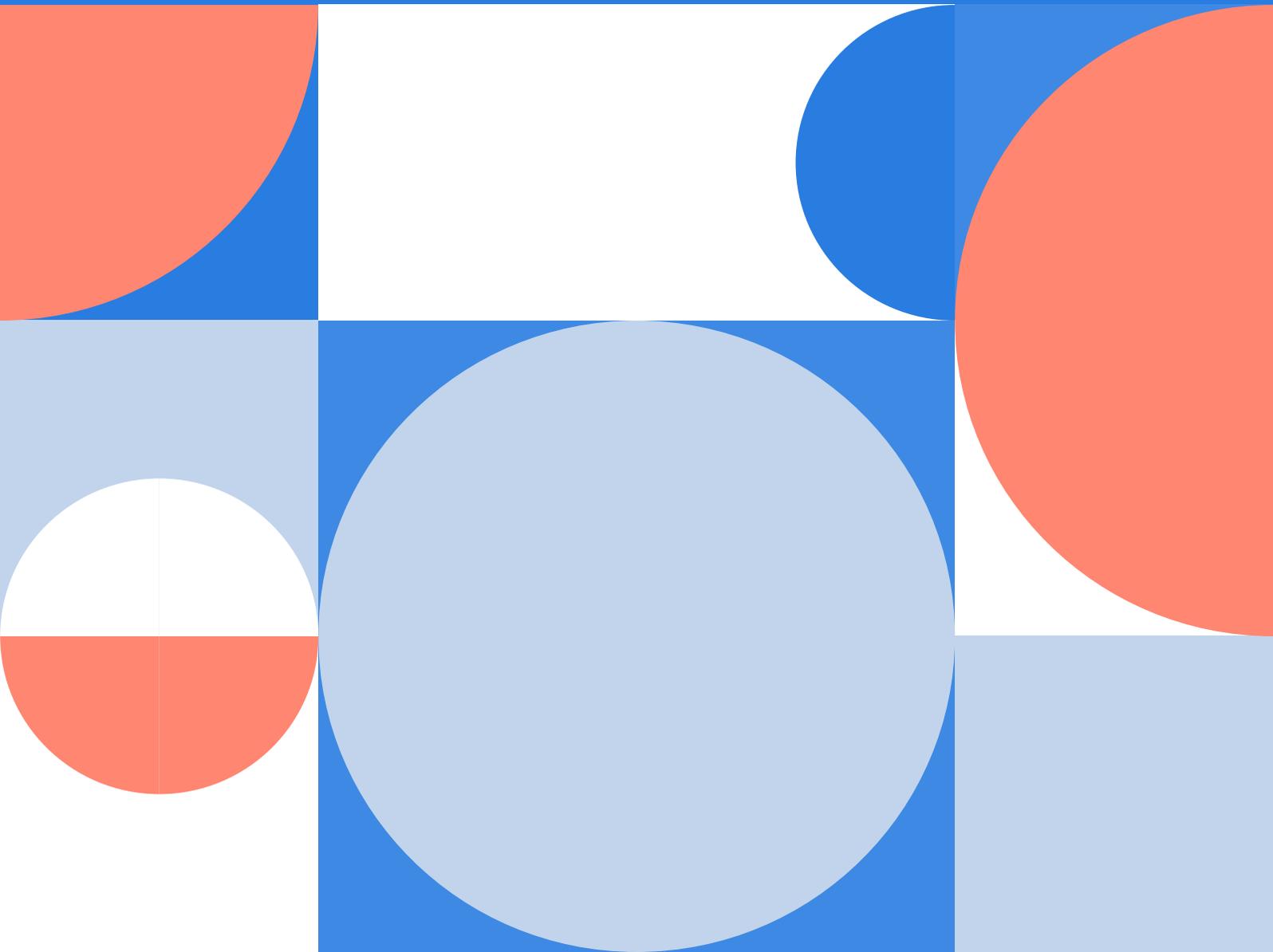


Burkina Faso national action plan on antimicrobial resistance

Review of progress in the
human health sector

Antimicrobial resistance policy information
and action brief series
2021



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(Antimicrobial resistance policy information and action brief series)

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Abbreviations

AMC	antimicrobial consumption
AMR	antimicrobial resistance
AMS	antimicrobial stewardship
AMU	antimicrobial use
AST	antimicrobial susceptibility testing
DHIS 2	District Health Information System 2
GLASS	Global Antimicrobial Resistance Surveillance System
HAI	hospital-acquired infection
IPC	infection prevention and control
KIIs	key informant interviews
M&E	monitoring and evaluation
NAP	national action plan
NRL	national reference laboratory
TrACSS	Tripartite AMR Country Self-Assessment Survey
WAAW	World Antimicrobial Awareness Week
WASH	water, sanitation and hygiene
WHO	World Health Organization

Executive summary

Antimicrobial use in human, animal and environmental sectors warrants using a One Health approach to address emerging antimicrobial resistance (AMR). Therefore, Burkina Faso's *Multisectoral national strategic plan to combat antimicrobial resistance, 2017–2020*, represents an essential milestone in the country's fight to control the silent pandemic of AMR (1). The strategic plan was developed by the Ministry of Health, in collaboration with the Ministries of Animal and Fisheries Resources; Agriculture and Water Facilities; and Environment, Green Economy and Climate Change.

This policy brief aims to review the current progress on implementing the national action plan (NAP) on AMR, identify critical gaps, and highlight findings to accelerate further progress in the human health sector. This brief compiles information obtained through a comprehensive

review of relevant publicly available and ministry-sourced data and documents supplemented with key informant interviews (KIIs) with national AMR focal points. The brief provides a situational analysis of the status, strengths and challenges of implementation of the NAP on AMR.

Key findings:

Need for:

1. Official endorsement of the *Burkina Faso multisectoral national strategic plan to combat antimicrobial resistance (phase II)* that includes a monitoring and evaluation (M&E) framework and a costed operational plan.
2. A clear and functioning governance structure for NAP activities with legal sanctioning, dedicated financial and human resources for implementation, standard operating procedures, mechanisms for accountability, reporting and coordination with sustainable engagement based on timely data sharing and transparency.
3. Evidence-based AMR advocacy and education tailored to priority audiences (community, health-care professionals and policy makers) to promote behaviour change.
4. Strengthened AMR surveillance and laboratory capacity to enhance data collection, analysis, and reporting; generate evidence to guide decision-making; and facilitate consistent data sharing within and between sectors and the WHO Global antimicrobial resistance surveillance system (GLASS).
5. The national reference laboratory (NRL) to be part of an external quality assurance programme.
6. Strengthened infection prevention and control (IPC) and water, sanitation and hygiene (WASH) services including having an adequate supply of essential disinfectant and hygiene products and implementing awareness and knowledge activities targeting health-care workers.
7. Strengthening of the regulatory framework for and enforcement of prescription-only sales of antimicrobials as well as the supply chain of quality-assured and affordable antimicrobials, in particular Access antibiotics, and point-of-care diagnostics.
8. Treatment guidelines to be based on local data and to be updated regularly to support appropriate prescribing and antimicrobial stewardship (AMS) and monitoring of their uptake and use.
9. The establishment of multidisciplinary AMS committees in hospitals.
10. The creation of an AMR scientific committee to coordinate AMR research, data management and analysis within and across the different sectors.

AMR: antimicrobial resistance; AMS: antimicrobial stewardship; GLASS: Global antimicrobial resistance and use surveillance system; IPC: infection prevention and control; M&E: Monitoring and Evaluation; NAP: national action plan; NRL: national reference laboratory; WASH: water, sanitation and hygiene.

Development

Burkina Faso's development of their NAP on AMR in 2017 brought together stakeholders from the human health, animal health and environmental sectors, and constituted an important step towards addressing the growing threat of AMR in the country. While data describing the national AMR burden are limited, available data suggest that levels of resistance for commonly used antibiotics are increasing. Therefore, the implementation of activities outlined in the NAP on AMR is essential not only for good antimicrobial management/AMS but also for mitigating AMR.

Progress

Burkina Faso has made major progress in initiating a multisectoral and One Health-based approach to reducing the AMR burden, and the NAP on AMR outlines key goals and overall activities for each strategic objective. However, while the NAP on AMR has been publicly available since 2018 and has been technically validated by the authorities, its appropriation by the government remains weak.

There have been key achievements in strengthening the surveillance system for AMR and antimicrobial consumption (AMC), including the development of national surveillance guides in health-care settings and collection of AMR data in sentinel surveillance sites.

Challenges

Burkina Faso faces various challenges that impact the country's progress towards mitigating AMR, including the lack of a legal and governance framework for sanctioning its activities. Better coordination between sectors is needed. This can be achieved by increasing information flow and implementing designated programme structures to monitor and evaluate progress, increase accountability and aid implementation. The generation and use of local evidence on the health and economic impact of AMR are essential to engage non-technical stakeholders and policymakers and ensure adequate resource allocation. The surveillance data gathered so far could help define and enforce local, evidence-based treatment guidelines to replace the syndromic prescription behaviour that is currently in place in most public health-care settings throughout the country. However, for these changes to happen, promotion of AMR knowledge and awareness at the community level is critical to engage the public and to promote and sustain behaviour change for prudent antimicrobial use (AMU). AMR mitigation programmes should extend beyond the surveillance context and highlight the close link between AMR and larger health issues, including the effect on quality of health-care due to imprudent use of antimicrobials, lack of infection control and weak WASH conditions in households and health-care facilities.

1. Overview

The purpose of this policy brief is to describe the implementation status of national AMR mitigation and control policies and strategy in Burkina Faso, to identify priority areas for acceleration of the implementation of the NAP on AMR and to present findings that can support implementation in the human health sector.

Findings described in this brief are based on analysis of information from several sources collated through a systematic review of publicly available data – including government and organizational reports, peer-reviewed literature, press releases, funding proposals and periodicals – and semi-structured interviews with select key AMR focal point persons in Burkina Faso conducted between April and May 2021.

This analysis aligns with the strategic objectives outlined in the WHO's Global Action Plan on AMR and encompasses public awareness and understanding of AMR, surveillance and research, prevention of infection, optimized use of antimicrobials, and research and development in the human health sector.

2. Health and AMR in Burkina Faso

In 2019, Burkina Faso had a population of 20.3 million with 70% living in rural areas and 45% aged 0–14 years. Overall life expectancy at birth was 62 years in 2019, lower than the global average of 73 years but higher than the average 61-year life expectancy for sub-Saharan African countries (2). Communicable diseases, including malaria, lower respiratory infection, HIV/AIDS, tuberculosis and meningitis, are leading causes of morbidity and mortality (3). An estimated 43.8% of Burkinabés lived under the international poverty line of US\$ 1.90 per day in 2014.

There are an estimated 1,721 health-care facilities in Burkina Faso (2019) across three administrative tiers (district, regional and national), including four university or national facilities, nine regional facilities, 63 district facilities and 1,429 primary health-care facilities (4). Burkina Faso's health-care sector lacks funding and human resources (5). In 2018, government per capita health expenditure represented 5.6% of the country's gross domestic product, while out-of-pocket expenditure for Burkinabés was 35.8% of total health expenditure (2). Per 1000 people, there are only 0.1 doctors (as of 2017), 0.9 nurses and midwives, and 0.1 community health workers (as of 2012). These numbers are below the WHO standard of 4.45 health-care workers (including doctors, nurses and midwives) per 1000 people (6, 7).

There is relatively little data describing the current AMR burden in Burkina Faso. One study analysed 6264 samples collected from patients at Saint Camille Medical Center between May 2001 and May 2006 and found high levels of resistance to amoxicillin in *Proteus* spp. (95.6%), *Escherichia coli* (78.2%), *Salmonella* spp. (62.2%), *Shigella* spp. (73.4%) and *Klebsiella* spp. (89.9%) (8). A 2014 study analysed blood culture samples from over 700 children hospitalized with severe malaria or community-acquired invasive bacterial infections between July 2012 and July 2013. Only 44 samples underwent antimicrobial susceptibility testing (AST); however, more than 90% of *Salmonella* spp. and *E. coli* isolates were resistant to first-line antibiotics (9). More recent surveillance data from the Ministry of Health revealed that in 2018 and 2019 there was high resistance among the most frequently isolated bacteria. In *E. coli*, resistance levels to penicillins and sulphonamides were 90% and greater than 80%, respectively, for both years. In *Klebsiella* spp. resistance to quinolones was approximately 50%, whereas resistance to third-generation cephalosporins increased from 50% in 2018 to 60% in 2019 (10, 11).

3. Status of NAP on AMR

2019/2020 Tripartite AMR Country Self-Assessment Survey (TrACSS) status

- A new NAP on AMR has been developed and is awaiting official endorsement.

Current status

- A multisectoral national strategic plan to combat AMR was developed in 2017 for the period 2017–2020; however, it was not endorsed. Evaluation of this earlier plan has enabled the development of a new NAP (which includes an M&E plan) that is currently awaiting endorsement.

Findings

- There is a need for official endorsement of the *Burkina Faso multisectoral national strategic plan to combat AMR (phase II)* that includes an M&E framework and a costed operational plan.

Burkina Faso's *multisectoral national strategic plan to combat antimicrobial resistance, 2017–2020*, was developed by the Ministry of Health in collaboration with the Ministry of Animal and Fisheries Resources; the Ministry of Agriculture and Water Facilities; and the Ministry of Environment, Green Economy and Climate Change, with technical and financial support from WHO and Jhpiego. While the NAP underwent a technical evaluation and was made publicly available in 2018, it was neither approved nor formally implemented by the national government in the period that the plan covered.

The NAP outlines five strategic objectives:

- strengthening AMR and AMU surveillance and research;
- reducing the incidence of infectious disease through IPC measures;
- improving AMU in the human, animal and agricultural health sectors;
- strengthening the regulatory framework; and
- improving awareness and understanding of AMR through communication, education and training.

Entities within the Ministry of Health are responsible for various aspects related to AMU and AMR. The national pharmaceutical regulatory agency (Service d'inspection pharmaceutique) supports surveillance of AMC and AMU, and awareness raising to improve antimicrobial management. Regional and university hospitals conduct surveillance of infections and AMR through their laboratories and clinical services. The directorate of laboratories coordinates external evaluation of laboratory quality and training of biologists and technicians. The department responsible for quality of care and patient safety oversees the reduction of infection through the implementation of IPC strategies. According to KIIs, additional sector-specific strategies for preventing and addressing AMR have been developed by other ministries, including the Ministry of Livestock and Environment.

In 2021, the Ministry of Health conducted a status review on AMR activities. The review found progress in establishing capacity to monitor AMU across the human and animal health sectors but noted the lack of a coordinating structure to supervise and promote collaborations between the sectors. In addition, according to one of the key informants, formal government financial allocation for NAP on AMR activities is lacking and has been mainly driven by partners and isolated individual efforts rather than standard administrative systems.

4. AMR governance and coordination mechanisms

2019/2020 TrACSS status

- Multisectoral working group(s) or coordination committee on AMR established with government leadership.

National target

- Functioning national governance and coordination mechanism to support development and implementation of the NAP on AMR.

Current status

- The National Coordinating Platform on One Health, comprising the One Health Technical Steering Committee and the AMR Committee (one of seven thematic committees), was established in accordance with interministerial and presidential decrees in 2019, but the committees do not meet regularly.
- Financial resources to support the AMR Committee and Subcommittees and their activities are lacking.

Findings

- There is a need for a clear and functioning governance structure for NAP activities with legal sanctioning, dedicated financial and human resources for implementation, standard operating procedures, mechanisms for accountability, reporting and coordination with sustainable engagement based on timely data sharing and transparency.
- There is a need for appointment or designation of the members of the AMR Subcommittees to allow them to fully exercise their roles.

In January 2019, an interministerial decree established the One Health Technical Steering Committee, which oversees seven thematic One Health committees (Fig. 1). One of these is the AMR Committee. The AMR Committee serves as “the decision-making and regulatory body for AMR strategies in all sectors” and is led by a Ministry of Health representative. The objectives of this committee, tasked with meeting on an annual basis include:

- supporting the development and implementation of the NAP on AMR;
- monitoring and evaluating NAP on AMR activities;
- assessing the impact of the NAP on AMR in preserving the effectiveness of antimicrobials;
- fostering collaboration and data sharing; and
- supporting the One Health technical secretariat.

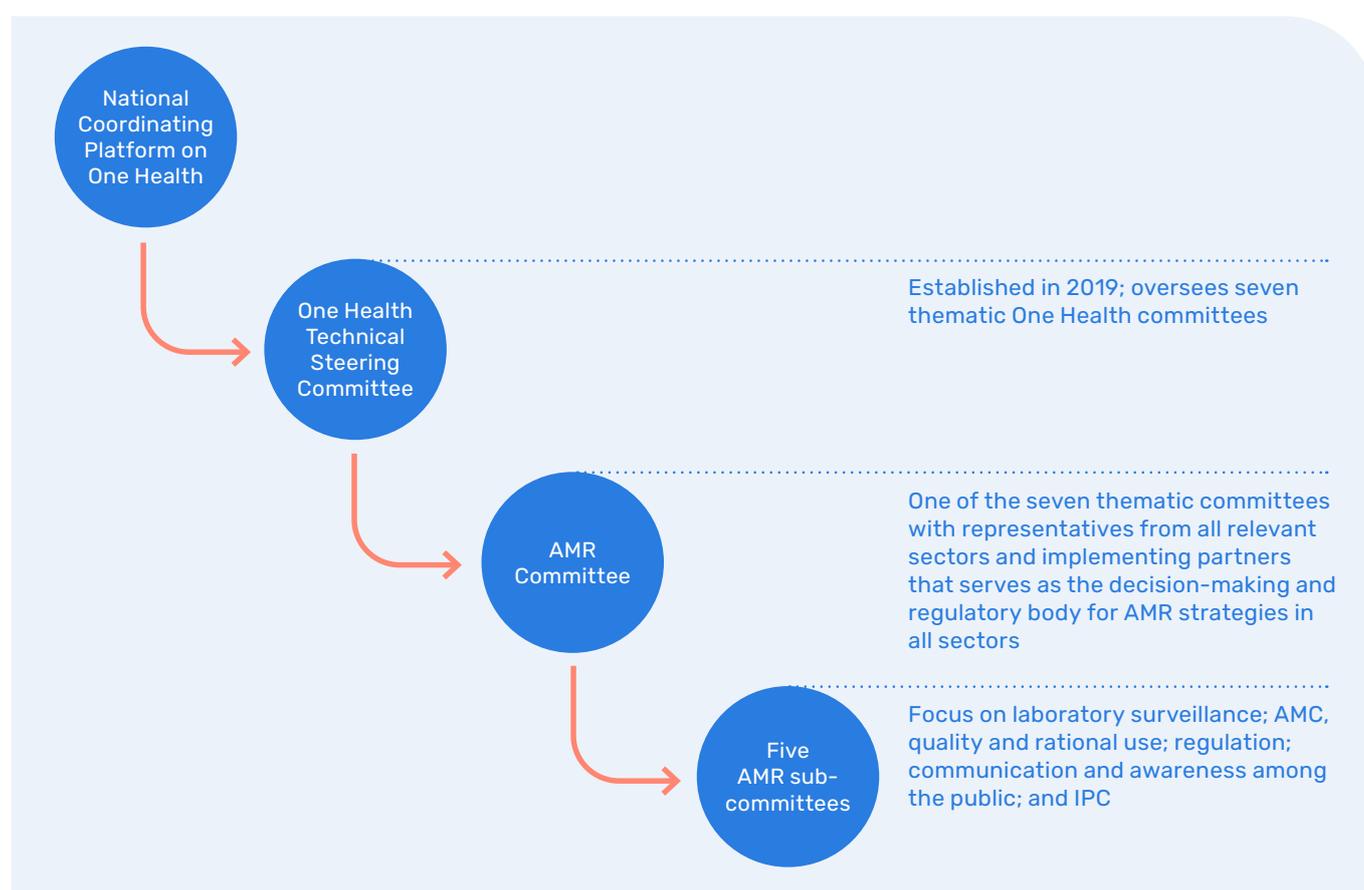
The 2019 decree also described the composition and activities of the AMR Committee, outlining 88 specific representatives. These include laboratory managers, the human and veterinary pharmaceutical sectors, government agencies and legislative bodies, and implementing partners such as the European Union, USAID, the United Nations and various international nongovernmental organizations. The order stipulates that financial support for the committee’s activities will be covered by the state budget and donors. However, according to key informants, the lack of a designated budget for the planned activities remains a challenge. The interministerial order also calls for the formation of five subcommittees focusing on laboratory surveillance; AMC, quality and rational use; regulation; communication and awareness among the public; and IPC. According to key informants, the national AMR Committee and five technical subcommittees have been established; however, they do not meet regularly.

In addition, there is a lack of a coordinating structure to facilitate communication and data sharing between different AMR subcommittees and the AMR Committee, and M&E of NAP on AMR implementation. The absence of a legal framework and human resources was cited as a major reason for the inadequate information flow and limited collaboration between the different sectors and subcommittees.

The One Health Technical Steering Committee and the AMR Committee (as one of the thematic One Health committees) are part of a larger governing structure, the National Coordinating Platform on One Health

established by a presidential decree in November 2019. The thematic AMR Committee is well established, and its work on appropriate AMU and monitoring of emerging AMR preceded the integration of the One Health concept. A reporting mechanism is in place between the AMR Committee and the One Health Technical Steering Committee, with all activities being reported. In addition, regular meetings of select thematic One Health committees, including the AMR Committee, are held every 2 weeks.

Figure 1. Governance structures for One Health and AMR in Burkina Faso



5. AMR awareness and knowledge

2019/2020 TrACSS status

- Nationwide, government-supported AMR awareness campaign targeting all or most priority stakeholder groups, based on stakeholder analysis, utilizing targeted messaging within sectors.
- AMR is covered in pre-service training for all relevant cadres. In-service training or other continuing professional development covering AMR is available for all types of human health workers nationwide.

National target

- Establishing evidence-based public communication programmes targeting stakeholders (vertical and horizontal or formal/informal) in the human, animal, environmental and agri-food sectors.

Current status

- Public AMR awareness campaigns take place during the annual world antimicrobial awareness week (WAAW); however, national and regular AMR awareness activities are limited, and there are few AMR training workshops for health professionals beyond WAAW.
- The AMR Committee is promoting the creation of a network of journalists to communicate on AMR.

Findings

- There is a need for evidence-based AMR advocacy and education tailored to priority audiences (community, health-care professionals and policy makers) to promote behaviour change.
- There is a need for findings from AMR surveillance to be accessible and comprehensible to policymakers to inform policy decisions and resource allocation for AMR activities.

Awareness activities targeting

the general public

Burkina Faso has engaged in public AMR awareness campaigns aligned with WHO's WAAW. During the 2019 WAAW, activities included panel discussions and roundtables with political and health authorities, and the development and dissemination of TV advertisements and TV broadcasts on AMR led and financed by WHO and the Food and Agriculture Organization of the United Nations.

Evidence from a cluster-randomized trial conducted in Burkina Faso between 2011 and 2014 showed that awareness campaigns via the radio led to an increase in health-seeking behaviour at the community level (12). Similar campaigns on the appropriate use of antibiotics could target a large audience and increase awareness of self-medication among the public. The AMR Committee has organized a workshop with the aim of creating a network of journalists to increase communication in the fight against AMR, according to KIIs.

Knowledge and awareness activities targeting relevant stakeholders

A diploma course on antibiogram/AST and on hospital hygiene has been implemented to promote AMR knowledge in a formal educational setting, according to KIIs. Burkina Faso also participates in an annual 5-week interuniversity workshop, a multidisciplinary French course on antibiotic resistance in Africa, which is organized in collaboration with University of Montpellier and hosts 50–55 health-care workers across 15–20 Francophone countries in sub-Saharan Africa (13).

Knowledge, attitudes and practices of or towards AMR among health-care professionals in Bobo Dioulasso, the second-largest city in Burkina Faso, were assessed between February and April 2018; knowledge of AMR and prudent AMU was considered average (mean score of 66.4% ± 11.1%). Clinical experience and patient contact during consultations were the two main determinants for prescribing antimicrobials. The vast majority (over 80%) of participants proposed that additional educational programmes were needed to improve the current prescribing culture (14).

6. Surveillance, laboratory and diagnostic capacity

2019/2020 TrACSS status

- The national AMR surveillance system integrates surveillance of AMR across the human health and animal health sectors, and generates regular reports covering at least one common indicator.
- All laboratories performing AST are integrated into the AMR surveillance system, but the role should be better formalized and the network better developed.

National target

- Establish a national AMR and AMU surveillance system.

Current status

- National guidelines on AMR and AMU surveillance have been established.
- The Ministry of Health has conducted pilot studies on AMR, AMC and AMU; however, national AMR data are inconsistently reported.

Findings

- There is a need to strengthen AMR surveillance and laboratory capacity to enhance data collection, analysis, and reporting; generate evidence to guide policy-making; and facilitate consistent data sharing within and between sectors and with WHO GLASS.
- There is a need to use information more effectively. This will require sufficient provision of financial and technical resources to strengthen surveillance and laboratory capacity and reporting.
- There is a need for the NRL to be part of an external quality assurance programme.

The directorate of laboratories oversees the country's human and animal AMR surveillance system, which in 2018 consisted of 15 designated laboratories, including the NRL for detection of AMR pathogens and the national veterinary reference laboratory (15). According to the joint external evaluation report in 2017, Burkina Faso has a national laboratory network including 53 laboratories in medical centres, eight laboratories in regional hospital centres, five laboratories in university hospital centres, one national livestock laboratory and 6 non-operational regional livestock laboratories (16).

Routine AST is performed in human and animal health laboratories, but current AST activities do not include the food industry. A 2017 Ministry of Health assessment found that only a fraction of laboratories had capacity to collect AMR data due to a lack of resources such as reagents, culture media and other equipment. Furthermore, HIV reference laboratories did not meet WHO standards for resistance testing according to the AMR action plan (1). An external quality assurance programme for laboratories was implemented from 2006 to 2010 by the Directorate of laboratories with external funding support. The number of participating laboratories increased over the four years, and the programme documented a statistically significant improvement in bacteriology results (17).

In line with the country's NAP on AMR strategic objective to strengthen surveillance and research on AMR, in 2018 the Ministry of Health developed a national guide for the laboratory surveillance of AMR. The guide contains a list of antibiotics based on data from AMC surveys to test resistance of various bacteria and designates 15 laboratories as pilot AMR surveillance centres. In 2019, the NRL for detection of AMR pathogens was established at the University Hospital Sourou Sanou in Bobo Dioulasso (16). AMR surveillance results are available for 2018 and 2019 and include data from 13 (2465 isolates) and 16 (3708 isolates) laboratories, respectively (10, 11). *E. coli*, *S. aureus* and *Klebsiella* spp. are the most frequently isolated pathogens. The highest resistance was observed for penicillins (90%), sulphonamides (greater than 80%), quinolones (greater than 60%) and third-generation cephalosporins (greater than 50%). However, Burkina Faso is not reporting AMR surveillance data to the WHO GLASS. The NRL provides external quality assurance for the participating laboratories in the AMR surveillance system, but the NRL itself is not part of an external quality assurance programme. Financial support remains a major challenge in developing and strengthening surveillance and laboratory capacity (17). Laboratories with AST capacity would require consistent financial support to ensure continuous supplies of reagents and training of qualified personnel and quality assurance.

Discussions with key informants highlighted the successes in developing AMR surveillance and laboratory capacity, which includes a functional surveillance system for select health-care-associated infections (HAIs).

7. IPC, WASH and immunization

2019/2020 TrACSS status

- A national IPC programme and operational plan are available, and national guidelines for health-care IPC are available and have been disseminated.
- Selected health facilities are implementing the guidelines, with monitoring and feedback in place.

National target

- Develop hygiene standards and guidelines for hospitals, health-care facilities, medical practices and veterinary clinics, and supervise the implementation of these hygiene guidelines.

Current status

- IPC is promoted in the hospital setting with evidence of HAI surveillance and technical support and guidelines for health-care professionals and facilities.
- A national IPC plan is available and currently implemented at select facilities with functioning reporting and M&E programmes.

Findings

- There is a need to strengthen IPC and WASH services, including having an adequate supply of essential disinfectant and hygiene products and implementing awareness and knowledge activities targeting health-care workers.

IPC

The Global Health Security Index ranks Burkina Faso 165 out of 195 in terms of overall disease prevention (3). However, IPC efforts in the health-care setting do exist. A national guide on HAI surveillance was developed in 2019. According to a key informant, IPC is promoted through coherent technical hygiene guidelines for hospital and health-care facilities; however, national HAI data are not available and require more systematic reporting. Health-care facilities are expected to follow 11 essential hospital hygiene practices that require daily and sufficient access to disinfectants. A lack of disinfectant supplies and awareness among health-care workers often impedes implementation of these practices (18).

WASH

A household survey conducted between 2018 and 2019 assessed the WASH status of over 30,000 children in Nouna District and found that the use of unimproved latrines and the practice of open defecation were common; only approximately 6% of all children surveyed were living in a household with an improved latrine. Dug wells were the most common water source (85%); boreholes were less commonly observed (14%) (19).

The Burkina Faso Observatory for Quality and Safety of Care (20) was launched after a CDC call for AMR initiatives in 2019 (21). The Observatory for Quality and Safety of Care aims to monitor and improve the WASH conditions of health-care facilities throughout the country. According to a 2020 WHO report, 91% of hospitals had basic water service and 100% had hand hygiene stations at the point of care. The report cites a commitment from the Government of Burkina Faso to increase the number of sanitation and handwashing facilities in health-care facilities.

Immunization

Vaccination coverage in Burkina Faso is high, with 2019 official estimates indicating 91% coverage for both *Haemophilus influenzae type b* (Hib-3) and pneumococcus (PCV-13) (22).

Vaccinations recommended in the Expanded Programme on Immunization are provided to patients free of charge and are regularly administered at public health centres (23). Between 2001 and 2023, Burkina Faso has received or been pledged over US\$ 232 million in support from Gavi, the Vaccine Alliance. Most funding was allocated for pentavalent vaccines (over US\$ 65 million), followed by pneumococcal vaccines (US\$ 63 million) and rotavirus (almost US\$ 43 million) (24).

Meningitis epidemics are common in Burkina Faso, with most cases (90%) being caused by meningococcal group A (25). The country was among the first to introduce the meningococcal conjugate vaccine to address the problem. It was also the first country to introduce the pentavalent rotavirus vaccine (RotaTeq) to its national immunization programme in 2013. Following the introduction of RotaTeq, hospitalizations due to acute gastroenteritis were almost halved between 2014 and 2016 in children younger than five years of age (23, 26).

8. Access and optimal use of antimicrobials

2019/2020 TrACSS status

- Guidelines and other practices to enable appropriate use of antimicrobials have been implemented in most health facilities nationwide. Monitoring and surveillance results are used to inform action and to update treatment guidelines and essential medicines lists.

National target

- Improve the use of antimicrobial drugs in human, animal and agricultural health.

Current status

- National AMS guidelines and treatment guidelines have been developed to support AMS activities.
- Government and partners are aware of the need to develop a stringent regulatory framework for antimicrobial prescription.
- National efforts to strengthen market surveillance activities (which include antibiotics) have been fruitful in ensuring drug quality and sales data are collected from five main private wholesalers in the country.

Findings

- There is a need to strengthen the regulatory framework on and the enforcement of prescription-only sales of antimicrobials.
- There is a need to strengthen the supply chain of quality-assured and affordable antimicrobials, in particular Access antibiotics, and point-of-care diagnostics.
- There is a need to ensure that treatment guidelines are based on local data and are updated regularly to support appropriate prescribing and AMS, and monitor their uptake and use, for example through prescription audits.
- There is a need for the establishment of multidisciplinary AMS committees in hospitals, involving infectious disease specialists, microbiologists, pharmacists, nurses and hygienists.

Provision for the rational use of antimicrobials is integrated into the NAP on AMR. A national practical guide for appropriate antibiotic prescriptions was developed in August 2020. The guide is meant to assist health-care professionals with adopting rational AMU. A national list of essential medicines, which integrates the WHO AWaRe (Access, Watch and Reserve) classification, and guidelines for the treatment of common infectious diseases have been developed. These tools are only intended for health-care professionals. AMU is regulated in the animal health, agriculture and environmental sectors by respective ministries, and drug quality is assessed. Even though standard prescribing and dispensing rules are set for most medicines, regulation is not strictly enforced. For example, there are over-the-counter sales of antimalarials and certain antibiotics, and community distribution of amoxicillin and antimalarials (1).

A qualitative study was conducted in 2017 to explore the contextual determinants of the development and implementation of AMS programmes. Eight health-care professionals from two hospitals were interviewed on their perceptions of AMS programmes. The professionals reported that while the national government is responsible for developing and implementing AMR programmes, their involvement is lacking. In addition, the analysis concluded that the national AMS guidelines were not contextualized for the country's health-care facilities (27). However, drugs and therapeutics committees have been established in major hospitals, and standard treatment guidelines have been developed to support AMS activities and appropriate prescribing.

A national guide for monitoring AMU and AMC was developed in August 2020 with support from WHO, and the District Health Information System 2 (DHIS 2) is the designated health information system for AMC and AMU data collection (28). According to the guide, AMC data is to be collected annually at all levels of the antimicrobial supply chain. AMU data is to be collected every two years. A pilot point prevalence survey was administered to five hospitals in 2020, and data from 480 patients were reported in the DHIS 2 platform (29).

An assessment of AMC in Burkina Faso between 2017 and 2018 revealed that the most consumed antimicrobials were beta-lactams, followed by cotrimoxazole, amoxicillin, ciprofloxacin, erythromycin and doxycycline. Furthermore, antimicrobial imports and wholesale distribution increased, continuing a trend observed in earlier years. Population growth, changing disease epidemiological profiles and a weak consumption monitoring system were cited as factors that may have contributed to this increase (30).

Limited evidence suggests high levels of inappropriate AMU, which can only be addressed by a reliable supply of quality antimicrobials, in particular Access group antibiotics, and strengthening prescribing according to the national guidelines. A 2014 study reported that ceftriaxone was the most prescribed antibiotic at a tertiary facility, yet bacteriological tests were performed for only 15.3% of patients. It was estimated that a third of patients inappropriately received ceftriaxone (31).

Another study showed that among 920 patients admitted to a rural hospital with severe acute fever, 39.5% had used antibiotics in the 2 weeks before presenting to the hospital; a small proportion of these had consumed more than one antibiotic (32). A significant proportion (37.5%) of consumed antimicrobials belonged to the WHO Watch group of antibiotics, and the most used antibiotic was ceftriaxone (26.9%). There were similar findings on antibiotic prescribing behaviour for the treatment of febrile illnesses in children younger than five years of age: over prescription of antibiotics occurred in more than half of the cases in both primary and tertiary facilities; the highest frequency was observed in children presenting with diarrhoea (91%), upper respiratory tract infections (60%) and malaria (48%) (33).

9. Research and development

National target

- Establish a fund to support research programmes and projects on AMR and AMU.

Current status

- A clear AMR research strategy has not been established for the country.
- Researchers from Burkina Faso actively conduct AMR-related research with international collaborators.

Findings

- There is a need to increase representation of research institutions on the AMR Committee.
- There is a need to establish an AMR scientific committee to coordinate AMR research, data management and analysis across the different sectors.

According to the desk review analysis and feedback from key informants, research institutions are not well represented in the AMR Committee, despite the development of AMR research strategies being listed as one of the top priorities for the next 2–3 years. Research institutions need to coordinate data collection across the One Health spectrum of AMR and analyse it systematically to inform policymakers and the public on changes in the local epidemiology of common and emerging drug-resistant infections in Burkina Faso.

This analysis will help to direct NAP on AMR implementation and policy by ensuring timely translation of data collected from surveillance activities into actionable policy recommendations.

Researchers from medical and research centres, including the NRL for detection of AMR pathogens, have conducted research aimed at closing the AMR burden data gap in Burkina Faso (34, 35, 36, 37). Research has also been conducted aimed at understanding the contextual barriers with implementation of a decision support system for antibiotic prescribing in primary care (38). The Belgian Institute for Tropical Medicine has established a development programme in collaboration with the Clinical Research Unit of Nanoro that is primarily aimed at increasing knowledge and the quality of research and promoting innovations in the country (39). Nearly 1.7 million euros were allocated to the programme between 2017 and 2021.

10. Key findings to accelerate NAP on AMR implementation

In recent years, Burkina Faso has recognized the threat of AMR and has taken steps to address it, including implementing AMR and drug quality surveillance activities. Despite this progress, several limitations persist. The lack of a legal framework for recognizing the NAP on AMR (developed in 2017) as a government programme and resulting financial support from the government remain a challenge.

However, the strong political commitment and leadership required to address AMR in Burkina Faso were demonstrated in 2019 with the passing of the presidential decree on the One Health Platform. Under the platform seven committees were established, one of which is the national AMR Committee, which aims to accelerate AMR-related activities.

The establishment of the AMR Committee and its Subcommittees represents progress towards implementation of the objectives laid out in the NAP on AMR; however, formal designation of responsibilities is needed to promote regular meetings, monitor progress and address challenges.

Key findings for policy and action include the following

Need for:

- 1 **Official endorsement of the *Burkina Faso Multisectoral national strategic plan to combat antimicrobial resistance (phase II)* that includes a monitoring and evaluation (M&E) framework and a costed operational plan.**
 - 2 **A clear and functioning governance structure for NAP activities with legal sanctioning, dedicated financial and human resources for implementation, standard operating procedures, mechanisms for accountability, reporting and coordination with sustainable engagement based on timely data sharing and transparency.**
 - The commitments of different ministries and departments at the national and subnational level to be actionable according to the national legal framework. Appropriate legal mechanisms can facilitate allocation of budgets for NAP on AMR.
 - Law and regulation are key implementation mechanisms for translating major health policy objectives. These levers should be used to ensure appropriate allocation of budgets for NAP on AMR activities.
- The appointment/designation of the members of the AMR subcommittees in order to allow them to fully exercise their roles.
 - Develop a common vision and ownership among participating ministries, organizations and other stakeholders of the AMR Committee. Ensure that each have clearly defined roles and responsibilities and regularly communicate their activities to the other stakeholders within and across sectors.
 - Develop a designated programme secretariat with a dedicated budget and human resources and an M&E plan for monitoring the progress of the NAP on AMR implementation.
 - Ensure standards of practice/standard operating procedures for the NAP on AMR committees and establish a calendar for meetings, annual progress reports and data sharing between participating committee members and ministries. This can foster collaboration for AMR preparedness and bring in accountability for programme activities. The annual progress report of the NAP on AMR implementation can be shared with all stakeholders, including the general public to enhance citizen participation and buy-in (essential for appropriate antibiotic use).

3 Evidence-based AMR advocacy tailored to priority audiences (community, health-care professionals and policy makers) to promote behaviour change.

- Simple, effective and locally developed messaging that targets two major stakeholders: policymakers at the national and provincial level to increase their understanding of AMR and make a case for resource allocation, and health workers to promote behaviour change around AMU prescribing.
- Awareness campaigns on AMU and the threat of AMR could be used to engage and enable the community to become an active participant in the fight against AMR. Simple messages reflecting when and how antibiotics are used could deflect some resistance towards the judicious use of antibiotics. Evidence shows that self-medication is practiced to reduce out-of-pocket expenses in low-resource settings with a high infectious disease burden.

4 Strengthened AMR surveillance and laboratory capacity to enhance data collection, analysis, and reporting; generate evidence to guide decision-making; and facilitate consistent data sharing within and between sectors, and with WHO GLASS.

- Strengthen laboratory capacity with sufficient financial and technical resources along with systematic training to qualified laboratory personnel.
- The use of health information technology systems to standardize AMR, AMC and AMU data collection, analysis and sharing to inform policy decisions and evidence-based interventions is encouraged.
- Sustain the well-designed and functional laboratory surveillance system which includes surveillance of select HAIs.

5 The NRL to be part of an external quality assurance programme.

6 Strengthened IPC and WASH services including having an adequate supply of essential disinfectant and hygiene products and for implementing awareness and knowledge activities targeting health-care workers.

- Ongoing public health activities can be viewed through an AMR lens to leverage interdisciplinary opportunities and change community and health-care worker behaviour regarding use of antibiotics.

7 Strengthening the regulatory framework on and enforcement of prescription-only sales of antimicrobials as well as the supply chain of quality-assured and affordable antimicrobials, in particular Access antibiotics, and point-of-care diagnostics.

8 Treatment guidelines to be based on local data, updated regularly to support appropriate prescribing and AMS, and monitored for their uptake and use.

9 The establishment of multidisciplinary AMS committees in hospitals.

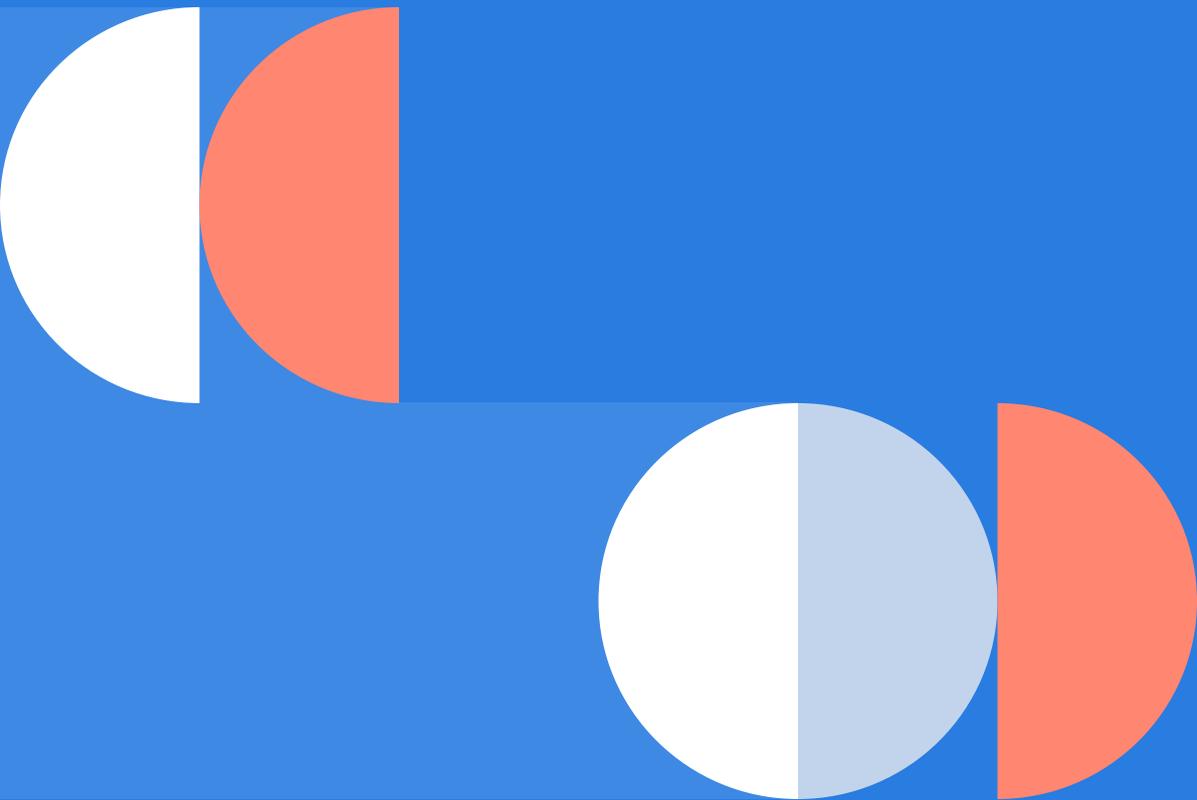
- Multidisciplinary AMS committees involving infectious disease specialists, microbiologists, pharmacists, nurses and hygienists.

10 The creation of an AMR scientific committee to coordinate AMR research, data management and analysis within and across the different sectors.

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