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REPUBLIC OF LEBANON
MINISTRY OF PUBLIC HEALTH

**NATIONAL ACTION PLAN
ON COMBATING ANTIMICROBIAL RESISTANCE**

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Abbreviations and acronyms

ABX: Antibiotics
AMR: Antimicrobial resistance
AMS: Antimicrobial Stewardship
AUB: American University of Beirut
BAU: Beirut Arab University
CERD: Center for Educational Research and Development
CIAM: Critically Important Antimicrobials
CME: Continuous Medical Education
DDD: Defined Daily Dose
Dpt: Department
EMRO: Eastern Mediterranean Region Office
ESCMID: European Society of Clinical Microbiology and Infectious Diseases
ESU: Epidemiological Surveillance Unit
FAO: Food and Agriculture Organization
GAP: Global Action Plan
GLASS: Global Antimicrobial Resistance Surveillance System
ID: Infectious Diseases
IDSA: Infectious Diseases Society of America
IHR: International Health Regulation
IPC: Infection Prevention and Control
IT: Information Technology
LARI: Lebanese Agricultural Research Institute
LSIDCM: Lebanese Society of Infectious Diseases and Clinical Microbiology
LTFCF: Long-Term Care Facilities
MOA: Ministry of Agriculture
MOH: Ministry of Health
NA: Not Available
NAP: National Action Plan
NGO: Non-governmental Organization
PHC: Primary Health Care
PHCC: Primary Health Care Center
QC: Quality Control
TOR: Terms of Reference
TV: Television
UN: United Nations
USD: United States Dollars
WHO: World Health Organization

Foreword

Antimicrobial resistance (AMR) has become a global public health concern and Lebanon is of no exception to this issue. The spread of antimicrobial-resistant bacteria is considered an alarming public health threat, with a potential extent similar to global warming and other social and environmental threats.

In the 2014 World Economic Forum's Global Risks report, 50 external global risks were analyzed in terms of their economic, environmental, geopolitical, social, and technological consequences, and classified according to their impact, probability, and interconnections. The impact and the probability of AMR were deemed as high as terrorism or climate change.

In Lebanon, statistics regarding morbidity or mortality related to AMR-related infections, are incomplete; however, there is rising evidence that AMR is a real and imminent public health threat. The fight against AMR has become a national duty and priority not only for professionals working in the One Health field, but also for every responsible individual in the Lebanese community.

The MOPH acknowledges the efforts of all MOPH team, WHO team, scientific societies, experts and researchers who worked together on this plan, for their effort and commitment to partner for AMR mitigation and containment. This AMR national plan is dedicated to the coming generations of Lebanon and an expression of the MOPH and all stakeholders in health to the fight against AMR.



Professor Walid Ammar
Director General, MOPH Lebanon

Executive Summary

In Lebanon, AMR has been detected and reported in multiple scientific publications. (3-10) Researchers and public officers who work in the field of health mainly infectious diseases and clinical microbiology have already started their fight against the propagation and emergence of AMR (4,8-13). However, this work needs to be channeled into a structured plan whereby gaps are identified and tasks are dedicated to specific people who should execute them during a specific period of time. In addition, a tricyclic approach to the problem is needed to ensure a plan with the “One Health Approach”. Last but not least, a budget needs to be dedicated for the execution of this plan. In 2015, the World Health Assembly adopted a Global Action Plan (GAP) on AMR, which outlines five objectives (14). This commitment on the behalf of the World Health Organization (WHO) has been an opportunity for Lebanon to organize its fight against AMR into a National Action Plan (NAP). A National multi-sectorial committee was created for the governance of the plan.

The core objectives and activities to be executed in the NAP are as follows:

-For each axis, the first activity is the assignment of a focal person and a technical working group (plus TOR), which aims at organizing the responsibilities and executing tasks in a timely manner.

Axis A: Awareness of AMR

1. Improving AMR awareness among professionals in different fields (e.g. physicians, pharmacists, dentists, healthcare workers, veterinarians, farmers, ecologists, and media specialists) through CME, AMR periodic informational SMS, lectures, etc. offered by Orders/Syndicates, addition to creating an AMR webpage as part of the official websites of MOH and MOA;
2. Preparation of broadcasting AMR awareness material to be diffused through the traditional media (radio and television) and social media (Facebook, Twitter, Instagram);
3. Raising and improving public awareness on AMR through periodic year-long advertisement and concentrated advertisement in and around the Global AMR Week in November using traditional media (radio, TV spots, interviews, talk shows), advertisement on social media networks and sending SMS periodically through national telecommunication companies;
4. Including AMR awareness in education curricula nationwide:
 - a. Sensitization in school programs about AMR and Hygiene.
 - b. Inclusion of AMR awareness in different levels in higher education programs depending on the major/specialty (medicine, dentistry, pharmacy, nursing, veterinary medicine, food chemistry/safety, agriculture, etc.)

Axis B: Surveillance of AMR

1. Pursuing reporting AMR data to the Global Antimicrobial Resistance Surveillance System (GLASS) thus optimizing AMR surveillance in humans through:
 - a. Mapping laboratories that can potentially provide microbiologically reliable and epidemiologically representative data.
 - b. These labs start reporting their data to GLASS.
 - c. Put a plan for capacity building for the labs that are chosen to be included in GLASS report in order to be epidemiologically representative.
2. Building the capacity of labs that are not ready yet to report to GLASS in an incremental plan through
 - a. Enhancing the quality of used equipment
 - b. Workshops
 - c. Standardizing laboratory work guidelines
 - d. External quality proficiency testing
 - e. WHONET Training
3. Periodic issuing of an epidemiologically representative national AMR surveillance report with stratification of data according to local needs of scientists, physicians, pharmacists, and researchers (e.g. blood stream infections data, community-acquired resistance, hospital-acquired AMR, healthcare-associated AMR, etc.), in addition to posting this report on AMR webpages (MOH and MOA websites).
4. Improving AMR awareness in the veterinary, agriculture and environment fields
 - a. Research project about AMR surveillance in these fields.
 - b. To design an epidemiologically representative sample for AMR surveillance (cattle, poultry, companion animals, plants, crops, etc).
 - c. Conduct AMR surveillance in these fields.
5. Creating/Assigning AMR reference lab(s) through
 - a. Define TOR of AMR Reference Lab.
 - b. Map potential lab(s).
 - c. Task force to visits the potential lab(s).
 - d. Nominate the reference lab(s)
 - e. MOH signs a contract with the lab(s).
6. Enhance AMR-related research agenda
 - a. Put and broadcast an AMR research agenda including research for alternative agents to antimicrobials.
 - b. Build a platform for researchers to communicate expertise and subjects.
 - c. A yearly or twice yearly meeting of AMR local researchers.
 - d. Organize fund raising for AMR research.
 - e. Provide help for writing proposals to bring national research funds for AMR.

Axis C: Infection Prevention and Control (IPC)

1. Optimize IPC practices in hospitals through:
 - a. Finalizing national IPC guidelines in hospitals,

- b. Inclusion of IPC checklist into MOH Accreditation Standards for health institutions.
 - c. Syndicate of hospitals recommends that each institution provides basic periodic IPC training to its employees.
- 2. Optimize IPC practices in long-term care facilities (LTCF) and in primary health care centers (PHCC) through:
 - a. Establishing IPC Guidelines.
 - b. Inclusion of IPC checklist into MOH licensing criteria.
 - c. Syndicates of these facilities recommend that each provides basic periodic IPC training to its employees.
- 3. Providing basic IPC education and training of professionals
 - a. Basic IPC practices, including standard isolation precautions, hand hygiene, etc.
 - b. Make it mandatory and uniform in hospitals, LTCF, PHCC, (at differential level among employees).
 - c. Make IPC training available in healthcare facilities, scientific societies, universities, etc.
- 4. Including basic IPC educational modules in school curricula of different majors (Medicine, Nursing, Pharmacy, Dentistry, Veterinary medicine, Agriculture, Food Safety)
- 5. Providing advanced IPC for professionals:
 - a. Put TOR for IPC professionals in different healthcare facilities.
 - b. Put prerequisite training/experience of IPC physicians, officers, and nurses.
 - c. Make training available and affordable in universities and professional societies;
- 6. Establishing national key performance indicators (process indicators) in IPC through:
 - a. Baseline evaluation of current situation at a national level (research project).
 - b. National indicators to be incrementally applied with time (e.g. hand hygiene, standard isolation precautions, etc.)
- 7. Evaluation/Surveillance of nosocomial infection rates:
 - a. Conduct a point prevalence study in Lebanese hospitals for the surveillance of nosocomial infections, based on the WHO project of global point prevalence surveys.
- 8. IPC in the veterinary world:
 - a. To review the inclusion of OIE Biosafety recommendations and their availability in veterinary laws and monitor their application.

Axis D: Antibiotics (ABX) Use

- 1. Improve quality control (QC) of ABX through:
 - a. Supporting and including ABX as priority drugs in the pharmacovigilance project of the Lebanese University,
 - b. Post marketing reporting of safety and efficacy issues of ABX.

- c. Workshops for training personnel on reporting into the pharmacovigilance network.
 - d. Organization of a national task force that is responsible for analyzing complaints regarding ABX.
2. Putting a list of Clinically Important Antimicrobial Molecules (CIAM).
3. Undergoing sentinel surveillance of ABX consumption in a network of hospitals and benchmark it with international data:
 - a. Workshops for ABX consumption metrics.
 - b. Compilation of data from hospitals.
4. Establishing Antimicrobial Stewardship (AMS) Programs in hospitals through
 - a. Basic AMS training workshops.
 - b. Establishment and dissemination of national treatment guidelines of infectious diseases.
 - c. Inclusion of AMS programs as an accreditation standard.
 - d. Audit of AMS during Accreditation with feedback to hospitals.
 - e. Development of AMS website
5. Regulating ABX use in veterinary and agriculture fields through:
 - a. Banning importation and use of CIAM in Lebanon.
 - b. Surveillance of importation of regularly used ABX to Lebanon.
 - c. Research study about ABX consumption.
 - d. Research study about unofficial importation of ABX to Lebanon.
6. Restricting ABX dispensing in community pharmacies
 - a. Meeting between a high-authority-level task force and the President of the Order of Pharmacists to agree over a plan on this issue.

Axis E: Budget planning and fund attraction

The plan for economic sustainability was replaced mainly by a plan for budget preparation and preparation of the ground for fund raising for the execution of the NAP.

1. Budget Allocation:
 - a. Calculation of the budget for the whole plan.
 - b. Identify funding gaps.
 - c. Put a strategic plan to attract funds into the NAP

The activities of different axes should be executed within the coming 5 years. One cannot deny the influence of the political instability in the country that might hinder the execution of the plan. The determination of many Lebanese scientists and professionals concerning the necessity to turn the tide in AMR, supported by the WHO, Ministry of Public Health (MOH), and the Ministry of Agriculture (MOA) are major contributors to the hoped success of this NAP.

Introduction

The discovery of penicillin by Alexander Fleming in the middle of the 20th century has been one of the most important milestones in the history of evolution of mankind. Since then, antimicrobials have saved lives of millions and have had a direct impact on the longevity of the species.

Like everything in nature, the use of antimicrobials has more than one dimension. On one hand, antimicrobials eradicate offensive organisms and help cure patients from infectious diseases. Meanwhile, other microorganisms were finding their way to escape the effect of these agents, and started building up AMR. In fact, the consumption of antimicrobials is closely correlated to the development of AMR (3-10,13,15).

Antimicrobials are not only used in human medicine, but are also used in veterinary medicine (16), in agriculture (17) and in the environment (18).

In order to turn the tide of AMR, a multifaceted approach is needed. IPC in healthcare facilities, in the community, and in the veterinary world are mandatory. The proper application of IPC practices in these settings will lead to an important decrease in antimicrobial utilization. In addition, the use of antimicrobials is a human behavior that needs to be put under control, whereby, awareness of the consequences of the excessive use or misuse is a major determinant in the tricyclic professional world and in the community.

Subsequently, the use of antimicrobials in humans and animals cannot be left to chance. It should be structured and governed by laws and policies, and should be managed by stewards that are well versed in the fields of infectious diseases and clinical microbiology.

All these efforts against AMR should be monitored by surveillance of the quantity and quality of resistance. Continuous research should be carried on to discover new modalities of resistance and alternative ways to fight offensive organisms.

In 2015, the World Health Assembly adopted a global action plan to combat AMR, based on the “One Health” concept outlining five objectives. The goal of the WHO GAP is to ensure, if possible the continuity of successful treatment and prevention of infectious diseases with effective and safe medicines that are quality-assured, used in a responsible way, and accessible to all who need them. (14)

The GAP is a general plan that should be adapted to each country and modified according to each country’s situation based on its strengths, weaknesses, opportunities and barriers (NAP template). The national plan should be in line with the global plan and should have 5 major objectives:

1. To improve awareness and understanding of the professionals and the public on AMR through effective communication, education, and training.

1. To strengthen the knowledge and evidence base through surveillance and research
2. To reduce the incidence of infection through effective sanitation, hygiene and transmission prevention measures
3. To optimize the use of antimicrobials in human and animal health.
4. To develop the economic case for sustainable investment that takes account of the needs of all countries and to increase investment in new drugs, diagnostic tools, vaccines and other interventions.

In Lebanon, AMR has been well documented by the scientific societies (10) and attempts at improving the situation are going on. A NAP that is in line with the GAP and that is owned by the official authorities of the country like the MOH and executed through cooperation between the private and the public sectors will definitely curb AMR.

Situation analyses and Assessment

Lebanon is a relatively small country in the Eastern Mediterranean region with a known surface area of 10,452 km². The population of Lebanon was estimated to be around 6 million inhabitants in 2016 (19) with additional 1.6 million refugees and asylum seekers from neighboring countries (Syria, Palestine and Iraq) due to wars and political conflicts, as of 2012. (20) Lebanon adult literacy rate (+15 years) was 94.1 % in 2015. (21) According to the MOH, Lebanon has 152 hospitals, 120 public and 32 private, including 6 major hospitals that have medical schools. Medical tourism is quite active in the country mainly from Iraq and other neighboring countries.

Strengths

A national official AMR committee appointed by the MOH exists. Substantial work on AMR has been done mainly on awareness and surveillance and has been achieved by scientists and academicians. Local expertise is available. What was achieved is the following:

- 1-Lab training for staff capacity building (covering 160 labs from governmental and private hospitals),
- 2-Proficiency testing (two cycles including unknowns of 5 pathogens each conducted for 33 labs, covering governmental and private labs), and
- 3-Producing a booklet about standardized methodology for antimicrobial susceptibility testing by disk diffusion.

Weaknesses

The AMR-NAP is not officially integrated into the national health plan, and there is no national progress report on implementation of the NAP that is published regularly with open access. There is an absence of a long-term technical and financial investment for implementation. The core components of the existing NAP include 2 to 3 major goals. The operational plan does not include milestones for the coming 1 to 2 years; it rather includes separate activities, where the available specific interventions are fragmented. Specific monitoring and budget plans referring to each operational activity is not available.

Threats

The political and economic situation of the country can be a major threat to the realization of the NAP to combat AMR, especially with the lack of funds in the MOH, MOA, and the Ministry of Finance. The deficiencies in the basic needs like electricity and waste management on the national level would make it difficult for AMR to become a priority at the high level especially for budget allocation in the cabinet of ministers.

Opportunities

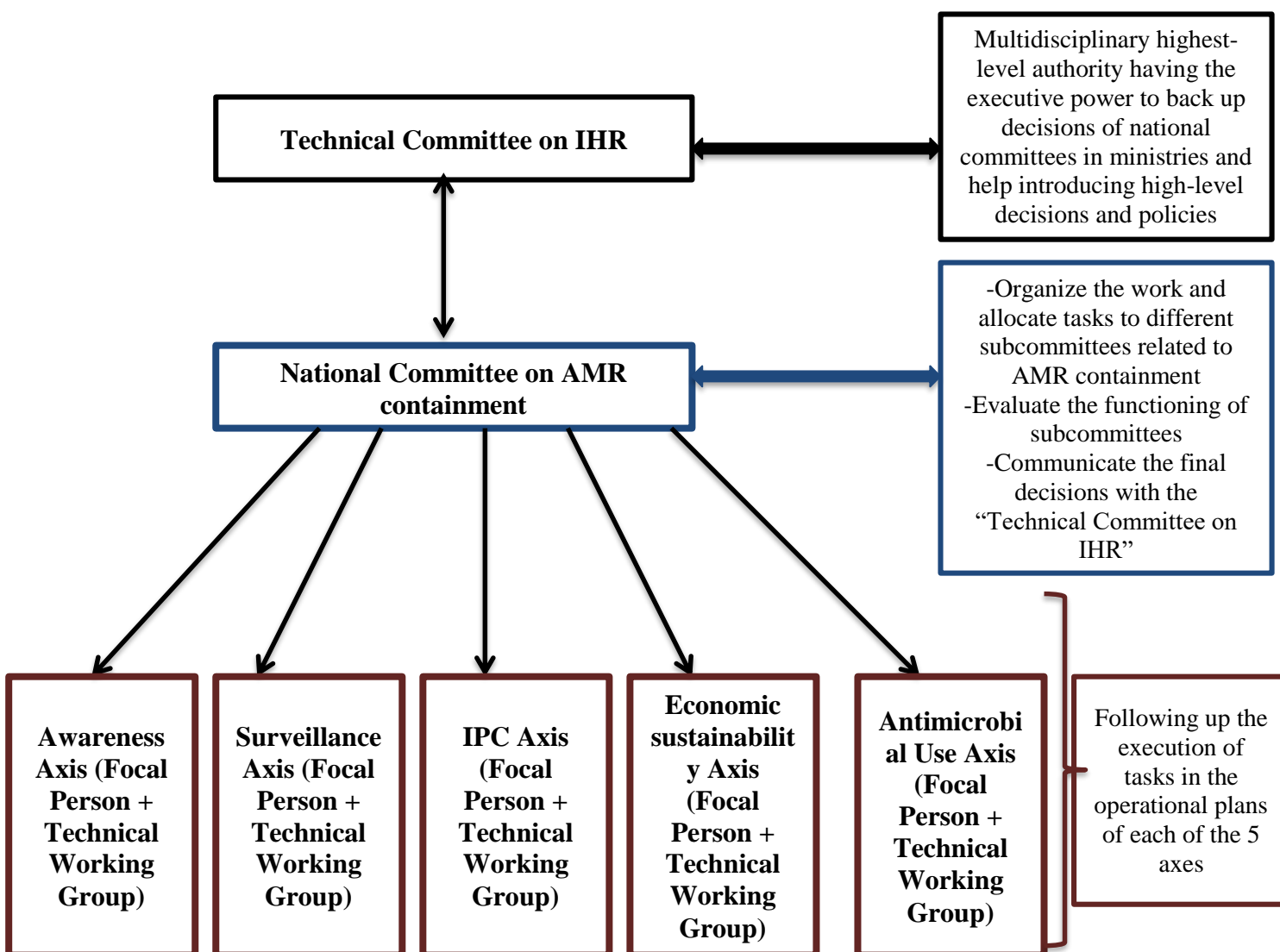
Several opportunities can be explored like the global interest in AMR, the affiliation of many members of the scientific societies to international organizations that can provide support to the NAP, like The European Society of Clinical Microbiology and Infectious Diseases (ESCMID), The Infectious Diseases Society of America (IDSA), The Food and Agriculture Organization (FAO) of the United Nations (UN), or Mérieux Foundation. The WHO GAP that supports national plans in the region is also a great opportunity for helping and supporting our plan in Lebanon.

Country Response

The country response to the spread of AMR has started before the preparation of the current NAP, where members of the “Technical Committee on IHR” and “National AMR committee” have already been appointed (Appendix). The “Technical Committee on IHR” is the highest-level authority in charge of supporting legislations and policies requested by the “National AMR committee”. Currently, a NAP is being developed according to the WHO templates to be in line with WHO GAP.

Governance Organogram

The below diagram illustrates the suggested governance flow of the NAP in Lebanon as a beginning of execution of this plan.



Axis A: Awareness

Strategic plan

Objective	Activity	Sub-activity	Date	Milestone
A.1 Organization of the responsibilities for the execution of the tasks	A.1.1 Nominate a focal person in charge of following up the activities of the objectives of this axis		A.1.1 time “zero”	A.1 three months from time zero
	A.1.2 Choose the members of the Awareness technical working group (Radio/TV Media, Social media expert, Technical, Pharmacist, ID, Microbiologist, Veterinarian, Agriculture, MOH representative, WHO) and nominate them		A.1.2 time “zero”	
	A.1.3 Put the terms of reference of this technical group according to NAP		A.1.3 two months from time “zero”	
	A.1.4 Slogan for AMR		A.1.4 three months from time “zero”	
A.2 Improving AMR awareness among professionals from different sectors	A.2.1 Raising AMR awareness through syndicates, orders and scientific societies (CME, AMR periodic informational SMS, etc.)	A.2.1.1 LSIDCM scheduled lectures in national conferences of the medical, pharmaceutical, nursing, veterinary, agricultural and environmental fields across Lebanon	A.2.1.1 two months from time “zero”	A.2 5 years

		A.2.1.2 Ask syndicates/orders (human and animal health and agriculture) that for CME credits to be given for any lecture involving ABX use, at least 2-3 slides should be put to increase awareness about AMR and the ways to prevent it including antimicrobial use.	A.2.1.2 Six months from time “zero”	
		A.2.1.3 Ask orders of pharmacists, veterinarians, physicians, and dentists to send monthly SMS as reminders to health professionals about the dangers of AMR and/or AMR News.	A.2.1.3 36 months from time zero	
		A.2.1.4 Workshops on AMR awareness to media professionals	A.2.1.4 Beginning of November each year over 5 years	
		A.2.1.5 Do one workshop per governorate per year to veterinarians and agriculture specialists (Train the trainer)	A.2.1.5 Six months from time zero	
	A.2.2 Raising AMR awareness through Internet	A.2.2.1 Create a webpage for AMR on the official websites of MOH and MOA	A.2.2.1 Three months from time “zero”	

		A.2.2.2 Use existing webpages of MOH and WHO and relevant societies on different social networks (Facebook, YouTube, Twitter, Instagram)	A.2.2.2 One year from time zero	
A.3 Involving traditional (TV, radio) media and social media (Facebook, Instagram) in raising AMR awareness	A.3.1 Prepare broadcasting material that includes all sectors of the One health approach for Radio/TV/Social media spots		A.3.1 Six months from time zero	A.3 Six months from time zero
A.4 Raising and improving public awareness using traditional media, social media and telecommunication companies	A.4.1 Prepare a yearlong schedule for TV, Radio and social media advertisement.		A.4.1 Six months from time zero	A.4 Two years from time zero
	A.4.2 AMR to be periodically discussed in highly watched talk shows		A.4.2 One year from time zero	
	A.4.3 Public figure(s) associated with AMR		A.4.3 One year from time zero	
	A.4.4 Politician(s) involved in AMR		A.4.4 Two years from time zero	
	A.4.5 SMS through national telecommunication companies sent four times per year and during the		A.4.5 Starting end of first year from time zero	

	global AMR awareness week			
A.5 Raising/Improving AMR awareness in education curricula on the national level	A.5.1 Sensitization about AMR and hygiene in school curricula	A.5.1.1 Prepare a checklist including basic information about AMR that should be included in school curricula	A.5.1.1 Start 3 months from time zero, Ready at end of first year from time zero	A.5 9 months from time zero
		A.5.1.2 Check available school curricula and ask to fill in the gaps when AMR information according to checklist is not available	A.5.1.2 Start three months from time zero Ready at 6 months from time zero	
	A.5.2 Inclusion of AMR awareness modules in in curricula of human health-related specialties (medicine, dentistry, pharmacy, nursing)	A.5.2.1 Prepare checklists for university curricula of these specialties each one separately	A.5.2.1 Start 3 months from time zero Finalized 9 months from time zero	
		A.5.2.2 Check curricula of health specialties to include information on AMR Include AMR tricyclic education	A.5.2.2 Start 3 months from time zero Finalized 9 months from time zero	
	A.5.3 Inclusion of AMR awareness modules in curricula of veterinary school	A.5.3.1 Prepare a checklist for the needed information on AMR for veterinary school curricula	A.5.3.1 Three months from time zero	
		A.5.3.2 Fill the gap in AMR information in veterinary school curricula	A.5.3.2 Six months from time zero	
	A.5.4 Inclusion of AMR awareness modules in	A.5.4.1	A.5.4.1 Six months from time zero	

	curricula of agriculture school	Checklist for the needed information on AMR for agriculture school curricula		
		A.5.4.2 Fill the gap in AMR information in agriculture school curricula	A.5.4.2 Six months from time zero	
A.6 Involvement of pharmaceutical companies in raising AMR awareness and provide finding for awareness activities	A.6.1 MOH and MOA should advise pharmaceutical companies (Human and Veterinary) to include in every presentation related to antimicrobial use at least 3 slides (5%) concerning AMR (Send one letter from each ministry)		A.6.1 Starting end of first year from time zero	A.6 1 year
	A.6.2 Seek private funding from Pharmaceutical companies for awareness activities targeting public and professionals	A.6.2.1 Meeting with CEO s of main Pharmaceutical companies and working group and present the highlights of the AMR plan in general, awareness specifically and put plan of contribution to awareness activities	A.6.2 6 months	

Operational plan and budget

Objective	Activity	Sub-activity	Unit	Quantity	Date	Location	Responsible entity	Cost	Source Of funding	Indicator
A.1 Organization of the responsibilities for the execution of the tasks	A.1.1 Nominate a focal person in charge of following up the activities of the objectives of this axis		A.1.1 Letter of appointment	A.1.1 One	A.1.1 time "zero"	A.1.1 MOH	A.1.1 -WHO-National Professional Officer (Dr. A Rady) -MOH-General Director (Dr. W Ammar)	A.1.1 0.25 time employee (Secretarial functions)	A.1.1 MOH	A.1.1 Focal person nominated
	A.1.2 Choose the members of the Awareness technical working group (Radio/TV Media, Social media expert, Technical, Pharmacist,		A.1.2 -One focal person -One technical group Suggestions: -Focal person: Dr. R Hamra	A.1.2 -One focal person -One technical group	A.1.2 time "zero"	A.1.2 MOH WHO	A.1.2 -WHO-National Professional Officer (Dr. A Rady) -MOH-General Director (Dr. W Ammar)	A.1.2 None	A.1.2 None	A.1.2 Technical group formed and posted on AMR website.

	ID, Microbiologist, Veterinarian, Agriculture, MOH representative, WHO) and nominate them		-Technical group members: Dr. A Rady, Dr. R Hamra, Dr. Z Helou Dr .A Sirawan Dr. M Matar Dr. Z Daoud, Dr. B Bazzal, WHO technical person.							
	A.1.3 Put the terms of reference of this technical group according to NAP		A.1.3 Document	A.1.3 One	A.1.3 two months from time “zero”	A.1.3 -MOH -WHO -MOA	A.1.3 -Focal person -WHO-National Professional Officer (Dr. A Rady)	A.1.3 None	A.1.3 None	A.1.3 TOR of technical group posted on website

	A.1.4 Slogan for AMR		A.1.4 Awareness technical working group (PAC)	A.1.4 One	A.1.4 three months from time “zero”	A.1.4 -MOH -WHO	A.1.4 Awareness technical working group	A.1.4 None	A.1.4 None	A.1.4 Slogan is posted on AMR website
A.2 Improving AMR awareness among professionals from different sectors	A.2.1 Raising AMR awareness through syndicates, orders and scientific societies (CME, AMR periodic informational SMS, etc.)	A.2.1.1 LSIDCM scheduled lectures in national conferences of the medical, pharmaceutical, nursing, veterinary, agricultural and environmental fields across Lebanon	A.2.1.1 Schedule	A.2.1.1 One	A.2.1.1 two months from time “zero”	A.2.1.1 - LSIDCM -MOH -WHO -MOA	A.2.1.1 -LSIDCM president (Dr. Z Helou) - Awareness technical working group	A.2.1.1 None	A.2.1.1 None	A.2.1.1 Official schedule from LSIDCM
		A.2.1.2 Ask syndicates/orders (human and animal health and agriculture)	A.2.1.2 Letters to syndicates/orders	A.2.1.2 depending on number of syndicates/orders	A.2.1.2 Six months from time “zero”	A.2.1.2 Order of physicians	A.2.1.2 - Focal person -LSIDCM president (Dr. Z Helou)	A.2.1.2 None	A.2.1.2 None	A.2.1.2 Percentage of lectures involving ABX that contain the message in 2-3 slides

		that for CME credits to be given for any lecture involving ABX use, at least 2-3 slides should be put to increase awareness about AMR and the ways to prevent it including antimicrobial use.					-President of the Order of physicians endorsed by the IHR technical committee			
		A.2.1.3 Ask orders of pharmacists, veterinarians, physicians, and dentists to send monthly	A.2.1.3 Letters to orders from MOH/MOA to send SMS to health professionals	A.2.1.3 three	A.2.1.3 36 months from time zero	A.2.1.3 -Order of pharmacists -MOA	A.2.1.3 Focal person endorsed by a national multisectorial group	A.2.1.3 None/MOH	A.2.1.3 None	A.2.1.3 -Percentage compliance to this request of sending monthly SMS to health professionals.

		SMS as reminders to health professionals about the dangers of AMR and/or AMR News.								-Number of months where SMS were sent from each order/total number of months audited
		A.2.1.4 Workshops on AMR awareness to media professionals	A.2.1.4 Workshops	A.2.1.4 Once/year 5/5 years	A.2.1.4 Beginning of November each year over 5 years	A.2.1.4 Hotel	A.2.1.4 -Focal person -MOH- Director of Public Relations & Health Education Dpts (Dr. R Hamra) -MOH- Public Health Officer (Ms. H Semaha)	A.2.1.4 2,000 USD/year	A.2.1.4 AMR Fund	A.2.1.4 Percentage of target media personnel whom attend these workshops.
		A.2.1.5	A.2.1.5 Workshops	A.2.1.5	A.2.1.5	A.2.1.5 MOA	A.2.1.5 -MOA-	A.2.1.5	A.2.1.5	A.2.1.5

		Do one workshop per governorate per year to veterinarians and agriculture specialists (Train the trainer)		Seven per year	Six months from time zero		Head of Animal Health Service (Dr. B Bazzal) -MOA- Head of Poultry Husbandry Dpt (Eng. A Sirawan)	4000 USD per year TOTAL: 4000X7= 28,000 \$	-AMR Fund -MOA	Number of workshops per governorate per year
	A.2.2 Raising AMR awareness through Internet	A.2.2.1 Create a webpage for AMR on the official websites of MOH and MOA	A.2.2.1 AMR blog present on websites of MOH and MOA	A.2.2.1 One	A.2.2.1 Three months from time "zero"	A.2.2.1 -MOH -MOA	A.2.2.1 -Focal person -MOH- Director of Public Relations & Health Education Dpts (Dr. R Hamra) -MOH- Head of Preventive Medicine and Communic	A.2.2.1 10,000 USD -C/O MOH	A.2.2.1 AMR fund	A.2.2.1 AMR section is put on MOH/MOA websites

							able Diseases Dpts (Dr. A Berry) -MOH-IT specialist			
		A.2.2.2 Use existing webpages of MOH and WHO and relevant societies on different social networks (Facebook, YouTube, Twitter, Instagram)	A.2.2.2 Webpages	A.2.2.2 Four	A.2.2.2 One year from time zero	A.2.2.2 MOH	A.2.2.2 -Webpage designer - Outsourcing call for cotations at WHO -MOH-National E-Health Program Director (Mrs. L Abou Mrad)	A.2.2.2 5,000 USD	A.2.2.2 Within her job	A.2.2.2 Webpages available
A.3 Involving traditional (TV, radio) media and social media	A.3.1 Prepare broadcasting material that includes all sectors of		A.3.1 Broadcasting material for Radio/TV/ Social media spots	A.3.1 One set of material	A.3.1 Six months from time zero	A.3.1 WHO	A.3.1 All broadcasting messages will be prepared and	A.3.1 15,000 USD	A.3.1 WHO	A.3.1 Broadcasting material available, they are tricyclic

(Facebook, Instagram) in raising AMR awareness	the One health approach for Radio/TV/ Social media spots						supported by WHO			
A.4 Raising and improving public awareness using traditional media, social media and telecommunication companies	A.4.1 Prepare a yearlong schedule for TV, Radio and social media advertisement.		A.4.1 Schedule	A.4.1 One	A.4.1 Six months from time zero	A.4.1 MOH	A.4.1 - MOH- Director of Public Relations & Health Education Dpts (Dr. R Hamra)	A.4.1 15,000 USD per year TOTAL: 60,000 USD	A.4.1 WHO	A.4.1 Schedules put and spots
	A.4.2 AMR to be periodically discussed in highly watched talk shows		A.4.2 Talk shows	A.4.2 Multiple	A.4.2 One year from time zero	A.4.2 MOH	A.4.2 -Focal person -AMR Committee members.	A.4.2 None	A.4.2 None	A.4.2 Number of talk shows that discuss AMR per trimester
	A.4.3 Public figure(s) associated with AMR		A.4.3 Person	A.4.3 One or more	A.4.3 One year from time zero	A.4.3 MOH MOA	A.4.3 -LSIDCM president (Dr. Z Helou)	A.4.3 None	A.4.3 None	A.4.3 Number of appearances in media/publ

							-MOH- Director of Public Relations & Health Education Dpts (Dr. R Hamra)			ic to discuss the subject
	A.4.4 Politician(s) involved in AMR		A.4.4 Politicians public statements on TV, radio or social media	A.4.4 Three from three different political sides	A.4.4 Two years from time zero	A.4.4 TV, Radio, social media	A.4.4 -Focal person -MOH -WHO	A.4.4 None	A.4.4 None	A.4.4 Number of appearances in media/publ ic to discuss the subject
	A.4.5 SMS through national telecommu nication companies sent four times per year and during the global AMR awareness week		A.4.5 SMS	A.4.5 four per year	A.4.5 Starting end of first year from time zero	A.4.5 -National telecommu nication -MOH -MOA	A.4.5 -MOH -Ministry of Communic ation -MOH- General Director (Dr. W Ammar)	A.4.5 None	A.4.5 -MOH/ -Ministry of Communic ation/ MOA -WHO	A.4.5 SMS sent

<p>A.5 Raising/Improving AMR awareness in education curricula on the national level</p>	<p>A.5.1 Sensitization about AMR and hygiene in school curricula</p>	<p>A.5.1.1 Prepare a checklist including basic information about AMR that should be included in school curricula</p>	<p>A.5.1.1 Documents : Basic for schools (Based on One Health /E-health)</p>	<p>A.5.1.1 One</p>	<p>A.5.1.1 Start 3 months from time zero, Ready at end of first year from time zero</p>	<p>A.5.1.1 -Ministry of education -MOA -MOH</p>	<p>A.5.1.1 -Focal person -WHO-National Professional Officer (Dr. A Rady) -MOA-Head of Poultry Husbandry Dpt (Eng. A Sirawan) -Private sector, WHO consultant (Dr. P Abi Hanna)</p>	<p>A.5.1.1 None</p>	<p>A.5.1.1 None</p>	<p>A.5.1 Percentage of school curricula that include the message</p>
		<p>A.5.1.2 Check available school curricula and ask to fill in the gaps when AMR</p>	<p>A.5.1.2 Report and letter</p>	<p>A.5.1.2 Two</p>	<p>A.5.1.2 Start three months from time zero Ready at 6 months from time zero</p>	<p>A.5.1.2 -Ministry of education -MOA -MOH</p>	<p>A.5.1.2 -WHO-National Professional Officer (Dr. A Rady)</p>	<p>A.5.1.2 None</p>	<p>A.5.1.2 None</p>	

		information according to checklist is not available					-Ms S Najem (private sector) -CERD			
	A.5.2 Inclusion of AMR awareness modules in in curricula of human health-related specialties (medicine, dentistry, pharmacy, nursing)	A.5.2.1 Prepare checklists for university curricula of these specialties each one separately	A.5.2.1 Checklists for different curricula of health specialties	A.5.2.1 Number of curricula of health specialties	A.5.2.1 Start 3 months from time zero Finalized 9 months from time zero	A.5.2.1 Universities WHO	A.5.2.1 Private sector, WHO consultant, former LSIDCM president (Dr. R Moghnieh)	A.5.2.1 2,000 USD	A.5.2.1 AMR fund	A.5.2 Percentage of curricula of health specialties that include chapters about AMR/IPC according to checklist
		A.5.2.2 Check curricula of health specialties to include information on AMR Include AMR tricyclic education	A.5.2.2 Report and detailed list of objectives that are to be included and are missing in each health curriculum	A.5.2.2 One	A.5.2.2 Start 3 months from time zero Finalized 9 months from time zero	A.5.2.2 Universities	A.5.2.2 Private sector, WHO consultant, former LSIDCM president (Dr. R Moghnieh)	A.5.2.2 2,000 USD	A.5.2.2 AMR fund	

	A.5.3 Inclusion of AMR awareness modules in curricula of veterinary school	A.5.3.1 Prepare a checklist for the needed information on AMR for veterinary school curricula	A.5.3.1 Checklist	A.5.3.1 One	A.5.3.1 Three months from time zero	A.5.3.1 MOA	A.8.1 -MOA- Head of Animal Health Service (Dr. B Bazzal)	A.5.3.1 500 USD	A.5.3.1 AMR fund	A.5.3 Veterinary school curricula include chapters about AMR/IPC
		A.5.3.2 Fill the gap in AMR information in veterinary school curricula	A.5.3.2 Report to Lebanese University veterinary school	A.5.3.2 One	A.5.3.2 Six months from time zero	A.5.3.2 Veterinary School- Lebanese University	A.5.3.2 -MOA- Head of Animal Health Service (Dr. B Bazzal)	A.5.3.2 1,000 USD	A.5.3.2 AMR fund	
	A.5.4 Inclusion of AMR awareness modules in curricula of agriculture school	A.5.4.1 Checklist for the needed information on AMR for agriculture school curricula	A.5.4.1 Checklist	A.5.4.1 One	A.5.4.1 Six months from time zero	A.5.4.1 -MOA - Universities	A.5.4.1 MOA-Head of Poultry Husbandry Dpt (Eng. A Sirawan)	A.5.4.1 500 USD	A.5.4.1 AMR fund	A.5.4.1 Agriculture school curricula include chapters about AMR/IPC
		A.5.4.2	A.5.4.2	A.5.4.2 One	A.5.4.2	A.5.4.2 -MOA	A.5.4.2	A.5.4.2 1,000 USD	A.5.4.2 AMR fund	

		Fill the gap in AMR information in agriculture school curricula	Letter from the Ministries of Health, Education and Agriculture to agriculture schools		Six months from time zero	- Universities	MOA-Head of Poultry Husbandry Dpt (Eng. A Sirawan)			
A.6 Involvement of pharmaceutical companies in raising AMR awareness and provide funding for awareness activities	A.6.1 MOH and MOA should advise pharmaceutical companies (Human and Veterinary) to include in every presentation related to antimicrobial use at least 3 slides (5%) concerning AMR (Send one		A.6.1 Letters to Ministries of Health and Agriculture	A.6.1 Two	A.6.1 Starting end of first year from time zero	A.6.1 MOH MOA	A.6.1 -MOH- Director of Public Relations & Health Education Dpts (Dr. R Hamra) -MOA- Head of Animal Health Service (Dr. B Bazzal) -MOA- Head of Poultry Husbandry	A.6.1 None	A.6.1 MOH	A.6.1 Percentage of pharmaceutical companies presentations that include the message about AMR

	letter from each ministry)						Dpt (Eng. A Sirawan)			
	A.6.2 Seek private funding from Pharmaceutical companies for awareness activities targeting public and professionals	A.6.2.1 Meeting with CEO s of main Pharmaceutical companies and working group and present the highlights of the AMR plan in general, awareness specifically and put plan of contribution to awareness activities	A.6.2.1 Meeting	A.6.2.1 1 or more	A.6.2.1 6 months	A.6.2.1 MOH	A.6.2.1 Technical working group	A.6.2.1 1,000 USD	A.6.2.1 AMR Fund	A.6.2.1 Percentage of pharmaceutical companies that promote antimicrobials that are contributing into the budget of the awareness campaign

Monitoring and evaluation plan

Objective	Activity	Sub-activity	Indicator	Purpose	Calculation	Frequency	Data source	Method	Baseline
A.1 Organization of the responsibilities for the execution of the tasks	A.1.1 Nominate a focal person in charge of following up the activities of the objectives of this axis		A.1.1 Focal person nominated	A.1.1, A.1.2 Organize and follow up the tasks in the plan	A.1.1, A.1.2 Yes/No	A.1.1, A.1.2 Once/5 years	A.1.1, A.1.2 MOH WHO	A.1.1, A.1.2 Appointment	A.1.1, A.1.2 NA
	A.1.2 Choose the members of the technical working group (Radio/TV Media, Social media expert, Technical, Pharmacist, ID, Microbiologist, Veterinarian, Agriculture, MOH representative, WHO) and		A.1.2 Awareness technical working group formed and posted on AMR website.						

	nominate them								
	A.1.3 Put the terms of reference of Awareness technical working group according to NAP		A.1.3 TOR of technical working group posted on website	A.1.3 Specify its activities	A.1.3 Yes/No	A.1.3 Once/5 years	A.1.3 MOH WHO	A.1.3 Document	A.1.3 NA
	A.1.4 Slogan for AMR		A.1.4 Slogan is posted on AMR website	A.1.4 not applicable	A.1.4 Yes/No	A.1.4 Once/5 years	A.1.4 MOH WHO	A.1.4 Slogan	A.1.4 NA
A.2 Improving AMR awareness among professionals from different sectors	A.2.1 Raising AMR awareness through syndicates, orders and scientific societies (CME, AMR periodic informational SMS, etc.)	A.2.1.1 LSIDCM scheduled lectures in national conferences of the medical, pharmaceutical, nursing, veterinary, agricultural and environmental fields	A.2.1.1 Official schedule from LSIDCM	A.2.1.1 Having the commitment from LSIDCM in giving these lectures.	A.2.1.1 Number of lectures given per governorate per year	A.2.1.1 every 6 months	A.2.1.1 LSIDCM	A.2.1.1 Document	A.2.1.1 No schedule available, talks concentrated in Beirut area, not to all professionals

		across Lebanon							
		A.2.1.2 Ask syndicates/orders (human and animal health and agriculture) that for CME credits to be given for any lecture involving ABX use, at least 2-3 slides should be put to increase awareness about AMR and the ways to prevent it including antimicrobial use.	A.2.1.2 Percentage of lectures involving ABX that contain the message in 2-3 slides	A.2.1.2 Reminder of AMR in all ABX lectures.	A.2.1.2 Number of lectures with the message/number of lectures audited*100	A.2.1.2 every year	A.2.1.2 NAP audit of lectures given	A.2.1.2 Audit	A.2.1.2 NA
		A.2.1.3 Ask Orders of pharmacists, veterinarians, physicians, and dentists to send	A.2.1.3 -Percentage compliance to this request of sending monthly	A.2.1.3 Permanent reminding	A.2.1.3 Number of months where SMS were sent from each Order/total	A.2.1.3 every six months	A.2.1.3 Orders	A.2.1.3 Report from Orders	A.2.1.3 NA

		monthly SMS as reminders to health professionals about the dangers of AMR and/or AMR News.	SMS to health professionals . -Number of months where SMS were sent from each Order/total number of months audited		number of months audited				
		A.2.1.4 Workshops on AMR awareness to media professionals	A.2.1.4 Percentage of target media personnel whom attend these workshops.	A.2.1.4 Sensitize the media to propagate the message and gain their interest in bringing it up in their programs, sites, and newspapers	A.2.1.4 Number of attendees/number of target media personnel	A.2.1.4 Once per year	A.2.1.4 Awareness technical working group	A.2.1.4 Data collection	A.2.1.4 NA
		A.2.1.5 Do one workshop per governorate per year to veterinarians	A.2.1.5 Number of workshops per governorate per year	A.2.1.5 Raise post-graduate AMR awareness among professionals	A.2.1.5 Number of workshops per governorate per year	A.2.1.5 Once/year	A.2.1.5 MOA WHO	A.2.1.5 Workshop	A.2.1.5 NA

		and agriculture specialists (Train the trainer)							
	A.2.2 Raising AMR awareness through Internet	A.2.2.1 Create a webpage for AMR on the official websites of MOH and MOA	A.2.2.1 AMR section is put on MOH/MOA websites	A.2.2.1 Increase visibility	A.2.2.1 Yes/No	A.2.2.1 Once/5 years	A.2.2.1 MOH MOA	A.2.2.1 Section on website	A.2.2.1 NA
		A.2.2.2 Use existing webpages of MOH and WHO and relevant societies on different social networks (Facebook, YouTube, Twitter, Instagram)	A.2.2.2 Webpages available	A.2.2.2 Reach the young population and broaden the spectrum of people receiving the message	A.2.2.2 Yes/No Presence of webpages	A.2.2.2 Every three months	A.2.2.2 Awareness technical working group	A.2.2.2 Webpage	A.2.2.2 NA
A.3 Involving traditional (TV, radio) media and	A.3.1 Prepare broadcasting material that includes all		A.3.1 Broadcasting material available,	A.3.1 Percentage of media type for which	A.3.1 Yes/No For each type of media	A.3.1 every three months	A.3.1 Awareness technical working group	A.3.1 Counting	A.3.1 Few TV spots available regarding

social media (Facebook, Instagram) in raising AMR awareness	sectors of the One health approach for Radio/TV/Social media spots		they are tricyclic	broadcasting messages have been prepared					human health, not tricyclic.
A.4 Raising and improving public awareness using traditional media, social media and telecommunication companies	A.4.1 Prepare a yearlong schedule for TV, Radio and social media advertisement.		A.4.1 Schedules put and spots	A.4.1 Emphasize the importance of the subject	A.4.1 Number of talk shows per 3 months that discuss AMR	A.4.1 every three months	A.4.1 Awareness technical working group	A.4.1 Schedule	A.4.1 Erratic, in few morning shows
	A.4.2 AMR to be periodically discussed in highly watched talk shows		A.4.2 Number of talk shows that discuss AMR per trimester	A.4.2 Reach more people	A.4.2 Number of activities per trimester per governorate	A.4.2 every three months over 5 years	A.4.2 Awareness technical working group	A.4.2 Talk show	A.4.2 NA
	A.4.3 Public figure(s) associated with AMR		A.4.3 Number of appearances in media/public to discuss the subject	A.4.3 Reach more people	A.4.3 Number of appearances	A.4.3 every three months over 5 years	A.4.3 Awareness technical working group	A.4.3 Statement	A.4.3 NA

	A.4.4 Politician(s) involved in AMR		A.4.4 Number of appearances in media/public to discuss the subject	A.4.4 Reach more people	A.4.4 Number of appearances	A.4.4 every three months over 5 years	A.4.4 Awareness technical working group	A.4.4 Statement	A.4.4 NA
	A.4.5 SMS through national telecommuni cation companies sent four times per year and during the global AMR awareness week		A.4.5 SMS sent	A.4.5 Reach more people	A.4.5 Number of messages sent	A.4.5 every three months over 5 years	A.4.5 Awareness technical working group	A.4.5 Message	A.4.5 NA
A.5 Raising/Impr oving AMR awareness in education curricula on the national level	A.5.1 Sensitization about AMR and hygiene in school curricula	A.5.1.1 Prepare a checklist including basic information about AMR that should be included in school curricula	A.5.1 Percentage of school curricula that include the message	A.5.1 Include AMR-related information in school curricula	A.5.1 number of curricula that included the message/ total number of curricula * 100	A.5.1 Once/5 years	A.5.1 -Ministry of education -WHO	A.5.1 Checking and filling the gaps	A.5.1 NA

		A.5.1.2 Check available school curricula and ask to fill in the gaps when AMR information according to checklist is not available							
	A.5.2 Inclusion of AMR awareness modules in in curricula of human health-related specialties (medicine, dentistry, pharmacy, nursing)	A.5.2.1 Prepare checklists for university curricula of these specialties each one separately	A.5.2 Percentage of curricula of health specialties that include chapters about AMR according to checklist	A.5.2 Include AMR modules in curricula of health sciences specialties	A.5.2 number of curricula that included the message/ total number of curricula * 100	A.5.2 Once/5 years	A.5.2 - Ministry of education -Universities -MOH -WHO	A.5.2 Checking and filling the gaps	A.5.2 Partially available
		A.5.2.2 Check curricula of health specialties to include							

		information on AMR Include AMR tricyclic education							
	A.5.3 Inclusion of AMR awareness modules in curricula of veterinary school	A.5.3.1 Prepare a checklist for the needed information on AMR for veterinary school curricula	A.5.3 Veterinary school curricula include chapters about AMR	A.5.3 Include AMR modules in curricula of veterinary school	A.5.3 number of curricula that included the message	A.5.3 Once/5 years	A.5.3 -Ministry of education -Universities -WHO	A.5.3 Checking and filling the gaps	A.5.3 NA
		A.5.3.2 Fill the gap in AMR information in veterinary school curricula							
	A.5.4 Inclusion of AMR awareness modules in curricula of agriculture school	A.5.4.1 Checklist for the needed information on AMR for agriculture school curricula	A.5.4.1 Agriculture school curricula include chapters about AMR/IPC	A.5.4 Include AMR/IPC modules in curricula of agriculture school	A.5.4 number of curricula that included the message	A.5.4 Once/5 years	A.5.4 -Ministry of education -Universities -MOA -WHO	A.5.4 Checking and filling the gaps	A.5.4 NA
		A.5.4.2							

		Fill the gap in AMR information in agriculture school curricula							
A.6 Involvement of pharmaceutical companies in raising AMR awareness and provide funding for awareness activities	A.6.1 MOH and MOA should advise pharmaceutical companies (Human and Veterinary) to include in every presentation related to antimicrobial use at least 3 slides (5%) concerning AMR (Send one letter from each ministry)		A.6.1 Percentage of pharmaceutical companies presentations that include the message about AMR	A.6.1 involving pharmaceutical companies in raising AMR awareness among professionals in all health fields	A.6.1 number of presentations including message/ total number of presentations *100	A.6.1 Once/5 years	A.6.1 MOH MOA	A.6.1 Letter	A.6.1 Sporadic
	A.6.2 Seek private funding from Pharmaceutical	A.6.2.1 Meeting with CEO s of main	A.6.2.1 Percentage of pharmaceutical	A.6.2.1 Involving pharmaceutical companies in	A.6.2.1 Number of companies contributing to the	A.6.2.1 Once or more/5 years	A.6.2.1 MOH MOA	A.6.2.1 Meeting(s)	A.6.2.1 NA

	companies for awareness activities targeting public and professionals	Pharmaceutical companies and working group and present the highlights of the AMR plan in general, awareness specifically and put plan of contribution to awareness activities	companies that promote antimicrobials that are contributing into the budget of the awareness campaign	raising AMR awareness among professionals in all health fields	project/total number of companies promoting ABX				
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Axis B: Surveillance

Strategic Plan

Objective	Activity	Sub-activity	Date from operational plan	Milestone
B.1 Organization of the responsibilities for the execution of the tasks	B.1.1 Appointment of focal person in charge of following up the activities of the objectives of this axis	B.1.1.1 Empower ESU director as focal person	B.1.1.1 three months from time zero	B.1 three months from time zero
	B.1.2 Appointment of the members of the technical working group along with its TOR		B.1.2 three months from time zero	
B.2 Reporting of AMR data to GLASS	B.2.1 Mapping of labs that can potentially provide microbiologically reliable and epidemiologically representative data. These labs start reporting their data to the (GLASS).	B.2.1.1 Make a list of laboratories that will ultimately form an epidemiologic representation of the country and that will be sequentially entered into GLASS after capacity building	B.2.1.1 Three months from time zero	B.2 5 years
	B.2.2 Put a plan for capacity building for the labs that are chosen to be included in GLASS report in order to be epidemiologically representative based on an incremental plan	B.2.2.1 Organize a nationwide workshop about GLASS and the plan of inclusion in GLASS and introduction to WHONET	B.2.2.1 Three months from time zero	
		B.2.2.2	B.2.2.2	

		<ul style="list-style-type: none"> -Evaluate the quality of work in the selected laboratories (visit), -Check 8 laboratories per year, -Select the ones that can immediately report to GLASS, -Put a plan for 4 laboratories that will undergo improvement in their capacity during coming year, then repeat the same the following year, then the following years 	<p>End of first year from time zero: 4 laboratories</p> <p>Second year from time zero: 4 laboratories</p> <p>Each year 4 laboratories</p>	
		<p>B.2.2.3</p> <p>Do a start up WHONET training for the 8 laboratories that were chosen for the coming 2 years every 2 years</p>	<p>B.2.2.3</p> <p>Three months from time zero</p>	
		<p>B.2.2.4</p> <p>Do 3 laboratory visits for capacity building/year for 4 laboratories in different areas for building capacity and WHONET training</p>	<p>B.2.2.4</p> <p>Three visits per lab each year for 4 laboratories starting year 1</p>	
		<p>B.2.2.5</p> <p>External quality control twice per year for the 8 laboratories chosen for the 2 years, then to add the ones of</p>	<p>B.2.2.5</p> <p>Six months from time zero</p>	

		the following 2 years, after the 2 nd year.		
	B.2.3 Data Entry in GLASS	B.2.3.1 Data collection from mature laboratories	B.2.3.1 Start end of 1 st year from time zero	
		B.2.3.2 Data cleaning and entry into GLASS	B.2.3.2 Start end of 1 st year from time zero	
B.3 Periodic issuing of an epidemiologically representative national AMR surveillance report in humans	B.3.1 -This report is based on WHONET data, according to local needs of physicians, pharmacists and researchers (stratification of data based on the type of priority organisms, site/region of infection or acquisition, etc.) -This report is posted on AMR webpages (MOH and MOA websites)		B.3.1 Once/year starting end of 1 st year	B.3 1 year
B.4 Optimize AMR surveillance in the agricultural, food, veterinary, and environmental fields	B.4.1 Research project about AMR surveillance in the veterinary field.		B.4.1 6 months from time zero	B.4 2 years
	B.4.2 Design an epidemiologically representative sample for AMR surveillance (cattle, poultry, companion animals).		B.4.2 9 months from time zero	

	B.4.3 Put a list of AMR priority organisms and related resistance genes for surveillance in these fields		B.4.3 6 months from time zero	
	B.4.4 -Assessment of LARI, agriculture laboratory, and the chamber of manufacturing and commerce in Tripoli for the analysis of surveillance specimens in agricultural, food, veterinary, and environmental fields -Suggestion of a plan of the microbiology work in this surveillance		B.4.4 Six months from time zero and completed nine months from time zero	
	B.4.5 -Report results of ABX use and resistance surveillance in agriculture and veterinary world -Send a yearly report with recommendations to the animal drug registry about ABX purchasing in the country during the coming 2 years		B.4.5 First report should be ready at end of year 2 from time zero	
B.5 Create/Appoint AMR reference lab(s)	B.5.1 Define TOR of AMR reference lab		B.5.1 3 months from time zero	B.5 9 months from time zero
	B.5.2		B.5.2	

	Map potential lab(s) across Lebanon		Start at time zero Mapping finalized 3 months from time zero	
	B.5.3 Task force to visits the potential lab(s) (WHO EMRO) to be discussed with Dr A. Rady		B.5.3 5 months from time zero	
	B.5.4 Nominate the reference lab(s)		B.5.4 6 months from time zero	
	B.5.5 MOH to sign a contract with the lab(s)		B.5.5 9 months from time zero	
B.6 Enhance research activities in AMR surveillance	B.6.1 Put and broadcast an AMR Research Agenda including research for alternative agents to antimicrobials.		B.6.1 1 st agenda sent 1.5s year from time zero	B.6 1.5 years from time zero

Operational Plan

Objective	Activity	Sub-activity	Unit	Quantity	Date	Location	Responsible Entity	Cost	Source Of Funding	Indicator
B.1 Organization of the responsibilities for the execution of the tasks	B.1.1 Appointment of focal person in charge of following up the activities of the objectives of this axis	B.1.1.1 Empower ESU director as focal person.	B.1.1.1 Appointment	B.1.1.1 One	B.1.1.1 three months from time zero	B.1.1.1 MOH ESU	B.1.1.1 -WHO- National Professional Officer (Dr. A Rady) -MOH- General Director (Dr. W Ammar)	B.1.1.1 ½ time extra employee for ESU	B.1.1.1 MOH	B.1.1.1 Focal person nominated
	B.1.2 Appointment of the members of the technical working group along with its TOR		B.1.2 Appointment	B.1.2 One	B.1.2 three months from time zero	B.1.2 MOH ESU	B.1.2 -WHO- National Professional Officer (Dr. A Rady) -MOH- General Director (Dr. W Ammar)	B.1.2 ½ time extra employee for ESU	B.1.2 MOH	B.1.2 Technical working group assigned
B.2	B.2.1	B.2.1.1	B.2.1.1	B.2.1.1	B.2.1.1	B.2.1.1	B.2.1.1	B.2.1.1	B.2.1.1	B.2.1.1

Reporting of AMR data to GLASS	Mapping of labs that can potentially provide microbiologically reliable and epidemiologically representative data. These labs start reporting their data to the (GLASS).	Make a list of laboratories that will ultimately form an epidemiologic representation of the country and that will be sequentially entered into GLASS after capacity building	List	One	Three months from time zero	MOH ESU	-Focal person -	None	None	List available to technical working group
	B.2.2 Put a plan for capacity building for the labs that are chosen to be included in GLASS report in order to be epidemiologically	B.2.2.1 Organize a nationwide workshop about GLASS and the plan of inclusion in GLASS and introductory	B.2.2.1 Workshop	B.2.2.1 one every 5 years	B.2.2.1 Three months from time zero	B.2.2.1 WHO	B.2.2.1 -Technical working group -Focal Person	B.2.2.1 1,800 USD per workshop	B.2.2.1 AMR Fund	B.2.2.1 Workshop given

	representative based on an incremental plan	n to WHONET								
		<p>B.2.2.2</p> <p>-Evaluate the quality of work in the selected laboratories (visit),</p> <p>-Check 8 laboratories per year,</p> <p>-Select the ones that can immediately report to GLASS,</p> <p>-Put a plan for 4 laboratories that will undergo improvement in their capacity during coming year, then</p>	<p>B.2.2.2</p> <p>Laboratory visits</p>	<p>B.2.2.2</p> <p>8 laboratories per 2 years</p> <p>Total= 20 laboratories in 5 years from different governorates</p>	<p>B.2.2.2</p> <p>End of first year from time zero: 4 laboratories</p> <p>Second year from time zero: 4 laboratories</p> <p>Each year 4 laboratories</p>	<p>B.2.2.2</p> <p>The chosen laboratories</p>	<p>B.2.2.2</p> <p>Technical working group helped by laboratory technicians</p>	<p>B.2.2.2</p> <p>500 USD per visit</p> <p>Total: 500*8= 4,000 USD per 2 years</p> <p>In 5 years: 8,000 USD</p>	<p>B.2.2.2</p> <p>AMR Fund</p>	<p>B.2.2.2</p> <p>-List of laboratories that will immediately report is listed on website</p> <p>-Schedule for other laboratories is put</p>

		repeat the same the following year, then the following years								
		B.2.2.3 Do a start up WHONET training for the 8 laboratories that were chosen for the coming 2 years every 2 years	B.2.2.3 Workshop	B.2.2.3 One every two years	B.2.2.3 Three months from time zero	B.2.2.3 WHO	B.2.2.3 -Private sector, WHO consultant (Dr. Z Daoud) -Private sector (Dr. G Matar) - Technicians	B.2.2.3 2,000 USD	B.2.2.3 AMR Fund	B.2.2.3 Workshop is done
		B.2.2.4 Do 3 laboratory visits for capacity building/year for 4 laboratories in different areas for	B.2.2.4 Laboratory visits	B.2.2.4 Three visits per lab each year for 4 laboratories	B.2.2.4 Three visits per lab each year for 4 laboratories starting year 1	B.2.2.4 The chosen laboratories	B.2.2.4 Technical working group	B.2.2.4 3 capacity building workshops per year 5 years: 15 workshop 800 USD per	B.2.2.4 AMR Fund	B.2.2.4 Number of laboratories that are passing the external QC / Total external QC tests sent*100

		building capacity and WHONET training						workshop = 12,000 USD		
		B.2.2.5 External quality control twice per year for the 8 laboratories chosen for the 2 years, then to add the ones of the following 2 years, after the 2 nd year.	B.2.2.5 Send the quality control specimens and collect them	B.2.2.5 Years 1 & 2 year: 8 Years 3 & 4: 16 Year: 5 24	B.2.2.5 Six months from time zero	B.2.2.5 Reference laboratory (ies)	B.2.2.5 Technical working group	B.2.2.5 100 USD /specimen (8+8+4)*2 = 4,000 USD/5 years	B.2.2.5 AMR Fund	B.2.2.5 Number of laboratories having external QC
	B.2.3 Data Entry in GLASS	B.2.3.1 Data collection from mature laboratories	B.2.3.1 Data collection	B.2.3.1 Once/year	B.2.3.1 Start end of 1 st year from time zero	B.2.3.1 ESU	B.2.3.1 ESU	B.2.3.1 None	B.2.3.1 None	B.2.3 Number of laboratories reporting to GLASS
		B.2.3.2 Data cleaning and entry	B.2.3.2 Data cleaning and entry	B.2.3.2 Once/year	B.2.3.2 Start end of 1 st year	B.2.3.2 ESU	B.2.3.2 -ESU	B.2.3.2 ½ time Extra employee	B.2.3.2 MOH	

		into GLASS			from time zero		-MOH- Head of Epidemiolo gical Surveillanc e Program (Dr. N Ghosn)			
B.3 Periodic issuing of an epidemiolo gically representati ve national AMR surveillanc e report in humans	B.3.1 -This report is based on WHONET data, according to local needs of physicians, pharmacists and researchers (stratificati on of data based on the type of priority organisms, site/region of infection or acquisition, etc.)		B.3.1 Report	B.3.1 Once/year starting end of 1 st year	B.3.1 Once/year starting end of 1 st year	B.3.1 University hospitals LSIDCM	B.3.1 Technical working group or interested researchers assigned by technical working group	B.3.1 None	B.3.1 None	B.3.1 Epidemiolo gic report posted on AMR website yearly

	-This report is posted on AMR webpages (MOH and MOA websites)									
B.4 Optimize AMR surveillance in the agricultural, food, veterinary, and environmental fields	B.4.1 Research project about AMR surveillance in the veterinary field.		B.4.1 Project	B.4.1 One	B.4.1 6 months from time zero	B.4.1 MOA Department of agriculture (AUB)	B.4.1 -AUB-Dpt of Agriculture (Dr. M Farran) -MOA-Head of Animal Health Service (Dr. B Bazzal) -MOA-Head of Poultry Husbandry Dpt (Eng. A Sirawan) -MOH-Head of Epidemiolo	B.4.1 None	B.4.1 None	B.4.1 Surveillance report every 2 years

							gical Surveillanc e Program (Dr. N Ghosn)			
	B.4.2 Design an epidemiolo gically representati ve sample for AMR surveillanc e (cattle, poultry, companion animals).		B.4.2 Organizatio n project	B.4.2 one	B.4.2 9 months from time zero	B.4.2 MOA	B.4.2 - MOA-Head of Animal Health Service (Dr. B Bazzal) -MOA- Head of Poultry Husbandry Dpt (Eng. A Sirawan)	B.4.2 1,000 USD/year	B.4.2 AMR fund	B.4.2 None
	B.4.3 Put a list of AMR priority organisms and related resistance genes for surveillanc e in these fields		B.4.3 List	B.4.3 One	B.4.3 6 months from time zero	B.4.3 - MOA -MOH -WHO	B.4.3 - MOA-Head of Animal Health Service (Dr. B Bazzal) -Technical working group	B.4.3 1,000 USD	B.4.3 AMR fund	B.4.3 None
	B.4.4		B.4.4	B.4.4 three	B.4.4	B.4.4 -LARI	B.4.4	B.4.4	B.4.4 AMR	B.4.4

	<p>- Assessment of LARI, agriculture laboratory, and the chamber of manufacturing and commerce in Tripoli for the analysis of surveillance specimens in agricultural, food, veterinary, and environmental fields</p> <p>-Suggestion of a plan of the microbiology work in this surveillance</p>		<p>Visits to three laboratories with audit result</p>		<p>Six months from time zero and completed nine months from time zero</p>	<p>-Tripoli chamber of manufacturing and commerce</p> <p>-Bekaa AUB laboratory</p>	<p>-Technical working group</p> <p>-LARI</p> <p>-Tripoli chamber of manufacturing and commerce</p> <p>-Bekaa AUB laboratory</p>	<p>500 USD per visit</p> <p>Total: 3 visits</p> <p>1,500 USD</p>	<p>Fund</p>	<p>Report about the capacity of these laboratories to do AMR surveillance in the veterinary world</p>
	B.4.5		B.4.5	B.4.5	B.4.5	B.4.5	B.4.5	B.4.5	B.4.5	B.4.5

	-Report results of ABX use and resistance surveillance in agriculture and veterinary world -Send a yearly report with recommendations to the animal drug registry about ABX purchasing in the country during the coming 2 years		Report	Once every 2 years	First report should be ready at end of year 2 from time zero	MOA	-MOA- Head of Animal Health Service (Dr. B Bazzal) -Technical working group	3,000 USD/report (Every 2 years) Total 7,000 USD/5 years	AMR Fund	Quantity of purchased ABX that are listed in the “restricted use list” in the veterinary world
B.5 Create/Appoint AMR reference lab(s)	B.5.1 Define TOR of AMR reference lab		B.5.1 Document	B.5.1 1	B.5.1 3 months from time zero	B.5.1 ESU MOH	B.5.1 Technical working group	B.5.1 None	B.5.1 None	B.5 Reference laboratory/laboratories appointed and

										contracts done
	B.5.2 Map potential lab(s) across Lebanon		B.5.2 List	B.5.2 One	B.5.2 Start at time zero Mapping finalized 3 months from time zero	B.5.2 ESU MOH Potential laboratories	B.5.2 Technical working group	B.5.2 None	B.5.2 None	
	B.5.3 Task force to visits the potential lab(s) (WHO EMRO) to be discussed with Dr A. Rady		B.5.3 Visit done by EMRO consultant	B.5.3 one to each potential reference laboratory	B.5.3 5 months from time zero	B.5.3 Potential laboratories	B.5.3 EMRO	B.5.3 3,000 USD	B.5.3 EMRO	
	B.5.4 Nominate the reference lab(s)		B.5.4 Nomination	B.5.4 One nomination of one or more laboratories	B.5.4 6 months from time zero	B.5.4 EMRO WHO MOH	B.5.4 EMRO WHO MOH	B.5.4 None	B.5.4 None	
	B.5.5 MOH to sign a contract with the lab(s)		B.5.5 Contract	B.5.5 one or more depending on number	B.5.5 9 months from time zero	B.5.5 MOH	B.5.5 - MOH- General Director	B.5.5 None	B.5.5 None	

				of chosen reference laboratories			(Dr. W Ammar)			
B.6 Enhance research activities in AMR surveillance	B.6.1 Put and broadcast an AMR Research Agenda including research for alternative agents to antimicrobials.		B.6.1 Agenda	B.6.1 One/2 years	B.6.1 1 st agenda sent 1.5 years from time zero	B.6.1 MOH WHO ESU Universities	B.6.1 Technical working group ESU	B.6.1 None	B.6.1 None	B.6.1 Research agenda listed on AMR website

Monitoring and evaluation plan

Objective	Activity	Sub-activity	Indicator	Purpose	Calculation	Frequency	Data source	Method	Baseline
B.1 Organization of the responsibilities for the execution of the tasks	B.1.1 Appointment of focal person in charge of following up the activities of the objectives of this axis	B.1.1.1 Empower ESU director as focal person	B.1.1.1 Focal person nominated	B.1.1.1 Follow up on the activities of this axis	B.1.1.1 Yes/No	B.1.1.1 Once/5 years	B.1.1.1 MOH WHO	B.1.1.1 Letter	B.1.1.1 Partially, unofficially
	B.1.2 Appointment of the members of the technical working group along with its TOR		B.1.2 Technical working group assigned	B.1.2 Execution of most of the activities of the axis	B.1.2 Yes/No	B.1.2 Once/5 years	B.1.2 MOH WHO	B.1.2 Letter	B.1.2 NA
B.2 Reporting of AMR data to GLASS	B.2.1 Mapping of labs that can potentially provide microbiologically reliable and epidemiologically	B.2.1.1 Make a list of laboratories that will ultimately form an epidemiologic representation of the	B.2.1.1 List available to technical working group	B.2.1.1 Mapping of potential laboratories and in order to have an epidemiologically representative sample	B.2.1.1 Yes/No	B.2.1.1 Once/4 years	B.2.1.1 ESU MOH	B.2.1.1 Listing	B.2.1.1 NA

	representative data. These labs start reporting their data to the (GLASS).	country and that will be sequentially entered into GLASS after capacity building							
	B.2.2 Put a plan for capacity building for the labs that are chosen to be included in GLASS report in order to be epidemiologically representative based on an incremental plan	B.2.2.1 Organize a nationwide workshop about GLASS and the plan of inclusion in GLASS and introduction to WHONET	B.2.2.1 Workshop given	B.2.2.1 Introduction to GLASS and the plan, mainly because recruitment of the laboratories is based on voluntary enrollment into the project	B.2.2.1 Yes/No	B.2.2.1 Once/5 years	B.2.2.1 WHO MOH	B.2.2.1 workshop	B.2.2.1 Done partially
		B.2.2.2 -Evaluate the quality of work in the selected laboratories (visit),	B.2.2.2 -List of laboratories that will immediately report is	B.2.2.2 Organization of the work and a 4 year schedule	B.2.2.2 Schedule is put. Yes/No	B.2.2.2 Once/year	B.2.2.2 -WHO -Chosen laboratories	B.2.2.2 Laboratory visits	B.2.2.2 NA

		-Check 8 laboratories per year, -Select the ones that can immediately report to GLASS, -Put a plan for 4 laboratories that will undergo improvement in their capacity during coming year, then repeat the same the following year, then the following years	listed on website -Schedule for other laboratories is put						
		B.2.2.3 Do a start up WHONET training for the 8 laboratories that were	B.2.2.3 Workshop is done	B.1.1.4 WHONET training for laboratories that will report to GLASS	B.2.2.3 Yes/No	B.2.2.3 Once every two years	B.2.2.3 WHO MOH	B.2.2.3 Workshop	B.2.2.3 Once done not focused to laboratories that will

		chosen for the coming 2 years every 2 years							enter GLASS
		B.2.2.4 Do 3 laboratory visits for capacity building/year for 4 laboratories in different areas for building capacity and WHONET training	B.2.2.4 Number of laboratories that are passing the external QC / Total external QC tests sent*100	B.2.2.4 Recommendation for GLASS entry	B.2.2.4 Number of laboratories that are passing the external QC / Total external QC tests sent*100	B.2.2.4 Once/Year	B.2.2.4 -Chosen laboratories	B.2.2.4 Laboratory visits	B.2.2.4 NA
		B.2.2.5 External quality control twice per year for the 8 laboratories chosen for the 2 years, then to add the ones of the following 2	B.2.2.5 Number of laboratories having external QC	B.2.2.5 Measure the progress of the capacity building.	B.2.2.5 Number of quality control specimen sent /year	B.2.2.5 Once/year	B.2.2.5 Reference laboratory (ies)	B.2.2.5 Send the quality control specimens and collect them	B.2.2.5 Few labs in the country have it

		years, after the 2 nd year.							
	B.2.3 Data Entry in GLASS	B.2.3.1 Data collection from mature laboratories	B.2.3 Number of laboratories reporting to GLASS	B.2.3 Reach epidemiologic representativeness	B.2.3 Number of laboratories reporting to GLASS	B.2.3 Once/Year	B.2.3 WHO MOH	B.2.3 Data collection and entry	B.2.3 Two laboratories have already submitted data to GLASS. Not epidemiologically representative
		B.2.3.2 Data cleaning and entry into GLASS							
B.3 Periodic issuing of an epidemiologically representative national AMR surveillance report in humans	B.3.1 -This report is based on WHONET data, according to local needs of physicians, pharmacists and researchers (stratification)		B.3.1 Epidemiologic report posted on AMR website yearly	B.3.1 Improve awareness in scientific society	B.3.1 Compilation of WHONET data	B.3.1 Once/5 years	B.3.1 University hospital(s)	B.3.1 Project	B.3.1 NA

	n of data based on the type of priority organisms, site/region of infection or acquisition, etc.) -This report is posted on AMR webpages (MOH and MOA websites)								
B.4 Optimize AMR surveillance in the agricultural, food, veterinary, and environmental fields	B.4.1 Research project about AMR surveillance in the veterinary field.		B.4.1 Surveillance report every 2 years	B.4.1 Standardized AMR surveillance in cattle and poultry	B.4.1 Yes/No	B.4.1 every two years	B.4.1 Agriculture school MOA	B.4.1 Project	B.4.1 NA
	B.4.2 Design an epidemiologically representative		B.4.2 None						

	e sample for AMR surveillance (cattle, poultry, companion animals).								
	B.4.3 Put a list of AMR priority organisms and related resistance genes for surveillance in these fields		B.4.3 None						
	B.4.4 -Assessment of LARI, agriculture laboratory, and the chamber of manufacturing and commerce in Tripoli for the analysis of surveillance specimens in		B.4.4 Report about the capacity of these laboratories to do AMR surveillance in the veterinary world	B.4.4 Standardized AMR surveillance in the veterinary world	B.4.4 Yes/No	B.4.4 once/5 years	B.4.4 -LARI -Tripoli chamber of manufacturing and commerce -Bekaa AUB laboratory	B.4.4 Report	B.4.4 NA

	agricultural, food, veterinary, and environmental fields -Suggestion of a plan of the microbiology work in this surveillance								
	B.4.5 -Report results of ABX use and resistance surveillance in agriculture and veterinary world -Send a yearly report with recommendations to the animal drug registry		B.4.5 Quantity of purchased ABX that are listed in the “restricted use list” in the veterinary world	B.4.5 Control ABX use in the veterinary world	B.4.5 Quantity of purchased ABX	B.4.5 Once every 2 years	B.4.5 MOA	B.4.5 Report	B.4.5 NA

	about ABX purchasing in the country during the coming 2 years								
B.5 Create/Appoint AMR reference lab(s)	B.5.1 Define TOR of AMR reference lab		B.5 Reference laboratory/laboratories appointed and contracts done	B.5 Have a reference for difficult situations and catch alarming and emerging resistance trends	B.5 No of specimens/activities of reference Lab in AMR	B.5 Once/Year	B.5 -WHO MOH	B.5 Appointment	B.5 NA
	B.5.2 Map potential lab(s) across Lebanon								
	B.5.3 Task force to visits the potential lab(s) (WHO EMRO) to be discussed with Dr A. Rady								
	B.5.4								

	Nominate the reference lab(s)								
	B.5.5 MOH to sign a contract with the lab(s)								
B.6 Enhance research activities in AMR surveillance	B.6.1 Put and broadcast an AMR Research Agenda including research for alternative agents to antimicrobials.		B.6.1 Research agenda listed on AMR website	B.6.1 Involve and update concerned facilities in research activities in surveillance	B.6.1 number of projects	B.6.1 Once/2 years	B.6.1 MOH WHO ESU	B.6.1 Agenda	B.6.1 NA

Axis C: Infection prevention and control (IPC)

Strategic plan

Objective	Activity	Sub-activity	Date (operational plan)	Milestone
C.1 Organization of the responsibilities for the execution of the tasks	C.1.1 Appointment of focal person in charge of following up the activities of the objectives of this axis		C.1 three months from “time zero”	C.1 three months from “time zero”
	C.1.2 Appointment of the members of the technical group along with its TOR			
C.2 Optimize IPC practices in Hospitals, long term care facilities and PHCC	C.2.1 Improve IPC practices in Hospitals	C.2.1.1 To finalize national IPC guidelines; guidelines to be all-inclusive including requirements and qualifications of IPC officer and physician and checklist	C.2.1.1 three months from “time zero”	C.2 3 years
		C.2.1.2 Inclusion of the checklist of the guidelines in accreditation standards	C.2.1.2 six months from “time zero”	
		C.2.1.3 Follow up and feedback on IPC practices in hospitals after each accreditation	C.2.1.3 three years from “time zero”	
		C.2.1.4 Syndicate of hospitals recommends periodic IPC training and workshops to employees hosted by scientific societies, universities, etc.	C.2.1.4 1,5 years from “time zero”	

	C.2.2 Improve IPC practices in long-term care facilities	C.2.2.1 To review and update guidelines of IPC in long-term care facilities that are available in Ministry of Social Affairs	C.2.2.1 three months from “time zero”	
		C.2.2.2 Inclusion of IPC checklist in the MOH licensing criteria of these facilities	C.2.2.2 six months from “time zero”	
	C.2.3 Improve IPC practices in PHCC	C.2.3.1 Establish guidelines on IPC in the PHCC	C.2.3.1 six months from “time zero”	
		C.2.3.2 Inclusion of IPC checklist in the MOH licensing criteria of these facilities	C.2.3.2 nine months from “time zero”	
C.3 Enhance IPC education different majors	C.3.1 Include IPC-related educational modules in human-health related majors (physicians, nurses, midwives, physiotherapists, pharmacists, dentists, lab technicians, radiologists, nutrition, medical and paramedical schools)		C.3.1 one year from “time zero”	C.3 2 years from “time zero”
	C.3.2 Include IPC-related educational modules in veterinary schools curricula	C.3.2.1 Check the current situation of IPC in the ongoing veterinary curriculum	C.3.2.1 three months from “time zero”	

		C.3.2.2 Review of IPC in regional and global veterinary curricula	C.3.2.2 three months from “time zero”	
		C.3.2.3 Prepare a proposal for veterinary school for deficit in curricula improvement, if need be.	C.3.2.3 six months from “time zero”	
	C.3.3 IPC-related educational modules in curricula of three schools (Agriculture, Nutrition, Environment)	C.3.3.1 Mapping of IPC in three university curricula (Agriculture, Nutrition, Environment)	C.3.3.1 six months from “time zero”	
		C.3.3.2 Review global and regional recommendations on IPC in curricula of agriculture, nutrition and environment, and formulate what should be included in them	C.3.3.2 six months from “time zero”	
		C.3.3.3 Include the recommended tricyclic AMR and IPC in curricula when not available	C.3.3.3 2 years from “time zero”	
C.4 Advanced IPC training for IPC professionals	C.4.1 -Put TOR for IPC professionals in different healthcare facilities. -Put prerequisite training/experience of IPC physicians, officers, and nurses	C.4.1.1 Include in the national IPC Guidelines the TOR of the professionals	C.4.1.1 3 months	C.4 3 months

	C.4.2 Make training available and affordable in universities and professional societies	C.4.2.1 MOH Sends letters to Ministry of Higher Education and to Order of physicians explaining the need and recommending training specialization opportunities and courses related to IPC	C.4.2.1 3 months	
C.5 National Process Indicators in IPC	C.5.1 Baseline evaluation of current situation at a national level (research project) and make it a continuous process		C.5.1 One year from “time zero”	C.5 Four years from “time zero”
	C.5.2 National indicators to be incrementally applied with time (hand hygiene, PPE, isolation, other standard precautions, etc)		C.5.2 Four years from “time zero”	
C.6 Survey of Nosocomial Infections in hospitals	C.6.1 Conduct a point prevalence study on nosocomial infections in Lebanese hospitals		C.6.1 2 years	C.6 2 years
C.7 IPC in the veterinary world	C.7.1 Review the OIE biosafety recommendations		C.7.1 3 months	C.7 6 months
	C.7.2 Check the availability in of these recommendations in local veterinary laws		C.7.2 5 months	
	C.7.3	C.7.3	C.7.3	

	Monitor the application of these laws	MOH recommends to MOA to follow up on the related activities of IPC in Veterinary world	6 months	
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Operational plan and budget

Objective	Activity	Sub-activity	Unit	Quantity	Date	Location	Responsible entity	Cost	Source Of funding	Indicator
C.1 Organization of the responsibilities for the execution of the tasks	C.1.1 Appointment of focal person in charge of following up the activities of the objectives of this axis		C.1 Appointment	C.1 One person and one technical group	C.1 three months from "time zero"	C.1 MOH	C.1 -MOH- General Director (Dr. W Ammar) appoints of the technical working group -Focal person is appointed by the technical working group	C.1 One full time employee	C.1 AMR Fund	C.1 Appointment letter with job description
	C.1.2 Appointment of the members of the IPC technical working group along with its TOR									

<p>C.2 Optimize IPC practices in Hospitals, long term care facilities and PHCC</p>	<p>C.2.1 Improve IPC practices in Hospitals</p>	<p>C.2.1.1 To finalize national IPC guidelines; guidelines to be all-inclusive including requirements and qualifications of IPC officer and physician and checklist</p>	<p>C.2.1.1 Document</p>	<p>C.2.1.1 one</p>	<p>C.2.1.1 three months from “time zero”</p>	<p>C.2.1.1 -MOH -LSIDCM -WHO</p>	<p>C.2.1.1 IPC expert</p>	<p>C.2.1.1 2,000 USD</p>	<p>C.2.1.1 AMR Fund</p>	<p>C.2.1.1 Guidelines on MOH site</p>
		<p>C.2.1.2 Inclusion of the checklist of the guidelines in accreditation standards</p>	<p>C.2.1.2 Checklist</p>	<p>C.2.1.2 one</p>	<p>C.2.1.2 six months from “time zero”</p>	<p>C.2.1.2 -MOH -LSIDCM -WHO</p>	<p>C.2.1.2 -IPC expert -MOH-Project Coordinator (Eng. S Akkoum)</p>	<p>C.2.1.2 1,000 USD</p>	<p>C.2.1.2 AMR Fund</p>	<p>C.2.1.2 Letter from team to IPC Officer</p>
		<p>C.2.1.3 Follow up and feedback on IPC practices in</p>	<p>C.2.1.3 Report</p>	<p>C.2.1.3 one every 5 years</p>	<p>C.2.1.3 three years from “time zero”</p>	<p>C.2.1.3 MOH</p>	<p>C.2.1.3 -IPC coordinator or temporary consultant</p>	<p>C.2.1.3 3,000 USD</p>	<p>C.2.1.3 Syndicate of hospitals</p>	<p>C.2.1.3 Percentage of hospitals with acceptable results for</p>

		hospitals after each accreditation					- Accreditation team			IPC in accreditation
		C.2.1.4 Syndicate of hospitals recommends periodic IPC training and workshops to employees hosted by scientific societies, universities, etc.	C.2.1.4 Schedule	C.2.1.4 one	C.2.1.4 1,5 years from “time zero”	C.2.1.4 Hospitals Universities	C.2.1.4 -MOH- Head of Preventive Medicine and Communicable Diseases Dpts (Dr. A Berry)	C.2.1.4 None	C.1.1.4 None	C.2.1.4 Number of IPC workshops per year
	C.2.2 Improve IPC practices in long-term care facilities	C.2.2.1 To review and update guidelines of IPC in long-term care facilities that are available in Ministry of	C.2.2.1 Guidelines	C.2.2.1 One	C.2.2.1 three months from “time zero”	C.2.2.1 MOH	C.2.2.1 -Order of nurses (Ms M Said) -Private sector (Dr. M Youssef)	C.2.2.1 2,000 USD	C.2.2.1 AMR fund	C.2.2.1 Updated guidelines on website

		Social Affairs								
		C.2.2.2 Inclusion of IPC checklist in the MOH licensing criteria of these facilities	C.2.2.2 Checklist	C.2.2.2 One	C.2.2.2 six months from “time zero”	C.2.2.2 MOH	C.2.2.2 -MOH- Project Coordinator (Eng. S Akkoum)	C.2.2.2 None	C.2.2.2 None	C.2.2.2 Checklist of IPC in accreditation standards
	C.2.3 Improve IPC practices in PHCC	C.2.3.1 Establish guidelines on IPC in the PHCC	C.2.3.1 Guidelines	C.2.3.1 One	C.2.3.1 six months from “time zero”	C.2.3.1 -MOH -LSIDCM -WHO	C.2.3.1 Private Sector (Dean of School of Nursing-Saint Joseph University) (Dr. C Zablit)	C.2.3.1 3,000 USD	C.2.3.1 AMR fund	C.2.3.1 Guidelines on website
		C.2.3.2 Inclusion of IPC checklist in the MOH licensing criteria of these facilities	C.2.3.2 Checklist	C.2.3.2 One	C.2.3.2 nine months from “time zero”	C.2.3.2 MOH	C.2.3.2 Private Sector (Dean of School of Nursing-Saint Joseph University)	C.2.3.2 1,000 USD	C.2.3.2 AMR fund	C.2.3.2 Checklist of IPC in accreditation standards.

							(Dr. C Zablit)			
C.3 Enhance IPC education different majors	C.3.1 Include IPC-related educational modules in human-health related majors (physicians, nurses, midwives, physiotherapists, pharmacists, dentists, lab technicians, radiologists, nutrition, medical and paramedical schools)		C.3.1 -Basic recommendations to be included -IPC Letters from Ministry of education to different teaching establishments	C.3.1 one per year 2 types: 1.General 2.Specific to nurses, midwives medical students.	C.3.1 one year from “time zero”	C.3.1 Ministry of Education MOH	C.3.1 One appointed consultant helped by: -Order of nurses- Director (Ms. N Richa) -Order of Midwives-member (Ms. M Romeh) -MOH- PHC Dpt- Dental Coordinator (Dr M Msallem) -Technical Schools (Ms. S Younes)	C.3.1 15,000 USD	C.3.1 AMR Fund	C.3.1 Percentage of health curricula that contain IPC modules

							"2h/specialist"			
	C.3.2 Include IPC-related educational modules in veterinary schools curricula	C.3.2.1 Check the current situation of IPC in the ongoing veterinary curriculum	C.3.2.1 Report	C.3.2.1 One	C.3.2.1 three months from "time zero"	C.3.2.1 MOA	C.3.2.1 -MOA- Head of Animal Health Service (Dr. B Bazzal)	C.3.2.1 500 USD	C.3.2.1 AMR fund	C.3.2.1 None
		C.3.2.2 Review of IPC in regional and global veterinary curricula	C.3.2.2 Report	C.3.2.2 One	C.3.2.2 three months from "time zero"	C.3.2.2 MOA	C.3.2.2 -MOA- Head of Animal Health Service (Dr. B Bazzal)	C.3.2.2 1,000 USD	C.3.2.2 AMR fund	C.3.2.2 None
		C.3.2.3 Prepare a proposal for veterinary school for deficit in curricula improvement, if need be.	C.3.2.3 Proposal	C.3.2.3 One	C.3.2.3 six months from "time zero"	C.3.2.3 MOA	C.3.2.3 -MOA- Head of Animal Health Service (Dr. B Bazzal) -AUB-Dpt of Agriculture	C.3.2.3 3,500 USD	C.3.2.3 AMR fund	C.3.2.3 Proposal is sent to veterinary school, and IPC included in program

							(Dr. M Farran)			
	C.3.3 IPC-related educational modules in curricula of three schools (Agriculture, Nutrition, Environment)	C.3.3.1 Mapping of IPC in three university curricula (Agriculture, Nutrition, Environment)	C.3.3.1 Report	C.3.3.1 One	C.3.3.1 six months from “time zero”	C.3.3.1 MOH Agriculture schools (AUB, LU)	C.3.3.1 -MOA-Head of Poultry Husbandry Dpt (Eng. A Sirawan)	C.3.3.1 1,000 USD	C.3.3.1 AMR fund	C.3.3 IPC module to be included in the three curricula of sent from respective ministries as recommendation to the schools
		C.3.3.2 Review global and regional recommendations on IPC in curricula of agriculture, nutrition and environment, and formulate what should be	C.3.3.2 Report	C.3.3.2 One	C.3.3.2 six months from “time zero”	C.3.3.2 MOH Agriculture schools (AUB, LU)	C.3.3.2 -AUB-Dpt of Agriculture (Dr. M Farran)	C.3.3.2 1,000 USD	C.3.3.2 AMR fund	

		included in them								
		C.3.3.3 Include the recommended tricyclic AMR and IPC in curricula when not available	C.3.3.3 Memo to Ministry of Education	C.3.3.3 One	C.3.3.3 2 years from “time zero”	C.3.3.3 MOH Agriculture schools (AUB, LU)	C.3.3.3 -MOA- Head of Poultry Husbandry Dpt (Eng. A Sirawan) -Private sector (Ms. S Najem)	C.3.3.3 2,000 USD	C.3.3.3 AMR fund	
C.4 Advanced IPC training for IPC professionals	C.4.1 -Put TOR for IPC professionals in different healthcare facilities. -Put prerequisite training/experience of IPC physicians, officers, and nurses	C.4.1.1 Include in the national IPC Guidelines the TOR of the professionals	C.4.1.1 Part of IPC guidelines	C.4.1.1 1	C.4.1.1 3 months	C.4.1.1 MOH WHO	C.4.1.1 Same as guidelines	C.4.1.1 Within cost of guidelines	C.4.1.1 AMR Fund	C.4.1.1 TOR of IPC professionals are included in the IPC guidelines
	C.4.2 Make training	C.4.2.1 MOH Sends	C.4.2.1 Letter	C.4.2.1 1	C.4.2.1 3 months	C.4.2.1 MOH	C.4.2.1	C.4.2.1 None	C.4.2.1 None	C.4.2.1 None

	available and affordable in universities and professional societies	letters to Ministry of Higher Education and to Order of physicians explaining the need and recommending training specialization opportunities and courses related to IPC					Technical working group NMCG			
C.5 National Process Indicators in IPC	C.5.1 Baseline evaluation of current situation at a national level (research project) and make it a continuous process		C.5.1 Research project	C.5.1 One	C.5.1 One year from “time zero”	C.5.1 MOH LSIDCM Hospitals	C.5.1 -Private sector, WHO consultant, former LSIDCM president (Dr. R Mognieh) -Private sector,	C.5.1 2,000 USD	C.5.1 Fund raising	C.5.1 Results are posted on AMR website

							former LSIDCM president (Dr. R Husni) -Private sector (Dr. M Youssef) -ESU			
	C.5.2 National indicators to be incremental ly applied with time (hand hygiene, PPE, isolation, other standard precautions , etc)		C.5.2 Research project	C.5.2 One	C.5.2 Four years from “time zero”	C.5.2 MOH LSIDCM Hospitals	C.5.2 -LSIDCM -ESU	C.5.2 20,000 USD	C.5.2 Fund raising	C.5.2 Percentage of hospitals that report results of process indicators
C.6 Survey of Nosocomia l Infections in hospitals	C.6.1 Conduct a point prevalence study on nosocomial		C.6.1 Survey	C.6.1 1	C.6.1 2 years	C.6.1 Lebanese Hospitals	C.6.1 Technical working group	C.6.1 3,000 USD	C.6.1 AMR Fund	C.6.1 Results of study published

	infections in Lebanese hospitals									
C.7 IPC in the veterinary world	C.7.1 Review the OIE biosafety recommendations		C.7.1 Report	C.7.1 1	C.7.1 3 months	C.7.1 MOA	C.7.1 Technical working group	C.7.1 None	C.7.1 None	C.7.1 None
	C.7.2 Check the availability in of these recommendations in local veterinary laws		C.7.2 Report	C.7.2 1	C.7.2 5 months	C.7.2 MOA	C.7.2 -Technical working group -MOA-Head of Animal Health Service (Dr. B Bazzal)	C.7.2 1,000 USD	C.7.2 AMR Fund	C.7.2 None
	C.7.3 Monitor the application of these laws	C.7.3 MOH recommends to MOA to follow up on the related activities of IPC in Veterinary world	C.7.3 Letter	C.7.3 1	C.7.3 6 months	C.7.3 MOH	C.7.3 Technical working group	C.7.3 None	C.7.3 None	C.7.3 None

Monitoring and evaluation plan

Objective	Activity	Sub-activity	Indicator	Purpose	Calculation	Frequency Of Data collection	Data Source	Method	Baseline
C.1 Organization of the responsibilities for the execution of the tasks	C.1.1 Appointment of focal person in charge of following up the activities of the objectives of this axis		C.1 Appointment letter with job description	C.1 Follow up on activities	C.1 Letter	C.1 NA	C.1 NA	C.1 NA	C.1 Not appointed
	C.1.2 Appointment of the members of the technical group along with its TOR								
C.2 Optimize IPC practices in Hospitals, long term care facilities and PHCC	C.2.1 Improve IPC practices in Hospitals	C.2.1.1 To finalize national IPC guidelines; guidelines to be all-inclusive including requirements and	C.2.1.1 Guidelines on MOH site	C.2.1.1 Update and standardization of IPC	C.2.1.1 Yes/no	C.2.1.1 Once/5 years	C.2.1.1 International guidelines	C.2.1.1 Scientific review	C.2.1.1 In progress

		qualifications of IPC officer and physician and checklist							
		C.2.1.2 Inclusion of the checklist of the guidelines in accreditation standards	C.2.1.2 Letter from team to IPC Officer	C.2.1.2 Audit IPC during the accreditation audit in hospitals	C.2.1.2 Yes/No	C.2.1.2 Once/5 years	C.2.1.2 Accreditation checklists	C.2.1.2 Letter Meeting Accreditation committee	C.2.1.2 Partial
		C.2.1.3 Follow up and feedback on IPC practices in hospitals after each accreditation	C.2.1.3 Percentage of hospitals with acceptable results for IPC in accreditation	C.2.1.3 Increase the number of hospitals that are compliant with national IPC guidelines.	C.2.1.3 (Number of compliant hospitals/Total number of audited hospitals) x100	C.2.1.3 Once/3 years	C.2.1.3 Accreditation audit results	C.2.1.3 Checklist in accreditation audit	C.2.1.3 Not started yet
		C.2.1.4 Syndicate of hospitals recommends periodic IPC training and workshops to employees hosted by scientific societies,	C.2.1.4 Number of IPC workshops per year	C.2.1.4 Have qualified HCW in charge of IPC, and have more efficient programs in hospitals	C.2.1.4 Number of workshops/ Number of universities providing health sciences programs	C.2.1.4 Once/5 years	C.2.1.4 International standards	C.2.1.4 Scientific review	C.2.1.4 Workshops are being done but not followed up

		universities, etc.							
	C.2.2 Improve IPC practices in long-term care facilities	C.2.2.1 To review and update guidelines of IPC in long-term care facilities that are available in Ministry of Social Affairs	C.2.2.1 Updated guidelines on website	C.2.2.1 Standardize IPC in long term	C.2.2.1 Yes /no	C.2.2.1 Once	C.2.2.1 Ministry of social affairs Guidelines	C.2.2.1 Review and update	C.2.2.1 NA
		C.2.2.2 Inclusion of IPC checklist in the MOH licensing criteria of these facilities	C.2.2.2 Checklist of IPC in accreditation standards	C.2.2.2 Improve application of IPC in these facilities	C.2.2.2 Yes /no	C.2.2.2 Once	C.2.2.2 -Long term care facilities -MOH -Ministry of social affairs	C.1.2.2 Letter Meeting	C.1.2.2 NA
	C.2.3 Improve IPC practices in PHCC	C.2.3.1 Establish guidelines on IPC in the PHCC	C.2.3.1 Guidelines on website	C.2.3.1 Standardize IPC in PHCC	C.2.3.1 Yes/No	C.2.3.1 Once per 6 months	C.2.3.1 Guidelines AMS/AMR website	C.2.3.1 Checking	C.2.3.1 NA
		C.2.3.2 Inclusion of IPC checklist in the MOH	C.2.3.2 Checklist of IPC in accreditation standards.	C.2.3.2 Improve application of	C.2.3.2 Yes/No	C.2.3.2 Once per 6 months	C.2.3.2 Accreditation guidelines	C.2.3.2 Letter Meeting Accreditation committee	C.2.3.2 NA

		licensing criteria of these facilities		IPC in these facilities					
C.3 Enhance IPC education different majors	C.3.1 Include IPC-related educational modules in human-health related majors (physicians, nurses, midwives, physiotherapists, pharmacists, dentists, lab technicians, radiologists, nutrition, medical and paramedical schools)		C.3.1 Percentage of health curricula that contain IPC modules	C.3.1 Include IPC in basic education of health professionals	C.3.1 (Number of curricula that have IPC module/Total number of health sciences curricula) *100	C.3.1 Once/5 years	C.3.1 Curricula IPC guidelines	C.3.1 Letters to universities	C.3.1 IPC included but non-standardized and unorganized
	C.3.2 Include IPC-related educational modules in veterinary	C.3.2.1 Check the current situation of IPC in the ongoing	C.3.2.1 None						

	schools curricula	veterinary curriculum							
		C.3.2.2 Review of IPC in regional and global veterinary curricula	C.3.2.2 None						
		C.3.2.3 Prepare a proposal for veterinary school for deficit in curricula improvement , if need be.	C.3.2.3 Proposal is sent to veterinary school, and IPC included in program	C.3.2.3 Improve IPC education in veterinary school	C.3.2.3 Yes/No	C.3.2.3 Once	C.3.2.3 Veterinary school MOA	C.3.2.3 Check if proposal sent	C.3.2.3 NA
	C.3.3 IPC-related educational modules in curricula of three schools (Agriculture, Nutrition, Environment)	C.3.3.1 Mapping of IPC in three university curricula (Agriculture, Nutrition, Environment)	C.3.3 IPC module to be included in the three curricula of sent from respective ministries as recommendation to the schools	C.3.3 Improve IPC education in Agriculture, Nutrition, Environment Schools	C.3.3 Number of university programs that include IPC according to recommendation/Total number of audited programs	C.3.3 Once/year	C.3.3 The 3 schools	C.3.3 Checking	C.3.3 In a superficial way
		C.3.3.2							

		Review global and regional recommendations on IPC in curricula of agriculture, nutrition and environment, and formulate what should be included in them							
		C.3.3.3 Include the recommended tricyclic AMR and IPC in curricula when not available							
C.4 Advanced IPC training for IPC professionals	C.4.1 -Put TOR for IPC professionals in different healthcare facilities.	C.4.1.1 Include in the national IPC Guidelines the TOR of the professionals	C.4.1.1 TOR of IPC professionals are included in the IPC guidelines	C.4.1.1 To standardize the work and follow-up on the performance	C.4.1.1 Yes/No	C.4.1.1 Once	C.4.1.1 MOH WHO	C.4.1.1 Checking	C.4.1.1 NA

	-Put prerequisite training/experience of IPC physicians, officers, and nurses								
	C.4.2 Make training available and affordable in universities and professional societies	C.4.2.1 MOH Sends letters to Ministry of Higher Education and to Order of physicians explaining the need and recommending training specialization opportunities and courses related to IPC	C.4.2.1 None						
C.5 National Process Indicators in IPC	C.5.1 Baseline evaluation of current situation at a national level		C.5.1 Results are posted on AMR website	C.5.1 Have a baseline evaluation	C.5.1 Percentage of hospitals that do have milestones of IPC	C.5.1 Once	C.5.1 Hospitals that are epidemiologically representative	C.5.1 Project	C.5.1 NA

	(research project) and make it a continuous process								
	C.5.2 National indicators to be incrementally applied with time (hand hygiene, PPE, isolation, other standard precautions, etc)		C.5.2 Percentage of hospitals that report results of process indicators	C.5.2 improve application of IPC principles	C.5.2 For each process indicator 5 hospitals that have a follow up of the indicator	C.5.2 Once/3 years	C.5.2 Hospitals that are epidemiologically representative	C.5.2 Project	C.5.2 NA
C.6 Survey of Nosocomial Infections in hospitals	C.6.1 Conduct a point prevalence study on nosocomial infections in Lebanese hospitals		C.6.1 Results of study published	C.6.1 To join the WHO point prevalence HAI study, and benchmark with global data	C.6.1 NA	C.6.1 Once	C.6.1 Hospitals MOH	C.6.1 Study	C.6.1 NA
C.7	C.7.1 Review the OIE		C.7.1 None						

IPC in the veterinary world	biosafety recommendations								
	C.7.2 Check the availability in of these recommendations in local veterinary laws		C.7.2 None						
	C.7.3 Monitor the application of these laws	C.7.3 MOH recommends to MOA to follow up on the related activities of IPC in Veterinary world	C.7.3 None						

Axis D: Antibiotic use

Strategic plan

Major objective	Activity	Sub-activity	Date (operational plan)	Milestone
D.1 Organization of the responsibilities for the execution of the tasks	D.1.1 Appointment of focal person in charge of following up the activities of the objectives of this axis		D.1.1 three months from time zero	D.1 three months from time zero
	D.1.2 Appointment of the members of the technical working group along with its TOR		D.1.2 three months from time zero	
D.2 Improve ABX quality control	D.2.1 To support and include ABX as priority drugs in the pharmacovigilance project of the Lebanese University and the adverse drug event reporting program of the Order of Pharmacists		D.2.1 One year from time zero	D.2 One year from time zero
D.3 Control the use of critically important antimicrobial molecules (CIAM) in humans	D.3.1 Define CIAM	D.3.1.1 Literature search	D.3.1.1 Three months from time zero	D.3 Six months from time zero
		D.3.1.2 Formulate the list	D.3.1.2 Six months from time zero	
D.4 Sentinel Surveillance of ABX (CIAM) consumption from a network of hospitals	D.4.1 Workshops on metrics for ABX use measurement		D.4.1 Six months from time zero and 1 year from time zero	D.4 5 years

and benchmark with international data				
	D.4.2 Compilation of data from hospitals	D.4.2.1 Determine the epidemiologically representative sample of hospitals for surveillance of ABX	D.4.2.1 three months from time zero	
		D.4.2.2 -Validate the measurement of hospital consumption by DDD/1000 patient days in a batch of 4 hospitals per year -Include the hospitals with adequate measurements in a sequential manner into the surveillance list and data -Advice to hospitals that don't have adequate data	D.4.2.2 One year and three months from time zero and continue yearly for 5 years	
		D.4.2.3 Surveillance of ABX use in Lebanese hospitals by auto reporting DDDs	D.4.2.3 1.5 years from time zero then yearly for 5 years	
D.5 Prepare hospitals and build their capacity for Antimicrobial stewardship (AMS) programs	D.5.1 Workshops on AMS twice per year		D.5.1 Six months from time zero then yearly for 5 years	D.5 5 years
	D.5.2 Preparation and dissemination of national treatment guidelines on	D.5.2.1 Put a list of essential guidelines	D.5.2.1 six months from time zero	

	infectious diseases to standardize the strategies of ABX use based on local epidemiology			
		D.5.2.2 Prepare the missing guidelines	D.5.2.2 Finalize within 1 year from time zero	
		D.5.2.3 Prepare and follow a schedule for the presentation of the guidelines in the respective scientific societies meeting and for the endorsement of these guidelines with the respective societies	D.5.2.3 Starting 1 year from time zero and finalized 3 years from time zero	
		D.5.2.4 Post these guidelines on the AMR/AMS website	D.5.2.4 1.5 years from time zero	
	D.5.3 Inclusion of AMS programs among hospital accreditation standards		D.5.3.1 Three months from time zero	
	D.5.4 Auditing the AMS practices during MOH accreditation with feedback to hospitals.		D.5.4 2021 and after each accreditation audit for 5 years	
	D.5.5 Development of AMS webpage in the MOH website		D.5.5 six months from time zero	
D.6	D.6.1		D.6.1	D.6

Organize the dispensing of antimicrobials in the community pharmacies	Nominate a task group for the meeting between MOH including Dr. W Ammar and the Order of pharmacists		3 month	3 months
	D.6.2 Meeting between a high-authority-level task force and the President of the Order of Pharmacists to agree over a plan to restrict dispensing of ABX		D.6.2 To be finalized 3 months from time zero	
D.7 Control and regulate the use of ABX in the veterinary, agriculture, food production and environment sectors	D.7.1 Banning importation and use of CIAM in the veterinary field	D.7.1.1 The CIAM list will be sent to the minister to ban their importation for veterinary use	D.7.1.1 Will be sent nine months from time zero	D.7 Two years from time zero
		D.7.1.2 The veterinary drug office will not import these agents	D.7.1.2 one year from time zero	
	D.7.2 Check if CIAM are used in agriculture and environment	D.7.2.1 -Review the list of drugs and pesticides officially imported in agriculture. -Check if CIAM are included in this list.	D.7.2.1 nine months from time zero	
		D.7.2.2 Check if any of these molecules are used in agriculture or environment from outside the official import channel.	D.7.2.2 two years from time zero	
		D.7.2.3 Get results of ABX residues in food items being done in Lebanon	D.7.2.3 three months from time zero	

	D.7.3 Surveillance of importation of regularly used ABX to Lebanon	D.7.3.1 Form a registry of imported ABX in veterinary world	D.7.3.1 Six months from time zero	
	D.7.4 Research study about ABX consumption	D.7.4.1 Research project by one of Masters Student at Beirut Arab University (BAU)	D.7.4.1 starting at time zero for one year	
		D.7.4.2 Research project in Agriculture school (Quantify the use of ABX in poultry farms nationally)	D.7.4.2 Two years from time zero	
	D.7.5 Research study about unofficial importation of ABX to Lebanon	D.7.5 Research project in Agriculture school	D.7.5 Two years from time zero	

Operational plan and budget

Major objective	Activity	Sub-activity	Unit	Quantity	Date	Location	Responsible Entity	Cost	Source Of Funding	Indicator
D.1 Organization of the responsibilities for the execution of the tasks	D.1.1 Appointment of focal person in charge of following up the activities of the objectives of this axis		D.1.1 Letter	D.1.1 One	D.1.1 three months from time zero	D.1.1 MOH	D.1.1 -WHO- National Professional Officer (Dr. A Rady) -MOH- General Director (Dr. W Ammar)	D.1.1 None	D.1.1 None	D.1.1 Focal person nominated
	D.1.2 Appointment of the members of the technical working group along with its TOR		D.1.2 Letter	D.1.2 One	D.1.2 three months from time zero	D.1.2 MOH	D.1.2 -WHO- National Professional Officer (Dr. A Rady) -MOH- General Director (Dr. W Ammar)	D.1.2 None	D.1.2 None	D.1.2 Technical working group assigned

<p>D.2 Improve ABX quality control</p>	<p>D.2.1 To support and include ABX as priority drugs in the pharmacovigilance project of the Lebanese University and the adverse drug event reporting program of the Order of Pharmacists</p>		<p>D.2.1 Network</p>	<p>D.2.1 One</p>	<p>D.2.1 One year from time zero</p>	<p>D.2.1 MOH</p>	<p>D.2.1 -MOH- Head of Preventive Medicine and Communicable Diseases Dpts (Dr. A Berry) -MOH- Quality Assurance of Pharmaceutical Products Program Director (Dr. R Karam)</p>	<p>D.2.1 None</p>	<p>D.2.1 None</p>	<p>D.2.1 Number of generic antibiotics that are tested by the pharmacovigilance programs</p>
<p>D.3 Control the use of critically important antimicrobial molecules (CIAM) in humans</p>	<p>D.3.1 Define CIAM</p>	<p>D.3.1.1 Literature search</p>	<p>D.3.1.1 List</p>	<p>D.3.1.1 One</p>	<p>D.3.1.1 Three months from time zero</p>	<p>D.3.1.1 MOA</p>	<p>D.3.1.1 -Private sector, WHO consultant, former LSIDCM president</p>	<p>D.3.1.1 None</p>	<p>D.3.1.1 None</p>	<p>D.3.1 List of CIAM posted on AMR/AMS website</p>

							(Dr. R Moghnieh)			
		D.3.1.2 Formulate the list	D.3.1.2 National list of CIAM	D.3.1.2 One	D.3.1.2 Six months from time zero	D.3.1.2 - MOH -MOA	-MOA- Head of Animal Health Service (Dr. B Bazzal) -Private sector, WHO consultant, former LSIDCM president (Dr. R Moghnieh) -Private sector (Dr S. Kanj, Dr G. Matar)	D.3.1.2 2,000 USD	D.3.1.2 AMR Fund	
D.4 Sentinel Surveillance of ABX (CIAM) consumption from a	D.4.1 Workshops on metrics for ABX use measurement		D.4.1 Workshops	D.4.1 Six	D.4.1 Six months from time zero and 1 year from time zero	D.4.1 2 in Beirut, 1 in Bekaa, 1 in the North, 1 in the South and 1 in	D.4.1 Focal person	D.4.1 20,000 USD (6 workshops)	D.4.1 AMR fund	D.4.1 Percentage of hospitals that sent attendees

network of hospitals and benchmark with international data						Mount Lebanon				
	D.4.2 Compilation of data from hospitals	D.4.2.1 Determine the epidemiologically representative sample of hospitals for surveillance of ABX	D.4.2.1 List	D.4.2.1 One	D.4.2.1 three months from time zero	D.4.2.1 MOH	D.4.2.1 -MOH- Head of pharmacy service (Dr. C Reaydi) -MOH- Head of Epidemiological Surveillance Program (Dr. N Ghosn)	D.4.2.1 None	D.4.2.1 None	D.4.2.1 The list is available
		D.4.2.2 -Validate the measurement of hospital consumption by DDD/1000 patient	D.4.2.2 Hospital data assessment 4 times per year over 5 years	D.4.2.2 Four per year over 5 years	D.4.2.2 One year and three months from time zero and continue yearly for 5 years	D.4.2.2 -MOH -WHO	D.4.2.2 AMS expert	D.4.2.2 1,000 USD per year for 5 years = 5,000 USD	D.4.2.2 AMR fund	D.4.2.2 None

		<p>days in a batch of 4 hospitals per year</p> <p>-Include the hospitals with adequate measurements in a sequential manner into the surveillance list and data</p> <p>-Advice to hospitals that don't have adequate data</p>								
		<p>D.4.2.3</p> <p>Surveillance of ABX use in Lebanese hospitals by auto reporting DDDs</p>	<p>D.4.2.3</p> <p>Report</p>	<p>D.4.2.3</p> <p>Once per year</p>	<p>D.4.2.3</p> <p>1.5 years from time zero then yearly for 5 years</p>	<p>D.4.2.3</p> <p>-MOH</p> <p>-WHO</p>	<p>D.4.2.3</p> <p>-MOH- Head of pharmacy service (Dr. C Reaydi)</p> <p>-MOH- Head of</p>	<p>D.4.2.3</p> <p>None</p>	<p>D.4.2.3</p> <p>None</p>	<p>D.4.2.3</p> <p>Report on ABX use for 2019/2020 posted on website</p>

							Epidemiological Surveillance Program (Dr. N Ghosn)			
D.5 Prepare hospitals and build their capacity for Antimicrobial stewardship (AMS) programs	D.5.1 Workshops on AMS twice per year		D.5.1 Workshops	D.5.1 two per year over 5 years	D.5.1 Six months from time zero then yearly for 5 years	D.5.1 -MOH -WHO -LSIDCM	D.5.1 -Private sector, (Dr. S Kanj) -Private sector, WHO consultant, former LSIDCM president (Dr. R Moghnieh)	D.5.1 4,000 USD *2= 8,000 USD/year	D.5.1 AMR fund	D.5.1 Number of workshops on AMS per year
	D.5.2 Preparation and dissemination of national treatment guidelines on infectious diseases to standardize	D.5.2.1 Put a list of essential guidelines	D.5.2.1 List	D.5.2.1 One	D.5.2.1 six months from time zero	D.5.2.1 -WHO -LSIDCM	D.5.2.1 -Private sector, (Dr. S Kanj) -Private sector, WHO consultant (Dr. A Bizri, Dr. J Mokhbat)	D.5.2.1 2-3 guidelines 3,500 USD	D.5.2.1 AMR fund	D.5.2.1 Number of guidelines published and posted on AMR/AMS website

	the strategies of ABX use based on local epidemiology									
		D.5.2.2 Prepare the missing guidelines	D.5.2.2 List	D.5.2.2 One	D.5.2.2 Finalize within 1 year from time zero	D.5.2.2 -WHO -LSIDCM	D.5.2.2 Focal person will distribute the tasks according to the list.	D.5.2.2 Included in D.5.2.1	D.5.2.2 AMR fund	
		D.5.2.3 Prepare and follow a schedule for the presentation of the guidelines in the respective scientific societies meeting and for the endorsement of these guidelines with the	D.5.2.3 Schedule	D.5.2.3 One	D.5.2.3 Starting 1 year from time zero and finalized 3 years from time zero	D.5.2.3 MOH	D.5.2.3 -Focal person -LSIDCM president (Dr. Z Helou)	D.5.2.3 Workshops 3 times per year (1,200 USD per workshop)	D.5.2.3 AMR fund	D.5.2.3 Percentage of guidelines endorsed by respective scientific societies

		respective societies								
		D.5.2.4 Post these guidelines on the AMR/AMS website	D.5.2.4 Guidelines	D.5.2.4 to be assigned later	D.5.2.4 1.5 years from time zero	D.5.2.4 MOH	D.5.2.4 -Focal person -IT consultant	D.5.2.4 None	D.5.2.4 None	D.5.2.4 Number of guidelines posted on AMR/AMS website.
	D.5.3 Inclusion of AMS programs among hospital accreditation standards		D.5.3.1 AMS checklist in accreditation	D.5.3.1 One	D.5.3.1 Three months from time zero	D.5.3.1 MOH	D.5.3.1 -Private sector, WHO consultant, former LSIDCM president (Dr. R Moghnieh) -MOH- Project Coordinator (Eng. S Akkoun)	D.5.3.1 None	D.5.3.1 None	D.5.3.1 AMS and its checklist available in accreditation standards
	D.5.4 Auditing the AMS practices during MOH accreditation		D.5.4 Report	D.5.4 One	D.5.4 2021 and after each accreditation audit for 5 years	D.5.4 MOH	D.5.4 MOH accreditation team	D.5.4 None	D.5.4 None	D.5.4 Number of feedback given/number of hospitals

	n with feedback to hospitals.									
	D.5.5 Development of AMS webpage in the MOH website		D.5.5 AMS on website	D.5.5 One	D.5.5 six months from time zero	D.5.5 -MOH -MOA	D.5.5 IT consultant	D.5.5 5,000 USD	D.5.5 AMR fund	D.5.5 AMS section present on AMR/MOH website
D.6 Organize the dispensing of antimicrobials in the community pharmacies	D.6.1 Nominate a task group for the meeting between MOH including Dr. W Ammar and the Order of pharmacists		D.6.1 Group	D.6.1 1	D.6.1 3 months	D.6.1 MOH	D.6.1 Technical working group	D.6.1 None	D.6.1 None	D.6.1 None
	D.6.2 Meeting between a high-authority-level task force and the President of the		D.6.2 Meeting	D.6.2 One	D.6.2 To be finalized 3 months from time zero	D.6.2 -MOH -Order of Pharmacists	D.6.2 -MOH- Head of pharmacy service (Dr. C Reaydi) -MOH- General Director	D.6.2 None	D.6.2 None	D.6.2 Agenda for collaboration put

	Order of Pharmacists to agree over a plan to restrict dispensing of ABX						(Dr. W Ammar) -Private sector, WHO consultant, former LSIDCM president (Dr. R Moghnieh) - MOH- Director of Public Relations & Health Education Dpts (Dr. R Hamra)			
D.7 Control and regulate the use of ABX in the veterinary, agriculture, food production and	D.7.1 Banning importation and use of CIAM in the veterinary field	D.7.1.1 The CIAM list will be sent to the minister to ban their importation for veterinary use	D.7.1.1 Letter	D.7.1.1 One	D.7.1.1 Will be sent nine months from time zero	D.7.1.1 MOA	D.7.1 -MOA- Head of Animal Health Service (Dr. B Bazzal)	D.7.1 3,000 USD	D.7.1 AMR fund	D.7.1 DDD of CIAM molecules imported per year

environmen t sectors							-FAO representati ve			
		D.7.1.2 The veterinary drug office will not import these agents	D.7.1.2 Memo	D.7.1.2 One	D.7.1.2 one year from time zero	D.7.1.2 MOA				
	D.7.2 Check if CIAM are used in agriculture and environmen t	D.7.2.1 -Review the list of drugs and pesticides officially imported in agriculture. -Check if CIAM are included in this list.	D.7.2.1 List	D.7.2.1 One	D.7.2.1 nine months from time zero	D.7.2.1 MOA	D.7.2 -MOA- Head of Poultry Husbandry Dpt (Eng. A Sirawan)	D.7.2 1,000 USD	D.7.2 AMR fund	D.7.2.1 Report on antimicrobi als officially imported for agriculture use
		D.7.2.2 Check if any of these molecules are used in agriculture or environmen t from	D.7.2.2 List	D.7.2.2 One	D.7.2.2 two years from time zero	D.7.2.2 MOA				D.7.2.2 None

		outside the official import channel.								
		D.7.2.3 Get results of ABX residues in food items being done in Lebanon	D.7.2.3 Report	D.7.2.3 One	D.7.2.3 three months from time zero	D.7.2.3 MOA	D.7.2.3 -MOA- Head of Animal Health Service (Dr. B Bazzal)	D.7.2.3 None	D.7.2.3 None	D.7.2.3 None
	D.7.3 Surveillance of importation of regularly used ABX to Lebanon	D.7.3.1 Form a registry of imported ABX in veterinary world	D.7.3.1 Registry	D.7.3.1 One	D.7.3.1 Six months from time zero	D.7.3.1 MOA	D.7.3.1 -MOA- Head of Animal Health Service (Dr. B Bazzal)	D.7.3.1 None	D.7.3.1 None	D.7.3.1 Presence of annual data of imported veterinary ABX on registry
	D.7.4 Research study about ABX consumption	D.7.4.1 Research project by one of Masters Student at Beirut Arab University (BAU)	D.7.4.1 Project	D.7.4.1 One	D.7.4.1 starting at time zero for one year	D.7.4.1 -BAU -MOA	D.7.4.1 -BAU- coordinator of Masters degree in Food Safety and Analysis (Dr. N El Darra)	D.7.4.1 None (Human resources from BAU)	D.7.4.1 None	D.7.4.1 None

							-Private sector, WHO consultant, former LSIDCM president (Dr. R Moghnieh) -MOA- Head of Animal Health Service (Dr. B Bazzal)			
		D.7 4.2 Research project in Agriculture school (Quantify the use of ABX in poultry farms nationally)	D.7 4.2 Project	D.7 4.2 One	D.7 4.2 Two years from time zero	D.7 4.2 -MOA - Agriculture school (AUB) -LSIDCM	D.7 4.2 -LSIDCM Member -AUB-Dpt of Agriculture (Dr. M Farran) -MOA- Head of Poultry Husbandry	D.7 4.2 None (man power)	D.7 4.2 AUB Research	D.7 4.2 Report on the national use of ABX in poultry farms

							Dpt (Eng. A Sirawan)			
	D.7.5 Research study about unofficial importation of ABX to Lebanon	D.7.5 Research project in Agriculture school	D.7.5 Project	D.7.5 One	D.7.5 Two years from time zero	D.7.5 -MOA - Agriculture school (AUB)	D.7.5 AUB-Dpt of Agriculture (Dr. M Farran)	D.7.5 None (man power)	D.7.5 AUB Research	D.7.5 Report on the unofficial ABX importation used in veterinary world

Monitoring and evaluation plan

Major objective	Activity	Sub-activity	Indicator	Purpose	Calculation	Frequency of Data collection	Data Source	Method	Baseline
D.1 Organization of the responsibilities for the execution of the tasks	D.1.1 Appointment of focal person in charge of following up the activities of the objectives of this axis		D.1.1 Focal person nominated	D.1 Follow up of activities and to be in charge of some of them	D.1 Yes/No	D.1 Once/5 years	D.1 MOH WHO	D.1 Letter	D.1 NA
	D.1.2 Appointment of the members of the technical working group along with its TOR		D.1.2 Technical working group assigned						
D.2 Improve ABX quality control	D.2.1 To support and include ABX as priority drugs in the pharmacovigilance project of the		D.2.1 Number of generic antibiotics that are tested by the pharmacovigilance programs	D.2.1 Evaluate post-marketing efficacy and safety of generic ABX that are licensed by	D.2.1 No of reports /month (Including Zero report)	D.2.1 Once/5 years	D.2.1 AMS website	D.2.1 Network	D.2.1 NA

	Lebanese University and the adverse drug event reporting program of the Order of Pharmacists			MOH and used in Lebanon					
D.3 Control the use of critically important antimicrobial molecules (CIAM) in humans	D.3.1 Define CIAM	D.3.1.1 Literature search	D.3.1 List of CIAM posted on AMR/AMS website	D.3.1 Make sure it is prepared and accessed by all	D.3.1 Yes/No	D.3.1 Once/5 years	D.3.1 Literature search	D.3.1 Search	D.3.1 NA
		D.3.1.2 Formulate the list							
D.4 Sentinel Surveillance of ABX (CIAM) consumption from a network of hospitals and benchmark with international data	D.4.1 Workshops on metrics for ABX use measurement		D.4.1 Percentage of hospitals that sent attendees	D.4.1 To standardize measurement in Lebanon	D.4.1 Number of hospitals that sent attendees/ number of invited hospitals*100	D.4.1 Once/5 years	D.4.1 Workshop	D.4.1 Workshop	D.4.1 NA

	D.4.2 Compilation of data from hospitals	D.4.2.1 Determine the epidemiologi cally representativ e sample of hospitals for surveillance of ABX	D.4.2.1 The list is available	D.4.2.1 Establish epidemiologi cally representativ e surveillance of AMR	D.4.2.1 Yes/No	D.4.2.1 Once/5 years	D.4.2.1 -MOH -ESU	D.4.2.1 Epidemiolog ic sampling	D.4.2.1 NA
		D.4.2.2 -Validate the measurement of hospital consumption by DDD/1000 patient days in a batch of 4 hospitals per year -Include the hospitals with adequate measurements in a sequential manner into the surveillance list and data	D.4.2.2 None						

		-Advice to hospitals that don't have adequate data							
		D.4.2.3 Surveillance of ABX use in Lebanese hospitals by auto reporting DDDs	D.4.2.3 Report on ABX use for 2019/2020 posted on website	D.4.2.3 -Baseline evaluation and follow up -In preparation for national outcome AMS indicators	D.4.2.3 Yes /No	D.4.2.3 June every year	D.4.2.3 Lebanese hospitals	D.4.2.3 Compilation of results from hospital reports	D.4.2.3 NA
D.5 Prepare hospitals and build their capacity for Antimicrobial stewardship (AMS) programs	D.5.1 Workshops on AMS twice per year		D.5.1 Number of workshops on AMS per year	D.5.1 Standardization of AMS and follow up of indicators.	D.5.1 Number of workshops twice per year	D.5.1 Yearly	D.5.1 AMS focal person	D.5.1 Workshop	D.5.1 Sporadic availability
	D.5.2 Preparation and dissemination of national treatment guidelines on infectious	D.5.2.1 Put a list of essential guidelines	D.5.2.1 D.5.2.2 Number of guidelines published and posted on	D.5.2.1 D.5.2.2 Standardize ABX prescription habits among professionals	D.5.2.1 D.5.2.2 Number of guidelines published and posted on	D.5.2.1 D.5.2.2 Once/5 years	D.5.2.1 D.5.2.2 International guidelines plus local epidemiology from	D.5.2.1 D.5.2.2 Writing	D.5.2.1 D.5.2.2 The available national guidelines are in complete

	diseases to standardize the strategies of ABX use based on local epidemiology		AMR/AMS website		AMR/AMS website		surveillance reports		
		D.5.2.2 Prepare the missing guidelines							
		D.5.2.3 Prepare and follow a schedule for the presentation of the guidelines in the respective scientific societies meeting and for the endorsement of these guidelines with the respective societies	D.5.2.3 Percentage of guidelines endorsed by respective scientific societies	D.5.2.3 Improve application of these guidelines by professionals	D.5.2.3 (Number of scientific target societies that endorse these guidelines/ Number of target societies) *100	D.5.2.3 Once/5 years	D.5.2.3 Scientific societies	D.5.2.3 Meetings Lectures Workshops	D.5.2.3 NA

		D.5.2.4 Post these guidelines on the AMR/AMS website	D.5.2.4 Number of guidelines posted on AMR/AMS website.	D.5.2.4 Improve the visibility of these guidelines	D.5.2.4 Yes/No	D.5.2.4 Once/5 years reviewing and updating guidelines if needed	D.5.2.4 AMS Website	D.5.2.4 Posting on MOH website	D.5.2.4 NA
	D.5.3 Inclusion of AMS programs among hospital accreditation standards		D.5.3.1 AMS and its checklist available in accreditation standards	D.5.3.1 Standardization	D.5.3.1 Yes /No	D.5.3.1 Once/5 years	D.5.3.1 Accreditation standards	D.5.3.1 Checking	D.5.3.1 NA
	D.5.4 Auditing the AMS practices during MOH accreditation with feedback to hospitals.		D.5.4 Number of feedback given/number of hospitals	D.5.4 Improve AMS work in hospitals	D.5.4 Number of feedback given/number of hospitals*100	D.5.4 Every 3 years depending on the frequency of accreditation renewal	D.5.4 Accreditation audit results analysis	D.5.4 data analysis and report	D.5.4 NA
	D.5.5 Development of AMS webpage in the MOH website		D.5.5 AMS section present on AMR/MOH website	D.5.5 Improve visibility of AMS and make guidelines available to all professionals	D.5.5 -Yes/No -Report of anonymous hospitals -National indicators results	D.5.5 -Once/5 years -Yearly reports	D.5.5 MOH Website	D.5.5 Checking	D.5.5 NA

<p>D.6 Organize the dispensing of antimicrobials in the community pharmacies</p>	<p>D.6.1 Nominate a task group for the meeting between MOH including Dr. W Ammar and the Order of pharmacists</p>		<p>D.6.1 None</p>						
	<p>D.6.2 Meeting between a high-authority-level task force and the President of the Order of Pharmacists to agree over a plan to restrict dispensing of ABX</p>		<p>D.6.2 Agenda for collaboration put</p>	<p>D.6.2 Discuss and put a plan that is acceptable by pharmacists about dispensing of ABX over-the-counter</p>	<p>D.6.2 Minutes of meeting and activities added to the plan</p>	<p>D.6.2 Once</p>	<p>D.6.2 Meeting</p>	<p>D.6.2 Meeting</p>	<p>D.6.2 Previous work with pharmacists at lower levels that did not lead to official action</p>
<p>D.7 Control and regulate the use of ABX in the veterinary,</p>	<p>D.7.1 Banning importation and use of CIAM in the</p>	<p>D.7.1.1 The CIAM list will be sent to the minister to</p>	<p>D.7.1 DDD of CIAM molecules imported per year</p>	<p>D.7.1 Establish baseline and follow up of the quantity</p>	<p>D.7.1 Report on 2017 and 2018 data</p>	<p>D.7.1 Once for 2017/2018 then every year</p>	<p>D.7.1 Veterinary drug office</p>	<p>D.7.1 Research project for 1 year</p>	<p>D.7.1 NA</p>

agriculture, food production and environment sectors	veterinary field	ban their importation for veterinary use		and type of ABX used in the country per year.	Veterinary ABX registry available and yearly report posted on AMR website				
		D.7.1.2 The veterinary drug office will not import these agents							
	D.7.2 Check if CIAM are used in agriculture and environment	D.7.2.1 -Review the list of drugs and pesticides officially imported in agriculture. -Check if CIAM are included in this list.	D.7.2.1 Report on antimicrobials officially imported for agriculture use	D.7.2.1 To check the extent of the use CIAM in agriculture	D.7.2.1 Report	D.7.2.1 Once/year	D.7.2.1 MOA	D.7.2.1 Research project for 1 year	D.7.2.1 NA
		D.7.2.2 Check if any of these molecules are used in agriculture	D.7.2.2 None						

		or environment from outside the official import channel.							
		D.7.2.3 Get results of ABX residues in food items being done in Lebanon	D.7.2.3 None						
	D.7.3 Surveillance of importation of regularly used ABX to Lebanon	D.7.3.1 Form a registry of imported ABX in veterinary world	D.7.3.1 Presence of annual data of imported veterinary ABX on registry	D.7.3.1 Yearly report of imported ABX in veterinary world on AMR website	D.7.3.1 Yes/No	D.7.3.1 Yearly report.	D.7.3.1 Veterinary drug office	D.7.3.1 Registry	D.7.3.1 NA
	D.7.4 Research study about ABX consumption	D.7.4.1 Research project by one of Masters Student at Beirut Arab University (BAU)	D.7.4.1 None						
		D.7.4.2	D.7.4.2	D.7.4.2	D.7.4.2 Yes/No	D.7.4.2 Once	D.7.4.2	D.7.4.2 Project	D.7.4.2

		Research project in Agriculture school (Quantify the use of ABX in poultry farms nationally)	Report on the national use of ABX in poultry farms	Determine baseline ABX use in poultry in Lebanon.			Poultry farms		Partially available not standardized surveillance
	D.7.5 Research study about unofficial importation of ABX to Lebanon	D.7.5 Research project in Agriculture school	D.7.5 Report on the unofficial ABX importation used in veterinary world	D.7.5 Evaluate the ABX purchases outside the official routing	D.7.5 Yes/No	D.7.5 Once	D.7.5 Veterinary pharmacies	D.7.5 Market research	D.7.5 NA

Axis E: Budget Planning and Fund Attraction

The plan for economic sustainability was replaced mainly by a plan for budget preparation and preparation of the ground for fund raising for the execution of the NAP.

Strategic plan

Objective	Activity	Sub-activity	Date (from operational plan)	Mile stone
E.0 Organization of the responsibilities for the execution of the tasks	E.0.1 Nominate a focal person in charge of following up the activities of the objectives of this axis		E.0.1 three months from time zero	E.0 three months from time zero
	E.0.2 Nominate members of the technical working group		E.0.2 three months from time zero	
E.1 AMR budget planning	E.1.1 Budget for each activity of the plan has been studied	E.1.1 Budget for every sub-activity is put in the NAP	E.1.1 Ready at “time zero”	E.1 Finalized February 2019
	E.1.2 Overall budget of the plan has been assessed	E.1.2 Meeting between Dr. A Rady and Dr. R Moghnieh to finalize the budget	E.1.2 20 th December 2018	
E.2 Looking for sources of funding for NAP	E.2.1 Meeting with WHO, MOH, MOA, NGOs to check for investment in NAP	E.2.1.1 Financing from WHO discussed	E.2.1.1 six months from “time zero”	E.2 Nine months from “time zero”
		E.2.1.2 Financing from MOH discussed	E.2.1.2 six months from “time zero”	
		E.2.1.3 Financing from MOA discussed	E.2.1.3 1 st Jan 2019	

		E.2.1.4 Financing from NGO (FAO, Fondation Merieux) discussed	E.2.1.4 six months from “time zero”	
	E.2.2 Look for other funding sources (agencies or bodies or countries)	E.2.2.1 Allocate a professional that will prepare proposals for funding	E.2.2.1 Three months from “time zero”	
		E.2.2.2 The allocated professional prepares the general proposal	E.2.2.2 Six months from “time zero”	
		E.2.2.3 Allocate a specialized person to do mapping of funders	E.2.2.3 Three months from “time zero”	
		E.2.2.4 Send proposals to agencies or organizations that are potential funders	E.2.2.4 Nine months from “time zero”	
	E.2.3 Include private organizations interested in AMR into the NAP	E.2.3.1 Mapping of private organizations interested in AMR	E.2.3.1 Three months from “time zero”	
		E.2.3.2 Present collaboration proposals to these organizations	E.2.3.2 Six months from “time zero”	
E.3 Mapping of organizations for potential collaboration in the investigation of natural sources of biodiversity and biorepositories as sources of new antimicrobial molecules	E.3.1 Mapping of international organizations /countries for potential collaboration in the investigation of natural sources of biodiversity and	E.3.1.1 Nominate the person who will be in charge of doing this mapping and having a list of these organizations	E.3.1.1 3 three months from “time zero	E.3 Nine months from “time zero”
		E.3.1.2 Do the mapping plus list	E.3.1.2 Six months from “time zero”	

	biorepositories as sources of new antimicrobial molecules	E.3.1.3 Approach these organizations through showing them the achieved research in Lebanon as well as potential for benefit sharing with these organizations	E.3.1.3 Nine months from “time zero”	
	E.3.2 Mapping of existing or ongoing local research that deals with biodiversity as source of antimicrobial molecules	E.3.2.1 Communication with LAS to organize a yearly meeting where researchers in Lebanon expose and discuss their studies in the field of biodiversity for alternatives to ABX	E.3.2.1 3 three months from “time zero”	
		E.3.2.2 Create a section of AMR Website where local studies, posters, articles, projects in biodiversity are posted	E.3.2.2 three months from “time zero”	
E.4 Establishing communication with public and private sector for collaboration to NAP	E.4.1 Establish a network of researchers in public and private sectors	E.4.1.1 LSIDCM to host yearly workshop for researchers to discuss AMR research	E.4.1.1 three months from “time zero”	E.4 One year from “time zero”
	E.4.2 Mapping of potential private partners to encourage research	E.4.2.1 Nominate the person who will do the mapping	E.4.2.1 Three months from “time zero”	
		E.4.2.2 Produce a list of potential partners	E.4.2.2 Six months from “time zero”	
E.4.3 Establish communication and collaboration with private partners	E.4.3.1 Preparation of specific proposals for collaboration with specific partners	E.4.3.1 Nine months from “time zero”		

		E.4.3.2 Establish communication and collaboration with these private partners	E.4.3.2 One year from “time zero”	

Operational plan and budget

Objective	Activity	Sub-activity	Unit	Quantity	Date	Location	Responsible entity	Cost	Source of funding	Indicator
E.0 Organization of the responsibilities for the execution of the tasks	E.0.1 Nominate a focal person in charge of following up the activities of the objectives of this axis		E.0.1 Letter	E.0.1 One	E.0.1 three months from time zero	E.0.1 MOH	E.0.1 -WHO-National Professional Officer (Dr. A Rady) -MOH-General Director (Dr. W Ammar) -MOA general director	E.0.1 None	E.0.1 None	E.0.1 Focal person nominated
	E.0.2 Nominate members of the technical working group		E.0.2 Letter	E.0.2 One	E.0.2 three months from time zero	E.0.2 MOH	E.0.2 -WHO-National Professional Officer (Dr. A Rady) -MOH-General Director	E.0.2 None	E.0.2 None	E.0.2 Technical working group assigned

							(Dr. W Ammar) -MOA general director			
E.1 AMR budget planning	E.1.1 Budget for each activity of the plan has been studied	E.1.1 Budget for every sub-activity is put in the NAP	E.1.1 Budget for every sub-activity	E.1.1 One	E.1.1 Ready at "time zero"	E.1.1 WHO	E.1.1 -Private sector, WHO consultant, former LSIDCM president (Dr. R Moghnieh) -WHO-National Professional Officer (Dr. A Rady)	E.1.1 Included in NAP preparation budget (already paid)	E.1.1 AMR Plan	E.1.1 Budget finalized
	E.1.2 Overall budget of the plan has been assessed	E.1.2 Meeting between Dr. A Rady and Dr. R Moghnieh to finalize the budget	E.1.2 Meeting	E.1.2 One	E.1.2 20 th December 2018	E.1.2 WHO Beirut	E.1.2 -Private sector, WHO consultant, former LSIDCM president	E.1.2 Included in NAP preparation budget (already paid)	E.1.2 AMR Plan	E.1.2 Budget finalized

							(Dr. R Moghnieh) -WHO-National Professional Officer (Dr. A Rady)			
E.2 Looking for sources of funding for NAP	E.2.1 Meeting with WHO, MOH, MOA, NGOs to check for investment in NAP	E.2.1.1 Financing from WHO discussed	E.2.1.1 Meeting	E.2.1.1 one	E.2.1.1 six months from “time zero”	E.2.1.1 WHO	E.2.1.1 -Focal person -Technical working group	E.2.1 None	E.2.1 None	E.2.1 Percentage of budget is available
		E.2.1.2 Financing from MOH discussed	E.2.1.2 Meeting with Dr Ammar	E.2.1.2 one	E.2.1.2 six months from “time zero”	E.2.1.2 MOH	E.2.1.2 -Focal person -Technical working group			
		E.2.1.3 Financing from MOA discussed	E.2.1.3 Meeting with MOA general director	E.2.1.3 one	E.2.1.3 1 st Jan 2019	E.2.1.3 MOA	E.2.1.3 -Focal person -Technical working group			
		E.2.1.4 Financing from NGO (FAO, Fondation	E.2.1.4 Meetings with agencies	E.2.1.4 3-4	E.2.1.4 six months from “time zero”	E.2.1.4 Agencies	E.2.1.4 -Focal person			

		Merieux) discussed					-Technical working group			
E.2.2 Look for other funding sources (agencies or bodies or countries)	E.2.2.1	Allocate a professional that will prepare proposals for funding	E.2.2.1 Team	E.2.2.1 One	E.2.2.1 Three months from “time zero”	E.2.2.1 -MOH -WHO	E.2.2.1 Technical working group	E.2.2.1 None	E.2.2.1 None	E.2.2 Number of proposals sent to organizations that are potential funders
	E.2.2.2	The allocated professional prepares the general proposal	E.2.2.2 Proposal	E.2.2.2 One	E.2.2.2 Six months from “time zero”	E.2.2.2 -WHO -MOH -MOA	E.2.2.2 Technical working group	E.2.2.2 2,000 USD	E.2.2.2 AMR fund	
	E.2.2.3	Allocate a specialized person to do mapping of funders	E.2.2.3 Person	E.2.2.3 One	E.2.2.3 Three months from “time zero”	E.2.2.3 -WHO -MOH -MOA	E.2.2.3 Technical working group	E.2.2.3 None	E.2.2.3	
	E.2.2.4	Send proposals to agencies or organizations that are potential funders	E.2.2.4 Proposal	E.2.2.4 One	E.2.2.4 Nine months from “time zero”	E.2.2.4 -WHO -MOH -MOA	E.2.2.4 Focal person	E.2.2.4 1,000 USD	E.2.2.4 AMR fund	

	E.2.3 Include private organizations interested in AMR into the NAP	E.2.3.1 Mapping of private organizations interested in AMR	E.2.3.1 List	E.2.3.1 One	E.2.3.1 Three months from “time zero”	E.2.3.1 -WHO -MOH -MOA	E.2.3.1 Person in charge mapping of potential funders	E.2.3.1 1,000 USD	E.2.3.1 AMR fund	E.2.3 Number of private organizations that are collaborating with NAP
		E.2.3.2 Present collaboration proposals to these organizations	E.2.3.2 Proposal	E.2.3.2 One	E.2.3.2 Six months from “time zero”	E.2.3.2 -WHO -MOH -MOA	E.2.3.2 Proposal specialist	E.2.3.2 Included in E.2.2.4	E.2.3.2 Budget for 2.2.4	
E.3 Mapping of organizations for potential collaboration in the investigation of natural sources of biodiversity and biorepositories as sources of new antimicrobi	E.3.1 Mapping of international organizations /countries for potential collaboration in the investigation of natural sources of biodiversity and bioreposito	E.3.1.1 Nominate the person who will be in charge of doing this mapping and having a list of these organizations	E.3.1.1 Person	E.3.1.1 One	E.3.1.1 3 three months from “time zero”	E.3.1.1 -WHO -MOH -MOA	E.3.1.1 Person in charge mapping of potential funders	E.3.1.1 Included in E.2.2.4	E.3.1.1 Budget for 2.2.4	E.3.1 Number international of organizations collaborating on this issue
		E.3.1.2 Do the mapping plus list	E.3.1.2 List	E.3.1.2 One	E.3.1.2 Six months from “time zero”	E.3.1.2 -WHO -MOH -MOA	E.3.1.2 Person in charge of mapping organizatio	E.3.1.2 Included in E.2.2.4	E.3.1.2 Budget for 2.2.4	

al molecules	ries as sources of new antimicrobial molecules	E.3.1.3 Approach these organizations through showing them the achieved research in Lebanon as well as potential for benefit sharing with these organizations	E.3.1.3 Proposal	E.3.1.3 One	E.3.1.3 Nine months from “time zero”	E.3.1.3 -WHO -MOH -MOA	E.3.1.3 Focal person	E.3.1.3 None	E.3.1.3 None	
	E.3.2 Mapping of existing or ongoing local research that deals with biodiversity as source of antimicrobial molecules	E.3.2.1 Communication with LAS to organize a yearly meeting where researchers in Lebanon expose and discuss their	E.3.2.1 Meeting	E.3.2.1 Once/year	E.3.2.1 3 three months from “time zero”	E.3.2.1 LSIDCM	E.3.2.1 President of LSIDCM (Dr. Z Helou)	E.3.2.1 None	E.3.2.1 None	E.3.2 Number of local research bodies that support biodiversity as a source of antimicrobial molecules

		studies in the field of biodiversity for alternatives to ABX								
		E.3.2.2 Create a section of AMR Website where local studies, posters, articles, projects in biodiversity are posted	E.3.2.2 Section on AMR website	E.3.2.2 One	E.3.2.2 three months from “time zero”	E.3.2.2 MOH WHO	E.3.2.2 IT specialist MOH WHO	E.3.2.2 Included in budget of website	E.3.2.2 AMR Website Budget	
E.4 Establishing communication with public and private sector for collaboration to NAP	E.4.1 Establish a network of researchers in public and private sectors	E.4.1.1 LSIDCM to host yearly workshop for researchers to discuss AMR research	E.4.1.1 Workshop	E.4.1.1 One	E.4.1.1 three months from “time zero”	E.4.1.1 LSIDCM	E.4.1 -Private sector, WHO consultant, former LSIDCM president (Dr. R Mognieh) - President of LSIDCM	E.4.1 1,800 USD/year	E.4.1 LSIDCM	E.4.1 Number of studies that are posted on AMR website about biodiversity in research for ABX

							(Dr. Z Helou) -Private Sector (Dr. M Matar)			
E.4.2 Mapping of potential private partners to encourage research	E.4.2.1 Nominate the person who will do the mapping	E.4.2.1 Person	E.4.2.1 One	E.4.2.1 Three months from “time zero”	E.4.2.1 - WHO -MOH -MOA	E.4.2 Person in charge of NAP	E.4.2 Part of website budget	E.4.2 AMR fund	E.4.2 Number of private partners that are collaborating to research	
	E.4.2.2 Produce a list of potential partners	E.4.2.2 List	E.4.2.2 One	E.4.2.2 Six months from “time zero”	E.4.2.2 -WHO -MOH -MOA	E.4.2.2 Nominated person for mapping	E.4.2.2 Included in 2.3.1	E.4.2.2 Budget of 2.3.1		
E.4.3 Establish communication and collaboration with private partners	E.4.3.1 Preparation of specific proposals for collaboration with specific partners	E.4.3.1 Proposal	E.4.3.1 One	E.4.3.1 Nine months from “time zero”	E.4.3.1 -WHO -MOH -MOA	E.4.3.1 Proposal specialist	E.4.3.1 Focal person	E.4.3.1 None	E.4.3 Number of private partners that are collaborating to AMR	
	E.4.3.2 Establish communication and collaboration with	E.4.3.2 Communication	E.4.3.2 Number of potential partners	E.4.3.2 One year from “time zero”	E.4.3.2 -WHO -MOH -MOA	E.4.3.2 Person in charge of NAP	E.4.3.2 Focal person	E.4.3.2 None		

		these private partners								
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Monitoring and evaluation plan

Objective	Activity	Sub-activity	Indicator	Purpose	Calculation	Frequency	Data source	Method	Baseline
E.0 Organization of the responsibilities for the execution of the tasks	E.0.1 Nominate a focal person in charge of following up the activities of the objectives of this axis		E.0.1 Focal person nominated	E.0 Organization of the responsibilities for the execution of the tasks	E.0 Yes/No	E.0 Once/5 years	E.0 -MOH -WHO -MOA	E.0 Letter	E.0 NA
	E.0.2 Nominate members of the technical working group		E.0.2 Technical working group assigned						
E.1 AMR budget planning	E.1.1 Budget for each activity of the plan has been studied	E.1.1 Budget for every sub-activity is put in the NAP	E.1.1 Budget finalized	E.1 Mandatory	E.1 Yes/No	E.1 Once/5 years	E.1 -WHO -Private sector, WHO consultant, former LSIDCM president (Dr. R Moghnieh)	E.1 Calculation	E.1 NA
	E.1.2 Overall budget of the plan has been assessed	E.1.2 Meeting between Dr. A Rady and Dr. R Moghnieh to finalize the budget	E.1.2 Budget finalized						

E.2 Looking for sources of funding for NAP	E.2.1 Meeting with WHO, MOH, MOA, NGOs to check for investment in NAP	E.2.1.1 Financing from WHO discussed	E.2.1 Percentage of budget is available	E.2.1 Vision of financial needs	E.2.1 Yes/No	E.2.1 Once/5 years	E.2.1 -WHO -MOH -MOA	E.2.1 Meetings	E.2.1 NA
		E.2.1.2 Financing from MOH discussed							
		E.2.1.3 Financing from MOA discussed							
		E.2.1.4 Financing from NGO (FAO, Fondation Merieux) discussed							
	E.2.2 Look for other funding sources (agencies or bodies or countries)	E.2.2.1 Allocate a professional that will prepare proposals for funding	E.2.2 Number of proposals sent to organizations that are potential funders	E.2.2 Attract Funds	E.2.2 Number of proposals sent to organizations that are potential funders	E.2.2 Once/5 years	E.2.2 -WHO -MOH -MOA	E.2.2 Mapping organizations and sending proposal	E.2.2 NA
E.2.2.2 The allocated professional prepares the									

		general proposal							
		E.2.2.3 Allocate a specialized person to do mapping of funders							
		E.2.2.4 Send proposals to agencies or organizations that are potential funders							
	E.2.3 Include private organizations interested in AMR into the NAP	E.2.3.1 Mapping of private organizations interested in AMR	E.2.3 Number of private organizations that are collaborating with NAP	E.2.3 Pool money into the plan to be able to execute it	E.2.3 Number of private organizations that are collaborating with NAP	E.2.3 Once/5 years	E.2.3 -WHO -MOH -MOA	E.2.3 Mapping organizations and sending proposal	E.2.3 NA
		E.2.3.2 Present collaboration proposals to these organizations							
E.3 Mapping of organizations for	E.3.1 Mapping of international organization	E.3.1.1 Nominate the person who will be	E.3.1 Number international of	E.3.1 This field needs multinational collaboration	E.3.1 Number international of	E.3.1 Once/5 years	E.3.1 -WHO -MOH -MOA	E.3.1 Mapping organizations and	E.3.1 NA

potential collaboration in the investigation of natural sources of biodiversity and biorepositories as sources of new antimicrobial molecules	s/countries for potential collaboration in the investigation of natural sources of biodiversity and biorepositories as sources of new antimicrobial molecules	in charge of doing this mapping and having a list of these organizations	organizations collaborating on this issue	. This is to have win-win collaboration	organizations collaborating on this issue			sending proposal	
		E.3.1.2 Do the mapping plus list							
		E.3.1.3 Approach these organizations through showing them the achieved research in Lebanon as well as potential for benefit sharing with these organizations							
	E.3.2 Mapping of existing or ongoing local	E.3.2.1 Communication with LAS to organize a	E.3.2 Number of local research bodies that	E.3.2 Establish continuity of the work nationwide	E.3.2 Number of local research bodies that	E.3.2 Once/5 years	E.3.2 -WHO -MOH -LSIDCM	E.3.2 Communication	E.3.2 NA

	research that deals with biodiversity as source of antimicrobial molecules	yearly meeting where researchers in Lebanon expose and discuss their studies in the field of biodiversity for alternatives to ABX E.3.2.2 Create a section of AMR Website where local studies, posters, articles, projects in biodiversity are posted	support biodiversity as a source of antimicrobial molecules	and communication among researchers	support biodiversity as a source of antimicrobial molecules				
E.4 Establishing communication with public and private sector for	E.4.1 Establish a network of researchers in public and private sectors	E.4.1.1 LSIDCM to host yearly workshop for researchers to discuss	E.4.1 Number of studies that are posted on AMR website about	E.4.1 Establish continuity of the work nationwide and communication	E.4.1 Number of studies that are posted on AMR website about	E.4.1 Once/5 years	E.4.1 -LSIDCM	E.4.1 Communication	E.4.1 NA

collaboration to NAP		AMR research	biodiversity in research for ABX	on among researchers.	biodiversity in research for ABX				
	E.4.2 Mapping of potential private partners to encourage research	E.4.2.1 Nominate the person who will do the mapping	E.4.2 Number of private partners that are collaborating to research	E.4.2 Bring funds from private sector	E.4.2 Number of private partners that are collaborating to research	E.4.2 Once/5 years	E.4.2 -WHO -MOH -LSIDCM	E.4.2 Mapping	E.4.2 NA
		E.4.2.2 Produce a list of potential partners							
E.4.3 Establish communication and collaboration with private partners	E.4.3.1 Preparation of specific proposals for collaboration with specific partners	E.4.3 Number of private partners that are collaborating to AMR	E.4.3 Bring funds from private sector	E.4.3 Number of private partners that are collaborating to AMR	E.4.3 Once/5 years	E.4.3 -WHO -MOH -LSIDCM	E.4.3 Communication	E.4.3 NA	
	E.4.3.2 Establish communication and collaboration with these private partners								

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- Dr. Bassel Bazzal (Ministry of Agriculture-Head of Animal Health Service)
- Dr. Ghassan Matar (American University of Beirut-Professor)
- Dr. Jacques Mokhbat (Lebanese American University-Microbiologist and Infectious Diseases Specialist)
- Dr. Marianne Msallem (Ministry of Health-Primary Health Care Department-Dental Coordinator)
- Dr. Mary Deeb (Lebanese American University-School of Medicine-Professor of Epidemiology)
- Dr. Mohamad Farran (American University of Beirut-Department of Agricultural Engineering-Professor)
- Dr. Monzer Hamze (Lebanese University-Professor)
- Dr. Nada El Darra (Beirut Arab University-Coordinator of Masters degree in Food Safety and Analysis)
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- Dr. Rida El Mays (General Cooperative Union-Chairman)
- Dr. Rola Husni Samaha (Lebanese American University Medical Center Rizk Hospital-Head of Infectious Diseases Division and Infection Control Program)
- Dr. Samir Hadjiabduli (International Organization for Migration-Chief Medical Officer)
- Dr. Souha Kanj (American University of Beirut Medical Center-Head of Division of Infectious Diseases)
- Dr. Ziad Daoud (University of Balamand- Professor and Head of Laboratory)
- Eng. Abir Sirawan (Ministry of Agriculture-Head of Poultry Husbandry Department)
- Eng. Salma Al Asmar (Libanvet-Agricultural Engineer)
- Eng. Sizar Akkoun (Ministry of Health-Project Coordinator)
- Mr. Nacif Rihani (Food and Agriculture Organization-Senior Livestock Officer)
- Ms. Erwina Zoghbi (World Health Organization-Public Health Officer)
- Ms. Hajar Semaha (Ministry of Health-Public Health Officer)
- Ms. Josette Najjar (Fondation Mérieux-Representative)
- Ms. Loubna Al-Batlouni (World Health Organization- Public Health Officer)

Appendix

Technical Committee on IHR

Suggested members:

1- Core group

-Head of prevention MOH	Dr. Assaad Khoury, president
-Head of Communicable Diseases division MOH	Dr. Nabil Salam
-Head of surveillance unit MOH	Dr. Nada Ghosn
- Head of Preventive Medicine Department	Dr. Atika Berry
-Quality control officer at Central Public Health Laboratory	to be determined
-WHO focal point for IHR	Dr. Alissar Rady
-FAO focal point for IHR	to be determined

2- Technical support group

- Head of quarantine unit at Airports	Dr. Nasser Chahine
- Head of quarantine unit at Beirut port	Dr. Mohammad Sreij
- Representative of Society of Infectious Diseases	to be determined
- Representative of Ministry of Interior Security /Municipalities	to be determined
- Head of medical department at Internal Security Forces	to be determined
- Head of medical department at General Security Forces	to be determined
- Representative of syndicate of laboratories	to be determined
- Representative of syndicate of hospitals	to be determined
- Head of veterinary department MOA	Dr. Ghazi Hakim
- Head of agriculture lab at MOA	to be determined
- Environmental hazards specialist at Ministry of Environment	to be determined
- Representative of the Higher Commission for relief	to be determined
- Representative of the Order of pharmacists	to be determined

National Committee on AMR containment

- **President:**
Dr. Atika Berry (Ministry of Public Health, Head of Preventive Medicine Department)
- **Vice President:**
Dr. Jacques Mokhbat (Lebanese American University, Microbiologist and Infectious Diseases Specialist)
- **Members (by alphabetical order of family names):**
Dr. Georges Araj (American University of Beirut Medical Center, Head of Laboratory Medicine)
Dr. Ghada Asmar (Lebanese University, School of Dentistry)
Dr. Bassel Bazzal (Ministry of Agriculture, Head of Animal Health Services)
Dr. Nada Ghosn (Ministry of Public Health, Head of Epidemiology Surveillance Unit)
Dr. Rasha Hamra (Ministry of Public Health, Director of Public Relations and Health Education Departments)
Dr. Rola Husni Samaha (Lebanese American University Medical Center- Rizk Hospital, Head of Infectious Diseases Division and Infection Control Program)
Dr. Rima Moghnieh (Makassed General Hospital, Head of Antimicrobial Stewardship Program)

Dr. Alissar Rady (World Health Organization-National Professional Officer)
Dr. Georges Salem (Lebanese Pediatric Society)
Dr. Dolla Sarkis (Saint Joseph University, Vice President for Research)
Eng. Abir Sirawan (Ministry of Agriculture, Head of Poultry Husbandry
Department)
Dr. Rony Zeinni (Lebanese Order of Pharmacists)