/9789241509763_eng.pdf?ua=1
The Goal of UHC

• The goal of universal health coverage is to ensure that all people obtain the health services they need [ACCESS] without suffering financial hardship when paying for them [AFFORDABILITY]

• The full spectrum of essential, quality health services should be covered including health promotion, prevention and treatment, rehabilitation and palliative care

Source: WHO.
http://www.who.int/mediacentre/factsheets/fs395/en/

Source: MSH.org
SDG Goal 3 on Communicable Diseases and UHC

• By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases

• Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all

Source: UN
http://www.un.org/sustainabledevelopment/health/
Medicines – Critical for UHC

• Global spending on medicines – more than a trillion dollars a year

• Projected to go up to 1.4 trillion dollars a year by 2020

• Some countries spend up to 67% of their health budgets on medicines, mostly paid out-of-pocket by consumers

• Antimicrobials constitute a major class of medicines

• UHC implementers thus need to pay careful attention to the access, affordability and use of antimicrobials

*Sources: IMS Institute – Global medicine use in 2020; Wagner et al. BMC Health Services Research 2014, 14: 357*
# Medicines – 3 of the Top 10 Leading Sources of Inefficiency and Waste

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<td><strong>1. Medicines:</strong> underuse of generics and higher than necessary prices for medicines</td>
<td><strong>6. Health-care services:</strong> inappropriate hospital admissions and length of stay</td>
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<td><strong>2. Medicines:</strong> use of substandard and counterfeit medicines</td>
<td><strong>7. Health-care services:</strong> inappropriate hospital size (low use of infrastructure)</td>
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<td><strong>3. Medicines:</strong> inappropriate and ineffective use</td>
<td><strong>8. Health-care services:</strong> medical errors and suboptimal quality of care</td>
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<td><strong>4. Health-care products and services:</strong> overuse or supply of equipment, investigations and procedures</td>
<td><strong>9. Health system leakages:</strong> waste, corruption and fraud</td>
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<td><strong>5. Health workers:</strong> inappropriate or costly staff mix, unmotivated workers</td>
<td><strong>10. Health interventions:</strong> inefficient mix/inappropriate level of strategies</td>
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Inappropriate Use, Inefficiency, and Waste – Very Common with Antimicrobials

- Up to 50% of all antibiotic prescriptions are unnecessary
- Two thirds of antibiotics sold without prescription, mostly via unregulated private sector
- Only half of malaria cases receive recommended first-line agents
- Only 50%-70% of pneumonia cases treated with appropriate antibiotics

*Overuse/misuse of antimicrobials is a major driver of AMR*

*Source: Littmann and Viens. Public Health Ethics 2015: 1–16*

Role of Poverty and Out-of-Pocket Expenses in AMR

- Poverty is a major force driving AMR
  - Poor access and affordability
  - Incomplete courses of treatment due to cost
  - Medication sharing, use of ‘leftover’ antibiotics, purchase of poor quality products from unregulated sources

A recently published study showed strong correlation between out-of-pocket expenses and AMR in LMICs

- This was driven by countries that had medicine co-payment policies in the public sector, possibly inducing patients to buy treatments from the less-regulated private sector

Source: Planta MB. J Am Board Fam Med 2007;20:533–539


These are important considerations for UHC
Poor Quality of Services Resulting in Health Care-associated Infections

- Healthcare-associated infections (HAI) worryingly high in LMICs – average prevalence 15.5%
- A high percentage of HAIs are due to drug-resistant pathogens
- Substantially increase morbidity, mortality and cost
- Majority of HAIs preventable through improved standards and quality of services (infection prevention and control)

Sources: Allegranzi et al, Lancet, Jan 15, 2011; GHeL AMR 2 course; WHO AMR fact sheet 2015
Burden of Deaths and Costs due to AMR

- 700,000
  - Current estimated number of deaths from AMR each year

- 10 million
  - Estimated annual number of deaths from AMR by 2050 if not contained

- $100 trillion
  - Cumulative costs between now and 2050 that AMR will generate if it is not contained


AMR – a Big Challenge on the Path to UHC

- Makes 1st and 2nd line antimicrobials ineffective, thus impacting efficacy and access
- Heavily diverts scarce resources impacting affordability for health systems
- Very expensive to treat, bringing affordability issues and financial risks for patients
- Makes treatment difficult and complex impacting quality and effectiveness of services

**EXAMPLE:**
- Treatment of MDR-TB:
  - Up to 200 times more expensive
  - More side effects
  - Lower cure rates (<50%)
  - Treatment duration 20 months or more

- Only 20% of those with MDR-TB access treatment

Containing AMR to Realize the Goals of UHC

• Improving ACCESS to antimicrobials, vaccines and diagnostics

• OPTIMIZING SELECTION and USE of antimicrobials through UHC medicines benefit schemes

• Improving AFFORDABILITY to antimicrobials through financing mechanisms and by reducing inefficiency/waste

• Improving SAFETY and QUALITY through infection control and continual improvement programs
Improving ACCESS to Antimicrobials

- Access lies in the heart of SDGs and UHC
- Global consumption of antibiotics by humans increased 30% between 2000 and 2010 *
- But this increase was not uniform and lack of access is still a huge problem in many LMIC settings
- Lack of access to treatment for pneumonia and sepsis kills more than a million children every year *
- Universal access to antibiotics can avert 75% of deaths due to community-acquired pneumonia in children under 5 *
- At the same time, unregulated OTC availability of antimicrobials is another dimension of the problem
- So the key is to improve access, but in a regulated manner

Both lack of access and unregulated access lead to irrational antimicrobial use and contribute to AMR

OTC – Over-the-counter

* Laxminarayan et al. Lancet, November 18, 2015
Improving ACCESS to Vaccines

• Vaccines prevent infections, reduce the need to use antimicrobials and decrease selection pressure

• Universal global coverage with pneumococcal conjugate vaccine (PCV) could prevent 11.4 million days of antibiotic use in children under 5 *

• But vaccination coverage in LMICs still inadequate

• System-based efforts needed to scale up coverage with already available vaccines such as PCV, HiB vaccine, and rotavirus vaccine

• Vaccines also have a potential to greatly decrease antibiotic use in agriculture **

Besides preventing infections, multivalent pneumococcal conjugate vaccine reduces drug resistance in *Strep. pneumoniae* in infants and children

* Laxminarayan et al. Lancet, November 18, 2015;
** Review on AMR. Vaccines and alternative approaches, 2016

HiB – *Haemophilus influenzae* type b

Improving ACCESS to Diagnostics

- Diagnostic tests, especially RDTs, can help make decisions about the need and type of antimicrobial use

- RDT examples:
  - Malaria RDT
  - Xpert MTB/RIF to detect TB and rifampicin resistance

- In rural Zambia, access to malaria RDT substantially reduced inappropriate antimalarial prescribing by CHWs in children under 5 and increased early appropriate use of antibiotics for pneumonia *

- System-based efforts are needed to integrate current and future RDTs into clinical algorithms and improve their access and affordability

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RDTs – Rapid diagnostic tests; CHWs – Community health workers

Optimizing Selection and Use through UHC Medicine Benefit Schemes

Since UHC medicines benefit schemes pay for pharmaceutical services, they have the leverage to:

- use health technology assessments to guide selection of effective, safe and cost-effective essential antimicrobials for reimbursements
- facilitate use of evidence-based national STGs, EMLs and formularies for optimal use and payments
- conduct drug utilization reviews to identify and reduce inappropriate antimicrobial use and potential fraud by providers and beneficiaries
- monitor and support antimicrobial medication adherence to improve patient outcomes and reduce AMR and waste

STG – standard treatment guideline; EML – essential medicines list

Sources: MSH. Management of medicines benefit programs in low-income settings; Wagner et al. BMC Health Services Research 2014, 14: 357
Improving AFFORDABILITY to Antimicrobials

• Prioritizing and committing to universal access to affordable antimicrobials by donors and governments
• Implementing effective medicines benefit/insurance programs
• Identifying approaches to subsidize and lower prices of antimicrobials
• Learning from Global Fund, Unitaid, GDF, AMFm, PEPFAR, PMI and other global initiatives that improved access and affordability of AIDS, malaria and TB medicines
• Exploring the potential for a separate global financing mechanism to improve access and affordability of antimicrobials

• Promoting use of quality generic antimicrobials and local generic production ensuring rigorous GMP *
• Reducing inefficiencies and waste in the use of antimicrobials
• Delinking payments for antimicrobials from volumes sold **
• Fostering public-private partnership for innovation of new antimicrobials and RDTs
• Delinking antimicrobial/RDT innovation from their price and volume of sale

* Mendelson et al. Lancet, November 18, 2015;
** Ardal et al. Lancet, November 18, 2015
Improving SAFETY and QUALITY of Service for Effective UHC

• Safety and quality dimensions, not just service alone, are critical for UHC to be truly effective

• Preventing infections (in patients and providers), which
  • reduce avoidable harm and the need for using antimicrobials
  • reduce cost for health systems and out-of-pocket expenses for patients

• Monitoring therapeutic failure/ineffectiveness

• Illustrative strategies:
  • Establishing continual quality improvement norms and cultures
  • Establishing clinical governance and accreditation cultures (measuring practices against agreed standards)
  • Encouraging patient safety research
  • Promoting surveillance programs, early warning indicators, and systematic record-keeping

Sources: Salenga RL. PPT on Patient safety in the era of UHC: the case of developing countries; Storr et al. J of Research in Nursing, 2016, Vol. 21(1) 39–52
Global, Regional and National Governance and System-strengthening

- Treating antimicrobials as the “common good” and avoiding “tragedy of the commons” situation
- Controlling circulation of substandard and falsified antimicrobial products
- Strengthening the “One Health” concept encompassing human, animal and environmental sectors
- Enhancing surveillance and data usage, R&D, translational science, and quality improvement cultures
- Paying proactive attention to the “interconnectedness” of the various HSS building blocks or core functions
- Mobilizing community sectors and the private sector, and enhancing public-private partnership
Conclusion

• Achieving the goals of UHC in a sustainable manner will depend on our ability to preserve the effectiveness of antimicrobials and contain AMR

• UHC stakeholders thus need to bring AMR issues to the forefront

• As a starting point, countries need to develop their national action plan on AMR (aligned with the WHO Global Action Plan) and integrate it within the framework of a quality UHC program

The current global move towards UHC gives us a great opportunity to substantially improve access and affordability of antimicrobials.

But this will need to be balanced with governance, education, behavior change communications, regulation, and ethics if we are to avoid escalation of AMR and keep the current and future antimicrobials effective.