Overview of AMR in Nepal context:

From Situation, Policy to Implementation

Usha Tandukar

Senior Drug Administrator, 10 level

Member Secretary of National Technical Working committee on AMR

Quality Standard and Regulation Division

Ministry of Health , population and Drinking Water

Overview of Presentation

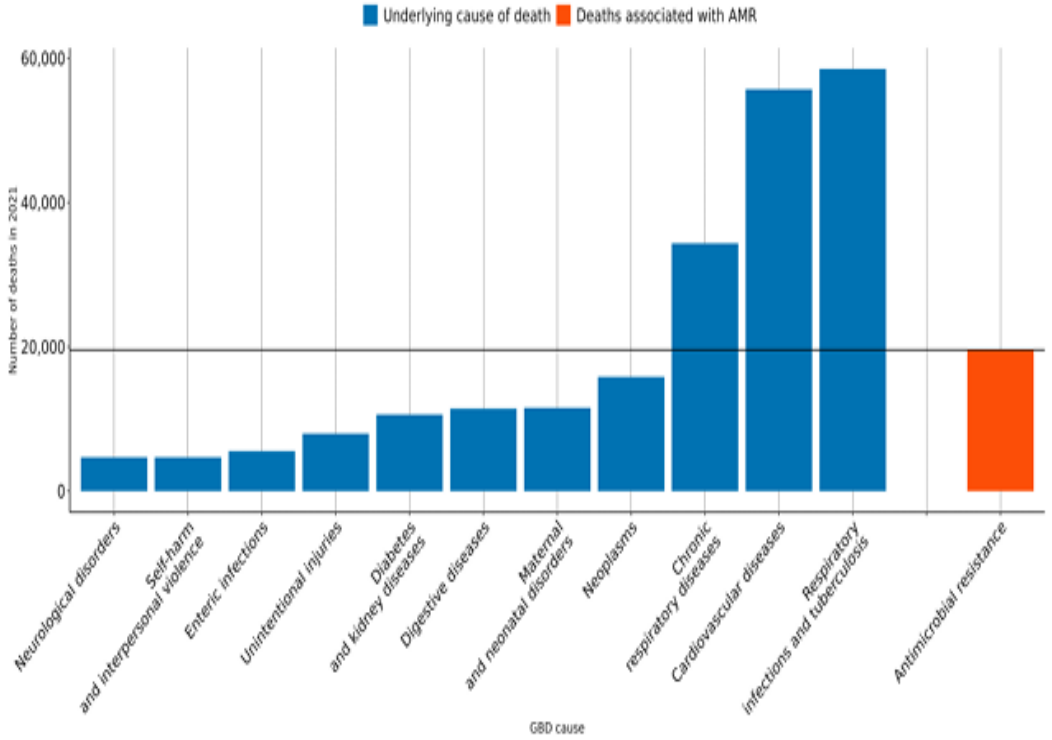
- Current AMR Situation in Nepal
- One Health Approach
- Cross-sectoral Collaboration
- Policy and Governance initiation & Challenges
- Way Forward

AMR and Sustainable Development Goals: WHY AMR matters

- AMR is among the top 10 global public health threats
- Undermines treatments of infections, surgeries and outbreak response
- Threatens health security, food security and Developments
- Critical in epidemics, limits effective treatment options

Situation of AMR in Nepal

Figure 1 Number of deaths by underlying cause, and those associated with AMR in 2021

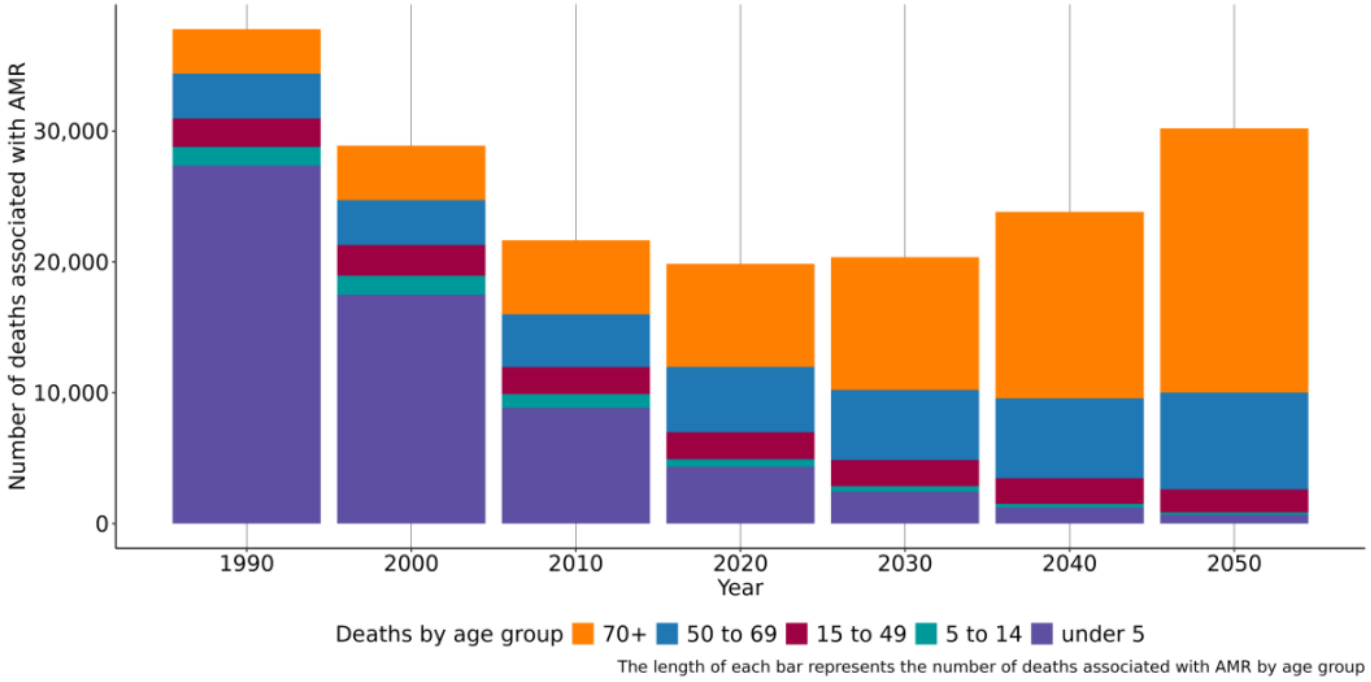


- Antimicrobial Resistance (AMR) is a major global health threat, over 6,000 lives have been lost each year since 1990 in Nepal due to AMR.
- In 2021, there were an estimated 4,710 UI (3,610-5,810) deaths attributable to AMR and 19,600 UI (15,400-23,700) deaths associated with AMR.
- Currently the trend for Nepal could reach up to 20,400 UI [15,500-26,300] AMR-associated deaths in 2030.

Attributable deaths are those directly caused by drug-resistant infections that would have been prevented if the infection was susceptible to treatment.
Associated AMR deaths are all deaths involving a resistant pathogen that might have been avoided if the infection never occurred

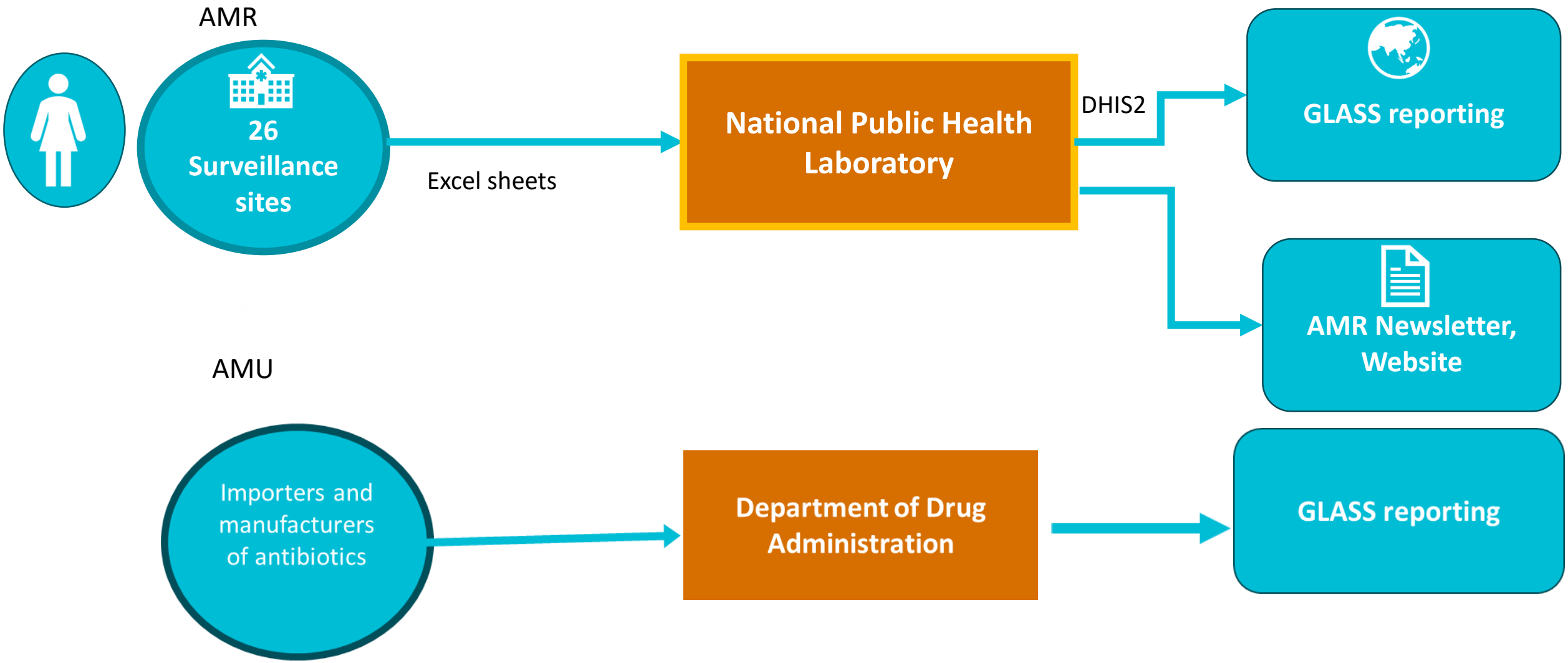
Situation of AMR in Nepal

Figure 3. Number of deaths associated with AMR by age group between 1990-2020 and 2050 projection



- In Nepal, people aged under 5 experienced the largest number of deaths associated with AMR in 1990 but this changed by 2021 as the largest number of deaths occurred among the 70+.
- This indicates that prevention of infections among the under 5 has contributed to the reduction in the number of AMR associated deaths.

AMR/AMU Surveillance in Nepal : For Evidence Generation



SDG Indicators for AMR

NEPAL

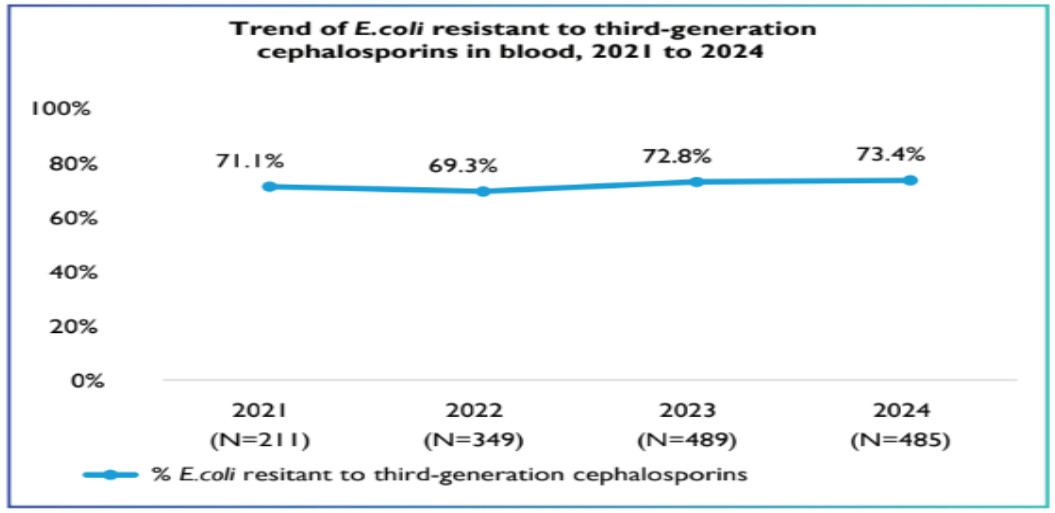
Sustainable Development Goals

Revised Indicators

Early warning, risk reduction and management of national and global health risks				
Average of 15 International Health Regulations (2005) Core Capacity scores[29]	3.d.1	2021	44.0	64.3
		2023	47.6	68.4
Percentage of bloodstream infection due to methicillin-resistant Staphylococcus aureus[30] (MRSA)	3.d.2	2018	55.6	–
		2021	57.9	–
Percentage of bloodstream infection due to Escherichia coli resistant to 3rd-generation cephalosporin[30]	3.d.2	2018	65.3	–
		2021	80.4	–

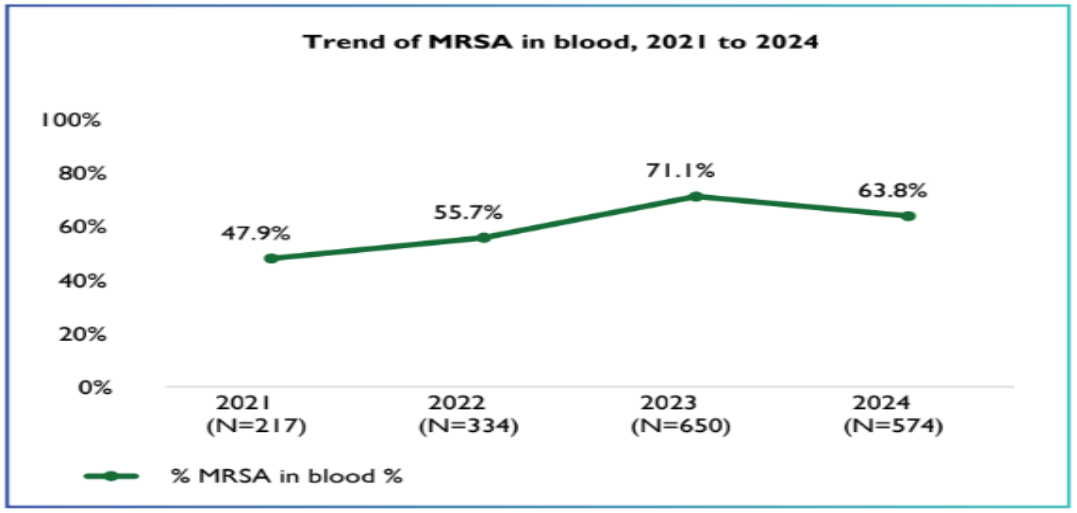
7.3.4 Trend of blood stream infection due to selected AMR organisms

3.d.2 (a) Proportion of bloodstream infection due to *Escherichia coli* resistant to third-generation cephalosporins* (%)

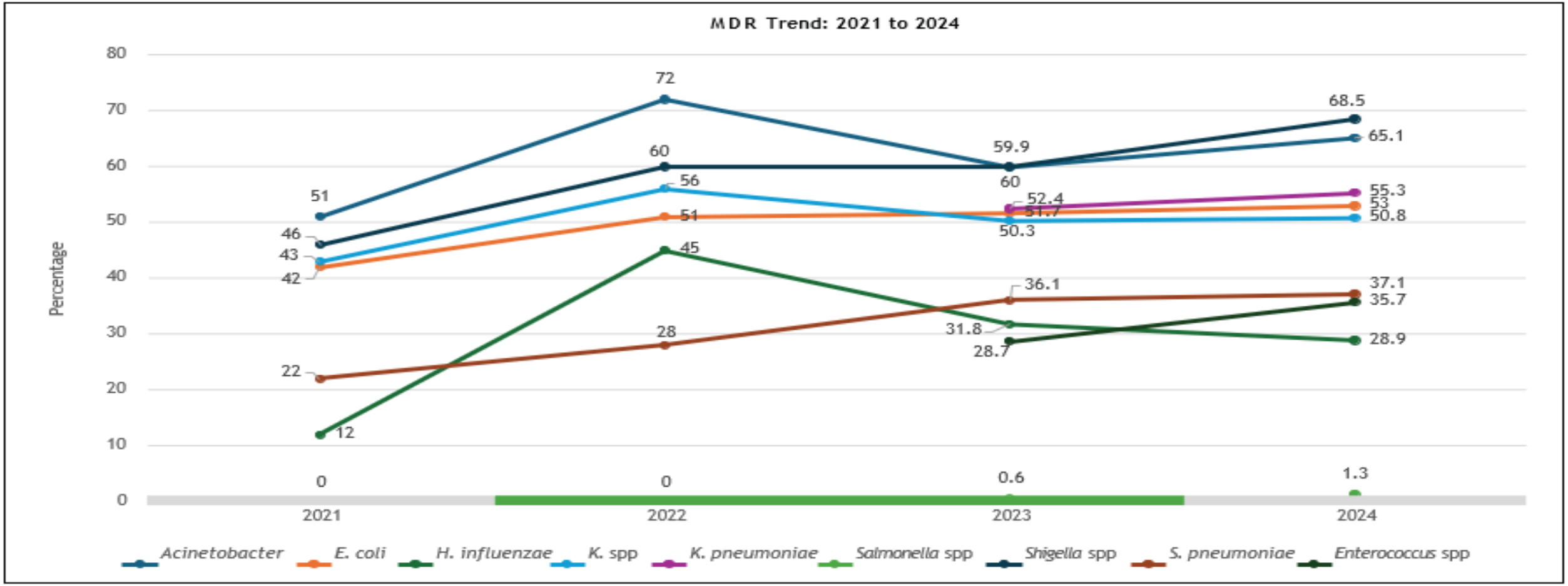


*Ceftazidime, Ceftraixone, Cefpodoxime, Cefixime and Cefoperazone

3.d.2 (b) Proportion of bloodstream infection due to methicillin-resistant *Staphylococcus aureus* (MRSA) (%)



Trend of AMR priority pathogens: 2021-2024 From AMR Surveillance NPHL



Non-uniformity in antibiotic selection during AST, reporting status (difference denominator value),increase in reporting sites may have affected the resistance trend

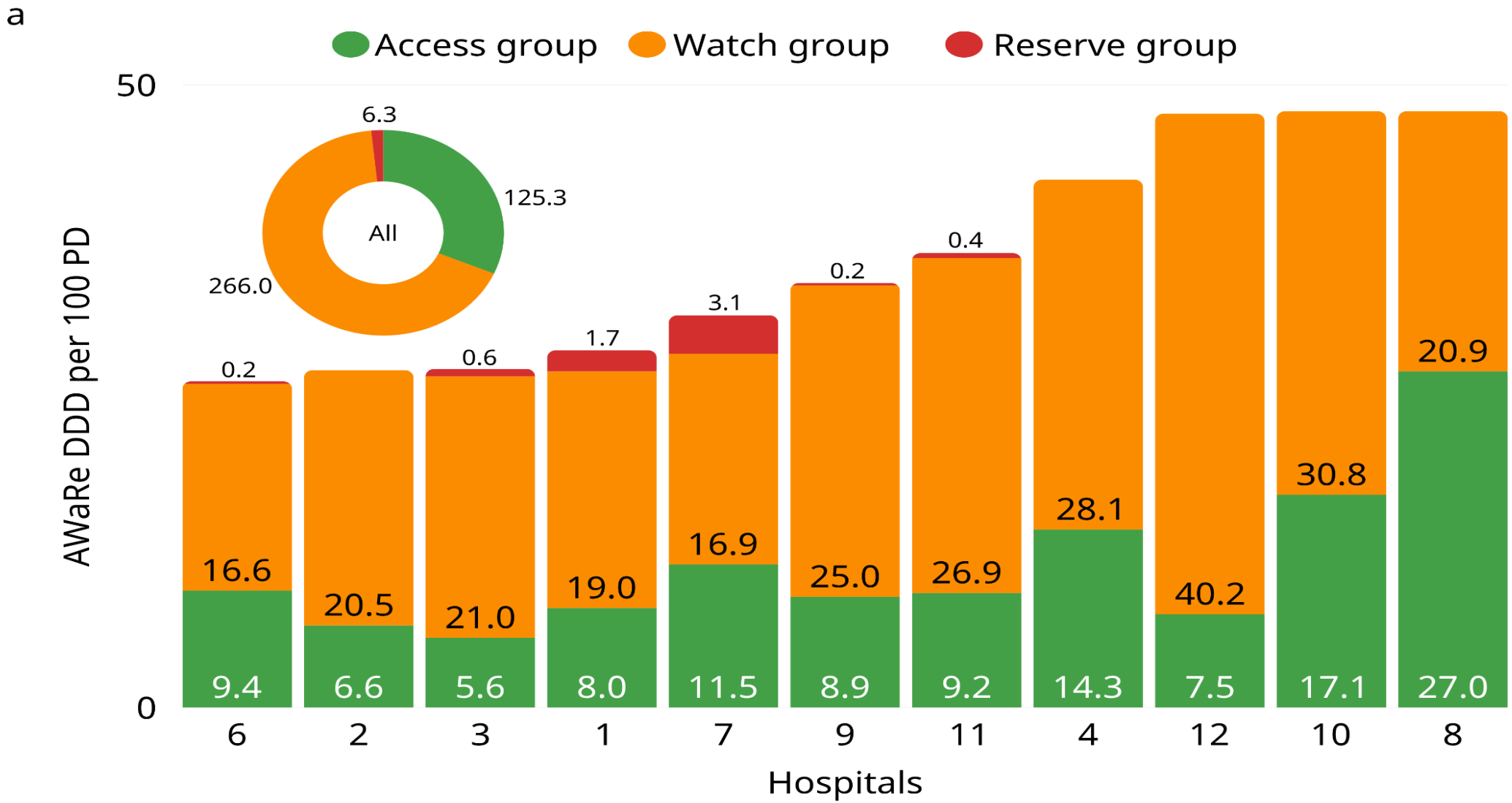
- Escalating AMR across both hospital and community settings
- Limited advanced statistical and molecular analyses
- Ongoing inappropriate antibiotic use fueling resistance despite vaccination programs
- Hospitals : High-risk environments, Highest risk, difficult to treat
- Antibiotic Pressure
- Weak Antimicrobial Stewardship

Consumption of Antibiotics by AWaRe Classification (2016-2024)From AMU surveillance DDA

DDD/1000 inh./day									
AWare categories	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Access	13.00 (32.2)	16.24 (31.9)	12.59 (25.8)	15.96 (27.9)	17.44 (34.8)	23.56 (29.6)	5.88 (18.2)	8.73 (26.2)	10.66 (36.2)
Watch	27.32 (67.7)	34.54 (68.0)	36.24 (74.1)	31.47 (55.1)	23.93 (47.7)	43.70 (54.9)	20.93 (64.8)	21.01 (63.1)	18.03 (61.3)
Reserve	0.01 (0.02)	0.00 (0.00)	0.00 (0.01)	0.04 (0.07)	0.02 (0.03)	0.06 (0.08)	0.11 (0.35)	0.06 (0.17)	0.11 (0.36)
Not classified/Not recommended	0.05 (0.11)	0.05 (0.10)	0.05 (0.11)	9.63 (16.9)	8.77 (17.5)	12.21 (15.3)	5.36 (16.6)	3.48 (10.5)	0.64 (2.2)
Total	**40.37 (100.0)**	**50.83 (100.0)**	**48.89 (100.0)**	**57.10 (100.0)**	**50.15 (100.0)**	**79.53 (100.0)**	**32.28 (100.0)**	**33.27 (100.0)**	**29.43 (100.0)**

WHO recommend – 70% use of Antibiotics from Access group

Antimicrobial Use Point Prevalence Survey at 12 Hospitals (2024-2025)

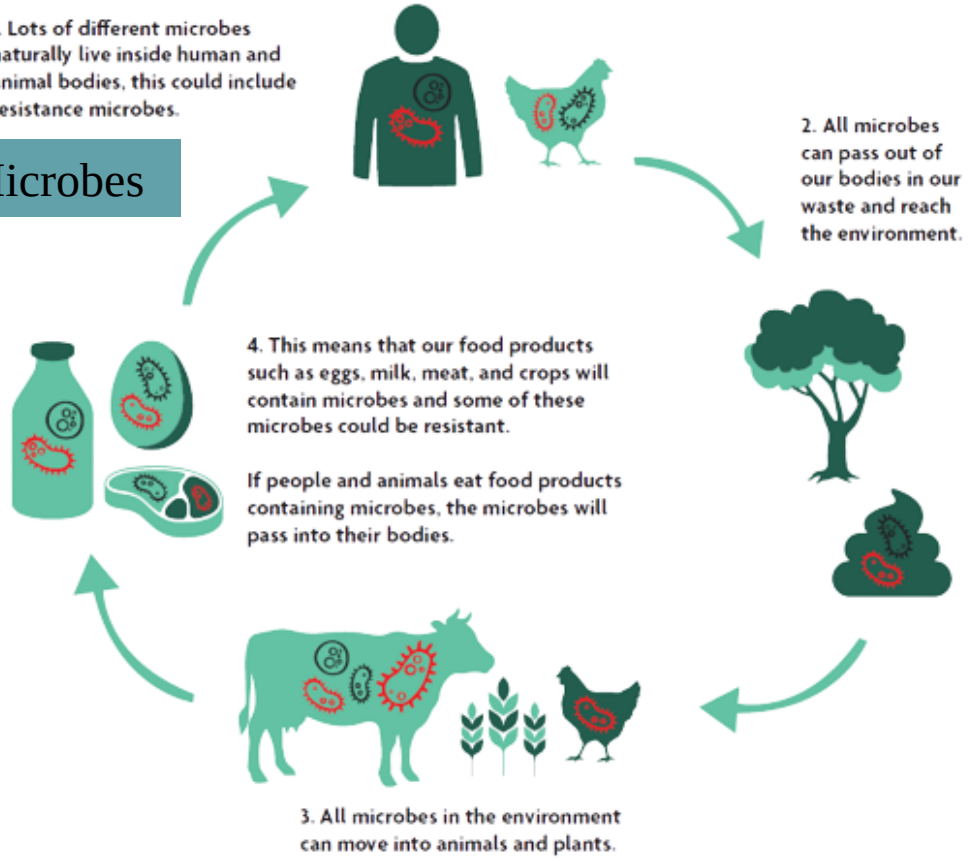


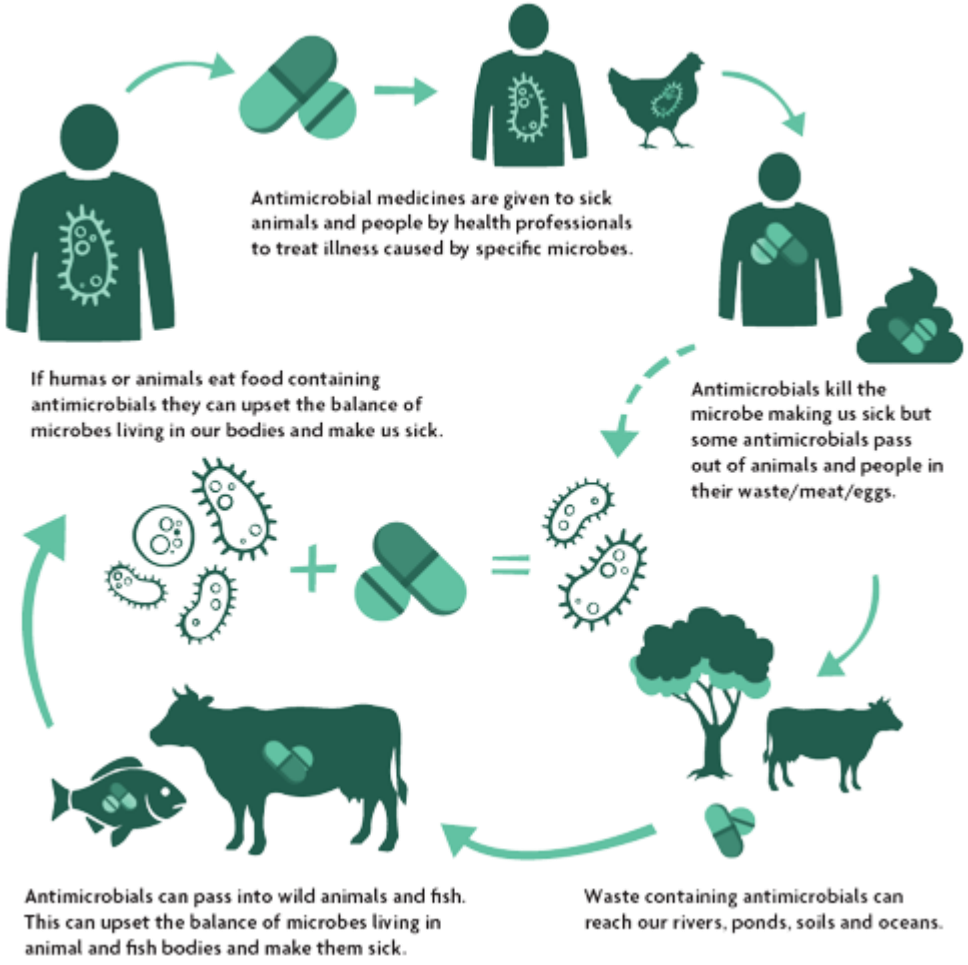
Key Drivers of AMR in Nepal

- Misuse and overuse of antibiotics in Humans, Animals and Plants
  - Empirical and irrational prescribing practices-
    - Inadequate availability of diagnostic services (its quality assurance)
    - Weak Antimicrobial stewardship,
    - Antibiotic prescribing pressure,
    - Poor diagnostic stewardship ,
    - Professional behavioral problem
  - Poor regulation
    - Over-the-counter access and self-medication
    - Quality and availability of antimicrobials
    - Disposal of antimicrobials in environments
  - Poor infection prevention and control (IPC)
  - Poor sanitization and hygiene practices in individual and community

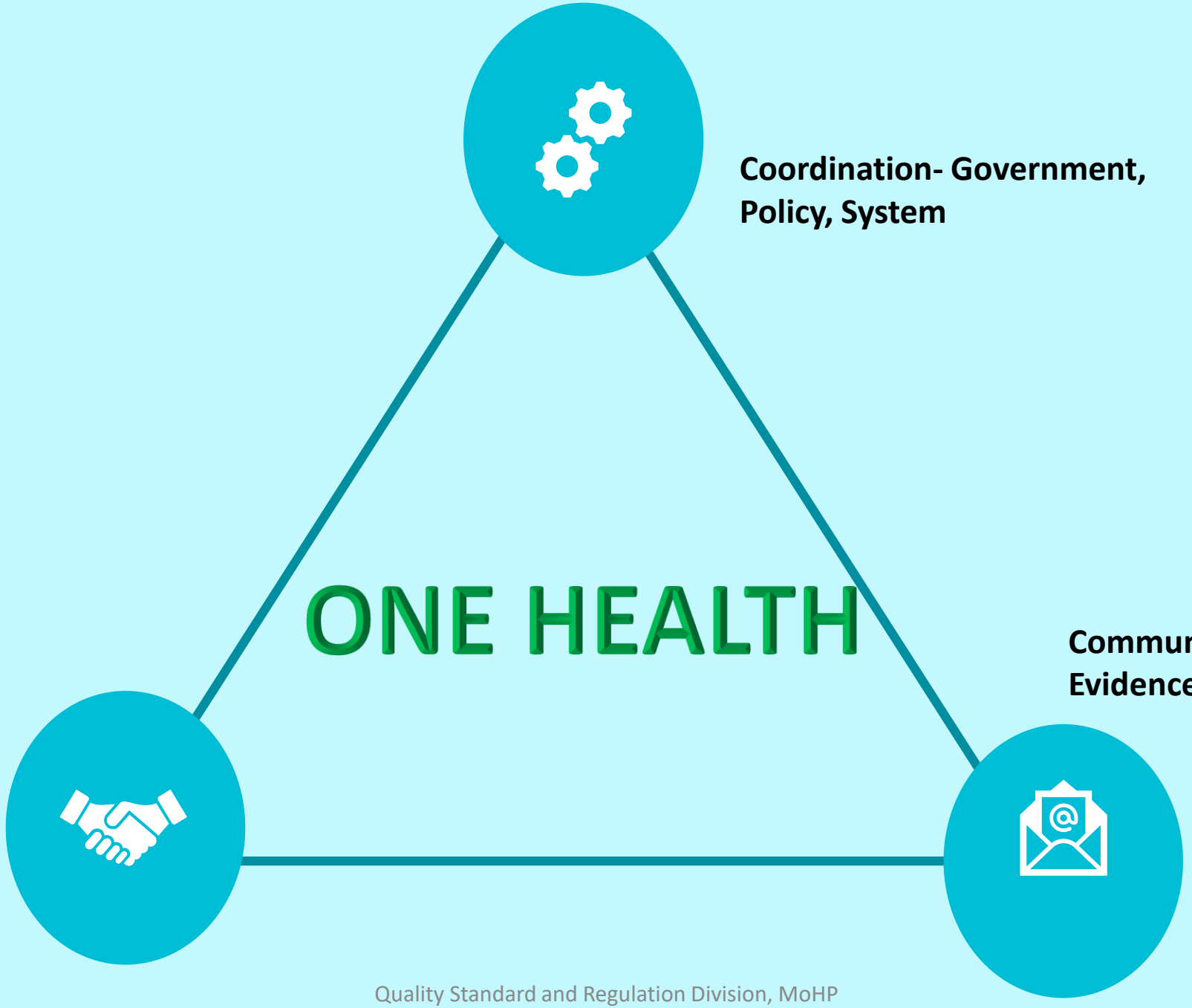
WHY one Health approach : Microbes move around our Environment and so does Antimicrobial-Resistant organisms circulate across humans, animals, and environment.

Microbes





AMR recognizes no borders, as it is transmitted to humans through the food chain and through environmental degradation.


Coordination- Government, Policy, System
ONE HEALTH
Communication- Data, Evidence, People
Collaboration Human, Animal, Environment (Food,Agriculture)

One Health Governance: For Cross sectoral collaboration

The One Health Strategy, adopted in 2076, includes the formation of the steering and technical committee. This committee is chaired alternately each year by the Ministry of Agriculture and Livestock Development (MoALD) and the Ministry of Health and Population (MoHP).

Federal One Health steering committee

1. Minister, Ministry of Agriculture and Livestock Development (MoALD)
2. Minister, Ministry of Health and Population (MoHP)
3. Secretary, , Ministry of Agriculture and Livestock Development
4. Secretary, Ministry of Health and Population
5. Secretary, Ministry of Forests and Environment
6. Secretary, National Planning Commission
7. Secretary, Ministry of Finance
8. Secretary, Ministry of Home Affairs
9. Secretary, Ministry of Water Supply
10. Joint Secretary, Quality Standard and Regulation Division, MoHP
11. Joint Secretary, Animal Health Division, MoALD

Federal One Health technical coordination committee

1. Director General, Department of Livestock Services
2. Director General, Department of Health Services
3. Director General, Department of Agriculture
4. Director General, Department of Food Technology and Quality Control Center
5. Director General, Department of National Park and Wildlife Conservation
6. Director General, Department of Environment
7. Deputy Director General, Animal Health Division
8. Director, Epidemiology and Disease Control Division, Department of Health Services
9. Director, National Public Health Laboratory, Department of Health Services
10. Chief, Central Veterinary Laboratory, Department of Livestock Services
11. Chief, Animal Health Research Division, Nepal Agriculture Research Council (NARC)
12. Under Secretary (Technical), Animal Health Division

AMR Governance in one health approach for Cross sectoral collaboration

Governance

National steering Committee on AMR

National Technical Working Committee-AMR

Technical Working Committee (TWC)

Strategic Priority 1	Strategic Priority 2	Strategic Priority 3	Strategic Priority 4	Strategic Priority 5
Awareness and Understanding Education and Training	AMR Surveillance	Infection Prevention and Control	Antimicrobial Use and Antimicrobial Stewardship Antimicrobial Consumption	Investment, Research, Innovation and Collaboration

Reporting

Ministry of Agriculture and Livestock

•Ministry of Health and Population

Ministry of Environment

National Health policy 2019 (2076)

6.24.3 : In order to reduce antimicrobial resistance, necessary plan of action shall be developed and implemented to effectively regulate and control the misuse of antibiotics.

Five Strategic Priorities In NAP-AMR

1. Improve awareness and understanding of AMR through effective communication, education, and training (18).

- (a) Information, Education, and Communication
- (b) Education and training.

2. Strengthen the knowledge & evidence related to AMR through surveillance and research (23).

- (a) Surveillance of AMR: human, animal, and environment sectors
- (b) Capacity and quality enhancement of laboratories

3. Reduce the incidence of infection through effective infection prevention and control (28).

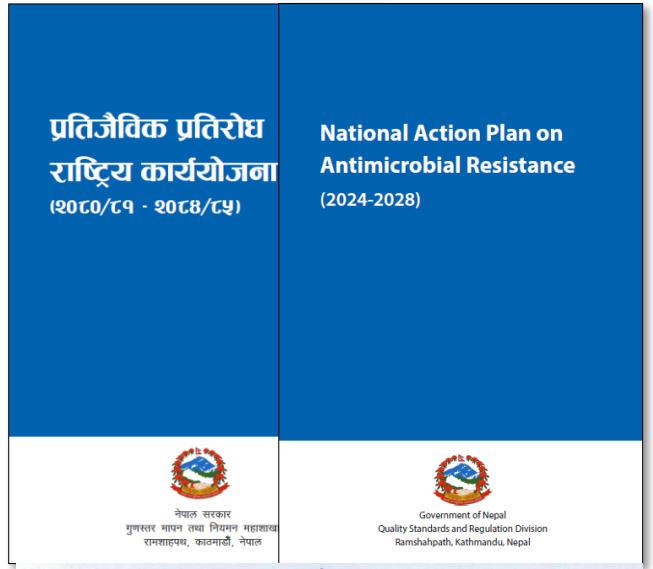
- (a) Human health: Healthcare, infection prevention and control
- (b) Animal health: Animal healthcare, infection prevention and control
- (c) Community: Infection prevention through healthy diet, lifestyle and sanitation
- (d) Reduce the environmental spread of AMR

4. Optimize the use of antimicrobial agents in human, animal, agriculture sector and food (41).

- (a) Regulation of access to quality antimicrobials
- (b) Surveillance of antimicrobial use and consumption
- (c) Human health: Antimicrobial stewardship
- (d) Animal health: Antimicrobial stewardship
- (e) Rational use of antimicrobials in community settings
- (f) Regulation of the prescription and dispensing of antimicrobials

5. Ensure sustainable resources for the containment of AMR along with promoting investment in research & innovation (13)

- (a) Financing for AMR
- (b) Research for containment of AMR
- (c) National collaboration
- (d) International collaboration
- (e) Provincial and local level collaboration




२०८० फागुन १४ गतेको मन्त्रिपरिषद् बैठकका निर्णयहरू

१४	स्वास्थ्य तथा जनसङ्ख्या मन्त्रालय	प्रतिजैविक प्रतिरोध/एन्टीमाइक्रोबियल रेजिस्टेन्स (AMR) राष्ट्रिय कार्ययोजना स्वीकृत गर्ने।

Total 123 Activities divided into short , mid and long term across one health stakeholder's responsibilities

Country Respond / Policy Decisions

- Decision on Red line in antibiotics packaging Decision of DAC (Drug Advisory Committee) –on August 9th 2023, 55th meeting

- Prohibition in import, sale ,distribution and manufacture of WHO not recommended combination of antibiotics By DDA- Decision of DAC (Drug Advisory Committee) –on August 9th 2023, 55th meeting

- Prohibiting the use of antibiotic in Poultry feed through the quality standard document of poultry Feed (MoALD).(Published in gazette document on May 29th 2023)

- Prohibition of registration, import, sale distribution and manufacturing of Colistin in Animal Use : Decision of DAC(Drug Advisory committee) in August 20 2019, 50th meeting

नेपाल सरकार

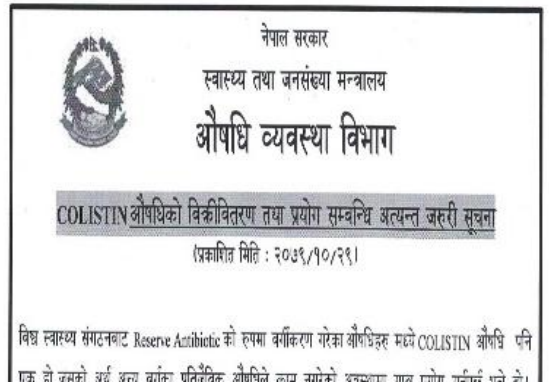
स्वास्थ्य तथा जनसंख्या मन्त्रालय

औषधि व्यवस्था विभाग

प्रकाशित मिति:२०८०/०४/३१

सिफारिस नगरिएका प्रतिजैविक (NOT RECOMMENDED ANTIBIOTICS)औषधिको दर्ता/नवीकरण, पैठारी तथा प्रयोग सम्बन्धि अत्यन्त जरुरी सूचना।

प्रतिजैविक प्रतिरोध (Antimicrobial Resistance)लाई न्यूनीकरण गर्न, रोकथाम गर्न तथा नियन्त्रण गर्न नेपाल सरकारले प्रतिजैविक प्रतिरोधको विषयव्यापी कार्य योजनासंग मेल खाने गरी "एक स्वास्थ्य" अवधारणा (One Health Approach) अनुरुप प्रति-जैविक प्रतिरोधबाट हुने विरामी दर, मृत्यु दर र आर्थिक असरलाई प्रभावकारी रुपले कम गर्न राष्ट्रिय कार्ययोजना National Action Plan-AMR तयार गरि स्वीकृतिको अन्तिम चरणमा रहेको सार्थै, श्री विश्व स्वास्थ्य संगठन



नेपाल सरकार

स्वास्थ्य तथा जनसंख्या मन्त्रालय

औषधि व्यवस्था विभाग

COLISTIN औषधिको बिक्रीवितरण तथा प्रयोग सम्बन्धि अत्यन्त जरुरी सूचना

(प्रकाशित मिति : २०७९/१०/२९।

विश्व स्वास्थ्य संगठनबाट Reserve Antibiotic को रुपमा वर्गीकरण गरेका औषधिहरु मध्ये COLISTIN औषधि पनि

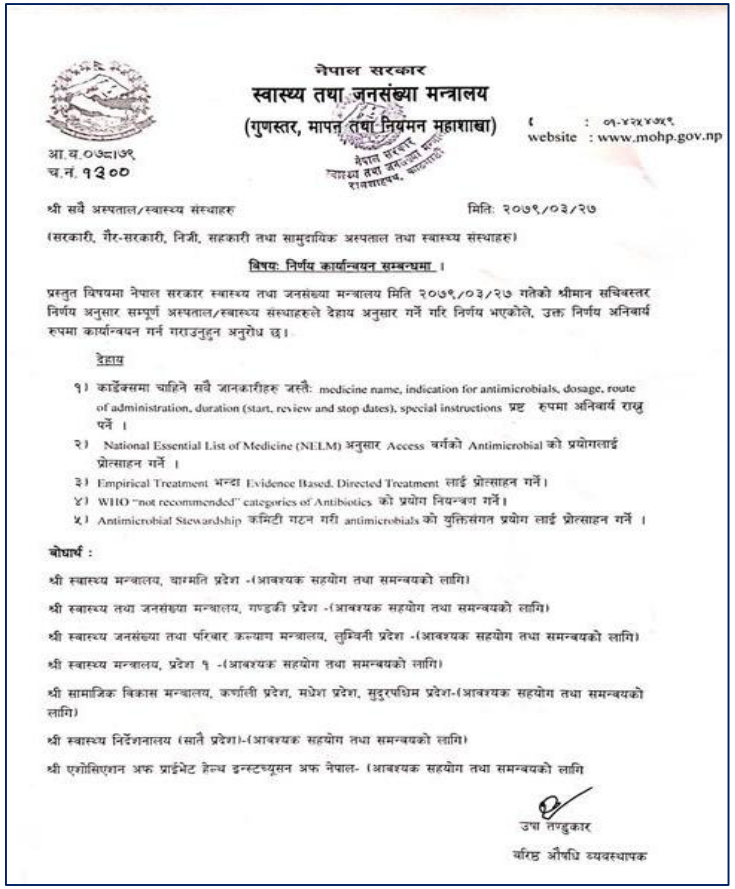
Country Respond / Policy Decision

- Circular from MoHP to all hospitals (secretary level decision on july 11 2022, Monday)

  –to revise Cardex to include the indication, start, review and stop dates for every antimicrobial prescribed

  –to avoid use of WHO's "not recommended" antibiotics

  –to start AMSP



नेपाल सरकार
स्वास्थ्य तथा जनसंख्या मन्त्रालय
(गुणस्तर, मापन तथा नियमन महाशाखा)
website : www.mohp.gov.np

आ.व.०७८।७९
च.नं. १३००

श्री सबै अस्पताल/स्वास्थ्य संस्थाहरु मिति: २०७९/०३/२७

(सरकारी, गैर-सरकारी, निजी, सहकारी तथा सामुदायिक अस्पताल तथा स्वास्थ्य संस्थाहरु)

विषय: निर्णय कार्यान्वयन सम्बन्धमा ।

प्रस्तुत विषयमा नेपाल सरकार स्वास्थ्य तथा जनसंख्या मन्त्रालय मिति २०७९/०३/२७ गतेको श्रीमान सचिवस्तर निर्णय अनुसार सम्पूर्ण अस्पताल/स्वास्थ्य संस्थाहरुले देहाय अनुसार गर्ने गरि निर्णय भएकोले, उक्त निर्णय अनिवार्य रुपमा कार्यान्वयन गर्न गराउनुहुन अनुरोध छ।

देहाय

१) कार्डेक्समा चाहिने सबै जानकारीहरु जस्तै: medicine name, indication for antimicrobials, dosage, route of administration, duration (start, review and stop dates), special instructions प्रष्ट रुपमा अनिवार्य राख्नु पर्ने ।
२) National Essential List of Medicine (NELM) अनुसार Access वर्गको Antimicrobial को प्रयोगलाई प्रोत्साहन गर्ने ।
३) Empirical Treatment भन्दा Evidence Based, Directed Treatment लाई प्रोत्साहन गर्ने।
४) WHO "not recommended" categories of Antibiotics को प्रयोग नियन्त्रण गर्ने।
५) Antimicrobial Stewardship कमिटी गठन गरी antimicrobials को युक्तिसंगत प्रयोग लाई प्रोत्साहन गर्ने ।

बोधार्थ :

श्री स्वास्थ्य मन्त्रालय, धार्मती प्रदेश -(आवश्यक सहयोग तथा समन्वयको लागि।
श्री स्वास्थ्य तथा जनसंख्या मन्त्रालय, गण्डकी प्रदेश -(आवश्यक सहयोग तथा समन्वयको लागि।
श्री स्वास्थ्य जनसंख्या तथा परिवार कल्याण मन्त्रालय, लुम्बिनी प्रदेश -(आवश्यक सहयोग तथा समन्वयको लागि।
श्री स्वास्थ्य मन्त्रालय, प्रदेश १ -(आवश्यक सहयोग तथा समन्वयको लागि।
श्री सामाजिक विकास मन्त्रालय, कर्णाली प्रदेश, मधेश प्रदेश, सुदुरपश्चिम प्रदेश-(आवश्यक सहयोग तथा समन्वयको लागि।
श्री स्वास्थ्य निर्देशनालय (सातै प्रदेश)-(आवश्यक सहयोग तथा समन्वयको लागि।
श्री एशोसिएशन अफ प्राईभेट हेल्थ इन्स्टच्यूसन अफ नेपाल- (आवश्यक सहयोग तथा समन्वयको लागि

उषा तण्डुकार
वरिष्ठ औषधि व्यवस्थापक

- National Antimicrobial treatment guideline 2023
- National essential list of Medicine 2021
- National Essential Invitro diagnostic list 2024
- AMSP guideline and Point prevalence survey protocol in process of approval

Policy and Governance Challenges

Limited **Funding for AMR** and **fragmented** resources

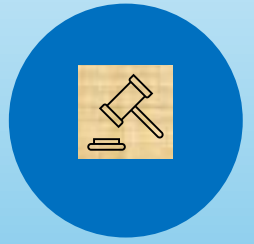
Heavily reliance on donor funds

Inadequate integration in national budgets

Limited technical capacity and infrastructure

Limited stewardship in health facilities

Limited **coordination** and **collaboration** across one health sectors at the **provincial** and local levels.(betn 3 tiers of Gov)



Weak regulatory enforcement(antibiotic sales, quality control & assurance)

Coordination across sectors challenging

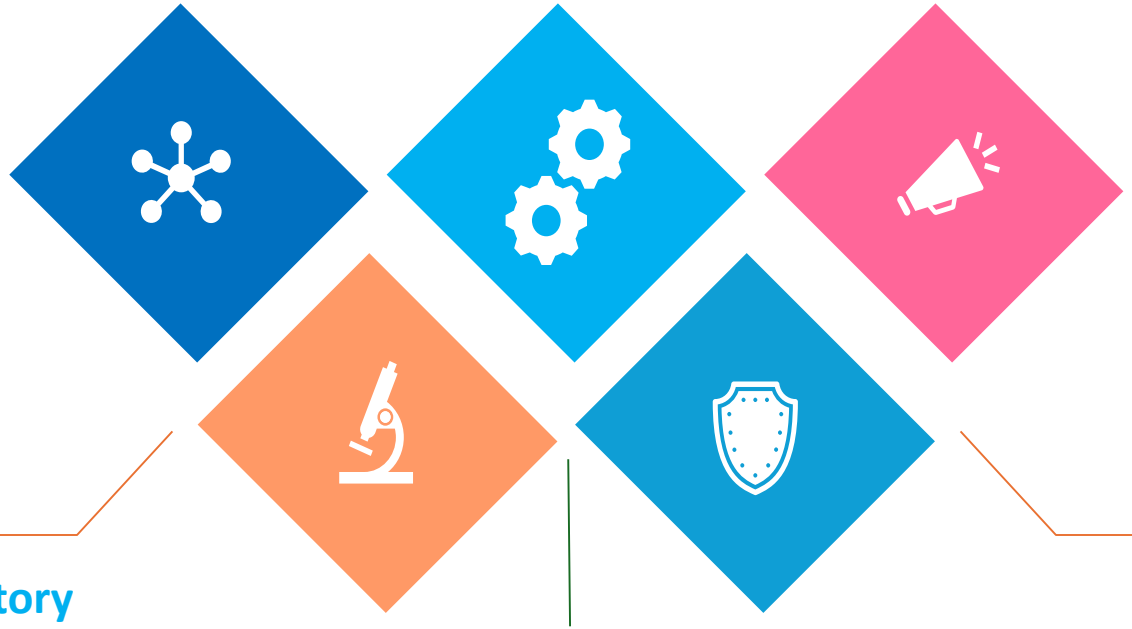
Data Silos: sharing across sectors is limited: No formal mechanism in place (now being developed)

AMR gains little attention at decision making level among **competing health priorities** as well as in Competing sectoral priorities

Cross-sectoral Collaboration and One Health Approach- for AMR Containment

1. Multisectoral Coordination

AMR One health committees –Linking human, animal, food environment and other stakeholders through AMR-Steering, Technical Committees
Joint Assessment: TrACSS



1. Communication & Advocacy

- Orientation of One-Health stakeholders on AMR in seven Provinces
- Data/ information sharing across sectors
- AMR Awareness raising across sectors- WAAW, community awareness programs

2. Surveillance & Laboratory Services

- **Joint Surveillance**: Human and animal health, environment.... ESBL E coli Tricycle Surveillance

3. Capacity Building

Institutional and technical capacities across sectors, combined trainings (example ISST, bacterial culture/ sensitivity etc)
Expansion of laboratory capacity for Culture/ sensitivity- in all 4 sectors

4. Research/ Investment

- **Joint Resource mobilization-** Pandemic Fund, MPTF
- **Joint Assessment**: TrACSS
- **Capacity building** for operational research- SORT-IT

Way Forward for Preparedness

- Effective Enforcement of regulations on antibiotic use (human + animal)
- Dashboard for AMR Surveillance : Strengthen integrated AMR surveillance systems by digitization- continuous evidence generation
- Scale up diagnostic and antimicrobial stewardship
- Establish functional linkages among national programs
- Invest in AMR One Health coordination platforms - sharing, planning & implementation
- Embed AMR into:
  - Epidemic preparedness plans
  - Disaster risk management frameworks
  - Academic courses, CME
- AMR Research consolidation by NHRC to MoHP for policy change &intervention


THANK YOU!