Safe Drugs Save Lives

ANNUAL REPORT

2023-2024

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Abbreviations

ADR	Adverse Drug Reaction
AEFI	Adverse Effects Following Immunization
CIOMS	Council for International Organizations of Medical Sciences
GF	Global Fund
GH	General Hospital
GVP	Good Vigilance Practice
MAH	Market Authorization Holder
MTC	Medicines and Therapeutics Committee
NCHE	National Council for Higher Education
NMS	National Medical Stores
NPC	National Pharmacovigilance Centre
PSU	Pharmaceutical Society of Uganda
PV	Pharmacovigilance
PVC	Pharmacovigilance Curriculum
QPPV	Qualified Person for Pharmacovigilance
RRH	Regional Referral Hospital
SAE	Serious Adverse Event (Clinical Trials)
SUSAR	Suspected Unexpected Serious Adverse Reaction (Clinical Trials)
WHO	World Health Organization

Foreword from Secretary to the Authority

David Nahamya

Secretary to the Authority
National Drug Authority

With each passing year of National Drug Authority's existence, we continue to make great strides in the area of pharmacovigilance, which is an indication of our growth in regulation alongside all the other regulatory functions.

Vigilance is one of the ways we conduct quality assurance for the other six functions namely; national regulatory system, registration and marketing authorization, market surveillance and control, licensing establishments, regulatory inspection, laboratory testing, clinical trials oversight, and NRA lot release. In the just concluded financial year, we are pleased to report the following:

1. Strengthened Collaborations: With support from partners and stakeholders, we were able to take on more joint projects;- With the support of Global Fund (GF), Ministry of Health (MoH) and National Medical Stores (NMS), Medicines and Therapeutics Committees (MTCs) were set up or revived across all regional referral hospitals and general hospitals in the country. These partnerships have greatly improved our efficiency and reach in achieving our mandate.

2. Extension of target audience: In previous years, emphasis was placed on health workers who spend the most time with the patient, and more recently, emphasis has been placed on the patient. In this year, we extended our work to involve manufacturers and pre-service professionals. The gospel of pharmacovigilance was well received by these key stakeholders which has further improved our work.

3. Hosting of the International Society of Pharmacovigilance Africa Chapter meeting: As a testament to the growth of pharmacovigilance in the country, NDA was privileged to host the 2024 ISoP Africa Chapter meeting at the beginning of the 2024-2025 financial year. The spectacular event brought together experts from across the continent and was a great exchange medium for the various pharmacovigilance centres in attendance.

In the next year, we plan to build on these gains to further strengthen our capacity to detect and mitigate any drug related untoward treatment experiences.

Thank you for your continued support and dedication to drug safety in Uganda.

Preamble from Director Product Safety

Dr. Helen Byomire Ndagije,
PhD, FISoP
Director Product Safety
National Drug Authority

Welcome to the 10th edition of the annual pharmacovigilance report. We appreciate all healthcare professionals, industry, partners, and the public who are the wheels of the pharmacovigilance vehicle. Without your dedication to detecting, reporting and prevention of adverse events, there would be no pharmacovigilance. This report highlights our collective achievements and demonstrates the importance of our continued vigilance in ensuring the safety and efficacy of medicines in Uganda.

In this issue, we have compiled a few of the highlights of the just concluded reporting year. These include reporting performance from health facilities nationwide, technical briefs from the major stakeholder engagements held, and most importantly, characterization of all reports received over the period.

As we reflect on these achievements, it is clear that our success is built on strong partnerships and the dedication of all stakeholders involved. Moving forward, we remain committed to upholding the highest standards of drug safety and to continuously improving our pharmacovigilance systems. Together, we can ensure that every Ugandan has access to safe and effective medicines.

Enjoy your reading and do not hesitate to reach out to us on druginfo@nda.or.ug with your feedback and comments to this publication or any other safety related matters.

Safety is our priority.

Annual Summary by Manager Pharmacovigilance

Julius Mayengo
Manager Pharmacovigilance

The year 2023-2024 has been transformative for our pharmacovigilance activities, marked by major partner engagements across Uganda. Here are the key highlights and achievements from this period:

Significant Increase in Adverse Drug Reaction Reports
We have witnessed a significant uptick in the reporting of adverse drug reactions (ADRs), thanks to our revamped reporting systems and increased awareness campaigns. This increase has enabled us to promptly identify and address potential safety concerns, ensuring that our responses are both timely and effective.

Focus on Special Populations
Our annual stakeholders' meeting focused on special populations where senior paediatricians, geriatricians and obstetricians explored the unique drug safety challenges of these groups. Health workers in attendance appreciated the need to pay extra attention when managing patients in these categories.

Capacity Building and Training
We have made significant investments in capacity building, with extensive training programs for our pharmacovigilance staff and healthcare professionals across the country. These routine programs are designed to enhance their skills in ADR detection, reporting, and management, aligning our practices with global standards.

Strengthening Regulatory Collaborations
Our collaboration with international regulatory bodies and healthcare organizations has been pivotal in enhancing our pharmacovigilance framework. These partnerships have facilitated the exchange of expertise and resources, enabling us to adopt best practices and improve our regulatory processes.

Looking Ahead
As we move forward, our commitment to drug safety remains steadfast. We will continue to enhance our reporting systems, expand our educational outreach, and strengthen our collaborations with local and international stakeholders. Our goal is to build on the successes of this year and further improve our pharmacovigilance practices to ensure the highest standards of drug safety for all Ugandans.

Annual Pharmacovigilance Performance Summary

Reporting rates have continued to improve over the years thanks to concerted efforts from diligent health workers, sensitization efforts by the National Pharmacovigilance Centre and improved reporting channels.

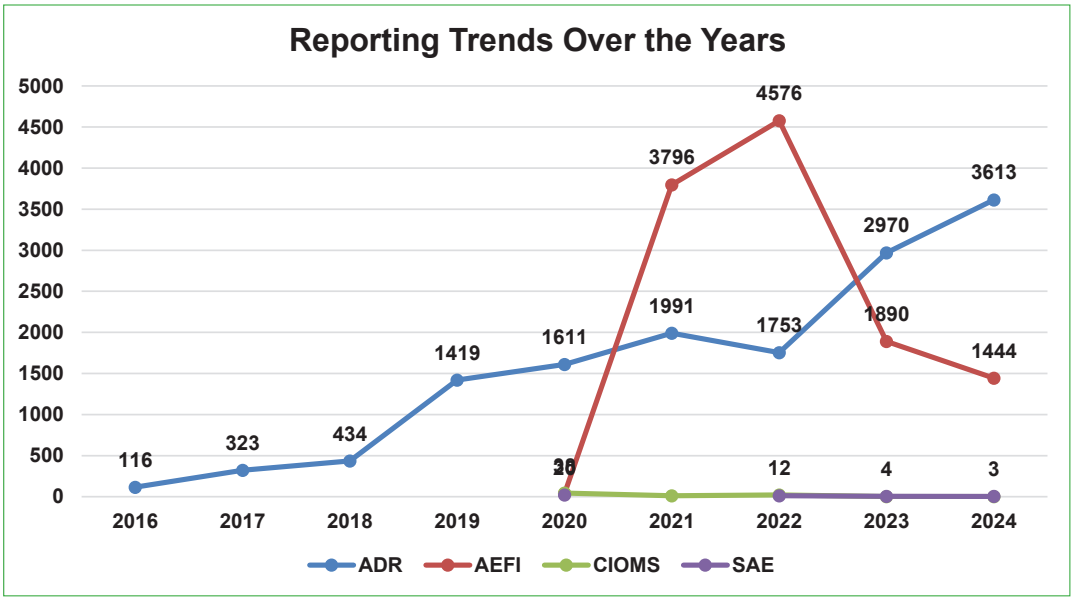

Figure 1: Reporting trends

There has been a 21% increase in ADR reports received in the 2023-2024 reporting period compared to those received in 2022-2023. Whereas the percentage increase in reports is less than the 69% increase from the previous reporting year, ADR reporting continues on a steady upward trend as pharmacovigilance efforts are extended to various health programmes in the country. As will be detailed in the analysis to follow, majority of the reports were submitted from the HIV & TB clinics and the reproductive health programme, where targeted sensitization campaigns have been conducted to encourage health workers to report even what is considered "normal" or "expected" side effects.

AEFI reports have steadily declined since completion of the Covid vaccination mass campaigns. With over 4 million doses administered, the reported AEFIs trends demonstrate that reported side effects make up 0.1% of those who received the vaccine. This indicates that the vaccine was well tolerated and also highlights the importance of reporting all reactions to enable accurate estimation of the extent of side effects.

This year, the Pharmacovigilance Unit at the National Drug Authority (NDA) implemented a comprehensive set of performance indicators to measure and enhance its activities throughout 2023-2024. These indicators were designed to ensure that the unit remained effective in monitoring drug safety and protecting public health. Below are the key performance indicators that have been pivotal in guiding our pharmacovigilance efforts this year:

Table 1: Achievement of performance indicators during the 2023-2024 reporting period

<table>
<tr><th>Activity</th><th>Planned</th><th>Achieved</th></tr>
<tr><td>Analysis, compilation and dissemination of pharmacovigilance reports and quarterly bulletins</td><td>2400 ADR/AEFI reports collected, 30 PSURs, 4 AEFIs, 4 bulletins and 15 RMPs</td><td>A total of 5063 reports were collected. Of these, 1423 were AEFIs.
<table>
<tr><th>Region</th><th>ADR</th><th>AEFI</th><th>CIOMS FORM</th><th>SAE</th><th>Grand Total 2703</th></tr>
<tr><td>Central</td><td>2139</td><td>560</td><td>2</td><td>2</td><td>618</td></tr>
<tr><td>Eastern</td><td>444</td><td>173</td><td></td><td>1</td><td>390</td></tr>
<tr><td>Northern</td><td>311</td><td>79</td><td></td><td></td><td>267</td></tr>
<tr><td>South East</td><td>112</td><td>155</td><td></td><td></td><td>449</td></tr>
<tr><td>South West</td><td>206</td><td>243</td><td></td><td></td><td>274</td></tr>
<tr><td>West Nile</td><td>191</td><td>83</td><td></td><td></td><td>361</td></tr>
<tr><td>Western</td><td>210</td><td>151</td><td></td><td></td><td>5063</td></tr>
<tr><td>Grand Total</td><td>3613</td><td>1444</td><td>2</td><td>3</td><td></td></tr>
</table>
16 RMPs and 111 PSURs were received. Four bulletins were published and can be viewed on the NDA website.</td></tr>
<tr><td>Pharmacovigilance sensitization and support supervision visits paid to regional centres and catchment facilities.</td><td>2 TOTs in public health facilities and 28 support visits to regional centers</td><td>3 ToTs at Uganda Heart Institute, Ruby, and C-care hospitals and 32 support supervision visits to regional referral hospitals over the course of phase two of the Global Fund project.</td></tr>
<tr><td>Expert reviews</td><td>8 expert review conducted</td><td>1 expert review conducted for AEFIs</td></tr>
<tr><td>Vaccine AEFI Investigations</td><td>8 investigation activities.</td><td>9 investigation activities in Nakasongola and Mbarara among others.</td></tr>
<tr><td>Radio talk shows</td><td>2 radio talk shows</td><td>84 radio talk shows (9TV and 75 radio) and 8,608 spot adverts under the global fund project.</td></tr>
<tr><td>Annual PV stakeholders meeting / international pharmacovigilance meeting</td><td>1 Annual stakeholders'/ international pharmacovigilance meeting held</td><td>1 meeting held on 16th November 2023 under the theme: "Harnessing Strategic Partnerships to Promote Drug Safety Monitoring in Special Populations" (Details on page 20)</td></tr>
</table>

AEFI cases for causality assessment by the National AEFI committee	10 AEFI cases for causality assessment by the National AEFI committee	11 cases assessed for causality by the National AEFI committee.
USSD platform for COVID-Vaccine	Maintain USSD platform	Achieved
Community engagements on pharmacovigilance	4 engagements to enhance PV community awareness	4 community engagements at St. Mary's primary - Mubende, POWESA forum, patient safety assessment study, Pharma expo at UMA and School of Public Health.
Regional centres supported with imprest	4 centres regional centres supported with imprest	3 centres supported with imprest (Mubende, Mbarara and Butabika Hospitals).
Joint CPDs with UMA, UNMC, Allied professional, UDA, PSU on Pharmacovigilance	3 sessions	3 sessions with Uganda Dispensers Association, Uganda Dental Association and Intern Pharmacists.
MOUs between health professional bodies & NDA	2 MoUs signed between health professional bodies & NDA	3 MoUs signed between Pharmaceutical Society of Uganda, Uganda Dispensers Association, and Uganda Dental Association.
GVP inspections	10 inspections	6 inspections at Norvik, Surgipharm, Laborex (GSK), UHD, Phillips and Harley's.
Training workshop for MAH on PV guidelines	1 workshop	1 workshop conducted on 7th June 2024 (refer to QPPV article on page 28).

ICSR Summary for 2023/24

In the period between July 2023 and June 2024, a total of 5063 Individual Case Safety Reports were received from reporters, with 3613 of them being suspected reactions to drugs while 1444 were suspected to be reactions to vaccines. There were 2 CIOMS forms and 3 SAEs received in the specified time period.

Patient characterization

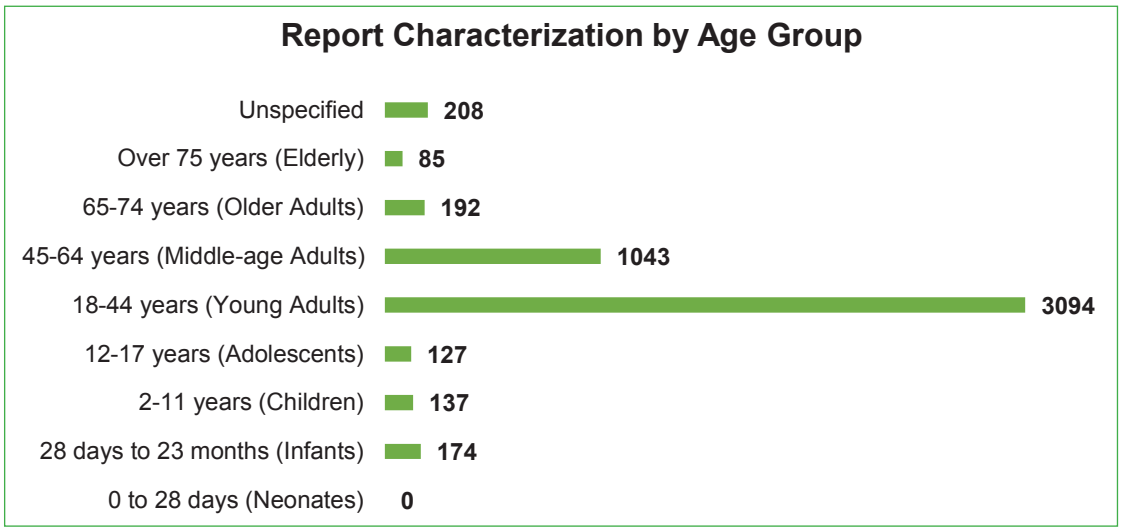

Figure 2: Age categorization of ADR reports

There were no reports received from the 0-28 days age group. The 18-44 years age group continues to report the highest number of events with over 61.1% (n=3094, N=5063) of suspected drug reactions belonging to this group. This is because majority of the reports as will be discussed below are submitted from the HIV and TB programmes, which have larger adult clinics.

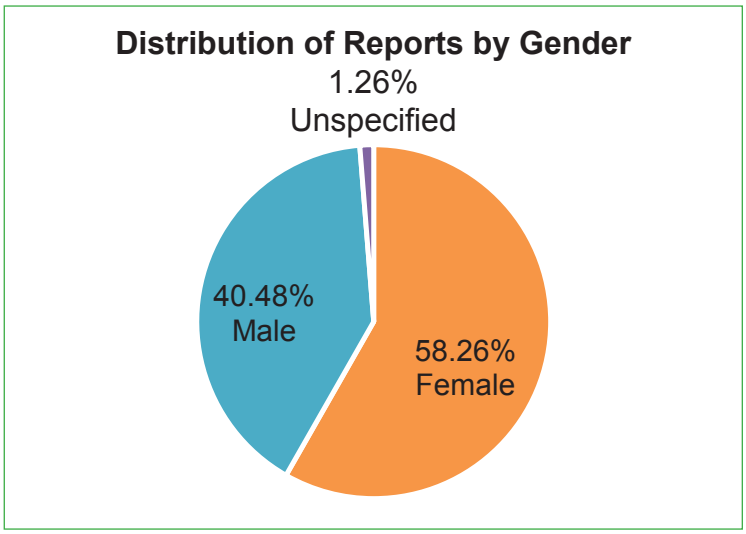

Figure 3: Sex distribution of ADR reports

More reports were attributed to females than males, with female patients contributing more than half of the reports. Research shows that females are at a higher risk of adverse events

than men. Although the risk factors have not been well established, some hypotheses suggest pharmacokinetic differences in the sexes accounts for the disparity (1), with some researchers recommending evidence-based dose reductions for women to counteract this sex bias (2).

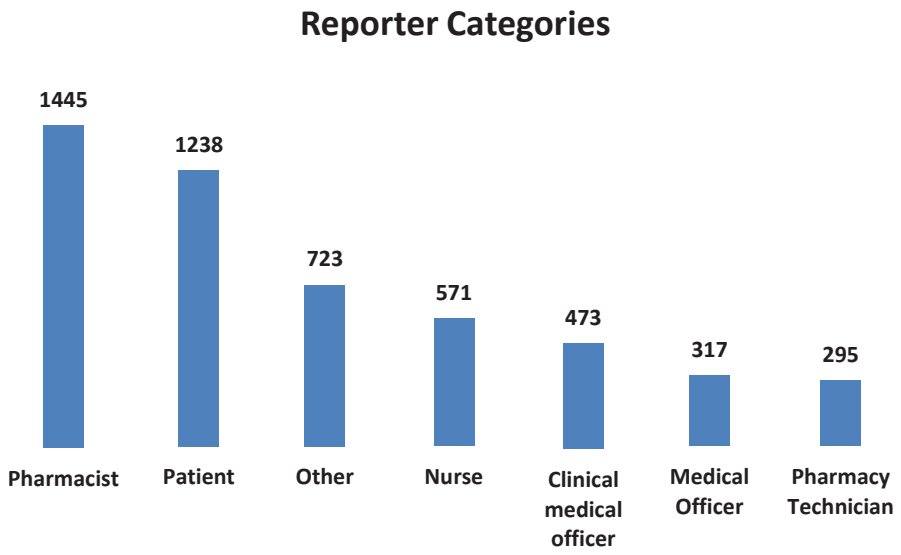

Figure 4: Reporter categories

Reporter Characterization

Pharmacists submitted the highest number of reports (28.8%), closely followed by patients at 24%.

This can be attributed to additional efforts in involving local technical representatives and qualified persons for pharmacovigilance in reporting efforts.

Mode of Reporting

Table 2: Reporting methods

Reporting Channel	Percentage of Reports
WhatsApp	42.04%
Phone call	24.67%
Email	14.70%
Vigiflow	9.43%
Physical ADR form	5.27%
Mobile App	3.89%

Submission of physical reports to the NPC has continued to fall out of favour, with almost half of the reporters preferring to submit reports through WhatsApp. At the same time, the more detailed electronic methods such as the mobile app and the web link are still not as popular as the easier methods of sending images of the reports by email, or making phone calls to have the report filled in at the NPC. This indicates that reporters prefer to use the methods that require minimal time and effort in terms of manual data entry, even though the data quality may be more compromised than if the detailed methods are used. For a detailed presentation of the number of reports from each site, see Appendix 1.

Characterization of Reactions

More than half of the reactions (64.94%) were categorized as not serious. For those which were serious, the commonest reason for seriousness was that the reaction was life threatening in nature (22.48%).

The top reported suspected product was the Covid vaccine, with over 34% of the total reports, closely followed by Dolutegravir in combination (22.33%), Rifapentine/Isoniazid (11.59%) and Dolutegravir in isolation (5.48%).

Table 3: Drug Reaction Pairs

Suspected Drug	Reports	Reported Reaction	Reports
Covid-19 vaccine	1259	Painful/swollen arm	350
		General body weakness	325
		Headache	180
		Fever	173
		Injection site pain	138
TDF/3TC/DTG	815	Generalized skin rash	95
		Peripheral neuropathy	51
		Hypertension	51
		Hyperglycaemia	33
		Renal toxicity	31
Rifapentine/Isoniazid	423	Chromaturia	276
		Dizziness	56
		Headache	47
		Peripheral neuropathy	37
		Joint pain	38
Dolutegravir	200	Hyperglycaemia	78
		Weight fluctuations	13
		Headache	12
		Hypertension	10
		Insomnia	10
Etonogestrel	192	Bleeding disorders	137
		Amenorrhoea	11
		Broken rod	3
Levonorgestrel	177	Irregular bleeding	147
		Amenorrhoea	3
Nifedipine	159	Headache	127
		Palpitations	15
		Oedema	10
RHZE	152	Arthralgia	55
		Chromaturia	35
		Pruritis	32

Tenofovir	142	Renal toxicity	51
		Osteoporosis	30
Linezolid	130	Peripheral neuropathy	32
		Anaemia	11
Medroxyprogesterone acetate	92	Irregular bleeding	71
		Palpitations	1
Penta valent	80	Fever	50
		Prolonged crying	24
		Injection site abscess	5
Ceftriaxone	62	Hypersensitivity	39
		Excessive vomiting	7
Phenytoin	53	Peripheral neuropathy	45
		Extrapyramidal effects	1
IUD	46	Heavy bleeding	19
		Lower abdominal pain	17
		Amenorrhoea	2
Yellow fever vaccine	42	Facial oedema, itching	16
		Fever	15
		Jaundice	5
Furosemide	37	Nocturia	20
		Hypokalaemia	11
		Hyponatraemia	5
Levofloxacin	37	Arthralgia	22
Carbamazepine	33	Generalized skin rash	17
ABC/3TC/DTG	31	Hyperglycaemia	3
Bupivacaine	8	Convulsions	5

Table 4: Summary of National Individual Case Safety Reporting Rates

Reporting indicator	Rate /proportion
Reports received per million population per year	110.22
Number of ADRs per 100 000 persons in the population	11
Percentage of total reports attributed to therapeutic ineffectiveness received year (3 reports)	0.059%
Number of medicine-related deaths per 100 000 persons in the population (26 deaths recorded)	0.0566

*expected reports: 200 per 1 million inhabitants **Uganda population: 45,935,046 (Source: UBOS - 2024 Census)

Medication errors and substandard/counterfeit drugs

There was one report of a medication error where the wrong drug was dispensed, leading to prolonged hospitalization. There were no reports of substandard/counterfeit medicines over the course of the financial year.

Reporting by Programmes

Table 5: National Malaria Control Program

Suspected Drug	Reports
Dihydroartemisinin/Piperaquine	17
Artesunate	14
Artemether/Lumefantrine	9
Quinine	5
Pyronaridine	1
Grand Total	**46**

With the exception of three cases of treatment failure, one to Artesunate and two to Artemether/Lumefantrine, the rest of the reactions were listed and expected effects such as dizziness, skin rashes and vomiting. The cases of treatment failure have been investigated by joint teams from Ministry of Health, the Post Market Surveillance unit at NDA as well as the National Drug Quality

Control Laboratory.

Table 6: TB/Leprosy Control Program

Suspected Drug	Reactions
Rifapentine/Isoniazid	423
Rifampicin/Isoniazid/Pyrazinamide/Ethambutol	152
Linezolid	130
Levofloxacin	37
Isoniazid	29
Cycloserine	18
Clofazimine	14
Linezolid/Levofloxacin	8
Linezolid/Bedaquiline	3
Ethambutol	2
Rifapentine	2
Rifampicin/Isoniazid	2
Linezolid/Cefazoline	1
Linezolid/Clofazimine/Cycloserine	1
Linezolid/Cycloserine, Clofazimine	1
Linezolid/Cycloserine/Bedaquiline	1
Linezolid/Levofloxacin/Clofazime/Cycloserine, Piroxicam	1
Linezolid/Levofloxacin/Clofazimine/Cyclosrine,Piroxicam	1
Pyrazinamide	1
Rifampicin	1
Grand Total	**893**

Reported reactions in this class of medicines are also listed and expected, with the exception of chromaturia for Rifapentine which is not listed among the adverse reactions, but rather under caution/warning in the summary of product characteristics as **"Discoloration of body fluids: May permanently stain contact lenses or dentures red-orange."** Top reactions include dizziness, arthralgia and peripheral neuropathy. We encourage reporters to continue to observe the recommended treatment guidelines for guidance on management of expected adverse drug reactions.

AIDS Control Program

Close to a fifth of the total reports (19%) were received from the HIV treatment programme. Of these reports, over 90% involve DTG as the suspected drug. Metabolic disorders such as

hypertension and hyperglycaemia made up the majority of the reported reactions. Both the hypertension and hyperglycaemia signals have been extensively investigated and discussed, with recommended preventive measures being adopted by the AIDS control programme in the consolidated guidelines for the management of HIV.

Suspected Drug	Reactions
TDF/3TC/DTG	815
ABC/3TC/DTG	31
Cotrimoxazole	20
Atazanvir/Ritonavir	14
TDF/3TC/EFV	14
TDF/3TC	12
AZT/3TC/DTG	9
Lopinavir/Ritonavir	6
TDF/FTC	6
ABC/3TC	5
AZT/3TC	5
Efavirenz	4
TDF/3TC/ATV/R	3
Abacavir	2
ABC/3TC/ATV/R	2
TDF/DTG	2
ABC/3TC/EFV	1
ABC/DTG	1
ABC/TDF	1
Acyclovir	1
AZT/3TC/ATV/R	1
Cabotegravir	1
FTC/3TC	1
Lopinavir	1
Rilpivirine/Cabotegravir	1
TDF/DTG/ATV/R	1
Grand Total	**960**

Table 7: Reports received to antiretrovirals

Maternal and Child Health

Majority of the reactions to reproductive health commodities were bleeding disorders. Although this is a listed and expected side effect, the impact on quality of life of the patients should not be disregarded. There is need to study tolerance of clients to various products as some patients tolerate some combinations or brands better than others.

Suspected drug	Reactions
Etonogestrel	192
Levonorgestrel	177
Medroxyprogesterone Acetate	92
Oxytocin	6
Misoprostol	3
Folic Acid	2
Microgynon	2
Tetanus Toxoid	2
Clomiphen	1
Ethinylestradol, Ferrous Fumarate, Levonorgestrel	1
Fortified Carbonyl Iron Capsules	1
Haemoforte	1
Multivitamins	1
Oxytocin/Artesunate	1
Oxytocin/Bupivacain	1
Oxytocin/Ceftriaxone	1
Progesterone	1
Grand Total	**485**

Table 8: Total ADR report submitted from MCH products

Uganda National Expanded Program on Immunisation (UNEPI)

As explained in the previous section, reports to the covid vaccine made a large percentage of the total reports because of the mass vaccination campaign where a large number of people received the vaccination. All reactions are listed, expected and resolved within an average of a few weeks. For other vaccines outside Covid, the common reactions were injection site pain/ abscesses, fever and diarrhoea in the case of the oral polio vaccine.

Table 9: Reports to Vaccines

Suspected product	Reports
Covid-19 Vaccine	1259
Penta Valent	80
Yellow Fever Vaccine	42
Polio Vaccine	20
PCV	11
Hepatitis B Vaccine	9
IPV	7
Ebola Vaccine	6
Measles Rubella Vaccine	5
BCG Vaccine	4
OPV	3
HPV Vaccine	2
IPV/PCV	2
Rabies Vaccine	2
Tetanus Toxoid	2
Diphtheria, Tetanus Toxoids	1
Measles/Rubella/Yellow Fever Vaccine	1
Grand Total	**1456**

The AEFI committee regularly reviews all these reports and conducts investigations for cases with serious outcomes.

Signals during the year:

Bupivacaine – Convulsions, headache, confusion

Regulatory action taken:

Reported suspected batches were investigated and sampled for laboratory testing. All results were within specifications. Suspected possible causes were:

(a) Suspected medication/administration error

(b) Possible uncommon reaction related to Bupivacaine (seizures are labelled).

(c) Improper storage.

(d) Intra-uterine haemorrhage (as per post-mortem reports).

(e) Other concomitant drugs.

Ministry of Health to disseminate an advisory on the following:

(a) Proper administration technique

(b) Proper history taking to identify risk factors for neuro-psychiatric disorders

(c) Therapeutic alternatives for high risk groups (history of neuro-psychiatric disorders.

(d) Encourage health worker vigilance to report any observed adverse reactions to NDA to enhance our understanding of this reaction

(e) Investigations should be made concerning the storage conditions of Bupivacaine at different health facilities (8C to 15C [Ref: USP 2016]) as stipulated by the manufacturer for some of the batches. Furthermore, it should be emphasized to the hospital staff involved in the handling of Bupivacaine that the product should be stored away from light.

References

1. Alsaedi, Areej Atheer, and Manal M. Younus. "Gender differences in adverse drug reactions among adult patients reported to the Iraqi pharmacovigilance center." Iraqi Journal of Pharmaceutical Sciences (P-ISSN 1683-3597 E-ISSN 2521-3512) 30.2 (2021): 249-260.

2. Hendriksen, L. C., et al. "Sex differences associated with adverse drug reactions resulting in hospital admissions." Biology of sex differences 12.1 (2021): 34.

Publications

The team at National Pharmacovigilance Centre in collaboration with stakeholders from academia have undertaken extensive research on how to improve data collection at the NPC. The resulting studies have gone on to be published in major peer reviewed journals such as BMJ. Full articles can be found on the journal websites:

Below are extracts of abstracts from four of the publications.

Open access Original research

BMJ Open

Navigating duplication in pharmacovigilance databases: a scoping review

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► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (https://doi.org/10.1136/bmjopen-2023-081990).

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ABSTRACT

Objectives Pharmacovigilance databases play a critical role in monitoring drug safety. The duplication of reports in pharmacovigilance databases, however, undermines their data integrity. This scoping review sought to provide a comprehensive understanding of duplication in pharmacovigilance databases worldwide.

Design A scoping review.

Data sources Reviewers comprehensively searched the literature in PubMed, Web of Science, Wiley Online Library, EBSCOhost, Google Scholar and other relevant websites.

Eligibility criteria Peer-reviewed publications and grey literature, without language restriction, describing duplication and/or methods relevant to duplication in pharmacovigilance databases from inception to 1 September 2023.

Data extraction and synthesis We used the Joanna Briggs Institute guidelines for scoping reviews and conformed with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews. Two reviewers independently screened titles, abstracts and full texts. One reviewer extracted the data and performed descriptive analysis, which the second reviewer assessed. Disagreements were resolved by discussion and consensus or in consultation with a third reviewer.

Results We screened 22 745 unique titles and 156 were eligible for full-text review. Of the 156 titles, 58 (47 peer-reviewed; 11 grey literature) fulfilled the inclusion criteria for the scoping review. Included titles addressed the extent (5 papers), prevention strategies (15 papers), causes (32 papers), detection methods (25 papers), management strategies (24 papers) and implications (14 papers) of duplication in pharmacovigilance databases. The papers overlapped, discussing more than one field. Advances in artificial intelligence, particularly natural language processing, hold promise in enhancing the efficiency and precision of deduplication of large and complex pharmacovigilance databases.

Conclusion Duplication in pharmacovigilance databases compromises risk assessment and decision-making, potentially threatening patient safety. Therefore, efficient duplicate prevention, detection and management are essential for more reliable pharmacovigilance data. To minimise duplication, consistent use of worldwide unique identifiers as the key case identifiers is recommended alongside recent advances in artificial intelligence.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ The study involved an extensive literature search on a global scale including both peer-reviewed publications and the grey literature.
⇒ This review adhered to the rigorous methodology published by the Joanna Briggs Institute for scoping reviews.
⇒ We employed an a priori PubMed search strategy, which was then adapted across other peer-reviewed research databases (Web of Science, Wiley Online Library, EBSCOhost) using the Polyglot Search Translator. Additionally, our search for grey literature followed the guidelines outlined in the Canadian Agency for Drugs and Technologies in Health Guide.
⇒ The risk of bias or quality assessment of included studies was not conducted in keeping with the design for scoping reviews, which limited the ability to document the methodological rigour of the included studies.

INTRODUCTION

Pharmacovigilance is crucial for drug safety as it promotes the prevention, detection and evaluation of suspected adverse reactions to minimise their impact on patient health.[1 2] One of the challenges of pharmacovigilance is the duplication of cases in pharmacovigilance databases, which distorts drug safety and efficacy assessment, and disrupts decision-making.[3–5] Duplication is defined as multiple, unconnected records that refer to the same potential adverse event.[3 4 6] From 2000 to 2010, about 2.5% of reports with adequate information for duplicate analysis in the WHO global pharmacovigilance database were duplicates; the percentage was higher for reports from the literature (11%) and those with fatal outcomes (5%).[4] To promote the accuracy of pharmacovigilance databases, it is important to routinely screen and remove duplicate cases.[4]

The duplication of cases should, however, be differentiated from the replication of records. Replication includes reproducing

Viability of the Unstructured Supplementary Service Data Technology for Pharmacovigilance: A Pilot Study in Uganda

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Introduction:

Transitioning to electronic adverse event reporting systems is crucial for monitoring the safety of medicines and vaccines in low- and middle-income countries (LMIC). However, implementing such systems faces challenges due to limited resources and infrastructure.

Aim:

This study sought to assess the feasibility of using the Unstructured Supplementary Service Data (USSD) technology for reporting adverse events following immunization (AEFIs) with COVID-19 vaccines in Uganda.

Methodology:

A USSD system was established at Uganda's National Drug Authority (NDA) for the public to report AEFIs of COVID-19 vaccines by dialing a code (*284*99#). The NDA developed and validated a structured questionnaire to capture essential information, including vaccination status, demographics, and AEFIs. We analysed USSD reports received from 1 January 2020 when the system was implemented to 30 June 2023. Each USSD report was validated via a follow-up phone call to the reporter. The USSD reports were linked to their corresponding NDA records using the mobile telephone number as the unique identifier. We evaluated data consistency by comparing age and sex in the linked USSD reports with their corresponding NDA records.

Results:

A total of 130,288 reports were submitted via the USSD technology, of which 4,442 (3%) were successfully linked to their corresponding reports in the NDA database. The majority (92%; 119,592 of 130,288) of USSD reports indicated that the reporter had received a COVID-19 vaccine, of which 60% (71,340 of 119,592) showed that an AEFI had been experienced by the reporter. There was poor agreement on sex (16.8%) and age (10.9%) between the linked USSD and NDA reports.

Conclusion:

A small proportion of the USSD reports were linked to their corresponding records in the NDA database using the mobile phone as a unique identifier, suggesting challenges in record linkage. The linked USSD and NDA datasets showed poor agreement on sex and age, highlighting the need to investigate data quality. Despite this, USSD systems offer a rapid ADR reporting platform. Enhancements in data integration, validation, and public awareness are needed to improve the reliability of the USSD system for regulatory decisions in LMIC.

Quality of data in Uganda's Pharmacovigilance database

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Introduction:
Missing data in pharmacovigilance databases poses a significant challenge to spontaneous reporting systems worldwide. The extent of missing data varies across databases and regions. While efforts to address missing data have been made in Europe and the United States, there is limited research on missing data in pharmacovigilance databases in African countries, including Uganda.

Aims:
To evaluate the extent of missing data in Uganda's national pharmacovigilance database from January 1, 2016, to September 30, 2022.

Methods:
The study was conducted at the National Pharmacovigilance Centre (NPC) in Uganda. Data were extracted from the national database, and the proportions of missing information were computed as percentages. The completeness score was computed by the Uppsala Monitoring Centre based on a multiplicative model. The completeness score, ranging from 0 to 100 with higher scores indicating more comprehensive information, is a measure of the degree to which a report contains all the relevant information for effective analysis; it is based on patient demographics, suspect drug information, details of adverse event, and details of the reporter.

Results:
The analysis of 17,677 pharmacovigilance reports revealed varying degrees of missing data across different data fields. Missing information was commonest for date of reaction onset (99.98%, n=17673), date suspect drug was started (99.90%, n=17660), the reporter's email address (80.92%, n=14305), concomitant drugs (54.90%, n=9705), reporter's telephone contact (29%, n=5129), and patient's age (8%, n=1350). Most data fields, however, had 1% or less as missing data, namely: name of health facility (1%, n=200), sex (0.2%, n=32), suspect drug (0.2%, n=31), name of the reaction (0.6%, n=114), nature of the reaction (0.1%, n=23), type of reporter (0.2%, n=27), mode of reporting (0.2%, n=38), and report type (0.7%, n=128). The range of completeness scores per quarter over 7 years were as follows: 0.69 to 0.88 in 2016; 0.72 to 0.90 in 2017, 0.72 to 0.79 in 2018, 0.75 to 0.82 in 2019, 0.55 to 0.81 in 2020, 0.64 to 0.68 in 2021 and 0.58 to 0.63 in 2022.

Conclusion:
Missing data on key data fields such as date of reaction onset, date suspect drug was started and concomitant drugs negatively impacts causality assessment. Yet, the absence of reporters' contact details jeopardizes follow-up efforts for the missing information. It is important to promote more complete and accurate pharmacovigilance data to promote patient safety.

Impact of the Med Safety App on Adverse Drug Reaction Reporting by Health Workers in Uganda: A Cluster-Randomized Controlled Trial

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Introduction:
Digital innovations for pharmacovigilance should leverage the increased access to smartphones in regions with the lowest rates of suspected adverse drug reaction (ADR)-reporting worldwide, particularly in low- and middle-income countries (LMIC).[1] Med Safety is a smartphone application adapted from the prototype mobile application designed by the European Innovative Medicines Initiative.[2] Med Safety has been rolled out in several LMIC, however, its utility for ADR-reporting in these settings remains to be established.[1, 3, 4]

Objective:
To determine the effectiveness of Med Safety for increasing the rate of ADR-reporting by health workers in Uganda.

Methods:
This pragmatic cluster-randomized controlled trial evaluated Med Safety at sites offering combination antiretroviral therapy (cART). In all, 382 sites were randomly assigned to the intervention (Med Safety) and comparison arms. Each site, a cluster, consisted of health workers and individuals receiving dolutegravir-based cART. In the intervention arm, health workers were trained to use mobile-, paper- and web-based reporting, whilst those in the comparison arm received training in paper- and web-based reporting only. The primary outcome was the rate of ADR-reporting to Uganda's National Pharmacovigilance Centre as the number of ADR-reports filed by health workers per 100,000 person-months of individuals receiving dolutegravir-based cART, per study arm. Unadjusted and regression-adjusted ADR-reporting rates were computed. We added a constant to the number of reports to include all sites in the final analysis. The outcome was analysed with mixed effects negative binomial regression to account for clustering, large number of sites that did not report and, skewed distribution for sites that reported. This trial is registered with the Pan African Clinical Trials Registry, number PACTR202009822379650.

Results:
From August 2020 to October 2022, we enrolled 367 (96%) of 382 randomized sites, with 2464 health workers, into two arms: 184 sites in the intervention (n=1253), and 183 sites in the comparison arm (n=1211). About half the sites (56%, 205/367) did not file any ADR-report. For sites that reported, the median ADR-reporting rate was 12 reports per 100,000 person-months of follow-up (13.5 in Med Safety; 10.6 in comparison). The ADR-reporting rate for all ADR reports was 73% higher in the Med Safety arm versus the comparison arm (incidence rate ratio, IRR of 1.73; 95% confidence interval, CI = 1.26, 2.37: p-value=0.001); and 92% higher for dolutegravir-related ADR reports (IRR of 1.92; 95% CI = 1.42, 2.60: p<0.001).

Conclusion:
Med Safety showed significant and durable improvement in the rate of ADR-reporting. Med Safety should be scaled up to promote digital pharmacovigilance in LMIC.

Deduplication of Uganda's National Pharmacovigilance Database: A pilot study

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Introduction:

Report duplication is a major hindrance to accurate data analysis in pharmacovigilance databases, compromising patient safety. While high-income countries (HIC) have established mechanisms for detecting and removing duplicates, literature is scarce on deduplication in low- and middle-income countries (LMIC).

Aims:

This study sought to determine the extent of duplication in Uganda's National Pharmacovigilance Database.

Methods:

Deduplication was performed on reports received from January 2016 to September 2022. Potential duplicate reports were identified by exact matching on report ID, age, gender, health facility, and drug name, using the Ablebits Ultimate Suite add-in tool within Microsoft Office Excel. The potential duplicates generated by Ablebits were reviewed manually and, separately, with Ablebits' add-in auto merger to identify non-duplicates, similar reports, and confirmed duplicates. The study evaluated causes of duplication and the level of agreement between manual and automated methods of duplicate confirmation.

Results:

Of 14266 reports, 525 (4%) were potential duplicates, with 86% (n=452) being Adverse Events Following Immunization (AEFI) and 13% (n=67) suspected Adverse Drug Reactions (ADR). Half of the potential duplicates (50%, 260/525) were confirmed [AEFI reports (50%, 227/452); ADR reports (48%,32/67)], while 47% (249/525) were retained as non-duplicates. Thus, 2% (260/14266) of reports were confirmed duplicates. The manual and automated methods showed 100% agreement in confirming the potential duplicates (n=260). Similar reports accounted for 3% (16/525) of the potential duplicates. The duplicates were as a result of multiple entries.

Conclusion:

One in 50 reports was a duplicate, similar to observations in HIC. The manual and automated methods were concordant in confirming potential duplicates. For small pharmacovigilance databases in LMIC, Ablebits could potentially improve the efficiency of deduplication, enhancing data quality and patient safety.

Annual Pharmacovigilance Stakeholders' Meeting

The National Pharmacovigilance stakeholders meeting is an annual meeting organized by the Directorate of Product Safety to engage stakeholders about the activities of the National Pharmacovigilance Centre and obtain feedback from them. The 2023-2024 meeting took place on November 16, 2023 at Imperial Royale Hotel Kampala. This activity was conducted by the Pharmacovigilance team supported by the Public Relations and ICT Offices.

Objectives of the meeting:

- To provide feedback to stakeholders about the activities of the National Pharmacovigilance Centre and a report for the concluded year of pharmacovigilance
- To receive feedback from stakeholders about the Pharmacovigilance activities
- To welcome ideas and propositions on how we can improve and also increase awareness.
- Award top performers of ADRs for individuals and top facilities.

One of the strategic areas of Pharmacovigilance, referencing the Pharmacovigilance strategic plan 2019 – 2024 is to establish systems to increase visibility and enhance awareness about the importance of Pharmacovigilance through educational and behavioral change activities. Under this area, we aim at enhancing dissemination of safety information, increase transparency and feedback to relevant stakeholders. We also aim at establishing a mechanism to communicate and manage risks identified through ADR reporting to the public.

One of the ways we extend awareness of pharmacovigilance is through an annual stakeholders meeting as the effectiveness of the Pharmacovigilance system depends of several stakeholders including health workers that detect and report drug adverse outcomes, drug manufactures, ministry and public health programs that guide medicines policy.

The National Drug Authority organized the 7th National Pharmacovigilance meeting to engage stakeholders on the different activities involved in medicine safety. The 7th meeting focused on the need for drug safety monitoring among special populations that is; pregnant and lactating women, pediatric populations and the geriatric populations. This was in light of the fact that these populations were often not studied in pre-authorization drug studies, and not adequately monitored in routine care despite carrying a higher risk of adverse drug outcomes. The meeting was opened by the Secretary to the Authority.

Achievements

A total of 120 participants were received from all across the country and from different disciplines. These included Doctors, Directors of Regional Referral Hospital, Pharmacists, Clinical Officers, MAHs, Nurses, representatives from national programs, implementing partners and dignitaries from patient groups like CHAI, MOFPED, UNICEF, UNFPA, UNAPH and Uganda Cares.

The National Pharmacovigilance Centre presented the activities that had transpired at the center in the concluded year of pharmacovigilance, presentations we made by the manager PV and the Director Product Safety, in which they highlighted the success of the year and presented the plans for the new year.

This was followed by presentations from the experts regarding the special populations which were as follows;

1. **Pharmacovigilance in Pregnant and lactating women- Prof Kaye Daniel.**
   He highlighted why pharmacovigilance is critical in pregnancy and lactation which included the following,
   - Use of medicines in pregnancy is common for pre-pregnancy or pregnancy-related complications.
   - Drug development studies don't involve pregnant lactating or newborn populations.
   - Many medicinal products are subject to contraindications or special warnings because they have not been sufficiently studied during pregnancy or studies in animals have revealed adverse effects on the fetus (teratogenic, foetotoxic or other).
   - Once a product is marketed, there is need to collect information on safety in pregnancy, lactation and newborns, to identify agents harmful to the developing fetus.
   - Data on pregnancy exposure can also establish that the fetal toxicity of a product is limited.
   - Many pregnancies are unplanned, and some prescription and non-prescription medicinal products are frequently used by women of childbearing age before they are aware of the pregnancy.

2. **Pharmacovigilance in the pediatric population- Dr. Deo Munube**
   He stated **the role of the Pediatrician in drug safety monitoring which included the following:**
   - Advocate for the rational use of antibiotics in the community
   - Reduce the need for antibiotic use through promoting vaccination
   - Improve hospital infection control and antibiotic stewardship
   - Support the monitoring of antibiotic use and prescribing habits
   - He posed a question inquiring if there was a way stakeholders and the NDA could enforce the regulation of antibiotic use.

In the conclusion, he noted that, Uganda had a growing pediatric population and antibiotic use and access was increasing in our population. Antimicrobial resistance is reaching alarming levels and Pediatricians can play a critical role in Drug Safety Monitoring.

3. **Pharmacovigilance in geriatric populations- Dr. Harriet Nankabirwa**

She made highlights on the following factors which affect medicine use in old age:

- Physiological changes in old age
- Metabolism of medicines
- Adverse drug reactions
- Prescribing medicines in older people
- Improving safety of medicines

She concluded by emphasizing on the ways of Improving drug safety in older adults which included the following;

- Comprehensive Geriatric assessment
- Identify the patient's need for treatment
- Avoid polypharmacy
- Follow-up appointments
- Report and record any Adverse drug reactions with both local and national authorities.

4. **Vaccine safety monitoring and surveillance- Dr. Ombeva Malande**

He gave highlights on the following:

- Vaccine development and perceptions
- Adverse events following immunization
- Cause and effect relationship
- Reporting and investigation process
- Causality assessment of severe and serious cases of AEFI
- Classification of AEFIs

The guest of honor, Dr. Diana Atwiine, the Permanent Secretary highlighted the following;

- She noted that health care providers were not looking out of side effects and patients were not aware of them either.
- She stressed the need to go back to basics of clinical care where health workers are supposed to explain explicit details of the medication to the patients including the side effects.
- She noted that there were a number of new medications on the market and there is a need for continuous monitoring of these drugs
- She noted that there were rising cases of congenital malformations like cleft palate which was partly due to poor vigilance during pregnancy.
- She informed that the targets groups for pharmacovigilance included MHC, Child health, partners and private sector.
- She advised health care practitioners to always think about side effects every time they prescribe treatment.

- The also stressed the need to look out for silent side effects which are not apparent like biochemical changes.
- She encouraged public health officers and Health educators to include PV as part of the Health promotion programs.
- She proposed to the NDA to develop simple reporting online tools to counter issues of no reporting tools at facility. This she advised collaborations with Makerere university and Ministry of ICT.
- She concluded by calling for revival of therapeutic committees which had become redundant and nonfunctional. She further encouraged these committees to organize CMEs for information sharing and as a means of reminding health workers to report side effects.

As stated above, one of the objectives of the stakeholders meeting was to recognize and award top performers via reporting of ADEs and top reporting facilities with plaques and a token of appreciation in form of money. This is done so as to motivate and inspire other reporters and facilities to also report.

Table 10: Top reporters

Recipient	Award
Baluku Godwin	Top reporting health worker for 2022-2023
Oscar Ogwal Oteng	1st runner up
Apiyo Lorna	2nd runner up
Lira Regional Referral Hospital	Top reporting regional centre
Luweero General Hospital	Top reporting General Hospital
Kalangala HC IV	HC IVs
Mild May	Top private Hospital
Namutumba HC III	Top HC III
Freda Carr Hospital	Top PNFP
Angella Bonabana	**Legacy Award**: Recognized for exceptional commitment to pharmacovigilance over the years as she has been tirelessly sending reports from the different health facilities that she has been to.

*Plenary session to generate solutions chaired by **Dr. Dennis Nankoola**, Senior Pharmacist, Gulu Regional Referral Hospital.*

Permanent Secretary Ministry of Health, ***Dr. Diana Atwiine****,*
explains to health workers in attendance their role in protecting patient safety.

Dr. Helen Byomire Ndagije*, PhD, FISoP,*
Director product safety sharing a light moment with stakeholders.

A cross section of some of the meeting participants.

Top reporting health worker, Baluku Godwin, receives a cheque from the meeting organisers.

Geriatrician Dr. Harriet Nankabirwa addressing the meeting on the unique drug safety challenges among the special population of the elderly.

Manager Pharmacovigilance Julius Mayengo making Introductory remarks.

The top reporter, Baluku Godwin being congratulated by colleagues.

A cross-section of meeting participants.

Plenary

There was a panel discussion that comprised of all presenters and Dr. Nankoola Denis, a senior pharmacist at Gulu Regional Referral Hospital.

1.	It is noted that ANC registers do not capture side effects to drugs, therefore it was recommended that the health workers attending ANC clients be trained on proper history taking to including monitoring for side effects to drugs.
2.	The meeting prescribed ways of motivating/training health workers to report the side effects which included the following; • Strengthening the existing reporting system. • Have an M & E platform to monitor how facilities are reporting • Motivate facility in charges to encourage health workers to report ADRs.
3.	The meeting recommended that the MoH draft circulars with indicators to report ADRs with targets.
4.	The booklet holders were well received as a brilliant idea to make availability of booklets easier for health workers to report.
5.	The meeting thanked NMS for collaborating with MoH to support MTC meetings to streamline activities.
6.	The team to come up with quality improvement habits for our respective facilities.
7.	The Pharmacist should communicate with the prescribers before changing prescriptions and dispense doses as prescribed bearing in mind the different formulations.
8.	Focus be put on expired drugs while creating awareness to the health workers we supervise.
9.	The functionality of fridges should be monitored as it is essential for vaccine safety.
10.	All treatment processes should be documented to aid causality assessment.
11.	Vaccines should be made free to the old people for example, pneumococcal vaccine, herpes zoster vaccine)
12.	NDA to sensitize the public on the dangers of buying drugs over the counter as well as the dangers of adverse drug reactions.
13.	Empower the patients with knowledge on what drugs they are using and ask the patients to report ADRs.
14.	The team should benchmark from the blood bank about the efficiency of criteria taken on the product complaints.
15.	There is need to create a formulary for geriatrics and increase awareness on the management of geriatrics.

16.	There is a need to create awareness of drug side effects on radios, TVs on the importance of drug safety and the dangers of wrongly using the medicines.
17.	There is need to inform the local manufacturers to be keen on doses for geriatrics populations.
18.	There is need for the NDA to increase on monitoring of drug storage facilities and dispensing points as certain side effects could arise from poor storage.
19.	The NDA needs to make the database for Pharmacovigilance available to her stakeholders.
20.	There is need to increase awareness about the online reporting tools.
21.	The meeting noted that at local levels, vaccines are not managed by the pharmacy and this is challenging.
22.	The NDA was encouraged to attend MTC meetings.
23.	The meeting inquired as to what measures had been put in place to strengthen pharmacovigilance of nutritional commodities? It was noted that nutritional commodities are kept out of the drug stores but in the food store. What has NDA put in place to strengthen the management of these commodities (no reporting of ADR). It was recommended that for nutritional commodities, hospitals should support lower level health units in their storage but should be tracked.
24.	What structures are in place for reporting ADRs in communities.
25.	The meeting proposed tagging of ADR reporting to staff as an indicator of appropriate medicines use.
26.	Noted that UNEPI was not working with hospital Pharmacy and they (UNEPI) was encouraged to involve hospital pharmacy departments in their activities.

Conclusion

The 7th Annual Pharmacovigilance stakeholders` meeting was a successful event attended by over 120 participants. The stakeholders were given feedback on safety trends both locally and internationally as seen at the pharmacovigilance Centre and the stakeholders gave feedback on the progress of the previous recommendations

Recommendations from Meeting Participants

- It was recommended that the NDA attends MTC meetings as a means of strengthening them.
- They recommended that NDA develops structures to enable community reporting by taking pharmacovigilance to communities using VHTs. This too is being implemented already through community organizations such as CHAIN.
- There is a need to create awareness of drug side effects on radios, TVs on the importance of drug safety and the dangers of wrongly using the Medicines-This is ongoing in the different parts of the Country.
- The NDA needs to make the database for Pharmacovigilance available to her stakeholders-This the team will look at the feasibility.

Uganda's National Drug Authority Hosts First QPPV Stakeholder Meeting

Key Updates on Pharmacovigilance Regulations and Upcoming Legislation

Kennedy Odokonyero, QPPV PhV Latam

Guest Author

June 29, 2024

On 7 June 2024, the National Drug Authority (NDA) - the National Medicine Regulatory Authority (NMRA) in Uganda - held its first Qualified Person for Pharmacovigilance (QPPV) stakeholder meeting. This crucial meeting provided a platform for QPPVs representing several Marketing Authorisation Holders (MAHs) to dialogue with the regulator openly. The regulator clarified current pharmacovigilance regulations and guidelines, and the proposed "The National Drug and Health Products Act. 2024." It also highlighted GVP inspections and aggregate safety reports, underscoring the vital role of QPPVs in the regulatory process.

Here are some key highlights from the meeting:

The National Drug and Health Products Act. 2024

The National Drug and Health Products Act of 2024 will repeal the current law that established the NDA in 1993—the National Drug Policy and Authority (NDP/A) Act, Cap. 206 of the Laws of Uganda (2000 Edition).

Implications for pharmacovigilance:

- The 2024 Act will make it an obligation for any persons who apply for drug registration in Uganda to establish a pharmacovigilance system.
- The act shall empower the regulator to request the applicant to conduct a safety or efficacy study for the drug.
- It was also emphasized that the new law will significantly empower the regulator to conduct robust Good Pharmacovigilance Inspections (GVP), ensuring the safety and efficacy of drugs in Uganda.

GVP Inspections

In preparation for the new law and to build the capacity of its inspectors, NDA piloted GVP inspections last year. The MAHs inspected were those that voluntarily applied for the pilot inspections. During the QPPV meeting, the authority outlined common key findings from the inspections, and these included:

- There was no local PV system, especially for the local manufacturers who were inspected.
- For MAHs with PV systems, QPPVs were not involved in safety reporting and processing.
- MAHs outsourced PV functions to third parties who lacked vendor qualifications and with whom they didn't have technical agreements.
- There was no activated PV system for products with extensive patient exposure.
- Safety reports such as the Periodic Safety Update Report (PSUR), Risk Management Plan (RMP), and line listings, were not submitted to the NDA.

Aggregate Safety Reports

Unlike in some countries such as Tanzania and Zimbabwe, where submission of a PSUR is a condition only for marketing authorisation, in Uganda, a PSUR is required for all registered products. NDA expects data on Post-authorisation (Non-clinical Trial) Exposure in Uganda to be provided in the PSUR. Since Marketing Authorization Holders prepare one PSUR for the several different markets, extra required data can be stated in the cover letter submitted together with the existing PSUR.

Regarding Risk Management Plans (RMPs), NDA is working on a list of products for which RMPs must be submitted. No timeline for publication of the list was provided, however, and MAHs must simply have ears on the ground and prepare for when the requirement comes into effect.

Other Highlights

- "Guidelines on submitting periodic safety update reports and any other report that may be relevant to determine the safety, efficacy and quality of a drug" are still in use, and MAHs must comply with them.
- Pharmacovigilance regulations 37 of 2014 and 41 of 2021 are still active.
- Any ad-hoc report requested by NDA must be submitted within 30 calendar days.
- It was also announced that the QPPV stakeholders meeting will be an annual event to ensure that all involved are well-informed and prepared for future engagements.
- Lastly, QPPVs shouldn't just be conduits for reports but they should be actively involved in preparing such reports as PSURs, Individual Case Safety Reports (ICSRs), and others.

The stakeholder meeting is a commendable initiative by the NDA. It will help QPPVs better understand regulations and support MAHs with compliance. If you require support with compliance with pharmacovigilance regulations in Uganda and other parts of Africa, you can reach out at kodokonyero@gmail.com

Summary Report from Curriculum Stakeholders' Meeting

On 12th October 2023, NDA held a PV curriculum stakeholders' meeting with support from WHO. Below are key highlights of the meeting:

General

- It is possible to introduce a new course at any stage provided you meet the NCHE minimum standards.
- The Pharmacovigilance Curriculum (PVC) can either be adopted through full accreditation by the NCHE OR as an innovation (over and above the minimum standards) by the individual universities, something that does not contravene the NCHE requirements.
- It will be good to package the deliberations and output of this meeting to be showed with the NCHE, being the key drivers.
- Other institutions to engage are UMDPC, Nurses Council, BTVET (Health), UNMEB, AHPC, UAHEB in addition to the NCHE.
- Pharmacovigilance should be taught to the final year students (at the tail end) to students who already have back ground knowledge of pharmacology and Involve community health workers like the VHTs in Pharmacovigilance training.

Degree in Pharmacy

- NDA engaged PSU about the PVC
- In turn, PSU engaged NCHE and got the PVC accredited for pharmacy degree courses.

Degree in medicine, nursing and dentistry

- The universities present (Makerere, Gulu, Busitema, Kabale, King Caesar, Kampala, Soroti) welcomed the innovation and concurred that it is important and timely. Other institutions represented were nurses' council and national curriculum development center.
- A number of them promised to start implementation of some aspects immediately, as they pursue the journey of official accreditation by NCHE.
- It may be difficult to implement it as a standalone course unit.
- Given that it is cross cutting, it is easier to embed aspects of the course in already existing courses.
- It will require scaling down the content for non-pharmacists
- It will be housed in the department of pharmacology.
- The road map to full accreditation will involve: discussion at the department, followed by the faculty curriculum committee, followed by the school board, followed by the Senate and finally by the council before submission to the NCHE.
- There will be need for follow up of the implementation by the individual universities and TOT

Diploma and Certificates in Nursing

- Pharmacology taught is very minimal.
- Pre-requisite knowledge of pharmacology is important for the proper uptake of the PVC.
- Nurses curriculum is due for review and therefore, this intervention is timely

Road map for the Universities in attendance

University	Road map	Timeline
Busitema	• HOD will call for a department meeting to express the urgent need to incorporate PV training. • This will be presented to the faculty curriculum committee • Then to the faculty board to endorse • Present to the senate • Finally to NCHE	One month March 2024 April 2024 June 2024
Soroti University	Curriculum is due for review This presents the opportunity to incorporate PVC as a new course unit. • For continuing students the course will be merged with therapeutics • Committed to submit this proposal to HOD pharmacology • Then school board • Then senate and finally quality assurance committee. • Finally to NCHE.	Next year No timelines given
Kabale University	Will integrate PV course in pharmacology department • Suggested 1 contact hour per week • No clear road map was given	Timelines not clear
King Ceasor University	They are in the process of curriculum review for MBChB and emphasized this to be a prime time to introduce the idea to management. Committed to report to dean about the need for PV curriculum. Then Present it to the curriculum committee in pharmacology department – faculty board and finally the senate.	No timelines given

	Finally encouraged NDA to follow up with the different institutions on implementation of the curriculum	
Gulu University	Pharmacovigilance course unit already incorporated in the training curriculum with four course units. They intend to review and update the PV course unit content to be in line with the PV curriculum guide presented.	N/A

- NDA and WHO to develop Pharmacovigilance training content with relevant IEC materials tailored to the local setting.
- Conduct a refresher training course for the trainers
- Engage the different stakeholders involved at a national level especially Commissioner health Education training department at ministry of Education, allied health professionals' council, Uganda council for nurses and midwifery, UDTEB, UAHEP and express the urgent need to incorporate PV in the national training curriculum.
- The National Curriculum Development Center should be consulted and engaged too.
- Identify those institutions that have already submitted their programs for review for them to incorporate PV.
- Explore Assessment driven approach, by engaging the national examining bodies-this will force tutors to find ways of training their students in PV.
- Requested for guidance on the minimum education requirements for the trainer for pharmacovigilance.

National council for Higher Education

- Accredits Curricula for degree programs
- For those with running programs the law allows to readjust the curriculum as they see fit as long as it doesn't affect 70% of the program
- Process for accreditation is on going
- Council has 1 seating per Quarter to assess and approve curricula
- Must be submitted within the first 15 days of the Quarter
- Council conducts Desk review of the curricula, then invites experts to review curricula and provide feedback and recommendations
- Conduct an inspection of the facility to ascertain if they have all the pre-requisite requirements to conduct the training of the courses in the curriculum submitted.
- Recommended that NDA/WHO organize another stakeholder engagement with examining and professional bodies for health care professionals.

Appendix 1:

Reporting Centres and Number of Reports

Facility	Number of Reports
Direct Patient Report	1251
Luweero General Hospital	635
Entebbe RRH	479
MJAP Mulago	203
Kiruddu NR Hospital	149
Lira RRH	148
Soroti RRH	133
Mugabi Medical Center	129
Gulu RRH	128
Busolwe General Hospital	115
Mildmay Hospital	114
Mbarara RRH	108
IDI Mulago	97
Arua RRH	88
Kayunga RRH	81
Hoima RRH	80
Bududa General Hospital	64
Jinja RRH	56
Fort Portal RRH	44
Mbarara Municipal Clinic HC IV	44
Yumbe RRH	44
Butabika NR Hospital	39
TASO Masaka	32
Koboko General Hospital	28
Mubende RRH	25
Uganda Heart Institute	25
Moroto RRH	24
Bwizibwera HC IV	22
Katakwi General Hospital	20
Amuria General Hospital	19
Kagadi General Hospital	18
Pallisa General Hospital	18

Facility	Number of Reports
Kitovu Hospital	17
JCRC	16
Adjumani General Hospital	14
Kalangala HC IV	14
Angal St Luke Hospital	13
Atutur General Hospital	13
Bugiri General Hospital	13
Bwera General Hospital	13
Lyantonde General Hospital	13
Masindi General Hospital	13
Bukomero HC IV	11
Buwenge General Hospital	11
Kawolo General Hospital	11
Kiryandongo General Hospital	11
Lubaga Hospital	11
Mukuju HC IV	11
St Balikuddembe Ug Cares	11
Bukedea HC IV	10
Kalagala HC IV	10
Namayumba HC IV	10
Itojo General Hospital	9
Kabale RRH	9
Uganda Cares Kampala	9
Kitagata General Hospital	8
Yerya HC III	8
Kassanda HC IV	7
Kitgum General Hospital	7
Nabweru HC III	7
Panyadoli HC IV	7
Taso Rukungiri	7
Busimbi HC II	6
Kapchorwa General Hospital	6

Facility	Number of Reports
Kawempe Home Care	6
Moyo General Hospital	6
Rakai General Hospital	6
Amai Community Hospital	5
Holy Family Hospital Nyapea	5
Kaberamido General Hospital	5
Kiboga General Hospital	5
Ndejje HC IV	5
Nebbi General Hospital	5
Uganda Cares Rakai	5
Abim General Hospital	4
Alebtong HC IV	4
Bundibugyo General Hospital	4
Kitebi HC III	4
Kiwangala HC IV	4
Mbale RRH	4
Rubaga Hospital	4
St Francis Hospital Njeru	4
St Marys HC III Kigumba	4
Wakiso HC IV	4
Apac General Hospital	3
Bugongi HC III	3
BullIsa General Hospital	3
Holy Innocent Childrens Hospital	3
Kaabong General Hospital	3
Masindi Military Hospital	3
Mityana General Hospital	3
Namugongo Fund for Special Children	3
Nazigo HC III	3
Oli HC IV	3
Rushoroza Hospital	3
St Gabriel Mirembe Maria HC III	3
Uganda Cares Masaka	3
AHF Uganda Cares	2
Akilok HC II	2

Facility	Number of Reports
Anaka General Hospital	2
Apwori HC III	2
Busowa HC II	2
Ecopharm	2
Gombe Hospital	2
John and Family Medical Clinic	2
Kasanga PHC	2
Kawaala HC III	2
Kawempe NRH	2
Kibaale HC IV	2
Kigungu HC III	2
Kigwera HC III	2
Kyanamuyonjo HC III	2
Lokolia HC III	2
Masaka RRH	2
Mpunge HC III	2
Mukono General Hospital	2
Mulago NR Hospital	2
Nampunge HC II	2
Namutumba HC III	2
Opopongo HC II	2
Panyimur HC III	2
Uganda Cancer Institute	2
VIIV Health Care Limited	2
Villa Maria Hospital	2
Yumbe HC IV	2
Aboke HC IV	1
Alere HC III	1
Biharwe HC III	1
Birimuye HC II	1
Bobi HC III	1
Bufundi HC III	1
Bukoto HC II	1
Bukunda HC III	1
Bumanya HC IV	1

Facility	Number of Reports
Busowobi HC III	1
Butenga HC IV	1
Buyinda HC III	1
Corsu Hospital	1
Cure Childrens Hospital	1
Dr Charles Farthing Uganda Cares	1
Ecopharm Kibuye	1
Gebemech HC II	1
Ginko Pharmacy	1
Goma HC III	1
Gombe HC II	1
Hope Comprehensive Hospital	1
Hospis Medical Clnic	1
Ihk Namwongo	1
Ishaka Adventist Hospital	1
Kaboong General Hospital	1
Kabuyanda HC IV	1
Kaharo HC IV	1
Kakabara HC III	1
Kakuka HC III	1
Kalungu HC III	1
Kamwezi HC III	1
Kapchorwa Prisons HC II	1
Kapelebyong HC IV	1
Kasawo HC III	1
Kashekye HC III	1
Kimaka HC III	1
Kisangala HC IV	1
Kitwe HC IV	1
Kityerera HC IV	1
KIU Teaching Hospital Ishaka	1
Kumi HC IV	1
Kyere HC III	1
Lacor Hospital	1
Lama HC III	1

Facility	Number of Reports
Mayuge HC III	1
Medical Trauma Centre	1
Mulanda HC IV	1
Mungula HC IV	1
Murchison Bay Prison Hospital	1
Mushenene HC III	1
Muyembe HC IV	1
Nabutiti HC III	1
Naguru Police HC IV	1
Nakasero Hospital	1
Nakawuka HC III	1
Namanyonyi HC III	1
Nambieso HC III	1
Namwendwa HC IV	1
Ngora HC IV	1
Novartis	1
Nsambya Hospital	1
Nswize HC IV	1
Ntinda Medical Center	1
Nyaradot HC III	1
Otwal HC III	1
Paiula HC II	1
Palabek Ogili HC III	1
Pfizer Global Pharmaceuticals	1
St Francis Hospital Buluba	1
St Joseph's Buyege HC III	1
St Joseph's Hospital	1
St Luke Bujuni HC III	1
St. Paul HC IV	1
Tororo General Hospital	1
Tororo Prison HC III	1
Uganda Cares HC II Soroti	1
Virika Hospital	1
Wera HC III	1

Appendix 2:

Safety Label Variations Received at NDA 2023-2024

Product Name	Licence Holder	Summary of Approved Changes	Date of NDA Approval
Sodium Valproate Controlled Release (Valcontin®)	Modi Mundipharma Pvt. Ltd	Addition of the following indications: In Mania/Bipolar; Prophylaxis of Migraine	25th June 2024
NebIVolol hydrochloride + Hydrochlorothiazide (Nebilet®)	Menarini International Operations Luxembourg S.A	Update to Sections 4.4 and 4.8 of the SmPC and section 2 of the PIL; Warnings and precautions to include; Non-melanoma skin cancer and choroidal effusion, acute myopia and secondary angle-closure glaucoma.	25th June 2024
Amlodipine	Novartis Pharma Services Inc	Update to section 4.9 of the SmPC to include a write up on overdose that manifests as non-cardiogenic pulmonary oedema.	25th June 2024
Artemether + Lumefantrine (Coartem®)	Novartis Pharma Services Inc	Route of administration added on primary packaging	25th June 2024
Amoxicillin+ Clavulanic Acid (Augmentin®, Clavulin®)	Glaxosmithkline Pharmaceutical Kenya Limited	Addition of drug induced enterocolitis to the section of warnings and precautions and adverse reactions. Addition of linear IgA disease adverse reactions section. Addition of information of the interaction of penicillins and methotrexate under the section of interactions.	14th June 2024
Human Albumin (Albunorm®)	Octapharma Ag.	Update of SmPC and PIL to include a warning on sodium in Albunorm 20%	14th June 2024
Bedaquiline Fumarate (Sirturo®)	Janssen-Cilag International Nv	Update of section 4.6 of the SmPC in order to update information on breast-feeding based on new literature.	29th May 2024

Polio virus; (Mahoney) type 1-inactIVe+(MEF-1) type 2-inactive + (saukett) type 3 inactive	Sanofi Aventis South Africa Pty Ltd	**SmPC update**: Syncope (fainting) can occur following, or even before, any vaccination as a psychogenic response to the needle injection. Procedures should be put in place to prevent any injury due to fainting and to manage syncopal reactions. **PIL Update**: Fainting can occur following, or even before any needle injection. Also, talk to your doctor or nurse if you or your child has fainted during a previous injection.	14th June 2024
Empaglifozin +Metformin hydrochloride (Flozicard XR 10 mg/100mg®)	Cipla Ltd	Change of product name from Empaglifozin and Metformin hydrochloride extended-release tablets 10 mg/1000 mg to Flozicard XR 10 mg/1000 mg	14th June 2024
Cabotegravir (Apretude®)	Glaxosmithkline Pharmaceutical Kenya Limited	Addition of hypersensitivity to adverse reactions, warnings and precautions.	7th June 2024
Human Insulin (Humulin Mixture®)	Lily France SA	Addition of cutaneous amyloidosis and lipodystrophy information. Addition of hyperglycaemia and hypoglycaemia information related to site of injections.	5th June 2024
Betamethasone disodium phosphate + Betamethasone dipropionate (Diprofos®)	MSD (Pty) Ltd	**Update**: Studies have shown an increased risk of neonatal hypoglycaemia following antenatal administration of a short course of betamethasone to women at risk for late preterm delivery. **Update**: Phaeochromocytoma crisis, which can be fatal, has been reported after administration of systemic corticosteroids. Corticosteroids should only be administered to patients with suspected or identified phaeochromocytoma after an appropriate risk/benefit evaluation.	24th May 2024

Darunavir (Prezista®)	Janssen Ortho LLC	Crystal neuropathy added to adverse reactions.	21st May 2024
Oxytocin Acetate (Oxytocin 10 IU®) Minapharm	Pharmaceutical & Chemical Industries	Removal of subcutaneous as a route of administration.	13th May 2024
Ebola Zaire vaccine (Ervebo®)	MSD (Pty) Ltd	Extension to the existing indication of ervebo vaccine to include vaccination of infants aged 1 year and older.	30th April 2024
Desloratadine (Aeriallerg®)	Pharma International Co. Ltd	Weight increase and increased appetite added to list of possible side effects.	16th April 2024
Trimethoprim + Sulfamethoxazole (Septrin®)	Beta Healthcare International Ltd	Addition of text under contraindications to demonstrate Trimethoprim-sulfamethoxazole must not be given in combination with dofelitide; addition of text to section 4.5 to illustrate the consequences (serious ventricular arrhythmias associated with QT prolongation, including torsades de pointes) of taking both drugs together; addition of text under 4.8 undesirable effects to note acute generalised exanthematous pustulosis (AGEP) as a potential adverse event associated with trimethoprim-sulfamethoxazole.	26th March 2024
Isoflurane (Isotroy®)	Troikaa Pharmaceuticals Limited	**In precautions**: Added a section for paediatric use to include the warning on paediatric neurotoxicity.	7th March 2024
Paracetamol (Infulgan®)	Yuria-Pharm Llc	Manufacturing Site Update of PIL and SmPC in the following sections: warnings and precautions, taking or using other medicines, pregnancy and possible side effects.	26th February 2024

Tadalafil (Titanafil 5®)	Acino AG	Update to SmPC and PIL involving: Exclusion of the indication for urinary symptoms associated with a common condition called benign prostatic hyperplasia.	13th February 2024
Amlodipine (Amlodipine 5 mg tablets)	Novartis Pharma Services Inc	Update of section 4.9 (overdose) for the CDS to include non-cardiogenic pulmonary oedema as a consequence of amlodipine overdose that may manifest with delayed onset (24-48 hours post ingestion) and require ventilatory support.	24th January 2024
Etonogestrel (Implanon NXT®)	Organon South Africa (Pty) Ltd	Undesirable effects updated to include information on possible vasovagal reactions, and the PIL updated to include wording that "after insertion of the implant the patient might feel faint".	4th January 2024
Ibuprofen + Pseudoephedrine HCL (Sinutab 3-way®)	Johnson & Johnson Pty Ltd	Update in the SmPC of Sinutab 3 way to include safety updates in the following sections - the contraindications, warnings and special precautions, interactions, side effects and known symptoms of overdose. Contraindications: Do not take Sinutab: If you are pregnant (20 weeks or more), trying to become pregnant or are breastfeeding; Do not give SINUTAB® 3-WAY to children that are younger than 12 years of age; If you are taking digoxin (used to treat heart conditions).	4th January 2024
Sodium valproate Ph. Eur. (Epilim Chrono®)	Sanofi Aventis Kenya Limited	Update of Summary of Product Characteristics (SmPC) and Patient Information Leaflet (PIL) to include potential for reproductive toxicity following exposure to valproate in childhood.	6th December 2023

Diclofenac sodium (Diclo-denk®)	Denk Pharma Gmbh &Co Kg	Update of SmPC and PIL to add information on what to know before you use Diclo-denk rectal, warnings and precautions, other medicines and possible side effects sections.	7th November 2023
Azithromycin monohydrate (Azithro-denk®)	Denk Pharma Gmnh & Co Kg	Update to product SmPC and PIL to add QT prolongation in the warning and precautions section 2 for the PIL and 4.4 for the SmPC.	7th November 2023
Desloratadine (Aerius®)	MSD (Pty) Ltd	Change in the summary of product characteristics and patient information leaflet of Aerius to include depressed mood and eye dryness with a frequency of "unknown" in sections 4.8 (undesirable effect) of the SmPC and section 4 (Possible side effects) of the PIL.	19th October 2023
Rivaroxaban (Xarelto®)	Bayer Healthcare Ag	To add a new ADR ('eosinophilic pneumonia) with the frequency 'very rare' to the SmPC/PIL due to new pharmacovigilance data.	7th November 2023
Carbamazepine (Tegretol®)	Novartis Pharma Services Inc	Update to SmPC and PIL as follows: Section 6: Warnings and precautions: Addition of angioedema and anaphylaxis under hypersensitivity reactions. Section 8: Interactions: Addition of brivaracetam under agents that may raise the active metabolite carbamazepine-10, 11-epoxide plasma levels. Section 9: Pregnancy, lactation, females and males of reproductive potential: addition of risk of neurodevelopmental disorders among children exposed to carbamazepine during pregnancy.	2nd November 2023

Diclofenac sodium (Diclo-denk®)	Denk Pharma GmbH & Co. Kg	Addition of a warning that the product contains lactose to the folding box.	19th October 2023
Sodium valproate Ph, Eur (Epilim®)	Sanofi Winthrop Industries	Update of section 5.3 in the SmpC to indicate the potential for impairment of fertility in males from non-clinical data (exposure in adults and juveniles).	12th October 2023
Fexinidazole (Fexinidazole Winthrop®)	Sanofi Aventis Kenya Limited	Update of PIL and SmPC to add suicidal ideation to the neuropsychiatric adverse reactions in section 4.8. · Reinforcement of warnings and widening of contraindication "diabetic ketoacidosis" to "any type of metabolic acidosis". · New details on interaction between Metformin and OCT ½ substrates/ inhibitors.	4th October 2023
Rituximab (Rilast®)	Hetero Labs Limited	Pemphigus Vulgaris (PV) has been added as a new therapeutic indication to Rilast 100.	28th September 2023
Diclofenac sodium (Diclodyne®) suppository	Bliss Gvs Pharma Ltd	Change in brand name from Diclodyne to Lofnac-100	22nd September 2023
Diatrizoic acid (Urografin®)	Bayer East Africa Ltd	Additional information on thyroid dysfunction has been added to the special warnings and precautions as follows: It is necessary to carry out a careful benefit/risk assessment, especially in patients with diagnosed or suspected hyperthyroidism or goitre, as iodinated contrast media can interfere with thyroid function or aggravate or induce hyperthyroidism and thyroid storm.	22nd September 2023

<table>
<tr><td>Fexinidazole Winthrop</td><td>Sanofi Aventis Kenya Limited</td><td colspan="3">Update of Summary of Product Characteristics (SmPC) and Patient Information Leaflet (PIL) to include warnings and precaution that cases of severe irreversible hepatotoxicity/acute liver failure have been reported in patients with Cockayne syndrome.</td><td>28th August 2023</td></tr>
<tr><td colspan="2">Dihydroartemisinin + Piperaquine 40/320 (Ridmal®)
Ajanta Pharma Limited</td><td colspan="3">Revision of dosage instructions by body weight as per updates to the reference product (D-Artepp) as follows:
<table><tr><th>Body weight (kg)</th><th>Daily dose (mg)</th><th>Total tablets</th></tr><tr><td>11 to less than 17</td><td>One 40/320 mg tablet per day</td><td>3</td></tr><tr><td>17 to less than 25</td><td>One and a half 40/320 mg tablets per day</td><td>4.5</td></tr><tr><td>25 to less than 36</td><td>Two 40/320 mg tablets per day</td><td>6</td></tr><tr><td>36 to less than 60</td><td>Three 40/320 mg tablets per day</td><td>9</td></tr><tr><td>60 to less than 80</td><td>Four 40/320 tablets per day</td><td>12</td></tr><tr><td>Over 80</td><td>Five 40/320 tablets a day</td><td>15</td></tr></table></td><td>18th August 2023</td></tr>
<tr><td>Candesartan +Hydrochlorothiazide (Atacand® Plus)</td><td>Astra Zeneca Ab</td><td colspan="3">Update of SmPC/PI sections; 4.4 Special warnings and precautions,4.8 Undesirable effects to include: Acute respiratory distress syndrome (ARDS): Very rare severe cases of ARDS have been reported after taking hydrochlorothiazide. Pulmonary oedema usually develops within minutes to hours after hydrochlorothiazide intake.</td><td>16th August 2023</td></tr>
</table>

Dapaglifozin (Forxiga®)	Astrazeneca UK Limited	Addition of indication: Treatment of heart failure in adults as a result of DELIVER study. Addition of a Lithium drug-drug interaction in section 4.4.	9th August 2023
Metformin (Glucophage®) 500 mg	Merck (Pty) Ltd	Update of SmPC and PIL to include:	3rd August 2-23
		Lifting of contraindication: chronic heart failure	
		Lifting of contraindication: moderate renal impairment	
		Lifting of contraindication: concomitant use with iodinated contrast materials	
		Removal of interaction with ACE inhibitors.	
		Initiation of treatment in patients with CKD stage 3b (previously not recommended).	
		Reinforcement of warnings and widening of contraindication “diabetic ketoacidosis” to “any type of metabolic acidosis”.	
		New details on interaction between Metformin and OCT ½ substrates/ inhibitors.	
Bisoprolol hemifumarate (Concor-5®)	Merck (Pty) Ltd	Update of SmpC and PIL to include a rare but possible side effect i.e. skin and subcutaneous tissue hypersensitivity reactions can occur presenting with (itching, temporary flush, rash and angioedema).	3rd August 2023

Ceftriaxone (Vaxcel®) 500 mg	Kotra Pharma SDN	Updates to sections on pregnancy and lactation [Ceftriaxone crosses the placental barrier. Safety in human pregnancy has not been established. Low concentrations of Ceftriaxone excreted in human milk, caution should be exercised when Ceftriaxone is administered to a nursing woman] Use in paediatric populations: Studies have shown that Ceftriaxone, like some other cephalosporins, can displace bilirubin from serum albumin. Therefore, caution should be exercised when considering Ceftriaxone treatment in hyperbilirubinaemia in neonates. Ceftriaxone should not be used in neonates (especially premature) at risk of developing bilirubin encephalopathy. During prolonged treatment, the blood profile should be checked at regular intervals. Caution in individuals hypersensitive to penicillins: Serious and occasionally fatal hypersensitivity reactions have been reported in patients receiving therapy with beta-lactams. Before initiating therapy with Ceftriaxone, careful inquiry should be made concerning previous hypersensitivity reactions to penicillins, cephalosporins, carbapenems or other beta lactams. If an allergic reaction occurs, Ceftriaxone MUST be discontinued and appropriate alternative therapy instituted.	3rd August 2023

Amlodipine besilate (Amlo®)	GETZ Pharma (Pvt) Limited	Change in brand name from Amlo to Lopicard 10 mg	3rd August 2022
Vitamin B1+B2+B6+ Niacinamide (Vitamin B Complex®)	Rene Industries Limited	Change of product name from vitamin B complex to Becoren tablets	29th July 2022
Acetyl salicylic acid (Aspirin tablets®)	Rene Industries Limited	Change of product name from Aspirin tablets to Aspiren tablets	29th July 2022
Ibuprofen 400 mg (Ibuprofen Denk®)	Denk Pharma Gmbh & Company Kg	Safety signal: Ibuprofen; ketoprofen; and fixed-dose combinations – serious exacerbation of infections.	14th July 2023
Cyclosporin (Neoral®)	Novartis Kenya Limited	Addition of caution related to effect on driving and using machines	6th July 2023
Cyclosporin (Neoral®)	Novartis Kenya Limited	Addition of caution related to effect on driving and using machines	6th July 2023
		Addition of Drug-Drug interactions with mycophenolate mofetil and eltrombopag	
		Addition of maximum human dose as per current standards.	
Paracetamol (Tamin®)	Elda International DMCC	Updates to 4.4. and 4.5 i.e. interactions with other drugs to include a caution when paracetamol is concomitantly administered with Flucloxacillin – it causes an increased risk of HAGMA (high anion gap metabolic acidosis), particularly in patients at risk (renal impairment, sepsis, malnutrition, those using the maximum daily dose and other sources of glutathione deficiency (including chronic alcoholism).	6th July 2023
		Recommendation: Close monitoring, including measurement of urinary 5-oxoproline.	

Diphenhydramine HCl+Ammonium Chlroide+Codeine phosphate (Benylin® with Codeine)	Johnson& Johnson Pty Ltd	Dosage made more restrictive – only indicated for adults now.	6th July 2023
Diphenhydramine HCl+Ammonium Chlroide+Codeine phosphate (Benylin® with Codeine)	Johnson& Johnson Pty Ltd	Dosage made more restrictive – only indicated for adults now. Risk of death in ultra-rapid metabolizers of codeine is included. **Interactions**: CNS depressants may cause additive CNS and respiratory depression. Effects on ability to drive made more explicit.	6th July 2023
Esomeprazole (as Magnesium trihydrate) (Nexium®)	Astrazeneca UK Limited	New information under sections of special warnings: a potential side effect, DRESS (Drug Rash with Eosinophilia and Systemic Symptoms) has been added.	6th July 2023

Notes:

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