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Project Report **Open Access**

The journey to institutionalising Antimicrobial Stewardship (AMS) in a resource-constrained tertiary healthcare facility in Lagos, Nigeria

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Abstract:

Background: Antimicrobial stewardship (AMS) is one of the main strategies to stem the global tide of antimicrobial resistance (AMR). While developed nations have successfully implemented antimicrobial stewardship programmes, such initiatives remain underdeveloped in many Nigerian healthcare institutions. This is a report of a project to improve the AMS programme at the Lagos University Teaching Hospital (LUTH), Nigeria, by strengthening the antimicrobial stewardship committee (AMSC) and antimicrobial stewardship team (AMST) of the hospital.
Methodology: The Commonwealth Partnerships for Antimicrobial Stewardship (CwPAMS) facility assessment tool was used to identify gaps in the AMS programme (ASP) of LUTH, and activities to address the gaps were conducted over a 3-year period (2021-2024).
Results: The results of the activities to address the identified gaps in the ASP were the expansion of AMS activities from 3 to 10 departments of the hospital, a strong management commitment and support, consistent antibiotic consumption calculations, strategic training of professionals, and increased knowledge and awareness of AMS among staff and students. However, major challenges identified included shortage of staff and lack of functional electronic medical records.
Conclusion: Continuing pre- and in-service training of staff, AMS activities and monitoring, and incorporation of AMS actions and interventions performed with the electronic medical records are recommended for sustaining AMS in the hospital.

Keywords: AMS programme, gaps, activities, interventions, institionalise, resource-constrained

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Le cheminement vers l'institutionnalisation de la gestion des antimicrobiens (GAM) dans un établissement de soins de santé tertiaires aux ressources limitées à Lagos, au Nigéria

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Résumé:

Contexte: La gestion des antimicrobiens (GAM) est l'une des principales stratégies pour endiguer la vague mondiale de résistance aux antimicrobiens (RAM). Si les pays développés ont mis en œuvre avec succès des programmes de gestion des antimicrobiens, ces initiatives restent peu développées dans de nombreux établissements de santé Nigérians. Ce rapport présente un projet visant à améliorer le programme de GAM au Centre hospitalier universitaire de Lagos (LUTH), au Nigéria, en renforçant le comité de gestion des antimicrobiens (CMGA) et l'équipe de gestion des antimicrobiens (EMGA) de l'hôpital.
Méthodologie: L'outil d'évaluation des installations du Commonwealth Partnerships for Antimicrobial Stewardship (CwPAMS) a été utilisé pour identifier les lacunes du programme de gestion des antimicrobiens (ASP) du LUTH. Des activités visant à combler ces lacunes ont été menées sur une période de trois ans (2021-2024).
Résultats: Les activités visant à combler les lacunes identifiées dans le ASP ont permis d'étendre les activités de gestion des antimicrobiens de trois à dix services de l'hôpital, d'obtenir un engagement et un soutien solides de la direction, de calculer la consommation d'antibiotiques de manière cohérente, de former stratégiquement les professionnels et de renforcer les connaissances et la sensibilisation au bon usage des antimicrobiens parmi le personnel et les étudiants. Cependant, les principaux défis identifiés comprenaient la pénurie de personnel et l'absence de dossiers médicaux électroniques fonctionnels.
Conclusion: La poursuite de la formation initiale et continue du personnel, la poursuite des activités et du suivi de gestion des antimicrobiens, ainsi que l'intégration des actions et interventions de gestion des antimicrobiens réalisées avec les dossiers médicaux électroniques, sont recommandées pour pérenniser le bon usage des antimicrobiens à l'hôpital.

Mots-clés: Programme de gestion des antimicrobiens, lacunes, activités, interventions, institutionnalisation, contraintes de ressources

Introduction:

Antimicrobial stewardship (AMS) is an essential tool used to tackle antimicrobial resistance (1). In high-resource settings, antimicrobial stewardship programmes (ASP) have improved rational antibiotic use (2,3). Developing countries have an increased burden of infectious diseases, thus will face a greater impact of antimicrobial resistance (AMR) (3, 4). Inappropriate antibiotic use and an increase in AMR prevalence have been reported in Nigeria (5-8). Therefore, ASP in the country need strengthening.

Stewardship programmes are limited across the country. This is evidenced by a study conducted across tertiary hospitals in Nigeria, which found that just 30% had antimicrobial stewardship committees, and only 35% performed periodic Global-Point Prevalence Survey (G-PPS) to monitor and evaluate antimicrobial use (8). Another study also found that only 35% of tertiary hospitals in the country had formal stewardship programmes (9).

In 2021, only 20% of healthcare facilities in Lagos, Nigeria, had established stewardship programmes, and out of these facilities, only 24.0% performed routine antimicrobial pre-authorization while 8% performed prospective audit, intervention and feedback (PAIF) for specific antibiotics used (10). These findings emphasise the need to establish ASPs in facilities where they are non-existent, and strengthen them where they are already in place.

The Antimicrobial Stewardship Committee (AMSC) of Lagos University Teaching Hospital (LUTH) was inaugurated in 2013. As at 2016, ours was one of the few hospitals in Nigeria with a functional AMS committee, with our medical microbiology laboratory being a sentinel site for the AMR surveillance of the country. By this time, progress made included conduct of a baseline Global-point prevalence survey (G-PPS) of antimicrobial use and resistance in 2015, after which follow-up PP surveys were performed in 2017.

Raising awareness and AMS interventions in some departments improved antibio-

tic prescribing practices and by 2017, led to the reduction of antibiotic use prevalence from 82.5% to 51.1% in the hospital (11). By 2019, when our ASP was rolled out, the Antimicrobial Stewardship Teams (AMSTs) of some departments met irregularly, and teams in two departments performed prospective audit with intervention and feedback as a stewardship strategy (11). Although, this progress was encouraging, a lot still had to be done to strengthen the programme (Fig 1). There was the need to institutionalise the ASP by extending AMS interventions to all departments and bring all stakeholders on board. Hence, we were open to opportunities available to us to achieve this.

To sustain the national AMS programme, individual hospitals must have strong and functional ASPs. This can be achieved by identifying the existing gaps and developing a plan to address them. Therefore, this project sought to identify and address the gaps in the ASP in our hospital. The project aimed to improve AMS in LUTH by strengthening the stewardship committee and teams and to build the capacity of the healthcare professionals for AMS surveillance and activities.

The specific objectives were to; (i) identify gaps in the AMS activities and proffer solutions, (ii) train the stewardship committee and teams on AMS actions and interventions, (iii) train the healthcare professionals on AMS principles and practices, and (iv) sustain AMS activities.

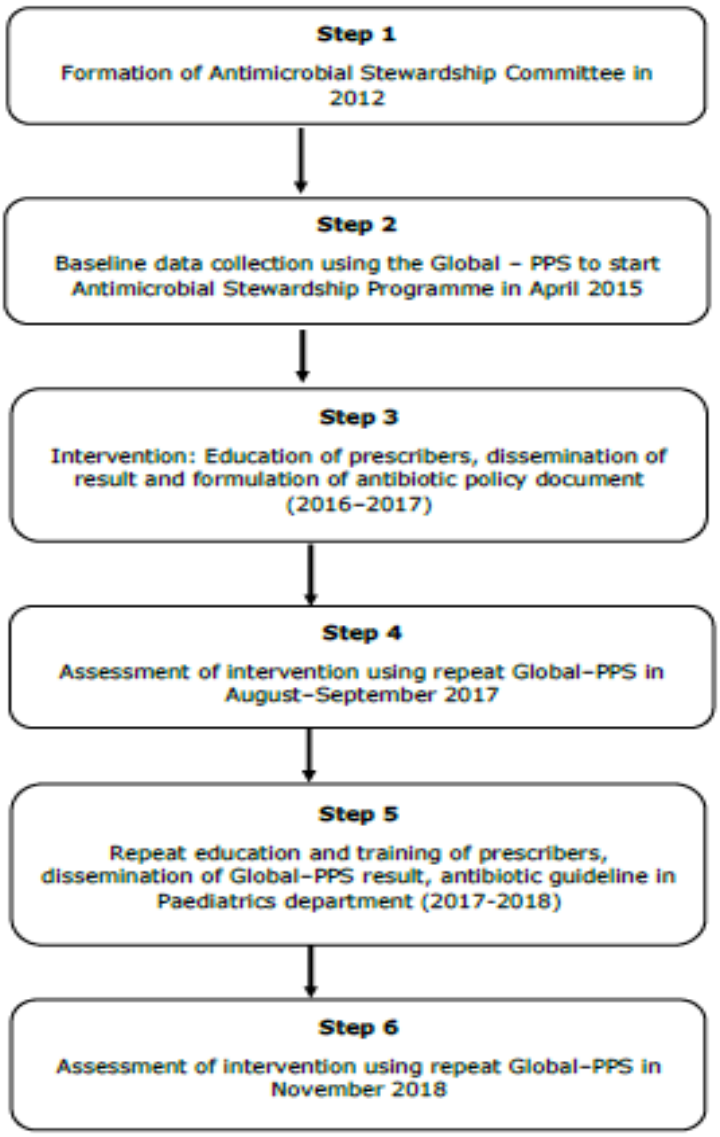

Fig 1: Steps for implementation of Antimicrobial Stewardship Programme at the Lagos University Teaching Hospital, Nigeria in 2018 (11)

Materials and method:

Study setting:

The setting is the Lagos University Teaching Hospital (LUTH), which is one of the largest tertiary hospitals in Nigeria. It has a well-equipped and functional medical microbiology laboratory, which is also a sentinel site for the national AMR surveillance. The hospital is one of the few facilities with an ASP and provides information for antimicrobial use (AMU) surveillance.

Methodology:

To achieve our aim and objectives, the Commonwealth Partnerships for Antimicrobial Stewardship (CwPAMS) facility assessment tool was used to identify the gaps (CwPAMS_AMS_Assessment_Tool_Oct_2022._docx), and the activities on Fig 2 and Box 1 were conducted over a 3-year period (2021-2024). Patient level data on AMU were collected before and during the project with the G-PPS tool. (https://www.global-pps.com/project/inpatient-module/).

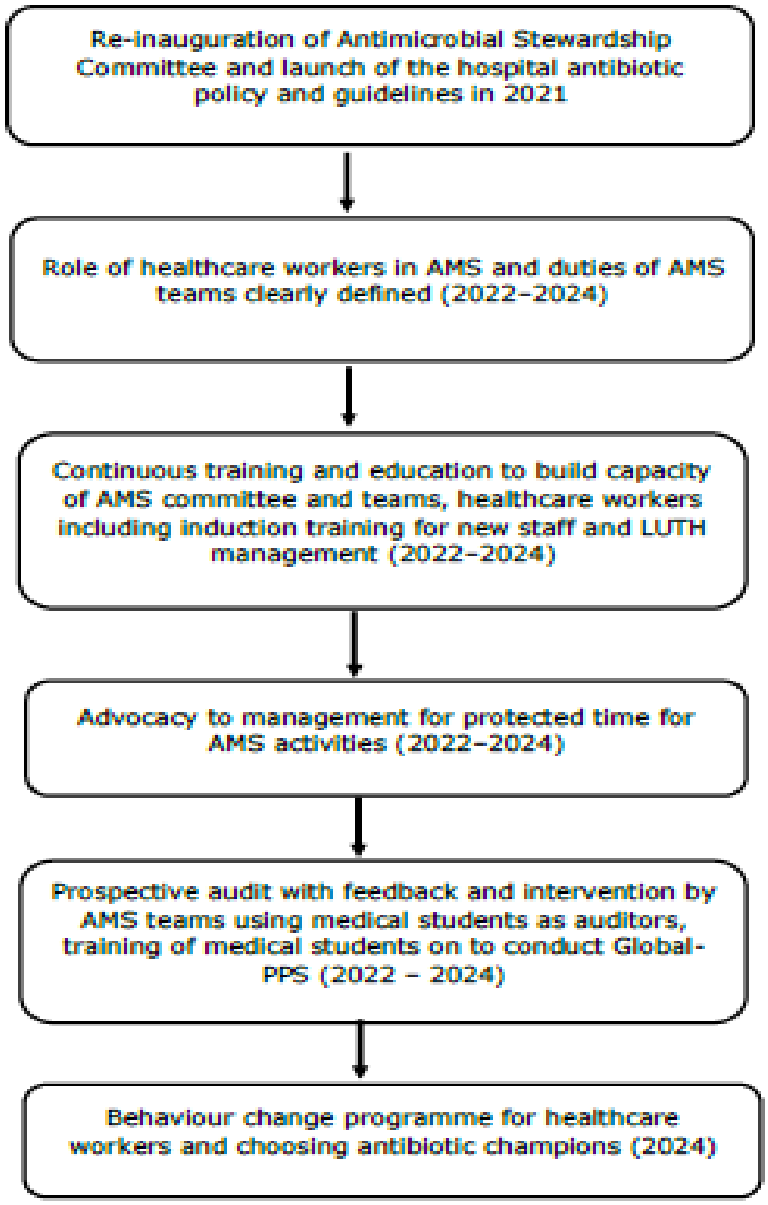

Fig 2: Flow chart of the Antimicrobial Stewardship Programme Journey in Lagos University Teaching Hospital, Nigeria (2021-2024)

Box 1: Planned activities to institutionalise ASP in Lagos University Teaching Hospital, Nigeria, in 2021

- Educational programmes to build the capacity of the AMSC, AMSTs, LUTH management and all stakeholders for AMS were done onsite.
- Training of the pharmacists on calculation of antibiotic consumption was done onsite and online.
- The roles of healthcare workers in AMSTs in the hospital wards were defined during the online and onsite trainings for nurses, pharmacists and prescribers.
- Training of medical students on prospective audit.
- Performance of audit intervention and feedback by AMSTs.
- Developing and updating of relevant policies and training documents.
- Advocacy to management to give protected time for staff AMS activities in departments was done.
- Continuation of AMS activities already in place and extension to more departments: Global-PPS, prospective audit with intervention and feedback (as a stewardship strategy), antibiotic consumption calculations by pharmacists, and raising awareness on AMS.
- Training of medical undergraduates to perform Global-PPS and pharmacist interns to perform antibiotic consumption calculations.
- Behavioural change workshop to encourage behaviour change among the healthcare workers

Results:

Identified gaps:

The major gaps identified in the ASP following assessment with the CwPAMS tool included; (i) no action plan for AMS activities and no information technology (IT) and financial support for the ASP, (ii) staff did not have training in AMS at induction or in-service level, (iii) antibiotic consumption was not being regularly calculated in the hospital, (iv) no list of restricted antibiotics, and (v) no protected time for routine AMS activities.

AMS document development/update:

Relevant documents for AMS were developed and/or updated as shown in Box 2.

Box 2: AMS documents developed/updated at Lagos University Teaching Hospital, Nigeria

- The hospital Antibiotic Policy and Guidelines document (version 1.0) was developed in 2021. It was initiated in individual departments and then collated as the hospital document by the AMSC after modifying it with the hospital antibiogram. An implementation study to ascertain acceptance and use by the prescribers was performed before it was reviewed and updated as version 2.0 in 2024. Four clinical departments in the hospital contributed to version 1.0 while all clinical departments in the hospital contributed to version 2.0.
- Antibiograms were developed by the Microbiology Department to guide development of antibiotic policy and guidelines.
- The hospital's Microbiology Handbook was updated to serve as a tool for diagnostic stewardship.
- Manuals for induction and in-service AMS training were developed, based on the content of the WHO and NCDC training documents. The induction manual guides the training of newly employed healthcare professionals, while the in-service manual guides the training of AMSTs, antibiotic champions and the continuous training of regular staff.
- Manual of infection control policies and procedures was developed to guide infection prevention and control practices in the hospital. This was done in 2021.
- AMS action plan was also developed in 2021 and updated in 2022 and 2024. Development of this document and reviews were based on a SWOT analysis performed with the CwPAMS template annex 1 Annex 1_CwPAMS AMS Assessment Tool_Oct 2022.docx

Advocacy visits to management:

The first advocacy visit paid to the management by the AMSC ensured the support of the hospital management throughout the project. The Chief Medical Director gave his full support and showed great interest in the stewardship programme of the hospital. He also emphasized that the ASP and all AMS interventions had to be discussed and understood by all hospital staff. The involvement of the management ensured a smooth running of the programme and their support during the project activities.

During this visit, seven requests were made, which include among others that management ensures the mandatory use of the just formulated antibiotic policy and guidelines by all prescribers of antibiotics in the hospital and turn the hospital policy into directives for the departments. Other requests are listed in Box 3.

Trainings:

Trainings were conducted both in-person and virtually to encourage participation of other healthcare professionals in the country. The first set of trainings took place in 2022 and involved training of all staff on the principles and practices of AMS. In attendance were 79 members of the AMSC and AMSTs, prescribers (150 resident doctors and house officers, and 105 consultants/medical officers), 36 pharmacists, 42 nursing clinical tutors and 271 trained nurses. The sharing and intense discussions of the developed relevant policies and documents enabled the members of the AMSC and AMSTs, prescribers, nurses and pharmacists better understand their specific roles as antimicrobial stewards. While the members of the AMSC and AMST had the terms of reference clearly explained to them, all healthcare professionals were also able to discuss and accept their AMS roles.

The trainings were repeated in 2024 and included 75 members of the AMSC and AMST, 52 pharmacists (including interns), 173 nurses, 122 resident doctors, and 85 house officers. The trainings were concluded with a two-day behaviour change workshop and the inauguration of 50 Antibiotic Champions spread across departments.

Box 3: Advocacy requests made by Lagos University Teaching Hospital Antimicrobial Stewardship Committee (AMSC)

- Ensure the mandatory use of the formulated antibiotic policy and guidelines by all prescribers of antibiotics in the hospital.
- Turn the LUTH Antibiotics Policy into directives for the various departments.
- Support the capacity building of LUTH healthcare workers including the AMS committee and AMS teams for antimicrobial stewardship.
- Support motivation and information of the stakeholders especially LUTH management for AMS.
- Give authority to our stewardship interventions, especially prospective audit and antibiotic consumptions calculations by the Pharmacy Department.
- Approve strategies recommended by the Pharmacy Department to encourage the patronage of LUTH Pharmacy by all patients with respect to the purchase of antibiotics.
- Allocate protected time for AMS for LUTH staff in various wards and departments.

During the second advocacy visit to the hospital management, the following requests were made:

- Sign the action plan. The importance of this had been mentioned to the CMD, especially as he is an additional partner in the project. This is also in line with the suggestion of the CMD that the action plan must be discussed, understood and accepted by the hospital community.
- Convert the policy into administrative directives. This was recognised as needful during the training of the AMSTs.
- Address the issue of the cephazolin purchased by the hospital for surgical antibiotic prophylaxis which was yet to be used.
- Reports from AMSTs should be through HODs to the AMSC, copying the CMAC, to further point it out to HODs that AMS is everybody's duty in departments.
- Support the Microbiology Laboratory, Pharmacy and AMS unit to iron out issues based on the suggestions of the consultants, action plan and antibiotics policy.

Box 4: Duties of Lagos University Teaching Hospital Antimicrobial Stewardship Teams (AMSTs)

- Prospective audit using a checklist prepared from the antibiotic policy/guidelines
- A one-hour weekly meeting for team members to review the findings of audit, interventions and plan activities.
- A five- to ten-minutes talk or presentation on rational antibiotic prescribing at every Wednesday clinical meeting in clinical departments.
- A monthly report of audit findings and stewardship activities to the departments, antimicrobial stewardship committee and office of the CMAC.
- Reports of compliance rates to antibiotic guidelines and AMS interventions in the various clinical departments as a means of monitoring and evaluation.

Duties of Antimicrobial Stewardship Teams:

The AMSTs in 10 departments have been performing their roles and conducting prospective audit with intervention and feedback (PAIF) in both in-patients and out-patients (Box 4). Every week, they performed reminders at clinical meetings in their various departments (a minimum of 5-10 minutes) to reinforce AMS principles. To reduce the work burden on healthcare professionals, medical students who had already been trained during their clinical postings initiated prospective audits, while AMST members performed the intervention and feedback to the prescribers. This also afforded the students early training and practice in rational antibiotic use.

Reports of Antimicrobial Stewardship Teams:

The AMSTs in the different departments began submitting their periodic reports. Monthly reports of activities by the AMSTs were sent to the AMSC and ultimately to LUTH management and the Nigerian Centre for Disease Control (NCDC). These reports highlighted the progress the teams had made. As at March 2022, the new stewardship teams in the departments of Medicine, Surgery, Obstetrics and Gynaecology, Family Medicine and ICU had their inaugural meetings.

Medical students rotating in Medicine, Surgery and Obstetrics & Gynaecology were trained on prospective audit and feedback. Weekly 5-minute presentations on rational antibiotics use by members of the team was started in the Departments of Paediatrics, Medicine and Surgery. Following the conduct of the workshop on behaviour change, a WhatsApp group chat was created, with more than 30 nurses currently on the platform. This group consists of nurses in clinical and teaching units, LUTH nurses, and nursing students. A blog was also created for the Antibiotic Champions for new AMS information and participation.

AMS action plan:

The most recent AMS action plan (3.0) was developed in January 2025, for a 3-year period and is scheduled for update in 2028. It was written based on the CwPAMS template (Annex 3 CwPAMS AMS action plan template). The components include; (i) Objectives, (ii) Leadership commitment, accountability and responsibility, AMS actions, education and training, monitoring and surveillance, reporting feedback within the healthcare facility, (iii) Identified gaps, (iv) Agreed actions, (v) How will the actions be carried out? (vi) Who is/are responsible? and (vii) Agreed time frame to complete the actions.

The action plan was based on a situation analysis and was developed in discussion with the relevant stakeholders. The strengths weaknesses, opportunities and threats to the locally agreed actions were also considered. The action plan was finally presented to the AMSC and the hospital management team. The AMSC has the responsibility for overseeing the delivery of the agreed actions.

Implementation of antibiotic consumption (AMC) calculation by pharmacists:

The Pharmacy Department began calculating antibiotic consumption (AMC) as they appreciated the importance of this during the training sessions, and began collecting antibiotics consumption data in the in-patient pharmacy units.

A pharmacist who obtained the Africa Leadership Fellowship (ALF-A) was able to train other pharmacists, including 46 interns, on collecting AMC data (12). This facilitated improvement and consistency in the process. The antibiotics consumption calcula- tion was then carried out periodically in all the in-patient units, to determine the Defined Daily Dose (DDD).

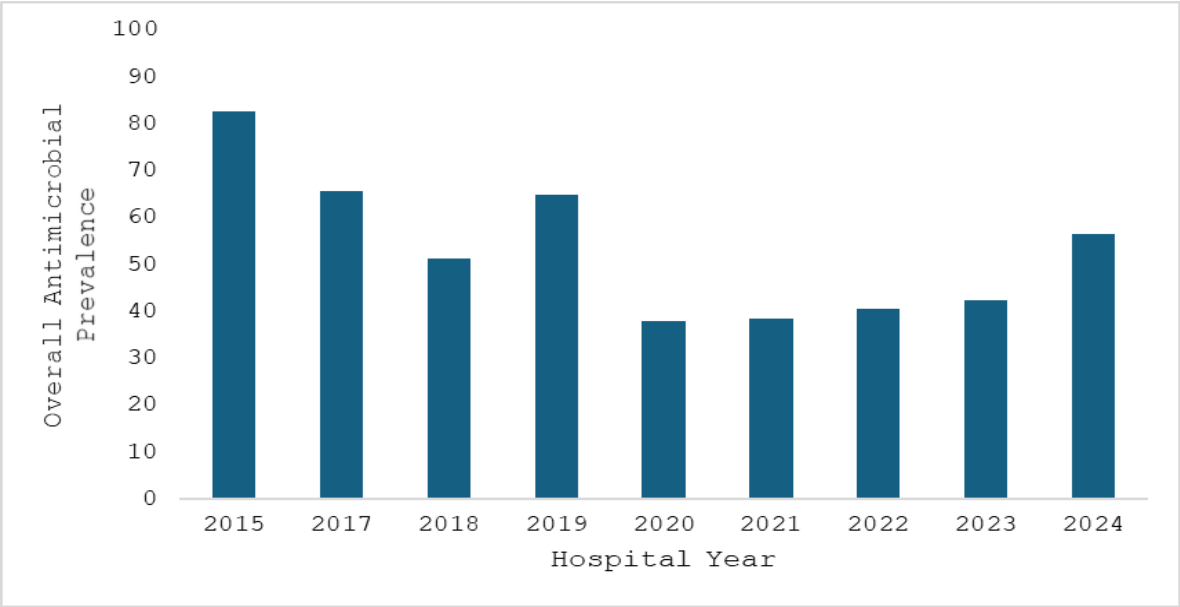

Fig 3: Annual Antimicrobial Use Prevalence rates in Lagos University Teaching Hospital, Nigeria (2015 – 2024)

Impact of Global-Point Prevalence Survey (G-PPS) and AMS actions in LUTH:

The highest antimicrobial use prevalence of 82.52% in LUTH was recorded in 2015 when there were no AMS actions introduced after conducting GPPS. By 2017, when awareness had been raised about AMS being a major strategy to mitigate the challenges of AMR, the antimicrobial prescribing rates reduced from 82.52% in 2015 to 65.50% in 2017. Following this, there has been a steady decline in AMU prevalence in subsequent years till 2020 after which the rates remained relatively steady till 2023 (Fig 3).

AMS actions started with one department in 2018 and had spread to four other departments by 2021. The actions included prospective audit with intervention and feedback (PAIF) and writing the hospital antibiotic policy. PAIF started in one department and gradually spread to five other clinical departments. Antibiotic consumption calculation is now performed in all in-patient wards.

Behaviour change workshops and Antibiotic Champions:

There were three workshops to address the issue of resistance to change. One was for people on prescribing pathways (prescribing, dispensing and or administering anti microbials). Workshop two was for members of AMSTs in all departments while workshop three was for appointed Antibiotic champions. The stakeholders for training included ward nursing leaders, members of the quality improvement committee and healthcare professionals (doctors, dentists, nurses, pharmacists) voted and appointed AMS Champions by their Heads of Departments.

Each of the workshops lasted 2.5 hrs and were moderated by behaviour change experts, who used the Capability, Opportunity and Motivation – Behavior (COM-B) model of behaviour change to explain the three components (capability, opportunity and motivation) to behaviour change (13). They covered motivating topics such as changing practice (mine and others), why the AMST is hard to action/what we can do, and having behaviour change conversations about AMS. The last workshop ended with a list of AMS actions populated by the champions themselves. The AMS Champions were inaugurated with badges and charged with the responsibility of motivating colleagues in their various departments to perform AMS.

Stakeholders engagement:

To sustain AMS activities, there was continuous advocacy to the hospital management to lead the way in institutionalising AMS policies. One key achievement was the approval of protected time for AMS activities, allowing healthcare staff to dedicate time to stewardship without compromising clinical duties. AMS initiatives were integrated into weekly departmental clinical meetings, which fostered continuous awareness and discussion of best practices among prescribers. Implementation was further strengthened by the 50 Antibiotic Champions appointed across departments, serving as focal points for AMS advocacy and intervention.

The AMS stakeholders meeting in 2022 had representatives of the Nigeria Centre for Disease Control (NCDC), Nigeria Institute of Medical Research (NIMR), Nigeria Medical Association (NMA), Pharmaceutical Society of Nigeria (PSN), and National Association of Nurses and Nurse Midwives (NANNM). Stakeholders were enlightened on the benefits of student involvement in AMS. The constraints

laboratory and pharmacy use to AMS were also identified, and possible solutions to improving these were discussed. Most of these stakeholders and organisations were also represented at the 2024 research dissemination meeting.

Discussion:

Antimicrobial stewardship had started in our hospital as far back as 2017, although there were challenges noticed mostly as resistance and unacceptability of perceived 'new' responsibilities by the healthcare professionals in the hospital. The CwPAMS 1.5 project enabled us to assess the gaps in our ASP. We were able to fill enough gaps to institutionalise AMS in our hospital, such that by 2022, colleagues who had earlier assumed AMS as a research project that would soon be completed, accepted it as an institutional improvement program.

Essentially, the CwPAMS 2.0 helped to ensure AMS activities and actions were performed to strengthen AMS activities in the hospital, and to build the capacity of the healthcare workers in AMS. This prepared the hospital for the Global Antimicrobial Stewardship Accreditation Schemes (GAMSAS) of the British Society for Chemotherapy (BSAC) at level 2, which further entrenched our ASP as the global certification was celebrated by all.

Lessons learnt:

Strategic training of staff enabled orientation of our healthcare professionals towards stewardship activities (14). Since the inception of our hospital ASP, we have used education as an AMS intervention. However, these had been done on an ad-hoc basis. To keep raising awareness of AMS, it must be done continuously and should be included in the routine programmes in the yearly plan for the hospital.

Another step in the right direction was the inclusion of presentations on AMS and rational antibiotic use in the weekly departmental ground rounds. Continuous training helps healthcare professionals better grasp their stewardship responsibilities, and this will continue to have a positive impact on their prescribing practices.

In 2019, we were able to demonstrate that medical students are capable of performing audits (13). With the hospital currently understaffed, medical students could play an essential role in AMS activities. They have been our auditors for prospective audits with intervention and feedback which is our hospital core AMS strategy. When trained, they also participate in the G-PPS as data collectors. These students have benefited from these activities by getting firsthand exposure to AMS activities in the hospital setting and antibiotics prescribing practices, in addition to the training they received. Hence, they have become equipped to tackle AMR even before they begin their practice. As future healthcare professionals, they already have the knowledge and good attitude towards AMS, therefore putting that into practice will be easier.

The support of management in hospital AMS activities proved to be a very crucial step in ensuring successful interventions and implementation of ASPs in line with what has also been documented (1). The relationship built with the hospital administration helped improve the acceptance of AMS activities throughout our facility.

Challenges:

Prospective audit stopped a few times due to industrial action in the hospital that affected the students who were the auditors. This would necessitate a planned backup for periods when students are absent from clinical postings and from wards where medical students do not rotate through during their professional training.

Calculating antibiotic consumption was challenging for the pharmacists before they were trained by the ALFA Fellow. Additionally, due to the absence of computers for data collection in various pharmacy units, the performance of this activity was slow. A hospital electronic medical records (EMR) if available would ensure this is done continually. However, our hospital EMR is still in development.

Some AMSTs have not been submitting reports regularly, making it difficult to determine the level of stewardship in their units. This is attributed to inadequate manpower, which is a complaint common to all departments and units of the hospital. Carrying out AMS activities as stewards is time and effort consuming, and if there is inadequate manpower, the available personnel could find it challenging, despite their best efforts. This to a large extent could be remedied by an operational EMR. Incorporating AMS data and interventions into hospital EMR has been reported to improve prescribing practices in hospitals as checks are put in place when prescribing antibiotics (15). The Lagos University Teaching Hospital and indeed, Nigeria as a country will benefit from adopting this as a national strategy.

Way forward:

The CwPAMS projects addressed some of the gaps we identified in our ASP and we performed many AMS interventions that have strengthened our programme. To continue in this direction, we have concerns that need to be resolved in the future. The most recent action plan must be diligently executed. To build on the success and progress achieved,

we need to continually measure the impact of the programme. We will continue to report this periodically using the Global-PPS, prospective audit with intervention and feedback, and antibiotic consumption calculations correlated with antibiotic resistance rates (16,17).

Raising awareness of AMS among present and future healthcare professionals must continue by training health workers at induction and in-service at regular stipulated intervals. All medical students should be included in AMS activities by incorporating AMS at all levels of their preclinical and clinical trainings. Currently, the basic principles of AMS are included in the undergraduate curriculum for medical students, and this would hopefully be replicated in the curricula of our pharmacy and nursing students.

Antimicrobial stewardship programme is well recognized as a behaviour change programme and the topmost AMS barrier in our hospital had been identified as 'resistance to change', hence our investment in the behaviour change workshops. Subsequent monitoring and evaluation of the champions will reveal their success or how we can further improve AMS practices (17).

Monthly correlations of AMC rates with AMR have to be performed and the results and implications should be communicated to the prescribers to help improve their prescribing practice. Hijazi et al., (14) in a review of the challenges and opportunities of AMS in resource-high and resource-limited countries, noted that while sustained engagements are required for changes in prescribing habits of health-care professionals, they advocated for population-level stewardship interventions and investment in structural factors to aid ASP implementation.

The CwPAMS 1.5 and 2.0 helped to improve the ASP of our hospital. It witnessed the support and approval of hospital administration and staff, as well as the involvement of aspiring medical professionals (students). We will keep expanding on these successes and be a positive example for other hospitals to follow and learn from.

Conclusion:

This is a descriptive report of the AMS efforts in our hospital. The CwPAMS 1.5 project enabled us to assess the gaps in our ASP and we were able to fill enough gaps to institutionalize AMS in our hospital by 2022. The CwPAMS 2.0 project prepared our hospital for the GAMSAS accreditation and further helped to entrench the programme.

These projects highlight how structured interventions, advocacy, and continuous training can successfully institutionalize AMS in a resource-limited setting. The collaboration between AMS teams, hospital management, and policymakers was instrumental in strengthening AMS policy enforcement, expanding capacity-building initiatives, and integrating stewardship practices into routine hospital operations. However, sustained commitment particularly in IT infrastructure is required to retain the gains. By continuing to evaluate, refine, and expand AMS interventions, LUTH can serve as a model for AMS implementation in Nigeria and other low-and-middle-income-countries (LMICs).

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Contributions of authors:

All authors were involved in the study concept and design. TAK, FIB, OCA and OOO produced the initial draft and CEB was involved in data collection and analysis. All the authors interpreted the findings, critically reviewed and approved the final manuscript.

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Conflict of interests:

No conflict of interests is declared.

Availability of data and materials

The datasets used and/or analysed during the current study are within the manuscript and are available from the corresponding author upon reasonable request.

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