

**NATIONAL MULTI-SECTORIAL ACTION PLAN ON COMBATTING
ANTIMICROBIAL RESISTANCE
(2017-2020)**

1. CURRENT CONTEXT

Microbial infection and infectious disease prevalence among Mongolian population do not decrease and even has tendency to rise.

Linked to this situation, antibiotic use in medicine treatment is increasing year by year, several clans of microorganisms are getting resistant to antibiotics, and medical treatment is becoming challenging.

In other way, doctors do not take attention on a laboratory validation and do not have an interest to send patients for testing due to poor hospital laboratory settings especially insufficient capacity of microbiological laboratory, poor quality, somehow not reliable results and not available rapid test results.

Doctors usually have poor justification for antibiotic prescribing and there is a lack of control on prescribing, dispensing per prescription at pharmacy and use of antibiotics. Moreover knowledge and attitude of people is not sufficient, wrong practice to get antibiotics from pharmacy without any restriction and careless use of it widely spread among the population.

Mongolia imports 70 percent of total medicines from foreign countries and about 30 percent of total of the medicines used in treatment are antimicrobials. There are functioning about 35 local manufacturers and five of them producing antibiotics.

With the purpose of prevention of AMR, certain actions required to be taken including responsible prescribing of antimicrobials, promoting distribution of antibiotics with doctor's prescription; to improve hospital capability for prevention and control of AMR; to improve awareness of patients, consumers and healthcare professionals about consequences of AMR and promoting rational use of medicines.

Mongolia has high consumption amount of animal products particularly meat. It has 3 million people and 50 million livestock. Recent years, consumption of imported chicken, sea food and pork is increasing. Today about 700 medicines

are registered and commonly used in the agriculture sector and it is vital to take a laboratory test and to ensure quality and safety of animal products consumed. Consumption of animal products with residual antibiotics is causing health risks through food products.

2. BACKGROUND

In order to make a proper decision in antibiotic use and emergence of antimicrobial resistance, strategic policy on rational use of antibiotics and antibacterial drugs should be developed in accordance to global strategy as a first step of action.

One of the worldwide emerging problems related to hospital quality care is a drug resistance particularly bacterial resistance to antibiotics and inappropriate combat to hospital acquired infections. Results from previous studies indicate that inappropriate use of antimicrobials, consequently the resistance to antimicrobials has been increasing in the last years.

According to the latest reports, resistance to third generation cephalosporins was 86/101 (85%) for *E coli*, 87/99 (88%) for *K.Pneumonia*, 42/75 (56%) for *N.gonorrhoeae*, 85/99 (86%) for *Methicillin-resistant S.aureus (MRSA)*; resistance to penicillins was 67/97(69%) for *S.pneumonia* and resistance to fluorquinolones - 68/91 (75%) for non-typhoid *Salmonella* and 35/57 (61%) for *Shigella spp* (Antimicrobial resistance, Global Report on Surveillance, World Health Organization, 2014)

Reports produced by the National Centre for Communicable Diseases of Mongolia indicated that out of 1495 isolates resistance to ampicillin was 100% for *E.Coli*, *Citrobacter freundii*, 80% for *Shigella*, 60% for *Staphylococcus*, 54% for *Streptococcus*, resistance to oxacillin was 15% for *Streptococcus*, respectively. (Microbiology laboratory of the National Centre for Communicable Diseases of Mongolia, report, 2014)

Therefore, there is an emerging need to develop an antibiotic treatment policy in detail, to take actions in drug treatment, to streamline rational use of antibacterial drugs, and to monitor antimicrobial resistance based on the above mentioned evidences.

In addition, improvement of human resource and laboratory capacity of human and animal sector, as well as information exchange at the worldwide level is essential.

World Health Organization recommends its member countries to develop a multi-sectoral National Action Plan on prevention of AMR and implement corresponding activities.

3. GOVERNANCE

A working group consisting of non cadre members representing the health, food and agriculture sector will be discussing about antimicrobial resistance. Technical working group will discuss about the process of implementation at the end of year, annually.

Terms of reference of working group:

- Responsible for implementation of activities in the corresponding sectors and agencies
- Meet every six months to review and coordinate implementation
- M&E of the implementation of the national action plan
- Organize technical meetings on specific issues when needed
- Provide technical input on activities

4. MAIN PRINCIPLES

The National Action Plan on Combatting Antimicrobial Resistance will be applied for all health-care facilities including public and private health care organizations, as well as veterinary clinics and animal husbandry with main principles of their active participation, open to public and be responsible including:

- 4.1 approach and improve coordination of AMR at international and national levels;
- 4.2 to promote prevention first through improved laboratory capacity for AMR surveillance and diagnostics, and infection prevention and control measures;
- 4.3 to improve monitoring of prescribing and dispensing of antibiotics in all health care facilities and veterinary clinics for consumers, and streamline rational use of antibiotics;
- 4.4 to ensure access to quality assured antimicrobials through conduct post marketing surveillance of antimicrobial drugs regularly;
- 4.5 to foster research and development for new tools to combat AMR.

5. OBJECTIVE(S)

The goal of the National Action Plan is to promote rational use of antibiotics and prevention of the emergence and spread of AMR, improve surveillance of AMR and diagnostics, treatment of antimicrobial infections, and enhance quality of hospital care and outcomes.

The National Action Plan includes activities in accordance with the following six areas:

1. Establish a governance and ensure multisectoral role to combat antimicrobial resistance, sustainable investment and functioning
2. Strengthen surveillance and diagnostic capacity for AMR and research
3. Reduce the spread of infections through better infection prevention and control
4. Ensure quality and safety of antimicrobial medicines
5. Optimize the use of antimicrobials in the human and animal sectors
6. Raise awareness and understanding of AMR and rational use of the general public, herdsmen and health professionals

6. Operational action plan

c. Operational action plan									
	Activities	Year				Leading Implementer(s)	Participating organization (s)	Indicator(s)	
		2017	2018	2019	2020				
	1. Establish an multisectoral coordinating mechanism to combat AMR, improve legal environment								
1.1	Set up a Technical Working Group to coordinate the implementation of the national action plan and discuss every six months about the implementation	x	x	x	x	MoH MoFALI	Participating stakeholders	Technical Working Group to coordinate the implementation of the national action plan in MoH and MoFALI established	
1.2	Sharing information about new registered and restricted antimicrobials by human and animal drug committees semi-annually	x	x	x	x	Human Drug Council Animal Drug Council	MoH MoFALI CHD	Mechanism to link the human and animal drug committees with regular information of antimicrobials established.	
1.3	Upgrade legal environment in Law on Medicines and Medical Devices regarding to prescription only medicines for human and animal use	x	x	x	x	MoH MoFALI	GASI	Legal environment regarding to prescription only medicines for human and animal use upgraded.	
1.4	Estimate the annual expenditure of activities in the plan and involve in budget of all participating organizations	x	x	x	x	Participating organizations	MoH MoFALI EFD	Annual expenditure of activities estimated in the plan and involved in budget of all participating organizations.	

1.5	Overall implementation of the plan to be reviewed jointly by the Ministries				x	MoH, MoFALI	CHD, VABA	Overall implementation of the plan reviewed by M&E and internal auditing departments in each Ministry.
1.6	Hold bi-annual National AMR conference to share information including the national AMR surveillance report , determine next steps for the action		x		x	Technical working group (TWG)	MoH, MoFALI, WHO, FAO, OIE	Bi-annual National AMR conference organized.
1.7	Promote sharing of information from the human animal sector through relevant journals, establish each quarter reporting mechanism to AMR multi sectorial working group, TWG and related stakeholders	x	x	x	x	NCCD, CHD, VABA,	MoH, MoFALI, WHO, FAO, OIE	Sharing of information from the human animal sector through relevant journals promoted, reported and disseminate to the AMR multi sectorial working group, TWG and relevant stakeholders quarterly.
1.8	Set up a coordinating mechanism to analyze the national AMR data with dedicated staff with job description		x	x	x	NCCD, VABA	MoH, MoFALI, SCVL, NVDTCL WHO, FAO, OIE	Coordinating mechanism to analyze the national AMR data established at NCCD and VABA with dedicated staff with job description.

1.9	Include in Law of animal health issue of control of drug residue in raw materials and products derived animals	x				MoFALI	SCVL, NGOs	Issue of control of drug residue in raw materials and products derived animals included in Law of animal health.
1.10	Develop a national program on food safety and quality including the determination of antimicrobial residues in food products and implement the program		x	x	x	MoFALI	Vet Ins, NGOs	Program developed and implemented.
2. Strengthen surveillance and diagnostic capacity for AMR and research								
2.1	Develop a national guideline on determination and surveillance of AMR based on international accepted guidelines and the WHO AMR surveillance manual		x			NCCD, Vet Ins	MoH, MoFALI, NZCD, NCPH, CHD, WHO, FAO, OIE	National guideline on determination and surveillance of AMR developed.
2.2	Strengthen, update and harmonize microbiology identification SOPs for AST and AMR in human and animal laboratories	x	x	x	x	NCCD, Vet Ins	MNUMS, laboratories of selected II, III hospitals of aimags and districts and animal laboratories, WHO, ADB, FAO	Microbiology identification SOPs for AST and AMR in human and animal laboratories strengthened and implemented in selected hospitals and animal laboratories.

2.3	Prepare training materials, distribute and conduct hands on and e-learning trainings on the use of the AMR surveillance manual and standardized SOPs in all laboratories (human and animal)	x	x	x	x	NCCD, Vet Ins	MoH, MoFALI, GASI, NZCD, VABA, NGOs, AFCCP, Academic Institutions WHO, OIE, FAO	Training materials, distribute and conduct hands on and e-learning trainings on the use of the AMR surveillance manual and standardized SOPs in all laboratories (human and animal).
2.4	Invite WHO expert on AMR in order to enroll into the Global AMR Surveillance System (GLASS) and conduct trainings for human and animal laboratories	x				MoH	NCCD, NCZD, Vet Ins, NCPH, CHD, human and animal laboratories	Training conducted.
2.5	Enroll into the Global AMR Surveillance System (GLASS, WHONET) and upload hospital laboratory data regularly in human and animal laboratories	x	x	x	x	NCCD, Vet Ins	Human and animal laboratories, TB lab, NCZD	Human and animal laboratories enrolled into the Global AMR Surveillance System (GLASS, WHONET) and uploadad hospital laboratory data regularly.
2.6	Upgrade national WHONET network to aimags, districts, private hospitals laboartories and NZDC	x	x			NCCD, Vet Ins	Aimags, district, private hospitals laboartories and NCZD, WHO, OIE,FAO	Aimags, districts, private hospitals laboartories and NZDC lab linked to WHONET.
2.7	Identify priority resistant pathogens transmitting from veterinary to human sector based on local and global antimicrobial	x				NCCD, Vet Ins, NCZD	MoH, MoFALI, GASI WHO, OIE,FAO	Priority resistant pathogens transmitting from veterinary to human sector identified.

	surveillance data							
2.8	Strengthen infrastructure, lab equipments and reagents of microbiological laboratories to meet standard requirements in cascade	x	x	x	x	Aimags, districts hospitals laboratories	MoH, WHO, ADB	Infrastructure, lab equipments and reagents of selected microbiological laboratories strengthened to meet standard requirements.
2.9	Accredite human and animal laboratories in cascade and set up mechanism to improve proficiency testing	x	x	x	x	NCCD, Vet Ins, human and animal lab	MASM, human and animal lab, NGOs	Selected human and animal laboratories accredited and improved proficiency testing.
2.10	Enroll in external quality assurance programme from UKNEQAS or other European providers/networks (e.g. ECDC)	x	x	x	x	NCCD, Vet Ins, NCZD	MoH, MoFALI, WHO, FAO, OIE	Human and animal laboratories enrolled in external quality assurance programme from UKNEQAS/ECDC
2.11	Improve capacity of TB reference laboratory in line with AMR surveillance	x	x			TB reference laboratory	MoH, Global Fund	Capacity of TB reference laboratory improved
2.12	To increase the number of laboratories capable of early and rapid detection of antimicrobial resistance by means of molecular biological level in regards with tuberculosis and rifampicin	x	x	x	x	RDTC, Hospitals' DTC, aimags, and districts' TB laboratories	MoH, Global Fund	The number of laboratories capable of early and rapid detection of antimicrobial resistance by means of molecular biological level in regards with tuberculosis and rifampicin
2.13	Identify and locate opportunities to introduce rapid detection method for AST		x	x	x	FCH, TCH		Rapid method for determination of AST introduced.

3. Reduce the spread of infections through better infection prevention and control (IPC)								
3.1	Undertake assessment of IPC knowledge, attitude, and practice (KAP) among health professionals		x	x		Research organization/ team, NGOs	NCPH, CHD, MoH, AFCCP, ADB, WHO	Assessment conducted, recommendations disseminated.
3.2	Conduct regular trainings on strengthening IPC among health professionals based on results of the assessment	x	x	x	x	NCCD, Academic organizations	NCPH, CHD, MoH, ADB, WHO	Trainings conducted.
3.3	Develop IPC training and communication materials based on results of KAP survey of health professionals, publish and disseminate		x	x	x	CHD, NCPH, NGOs	MoH, ADB, WHO	IPC training and communication materials based on results of KAP survey of health professionals developed, published and disseminated.
3.4	Strengthen guidelines on active surveillance linked to main hospital acquired infections and implement	x	x			NCCD, FiHCDP	MoH, ADB	Guidelines on active surveillance linked to 4 main hospital acquired infections developed, approved and implemented (in 2017 8, 2018- 11 hospitals)
3.5	Implement active surveillance of hospital acquired infections in aimags' and districts' hospitals step by step	x	x	x	x	NCCD, FiHSDP	MoH, HDs of capital city and aimags, ADB, WHO	Active surveillance of hospital acquired infections implemented in aimags' and districts' hospitals
3.6	Develop job description of hospital epidemiologist and infection disease specialist and get	x	x			NCCD, hospitals	MoH, ADB	Job description of hospital epidemiologist and infection disease specialist developed and approved.

	approval							
3.7	Create a national surveillance and information system for infectious diseases			x	x	MoH, CHD, NCCD, NCZD	Capital city's HD, aimags' and capital city's HDs	National surveillance and information system for infectious diseases created.
3.8	Study identification of the antimicrobial resistance			x	x	MoH, NCCD, NCZD	Vet Ins Donor organizations	Study report.
3.9	Develop and comply with the revised regulations in regards with the prevention, detection and surveillance of resistant isolates		x	x	x	NCCD, NCPH	MoH, hospitals WHO	Regulation procedure approved and implemented.
3.10	Improve the centralized sterilization of hospitals and equipment, tools with high risk of infection (lenses, respiratory apparatus) in compliance with the standards	x	x	x	x	Hospitals	MoH, FiHSDP, ADB, WHO	Centralized sterilization of hospitals and equipment, tools with high risk of infection (lenses, respiratory apparatus) improved in compliance with the standards.
3.11	Strengthen the infection prevention and control system in health care facilities, introduce an implementation plan of newest and modest technology of waste management and provide modern sterilization and disinfection		x	x	x	NCCD, hospitals	MoH, aimags' and capital city's HDs	Implementation plan of newest and modest technology of waste management introduced and modern sterilization and disinfection equipment provided in health care facilities.

	equipment and tools step by step							
3.12	To update IPC guidelines for animal husbandry based on international guidelines	x	x	x	x	Vet Ins	MoFALI, FAO, OIE	IPC guidelines for animal husbandry based on international guidelines
4. Ensure quality and safety of antimicrobial medicines								
4.1	Update, get approval and disseminate Essential Medicines List	x			x	MoH	MoH, Professional Committee	Essential Medicines List updated and disseminated
4.2	Develop and comply with procedures on recalling medicines, bio preparations, medical devices, biologically active compounds and corresponding raw materials, starting materials from market, withdraw, abolish, re-working and re-licensing such products to the market		x	x	x	MoH	GASI, CHD	Legal aspects on recalling medicines, bio preparations, medical devices and biologically active compounds from market established and implemented.
4.3	Set up mechanism that bioequivalence determination should be one the criteria for registration of generic antimicrobials	x	x	x	x	HDC, CHD	MoH, GASI, DCL	Bioequivalence determination- one the criteria for registration of generic antimicrobials.
4.4	Develop methodology for determination of bio potency of antibiotics by microbiological	x	x	x	x	Human pharmacopoeia	DCL, MNUMS	Methodology of determination of bio potency of antibiotics by microbiological method developed.

	method and conduct test regularly					committee		
4.5	Conduct post marketing surveillance of antibiotics quality and safety	x		x		Human pharmacopeia committee, Research team	GASI, DCL, MNUMS, Drug manufacturers and importers	Post marketing surveillance of antibiotics quality and safety conducted.
4.6	Study prevalence of substandard, illegal medicines (including antimicrobials) in drug market	x				Research team	MoH, ADB, Technical Assistant Project	Prevalence of substandard, illegal medicines (including antimicrobials) in drug market studied.
4.7	Develop national “Antimicrobial guidelines” based on local antibiograms and international guidelines and comply with	x	x	x	x	FCH, SCH, TCH, NCCD, MNUMS	MoH, CHD, WHO	“Antimicrobial guidelines” based on local antibiograms developed and complied.
4.8	Disseminate antimicrobial guidelines to all hospitals and hold regular training workshops (hands on and e-learning) on the use of the guidelines with health-care professionals	x	x	x	x	Hospitals, academic institutions	Health care facilities, WHO	Hands on and e-learning trainings on the use of the “Antimicrobial guidelines” provided.
4.9	Develop hospital antibiotic resource policy and set up mechanism to register the medicines included in the hospital resource policy		x	x	x	SCH, NGO-hospital association	MoH, CHD, Em Association, WHO	Hospital antibiotic resource policy developed and priority antibiotics registered.
4.10	Ensure manufacturing of antimicrobials are compliant with GMP	x	x	x	x	MoH, drug manufacturers	GASI, Em association	Drug manufacturers producing antimicrobials complied with GMP standard.

4.11	Develop and implement enforce regulation on prescription only dispensing medicines, including antibiotics	x	x	x	x	CHD, MoH	GASI, hospitals, pharmacies	Enforce regulation on prescription only sales medicines, including antibiotics approved and implemented.
4.12	Strengthen capacity of GASI inspectors regarding to enforcement implementation of AMR issue	x	x	x	x	GASI	MoH, MoFALI, Donor organizations	Inspectors GASI trained, capacity improved.
5. Optimize the use of antimicrobials in the human and animal sectors								
5.1	Revise and update drug registration procedure in human and animal sector	x				HDC, ADC	MoH, MoFALI	Drug registration procedure in human and animal sector updated and approved.
5.2	Develop country specific antimicrobial consumption (AMC) methodology and programme for human animal health	x				MoH, MoFALI	CHD, NCPH, VABA, research institutions	Country specific antimicrobial consumption (AMC) methodology and programme for human animal health developed.
5.3	Collect AMC data and develop annual report for human and animal health sector		x	x	x	MoH, MoFALI	WHO, FAO, OIE	AMC data collected and annual report for human and animal health sector developed.
5.4	Conduct ongoing awareness raising activities on rational use of antimicrobials and risks of AMR for human and animal sector, health care professionals, general public and herdsman within WAAW	x	x	x	x	MoH, MoAFLI,	CHD, VABA, AFCCP, GASI, donor organizations, Professional Associations, NGOs	Awareness raising activities on rational use of antimicrobials and risks of AMR conducted.

5.5	Expand existing interactive training materials on appropriate use of antimicrobials and AMR for health care professionals		x	x	x	MNUMS	CHD, hospitals	Existing interactive training materials on appropriate use of antimicrobials and AMR expanded and training with credit hour for health care professionals provided.
5.6	Conduct one month campaign on rational use of antibiotics in hospitals according to specific schedule every year	x	x	x	x	CHD	Health care facilities in UB	One month campaign on rational use of antibiotics conducted in II and III levels hospitals during a year and reports of activities done.
5.7	Develop and implement a national AMS guideline for selected hospitals	x				FCH, TCH, hospitals DTCs	MoH, MNUMS, WHO	National AMS guideline in selected 2 hospitals developed, implemented and disseminated to other hospitals.
5.8	Develop and implement standards on prescription and prescribing of veterinary medicines	x	x	x	x	Animal Pharmacopoeia Committee	MoFALI, ADC	Standards on prescription and prescribing of veterinary medicines developed and implemented.
5.9	Develop interactive training module on rational use of drugs and AMR in animal sector			x		Vet Ins, Academic institutions	MoFALI, Donor organizations	Interactive training module on rational use of drugs and AMR in animal sector developed.
5.10	Provide and evaluate regular training on developed interactive training module on rational use of drugs and AMR in animal sector for vets and specialists of animal sector			x	x	Vet Ins, Academic organizations	AFCCP, Entities, Professional org, NGOs, vets, veterinary pharmacists	Regular training on developed interactive training module on rational use of drugs and AMR in animal sector for vets and specialists of animal sector provided and trainings evaluated.

5.11	Assess and strengthen inspection law implementation on enforcement of regulation of prescription only sales of antimicrobials	x				CHD, VABA	MoH, MoFALI, GASI, AFCCP	Assessment report, correct actions done.
6.Raise awareness and understanding of AMR and rational use of the general public, herdsmen and health professionals								
6.1	Promote activities to expand activities for increasing number of reimbursed prescription antibiotics					CHD	SIGA, Hospitals, Em association, Association of FGPs, AFCCP	Number of reimbursed antibiotics increased.
6.2	Publish all health care facilities prescription form in sufficient number, provide monitoring control of supply of prescription forms regularly	x	x	x	x	Health care facilities, CHD	Em association, Association of FGPs, AFCCP, GASI	All health care facilities prescription form in sufficient number.
6.3	Conduct KAP surveys of the general public and herdsmen on AMR and rational use drugs	x		x		NCPH	CHD, AFCCP, NGOs, Academic Institutions	Assessment reports completed, recommendations done.
6.4	Develop and disseminate via public media IEC materials, posters, short videos ect on AMR and rational use drugs for general public, herdsmen and health professionals	x	x	x	x	NCPH, CHD, Agriculture Science Academy	MoH, MoFALI, GASI, AFCCP, Professional org, NGOs	IEC materials, posters, short videos ect on AMR and rational use drugs for general public, herdsmen and health professionals developed, disseminated via public media.
6.5	Comment to introduce rational use	x				MoH, CHD	MoECSS	Rationale of introduction of rational use

	of drugs and risks of AMR module/tool into secondary school curriculum							of drugs and risks of AMR module into secondary school curriculum commented.
6.6	Organize actions to involve into awareness raising activities on rational use of drugs and AMR governmental, NGOs, public media tools (TV, FM, facebook, twitter), journalists ect	x	x	x	x	AFCCP, TWG	MoH, MoFALI, NGOs, public media	Governmental, non governmental organizations, public media tools, journalists involved into awareness raising activities on rational use of drugs and AMR.
6.7	Information sharing about AMP in human and health sector via professional journals	x	x	x	x	CHD, Vet Ins, NGOs	MoH, MoFALI	Information sharing about AMP in human and health sector via professional journals provided.
6.8	Determine the economic burden related to AMR and inform all stakeholders	x	x			NCCD, Vet Ins, NCPH, CHD, MNUMS	MoH, MoFALI, WHO, FAO,OIE	The economic burden related to AMR determined and informed to relevant stakeholders.
6.9	Develop training material and conduct regular trainings on rational use of medicines, AMR and prescription for FGPs, soums and bags health care specialists and evaluate trainings	x	x	x	x	FGPs Association, Academic institutions	NCPH, CHD	Training material on rational use of medicines, AMR and prescription for FGPs, soums and bags health care specialists prepared and the specialist trained.
6.10	Promote to provide specific activities on dispensing prescription only antibiotics for pharmacies	x	x	x	x	"Em" association, Association of veterinary pharmacists	Aimags,districts health departments	Specific activities on dispensing prescription only antibiotics for pharmacies organized and all pharmacies complied with.

6.11	Translate , publish and disseminate key technical documents to support decision making -Sanford Guide to Antimicrobial Therapy 2016 46 th edition	x	x			Professional association SCH	MoH, Donor organizations	Sanford Guide to Antimicrobial Therapy 2016 46 th edition translated, published and distributed.
------	--	---	---	--	--	------------------------------	--------------------------	---