Defining the Indicators to Monitor Interventions

CARA: Conscience of Antimicrobial Resistance Accountability

Hellen Gelband

January 26, 2017

PAHO Expert Consultation on Monitoring and Evaluation of Antimicrobial Resistance Interventions

U.N. Political Declaration

- At the meeting of the United Nations General Assembly in September 2016, the General Assembly convened a **High-Level Meeting on Antimicrobial Resistance**

United Nations Assembly Hall. Photo via Wikimedia Commons.

- Meeting produced the ***Political declaration*** *of the high-level meeting of the General Assembly on antimicrobial resistance*

- Document calls for a wide array of **specific actions and results that countries agreed to** for combating antimicrobial resistance

CARA: Goals

Aim: to monitor global progress toward the goals set forth in the UN political declaration

Methods: CARA branches will track a set of indicators keyed directly to the *political declaration* and documents from other relevant entities (WHO, OIE, FAO)

Draft political declaration of the high-level meeting of the General Assembly on antimicrobial resistance

We, Heads of State and Government and representatives of States and Governments, meeting at United Nations Headquarters in New York on 21 September 2016, in accordance with General Assembly resolution 70/183, in which the Assembly decided to hold a high-level meeting in 2016 on antimicrobial resistance:

1. *Reaffirm* that the blueprint for tackling antimicrobial resistance is the World Health Organization global action plan on antimicrobial resistance [1] and its five overarching strategic objectives developed by the World Health Organization in collaboration with, and subsequently adopted by, the Food and Agriculture Organization of the United Nations and the World Organization for Animal Health;

2. *Also reaffirm* that the 2030 Agenda for Sustainable Development [2] offers a framework to ensure healthy lives, and recall commitments to fight malaria, HIV/AIDS, tuberculosis, hepatitis, the Ebola virus disease and other communicable diseases and epidemics, including by addressing growing antimicrobial resistance and neglected diseases affecting developing countries in particular, while reiterating that antimicrobial resistance challenges the sustainability and effectiveness of the public health response to these and other diseases as well as gains in health and development and the attainment of the 2030 Agenda;

3. *Acknowledge* that the resistance of bacterial, viral, parasitic and fungal microorganisms to antimicrobial medicines that were previously effective for treatment of infections is mainly due to: the inappropriate use of antimicrobial medicines in the public health, animal, food, agriculture and aquaculture sectors; lack of access to health services, including to diagnostics and laboratory capacity; and antimicrobial residues into soil, crops and water: within the broader context of antimicrobial resistance, resistance to antibiotics, which are not like other medicines, including medicines for the treatment of tuberculosis, is the greatest and most urgent global risk, requiring increased attention and coherence at the international, national and regional levels;

4. *Also acknowledge* that, due to antimicrobial resistance, many achievements of the twentieth century are being gravely challenged, in particular: the reduction in illness and death from infectious diseases achieved through social and economic development; access to health services and to quality, safe, efficacious and affordable medicines; hygiene, safe water and sanitation; disease prevention in community and health-care settings, including immunization; nutrition and healthy food; improvements in human and veterinary medicine; and the introduction of new antimicrobial and other medicines;

5. *Recognize* that the above achievements are now gravely challenged by antimicrobial resistance, including: the development of resilient health systems and progress towards the goal of universal health coverage; treatment options for HIV and sexually transmitted infections, tuberculosis and malaria, as well as other infections acquired in community and health-care settings; gains in infection prevention and control in community and health-care settings; advances in

[1] See World Health Organization, document WHA64/2015/REC/1, annex 3.
[2] Resolution 70/1.

Andrea White 10/11/2016 5:01 PM
Comment [1]: Objective 1: Improve awareness and understanding of antimicrobial resistance through effective communication, education and training

Objective 2: Strengthen the knowledge and evidence base through surveillance and research

Objective 3: Reduce the incidence of infection through effective sanitation, hygiene and infection prevention measures

Objective 4: Optimize the use of antimicrobial medicines in human and animal health

Objective 5: Develop the economic case for sustainable investment that takes account of the needs of all countries, and increase investment in new medicines, diagnostic tools, vaccines and other interventions

Andrea White 10/11/2016 5:06 PM
Comment [2]: Indicator: % of population with access to doctor or nurse, hospital beds per capita

Andrea White 10/11/2016 5:04 PM
Comment [3]: Indicator: % of health centers with diagnostics

Andrea White 10/11/2016 5:02 PM
Comment [4]: Indicator: % of laboratories that can do resistance testing

Andrea White 10/14/2016 10:51 AM
Comment [5]: Indicator: HAI rates

Indicator selection directly from *political declaration* text

Indicators

- Potential accountability indicators:
- Final list to be selected based on **relevance**, **validity**, **reliability** and **feasibility** of data collection globally

❑ = Human
❑ = Animal
❑ = Environment
❑ = Development
❑ = Other / global

Availability of information:

❑ = Definitely or probably have data
❑ = Maybe could get data, is limited
❑ = Wishful thinking

Resistance

- ❑ National and subnational-level blood, CSF isolates (ResistanceMap) ❑
- ❑ National and subnational-level hospital resistance data from other sources (WHO, PAHO, others) ❑
- ❑ Community-level outpatient isolates (Gov't, studies) ❑
- ❑ Animal resistance – farms (Ad hoc studies) ❑
- ❑ Resistance / residues in food (CDC, ECDC, EFSA) ❑
- ❑ Resistance and residue from wastewater (factories) (Ad hoc studies) ❑
- ❑ Resistance and residue from / related to farms (Ad hoc studies) ❑

Use and misuse

- ❑ Human: hospital and retail sales (IMS, ResistanceMap) ❑
- ❑ Human: OTC sales (National experts, government) ❑
- ❑ Human: % of hospital prescribing that's appropriate (CDC, ECDC, others) ❑
- ❑ Human: % of outpatient prescribing that's appropriate (CDC, ECDC, others) ❑
- ❑ Animal: overall consumption (CDDEP) ❑
- ❑ Animal: prescription sales ❑

Infection prevention / public health / water and sanitation

- ❑ Human immunization rates (pcv, Hib, rotavirus, annual flu) (WHO) ❑
- ❑ Primary health care - physicians, hospital beds per capita (World Bank) ❑
- ❑ Sanitation - % of population using improved facilities (World Bank) ❑
- ❑ Clean water – % of population with access to improved water source (World Bank) ❑

Sample of possible indicators; will be narrowed down and finalized early 2017.

Indicators

= Human
= Animal
= Environment
= Development
= Other / global

Availability of information:

= Definitely or probably have data
= Maybe could get data, is limited
= Wishful thinking

Resistance

- National and subnational-level blood, CSF isolates (ResistanceMap)
- National and subnational-level hospital resistance data from other sources (WHO, PAHO, others)
- Community-level outpatient isolates (Gov't, studies)
- Animal resistance – farms (Ad hoc studies)
- Resistance / residues in food (CDC, ECDC, EFSA)
- Resistance and residue from wastewater (factories) (Ad hoc studies)
- Resistance and residue from / related to farms (Ad hoc studies)

Use and misuse

- Human: hospital and retail sales (IMS, ResistanceMap)
- Human: OTC sales (National experts, government)
- Human: % of hospital prescribing that's appropriate (CDC, ECDC, others)
- Human: % of outpatient prescribing that's appropriate (CDC, ECDC, others)
- Animal: overall consumption (CDDEP)
- Animal: prescription sales

Indicators

❑ = Human
❑ = Animal
❑ = Environment
❑ = Development
❑ = Other / global

Availability of information:

❑ = Definitely or probably have data
❑ = Maybe could get data, is limited
❑ = Wishful thinking

Policies and guidelines

- ❑ National AMR policy in place - Y/N by country (WHO, GARP) ❑
- ❑ National AMR policy addresses animal use - Y/N by country (WHO, GARP, OIE/FAO) ❑
- ❑ Enforcement of national AMR policies ❑
- ❑ Regional AMR network, coalition or alliance in place? (GARP, WHO, etc.) ❑
- ❑ H: National clinical guidelines established? (CDC, ECDC, GARP, nat'l experts) ❑
- ❑ A: National clinical guidelines established? (CDC, ECDC, GARP, nat'l experts) ❑
- ❑ Hospital infection control: plans and policies (CDC, ECDC, GARP, national experts) ❑
- ❑ List of restricted animal antibiotics, by country (Country-level data, national experts) ❑
- ❑ AGP ban Y/N/in-between (Country-level data, research) ❑
- ❑ H: Policy incentives for appropriate use? Y/N/in-between (Country data, ad hoc research) ❑
- ❑ A: Policy incentives for appropriate use? Y/N/in-between (Country data, ad hoc research) ❑
- ❑ Manufacturing wastewater control policies – esp pharma (Environment ministries) ❑
- ❑ Farm and aquaculture residue control policies (Agriculture ministries) ❑

Indicators

❑ = Human
❑ = Animal
❑ = Environment
❑ = Development
❑ = Other / global

Availability of information:

❑ = Definitely or probably have data
❑ = Maybe could get data, is limited
❑ = Wishful thinking

Infection prevention / public health / water and sanitation

- ❑ Human immunization rates (pcv, Hib, rotavirus, annual flu) (WHO) ❑
- ❑ Primary health care - physicians, hospital beds per capita (World Bank) ❑
- ❑ Sanitation - % of population using improved facilities (World Bank) ❑
- ❑ Clean water – % of population with access to improved water source (World Bank) ❑
- ❑ <5 mortality - diarrheal, pneumococcal (WHO) ❑
- ❑ Animal immunization rates (OIE, USDA, etc) ❑
- ❑ Farm sanitation laws (USDA, FSIS, Europe, regional laws from national gov'ts) ❑
- ❑ Hospital infection control – HAI rates (CDC, ECDC, etc) ❑
- ❑ Use of diagnostics – changes in empirical use, appropriate de-escalation rates (Ad hoc research) ❑

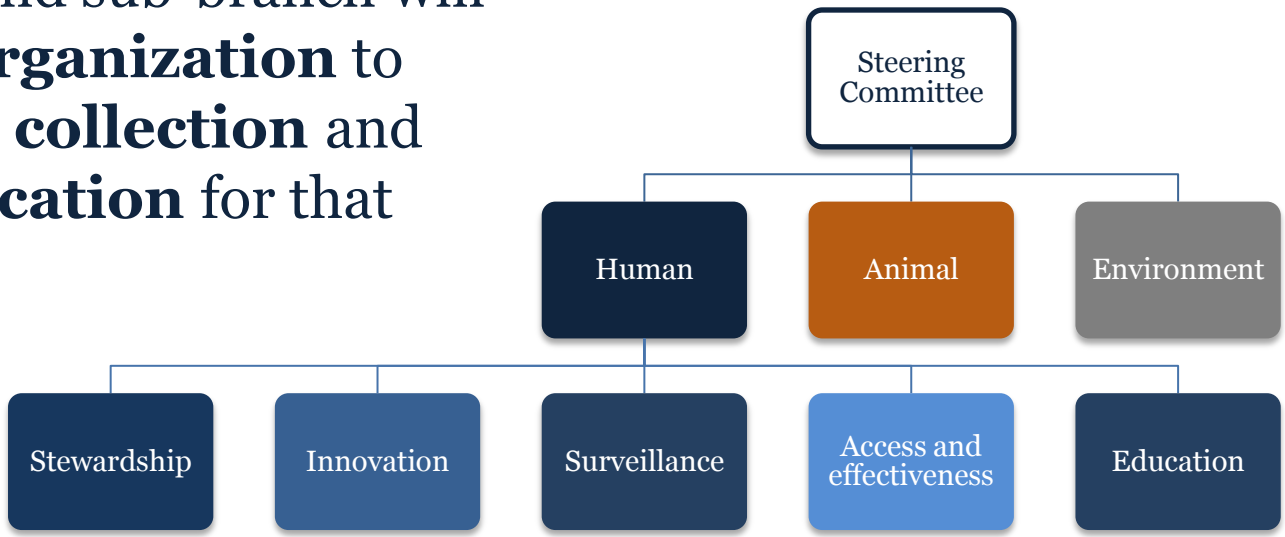
Public awareness / education

- ❑ Public national awareness campaign conducted? (How often? Success?) ❑
- ❑ AMR coverage in medical / nursing / pharma education (Country and school-level data) ❑
- ❑ AMR coverage in veterinary education (Country and school-level data) ❑
- ❑ Continuing medical / clinical education AMR components? (Country, school-level data) ❑

Structure

CARA will operate through at least three main branches: **human**, **animal** and **environment**.

- Human branch will be very large and divided into subgroups
- Each branch and sub-branch will have a **lead organization** to organize **data collection** and **report publication** for that branch



Leadership

- A founders' steering committee is currently **finalizing a structure** and modus operandi for CARA
- Leadership **drawn from non-profit sector**, to avoid conflicts of interest
- Branches and sub-branches will have one or two **lead organizations to coordinate**

Leadership

Steering Committee members:

- Dr. Jean Carlet, World Alliance against Antibiotic Resistance (**WAAR**)
- Dr. Trinad Chakraborty, German Center for Infection Research (**DZIF**)
- Dr. Allan Coukell, **Pew Charitable Trusts**
- Dr. Frode Forland, Norwegian Institute of Public Health (**NIPH**)
- Ms. Amanda Glassman, Center for Global Development (**CGD**)
- Prof. Stephan Harbarth, **DRIVE-AB**
- Prof. Samuel Kariuki, Global Antibiotic Resistance Partnership (**GARP)-Kenya**
- Dr. Britta Lassmann, International Society for Infectious Diseases (**ISID**)
- Prof. Ramanan Laxminarayan, Center for Disease Dynamics, Economics & Policy (**CDDEP**)
- Prof. Dilip Nathwani, British Society for Antimicrobial Chemotherapy (**BSAC**)
- Prof. Marc Mendelson, **FIDSSA/SAASP**
- Prof. Mike Osterholm, Center for Infectious Disease Research and Policy (**CIDRAP**)
- Prof. Kevin Outterson, **CARB-X**
- Dr. Lance Price, Antibiotic Resistance Action Center (**ARAC**)

Membership

CARA is an **alliance of independent organizations**

- All organizations – public, private, for-profit and non-profit are welcome to join; leadership is drawn primarily from non-profit sector
- Currently around **60 member organizations**
- Member organizations will be affiliated with one branch or sub-branch, and contribute to reports by:
  - Collecting and reporting data on indicators specific to their area of interest in home country
  - Participating in annual or biannual meetings

JOIN THE ALLIANCE

Interested organizations can join online: cddep.org/alliance

Work Cycle and Reporting

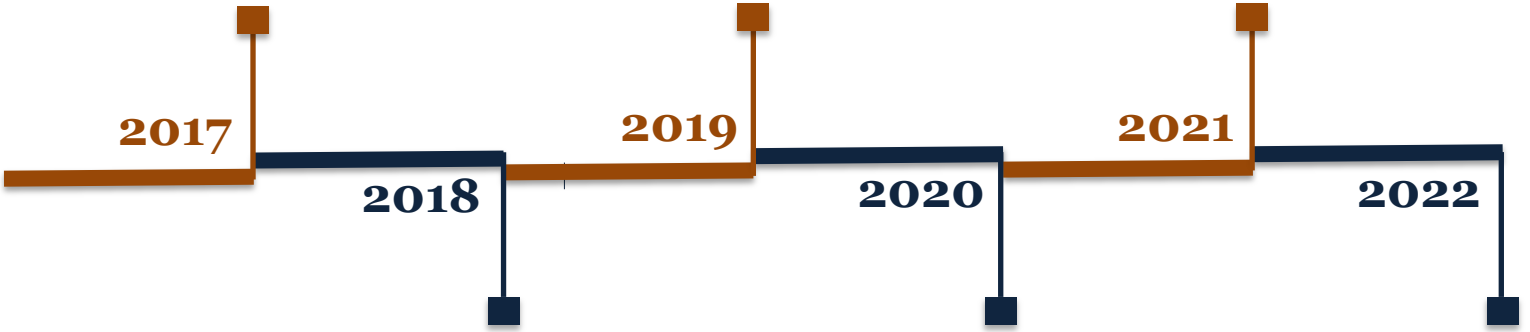
- 2-year cycle for reporting: **each branch will report on progress every 2 years**, in staggered intervals
  - Collected into global report every 2 years

- Reporting will be as **transparent** as possible
  - Data **validation**
  - Data sources made **public and accessible**, to the extent possible

- Reports will be framed to be **as helpful as possible** to countries and global organizations working on AMR

Next Steps

- Steering committee is currently selecting branch and sub-branch lead organizations
- Final indicator selection
- Begin data collection
- Ongoing member recruitment



www.cddep.org/alliance