GARPNet News

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In this issue:

Integrating science and policy for decisive action on antimicrobial resistance

A summit convened by the Wellcome Trust

On April 26 and 27, the UK's Wellcome Trust charity brought together some of world's most thoughtful and experienced scientists and policy-makers working on antimicrobial resistance. Dame Sally Davies, the Chief Medical Officer for England, who has been the leading voice in Europe bringing AMR to greater prominence globally, led the summit. Ramanan Laxminarayan, CDDEP Director, was a co-convenor. Dame Sally is particularly concerned about the effects of AMR in low- and middle-income countries and the urgent need for policy development in those countries. Participants were drawn from all over the world, with all major regions and active organizations represented. This included high-level participation from the World Health Organization, ReAct, the World Bank, the U.N. Food and Agriculture Organization, health ministries and many others.

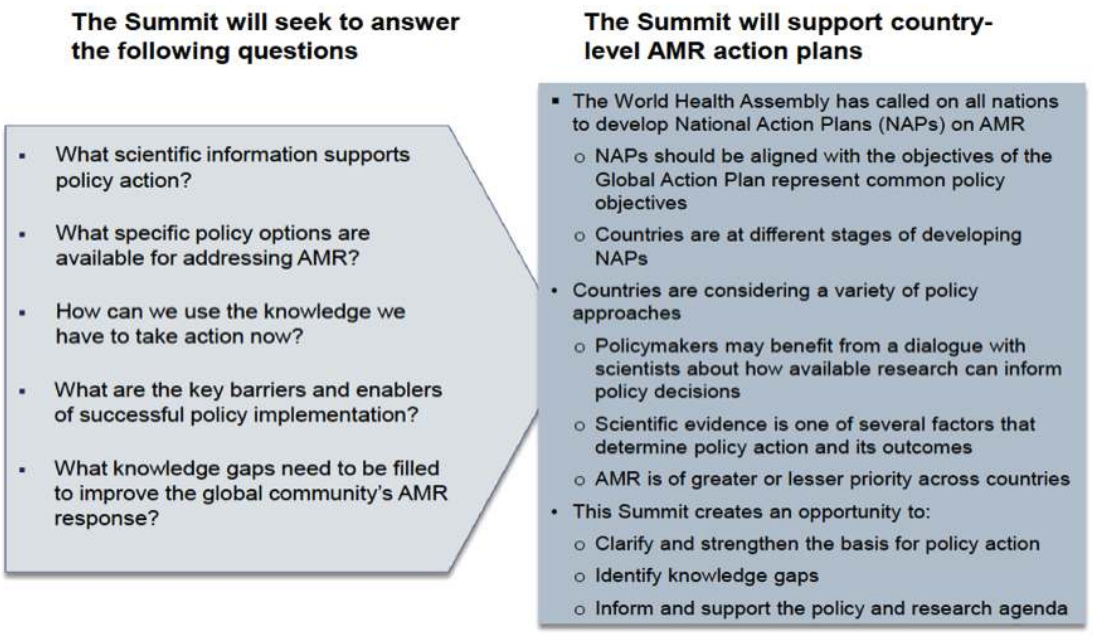


Figure 1. SOURCE: Wellcome Trust/Galen/Atlantica

GARP-Kenya was well represented by working group vice-chair Linus Ndegwa and Ministry of Health focal point and GARP-Kenya coordinator Evelyn Wesangula. Heiman Wertheim, until recently principal investigator of GARP-Vietnam, Sujith Chandy, GARP-India working group member, and Marc Mendelson, GARP associate in South Africa, also participated. Dr. Ndegwa spoke about the GARP experience on a panel entitled, "Coordinating a national response in a resource-constrained environment."

Figure 1 set the stage for the two days of deliberations.

Integrating science and policy for decisive action on antimicrobial resistance: A summit convened by the Wellcome Trust (*continued from page 1*)

The meeting format was designed to get everyone involved and contributing. Topics were introduced briefly, followed by discussion from the floor and then electronic voting, intended to sort out the interventions that had sufficient evidence to support implementation from those for which effectiveness was less certain. Panel discussions were held on some issues (e.g., the role of surveillance and monitoring in mobilizing country-level responses).

Four major areas were explored, each with multiple strategies and interventions (Figure 2).

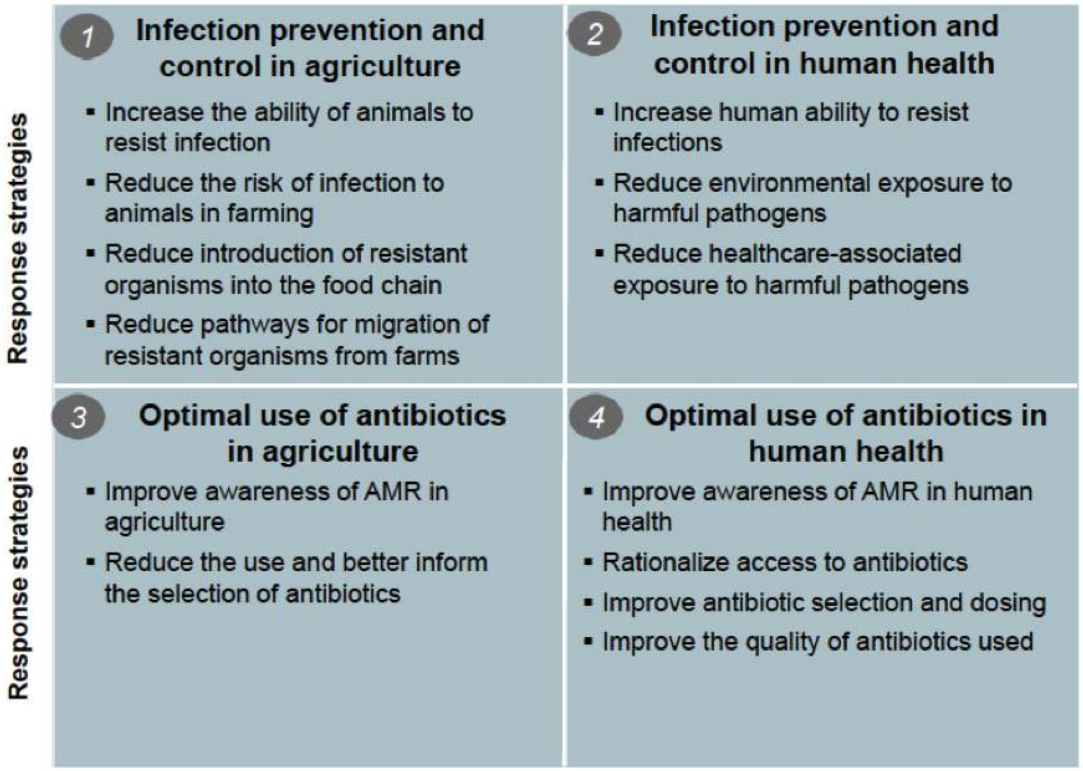


Figure 2. SOURCE: Wellcome Trust/Galen/Atlantica

A consulting group, Galen/Atlantica, prepared the background material for the summit, including comprehensive reviews of the major interventions under each of the four objectives, such as improving vaccination coverage as a way to increase human ability to resist infections. Galen/Atlantica set these out before discussing the objective, as for objective 2 (Figure 3).

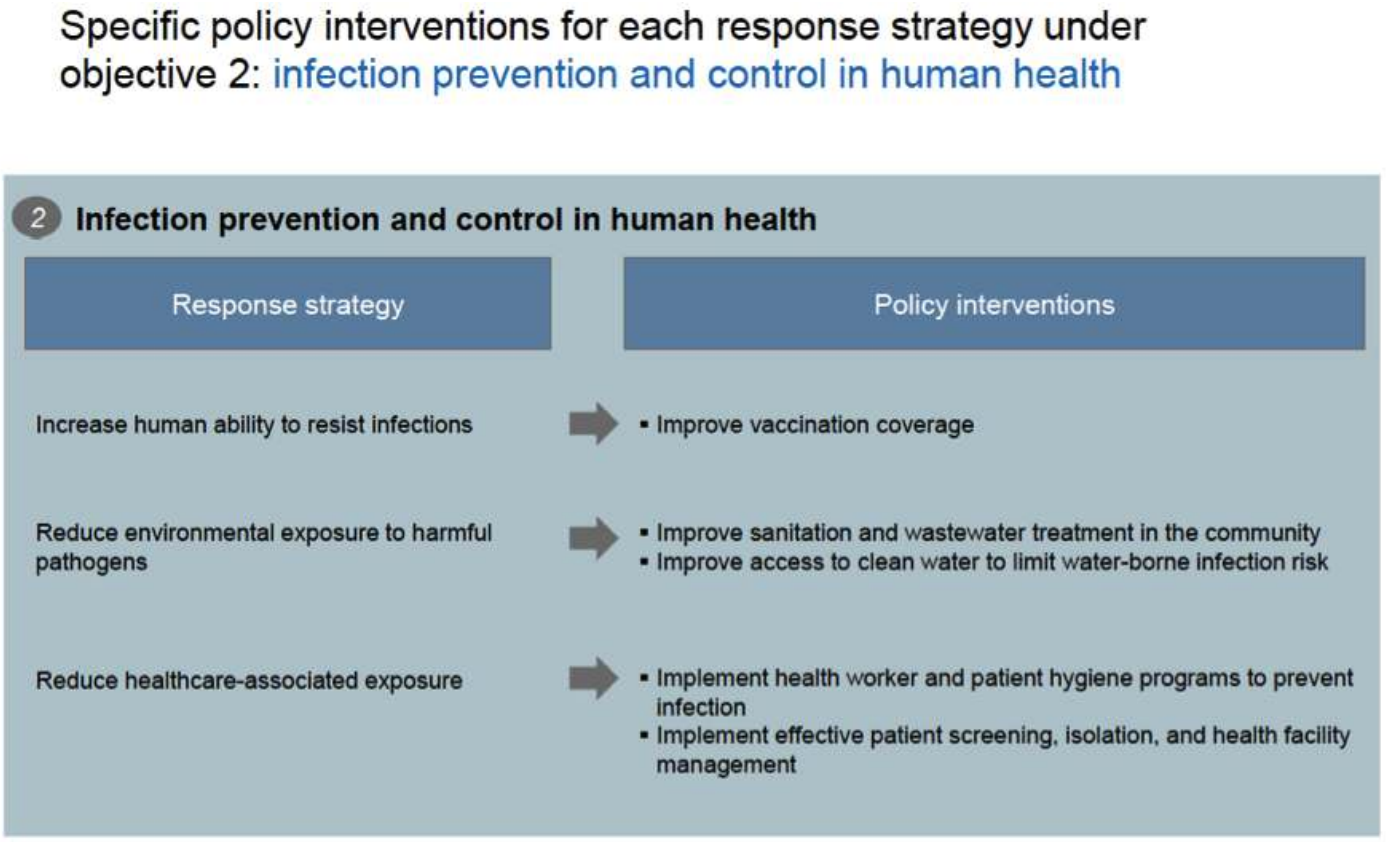
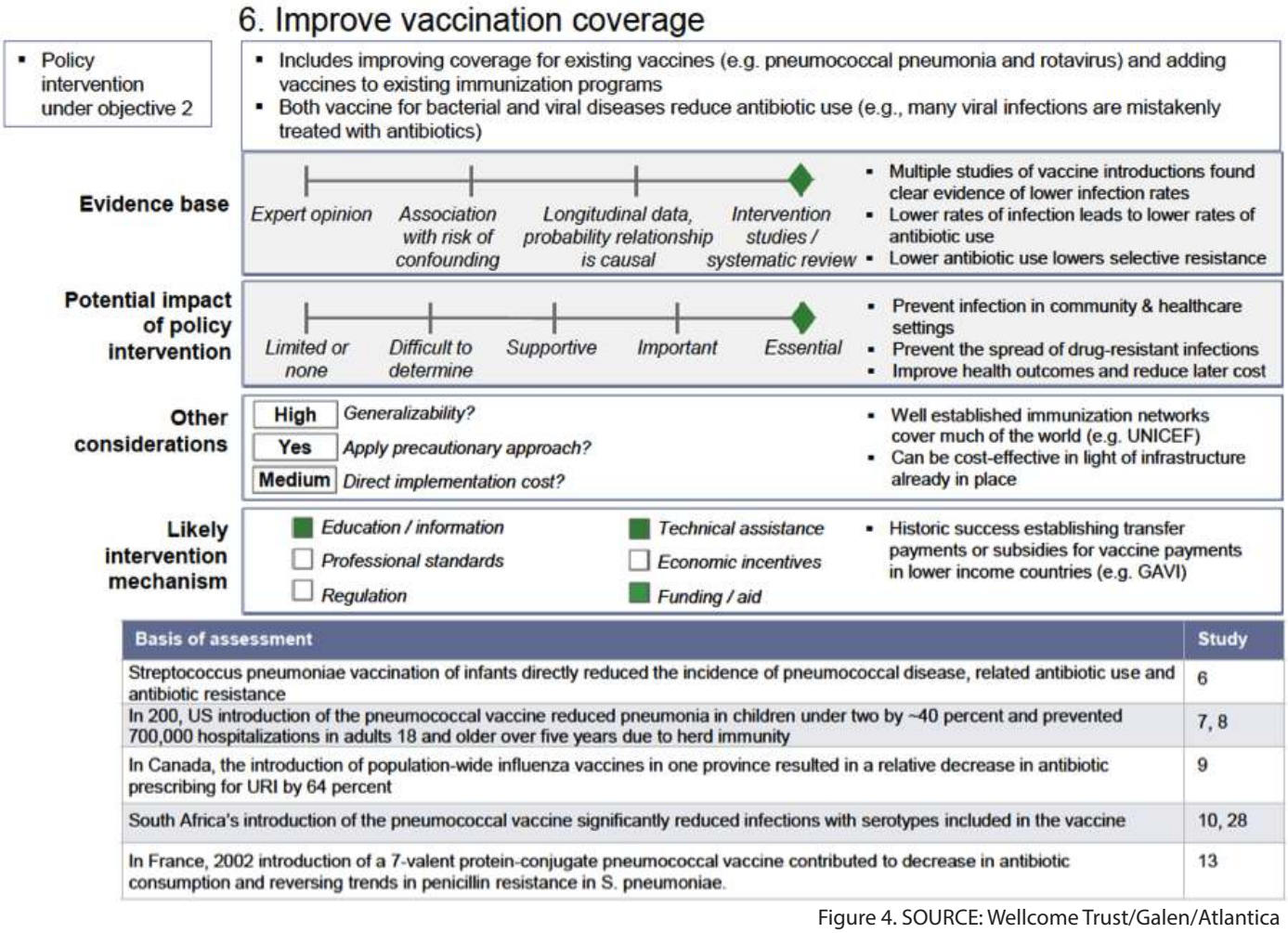


Figure 3. SOURCE: Wellcome Trust/Galen/Atlantica



Basis of assessment	Study
Streptococcus pneumoniae vaccination of infants directly reduced the incidence of pneumococcal disease, related antibiotic use and antibiotic resistance	6
In 200, US introduction of the pneumococcal vaccine reduced pneumonia in children under two by ~40 percent and prevented 700,000 hospitalizations in adults 18 and older over five years due to herd immunity	7, 8
In Canada, the introduction of population-wide influenza vaccines in one province resulted in a relative decrease in antibiotic prescribing for URI by 64 percent	9
South Africa's introduction of the pneumococcal vaccine significantly reduced infections with serotypes included in the vaccine	10, 28
In France, 2002 introduction of a 7-valent protein-conjugate pneumococcal vaccine contributed to decrease in antibiotic consumption and reversing trends in penicillin resistance in S. pneumoniae.	13

Figure 4. SOURCE: Wellcome Trust/Galen/Atlantica

After discussing policy interventions, Galen/Atlantica gauged the level of evidence for each strategy, and prepared detailed graphics of their findings. Figure 4 summarizes the evidence for improving vaccination coverage.

"We are already seeing the consequences of AMR, with estimates of around 50,000 deaths per year recently in Europe and the US, due to antibiotic resistant infections, and far greater numbers worldwide."

–Professor Dame Sally Davies,
Chief Medical Officer of England

By the end of the summit, all topics had been discussed, debated and voted on. A full report is forthcoming, but a quick summary circulated by the Wellcome Trust includes these concluding thoughts (Figure 5).

Areas for Immediate Action

Antibiotic use in agriculture must be reduced, without compromising the food system's capacity to meet increasing global demand

- **Growth promoters**: Use of antibiotics for growth promotion and disease prevention should be replaced by improved animal husbandry practices
- **Insurance:** Innovative insurance schemes should be developed to mitigate the risk of income loss among producers during this transition.
- **Food production:** Food production systems should do more to limit consumer exposure to drug-resistant microbes (e.g. through increased use of surface cleansing).
- **Alternatives:** Alternative treatments and husbandry practices should be investigated to support reduced antibiotic use in agriculture.

There is an urgent need to develop better local understanding of antibiotic use and resistance levels, in human and animal medicine

- **Surveillance systems**: Surveillance and monitoring are essential to provide a clear picture of local situations and to assess the impact of interventions; expanded data are required on both antibiotic usage and resistance (in humans and animals).
- **Targets:** Quantitative data will enable policymakers to track progress over time, increase accountability and set targets to motivate changes in behaviour.
- **Labelling**: Labelling has a potentially important role to play in emphasising the 'protected' status of antibiotics, supporting tracking mechanisms, and ensuring drug quality.
- **Education**: Community-level education is necessary to ensure that all people, from parents of ill children to farmers, understand what antibiotics can and cannot do and why minimising use is in the interest of all.

Public health and food production systems need to optimise antibiotic use

- **Public health:** Consistent with the Sustainable Development Goals, emphasis should be placed on improved sanitation and access to clean water, and in promotion of public health measures such as good hand hygiene practices and enhanced infection prevention and control in hospitals; such moves would address AMR as well as deliver direct public health benefits.
- **Development assistance**: International development agencies need to integrate AMR prevention as a core aspect of their work.
- **Education:** Healthcare worker education and professional development should have a stronger emphasis on antibiotic stewardship.
- **Economics:** Financial incentives that link rewards to volumes of antibiotic sales need to be eliminated.
- **Guiding use:** Enhanced 'gating' of antibiotics is required, so more use is routed through healthcare professionals and over-the-counter use is minimised, with due consideration for the need to enhance access to antibiotics in many countries of the global South. Limits should be placed on international internet sales of antibiotics.

Figure 5. SOURCE: Wellcome Trust

Strengthening the role of laboratories in antimicrobial resistance surveillance

CDDEP is working with the East, Central and Southern Africa Health Community on a project supported by the World Bank about antimicrobial resistance surveillance in low-resource countries. The World Bank's East Africa Public Health Laboratories Networking Project (EAPHLN), with about 30 laboratories mainly in border areas of Burundi, Kenya, Rwanda, Tanzania and Uganda, is the test case to see if they can be one source of much-needed antibiotic resistance surveillance data for the East Africa region. Not unexpectedly, the Network includes a number of GARP working group members and affiliates.

A project symposium was held on May 4-5 in Nairobi, co-convened by CDDEP and EAPHLN. Presentations from EAPHLN member countries (except Rwanda) and experts from the World Health Organization, academic institutions, and other organizations were featured. Hellen Gelband spoke about GARP, and CDDEP's Eili Klein talked about ResistanceMap. CDDEP consultants Professor Iruka Okeke from the Unviersity of Ibadan and Professor Oladipo Aboderin, from Obafemi Awolowo University, Nigeria spoke at the symposium, as did Olga Perovic, from the National Institute of Communicable Diseases in South Africa. Sam Kariuki, long-time chair of the GARP-Kenya working group was a keynoter; and Evelyn Wesangula, Ministry of Health AMR focal point and GARP-Kenya coordinator, gave an update on the development of a national AMR action plan and surveillance network. A full symposium report will be available on the CDDEP website soon and the complete CDDEP–Eastern, Central and South Africa Health Community (ECSA-HC) case study will be released in a few months.

The Fleming Fund

England's Department of Health recently established the Fleming Fund, designed to support low- and middle-income countries (LMICs) in combating antibiotic resistance. The Fund will provide £265 million in assistance to improve laboratory capacity, diagnosis and surveillance of antibiotic resistance. LMIC governments can apply for grants of up to five years, and are encouraged to take a OneHealth approach linked to national action plans for antibiotic resistance. The Fund will also support Fleming Fellows, a multi-disciplinary network of professionals dedicated to tacking antibiotic resistance in LMICs. When the application process for these funding mechanisms opens, CDDEP will assist any GARP working group interested in applying. Contact us if you are interested.

Drafting a national action plan in Mozambique

GARP-Mozambique held their first national action plan workshop on May 5, facilitated by CDDEP consultant Dr. Kim Faure, who shared tools developed during the successful implementation of a national strategy in South Africa.

The workshop was attended by representatives of the Ministries of Agriculture, Fisheries, and Health; WHO, USAID, universities, hospitals and research institutions. Participants used the GARP situation analysis as the basis to discuss six strategic objectives (Figure 6). Priority activities for Mozambique were proposed, such as focusing on the burden of disease in children under five and developing standard treatment guidelines to address resistance to frontline antibiotics.

Using outputs from this discussion, Dr. Faure drafted a national action plan that the GARP working group will review before the next stakeholders meeting in June. Participation at all stages from the Ministries of Health and Agriculture ensures that implementation of the plan will be supported.

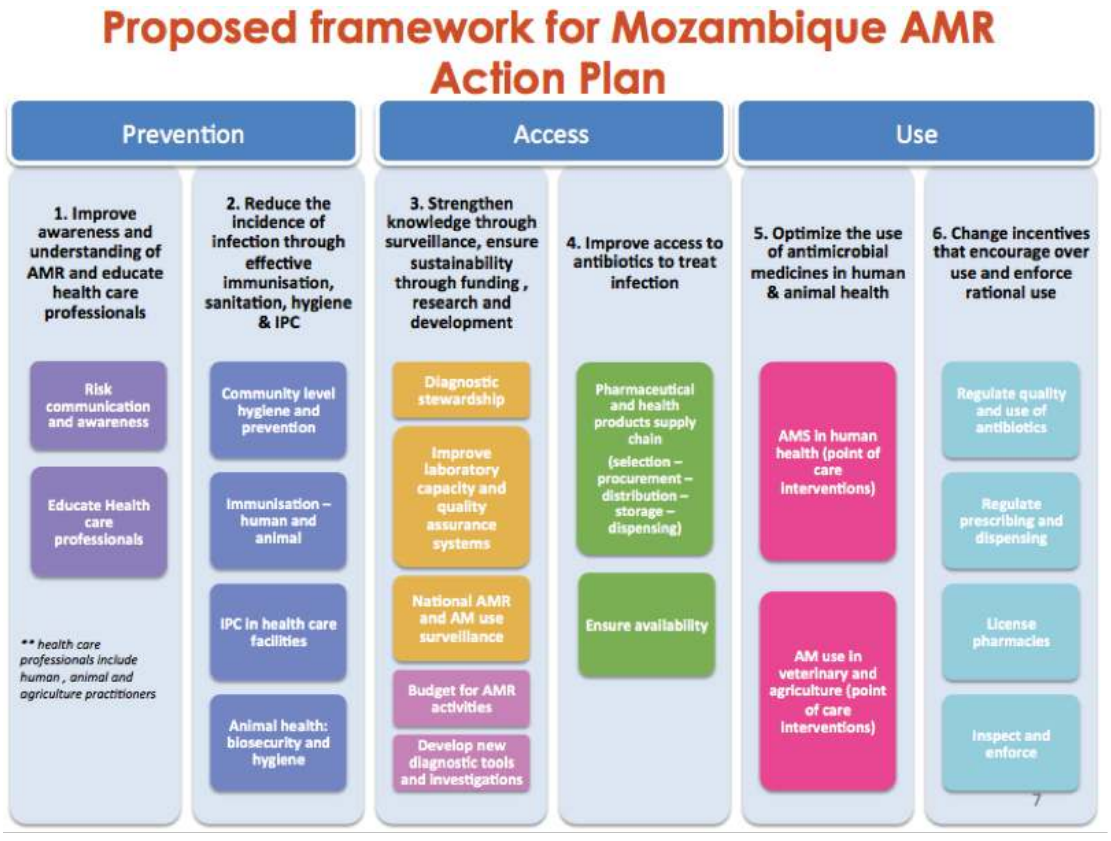


Figure 6. SOURCE: Adapted from WHO by Kim Faure.

Global Antibiotic News

Country Highlights

Kenya

- GARP-Kenya held a multi-stakeholder workshop on March 15 and 16 to discuss the development of a OneHealth national action plan to address antimicrobial usage and antimicrobial resistance in agriculture and public health. Representatives from the United Nations Food and Agriculture Organization (FAO) and World Organization for Animal Health (OIE) and Kenyan health ministry officials spoke at the event, which was attended by more than 50 participants from across the country. The GARP situation analysis, currently being updated, was used as the basis to inform the development of the national action plan. A technical working group is set to develop the final action plan alongside a national policy in the coming months.

New on the CDDEP Website

GARP activities on the CDDEP blog

- "A day in the life of *Staphylococcus aureus* and other stories: winning essays from Nepal."
- "Taking on antibiotic resistance: Ambassador of the Netherlands hosts seminar in Washington, D.C."
- "Public health is hard: Overcoming obstacles in Nepal."

Other blogs and graphics

- Blog: "Living with resistance: using a social-ecological systems framework for governance of resistance evolution." Nestor Mojica, CDDEP.
- Blog: "*Wolbachia*: a microbiological tool in the fight against dengue fever." Anjali Merchant, CDDEP.
- Blog: "Will Zika plague the Summer Olympics?" Elena Martinez, CDDEP.
- Graphic: "FDA New Molecular Entity Antibiotic Approvals, 1981-2015." CDDEP.

Are you active on social media?
Connect with CDDEP on Facebook
Twitter, Instagram and LinkedIn:

2016 John Ring LaMontagne Memorial Lecture

On April 5th, 2016, CDDEP Director Ramanan Laxminarayan delivered the 2016 John Ring LaMontagne Memorial Lecture at the National Institutes of Health in Bethesda, Maryland. Video of the lecture, entitled "The State of the World's Antibiotics," is available online, and slides are available on the CDDEP website.

CDDEP Director Ramanan Laxminarayan delivering the LaMontagne lecture. Image courtesy NIH.

Recent CDDEP Publications

- Gandra, S., Merchant, A., and Laxminarayan, R. 2016. "A role for private sector laboratories in public health surveillance of antimicrobial resistance." *Future Microbiology*.
- Presidential Advisory Council on Combating Antibiotic-Resistant Bacteria (PACCARB). *Meeting Summary: Second Public Meeting of the PACCARB, March 30-31, 2016.*

Send us your feedback!

We welcome your comments on and additions to each newsletter. Please send any content or questions to Molly Miller-Petrie at millerpetrie@cddep.org

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