MURIA VIRTUAL MINI-CONFERENCE
OCTOBER 13 & 14, 2020

Theme: MEDICINES UTILISATION RESEARCH IN AFRICA: PRESENT STATUS AND FUTURE DIRECTIONS

COMPILATION OF ABSTRACTS

TOPICS

THEME 1: COVID-19 RELATED RESEARCH, AMR, HIV/TB/MALARIA

1.

Title of the abstract:	RESPONSE TO THE NOVEL CORONA VIRUS (COVID-19) PANDEMIC ACROSS AFRICA: SUCCESSES, CHALLENGES AND IMPLICATIONS FOR THE FUTURE
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Background: COVID-19 has already claimed a considerable number of lives with major concerns in Africa due to existing high prevalence rates of both infectious and non-infectious diseases and limited resources. Alongside this, concerns that lockdown and other measures will have on prevention and management of other diseases including NCDs.

Objectives: Document current prevalence and mortality rates from COVID-19 alongside its economic and measures to reduce its spread and impact across Africa. In addition, suggest ways forward among all key stakeholder groups.

Methods: Contextualise the findings from a wide range of publications coupled with input from senior-level personnel.

Results: Prevalence and mortality rates are currently lower in Africa than among a number of high-income countries. This could be due to a number of factors including early instigation of lockdown and border closures, the younger age of the population, lack of robust reporting systems, as yet unidentified genetic factors and other potential factors such as previous related infections. Innovation is accelerating to address concerns with available equipment. There are ongoing steps to address the level of misinformation and its consequences including fines. There are also ongoing initiatives across Africa to address the unintended consequences of COVID-19 activities following lockdown and other measures and their impact on other infectious diseases and NCDs including the likely rise in mental health disorders, exacerbated by increasing stigma. Strategies include extending prescription lengths, use of drones, telemedicine and encouraging vaccination. However, these need to be accelerated to prevent increased morbidity and mortality.

Conclusions: There are multiple activities across Africa to reduce the spread of COVID-19 and address misinformation. Although these activities are catastrophic in some countries, they appear to be working in a number of countries. Research is ongoing to clarify the unintended consequences given ongoing concerns to guide future activities. Countries are learning from each other.

2.

Title of the abstract:	FIGHT AGAINST COVID-19 IN AFRICA: POSITIVE LESSONS FOR FUTURE PANDEMICS FROM GHANA
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Background: The novel coronavirus which causes COVID-19 has affected all continents, Africa inclusive. In Ghana, the first two cases of COVID-19 were recorded on 12th March, 2020; after which the Government took measures to limit and stop importation of the virus. We wanted to document experiences of Ghana during this pandemic to provide future guidance

Objectives: Documentation of ongoing activities within Ghana in the early stages of the pandemic to reduce prevalence and mortality rates

Methods: We conducted a review of publicly available information on measures taken by Ghana to reduce the spread of coronavirus, and care for the sick

Results: On 30th March 2020, a 14-day partial lockdown was imposed in affected regions in Ghana, along with other measures (closure of borders, mandatory wearing of facemasks, etc). Three major laboratories, as well as other government hospital laboratories, served as stations for COVID-19 testing. Some hospitals had been dedicated as COVID-19 treatment centres, whilst other major hospitals served as support centres. In July, 2020, Ghana opened its first Infectious Disease Isolation and Treatment Centre. The Government of Ghana introduced measures to facilitate local production of face masks, medical scrubs, hospital gowns and head gear. Additionally, the Food and Drugs Authority in Ghana fast-tracked testing and approval of alcohol-based hand sanitizers. As at 28th August, 2020, Ghana had recorded 43,949 COVID-19 cases, with only 270 deaths (case fatality of 0.6%).

Conclusions: We believe Ghana serves as a good example of a low- and middle-income country that has made relevant strides in dealing with the COVID-19 pandemic. Nonetheless, setting-specific approaches are important in the fight against this pandemic.

3.

Title of the abstract:	Potential paucity and price increases for medicines and protection equipment for COVID-19 across developing countries with a particular focus on Africa and the implications
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Background: Countries across Africa and Asia have introduced various measures for preventing and treating COVID-19 including medicines and personal protective equipment (PPE). However, there has been considerable controversy surrounding some treatments including hydroxychloroquine where the initial misinformation led to shortages, price rises and suicides. Price rises and shortages were also seen for PPE. Such activities can have catastrophic consequences especially in countries with high co-payments. Consequently, there is a need to investigate these changes further.

Objectives: Assess changes in utilisation, prices, and shortages of pertinent medicines and PPE among African and Asian countries since the COVID-19 pandemic.

Methods: Data gathering among community pharmacists to assess changes in patterns from the beginning of March until end of May 2020. In addition, suggestions on ways to reduce misinformation.

Results: 131 community pharmacists took part across countries building on the earlier study in Bangladesh. There were increases in the utilisation of antimicrobials especially in Nigeria and Ghana, which was mainly antimalarials. There were limited changes in Namibia and Vietnam reflecting current initiatives to reduce inappropriate prescribing and dispensing of antimicrobials. Encouragingly, there was increased use of vitamins/ immune boosters across the studied countries as well PPE. In addition, generally limited change in the utilisation of formulated herbal medicines. However, shortages have resulted in appreciable price increases in some countries although moderated in Pakistan through government initiatives. Suggestions going forward included better planning and educating patients.

Conclusions: Encouraging to see increases in the utilisation of vitamins/ immune boosters and PPE. However, concerns with increased utilisation of antimicrobials needs addressing alongside misinformation, unintended consequences from the pandemic and any appreciable price rises. Community pharmacists and patient organisations can play a key role in providing evidence-based advice, helping moderate prices in spite of supply and demand challenges, and helping address unintended consequences of the pandemic.

4.

Title of the abstract:	Rapid review of suspected ADRs due to remdesivir in the WHO database; findings and implications
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Background: We are aware of the controversies surrounding hydroxychloroquine and lopinavir-ritonavir in terms of their effectiveness and side-effects leading to their withdrawl from national and international studies. Remdesivir has shown some promise in recent studies although there appears to be less benefit inpatients with moderate disease. Consequently, there is a need to document potential adverse drug events (ADEs) to guide future decisions especially with re-purposing in different patient populations. This builds on concerns with the ADEs seen with hydroxchloroquine once usage was appreciably increased with the COVID-19 pandemic and in a more elderly population.

Objectives: Ascertain the extent of ADEs to remdesivir in the WHO VigiBase® in recent years.

Methods: Interrogation of the WHO VigiBase® from 2015 to 2020 coupled with published studies of the ADEs in COVID-19 patients. The main outcome measures include age, seriousness (WHO methodology), region and organ.

Results: A total 1086 ADEs were reported from the 439 individual case reports up to 19 July 2020 in the VigiBase®. This figure was reduced to 1004 once duplicates from were excluded. Almost all ADEs concerned COVID-19 patients (92.5%), with an appreciable number from the Americas (67.7%). There were no ADEs recorded in the VigiBase between 2015 and 2019 presumably due to limited use. The majority of ADEs were from males aged 45 years or more. An increase in hepatic enzymes and serious kidney dysfunctions were the top two individual ADEs, with both being a concern. As a result, there is a need to monitor liver enzymes and kidney function, and adjust doses if needed.

Conclusions: Remdesivir is showing some promise in patients with COVID-19. However, monitoring of patients is important to reduce ADEs. Continued reporting of ADEs is also essential in determining the future role of remdesivir in the management of patients with COVID-19.

5.

Title of the abstract:	Covid-19 alcohol-based hand sanitizer start-ups at the university of Namibia: challenges and sustainability implications
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Background: Globally, resource-limited settings are facing a crisis of inequitable access to essential emergency supplies to curb the COVID-19 pandemic. Limited studies systematically explore challenges for building sustainable manufacturers of emergency medical supplies in sub-Saharan Africa, to stimulate rapid response.

Objectives: To evaluate the implementation of the UNAM hand sanitizer project to curb COVID-19 in Namibia using the SWOT analysis, to assess challenges towards building sustainable production of hand sanitizer and determine strategies to overcome these challenges.

Methods: The University of Namibia's COVID-19 hand sanitizer response project was analysed using mixed methods and key informant interviews were conducted among project staff using a standardized questionnaire. Both qualitative and quantitative data analysis was used where qualitative data assessed the challenges and strategies for sustainable manufacture of hand sanitizers to curb COVID-19 in Namibia. Quantitative data evaluated the implementation of the UNAM hand sanitizer project with the 5-point Likert scale using SWOT analysis. Qualitative data was analysed using content thematic analysis while quantitative data was analysed using frequencies and means.

Results: Eighteen (18) key informants were recruited, the mean age was 33.1±8.0 and the ratio of male to female was 1:1. The main thematic challenges were erratic of the supply chain of rate-limiting raw and packaging materials for hand sanitizer production – particularly ethanol with no local producers, limited support systems (institutional funding and risk management plans for epidemics), prohibitive regulations and lack of local equipment. Regulatory authorities are incapacitated to expedite quality control testing of locally produced hand sanitizers.

Conclusions: Whilst the impact of the UNAM hand-sanitizer project is encouraging, the erratic supply chain of raw materials and bureaucratic regulatory framework are major bottlenecks to rapid emergence response to curb COVID-19 in resource limited settings. Risk management planning and funding, empowering pharmacists and public-private partnerships could improve sustainable local production of emergence supplies to curb COVID-19.

6.

Title of the abstract:	Pharmacists enhancing infection prevention and control against COVID-19 at tertiary teaching hospitals in Zambia: An initiative of the Brighton-Lusaka Pharmacy Link
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Background: Hand hygiene remains one of the essential preventive measures against the novel coronavirus disease (COVID-19). With COVID-19 cases rising globally, enhancing infection prevention and control (IPC) including products such as alcohol-based handrub are required especially in low-middle income settings.

Objectives: To enhance IPC through skill enhancement and capacity-building of healthcare workers (HCW) at four public tertiary teaching hospitals in Zambia, namely the University Teaching Hospitals (UTH), Livingstone Central Teaching Hospital (LCTH), Kitwe Central Teaching Hospital (KCTH), and Levy Mwanawasa University Teaching Hospital (LMUTH).

Methods: Once IPC training was initiated at UTH, further on-the-job IPC training was facilitated by UTH and Ndola Central Teaching Hospital (NCTH) staff to HCW at LCTH, KCTH and LMUTH. This training included WHO-recommended hand sanitization techniques, including when appropriate to be completed (i.e. the 'five moments of hand hygiene' for optimum effectiveness in prevention of infectious diseases plus practical techniques of producing alcohol-based handrub using WHO modified formulations, and its subsequent packaging, storage and utilisation.

Results: 92 nurses, 33 pharmacy personnel, 8 medical doctors, 20 other health workers, 11 support staff and 2 administrative officers on IPC techniques. 23 Pharmacists, 3 Pharmacy Technologists, a Laboratory Technologist, and an Environmental Health Technologist were trained in hand-rub production techniques. In addition, the project also funded the installation of equipment and provision of start-up ingredients for handrub production at each participating hospital. The installation of handrub production facilities has enabled the hospitals to produce 120 litres of handrub each per day for local use.

Conclusions: IPC knowledge gaps and skills, including basic equipment for in-house production of handrub were enhanced across the targeted hospitals. To ensure sustainability, hospital managers should ensure continued support for IPC programming in wake of COVID-19. Our initiative also facilitated bilateral learning with Zambian pharmacists teaching their UK counterparts at Brighton-Sussex University Hospitals and University of Sussex how to implement similar initiatives.

7.

Title of the abstract:	Point Prevalence Survey of Antibiotic Consumption Across Three Hospitals in Ghana
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Background: In low-middle-income countries, actionable data on antimicrobial use is needed to institute pragmatic interventions to address antimicrobial resistance (AMR). Point prevalence surveys (PPS) provide standardized results that could inform antimicrobial stewardship (AMS) and the rational use of antimicrobials. Scientific literature on PPS and antimicrobial consumption in sub-Saharan Africa is still emerging. In this study, we obtained data from a tertiary, secondary and primary level health facility in the Ashanti Region of Ghana.

Objectives: The purpose was to identify specific targets and gaps regarding antimicrobial therapy, the consumption and quality of use of antibiotics to guide AMS for the prevention, management and control of infectious diseases.

Methods: This was a cross-sectional study conducted with the use of WHO methodology for PPS in hospitals with standardized forms by trained data collectors. Data was entered into a REDCap® database and exported into Stata™ 14 for analyses. Chi-squared test, Fishers exact test and logistic regression were used for statistical analyses.

Results: The prevalence of antibiotic use was 60.5%. The commonest indications for antibiotic use were community-acquired infections (36.52%, n=42), surgical prophylaxis (26.09%, n=30), hospital-acquired infections (15.65%, n=18) among others. Only 2.73% of cases reviewed had samples taken for culture and sensitivity. Penicillins, cephalosporins and fluoroquinolones were the most commonly prescribed antibiotics. Peripheral vascular catheter (PVC) use was associated with increased consumption of antibiotics (Adjusted OR: 2.6, 95% CI: 1.096-6.381, $p < 0.05$).

Conclusions: The prevalence of antibiotic use in the hospitals assessed were high. Other gaps identified for intervention were the need to control antibiotic consumption with the use of WHO *AWaRe* classification to inform prescribing and therapy. Also, the need for increased use of culture and sensitivity analyses to guide selection and use of antibiotics. Strategies for infection prevention with PVC use must be set up. These are important metrics to guide AMS implementation in the hospitals.

8.

Title of the abstract:	Addressing antimicrobial resistance in Nigerian hospitals: Exploring physicians prescribing behaviour, knowledge and perception of antimicrobial resistance and stewardship programs
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Background: There are concerns with growing rates of antimicrobial resistance (AMR) leading to the instigation of antimicrobial stewardship programmes (ASP) in hospitals across countries to reduce inappropriate antibiotic prescribing, the length of stay and costs. There have been concerns with the extent of ASPs within Nigerian hospitals including tertiary hospitals. Consequently, there is a need to asses current knowledge towards AMR and ASPs among physicians in Nigeria to provide future guidance.

Objectives: Assess the knowledge of, attitude towards AMR, and the practice of antimicrobial stewardship (AMS) among physicians in tertiary facilities in Nigeria to provide future guidance to the Nigerian National Action Plan for AMR. We chose tertiary facilities since if there were concerns here – these would be echoed in secondary and primary facilities.

Methods: A descriptive cross-sectional questionnaire-based study conducted among six tertiary healthcare facilities located in four of the six geopolitical regions of Nigeria between April 1 and June 30 2019 to explore physicians' self-reported practice of antibiotic prescribing, knowledge, attitude and practice of AMR and components of ASPs. All consenting physicians were included incorporating a wide range of medical and surgical personnel.

Results: 326 questionnaires were returned out of 400 (81.5% response rate). The majority (67.2%) prescribed antibiotics daily in their clinical practice. AMR was recognized as a global and local problem by 308 (95.4%) and 262 (81.1%) of respondents respectively. However only 28.2% had ever heard of AMS. The median AMR knowledge score was 40 (19-45) out of 45 while that for ASP was 46.0 (32-57) out of 60. There was significant statistical difference between the ASP median scores among the medical specialty category (P value <0.0001) More respondents had good knowledge of AMR than ASPs (82.7% versus 36.5%; p <0.0001).

Conclusions: Respondents were more knowledgeable about AMR than AMS and its core components.

9.

Title of the abstract:	Assessment of the utilisation of carbapenems at a leading Tertiary Hospital in South Africa; findings and implications
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Background: Carbapenems are broad-spectrum antimicrobials used as the last resort in treating multidrug resistant infections. The production of carbapenemases by bacteria has given rise to resistance to carbapenems, which is a concern especially with few new antibiotics being developed. This calls for improved use of antimicrobials to preserve and prevent overuse especially for last resort antimicrobials.

Objectives: To assess how carbapenems are currently utilised in a Tertiary public hospital in South Africa

Methods: Prospective and descriptive study conducted at a Tertiary academic hospital in South Africa. Data were collected from patient files where a carbapenem was prescribed for a period of six months from August 2018 to January 2019. The inclusion criteria consisted of prescriptions that had a carbapenem prescribed and were accompanied by a motivation. Adult patient files that were 18 years and above. Data were exported to MS Excel™ and analysed using SPSS™ v25. Descriptive statistics were used to summarise categorical variables as frequencies and percentages

Results: 199 files were selected, 127 (64%) were males and the mean age of patients was 46 years. The most common indications for cabapenems were tuberculosis (27 %) pneumonia (17 %) and sepsis (11 %). The carbapenem that was prescribed the most was meropenem (73%) followed by imipenem/cilastin (24%) and (3%) ertapenem. Out of the 42 isolated bacteria, the most commonly isolated bacterium was Acinetobacter baumannii (17%), Klebsiella pneumoniae (16%) and Pseudomonas aeruginosa (8%). Only (23%) of the isolated bacteria were sensitive to a carbapenem. The isolated bacteria found to be resistant to carbapenems included Acinetobacter baumannii (17%), Pseudomonas aeruginosa (8%) and Klebsiella pneumoniae (8%).

Conclusions: Encouragingly, carbapenems were being prescribed for serious infections with meropenem being the most commonly prescribed carbapenem. However, carbapenems were being prescribed even though the isolated bacteria were resistant to them in the majority of the case

10.

Title of the abstract:	PATTERNS OF MEROPENEM UTILIZATION AND RESISTANCE AT A KENYAN PUBLIC REFERRAL HOSPITAL
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Background: Meropenem is a second generation carbapenem with a broad spectrum of activity. As such, it is prone to misuse and this raises concern about the emergence of microbial resistance to this agent in Kenya and beyond. Resistance to meropenem is challenging due to the high prevalence of infections, irrational use and inadequate antimicrobial susceptibility testing.

Objectives: The study aimed to describe patterns of use and resistance to meropenem at Kenyatta National Hospital. The beliefs and attitudes of clinicians with regard to prescribing of meropenem was also assessed.

Methods: A retrospective review of prescriptions and culture and sensitivity results was conducted for the period January 2016 and December 2017. A cross-sectional study on meropenem prescribing practices by clinicians was also conducted. Clinicians were interviewed with the use of a structured questionnaire. Abstracted data were subjected to descriptive and inferential data analysis was done using SPSS version 13 software

Results: Meningitis, (45, 27.6%) and severe pneumonia, (41, 25.2%) were the major indications in children while soft tissue infections, (75, 26%) in adults. Meropenem was used empirically in 77% of the patients. Gram-negative bacteria were the main isolates on culture and sensitivity testing (97.6%). Acinetobacter baumannii (90.0%) and Pseudomonas aeruginosa (55.6%) had the highest prevalence of resistant strains. Escherichia coli were the most susceptible, (921, 84.2%). Most clinicians, (29, 74.4%) advocated for cessation of empirical use of meropenem. Clinicians mostly relied on advice from an Infectious Disease Specialist (22, 56.4%) and senior colleagues (20, 51.3%). The Pharmacists, (5, 12.8%) were the least accessible to provide guidance on meropenem prescribing. Inappropriate selection, (22, 56.4%) and over-prescription, (28, 71.8%) of meropenem were the most prevalent medication use problems.

Conclusions: Meropenem was mainly used empirically. Antimicrobial stewardship is needed to promote its use.

11.

Title of the abstract:	A multicentre point prevalence survey of hospital antimicrobial prescribing and quality indices in the Kurdistan Regional Government of Northern Iraq: The need for urgent action
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Background: Rationale antimicrobial use is crucial to address antimicrobial resistance (AMR) threats. No study has been undertaken in Iraq, using validated methodologies, to document current antimicrobial use and areas for improvement given high AMR rates.

Objectives: To assess antibiotic prescribing patterns in this region using the Global PPS methodology to identify targets for quality improvement

Methods: Point prevalence survey (PPS), using the Global PPS methodology, conducted among the three major public hospitals in Kurdistan Regional Government (KRG)/northern Iraq from September-December 2019. Prevalence and quality of antibiotic use were estimated/assessed using agreed quality indicators.

Results: Prevalence of antibiotic use was high (93.7%;n=192/205); with third generation cephalosporins as the most commonly prescribed antibiotics (52.6%;n=140/266). Reasons for treatment was recorded for only 61.7% (n=164/266) of antibiotics and high use (89.9%) of parenteral therapy was observed. All therapy was empirical, no stop/review dates were recorded and no treatment guidelines were available. Majority of the prescribed antibiotics (62%; n=165/266) were from the WHO Watch list.

Conclusions: Prevalence of antibiotic use was the highest not only in the region but globally including Africa, coupled with significant evidence of sub-optimal prescribing practice. Swift action is needed to improve future prescribing to reduce AMR. One-two areas should initially be targeted for quality improvement including development of local guidelines, documentation of antibiotic indication and/or stop/review dates.

12.

Title of the abstract:	Antimicrobial utilisation in adult in patients amongst public sector facilities in South Africa: Implications for practice
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Background: Antimicrobial use is growing steadily worldwide, driven mainly by rising demands in low- and middle-income countries, including South Africa. Knowing exactly how antimicrobials are consumed is an important starting point to develop appropriate interventions to reduce antimicrobial resistance rates across sectors.

Objectives: To quantify antimicrobial use, and to identify and classify which antimicrobials are used at a given point in time in public sector hospitals in SA.

Methods: Point prevalence survey (PPS) of antimicrobial consumption among 18 public sector hospitals, using a purpose-built web-based application to collect data. Data were compared with other PPS, using prevalence (%) of antimicrobials prescribed, WHO ATC index, DDD/100 bed days and WHO AWaRe (Access, Watch and Reserve) classification.

Results: Out of 4407 patients surveyed, 33.6% were treated with an antimicrobial. At ATC level 3, penicillins (J01C: 34.8%) were mostly used followed by the other beta lactams (J01D: 20.8%). The most utilised antimicrobial was amoxicillin combined with an enzyme inhibitor (J01CR02: 23.1%) at 21.4% of the total DDDs. In the medical and surgical wards, Access antimicrobials (54.1%) were mostly used, while in the ICU Watch antimicrobials (51.5%) were mostly used. In 73.2% (n=108) of surgical prophylaxis cases, antimicrobial used was >24 hours. Compliance with the Essential Medicines List and Standard Treatment Guidelines was 90.2%.

Conclusion: The PPS tool has proven successful to collect data and the results are relatively similar and comparable to other PPS studies across Africa. Amoxicillin combined with an enzyme inhibitor was the most frequently prescribed antibiotic. Extended use of antimicrobials for surgical prophylaxis is a concern. Access antibiotics were used in half of the patients, while in the ICU half of patients were prescribed antibiotics from the Watch list. These findings will assist with setting future targets to improve antimicrobial prescribing and policies among public sector hospitals in SA.

13.

Title of the abstract:	Best use of administrative data to monitor changes in prescribing at the time of pandemic
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Background: Scotland has a national database of prescriptions that includes details of medicines prescribed by GPs near real time (within 48 hours). The COVID-19 pandemic resulted in increased demand for prescription medicines which caused widespread disruption in community pharmacy dispensaries.

Objectives: To use digital prescribing data to monitor the use of medicines in the primary care setting during the COVID-19 pandemic.

Methods: Weekly extracts of digital prescribing data were built using SQL and analysed in Excel to report on medicines use within a local region (Greater Glasgow and Clyde Health Board, population 1.3m) and across Scotland (population 5.8m).

Results: Within the region there was a 15% increase of in the number of medicines dispensed by community pharmacies in March compared to the previous year (241,000 more medicines); the same 15% increase was seen across all of Scotland (1,100,000 more medicines) however the increase varied in the 14 regions within Scotland; from 10% to 25%.

Across Scotland the greatest increase in prescribing was of respiratory medicines (45%) in March compared to the previous year. In endocrine medicines and cardiovascular medicines the increases were 20% and 15% respectively. There was a 6% increase in the prescribing of antibiotics.

These changes were observed in near real time allowing better planning of additional resources including the implementation of pandemic legislation allowing the partial closure of community pharmacies to provide the time necessary to deal with any dispensary back logs.

Conclusions Analysis of digital prescribing data proved to be very useful in one region of Scotland in the recent pandemic. It provided an understanding of the scale and timing of changes in the use of medicines in the general population which was used in planning the pandemic response.

14.

Title of the abstract:	Validity of Pneumonia Severity Assessment Scores in Low- and Middle-Income Countries: A Systematic Review and Meta-Analysis
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Background: Pneumonia treatment decisions are often guided by the use of severity assessment scores, such as the well-known and validated pneumonia severity index and CURB-65. Several pneumonia severity scoring systems have been developed, but the evidence of their utilisation in low- and middle-income countries (LMICs) remains limited.

Objective: In this review, we sought to systematically investigate the evidence around the validity and performance of the existing pneumonia severity scores in adult patients diagnosed with community-acquired pneumonia in LMICs.

Methods: Medline (Ovid), Embase (Ovid), Cochrane Central Register of Controlled Trials, Scopus, and Web of Science were searched for eligible articles up to May 2020. Relevant data were extracted from the included studies. The association between high severity scores and the studied outcome was tested. Pooled estimates of the severity scores performance (sensitivity and specificity) at their high-risk cutoffs in predicting the reported outcome were estimated using the bivariate meta-analysis model. Heterogeneity was assessed using the I² index.

Results: Overall, 11 studies met our inclusion criteria, of which, only six with sufficient data were included in the final meta-analysis that involved examining CURB-65 and CRB-65 scores. Both scores at a threshold ≥3 were related to an increased mortality risk, with pooled relative risks of 8.58 (95%CI: 3.48-21.18) and 4.83 (95%CI: 2.52-9.28) for CURB-65 and CRB-65, respectively. The predictive performance of CURB-65 and CRB-65 at their high-risk cutoffs, respectively, were as follows: the pooled sensitivity, 0.69 (95%CI: 0.25-0.94) and 0.04 (95%CI: 0.00-0.40); the pooled specificity, 0.89 (95%CI: 0.72-0.96) and 0.99 (95%C%: 0.95-1.00); and the area under the summary receiver operator characteristic curves, 0.90 (95%CI: 0.87-0.92) and 0.86 (95%CI: 0.83-0.89).

Conclusion: CURB-65 and CRB-65 at a cutoff ≥3 are strongly associated with mortality and appear to be valid scores for mortality prediction in LMICs. CURB-65 exhibited higher sensitivity and overall accuracy, compared to CRB-65.

15.

Title of the abstract:	Antibiotics Dispensing Practices Among Community Pharmacies in Anambra State, Nigeria
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Details of other co-authors including their organizations/ affiliations (maximum of 5) (again fist name, surname and title)	Chioma Okpalanedu, (Pharm.) Dept. Of Clinical Pharmacy & Pharmacy Mgt Nnamdi Azikiwe University Awka, Nigeria

Background: Irrational sales and dispensing of antibiotics remains a global problem with implications for drug resistance, failed treatment outcomes and increased cost burden

Objectives: The study aimed to determine the extent to which antibiotics are prescribed, dispensed and sold in community pharmacies in Anambra state, south east Nigeria, to identify possible problems and make suggestions for improved use of antibiotics.

Methods: A cross-sectional survey was conducted on a sample of 96 community pharmacies registered in the state, using validated self-administered questionnaire and patient simulated method.

Questionnaires were analyzed for attitudes and knowledge of pharmacies towards antibiotics use, number of antibiotics dispensed with or without prescription, commonly sold and dispensed class of antibiotics.

Results: Of the 96 pharmacies surveyed in the state, 89 (93%) successfully completed the questionnaire. Seventy percent (70.5%) were unaware that dispensing antibiotics without prescription is illegal. Most 85 (88%) acknowledged to have dispensed antibiotics without a medical prescription, believing this to be a common practice among community pharmacies.

In the patient stimulated study, almost all requests (97%) for antibiotics without prescription were granted in both scenarios. Increased sales and profit pressure from owner (85.4%) and fear of losing a client or patient were the major reasons for dispensing antibiotics without prescription. Quinolones, (86.4%), followed by penicillins, (83.15%) and cephalosporin (81%), accounted for the most common dispensed class of antibiotics without prescription.

Conclusion: The study confirms that sales and dispensing of antibiotics without prescription is a common practice in community pharmacies in Nigeria with implications for widespread resistance and treatment failures. Economic motivation and lack of adequate regulation are major contributors to the practice. Strict regulatory enforcement in pharmacy practice and structured educational campaigns for the public are suggested to control or limit the sales of antibiotics without prescription in the state.

16.

Title of the abstract:	A Systematic Review of Influenza Viruses affecting Humans in Asia: Viral types and Antiviral Susceptibility in the Past two Decades
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Background: Influenza viruses are respiratory viruses that cause acute respiratory tract infections (ARTIs) and have been responsible for several epidemics and pandemics. Multiple types and subtypes have evolved over the years due to the intrinsic ability of the virus to undergo genetic mutation and maintain replicative fitness which has contributed significantly to the huge burden of influenza-related ARTIs in Asia and other parts of the world.

Objectives: The study aims to evaluate influenza viral types/subtype as well as their antiviral susceptibility pattern in Asia in the past two decades and provide up-to-date information for public health action.

Methods: The study was conducted by searching for relevant articles in scientific databases such as Google Scholar, PubMed, and EBSCOHOST. The search generated several articles that were screened for relevance using specific inclusion and exclusion criteria. A total of 60 articles were eventually reviewed and analyzed.

Results: The result showed that influenza virus infection was more prevalent in the 6-20 years age group in SE and East Asia with influenza A (H1N1) pdm09 (22.37%; 24.14%), seasonal influenza A (H1N1) (6.58%; 17.24%), A (H3N2) (11.84%; 17.24%), and Influenza B Victoria/Yamagata (5.26%; 20.69%) being the predominant viral type/subtypes in the region. Avian viruses predominantly found in South-East and East Asia include AH5N1 (7.89%) and A (H7N9) (6.90%) respectively. Also, Oseltamivir (37.5%) and peramivir (37.04%) were the most frequently used anti-influenza agents in SE and East Asia with varying mutations occurring in the neuraminidase, cap-endonuclease polymerase, and the M2 gene of the virus which conferred reduced susceptibility to anti-influenza agents. Neuraminidase gene mutation was more commonly reported and it includes an H55Y+I436N combined mutation 4 (12.5%), and an H274Y amino acid substitution 5 (18.5%) in Influenza A (H1N1) pdm09. This was associated with decreased sensitivity to neuraminidase inhibitors in the region.
Conclusion: The study has shown that influenza A (H1N1) pandemic and seasonal strain, A (H3N2), and B Victoria/Yamagata remains the predominant circulating viruses in Asia. However, the dynamic antigenic variations and genetic evolution of the viral strains calls for more frequent molecular surveillance and antiviral susceptibility monitoring in the region.

17.

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Title of the abstract:	Alanine transaminase and haemoglobin appear to predict the occurrence of antituberculosis medication hepatotoxicity; findings and implications in Botswana
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Background: Tuberculosis (TB) remains a global health problem, with a number of medications having adverse effects including drug-induced hepatotoxicity. Consequently, there is a need to determine the prevalence of anti-tuberculosis drug-induced hepatotoxicity and associated risk factors to provide future guidance since adherence to anti-tuberculosis treatment (ATT) is crucial in obtaining good TB treatment outcomes.

Objectives: Investigate the prevalence of ATT induced hepatotoxicity as well as elicit associated factors among hospitalized patients in Princess Marina Hospital (PMH), a tertiary level care hospital in Gaborone treating patients with HIV and TB to provide future guidance.

Methods: Retrospective cross-sectional study in Botswana including TB patients admitted from 1st June 2017 to 30 June 2018. Anti-TB hepatotoxicity was categorized according to WHO criteria whereas causality assessment was made according to the updated Roussel Uclaf Causality Assessment Method (RUCAM) scale. The association between hepatotoxicity and included variables was undertaken by binary logistic regression

Results: Out of 128 patients meeting the eligibility criteria, data was extracted from 112 files. Out of 112 patient files, 15 (13.4%) developed hepatotoxicity after an average of 20.4 days from the start of treatment. Grade 3 and 4 hepatotoxicity was found in 66.7% of the cases. According to the updated RUCAM causality assessment tool, 86.7% of patients were categorized as having possible anti-TB associated hepatotoxicity. Patients with elevated baseline alanine transaminase (ALT) were more likely to develop hepatotoxicity (OR =3.484, 95% CI = 1.02-11.90). Patients with normal haemoglobin (Hb ≥ 12 g/dl) were more likely to develop hepatotoxicity (OR = 4.413, 95% CI = 1.160-14.8).

Conclusions: Overall, normal haemoglobin and elevated baseline ALT levels were significantly associated with anti-TB hepatotoxicity. Additional research is needed to explore this association further.

18.

Title of the abstract:	Comparative prevalence of hypersensitivity and central nervous system effects of a DTG and an NVP based regimen in HIV patients at the Kenyatta National Hospital
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Background: Dolutegravir (DTG) has been in use in Kenya since 2017. As a result of many advantages attributed to the drug, the Kenyan Government decided to transition all Human Immunodeficiency Virus (HIV) positive patients from a nevirapine (NVP) based regimen to a DTG based regimen. However, available data on the safety of DTG largely came from clinical trials and from studies done in the developed countries. This study assessed and compared the safety of DTG and NVP based regimens in Kenya.

Objectives: To compare the safety of DTG and a NVP based regimen used in the treatment of HIV at the Kenyatta National Hospital (KNH) with regard to hypersensitivity reactions and central nervous system effects.

Methods: Cross-sectional analytic study that was conducted among HIV positive patients at KNH, Kenya. Data on adverse drug reactions (ADRs) was obtained from patient medical records and from patient interviews. Chi-square test and multivariable logistic regression were carried out to assess differences in viral suppression between the groups and the influence of other variables respectively.

Results: A total of 111 patients met the eligibility criteria and were enrolled into the study (86 on Tenofovir Disoproxil Fumarate (TDF)/Lamivudine (3TC)/DTG and 25 on TDF/3TC/NVP). The study found statistically significant difference (p=0.01) in the prevalence of headache across the two regimens with the TDF/3TC/NVP regimen having a slightly higher prevalence of Grade I headache (8%) than the TDF/3TC/DTG one (7%). Similarly, the prevalence of Grade I pruritus was significantly higher (p=0.008) in the TDF/3TC/NVP arm (16%) than the TDF/3TC/DTG arm (5.8%). There was no significant difference between the regimens in the prevalence of insomnia (p=0.072), suicidal ideation/tendencies (p=0.076) and rash (p=0.225).

Conclusions: Participants on the TDF/3TC/DTG regimen were significantly less prone to headache and pruritus compared to those on the TDF/3TC/NVP regimen.

19.

Title of the abstract:	Comparative effectiveness of Nevirapine and Dolutegravir based regimens in HIV patients in Kenya; findings and implications
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Background: The antiviral drug dolutegravir (DTG) is relatively new in Kenya and has been shown to have a faster viral suppression induction rate, less susceptibility to viral mutations and favourable tolerability. These properties have resulted in it becoming the drug of choice in various scenarios in the management of Human Immunodeficiency Virus (HIV). To optimize the management of HIV, there is an ongoing transition of patients from non-nucleoside reverse transcriptase inhibitors (NNRTI) based regimens to DTG based regimens. This study assessed the effectiveness of DTG and nevirapine (NVP) based regimens in a Kenyan population

Objectives: To compare the effectiveness of a DTG and a NVP based regimen used in the treatment of HIV at the Kenyatta National Hospital (Kenya).

Methods: Historical cohort study was carried out in one of the largest HIV comprehensive care centres in Kenya. Ethical approval for the study was granted by the institutional review committee. Data on viral load test results was extracted from patient medical records using a structured data collection tool. Chi-square test and multivariable logistic regression were carried out to assess differences in viral suppression between the groups and the influence of other variables respectively.

Results: A total of 111 patients met the eligibility criteria and were enrolled into the study (86 on (tenofovir disoproxil fumarate (TDF)/lamivudine (3TC)/DTG and 25 on TDF/3TC/NVP). The TDF/3TC/DTG regimen had a statistically significant (p=<0.001) higher viral suppression rate (93%) than the TDF/3TC/NVP regimen (56%), with patients on DTG 10 times as likely to be virally suppressed.

Conclusions: The TDF/3TC/DTG regimen was more effective in viral suppression than the TDF/3TC/NVP regimen endorsing its use.

20.

Title of the abstract:	Comparative prevalence of hepatotoxicity and hyperglycaemia of a DTG and an NVP based regimen in HIV patients at the Kenyatta National Hospital
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Background: With new safer and more effective drugs being discovered, HIV treatment guidelines are constantly changing to adopt their use. In line with this, the Ministry of Health, Kenya in 2017 launched the use of dolutegravir (DTG) for the treatment of HIV. Since then, there has been a rapid scale up of the use of DTG. One of the strategies being employed is a mass transition of patients who are virally suppressed from a tenofovir disoproxil fumarate (TDF)/lamivudine (3TC)/nevirapine (NVP) to a TDF/3TC/DTG regimen.
 However, available data on the safety and effectiveness of DTG largely came from clinical trials and from studies done in the developed countries. This study assessed and compared the safety of DTG and NVP based regimens in a Kenyan HIV positive population.

Objectives: To compare the safety with regard to hepatotoxicity and hyperglycaemia of a DTG and an NVP based regimen at the Kenyatta National Hospital (KNH), Kenya.

Methods: This was a cross-sectional analytic study that was conducted at the comprehensive care centre of Kenya's largest teaching and referral hospital- KNH. Data on patient demographics and documented adverse drug reactions (ADRs) was extracted from patient medical records. Additional data on ADRs was obtained from patient interviews using a pre-tested questionnaire. Two laboratory tests to assess liver function and glucose levels were also carried out. Chi-square test and multivariable logistic regression were carried out to assess differences in viral suppression between the groups and the influence of other variables respectively.

Results: A total of 111 patients met the eligibility criteria and were enrolled into the study (86 on TDF/3TC/DTG and 25 on TDF/3TC/NVP). There was no statistically significant difference between the two regimens in the prevalence of hepatotoxicity (p=0.549) and hyperglycaemia (p=1.0).

Conclusions: The TDF/3TC/DTG and the TDF/3TC/NVP regimens had comparable prevalence of hepatotoxicity and hyperglycaemia.

21.

Title of the abstract:	Tenofovir disoproxil fumarate associated nephrotoxicity: a retrospective cohort study at two referral hospitals in Namibia
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Background: Tenofovir (TDF)- TDF-containing ART regimens are used as part of first line treatment for patients with HIV in Namibia. However, the incidence and risk factors of tenofovir (TDF)-related renal impairment (RI) is currently unknown in TDF-containing ART regimens. This is a concern that needs to be addressed – especially given differences in the profile of patients with HIV in sub-Saharan Africa (SSA) including Namibia versus high income countries.

Objectives: To assess the incidence and risk factors of TDF-related renal impairment among HIV patients prescribed TDF-containing ART regimens.

Methods: A retrospective cohort study among HIV infected patients at two leading intermediate hospitals in Namibia. A decline in estimated glomerular filtration rate (eGFR) was significant if it was ≥25% and included a change to a lower eGFR stage. New-onset RI was defined as an eGFR <50 ml/min/1.73m^2.

Results: 10,387 patients were eventually included in the analysis. 11.4% (n=1,182) experienced a decline in eGFR. Of these, 0.6% (n=62) migrated to eGFR stages IV and V. The incidence was 4.5 (95%CI: 4.3 – 4.8) per 100 patient years. RI developed in 400 patients for an incidence rate of 2.4 (95%CI: 2.2 – 2.6) cases per 100 patient years. Risk factors with effect sizes >2.0 for a decline-in-eGFR were baseline eGFR >60 (aHR=15.6); hyperfiltration (aHR=5.0); and pregnancy (aHR=2.4); while for RI they were hyperfiltration (aHR=4.1) and pregnancy (aHR=29).

Conclusions: The incidence of decline-in-eGFR was higher than in other sub-SSA countries, but not RI. A high baseline eGFR had the greatest risk for the decline, and hyperfiltration for RI. Prior to initiating TDF-containing, ART renal function assessment is necessary as this will identify patients at the extremes, including patients with hyperfiltration. Patients experiencing hyperfiltration should ideally be initiated on a non TDF-containing ART if possible as the risk of decline in eGFR leading to RI is increased in these patients.

22.

Title of the abstract:	Assessing the Quality of Malaria and HIV Rapid Diagnostic Test (RDT) kits in Health Facilities including Retail Medicines Outlets in the Greater Accra Region of Ghana
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Background: The availability of accurate in-vitro diagnostics (IVDs) for clinical decisions including treatments are essential for patient care in health systems. However, questions remain on the quality, safety, and reliability of the in vitro diagnostics such as malaria and HIV Rapid Diagnostic Test kits (RDTs) that are stocked and used in health facilities in Ghana. The Food and Drugs Authority (FDA) in Ghana is mandated by Law to regulate IVDs in the health system for quality and relevance. By this all RDTs must be registered and given a unique registration number.

Objective: To assess the quality of malaria and HIV RDT Kits stocked in health facilities in the Greater Accra Region of Ghana, including retail medicine outlets, using FDA standards.

Method: The relevant data was obtained through the use of questionnaire from 400 facilities in three districts in the Greater Accra region, including Accra Metropolitan area. The minimum sample required for inclusion was determined using the classic sample size formula. Data obtained was coded, stored and analysed using STATA version 15.

Results: About 17% of the malaria and HIV RDT kits stocked in the health facilities were unregistered. However 82.9% of mRDT kits in the retail outlets and 74.7% of HRDT kits in the health care facilities were registered. Registration status of the RDTs were associated with the districts in which health care facilities were located (p = 0.006). The kits were stored under appropriate conditions in the facilities. Majority of user practitioners interviewed rated the mRDT kits as good and HRDT kits as very good.

Conclusion: Though there were some unregistered RDT kits whose quality cannot be ascertained, the quality of Malaria and HIV RDT kits in the health facilities assessed were rated as good and likely to produce good results for malaria and HIV case detection.

23.

Title of the abstract:	Physicochemical assessment of selected brands of Artemether-lumefantrine (AL) tablets obtained from retail pharmacies in Mbabane, Eswatini.
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Background and Objectives: Artemether-lumefantrine (AL) is a first line drug treatment for malaria by WHO. Physicochemical assessment studies on AL samples have been done in many African countries due to rise of fake or counterfeit AL tablets circulating in Africa. It has been estimated that fake anti-malarial tablets contribute to nearly 450000 preventable deaths yearly. The Medicines Regulatory Authority (MRA) of Eswatini is still not operational maximally, thus, increased risk of using substandard or counterfeit drugs abound. Eswatini is one of the African countries chosen by the World Health Organisation (WHO) to eliminate malaria by the year 2025. Consequently, the country needs to put in effort into achieving its malaria elimination goal and also to safeguard that all circulating anti-malarial drugs in the country are safe, of acceptable quality and effective for the public.

Methods: A quantitative approach using an experimental design was used on the only two available brands of AL tablets in the Kingdom obtained from retail pharmacies in Mbabane. The tests carried out include; uniformity of weight, hardness test, friability test, disintegration time and dissolution rate test. The results were presented in tables and graphs and analysed using Microsoft Excel 2013 (15.0.5215.1000).

Results: Brand AL01 complied with pharmacopeial standards for all tests performed. Brand AL02 complied with the specifications for uniformity of weight, friability and disintegrated within the specified time limit. However, brand AL02 failed hardness test and also its dissolution rate was below the specified percentage for both its Artemether and its Lumefantrine content.

Conclusion: The results showed that brand AL02 tablets on the Eswatini market is not fully compliant with standards as specified in the official books, hence, have issues of quality, with consequences on their safety and effectiveness. It is recommended that further studies be conducted on this brand.

Keywords: Physicochemical assessment; Artemether-Lumefantrine; tablet; retail pharmacy

THEME 2: HYPERTENSION, DM), PHARMACOVIGILANCE, OTHER TOPICS IN DRUG UTILIZATION RESEARCH

24.

Title of the abstract:	Ongoing and planned activities to improve the management of patients with diabetes across Africa; implications for the future
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Background: Currently approximately 19 million people in Africa are known to be living diabetes, mainly Type 2 diabetes (T2DM) (95%), estimated to grow to 47 million people by 2045 unless controlled - appreciably impacting on morbidity, mortality and costs. Factors impacting on growing prevalence of T2DM include lifestyle changes, urbanisation, the growing consumption of processed foods and increasing levels of obesity. There are also concerns with early diagnosis and often patients present late with complications, as well as access and affordability of insulin, monitoring equipment and test strips (T1DM). There are also issues of patient education and psychosocial support especially for T1DM, as well as issues of adherence to medicines (especially T2DM) and high rates of co-morbidities.

Objectives: Document and debate ongoing and potential future activities to improve the care of patients with diabetes across Africa.

Methods: Documentation of the current situation across Africa including epidemiology and economics of diabetes, and available treatments within public healthcare systems. In addition, ongoing activities to improve future care.

Results: Recognised substandard of care for diabetes across Africa including the routine provision of insulin and monitoring equipment exacerbated by high co-payment levels. A number of African countries are actively instigating programmes to improve future care recognising the growing burden of NCDs across Africa. Planned activities include programmes to improve detection rates (both T1DM and T2DM) and address key issues with diet and lifestyle changes, improve monitoring as well as adherence to prescribed medicines. In addition, address potential complexities involving diabetes patients with co-morbidities with infectious diseases especially HIV, and mental health patients with potential treatments.

Conclusions: There are ongoing activities across Africa to improve the management of patients with diabetes. However, more needs to be done considering the high and growing burden of T2DM in Africa. Ongoing research will help benefit resource allocation and subsequent care.

25.

Title of the abstract:	Impact of pharmaceutical care intervention in hypertension and diabetes comorbid patients at a Municipal hospital in Ghana
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Background: Patients with hypertension and diabetes are likely to have more inherent complications and may require intensified pharmaceutical care.

Objectives: To assess the impact of an enhanced pharmaceutical care programme in patients with co-morbid hypertension and diabetes; with focus on patients' education on medications, disease condition and therapeutic life style)

Methods: This was an intervention study conducted from August 2018- June 2019 in co-morbid hypertensive and diabetic patients (n=338). The study was conducted at the medical out-patient clinic of Tema Municipal Hospital in Ghana. Patients were randomized to the intervention group(n=144) and the control group(n=187). Patients in the intervention group received the enhanced pharmaceutical care together with the usual standard practice whiles patients in the control group received care from the usual practice only at the hospital.

The systolic blood pressure, diastolic blood pressure, fasting blood sugar, body mass index and knowledge of patients about their medication and therapy were assessed at enrollment, month three and month six. Mann-Whitney U test was used to evaluate significance of differences of anthropometric, hemodynamic and biochemical parameters between intervention and control group. Non-parametric measures of analysis of variance was used to test significance of differences between systolic blood pressure, diastolic blood pressure and fasting blood glucose across times of visits. A p-value < 0.05 was considered statistically significant.

Results: At the end of the study, patients in the intervention group had a significant reduction in body mass index(p=0.005), systolic blood pressure(p<0.0001), diastolic blood pressure(p<0.0001), fasting plasma blood glucose(p<0.0001) and a better knowledge about their condition and medications compared to the control group (p<0.0001).

Conclusions: The pharmaceutical care interventions administered in co-morbid hypertension and diabetes, helped to improve patient outcomes regarding the control of blood sugar, blood pressure and body mass index. Patient knowledge about their health and medications also improved.

26.

Title of the abstract:	Patient Satisfaction Regarding Medicine Collection Amongst Down Referred Stable Chronic Patients at Primary Health Care Clinics in Tshwane
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Background: Patient satisfaction contributes to patients' quality of care. Stable chronic patients are down referred from Dr George Mukhari Academic Hospital (DGMAH) to Primary Health Care (PHC) clinics to receive their monthly chronic medicines.

Objectives: To assess whether stable chronic patients down referred from DGMAH to PHC clinics are satisfied with the process followed when they are collecting medicines and to describe the factors influencing patient satisfaction.

Methods: A cross-sectional descriptive study was conducted at 15 randomly selected PHC clinics where stable chronic patients were down referred from DGMAH. Quantitative data were collected through patient exit interviews and captured onto a Microsoft Excel spread sheet. Data were analysed using descriptive statistics and responses to categorical variables were summarised as frequency counts and percentages. All statistical procedures were performed on SAS, Release 9.2 running on Microsoft Windows Vista. Data with qualitative aspects were captured and manually categorised. Results were presented as tables, figures and graphs.

Results: Of the 234 patients invited to participate in the study, 225 patients completed the questionnaire, giving a response rate of 96,2%. The majority of patients, (73.7%,166) were satisfied regarding the care received from the PHC clinics during the medicine collection process. The major factors contributing to patient satisfaction were: ease managing their medication at home, received good treatment at clinics and short patient waiting time. A factor that did not contribute to the satisfaction of the patients was the fact that they did not receive their medication on time every month (54.2%, 122).

Conclusions: Patients were satisfied to collect their medicines from PHC clinics in Tshwane after being down referred from DGMAH. Patient satisfaction is key to a successful health care service provided to patients. It is important that the medication of the down referred patients are available on time at designated PHC clinics.

27.

Title of the abstract:	An Assessment of the Diabetes Treatment and Care Regimens in Patients Aged 0-25 Years at The Kenyatta National Hospital
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Background: The transitions to adolescence and adulthood present critical stages in the management of diabetes as they are associated with physiological and psychological changes which have an impact on glycemic control. Studies indicate that glycated hemoglobin levels peak at adolescence, necessitating changes in the management plans.

Objectives: 1. To identify the standard pharmacological regimens and non-pharmacological interventions indicated for patients with diabetes aged 0-25 years; 2. To investigate age-related changes in the treatment regimens and to determine the factors that necessitate them; 3. To identify follow-up strategies for pediatrics, adolescents, and young adults with diabetes at the Kenyatta National Teaching and Referral Hospital (KNH).

Methods: One hundred fifty-five patient files from the endocrinology section in the records department, and 49 patients attending the diabetes clinic were sampled. The Diabetes Self Management Questionnaire (DMSQ) was used to collect patients' data directly and data abstraction tool captured data from the records.

Results: There were age-related changes in the treatment regimens with most occurring in early puberty with a peak at adolescence (12 years). The commonest reason for regimen change was poorly controlled glucose levels. Regimens prescribed at the endocrinology clinic include rapid, short, intermediate, long-acting insulins, and mixed insulins. The most popular non-pharmacological approach is dietary modifications with patient follow up scheduled quarterly, and a WhatsApp® support group. Cases of Neonatal hypoglyceamia ,mainly infants born to diabetic mothers were also documented.

Conclusions: Diabetes management in 0-25 year old patients at the KNH includes age-related changes in treatment regimens with most occurring during puberty. The treatment consists of combinations of short, intermediate, long, and rapid-acting insulins as per the diabetes treatment guidelines. Further, physical patient follow up complemented by WhatsApp® technology is in place However, non-pharmacological approaches are not optimally integrated, necessitating more patient sensitization. Neonatal glucose monitoring and follow up recommended.

28.

Title of the abstract:	Criteria applied to diagnose and manage attention deficit hyperactivity disorder with methylphenidate in patients aged 6-17 years at two public sectors hospitals in Mpumalanga, Nkangala District, South Africa
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Background: Attention deficit hyperactivity disorder (ADHD) is a chronic neurobehavioural condition. Currently the adopted consensus for diagnosing ADHD is by means of the guidelines set out in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5).

These guidelines provide criteria to be used in diagnosing three sup-types of ADHD: predominately inattentive, predominately hyperactive-impulsive and a combination type.

Objectives: The objectives were to assess doctor notes made in patient files in order to determine which criteria were used to diagnose ADHD. In addition, to compare the criteria used, if any, to the DSM-5 criteria for the diagnosis of ADHD and assess the prescribing practices for methylphenidate in patients diagnosed with ADHD.

Methods: A quantitative, descriptive study was conducted. Retrospective data were collected from files of patients (six to 17 years) diagnosed with ADHD, receiving methylphenidate at Witbank Tertiary Hospital (52 patients) and Kwamhlanga District Hospital (40 patients).

A structured data collection tool was used at each hospital to collect data and data were analysed using the Statistical Package for the Social Sciences (SPSS) version 25.

Results: Both hospitals used the ADHD diagnostic criteria provided in the DSM-5 guidelines to diagnose ADHD. A third (31.4%) of the patients met the criteria for mainly inattention, 24.4% for mainly hyperactivity/impulsivity and 11.63% for the combined subtype of ADHD. With regards to treatment, half of the patients (50%) were started on 5mg, 34(39.53%) on 10mg, six (6.98%), on 15mg and one (1.16%) 7.5mg total daily dose of methylphenidate.

Conclusions: The study showed an overall adherence to and application of DSM-5 guidelines for ADHD diagnosis at both hospitals. All patients diagnosed with ADHD were eventually treated with methylphenidate and there was evidence of dose optimisation for individual patients.

29.

Title of the abstract:	Prevalence and determinant of serious spontaneously reported ADEs among three outpatient care settings in Ghana: Findings and implications
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Background: Most evidence of adverse drug events (ADEs) comes from hospitals as the risks associated with hospital care are higher. However, under-reporting of ADEs is a critical issue in all health care settings. This is particularly important in Sub-Saharan African countries including Ghana with limited resources and high prevalence of both infectious and non-infectious diseases.
Objectives: To determine the prevalence of serious ADEs and factors associated with their occurrence among spontaneously reported ADEs in outpatient care settings in Ghana to provide future guidance.
Methods: A cross-sectional study was conducted using duplicates of the Ghana Food and Drugs Authority adverse event forms retrieved from 3 outpatient care settings who had submitted their reports to the National Pharmacovigilance Centre in Ghana between 2013 and 2018. The raw data were entered into Microsoft excel and analyzed using stata version 14. Bivariate analyses were performed using Pearson chi square and all variables that were statistically significant were used for a multivariate analysis.
Results: Overall, 93 spontaneously reported cases of ADEs were identified during the study period. The mean age of patients with a reported ADE was 42 ± 17 years. The annual prevalence rate was 192 reports per 1,000,000 population among our study population whilst the rate of serious ADE was 35.48% (95% CI: 25.83%-46.09%). Serious ADEs were associated with the type of indication for which the drug was prescribed (p=0.048), the duration of the ADE (p=0.047) and the decision to administer treatment for the event at the reporting facility (p=0.017). They were independently predicted by duration of the ADE (aOR =7.63, 1.37-42.65) and whether treatments were offered for the ADE (aOR=20.28, 2.38-172.57).
Conclusions: Early reporting of ADEs at outpatient settings is essential**.** Patient education and awareness of potential ADE must be intensified for early identification and we will be following this up.

30.

Title of the abstract:	Analysis of Adverse Events Following Immunization in Kenya.
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Background: Vaccine safety monitoring in Kenya relies mostly on passive surveillance through spontaneous reporting of Adverse Events Following Immunization (AEFIs).Evaluation of the data reported is important to come up with more precise and accurate methods of assessing and minimizing the risks associated with vaccines to ensure continued public trust in the immunization program.

Objectives: To analyze and characterize AEFIs reported to the Medicines Regulatory Authority (Pharmacy and Poisons Board), and selected hospitals in Nairobi, Kenya, January 2015 to December 2018.

Methods: A retrospective descriptive review of passively collected AEFI data submitted to the Pharmacy and Poisons Board and selected hospitals in Nairobi County during the period 2015 to 2018 was done. The variables collected were age, sex, vaccine given, nature of AEFI, and year of occurrence. Bivariate analysis was used to establish the relationship between the various sets of variables. Data analysis was done using STATA® (version 13.0) software. The level of significance was set at 0.05.

Results: A total of 187 participants, 93 (49.7%) females and 94 (50.3%) males were sampled. A total of 224 AEFIs were documented with about 65 (35%) of them occurring in patients aged between 10 years to ≤15 years. A total of 105 (56.2%) of the participants experienced AEFIs due to the measles/Rubella (MR) vaccine.

This was followed by Oral Polio vaccine (OPV) at 35 (18.7%) and Mumps/Measles/ Rubella (MMR) with 26 (13.9%). Of the 224 adverse events reported, the most common was rash at 92 (41%) cases reported followed by pyrexia with 23 (10.3%) cases. Majority of the adverse events experienced were minor with serious events accounting for just 7% of all incidents reported.

Conclusions: This data shows that vaccines used in Kenya are generally safe with just a small proportion of the people vaccinated experiencing serious adverse effects.

31.

Title of the abstract:	Adherence to WHO criteria on drug promotion literature: An exploratory study from a tertiary healthcare facility in South-West Nigeria
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Background: In many low and middle-income countries (LMIC), drug promotional literature (DPL) remains one of the main sources of drug information for physicians. In these countries, the pressure to make profit by the pharmaceutical companies and lack of regulation of physician- pharmaceutical sales representatives exposes physicians to numerous DPL. Studies conducted in many LMIC such as India, Pakistan and Nepal showed poor compliance to the WHO guidelines for ethical drug promotion especially in the area of information about excipients, adverse drug reactions, drug-drug interactions and contra-indications. These inadequacies in the information provided may mislead the prescriber with potential adverse consequences among patients using the medicines. Nigeria has a big pharmaceutical sector which is poorly regulated and we hypothesize that such unethical drug promotional practices may exist

Objectives: This study therefore set out to assess compliance to the WHO ethical drug promotion (using DPL) at the Ekiti State University Teaching Hospital (EKSUTH), Ado-Ekiti, South-West Nigeria.

Methods: This was a descriptive cross-sectional study conducted in several specialist clinics of EKSUTH, Ado-Ekiti. Printed DPLs (brochures and leaflets) were collected from these clinics, collated using a pre-designed data collection form and analyzed using the WHO ethical criteria for medicinal drug promotion

Results: A total of 130 DPLs was collected out of which 103 were selected after screening. DPLs promoting antibiotics (29; 28.2%), cardiovascular (14; 13.6%), supplements (13; 12.6%), analgesics (12; 11.7%) and anti-diabetics (11;10.7%) accounted for the majority. Most of the DPLs had the generic (98; 95.1%) and brand (103; 100%) names, active ingredients (99; 96.1%), excipients (92; 89.3%) and indications (102; 99.0%). Information about adverse drug reactions (38; 36.9%), contra-indications (39; 37.9%) and drug interactions (32; 31.1%) was less represented. Forty-one (39.8%) DPLs had no references. The median number of references was 2 (range 0-25).

Conclusions: The adherence to WHO ethical drug promotion was poor especially in the areas of adverse drug reaction, drug interactions and contra-indications.

32.

Title of the abstract:	Prevalence and appropriateness of fixed-dose combination (FDC) medicines prescription among elderly Nigerian patients
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Background: Fixed-dose combination (FDC) medicines consist of at least two medicines produced in a fixed-dose and packaged in a single dosage form. The prescription and use of FDCs especially in low and middle-income countries (LMIC) such as Nigeria continues to generate a lot of interest. The use of FDCs have been found to promote medication adherence and reduce cost of healthcare in many studies. However, there are also concerns about the appropriateness of some of these combinations with potential consequences such as drug interactions, poor therapeutic outcomes, promotion of antimicrobial resistance and increased healthcare costs. These concerns are especially important when FDCs are used by elderly patients because of recognized physiologic changes and multi-morbidity. *Objectives:* The main objective of this study is to assess the prevalence and appropriateness of prescription of FDCs for elderly patients attending two tertiary healthcare facilities in Ekiti State, South-West Nigeria.*Methods:* This was a retrospective cross-sectional study conducted among elderly patients (aged 65 and above) who visited the general outpatients' clinics of the Ekiti State University Teaching Hospital, Ado-Ekiti, Nigeria between March and June, 2017. Information extracted from the case files included patient's age, diagnoses, and list of prescribed medications. Fixed-dose combination medicines were identified and appropriateness was checked for using the Nigerian Standard Treatment Guidelines and Essential Medicine List. *Results:* The medical records of 400 patients were included in the final analysis with a mean age of 73.0 ±7.4 years and female preponderance (60.5%). Two hundred and forty-two (242; 60.5%) patients had at least one FDC prescribed with the median number of prescribed FDC being one (Range 1-2). The mean number of prescribed medicines was 4.1 ± 1.5. The antihypentensive FDC amiloride/hydrochlorothiazide (Moduretic®) was the most prescribed (140;57.9%) followed by artemeter-lumefantrine (53;21.9%). Only 9 (4.1%) of all prescribed FDC were not appropriate with Ornilox® (ofloxacin + ornidazole), Pirsec® (omeprazole and sodium bicarbonate) and salbutamol/bromhexine identified. There was significant correlation between the number of prescribed FDCs, number of co-morbidities and total number of prescribed medicines (r = .210 and .261 respectively). *Conclusions:* The prevalence of FDC medicine prescribing was quite low in this study with over 95% of them being used appropriately.

33.

Title of the abstract:	Metabolic control and determinants among HIV- infected Type 2 diabetes mellitus patients attending a tertiary clinic in Botswana
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Background: There is a need to determine the prevalence of metabolic syndrome and abnormal individual metabolic control variables among HIV-infected participants as compared to HIV-uninfected participants to guide future management in countries with high prevalence of both HIV and diabetes as there is little published data. In addition, determine the predictors of metabolic syndrome and individual metabolic control variables.

Objectives: Determine the prevalence of metabolic syndrome and abnormal individual metabolic control variables among HIV-infected participants as well as the predictors of metabolic syndrome and individual metabolic control variables among pertinent patients.

Methods: Descriptive case-matched cross sectional study for four months from 15th June 2019 to 15th October 2019 at Block 6 Diabetes Reference clinic in Gaborone, Botswana. This included the comparison of metabolic syndrome and individual metabolic control variables based on gender and HIV status by means of Chi-squared test or Fisher's exact test.

Results: 86% were found to have metabolic syndrome by International Diabetes Federation (IDF) criteria with 79.8% among HIV-infected and 89.1% among HIV-negative participants (p-value = 0.018). Older age was significantly associated with metabolic syndrome (p-value = 0.008). Female gender was significantly associated with metabolic syndrome as compared to male gender (P-value = 0.000), and with a statistically significant higher proportion of low HDL-C (P-value = 0.000). However, typically low use of statins in the clinic. Female participants were significantly more likely to be obese (P-value = 0.000). High trigerylcerides were more common in HIV-infected compared to HIV-negative participants (P-value = 0.004). HIV-negative participants were more likely to be obese as compared to HIV-infected participants (P-value = 0.003).

Conclusions: Metabolic syndrome is an appreciable problem in this clinic for both HIV-infected and HIV-negative participants. Future prospective studies are warranted to enhance understanding of the role played by HAART in causing the metabolic syndrome.

Title of the abstract:	COMPLIANCE TO PRESCRIBING GUIDELINES AMONG PUBLIC HEALTH CARE FACILITIES IN NAMIBIA; FINDINGS AND IMPLICATIONS
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Background: The World Health Organization estimates that over 50% medicines are prescribed inappropriately and the main driver of antimicrobial resistance globally. There have only been a limited number of studies evaluating prescribing patterns against national Standard Treatment Guidelines (STGs) in sub-Saharan African countries including Namibia. This is important given the high prevalence of both infectious and non-infectious diseases in sub-Saharan Africa alongside limited resources, and the need to improve compliance to STGs to improve the quality of care.

Objectives: 1) Assess prescribing practices and drivers of compliance to National guidelines among public health care facilities in Namibia and 2) to provide future guidance.

Methods: A mixed method approach including patient exit and prescriber interviews at three levels of health care in Namibia, i.e. hospital, health centre and clinic. The main outcome measures were assessing prescribing against standard medicine prescribing indicators as well as compliance to and attitudes towards the National Namibian guidelines.

Results: Of the 1,243 prescriptions analysed, 73% complied with the STGs and 69% had an antibiotic. Of the 3759 medicines (i.e. mean of 3.0±1.1) prescribed, 64% were prescribed generically. The vast majority of prescribers were aware of, and had access to, the Namibian STGs (94.6%), with the majority reporting that the guidelines are easy to use and they regularly refer to them for guidance. The main drivers of compliance to guidelines were programmatic, that is access to up-to date objective guidelines, support systems for continued education on their use, and ease of referencing. Lack of systems to regulate noncompliance impacted on their use.

Conclusions: Whilst the findings were encouraging, ongoing concerns included limited prescribing of generic medicines (INN prescribing) and high use of antibiotics. A prescribing performance management system should be introduced by governments to improve and monitor compliance to prescribing guidelines in public healthcare.

35.

Title of the abstract:	Does pharmaceutical information systems data inform decision-making in public healthcare? Utility of a national system in a limited resource setting
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Background: Globally, weak pharmaceutical information systems (PIS) negatively affect universal health coverage and outcomes. Few studies in sub-Saharan Africa qualitatively and quantitatively assess drivers and utility of data from PIS in public healthcare.

Objectives: To assess the extent and predictors of utility of PMIS information in public healthcare in Namibia.

Methods: A nationwide mixed methods study interviewed PIS focal persons in all 14 regions of Namibia. The primary outcome was extent and predictors of utility of PIS data. The extent of utility of PIS data was determined using descriptive statistics and predictors by logistic regression in SPSS v 24 or thematic analysis for qualitative data.

Results: The study recruited 58 key informants at facility-based 56 (96.6%) and national 2 (3.4%) levels. Of the 56 facility-based respondents, 29 (51.8%) were female and 27 (48.2%) pharmacists. The mean age and PIS work experience were 33.5 ± 7.6 years and 4.5 ± 3.3 years respectively. The utility level of PIS data was 34 (60.7%) (target > 80%). A total of 103 uses of PIS data were cited; of which 38 (36.9%) were informing decisions on rational medicine use, 27 (26.2%) on pharmaceutical stock management and 24 (23.3%) on strengthening pharmacy workforce. The utility of PIS data significantly decreased with lack of systems on routine reporting by health facility in-charge (cOR = 0.25, 95% CI: 0.06,0.90, *p* = 0.035). Longer work experience (cOR = 1.05, 95% CI: 0.88,1.25, *p* = 0.58), formal consultations (cOR = 1.29, 95% CI: 0.14,11.54, *p* = 0,82) and availability of feedback systems (cOR = 1.08, 95% CI: 0.33,3.56, *p* = 0.89) appeared to increase utility of PIS data. Two thematic drivers of utility of PIS data were programmatic "feedback and action on PIS; structures, technical support for PIS discussion; technical "training/technical capacity of staff; tools and resources for data collection and utilization"; and human resource "staff availability and workload; attitude and commitment".

Conclusions: The nationwide study shows sub-optimal utility of PIS data in public healthcare in Namibia, which negatively affects delivery of pharmaceutical services. This calls for action to enhance capabilities for utilization of automated real-time pharmaceutical information decision support systems to enhance real-time analysis and feedback on medicines data in resource-limited settings.

36.

Title of the abstract:	A model to optimise utility of quality pharmaceutical health systems data in resource-limited settings
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Background: Utility of quality health data enhances healthcare delivery. Few studies model the effective utility of quality pharmaceutical information systems (PIS) data in sub-Saharan Africa, typified with weak health systems.

Objectives: To develop a model and guidelines for strengthening utility of quality PIS data in public healthcare in Namibia

Methods: A qualitative study using consensus techniques. Data from nationwide surveys on the quality and utility of PIS data at public healthcare informed the development of the model based on Dickoff et al practice-oriented theory and Chinn and Jacobs' systematic approach to theory. The model was validated by pharmaceutical and public health experts.

Results: Overall, 4 national surveys informed the construction of the model, these recruited 58 PIS focal persons at health facilities and national level. Six experts validated the model. The model describes concepts on access, management, dissemination and utility of quality PIS data. Model integrates a real-time automated pharmaceutical intelligence system to collect, consolidate and monitor data, and strengthening grassroots PIS capabilities and support-supervisory systems. PIS managers and focal persons to implement these activities among healthcare professionals at public health facilities using standardized guidelines. Opinion experts described the model as novel, clear, simple, comprehensive, and importance of implementing pharmaceutical intelligence system to enhance data quality and utility in resource-limited settings.

Conclusions: Whilst utility of quality PIS is limited in Namibia, advantages of model are encouraging, towards building resilient pharmaceutical intelligence systems in resource-limited countries, where there are not only weak health systems, but high burden of misuse of medicines.

KEY WORDS: Data, health, information systems, pharmaceutical, quality, utility

37.

Title of the abstract:	Alignment of Standard Treatment Guidelines with Medicine Use Indicators in a Limited Resource Setting: Findings and Implications
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Background: Standard treatment guidelines (STGs) are a critical public health tool for promoting rational use of medicines. No studies have evaluated alignment of STGs with medicine use indicators especially in low-and-middle-income countries (LMICs) with disproportionate burden of disease and irrational medicine use.

Objectives: To determine the level of alignment of Namibia's STGs with WHO medicine use indicators.

Methods: A descriptive policy analysis of alignment of Namibia's STGs and WHO medicine use indicators. Thirty-two conditions/diseases prevalent and managed at primary healthcare level were included in the study of alignment of the STGs with two WHO medicine use indicators in terms of average number of medicines/condition (polypharmacy, WHO target <2) and antibiotic prescribing (WHO target < 30%) after adjusting for estimated encounters per condition. Data were analyzed using SPSS v 24 software to determine frequencies, percentages and means.

Results: Of the 32 conditions/diseases studied, 41% had three or more medicines per condition indicated in the STGs. The weighted minimum and maximum average number of medicines/condition/encounter in the STGs were 2.62 and 2.78 respectively. Antibiotics were indicated for 72% (weighted per encounter =75%) of the 32 conditions. Conditions/diseases of the urogenital system had the highest antibiotics indicated in the STGs (100%); respiratory (80%); ENT (80%); gastrointestinal (33%) before weighting conditions for estimated patient encounters, while ENT conditions had the highest antibiotics (32%) after weighting.

Conclusions: Alignment of Namibia STGs and medicine use targets is sub-optimal. The STGs have a high indication of antibiotics and polypharmacy. Misalignment is the main contributor to sub-optimal medicine use indicators with respect to average number of medicines and antibiotics. Countries should review their STGs and align with medicine use indicators to enhance rational medicine use and fight antimicrobial resistance. This paper provides guidance for aligning STGs with medicine use indicators.

KEY WORDS: antimicrobial resistance, indicators, low-and-middle income countries, medicine use, standard treatment guidelines (STGs)

38.

Title of the abstract:	NATIONAL STANDARD TREATMENT GUIDELINES: THEIR IMPACT ON MEDICINE USE INDICATORS IN A RESOURCE-LIMITED SETTING
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Background: Standard treatment guidelines (STGs) improve patient care outcomes. Few studies assess the impact of STGs on population-level medicine use indicators in resource-limited settings in sub-Saharan Africa, where the burden of disease is greatest.

Objectives: To determine immediate and long term impact of the national STGs on medicine use indicators at population-level in Namibia.

Methods: An interrupted time-series modeling of the impact of national STGs implemented in Namibia in 2011, on population-level medicine use indicators. Antibiotic, generic and polypharmacy prescribing indicators were abstracted from the national Pharmaceutical Information System (PIS), over an 8-year period, 2007-2015.This generated 15-quarterly time points. Impact was estimated by changes in trends of the indicators, immediately and after the intervention using R-software. Immediate impact was reflected by level change while long-term impact was determined by trends/quarterly change after STG implementation.

Results: Data points from 522 PIS reports in 38 heath facilities were included. The 8-year period estimates were, 2.9 ±0.1 medicines prescribed per outpatient, 48.1 ±2.5% of prescriptions had an antibiotic and 74.0 ±4.2% of medicines were prescribed by generic name.

Of the 13 regions, 61.3% and 53.8% had a decline in the average medicines per prescription and prescriptions with antibiotics respectively, as well as 53.8% of the regions had an increase in prescribing of generic medicines immediately after implementation of the STGs. Thereafter, quarterly trends in the three indicators did not significantly improve after the intervention at national and in all regions, except for generic prescribing in Oshikoto region, 4.5% (95%CI: 2.6-6.3%, *p*<0.001)

Conclusions: Whilst, national STGs immediately improved medicine use indicators, it is discouraging that the improvement over time was marginal across regions, and was not sustained at national level. Robust point of care interventions are needed for sustained and effective implementation of STGs.

39.

Title of the abstract:	Profiles of patients on warfarin anticoagulation therapy in a leading tertiary referral hospital in Kenya; findings and implications for Kenya
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Background: Patients' profiles do affect the outcome with warfarin; however, this data, and its implications, is scarce in resource-poor countries such as Kenya without access to pharmacogenetics or regular INR testing.

Consequently, we sought to characterize the profiles of patients on long-term warfarin therapy in a leading referral hospital in Kenya and use the findings to discuss their implications in future anticoagulation management.

Objectives: To characterize the profiles of patients on long-term warfarin therapy and subsequently use the findings to guide future anticoagulation management.

Methods: Cross-sectional study undertaken among 180 adult patients (aged ≥18 years) receiving warfarin therapy in anticoagulation clinics at a leading referral hospital in Kenya. Sociodemographic characteristics were obtained through face-to-face interviews.

Details of warfarin therapy, concomitant medication and comorbidities were retrieved from medical records. Associations between patients' profiles and the clinical indications of anticoagulation were computed at $p \leq 0.05$.

Results: Two hundred and five participants were screened. However, only 180 patients were included as twenty-five patients were not eligible. The warfarin maintenance dose was 6.17 (±2.75) mg per day. Venous thromboembolism (56.6%) amongst obese patients ($p=0.0019$) and cardioembolic events (48.3%) among males ($p=0.0316$) aged ≤50 years ($p=0.0436$) whose body mass indices were ≤ 25 ($p<0.0001$) were the most common indications. Two-fifths and 45.0% of the patients had at least one other disease and concomitant medications.

Conclusions: Long term warfarin therapy among Kenyans is mainly for overweight or lean middle-aged individuals suffering from venous or cardioembolic diseases and requires high daily doses. Studies should correlate patients' profiles with warfarin response to guide future management.

40.

Title of the abstract:	Master of Pharmacoepidemiology and Pharmacovigilance (PE/PV) at Université Nazi Boni (Burkina Faso)
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Background: In Burkina Faso and the French-speaking sub-region, there is a shortage of PE/PV-qualified human resources in universities, research centres and hospitals, the absence of a PE/PV component in basic curricula in medicine and pharmacy, and the absence of specialized training.

Objectives: Create a reference centre at Université Nazi Boni to ensure PE/PV training and research providing the health system with qualified human resources, a participatory approach focused on multi-actor and multidisciplinary practice

Methods: A master's degree in PE/PV was created in 2019 with a Belgian partnership supported by ARES (Belgian Agency for Research and Higher Education). Candidates may include those with a doctor's degree in pharmacy or medicine, health care providers and representatives of pharmaceutical companies with a Master's degree in public health. The promotion of research includes publications of scientific articles or in the form of papers, policy notes for decision makers, the creation of a multidisciplinary and multi-stakeholder scientific platform for conferences and workshops.

Results: The first class is being trained with 28 students from Benin, Burkina Faso, Mali, Niger, DR Congo and Togo. Five areas of research were the subject of a thematic distribution between the students as a research project for the dissertation.

These include: 1-prescription/consumption/safety of communicable disease drugs, 2-drugs for non-communicable diseases, 3-improved traditional drugs (MTA), 4-evaluation of risks associated with vaccination and 5-performance of the Pharmacovigilance system. The defences are scheduled for February 2022.

Conclusion: At the end of his training, the master PE/PV holder will have acquired skills to assess the effectiveness, risk and use of drugs and to encourage/organize activities related to the adverse effects of health products. The scientific environment being developed by MURIA is a perfect setting for its future PE/PV specialists. Regional/international cooperation will help to strengthen training.

41.

Title of the abstract:	Low influenza vaccine uptake amongst healthcare workers in selected community health centres and old age homes in South Africa
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Background: Influenza is a major cause of morbidity and mortality amongst the elderly although it can be prevented by annual vaccination. Unvaccinated healthcare workers (HCWs) may transmit influenza to elderly patients in their care. However, there are limited data on influenza vaccination uptake by HCWs caring for the elderly.

Objectives: To investigate influenza vaccination rates and knowledge of the risks of influenza to the elderly, amongst HCWs caring for the South African elderly.

Methods: A descriptive study using a self-administered structured questionnaire was conducted on 360 HCWs present on the day of data collection at 18 community health centres and 27 public- and private sector old age homes. Data were captured using Microsoft Excel™ and imported to Epi Info™ 7 (Centers for Disease Control and Prevention, USA) for descriptive statistical analysis. Participants provided informed consent; ethics approval and permission to conduct the study at the facilities were obtained.

Results: The response rate was 76.7% (276/360). Most respondents were female (90.9% [251/276]) nursing professionals (81.2% [224/276]). The mean age was 41.1 ±11.69 years. Although 61.2% (169/276) of respondents received at least one dose of influenza vaccine prior to 2018, influenza vaccination uptake for 2018 and 2017 was 33.3% (92/276) and 24.36% (41/276) respectively. Most respondents knew that influenza can cause serious long-term illness and death (72.1% [199/276]); agreed that "the elderly are more susceptible to influenza than the general population" (82.6% [228/276]); and recommended vaccines to elderly patients in their care (67.8% [187/276]).

Conclusions: HCWs caring for the elderly had a low influenza vaccination uptake despite understanding the high risks of influenza transmission to their patients. This places HCWs at the risk of contracting influenza and spreading the illness to vulnerable patients in their care. Training for HCWs should underscore the safety, effectiveness and importance of influenza vaccination.

Title of the abstract:	Pictograms as communication tool in response to diabetes patients' information needs: the design process
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Background: Diabetes management requires pharmacological and lifestyle (self-management) strategies. Inadequate health literacy can result in misinterpretation of written instructions, negatively impacting adherence to self-management and subsequently health outcomes. The literature supports the use of pictograms as communication tools to educate patients about lifestyle changes or diabetes self-management.

Objectives: To design, evaluate and test pictograms that address the information needs of diabetes patients regarding the self-management of their disease.

Methods: An iterative design process was followed for the development and informal evaluation of pictograms covering five themes (diet, exercise, eyecare, alcohol and smoking, footcare) of self-management. This included a cyclical process of review, redesign and re-evaluation among 5-10 non-diabetic people from the general population. A health literacy test followed by formal testing of the pictograms was conducted among 30 diabetes patients attending a diabetic outpatient clinic. Pictogram interpretation statements were classified as 'Correct; Partially correct; Opposite; Incorrect; I don't know'. Participants were prompted for possible reasons for misinterpretation/lack of understanding. Data were entered and analysed using Microsoft Excel®. Frequency counts and percentages were calculated for each category. Pictograms with a guessability score of correct or partially correct by ≥80% of participants were considered adequate. Ethical clearance and informed consent were obtained.

Results: Following informal evaluation, 30 diabetes patients (23% inadequate health literacy; 73% marginal health literacy) formally evaluated 23 pictograms with 12 (52%) pictograms reaching the required guessability. Patients with inadequate health literacy correctly interpreted 9 (39%) pictograms, while two pictograms were correctly interpreted by all participants. Pictograms designed with familiar visuals were better understood regardless of the level of health literacy. Pictograms showing two concepts were more difficult to interpret and understand.

Conclusions: Guessability scores varied across all themes. Pictograms designed with familiar visuals were better understood regardless of level of health literacy. To improve interpretation and understanding, pictograms displaying two concepts should be split.

43.

Title of the abstract:	Acceptability of A Medication Card and Its Impact On Medication Knowledge In Ambulatory Hypertensive Patients At Kenyatta National Hospital
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Background: Medication reconciliation is the process in which healthcare providers' partner with patients to ensure accurate and complete medication information at interfaces of care. This is important as erroneous medication history can lead to myriad of problems such as inappropriate therapy and adverse drug reactions. It is therefore imperative to put in place systems, tools and processes that promote medication reconciliation.
Objectives: To assess patients' acceptability of using a medication card as a tool to support medication reconciliation and determine its effect on their medication knowledge.
Methods: This was a single Quasi-experimental study on ambulatory hypertensive patients at the out-patient medical clinic at Kenyatta National Hospital, Kenya. After obtaining individual voluntary consent from the patients, a pre-test questionnaire was administered which documented their knowledge on their medications. A foldable, 1-page standardized medication card that listed all their medications was then distributed and instructions on how to use it given. Participants were contacted after eight weeks via phone and the post-test questionnaires were administered. Data was entered into excel and descriptive and inferential analysis done using STATA.
Results: A total of 62 participants were recruited and 48 completed the study. There was a statistically significant change in the knowledge of anti-hypertensive medication use with the total mean score changing from 2.91 points pre-intervention to 4.05 points post-medication card intervention out of a maximum 10 points. ($p<0.05$).The acceptability of the medication card was high, with over 80% of the respondents indicating that the card had clear instructions and was simple to use. *Conclusions:* There was a positive change in the level of knowledge of participants on the prescribed anti-hypertensive medications. All the self-report measures for acceptability were positive. This depicts the card as highly likely to be used by hypertensive patients to improve their medication knowledge and subsequently their healthcare outcomes.

44.

Title of the abstract:	Teachers and healthcare providers play a crucial role in sustaining the success of HPV vaccination programmes – evidence from Sedibeng District
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Background: Cervical cancer is the leading cause of cancer deaths amongst women aged 15-44 years in South Africa. Persistent infection with high risk human papillomavirus (HPV) is the cause of cervical cancer, preventable through HPV vaccination. The National Department of Health (NDoH) introduced schools-based HPV vaccination programme in 2014 for public sector girls aged ≥9 years in Grade 4. Sedibeng District experienced anti-vaccination lobbying after the roll-out of the programme, and had the lowest HPV vaccination coverage in Gauteng Province in 2018.

Objectives: To investigate reasons and influences behind HPV vaccination-related decisions made by caregivers of Grade 4-7 girls attending public schools in the Sedibeng District of Gauteng.

Methodology: A descriptive quantitative survey was conducted amongst caregivers of girls in Grades 4-7 in public sector primary schools in the Sedibeng District with HPV 1st dose vaccination coverage lower than 70%. Data were collected using a self-administered questionnaire which contained closed-ended questions on demographics, and HPV vaccination-related reasons and influences. Data were captured using Microsoft Excel® and Epi Info™ was used for statistical analysis.

Results: In total, 36.8% (1782/4838) caregivers from 69.6% (32/46) of schools adequately completed the questionnaire. Only 67.1% (1196/1782) of girls had received ≥1 HPV vaccine dose. Of caregivers of unvaccinated girls, 373 gave 657 reasons, with 60.1% (395/657) of reasons being related to vaccine hesitancy, with 54.9% (217/395) of this concerning vaccine safety. Also, 46.6% (174/373) of caregivers lacked information about HPV vaccination. Of all caregivers, 1151 listed influences, with teachers (37.4% [431/1151]) and healthcare providers (30.1% [346/1151]) being most influential.

Conclusion: Teachers and healthcare providers play a crucial role in sustaining the success of HPV vaccination programmes. Safety concerns contributed largely to reasons for non-vaccination related to vaccine hesitancy, indicating the need for the NDoH to provide information and address concerns caregivers have about HPV vaccination.

45.

Title of the abstract:	Meprobamate-containing analgesics: Are prescribing patterns changing?
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Background: Little is known about meprobamate prescribing in Africa, except that South Africa is the third largest user of meprobamate globally. Meprobamate is a constituent of several combination analgesics, which are reported to be abused. Many of these analgesics contain codeine, which is also known to be overused. In addition, in recent years, the number of tramadol prescriptions increased.

Objectives: The aim of the study was to conduct a drug utilisation study on meprobamate-containing analgesics, and to compare the results to that of a study conducted on 2011 data, to determine to what extent analgesic prescription patterns have changed in seven years.

Methods: A retrospective, cross-sectional drug utilisation study was conducted on 2018 prescription data of a medical aid administrator in South Africa. All records for products in the Anatomical Therapeutic Chemical (ATC) category N02B (other analgesics and antipyretics) were extracted and analysed.

Results: A total of 150945 analgesics were prescribed to 54112 patients at a total amount claimed of R3228514. The average age of patients was 34.68 (SD=17.28) years. Paracetamol (N02BE01) accounted for 59.69% of prescriptions, followed by paracetamol combinations with psycholeptics (N02BE71) at 25.82%, and other paracetamol combinations (N02BE51) at 12.38%.

Meprobamate-containing analgesics accounted for a quarter of analgesic prescriptions, with 13 different trade name products. Most products (87.96%) were tablet formulations. In the 2011 study, 22 different trade name products were prescribed. One specific trade name product remained the most popular (accounting for 70.63% of all meprobamate-containing analgesics in 2011, and 62.10% in 2018). Very few prescriptions were for the originator product in 2018.

Conclusions: The prescribing patterns of meprobamate-containing analgesics have changed. These changes must be viewed against the increase in tramadol prescriptions, despite the fact that tramadol also have a potential for abuse. The increase in generic prescribing is important to note.

46.

Title of the abstract:	Potential paucity and price increases for medicines and protection equipment for COVID-19 across developing countries with a particular focus on Africa and the implications
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Background: Countries across Africa and Asia have introduced various measures for preventing and treating COVID-19 including medicines and personal protective equipment (PPE). However, there has been considerable controversy surrounding some treatments including hydroxychloroquine where the initial misinformation led to shortages, price rises and suicides. Price rises and shortages were also seen for PPE. Such activities can have catastrophic consequences especially in countries with high co-payments. Consequently, there is a need to investigate these changes further.

Objectives: Assess changes in utilisation, prices, and shortages of pertinent medicines and PPE among African and Asian countries since the COVID-19 pandemic.

Methods: Data gathering among community pharmacists to assess changes in patterns from the beginning of March until end of May 2020. In addition, suggestions on ways to reduce misinformation.

Results: 131 community pharmacists took part across countries building on the earlier study in Bangladesh. There were increases in the utilisation of antimicrobials especially in Nigeria and Ghana, which was mainly antimalarials. There were limited changes in Namibia and Vietnam reflecting current initiatives to reduce inappropriate prescribing and dispensing of antimicrobials. Encouragingly, there was increased use of vitamins/ immune boosters across the studied countries as well PPE. In addition, generally limited change in the utilisation of formulated herbal medicines. However, shortages have resulted in appreciable price increases in some countries although moderated in Pakistan through government initiatives. Suggestions going forward included better planning and educating patients.

Conclusions: Encouraging to see increases in the utilisation of vitamins/ immune boosters and PPE. However, concerns with increased utilisation of antimicrobials needs addressing alongside misinformation, unintended consequences from the pandemic and any appreciable price rises. Community pharmacists and patient organisations can play a key role in providing evidence-based advice, helping moderate prices in spite of supply and demand challenges, and helping address unintended consequences of the pandemic.