



One Health approaches to data analysis and visualization for policymaking & advocacy

Anneke Schmider



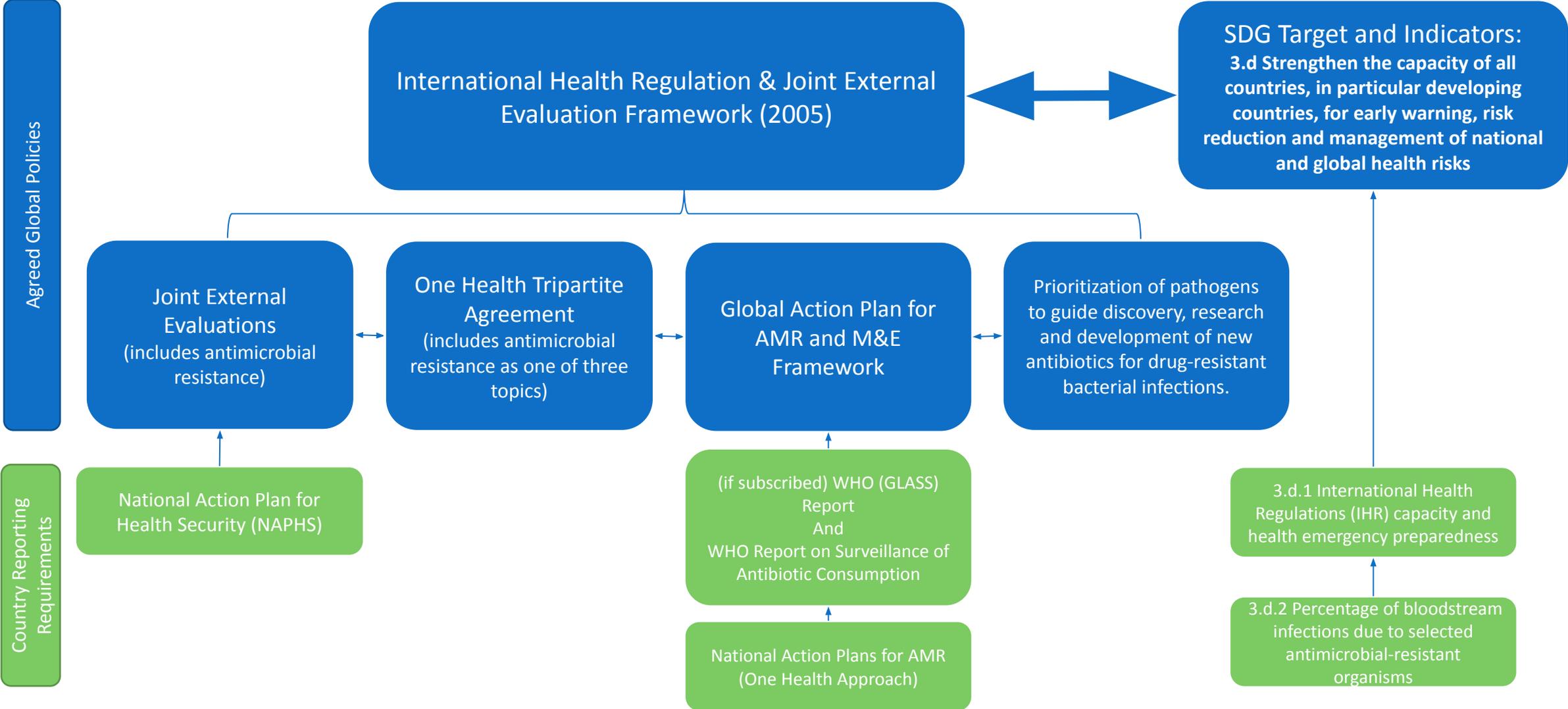
Policy Cycle for AMR

- **Formal policy cycle** documentation consists of National Action Plans, Programme documents, Annual Reports and Situational Assessments. These were sourced for their use of data, analysis and visualisation.
- **Governance** for One Health policymaking show two types of policymakers:
 - **Strategic policymakers:** sit on high level, national committees, and may include Ministers and high-level officials. These policymakers may not necessarily have a health/science background.
 - **Technical policymakers:** members of technical committees that inform national committees and strategic policymakers. The policymakers may influence strategic policymaking and are likely to have a specialist background relevant to understanding AMR in human or animal health.



Source: Adapted from WHO: The Policy Cycle

Global Frameworks and National Reporting Requirements



Sources: WHO 2015 Global Action Plan on AMR; WHO GLASS Report 2020; WHO Report on Surveillance of Antibiotic Consumption' WHO 2018. Joint external evaluation tool: International Health Regulations (2005), second edition; FAO-OIE-WHO 2016. Antimicrobial Resistance: A Manual for Developing National Action Plans; WHO 2019. Monitoring and evaluation of the global action plan on antimicrobial resistance: framework and recommended indicators; WHO 2019. SDG AMR Indicator Proposal Summary 3.d.2.

Current State of AMR Policymaking

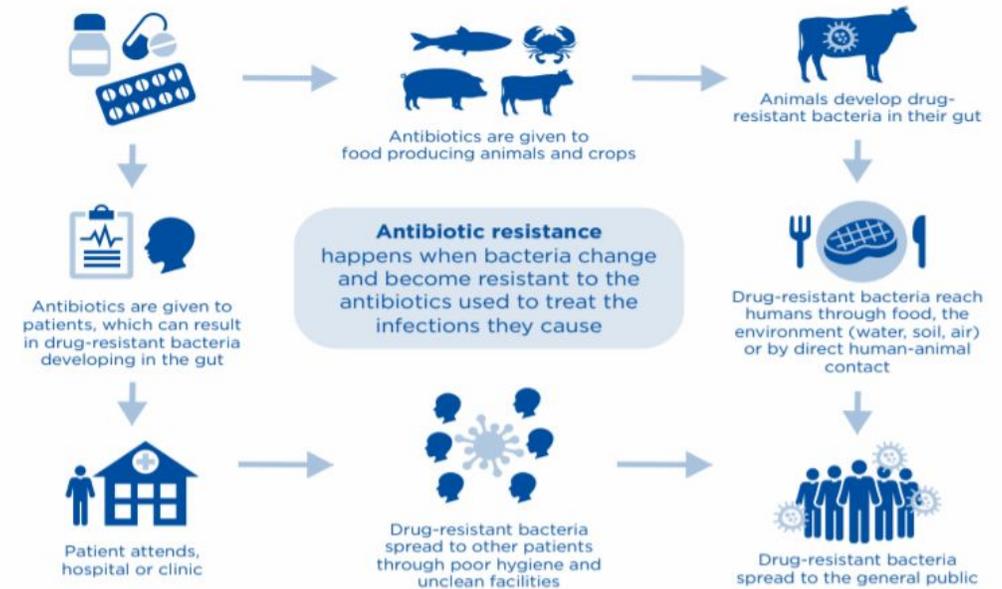
- Annual or biennial reporting is a key aspect of country policy literature, as recommended by WHO FAO and OIE; however, regular policy reporting is absent in most countries.
- There is only limited use of data analysis and visualisation in the available policy literature, indicating a likely weak link between policymaking and use of data, including surveillance data.
- Data analysis and visualisations, where used, are focused on technical policymakers, rather than strategic policymakers.
- Available academic studies are key components situational assessments, which can be considered as key policy documents.
- Compared to the analysis of AMR, there is more limited analysis of data about antimicrobial consumption and use.

With many countries about to refresh their National Action Plans, there are opportunities to improve data analysis and visualisation for One Health policymaking.

The Value of Regional Approaches for Policymaking & Advocacy

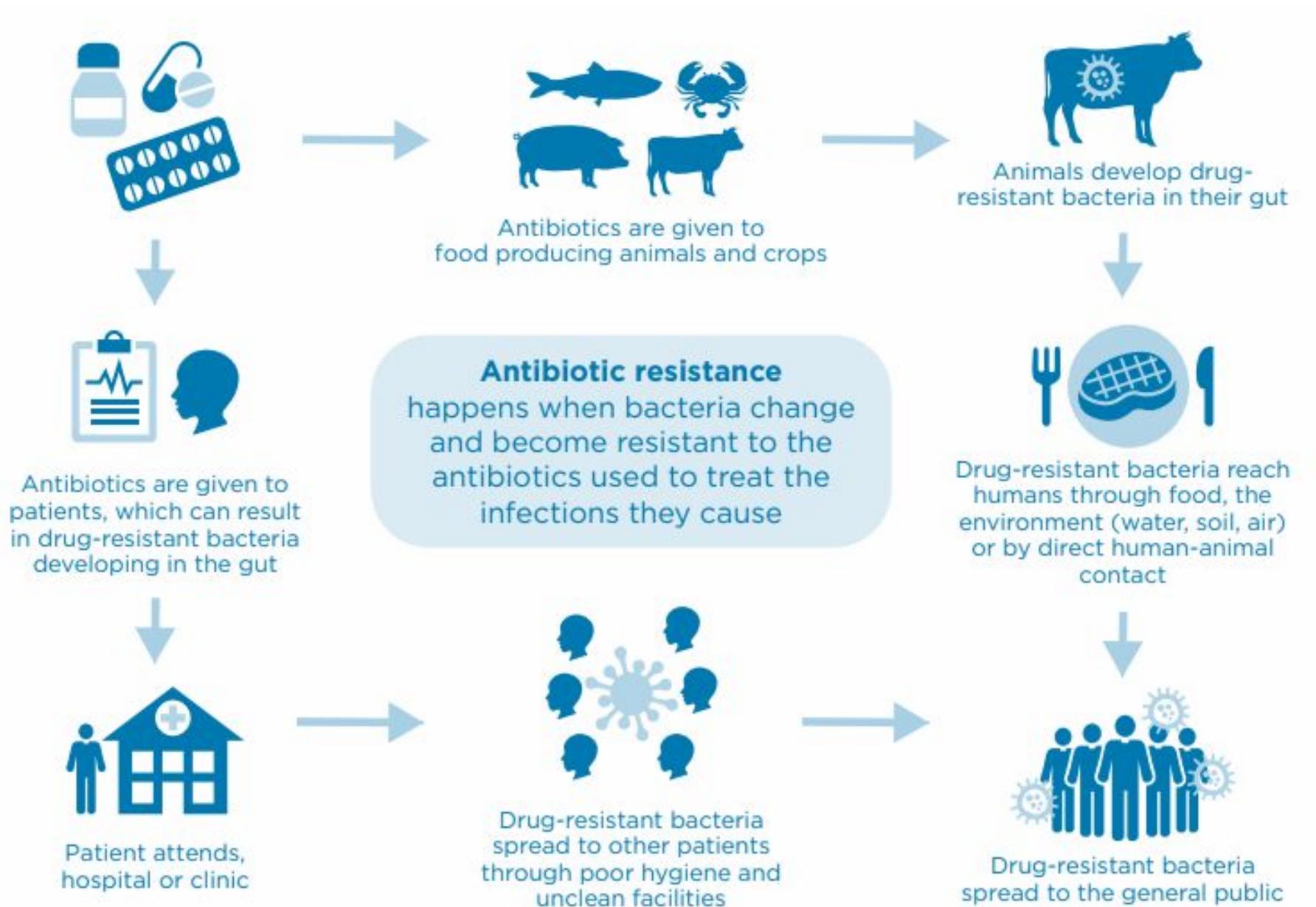
- Most information on interventions and best practices for AMR cascade ‘top-down’ from the global to the national level, suggesting there may be little room for LMIC to shape the global agenda.
- Regional initiatives may help to enable LMIC voices to inform national, regional and global AMR policy.
- WHO WPRO framework of One Health as a ‘system’ provides a useful organising framework of areas of common policy interest across countries (diagram right)

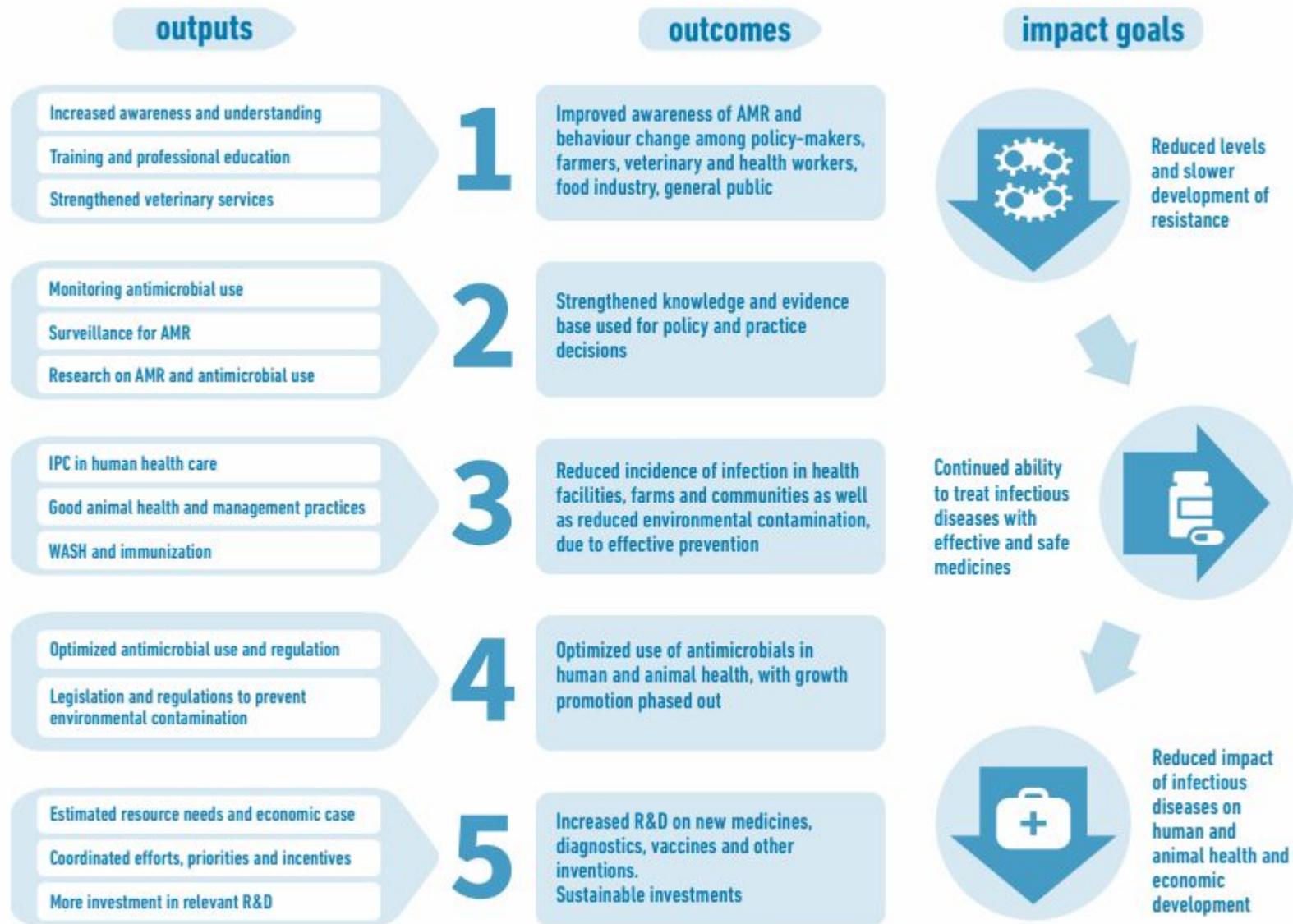
Figure 1. Illustration of the key drivers in the spread and emergence of AMR



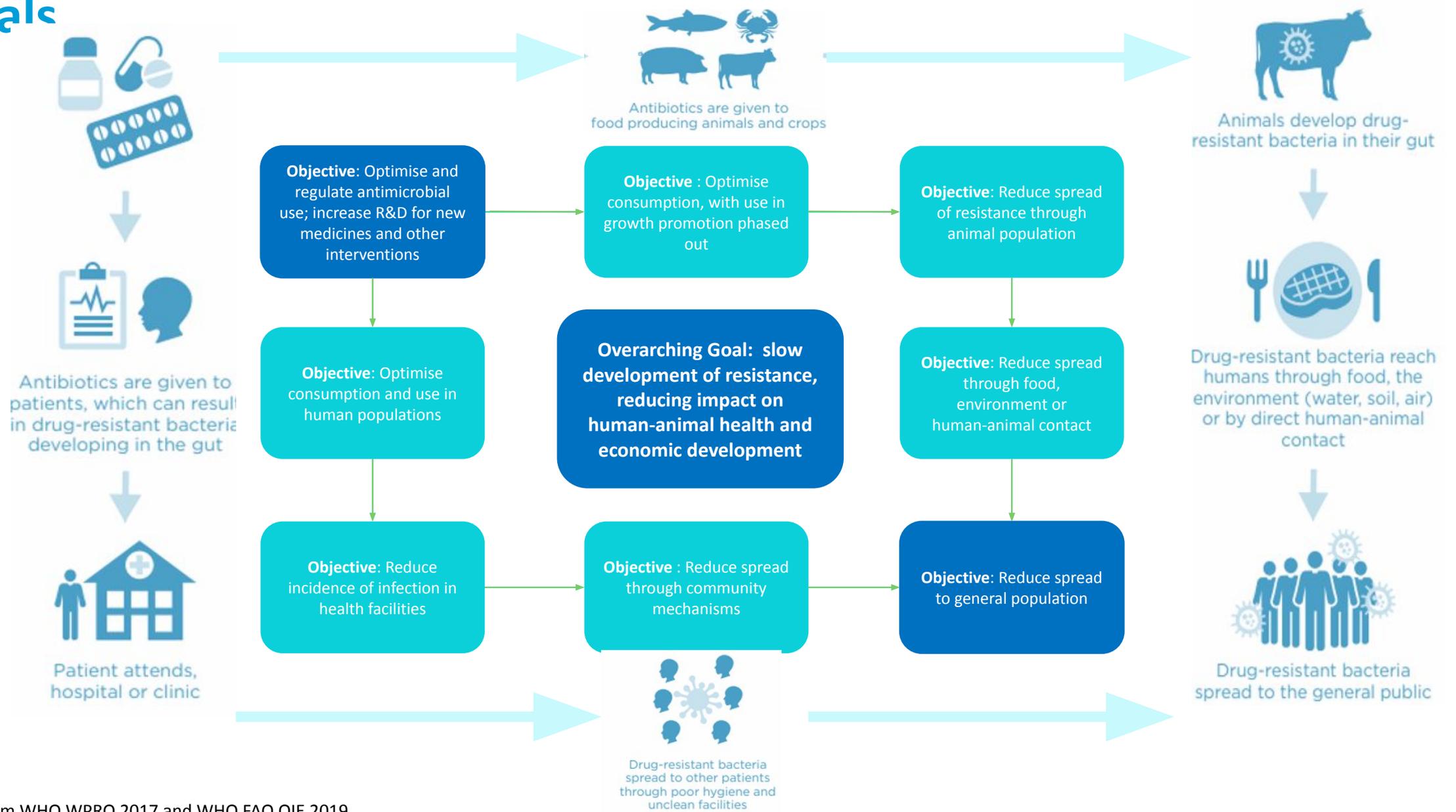
Source: World Health Organization, 2015.

Source: WHO WPRO 2017.

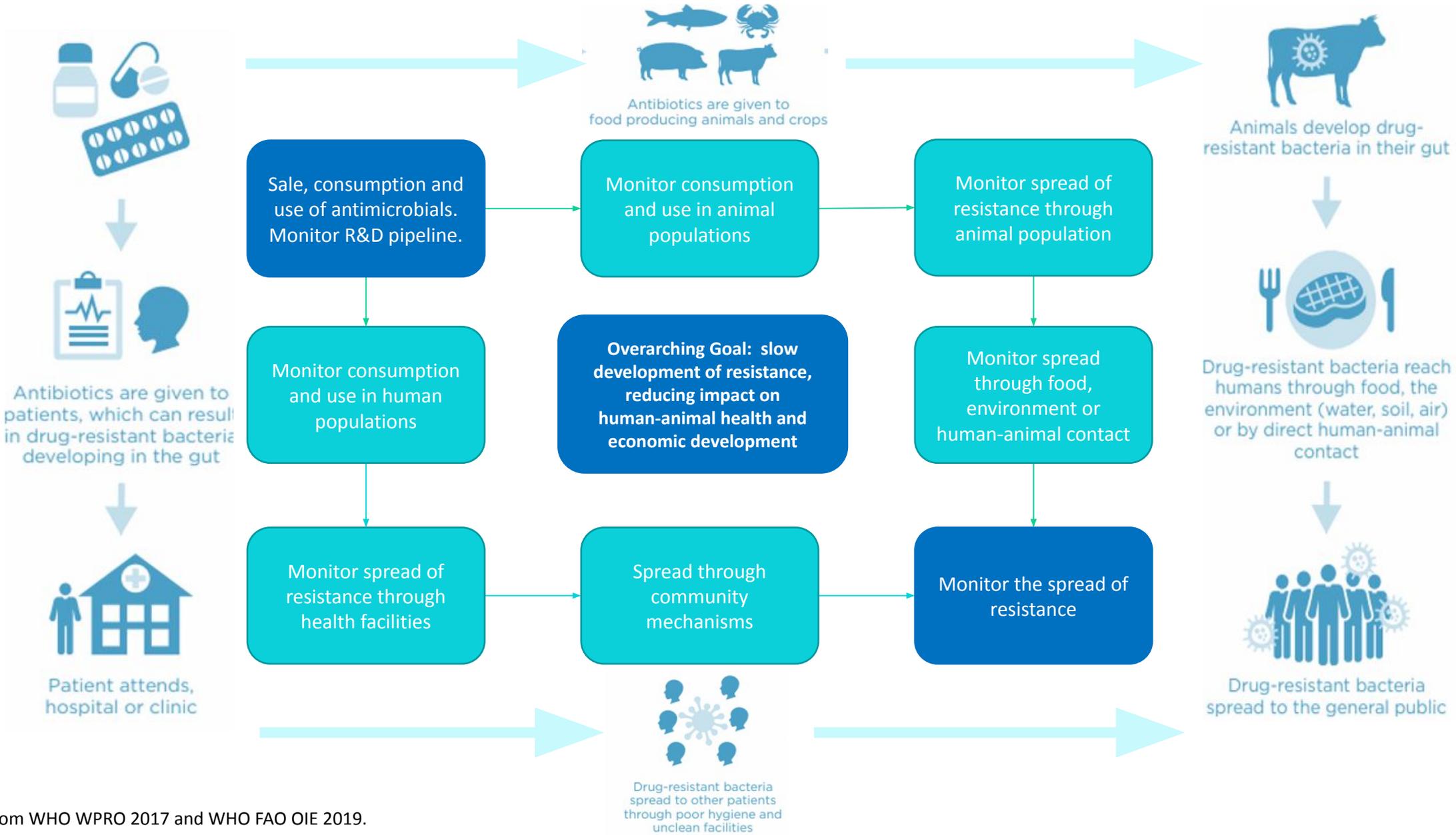




One Health 'Systems View' for AMR Policy and Goals



Surveillance System



Adapted from WHO WPRO 2017 and WHO FAO OIE 2019.

Dashboard Development

Recommend that a regional platform prototype be developed with an initial focus on:

- Collation and organisation of **existing regional data and research based on a One Health ‘systems’ approach**, focussing on common policy interests and future national action planning needs.
- Leading development of a **country-regional platform prototype** populated using synthetic data focussed on antimicrobial resistance, consumption and use. The prototype could also be used to demonstrate to countries how existing methods can be strengthened, how new surveillance collections can be established, and how new technologies can be used at country and regional levels to improve surveillance approaches.
- Consistent with the systems approach, developing **technical guidance** about ‘business process’ mapping to support systems orientation of the next iteration of national action plans to establish, strengthen, extend or innovate within their surveillance systems.
- **Data Sharing**: data sharing templates be developed. A starting point is the development of points for a joint business case which demonstrates the principles of ‘mutual benefit’ and strengthening of data systems and analysis.

Frameworks and Models for Data Sharing

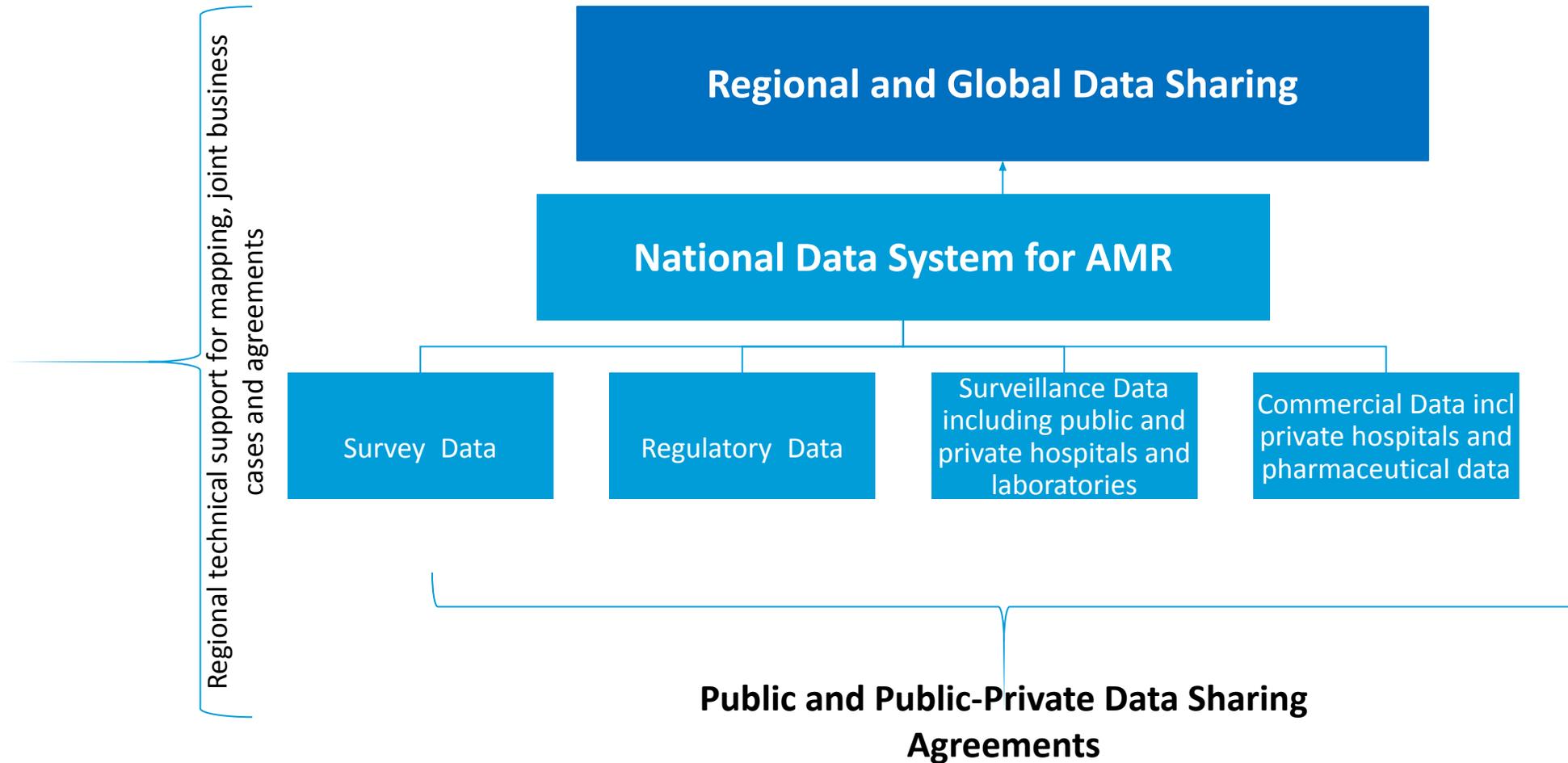
Data sharing requires governance structures, strategies and agreements to be in place for health data, which can be usefully underpinned by collaboration focused on ‘mutual benefit’.

- National (and therefore regional) challenges about sharing data are likely to include the availability of data, lack of agreed governance and use of data for policy, as well as data sharing beyond borders.
- Mapping data sources and reporting data analysis can contribute to understanding where data activities can be strengthened; where there are gaps and innovation possibilities; and how agreements can create joint activities of mutual benefit over time.

Recommendations:

- Regions and countries could collaborate to create regional data governance mechanisms, data strategy, and regional plans focusing on mutual benefits, including, for example, improving institutional and operational capacity.
- As a starting point, agreements about data sharing require a full understanding of the types of data to be shared, including public and private data sources, so that the appropriate stakeholders can be included, and appropriate data-sharing agreements can be reached. Data mapping exercises may represent activities with mutual benefit between regional and country actors.
- Mapping may also help to identify data challenges, as well as opportunities for capacity building for better data, improved governance and use of data for policy, and further data sharing opportunities, which can be anticipated and incorporated into data-sharing agreements.

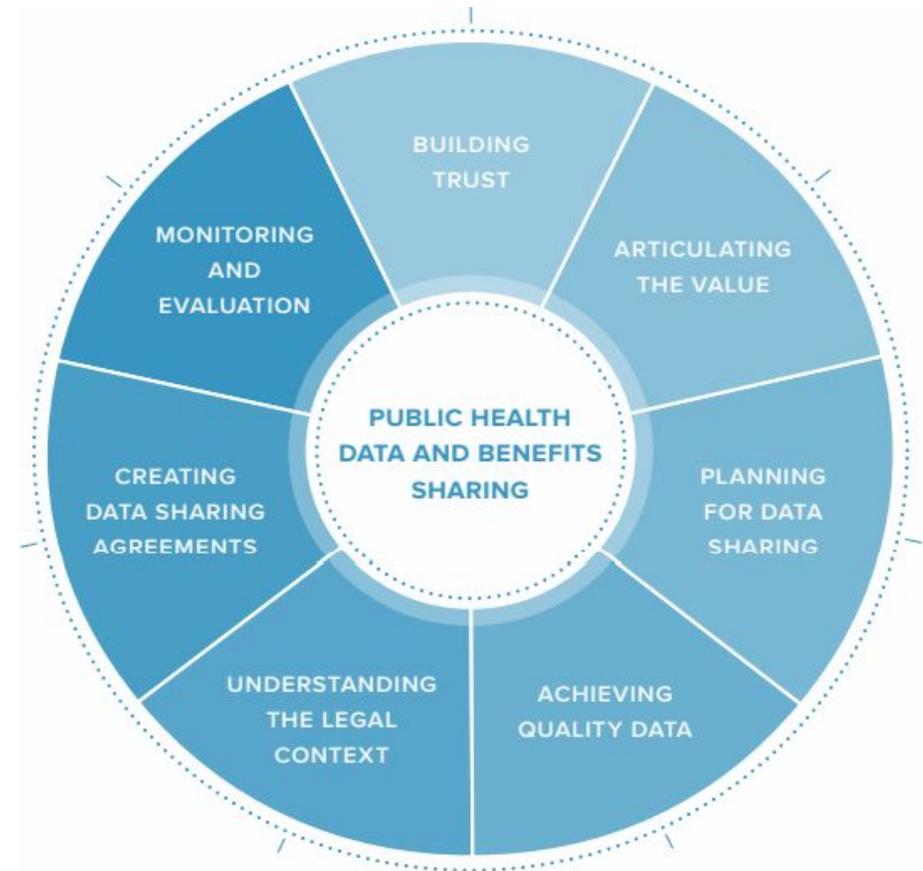
Typology of Data



Chatham House: Data Sharing Guidance

Steps recommended for developing data-sharing negotiations and agreement :

- Make the joint business case for data sharing
- Establish the purpose and agree on data-sharing principles
- Establish governance
- The Agreement (Template Available)



Data Sharing: Principles and Governance

Data Sharing Principles:

For AMR-related data sharing, there is a broad range of possible data, including public and private (commercial) data, individual data and data which may be non-identifying, such as data about pathogens, rather than patients.

Data sharing principles are an important underpinning to any data-sharing agreement and should include discussion about

- the purpose for sharing data;
- the level of detail in the data;
- the environment in which the data will be stored and released;
- who is accessing the data; and
- what will be made public.

Data governance is crucial to the ongoing success of a data-sharing agreement.

- Data governance includes creating a policy environment for knowledge to be extracted from data respecting technical, legal and policy requirements; and may include a focus on transparency, data linkages, data access and integration, and terminology and exchange standards.
- Some countries identify roles and responsibilities within their surveillance system, for example, data custodians. Others identify governance mechanisms, including technical groups and steering committees, which have a role in the governance of data-sharing agreements.
- Data strategies may house data governance mechanisms responsible for ensuring that agreement about data sharing and use is reached; that data is shared as agreed; and that reciprocal benefits, such as improving institutional and operational capacity, are provided.

Important: Innovation is Key

Surveillance is a key area of attention for improvement within most countries' existing national action plans.

Many countries noted the need to establish or strengthen existing national AMR surveillance.

However, many also reported the intention to extend or innovate surveillance into the future.

Case Study

Zambia published its National Action Plan in 2017, and has since published a set of prioritised activities in 2019; and released an integrated antimicrobial resistance surveillance framework in 2020.

The surveillance framework was developed by a country expert group, to focus on surveillance of AMR in the human-health sector, the food-animal sector and the environment. Importantly, the framework uses a short- and long-term phased approach to implementing surveillance activities, with

- **Phase 1** (zero–three years; short-term): Surveillance activity initiated in the first three years;
- **Phase 2** (four–five years; medium-term): Surveillance activity initiated after three years; and
- **Phase 3** (greater than five years; long-term): Surveillance activity initiated after five years.

Broader Research and Innovation

Research and innovation is also an important concept in the national action plans of most countries, with a strong link to improving surveillance.

Analysis of country national action plans also revealed a broader focus research and innovation (example right), including

- the development of research plans or programmes;
- implementation of innovations to improve surveillance activities;
- R&D activities, such as ‘drawing in’ international collaboration for medicine, diagnostic and vaccine development.

OBJECTIVES	STRATEGIC INTERVENTIONS
5.1 Map current funding and promote the use of innovative investment channels for AMR research	5.1.1. Assess available AMR funding mechanisms 5.1.2. Conduct needs assessment and develop a priority framework for AMR funding 5.1.3. Promote the use of innovative investment channels for AMR research funding
5.2 Incorporate AMR research at advanced education institutions	5.2.1. Support AMR researches in universities and relevant research institutes
5.3 Encourage research and development of technical expertise on antibiotic alternatives	5.3.1. Encourage research in and the development of alternatives to antibiotics
5.4 Invest in advanced diagnostic and pharmaceutical techniques for AMR research and development	5.4.1. Invest in advanced diagnostic and pharmaceutical techniques for AMR research and development



Thank You!

