



BRUNEI DARUSSALAM
**ANTIMICROBIAL RESISTANCE
NATIONAL ACTION PLAN**



2019
-2023

Combating Antimicrobial Resistance

ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

AMR	-	Antimicrobial Resistance
ASEAN	-	Association of Southeast Asian Nations
ASP	-	Antibiotic Stewardship Programme
BDAMRNAP	-	Brunei Darussalam Antimicrobial Resistance National Action Plan
BDAMRC	-	Brunei Darussalam Antimicrobial Resistance Committee
DAA	-	Department of Agriculture and Agrifood
FAO	-	Food and Agriculture Organization
GAP	-	Good Agriculture Practices
GAHP	-	Good Animal Husbandry Practices
GDP	-	Gross Domestic Product
HAI	-	Healthcare Associated Infections
HH	-	Hand Hygiene
HPC	-	Health Promotion Centre
IEC	-	Information, Education and Communication
MOH	-	Ministry of Health
MPRT	-	Ministry of Primary Resources and Tourism
OIE	-	World Organization for Animal Health
RIPASH	-	Raja Isteri Pengiran Anak Saleha Hospital
TrACSS	-	Tripartite AMR Country Self - Assessment Survey
TWG	-	Technical Working Groups
UN	-	United Nations
VHM	-	Veterinary Health Mark
VMP	-	Veterinary Medicinal Products
VSO	-	Veterinary Surgeon Order
WHO	-	World Health Organisation

JOINT MESSAGE

by

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Alhamdulillah, with the grace and blessings of Allah Subhanahu Wata'ala, Brunei Darussalam has achieved a significant milestone to combat antimicrobial resistance (AMR). As part of its strong commitment in sustaining universal health coverage, ensuring health security and building resilient health systems, Brunei Darussalam has identified key priority initiatives outlined in the Brunei Darussalam Antimicrobial National Action Plan.

Globally, antimicrobial resistance is recognised as a serious threat to public health that requires systematic and coordinated action across all government sectors and society. International organisations have been leading multiple initiatives to address AMR and global leaders endorsed a political declaration at the United Nations General Assembly in New York in September 2016, signaling the world's commitment in fighting AMR.

In Brunei Darussalam, the Ministry of Health and the Ministry of Primary Resources and Tourism adopted the "One-Health" approach to collaboratively manage AMR drivers from the establishment of a multi-sectoral national AMR committee involving human health and animal health in December 2018. The Brunei Darussalam Antimicrobial Resistance Committee (BDAMRC) is responsible for the formulation of this national action plan.

The Brunei Darussalam Antimicrobial Resistance Action Plan was declared in the Seventieth Session of the Regional Committee Meeting in Manila, Philippines in October 2019. It has four strategic objectives, aligned with the World Health Organization Global Action Plan which include i) awareness and education, ii) surveillance and research, iii) infection prevention and control, and iv) optimise use of antimicrobials.

We would like to take this opportunity to congratulate the BDAMRC members in formulating this plan. It will serve as a strategy document to guide key stakeholders on the implementation of priority initiatives plans that requires urgent attention and are impactful in combatting AMR. It is our sincere hope that, with the active support from all the key stakeholders, the BDAMRC members will ensure that the national action plan will be implemented in an effective and sustainable manner – aligned to the regional strategy of WHO Western Pacific Region, For the Future: Towards the Healthiest and Safest Region.

JOINT FOREWORD

by

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Antimicrobial resistance (AMR) has become an increasingly serious threat to the health of the public. Its emergence has threatened the effective prevention and treatment of infections caused by bacteria, viruses, parasites and fungi. It is causing significant morbidity and mortality and increases in health-care costs with the threat of rendering all available antimicrobials ineffective. This is concerning as it would bring us back to the era prior to the discovery of antibiotics where even common infections can be life-threatening.

In an effort to address this threat, the Global Action Plan (GAP) on AMR, which is comprised of 5 key objective strategies, was formulated and adopted by all countries in 2015, followed by the agreement in September 2016 by Heads of States at the United Nations General Assembly to have National Action Plans (NAP) on AMR which is consistent with the GAP.

The drivers of the emergence of AMR that has impacted mainly on the human health occurs throughout the ecosystem, involving different actors and sectors, that is, human and veterinary medicine, agriculture, finance, environment and consumers. With the realization of the multi-sectoral involvement in the contributing factors and consequences of AMR, a holistic, multi-sectoral 'One Health' approach have been adopted in combatting AMR.

The Brunei Darussalam National Action Plan on AMR was developed by the national multi-sectoral coordinating committee, the Brunei Darussalam AMR Committee (BDAMRC) through 4 technical working groups (TWG) in alignment with the principles of the GAP and 'One Health' Approach. The priority actions identified are categorized according to the following 4 objective strategies namely:

1. Awareness and Education
2. Surveillance and Research
3. Infection Prevention and Control
4. Optimise Use of Antimicrobials

With the development of this national action plan, it strongly shows our country's commitment and determination towards combating AMR. We would like to convey our sincerest gratitude to all those involved for their active participation and commitment in the development of this national action plan. Let us work together to combat AMR through this 'One Health' approach and reaching our vision 'Together Towards A Healthy Nation'.

EXECUTIVE SUMMARY

Antimicrobial Resistance (AMR) poses a significant threat to global health and modern medicine. Globally, over 700,000 attributable deaths per year has been estimated. The increasing use of antimicrobials throughout the ecosystem is the driving factor behind AMR. In human health, increasing incidence of healthcare associated infections (HAIs) and inappropriate use of antimicrobials in health facilities require urgent attention. In animal health, the extensive use of antimicrobials as growth promoters in agriculture and aquaculture requires regulatory and economic interventions. In the environment, the exposure of microbes to antimicrobials discharged as wastewater effluents flowing out from health facilities and agricultural farms requires effective policies and regulation driven by effective surveillance data.

The Brunei Darussalam Antimicrobial Resistance National Action Plan outlines four strategic objectives needed to mitigate the risks posed by AMR: Awareness and Education, Surveillance and Research, Infection Prevention and Control and Optimize use of antimicrobials. Cognizant of the need for a “One-Health Approach”, the Brunei Darussalam Antimicrobial Resistance Committee (BDAMRC) was established in December 2016 with a mandate of coordinating and overseeing of all AMR related activities including the formulation, implementation and evaluation of the National Action Plan.

Key regulations and legislations to control availability and use of antimicrobials in human and animal health have been enacted in Brunei Darussalam. In addition, antibiotic stewardship programmes and pharmacovigilance programmes that promote prudent use of antimicrobials are in place in selected facilities in both human and animal sector. Furthermore, best practices aimed at mitigating infections in selected health facilities as well as farms have been introduced. Building on these foundations, the BDAMRC shall be adopting a systematic and step wise approach in the implementation of the national action plan to ensure the effectiveness and sustainability of the interventions.

Key priority initiatives shall focus on increasing public awareness of AMR; enhancing AMR education amongst professionals in human, animal and environmental health; strengthening surveillance through a national coordinating center and to scale up existing policies and best practices in infection prevention and control and antibiotic stewardship programmes to more facilities.

Due to the dependency of modern medicine on the effectiveness of antimicrobials, it is vital that the strategic objectives outlined in the National Action Plan are implemented imminently. Success will be contingent upon the continuous support of various stakeholders and therefore, continuous stakeholder and community engagement activities shall be carried out throughout the implementation of the National Action Plan.

1.0 Introduction

Antimicrobial resistance (AMR) is a global threat to public health. In 2016, AMR have been attributed to 700,000 deaths annually and mortality rates was projected to increase by 2050, where in Asia alone, 4.73 million annual deaths attributed to AMR have been estimated¹. It is widely acknowledged that whilst antibiotic resistance is inevitable, several factors/drivers have been shown to exacerbate AMR such as increasing use of antimicrobials (i.e. higher exposure of microbes to antimicrobials) and significantly few antimicrobials being developed to replace those have been rendered ineffective due to resistance.

The increasing use of antimicrobials that drives AMR occurs throughout the ecosystem. In human health, the increasing incidence of health care associated infections (HAIs) and inappropriate use of antimicrobials in hospitals and in primary care encourages higher use of antimicrobials. In animal health, the use of antimicrobials as growth promoters incentivizes extensive use of antimicrobials in agriculture and aquaculture. In addition, wastewater from health facilities and agriculture effluents have increased the exposure of microbes to antimicrobials which promotes resistance.

Depending on individual health systems, the impact of AMR will vary significantly. The economic impact, in terms of global gross domestic product (GDP) loss using projected mortality rates alone is estimated between 2 – 3.5%². The estimates are expected to increase when medical costs are factored in. For example, the total annual costs for the management of 5 major HAIs have been estimated to be US\$9.8 billion, with surgical site infections contributing the most (33.7%), followed by ventilator-associated pneumonia (31.6%), central line-associated bloodstream infections (18.9%), *C difficile* infections (15.4%), and catheter-associated urinary tract infections (<1%). Furthermore, due to the reliance of modern medicine on antimicrobials, the potential threat of going back to pre- antibiotic era is a huge possibility driving costs even higher but also deeming common procedures such as caesarean section riskier, thus affecting healthcare quality and patient safety.

Globally, international agencies representing tripartite collaboration between the World Health Organization (WHO), Food and Agriculture Organization (FAO) and World Organization for Animal Health (OIE) have agreed on a collaborative “One-Health” approach to effectively combat the AMR drivers. The five (5) key strategies recommended for Member Countries to address AMR include: increasing awareness and understanding, strengthen the knowledge and evidence base through surveillance and research, reduce incidence of infection, optimise the use of antimicrobials and develop the economic case for sustainable investment³.

¹ The Review on Antimicrobial Resistance. May 2016.

² AMR: Tackling the health and wealth of nations. Dec 2014.

³ Global Action Plan on Antimicrobial Resistance. 2015. World Health Organization.

Situational Analysis of AMR Readiness in Brunei

A series of scoping workshop involving multi-agency stakeholders from human health, animal health and environmental health was conducted between January – March 2019. Using the Tripartite AMR Country Self - Assessment Survey (TrACSS) as a tool to facilitate discussions participants outlined the key strengths and challenges of existing systems in combating AMR. In addition, participants also identified and prioritized key strategies that can be implemented to mitigate the threat of AMR.

Key strengths:

- Regulations/legislations that limits availability of antimicrobials and limits antimicrobial use exists.
- Hand Hygiene (HH) and Antibiotic Stewardship Programmes (ASP) have been developed and programmes have been implemented in several facilities.
- Qualified manpower⁴, single national electronic patient record (Brunei Health Information and Management System) and having internationally accredited laboratories are key enablers to set up a national surveillance system.

Key challenges:

- Effectiveness of existing regulations/legislations to limit antimicrobial use is unclear.
- Adoption of existing HH and ASPs are limited at facility level and the effectiveness of such policies and programmes is unclear.

Workshop Recommendations:

A key recommendation during the workshop was the development of the Brunei Darussalam National AMR Action Plan (BDNARNAP) that will serve as a strategy document to inform stakeholders on the priority action plans that requires urgent attention and are impactful in combatting the threat of AMR in Brunei. The document also outlines key guiding principles that will be used by stakeholders in developing subsequent operational plans that will supplement the National Action Plan. The agreed guiding principles are as follows:

- Stakeholder engagement guided by “one-health” principles to improve planning and coordination.
- Collaborative policy review of existing HH and ASP guidelines supported by local surveillance data and best practices from international experts and agencies such as WHO, United Nations (UN) and Association of Southeast Asian Nations (ASEAN).
- Incremental scaling up of existing facility level HH and ASP programmes using continuous improvement principles to ensure economic sustainability of programmes.

⁴Qualified Manpower: ID Consultants, Consultant Microbiologists, Physicians with special interest in HAI, Epidemiologists, Trained and Certified Infection Control Nurses (and ICLN), Qualified Veterinarians and qualified laboratory scientists

2.0 One-Health Approach

Acknowledging the need to engage different stakeholders to effectively manage AMR drivers, the Brunei Darussalam National AMR Committee (BDAMRC) has adopted the “One-Health” approach at different levels:

1. Membership of Brunei Darussalam National AMR Committee.
2. Formulation of the National AMR Action Plan.
3. Scoping and action planning workshops.
4. Joint self-assessment surveys.
5. AMR public awareness campaigns.

Stakeholders are included as part of the “One-Health” approach includes but not limited to the following:

1. Human Health: multidisciplinary health professionals from all government and private health facilities.
2. Animal Health: Veterinarians and laboratory scientists from all government and private Veterinary clinics.
3. Environment Health: Environment & Civil Engineers.
4. Academia: University and vocational learning institutes.
5. Industry: Farms, Animal feed suppliers and Agrifood Industries.

3.0 Policy and Governance

Effective policies and structures (Figure 1) are required to ensure that all action plans to combat the threat of AMR are planned, implemented and monitored. In addition, these policies and structures are vital in ensuring that sufficient resources are invested into the AMR core strategies: education, surveillance, research, infection prevention and control and antimicrobial stewardship programmes.

The Brunei Darussalam Antimicrobial Resistance Committee (BDAMRC) was set up in December 2018 for the purposes of coordinating and overseeing the strategic planning, implementation and the monitoring of AMR-related activities in the country, across all relevant sectors involving human and animal health, agriculture and environmental sectors. In addition to this, it serves as a platform for information sharing, notification and communication regarding AMR-related issues.

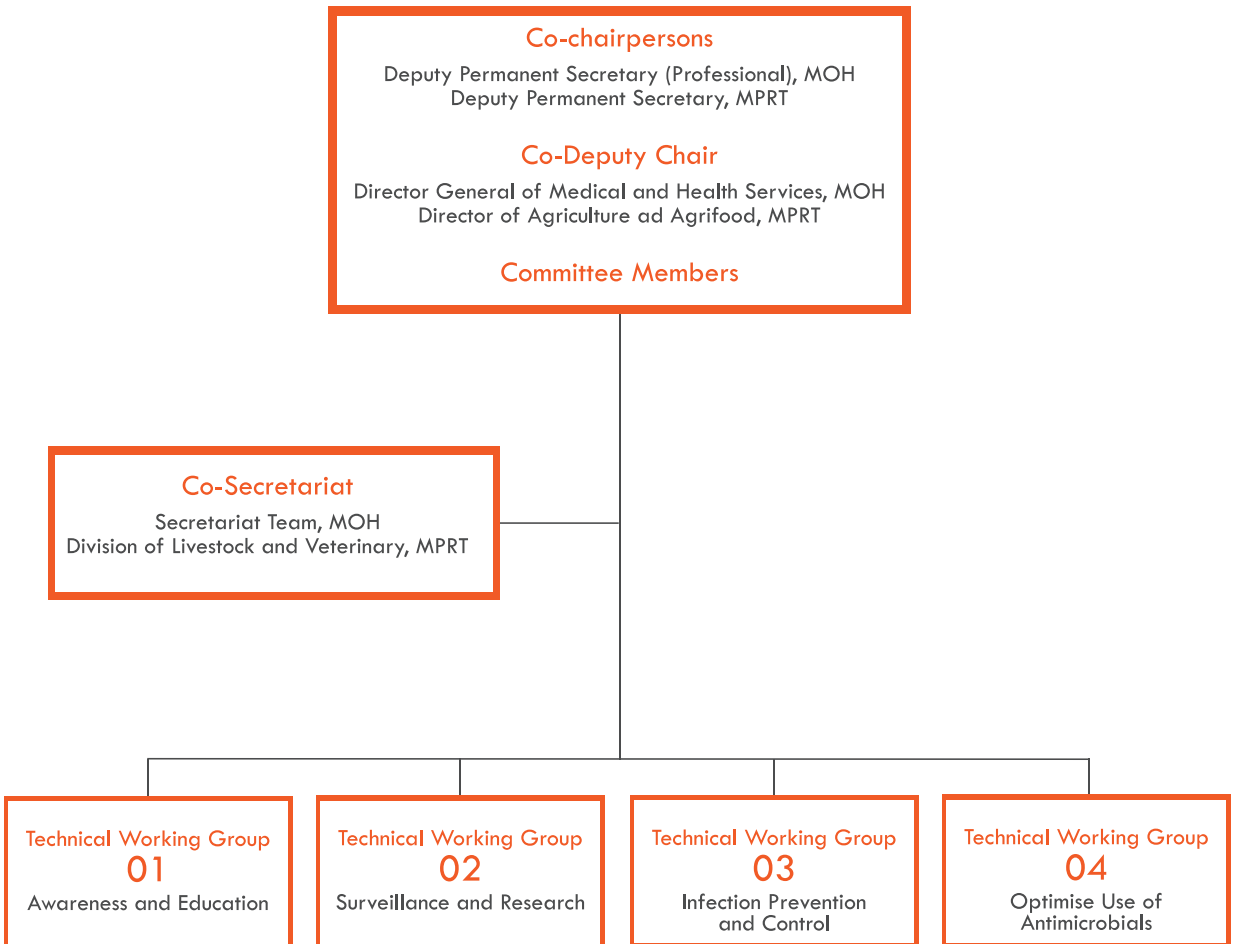


Figure 1: Organisational Structure of BDAMRC

4.0 Strategic Objectives

4.1 Awareness and Education

A core component in tackling AMR is getting all stakeholders to have a common and right understanding of the impact of AMR on health and society. In addition, it is important to impart that implementation of action plans requires the support and commitment from the different stakeholders. In order to do so, it is crucial to identify the key stakeholders and to equip them with the right knowledge and skills for them to effectively participate in AMR related activities.

Education of professionals and the public should adopt a tailored approach. Key concepts of health literacy, psychology and behavioural economics should be considered in designing a tailored curriculum to ensure effective knowledge transfer and to facilitate the production of AMR advocates who can effectively promote changes in behaviour (society) and practices (health professionals).

Ongoing Activities

o Public:

The Health Promotion Centre (HPC), in collaboration with other relevant departments and health facilities at the Ministry of Health (MOH) coordinates all IEC (Information, Education and Communication) activities targeted at increasing public awareness on AMR using multiple communication platforms and technologies.

The Department of Agriculture and Agrifood, MPRT conducts regular campaigns targeted at key stakeholders in animal health to promote effective use of antimicrobials in animal health.

o Professionals:

Competent and highly skilled workforce across human, animal and environment sectors has been the backbone of an effective public health system in Brunei that has enabled the nation to manage public health emergencies and eradicated many communicable diseases in the past. Existing efforts to train professionals in AMR is limited and ad hoc.

Priority Actions

o Public:

Effective public education campaigns that bring together the different stakeholders from the human, animal and environmental health will be needed to effectively combat AMR. Multi-sectoral collaboration, co-design, participation of public education campaigns (e.g. World Hand Hygiene Day and World Antibiotic Awareness Week) will be carried out whilst leveraging on existing platforms such as 'Hari Peladang and Nelayan'. This approach will provide strategic synergies for promoting public

4.0 Strategic Objectives

4.1 Awareness and Education

awareness and education in protecting the value of antibiotics as a public good. To ensure the effectiveness and sustainability of public education campaigns, targeted baseline surveys and impact assessments that gauges current knowledge and practice on antibiotic use of different levels of society needs to be conducted.

o Professionals:

Antimicrobial resistance is a global public health threat that affects any health system. Professionals in human, animal and environmental health sectors require a basic understanding of the epidemiology of AMR and its risk drivers to be able to plan, respond and appropriately mitigate the threat posed by AMR. In addition, professionals need to be equipped with knowledge and skills as well as continuously reminded of the relevant policies and measures that aim to address effective strategies to combat AMR and HAI and strengthen health systems such as implementing good prescribing practices and hand hygiene. This can be done formally by ensuring that such information is incorporated in the undergraduate and/or postgraduate curriculum as well as informally through periodic continuing professional development activities.

4.2 Surveillance and Research

Appropriate use of antibiotics in healthcare and agricultural settings is essential to slow the emergence of resistance and extend the useful lifetime of effective antibiotics. Cooperation and engagement by healthcare providers, healthcare leaders, veterinarians and the agricultural industry as well as the public can help preserve their usefulness. Systematic collection, analysis and interpretation of health data essential to the planning, implementation and evaluation of public health practice, closely integrated with the timely dissemination of these data to those who need to know will be useful in tackling important gaps in the epidemiology of the threat of AMR and its socioeconomic burden in the population.

A national reference center with the necessary laboratory capacity for susceptibility testing will be needed to build a national surveillance system for antimicrobial resistance (human, animal, food and plant) that enable the monitoring of AMR trends and to support policy decisions.

4.0 Strategic Objectives

4.2 Surveillance and Research

Ongoing Activities

Improved detection and control of drug-resistant organism will be achieved through an integrated 'One-health' approach that includes the enhancement and integration of data from surveillance systems that monitor human pathogens with data from surveillance systems that monitor animal pathogens. The goal is to ensure that AMR surveillance system data that will be generated are consistent and coherent with global data.

Core components to support a National Surveillance System for AMR are in place. Accredited laboratory facilities in the country have the necessary capacity to detect and phenotypically categorise drug resistant microorganisms, collated data trends for common pathogens and have collaborated in established reference laboratories for antibiotic susceptibility testing. In terms of antimicrobial consumption, data collection is ongoing and reported according to the standards set by international organizations such as WHO and OIE.

Priority Actions

o Human health

As part of continuous improvement, the Clinical Microbiology Laboratory, Raja Isteri Pengiran Anak Saleha Hospital (RIPASH) will harmonize laboratory methodologies and data reporting for phenotypic characterization of AMR organisms with relevant antimicrobial combinations in hospitals. The reporting on other priority pathogens according to Global priority pathogen lists of antibiotic-resistant bacteria for Research & Development of new antibiotics and extend AMR surveillance coverage sites to district and private hospitals and community settings (existing surveillance only cover 1 public hospital i.e. RIPASH) will be included. The Department of Pharmaceutical Services, MoH, will facilitate to ensure that data on antimicrobial consumption from both public and private sector health care providers are available for monitoring and other purposes.

o Animal health

Data compilation and analysis under Pharmacovigilance Programme which has started in commercial farms and poultry slaughterhouses by inspecting on the antibiotic management and usage of Veterinary Medicinal Products (VMPs) as well as AMR testing of poultry meat produced from the slaughterhouses (Quality Assurance Quality Control Programmes for Poultry Production).

4.0 Strategic Objectives

4.2 Surveillance and Research

o Food safety

Engagement with food safety division will be needed to enhance policies on imported food (from source to consumer). Other supportive activities such as routine testing of the presence of antibiotic residues in food chain and screening food for harmful foodborne bacteria such as Salmonella will be carried out. The surveillance of drug-resistant organisms in food products which includes retail food and meat, and to assess risk to consumers will be introduced.

o Environment

There is a need to identify a national government agency that will oversee the impact of AMR on the environment. The agency will be responsible for determining the baseline microorganism community and the diversity of environment gene reservoirs of ubiquitous microorganisms in water catchments, water and used-water treatment process, urban water bodies and urban pests; conduct measurement of antibiotic concentrations, drug-resistant organisms and/or antimicrobial genes, set up a systematic environmental surveillance system and to conduct risk assessment using data collected from surveillance.

4.3 Infection Prevention and Control

Infection prevention and control measures at the national and facility level are an essential and integral part of mitigating transmission of antimicrobial resistance and subsequently, help prevent healthcare-associated infections. Preventing an infection reduces the chance of antimicrobial use and lessens the risk of microorganisms developing resistance. Therefore, vaccination is an important strategy in controlling spread of antimicrobial resistance by preventing diseases in humans and animals that would have been otherwise challenging to manage.

Infection prevention and control measures are necessary to reduce infection risks and curtail the emergence and spread of drug-resistant organisms amongst humans and animals. The need for antimicrobial prescription will be reduced when infections among patients can be prevented and has declined. The need for antimicrobial usage in animals can also be reduced with the application of good husbandry practices where food-producing animals become less prone to diseases.

Rapid detection and control of outbreaks is an important aspect of AMR prevention as it will reduce and prevent the transmission of resistant organisms within the healthcare setting and the community.

4.0 Strategic Objectives

4.3 Infection Prevention and Control

Ongoing Activities

Brunei's Expanded Programme of Immunization was made compulsory in 2003 in line with the Infectious Disease Order for vaccination of all children in Brunei Darussalam and coverage has been consistently above 95.0 percent for all vaccinations in the programme. Other vaccination programs include the Human Papilloma Virus (HPV) vaccination programme for women for cervical cancer prevention, tetanus and influenza vaccinations for pregnant women as part of their antenatal care and annual influenza vaccinations are strongly recommended for the general population especially for people at higher risk of getting infections such as those with asthma, diabetes or heart disease. In addition, immunization is also offered to all healthcare workers.

The Department of Agriculture and Agrifood (MPRT) will continue to implement their programme for Good Agriculture Practices (GAP), Good Animal Husbandry Practices (GAHP) and Veterinary Health Mark (VHM). In addition, vaccination requirements for all veterinarians and para vets practicing in the veterinary clinics is incorporated as best practices in the Veterinary clinics.

Priority Actions

Policies and standard guidelines for infection and control are developed to ensure that health workers, patients and visitors are protected by providing them with an environment and systems of care that minimizes the risks for infection. These policies and guidelines are continuously being reviewed and updated. To complement the policy review process, governance of Infection Prevention and Control is also being strengthened through the reorganization of the existing Ministry of Health's Infection Prevention and Control Committee that will provide broader mandates and clearer responsibilities in the management of AMR and communicable diseases.

Structured and focused training and education programmes is needed to equip health professionals with the necessary knowledge and skills to apply infection prevention and control best practices. Hand hygiene is a core competency that is needed in all health workers. Key health professionals will require specific training to be able to apply standard and transmission based precautions in the right situation. Finally, selected health professionals require the knowledge and skills to implement strategies that aim to reduce risk of transmission of infections in health facilities such as PPE, Waste management and environmental cleaning.

To ensure effective implementation of best practices in animal health, training programmes for on GMP, GAHP and In-house Continuous Education will be developed for slaughterhouse operators, farm operators and officers and livestock inspectors respectively.

4.0 Strategic Objectives

4.3 Infection Prevention and Control

Policies and good practices that are implemented in human, animal and environmental health require periodic monitoring and evaluation to ensure that they are relevant and achieve their desired impact intended purposes and to support training programmes. Sector specific surveillance programmes (e.g. Hand Hygiene compliance in human health, Good Manufacturing Practice Audits of Slaughter houses in animal health) will be formulated to produce data trends that can be analysed and communicated within respective centres to inform policy review processes. With time, data trends across different sectors will be integrated and analysed to generate evidence to inform multi-sectoral AMR related policy decisions (e.g. Analyzing economic incentives that contribute towards inappropriate use of antimicrobial agents and introducing economic incentives that encourages its optimal use).

4.4 Optimise Use of Antimicrobials

The extensive use, misuse and overuse of antimicrobials in human health and animal sectors is one of the biggest factors that led to the emergence of antimicrobial resistance (AMR) in a wide range of pathogens. The increase in antimicrobial resistance is thus one of the major potential threats to human health at global and national levels with serious consequences for public health, animal health and welfare. Therefore, actions must be taken to contain the threats of AMR in order to preserve the effectiveness of antimicrobials for future generations. Promotion of prudent use of antimicrobials is extremely important in prolonging their efficacy and curtailing acceleration of AMR.

Ongoing Activities

All medicinal products intended for human use, must be registered with the Brunei Darussalam Medicines Control Authority (BDMCA), as regulated under the Medicines Order 2007, Medicines (Licensing, Standard Provision and Fees) Regulations 2010, Medicines (Labelling) Regulations 2010 and Poisons Act 1956. This is to ensure all medicinal products marketed in Brunei Darussalam are safe, efficacious and of good quality. In addition, under the Medicines Order 2007, all antimicrobials are classified as prescription only medicines that can only be prescribed by registered Medical Practitioners, Dentist or Veterinarians.

Antibiotic Stewardship Programmes aimed at monitoring and promoting optimization of antimicrobial use in accordance with international standards are in place in selected facilities. Best practices such as Good Prescribing Practice Guidance, National Antibiotic Guidelines, Common Infections Treatment Protocol for Primary Healthcare and other facility-specific Syndrome-Specific Antibiotic Guidelines have been developed to guide appropriate antibiotic use. This body of guidance documents is

4.0 Strategic Objectives

4.4 Optimise Use of Antimicrobials

continually growing and some are undergoing ongoing review to ensure that they continue to be relevant, up-to-date and evidence-based. Data collection on adherence to Good Prescribing Practice Guidance and Antibiotic Guidelines continue to be carried out to ensure appropriateness of antimicrobial use.

Priority Actions

The implementation of existing facility-based ASP and Antibiotic Guidelines needs to be socialized to increase current levels of understanding and proficiency in antimicrobial use and treatment of infectious diseases amongst health professionals. However, these initiatives need to be scaled up at national level to achieve its intended impact. This will be done in a systematic and step-wise approach is need to ensure sustainability of the initiatives. In addition, best practices to enhance optimal use of antimicrobials such as National Antibiotic Guidelines and other ASP strategies will require continuous review and updates to ensure the effectiveness of the interventions in mitigating the threat of AMR. Review processes will be guided by local data trends and international best practices. To support this, data systems need to be in place to monitor and evaluate distribution and use of antimicrobials as well as compliance to ASP programmes and National Antibiotic Guidelines.

Several policies and programmes that encourage prudent use of antimicrobials in animal health have been formulated or are currently being reviewed. These include National Guidelines for Prudent Use of Antimicrobials in Livestock (endorsed by ASEAN), pharmacovigilance programmes in commercial farms and private veterinary clinics, Quality Assurance and Quality Control Programmes from poultry slaughterhouses and egg collection. Pharmacovigilance Programme and Animal Feed Programme will be introduced to strengthen the regulation to restrict the use of antimicrobials as animal growth promoters and prophylaxis amongst farmers and other stakeholders. Under the Veterinary Surgeon Order (VSO), practicing veterinarians in the country are required to register with the Veterinary Council in order to obtain poisons license and veterinarians are required to abide by code of ethics which includes prudent antimicrobial usage and, to have sessions on awareness for prudent usage of antibiotic.

5.0 Conclusions

The Brunei Darussalam National Action plan outlines key strategic initiatives required to understand and manage risk factors associated with AMR, and to guide policy decisions that will support mitigation of its impact on Brunei Darussalam across human, animal, food and environment sectors.

An incremental approach will be adopted to continuously improve and scale up existing programmes and activities described under priority areas for further action.

Detailed operational plans to support this National Action Plan that will describe key implementation, performance indicators, funding and the monitoring and evaluation activities for the next five years will be detailed in the near future. Development of these plans will be guided by evidence derived from local and regional surveillance data and other information systems to ensure that planned activities are fit for purpose and cost-effective.

Successful implementation of this National Action Plan and the subsequent operational plan is contingent upon the continuous support of various stakeholders. Therefore, continuous and periodic stakeholder and community engagement activities will be carried out parallel to the roll out of the implementation plans.

STRATEGIC OBJECTIVES AND ACTIVITIES OF TWGs OF THE BDAMRC

	TWG 1: Awareness and Education	TWG 2: Surveillance and Research	TWG 3: Infection Prevention and Control	TWG 4: Optimise Use of Antimicrobials
Strategic Objective:	Improve awareness and understanding of antimicrobial resistance through effective communication, education and training.	Strengthen the knowledge and evidence base through surveillance and research.	Reduce the incidence of infection through effective sanitation, hygiene and prevention measures.	Optimise the use of antimicrobial medicines in human and animal health.
Human Health Sector				
Activities	Conduct baseline and post-intervention surveys to support targeted messaging and to evaluate effectiveness	Set up a national surveillance system / programme for antimicrobial resistance.	Establish National Infection Prevention and Control programme and strengthen infection prevention and control programme in hospitals and health centres in aligned to International Standards.	Review National Standard Drug List (NSDL) and recommend to include essential drugs according to WHO's Essential Medicines List.
		Set up a national monitoring system / programme for antimicrobial consumption/usage.		Review and update National Antibiotic Guideline.
	Targeted Information, Education and Communication activities to AMR awareness amongst the healthcare workers, patient and family and the public.	Periodic Point Prevalence Survey on Hospital-Acquired Infections (HAI) and antimicrobial use in acute care hospitals.		Scale up antimicrobial stewardship programmes in healthcare facilities.
	Celebration of Hand Hygiene Day (5 May)			Improve Good Prescribing Practices amongst HCWs.
	Celebration of World Antibiotic Awareness Week (WAAW) every November.			Optimise national vaccination programme.
	Incorporate AMR and related topics as core component of professional education, training, certification and development.			
Animal Health and Agriculture Sector				
Activities	To incorporate AMR related topics (Prudent Usage of Veterinary Medicinal Products – VMPs in animal health) at different user levels; VMP importers, distributors, farmers, animal owners, veterinarians (farm and clinics), training of veterinary students and aspiring farmers to improve AMR awareness (as indicated under OIE recommendations for AMR Public Awareness).	Conduct AMR surveillance programs via scheduled sample collection from the abattoirs (whole chicken) and submitted to Veterinary Laboratory Services).	Implementation of Best Farm Practices using Good Animal Husbandry Practices (GAHP) as a requirement for all registered farmers under Department of Agriculture and Agrifood.	Implementation of the Guidelines for Prudent Use of Antimicrobials in Livestock to support efficient and proper use of antimicrobials (VMPs) in animal husbandry at all user levels.
		VLS Unit to test for Drug Residue Limit and AMR in poultry meat, eggs and feed, and give results to program owners for result evaluation accordingly.		Continuous monitoring of all imports of Veterinary Medicinal Products (VMPs) through the Poisons Order .
		Reporting of Drug Residue Limits and AMR Surveillance Program Testing to be done by program owners.		Ensuring pharmacovigilance amongst Veterinarians in prescribing, Good Stewardship and good governance in animal healthcare through Veterinary Surgeons Order (Registration and issuance of License to practice for Veterinarians).
				Annual reporting of data AMR and AMU to OIE from the animal health sector and periodic reporting on usage of antimicrobials by Fisheries Department.

Notes

