

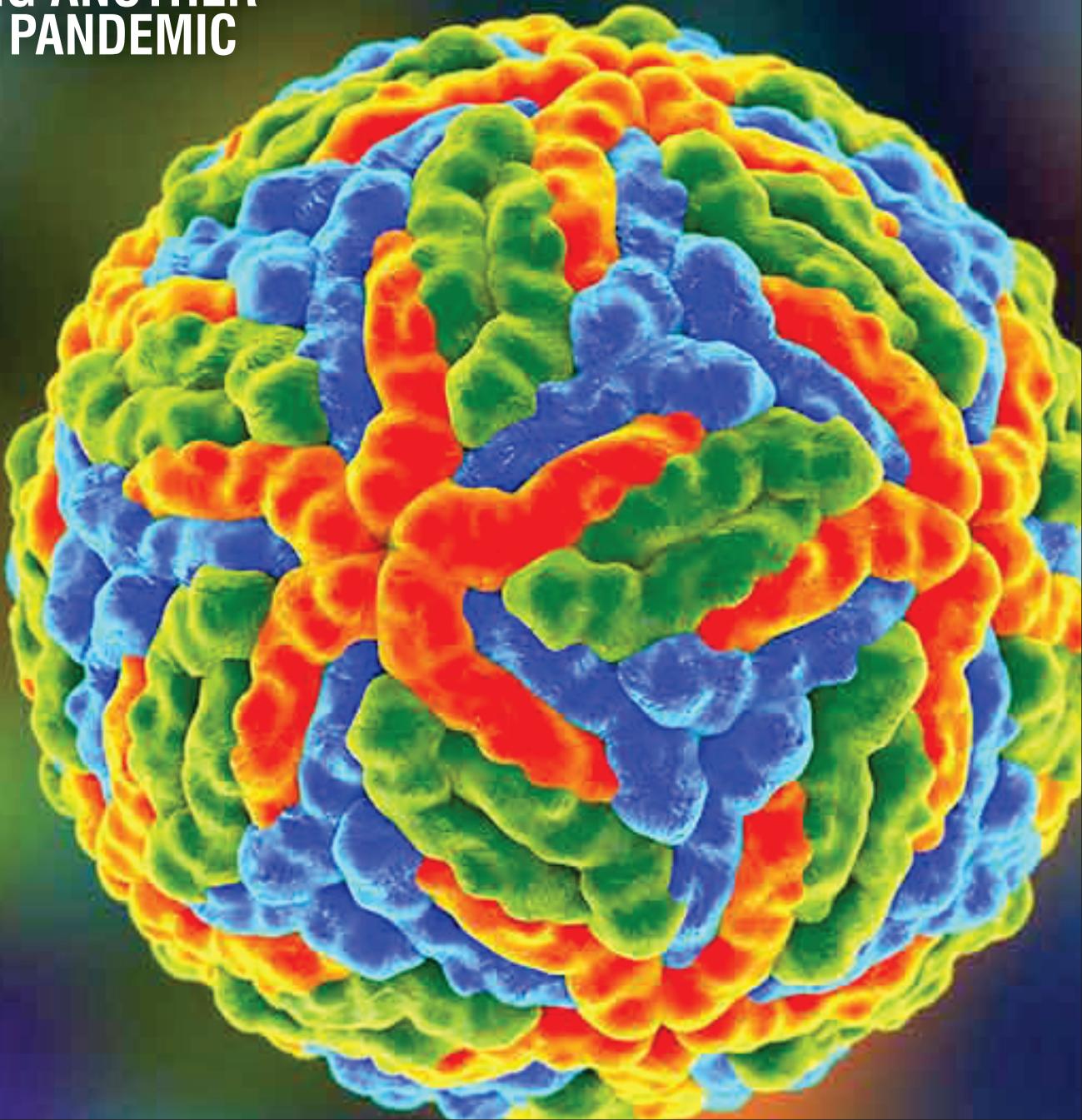
*Empowering Pharmacists
Protecting the People*

Nigerian Journal of Community Pharmacy (NJCP)

MAIDEN EDITION

A Publication of the: Association of Community Pharmacists of Nigeria (ACPN)

NEGLECTED TROPICAL DISEASES: AVOIDING ANOTHER GLOBAL PANDEMIC



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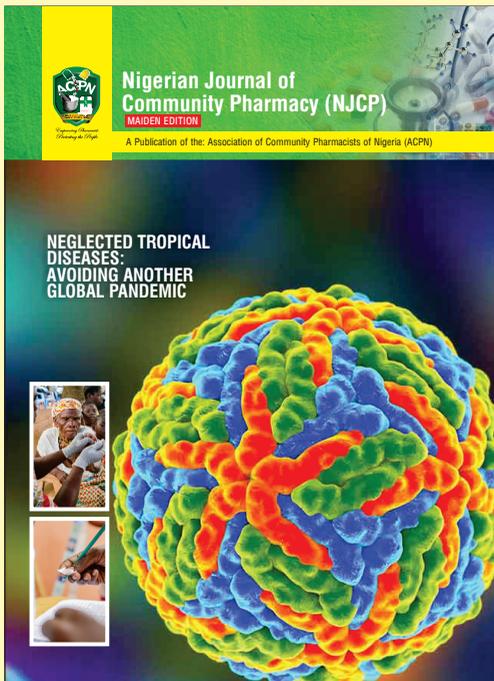
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The Nigerian Journal of Community Pharmacy is the official Journal of the Association of Community Pharmacists of Nigeria and began in 1999 as The Drug Bulletin. The Drug Bulletin enjoys the readership of Community Pharmacists and other healthcare providers across the states in Nigeria and it is produced one or two times a year.

In our 41st Annual National Scientific Conference, held in Lagos (2022), the Association launched the presentation of scientific papers in our Conferences. This follows the decision to engender the culture of Research in Community Practice in consonance with the vision of the International Pharmaceutical Federation (FIP). This necessarily transforms the ACPN Drug Bulletin into the Nigerian Journal of Community Pharmacy and the restructuring of the ACPN Drug Information Centre into the Research and Development Unit.

Scope: To cultivate, accentuate and incentivize the culture of research in Community Pharmacy practice. To keep the readers in touch with the latest development in pharmacy practice and healthcare space, improve global health by providing professional article reviews and advanced treatment plans for common health problems.

Submission of Articles: Scientific papers can be sent to our mail at acpnresearchgate@gmail.com

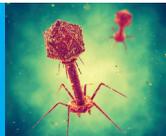
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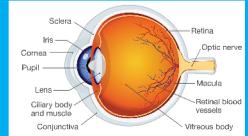
NEGLECTED TROPICAL DISEASES (NTDs)



RABIES



TRACHOMA



THE ROLE OF COMMUNITY PHARMACISTS IN TRADITIONAL COMPLIMENTARY AND ALTERNATIVE MEDICINE (TCAM) PRACTICE

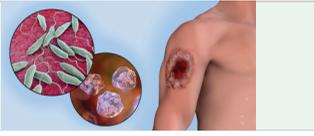
DENGUE FEVER



TRYPANOSOMIASIS



LEISHMANIASIS



SCHISTOSOMIASIS



BURULI DISEASE



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EDITOR'S NOTE



It's been an eventful year with a lot of activities geared towards excellence in our practices as Community pharmacists. With the support and encouragement of our National Chairman Pharm Adewale Oladigbolu, *FPSN* we are taking the bull by the horn in channeling a new course by bringing on ideas and innovations that will serve as a springboard to make us reach our goals faster and better.

One of the ideas and innovations being pursued by this administration is to engender a culture of research in our practice. This is geared towards making to be more conscious of our duties as Community pharmacists that we are first scientists before being entrepreneurs. Hence the birth of the NIGERIAN JOURNAL OF COMMUNITY PHARMACY where we can showcase our dexterity in bringing onboard statistics which could be used in influencing policies that affect the healthcare delivery system of our dear country.

Neglected Tropical Diseases (NTDs) are common but under-diagnosed and undertreated. The epidemiology of NTDs is complex and often related to environmental conditions. Many of them are vector-borne, have animal reservoirs, and are associated with complex life cycles. All these factors make their public health control challenging.

This challenge could not be taken up by no other than the community pharmacist by way of raising consciousness, training, documentation, and idea sharing on these diseases.

Their premiere edition beyond driving below the Headlines also looks at ways for charting a new course for Nigerian Community pharmacists by way of including research being carried out at the Community pharmacy level.

As always, your feedback is important to us in our bid to serve you better. I would like to thank all the contributions to this edition. We appreciate the sacrifice in its entirety. And we hope that the information contained in this edition will inspire further greatness in our practice.

Regards
Pharm Giwa Babajide Hammed, MAW

Evaluation of the Use of Digital Technologies to Improve Case Management of
Uncomplicated Malaria by Community Pharmacists in Nigeria

FULL LENGTH ARTICLES

<https://doi.org/10.4314/njpr.v18i2.7>

Published 2023-01-02

M R IHEKORONYEK P OSEMENE O ALLIW O ERHUN

Abstract

Background: Malaria remains a tropical disease of public health concern. Treating malaria infection without parasitological diagnosis and follow-up yields poor outcomes.

Objectives: This study assessed knowledge, attitudes, use of Malaria Rapid Diagnostic Tests (mRDTs), and evaluated impact of a mobile health intervention on case management by community pharmacists.

Materials and Methods: The mixed - method study enrolled 112 community pharmacists in Kwara State Nigeria, randomized into control and intervention groups (n = 56 each). Same validated questionnaires were used to obtain baseline and post-intervention data. Only intervention group received educational YouTube videos, mRDT kits and twice-weekly short message service follow-up for six months. Pre- and post-intervention scores were measured and compared in both groups using Mann-Whitney U and t-tests at p <0.05.

Results: Baseline knowledge was moderate in both control (5.56 ± 1.41) and intervention (5.70 ± 0.81) groups; significantly improved to high level (8.90 ± 3.20) post-intervention in intervention group ($t = 13.07$, $p = 0.04^*$) unlike control group ($t = 11.25$, $p = 0.06$). Attitude of intervention cohort improved significantly from 'borderline' (around 2.5) pre-intervention to 'positive' (above 2.5) post-intervention ($Z = 3.379$, $p = 0.001^*$), unlike control group which remained negative (below 2.5) pre- and post-intervention, ($Z = 0.159$, $p = 0.874$). Among controls, mRDT use remained low pre- and post-intervention (6.41 ± 1.21 and 6.65 ± 1.02) ($t = 1.1784$, $p = 0.255$); intervention cohort moved from low to moderate (6.58 ± 1.13 to 11.04 ± 1.18) ($t = 15.407$, $p < 0.05^*$).

Conclusion: Both primary (mRDT use) and secondary (knowledge and attitude) outcomes were significantly improved by mHealth intervention. It is recommended that community pharmacists be trained and incentivized to deploy mRDT and digital technologies in routine management of malaria.

Diabetes Patients' Willingness to Pay for Clinical Pharmacy Services in Community Pharmacies in Uyo,
Akwa Ibom State, Nigeria

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Abstract

Background: Community pharmacists are the most accessible health care professionals. Many patients with diabetes regularly visit community pharmacies for diabetes-related services such as medications refill, blood glucose testing, education on self-care management practices, etc. The willingness of patients with diabetes to pay for these services would guide stakeholders in fixing an amount as well as encourage the providers to offer more disease-focused services.

Aim To assess diabetes patients' willingness to pay (WTP) for clinical pharmacy services, as well as the factors associated with WTP for these services.

Methods: This cross-sectional descriptive survey was conducted among 450 diabetes patients visiting 15 community pharmacies in Uyo metropolis, Akwa Ibom State, Nigeria, between August and September 2021. Self-reported questionnaires were utilized to assess WTP, patient perception of the pharmacist's role in patient care, as well as their satisfaction with the services provided by the community pharmacist. Data were analyzed with Statistical Package for the Social Sciences (SPSS, version 25.0). Statistical significance was set at $p < 0.05$.

Results: Two hundred (50.9%) respondents were willing to pay for a 10-minute consultation with the pharmacist. The average (minimum-maximum) amount they were willing to pay was ₦1,166.35 (₦50 – ₦10,000). Patient employment status, monthly income, satisfaction with income, health insurance status, insulin use, perception of the pharmacist's role in patient care, and satisfaction with the pharmacist's services, were significantly associated with WTP for these services ($p < 0.05$). None of the patient characteristics predicted the exact amounts patients were willing to pay ($p > 0.05$). Among those who were not willing to pay for the services, inability to pay and being against paying for all healthcare services were the two most frequently reported reasons for their response.

Conclusion: Many of the diabetes patients assessed expressed a positive WTP for Community Pharmacists-provided care and would pay a reasonable amount for such services. Patient socio-economic status, their perception of the pharmacist's role in their care, as well as satisfaction with the Pharmacist's services affected their WTP. For possible remuneration for clinical services, Community Pharmacists should continue to grow their practices and stay current with patient care.

Knowledge, Interest, Perception and Practice of Community Pharmacists in Nigeria Towards Practice-Based

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Research

Background: The introduction of the Eight-Star Pharmacists concept by the World Health Organisation, which identified research as a core competency area for pharmacists has amplified the need for practice-based research (P-BR). However, evidence on the understanding and practice of research among Community Pharmacists (CPs) in Nigeria is uncertain.

Aim: To assess the knowledge, interest, perception and practice of CPs in Nigeria towards P-BR.

Methods: This was a cross sectional online survey among CPs in Nigeria using researcher-designed questionnaire. The instrument was categorized as follows: Section 1 – introduction and consent, section 2 – respondents' demographic characteristics, section 3 – knowledge assessment, section 4 – interest assessment, section 5 – perception assessment and section 6 – practice assessment. The research was conducted between 23rd April and 12th June, 2022 and the results were presented using descriptive statistics.

Results: A total of 87 CPs participated in the survey, comprising of more male respondents (75.9%). Slightly more than half (52.4%) were ≤ 40 years, had Bachelor of Pharmacy degree (56.3%) as their highest qualification and were ≤ 10 years in practice (53%). Majority of respondents were CPs in Northern region of the country (63.2%). Knowledge assessment showed that 57.1% had good understanding of practice-based research. More than two-thirds (88.3%) of the respondents' expressed interest in research and would like to improve their research skills through training (95.4%). The perception index showed that most CPs strongly agreed/agreed that being involved in research was important for their career growth (88.5%) and were confident that they could conduct research (94.3%). Practice of research was poor, as majority (75.9%) had never designed nor conducted (70.1%) a community pharmacy-based research in the past and 78.2% had never published an article.

Conclusion: This study suggests that slightly more than half of the respondents had good knowledge of P-BR, while most had poor practice disposition. Respondents expressed high degree of interest to participate in research and were positively disposed to capacity building trainings that would improve their skills and competencies towards conducting P-BR. We strongly recommend that the leadership of the Association of Community Pharmacists of Nigeria should prioritize P-BR competency trainings for her members.

A Descriptive Study:

The Potential Impact of Providing Two Standard Latex Condoms versus Other Condom Brands in a Community Pharmacy Setting Okeke Uchechukwu Chukwudi

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Background/Aim: This research aimed to analyse condom sales data from a community pharmacy over a two-year period. In the first year, sales data for two standard latex condoms were recorded as the baseline sales, while in the second year, sales data from various other condom brands, in addition to the standard latex condoms, were analysed. The objective was to determine whether the provision of different condom brands in a community pharmacy could provide insights into condom acquisition patterns and whether clients, regardless of price, preferred pharmacies stocking a variety of condom brands over offering only standard latex condoms.

Method: The research involved compiling sales data for two standard latex condoms and a variety of other condom brands with special features (scented, mint, ribbed, dotted) over a two-year period, from January 2021 to December 2022. The data was collected from Medihub Pharmacare Ltd, a community pharmacy located in Rumuowha, Eneka, Obio Akpor LGA in Rivers State. From January 1, 2021, to December 31, 2021, the pharmacy only offered two standard latex condoms for sale to clients: Kiss® and Gold Circle® Latex Condoms. Each condom sale represented a client's willingness to engage in protected intercourse, thereby enjoying the inherent benefits of protection against HIV, other STIs, and unwanted pregnancies. From January 1, 2022, to December 31, 2022, additional condom brands were introduced alongside the earlier two standard latex condoms. These included Fiesta® (Ribbed, Dotted, Strawberry, Chocolate, Prolong, Xtralong), Fire® (Xtacy, Xtra), Durex® (Extra Safe, Featherlite, Select Flavours), Kiss® (Dotted, Mint, Featherlight), and Flex® condoms, collectively referred to as "Other Condom brands."

Results: Comparing the sales data from both years, the total sales of all condoms in 2022 (1,149) were slightly higher than the total sales of standard latex condoms in 2021 (979), with a difference of 170 units.

Conclusion: This study suggests that community pharmacies should stock different brands of condoms in their inventory as it can influence condom acquisition by clients, potentially leading to a reduction in the incidence of HIV, other STIs, and unwanted pregnancies.

Introduction

Community pharmacies play a crucial role in promoting sexual health and providing accessible and affordable contraceptives, particularly condoms. Condoms are essential for preventing sexually transmitted infections (STIs) and unintended pregnancies, making their availability in community pharmacies vital for public health. In the context of HIV/AIDS prevention, condom use has garnered significant support and consensus, as it provides an impermeable barrier against sperm-sized particles and STI pathogens (Johnson et al., 2018; Smith et al., 2015).

However, studies indicate that a high proportion of young people do not consistently use condoms, thereby increasing their risk of HIV/STI infection (Pinyaphong et al., 2018). Consistent and correct condom use is crucial for effective prevention, and it remains the most effective preventive behavior against HIV transmission (Ferrer-Urbina et al., 2021). Despite the importance of condom use, the literature suggests that there is a gap in consistent usage, especially among youth and young adults.

Male latex condoms are the only contraceptive method that, when used correctly and consistently, provides protection against STIs, including HIV/AIDS. While billions of condoms are used worldwide annually, experts estimate that a significantly higher number is required to adequately protect against STIs and HIV/AIDS (Green et al., 2002). Condom distribution programs at the community level have the potential to reach large populations and avert a significant number of HIV infections and associated medical costs (Bedimo et al., 2002).

While some argue that providing a single type of condom in public sector programs is justified, others suggest that the provision of assorted brand-name condoms can increase condom acquisition and usage (Weaver et al., 2011). Previous research conducted in a hospital setting, where condoms were provided free of charge, showed that the variety of brand names can influence condom acquisition. To build upon this knowledge and consider the different contexts of a community pharmacy where condoms are sold, this research aims to analyze the sales data of condoms over a two-year period. The first year serves as a baseline, focusing on the sales data of the two standard latex and cost-effective condoms, while the second year includes sales data from other brands alongside the baseline condoms. The objective is to gain insights into condom acquisition patterns in a community pharmacy setting and determine whether clients, irrespective of price, prefer pharmacies to offer a variety of condom brands over providing only standard latex condoms.

Method

This study involved the compilation of sales data for two standard latex condoms and a variety of other condom brands with special features (scented, mint, ribbed, dotted, and thin film) over a two-year period, spanning from January 2021 to December 2022. The data was collected at Medihub Pharmacare Ltd, a community pharmacy located in Rumuowha, Eneka, Obio Akpor LGA in Rivers State. The condoms were strategically arranged on a shelf near the entrance of the pharmacy to ensure easy accessibility and choice for customers. Sales records were documented on a daily basis, regardless of purchase frequency,

quantity, refills, or client gender. The cumulative sales data for each month was calculated by summing up the daily records. It is important to note that every condom sale represents a client's intention to engage in protected intercourse, thereby availing themselves of the inherent benefits, including protection against HIV, other STIs, and unwanted pregnancy. During the period from January 1, 2021, to December 31, 2021, only two standard latex condoms, namely "Kiss®" and "Gold Circle® Latex Condoms," were offered for sale at the pharmacy. Subsequently, starting from January 1, 2022, until December 31, 2022, additional condom brands were introduced, including "Fiesta®" (Ribbed, Dotted, Strawberry, Chocolate, Prolong, Xtralong), "Fire®" (Xtacy, Xtra), "Durex®" (Extra Safe, Featherlite, Select Flavours), "Kiss®" (Dotted, Mint, Featherlight), and "Flex® condoms." Collectively referred to as "Other Condoms," these brands were placed in the same location on the shelf, directly opposite the entrance, allowing clients to browse and make informed choices. The pharmacist was available to provide information about specific condom brands and explain their unique features to clients. Sales data for the two standard latex condoms (Kiss® and Gold Circle®) were recorded separately from the sales data for the other condom brands. Monthly sales data was calculated separately for each category during the observation period.

Results Table 1: Monthly Break Down of Sales Data of Two Standard Condoms (Kiss® and Gold Circle®)

January 2021 - December 2021

Months	Total Condoms Sales (Units)
January	46
February	62
March	54
April	82
May	95
June	48
July	80
August	98
September	95
October	105
November	104
December	110
Grand Total of Sales Data (Year 2021)	979

Average Condom Sale for the year 2021
(Kiss® and Gold Circle®)

81.6

Months	Condoms (Kiss® and Gold Circle®) (Units)	*Other Condom Brands (Units)	Total Condom Sales 2022 ("Kiss® and Gold Circle®" Plus Other Condoms) (Units)
January	78	11	89
February	57	11	68
March	87	13	100
April	91	13	104
May	69	16	85
June	75	9	84
July	72	20	92
August	105	20	125
September	90	12	102
October	71	24	95
November	88	15	103
December	80	22	102
Total (Year)	963	186	1149
Average Condom Sales for the year 2022 (Kiss® and Gold Circle®)			80.3
Average Condom Sales for the year 2022 (*Others Condom Brands)			15.5
Average Condom Sales for the year 2022 (Both Standard Latex Condoms and Other Condoms Brands)			95.8

* Fiesta® (Ribbed, Dotted, Strawberry, Chocolate, prolong, Xtralong), Fire® (Xtacy, Xtra), Durex® (Extra Safe, Featherlite, Select Flavours), Kiss® (Dotted, Mint, featherlight), Flex® condoms

Table 1 presents the monthly breakdown of sales data for standard latex condoms during the period from January 2021 to December 2021. The data was compiled from the pharmacy sales sheet, revealing an average monthly sales figure of 81.6 condoms throughout the year. The total number of condoms sold during this period amounted to 963 units.

In Table 2, we present the monthly sales data breakdown for both the standard latex condoms and other condom brands, covering the period from January 2022 to December 2022. The sales figures for these two categories were summed to obtain the

breakdown of the total sales for all condom purchases in 2022, regardless of the brand or specific type. The average monthly sales for standard latex condoms during 2022 amounted to 80.3 units, while for other condom brands, the average was 15.5 units. When combined, the average monthly condom sales for the year 2022 reached 95.8 units, with a total of 1,149 condoms sold.

Comparing the sales data between the two years, it is evident that the total sales of all condoms in 2022 (1,149) slightly surpassed the total sales of standard latex condoms in 2021 (963), resulting in a difference of 170 units.

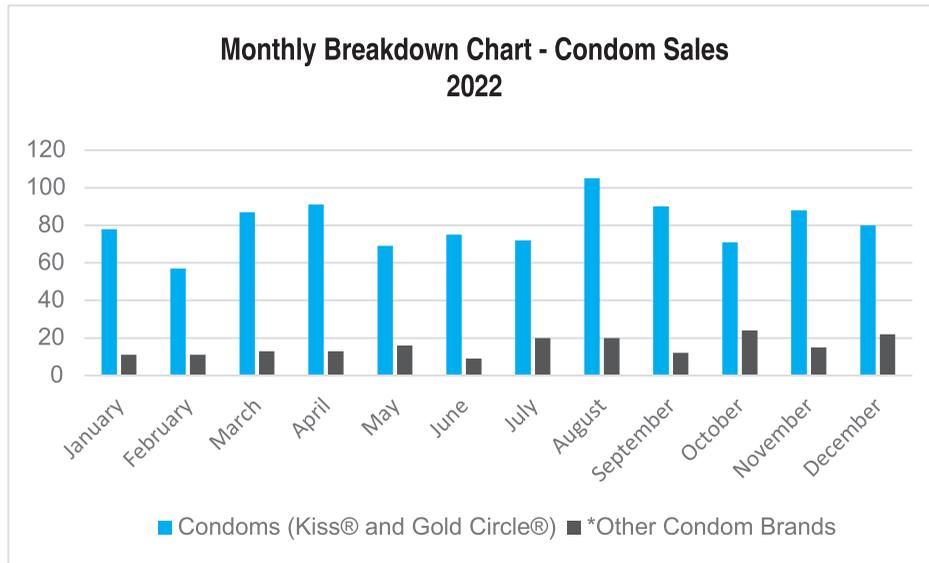


Figure 1: Monthly breakdown comparison of sales data of Standard Latex condoms versus other condom brands in the year 2022.

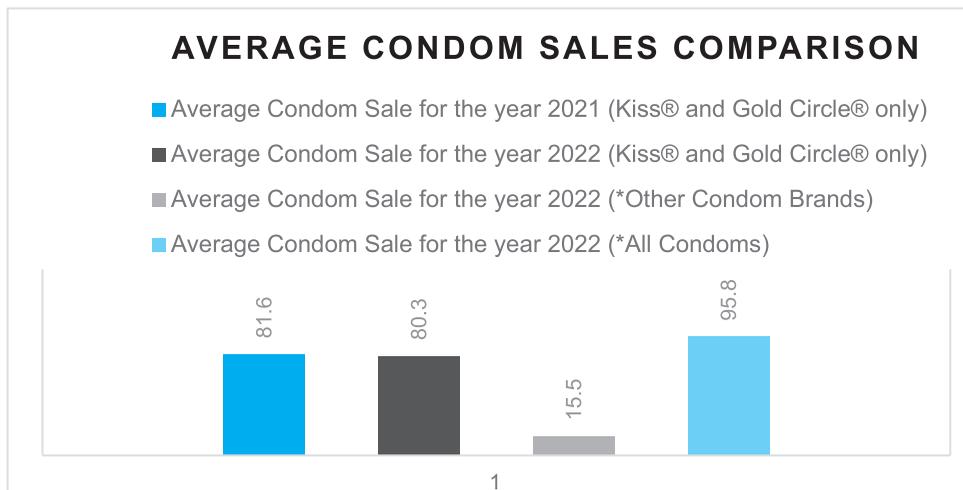


Figure 2: Average Condom sales comparison 2021 versus 2022

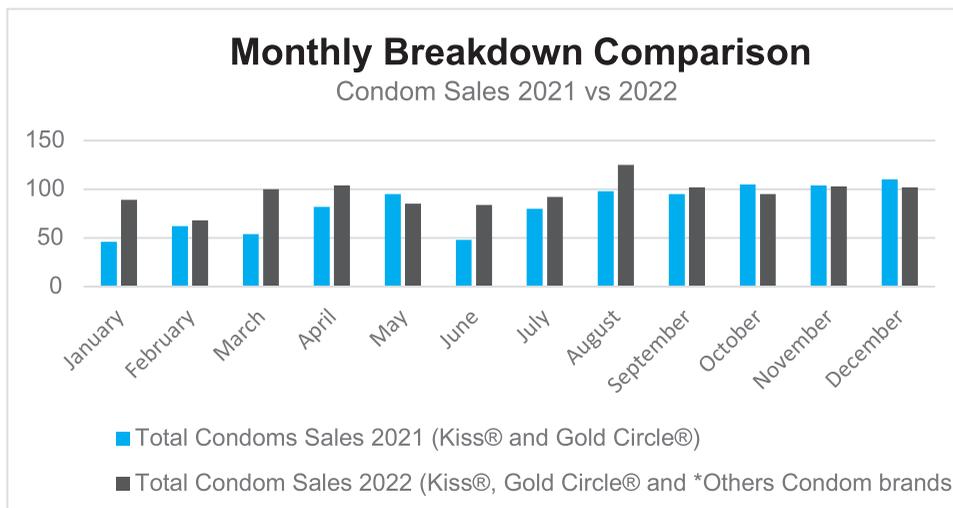


Figure 3: Monthly breakdown comparison of Standard Latex Condoms total sales data in 2021 versus Monthly Sales Data for All condom Brands in 2022

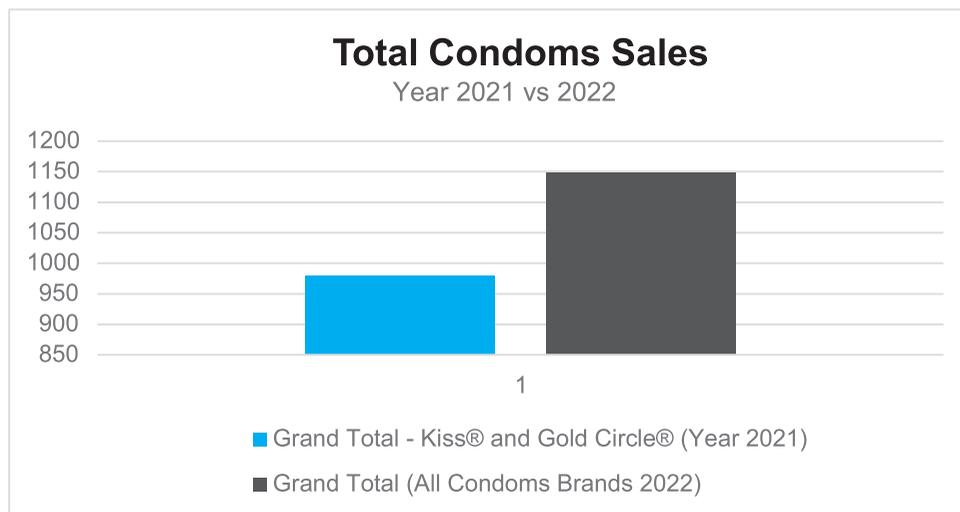


Figure 4: Total Condom Sales for the year 2021 versus 2022

Based on Figure 1 and Table 2, the sales data for standard latex condoms exhibited monthly fluctuations but consistently outperformed other condom brands. Over time, the sales of other condom brands showed growth, leading to a difference of 186 units compared to standard latex condoms (963 - 186). When comparing the average monthly sales data for standard latex condoms in 2021 with that of 2022 (81.6 - 80.3), a slight decline in sales for standard latex condoms was observed in 2022. In contrast, the average monthly sales for other condom brands stood at 15.5. Furthermore, when comparing the average sales data for standard latex condoms sold in 2021 to the total sales of all condoms sold in 2022 (81.6 - 95.8), there was a marginal increase in the overall condom sales in 2022.

This trend is also reflected in the monthly breakdown of sales data for 2021 and 2022 (Figure 3), where the sales of all condom brands consistently surpassed those of standard latex condoms, with the exception of May, October, and December. Examining the total sales data for 2021 versus 2022 (Figure 4), it is evident that all condom brands sold in 2022 exhibited a slight advantage over the sales data for standard latex condoms.

Discussion

The results obtained suggest a significant finding that the provision of various condom brands has contributed to an increase in condom acquisition by

clients, even when they are sold in community pharmacies without any promotional offers. However, the increase in sales for all condom brands in 2022 was only slightly higher. It is evident from the sales data that clients still prefer the standard latex condoms (Kiss® and Gold Circle®) as sampled in this research. One possible reason for this preference could be the relatively lower cost of the standard latex condoms compared to the other brands included in the study.

The decline in sales for standard latex condoms in 2022 may indicate that clients are willing to explore and try other condom brands that they believe offer additional benefits beyond just protection. On the other hand, some clients may prefer to acquire both standard latex condoms and other brands in order to experiment and determine which brand suits them best.

The offering of assorted brand-name condoms can appeal to individuals in various ways. Factors such as unique packaging (e.g., wrapper colour or design), brand name recognition, or specific condom styles (e.g., flavoured or coloured) can influence people's choices. Individuals may have existing familiarity or loyalty toward a particular brand name, or they may simply be interested in trying out new brands and styles (James L. Williams et al., 2001).

Conclusion

It is highly recommended that community pharmacies stock a variety of condom brands in their inventory, as this practice has the potential to positively influence condom acquisition by clients. By offering different

brands, pharmacies can contribute to lowering the incidence of HIV, other sexually transmitted infections (STIs), and unwanted pregnancies. The global healthcare landscape is increasingly focused on preventive measures, and the availability of diverse condom options can play a crucial role in promoting consistent and correct condom usage.

By ensuring that a range of condom brands is readily accessible to clients, pharmacies can help in reducing the reliance on emergency contraceptive pills, the misuse of antibiotics in combination with antacids following unprotected sex (such as Ampiclox GSK and Andrews Liver Salt), as well as the occurrence of illegal abortions, particularly among individuals seeking the drug Misoprostol.

By promoting the consistent and correct use of condoms through stocking various brands, community pharmacies can actively contribute to public health efforts aimed at preventing the spread of sexually transmitted infections and unplanned pregnancies.

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NEGLECTED TROPICAL DISEASES (NTDs)

Pharm Oluwaseyi Charles



I. Introduction

In her 73rd World Health Assembly of November 2021, the World Health Organization (WHO) endorsed the resolution of her Executive Board on Neglected Tropical Diseases. The document which was titled a 'roadmap', contains prescribed steps and roles needed to tackle the neglected tropical diseases, with the overarching goal of eradicating the diseases by 2030. The ultimate objectives of the roadmap is to prevent, control, eliminate or eradicate 20 diseases and disease groups as well as cross-cutting targets aligned with the Sustainable Development Goals. This is a continuation

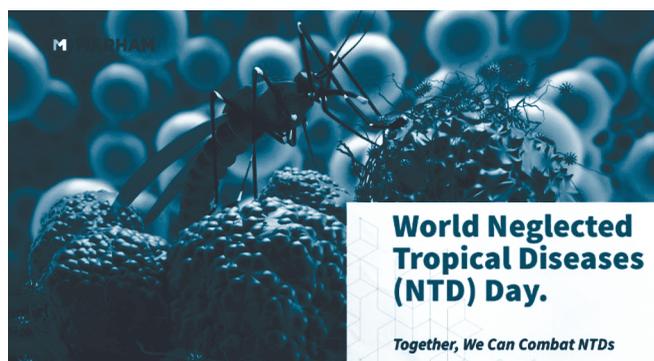
of the cascaded effort of several years of WHO on neglected tropical diseases.

II. What are Neglected Tropical Diseases (NTDs)?

Neglected tropical diseases (NTDs) are a diverse group of 20 conditions that are mainly prevalent in tropical areas (mainly Africa, Asia, and South America) where they affect more than 1 billion people who live in impoverished communities. They are caused by a variety of pathogens including viruses, bacteria, parasites, fungi and toxins. They affect the population

Disease	Global Prevalence (millions)	Population at Risk	Regions of Highest Prevalence	Source
Ascariasis	807	4.2 billion	East Asia and Pacific Islands, sub-Saharan Africa, India, South Asia, China, Latin America and Caribbean	Bethony et al., ⁶ de Silva et al. ⁷
Trichuriasis	604	3.2 billion	Sub-Saharan Africa, East Asia and Pacific Islands, Latin America and Caribbean, India, South Asia	Bethony et al., ⁶ de Silva et al. ⁷
Hookworm infection	576	3.2 billion	Sub-Saharan Africa, East Asia and Pacific Islands, India, South Asia, Latin America and Caribbean	Bethony et al., ⁶ de Silva et al. ⁷
Schistosomiasis	207	779 million	Sub-Saharan Africa, Latin America and Caribbean	Steinmann et al. ⁸
Lymphatic filariasis	120	1.3 billion	India, South Asia, East Asia and Pacific Islands, sub-Saharan Africa	Ottesen, ⁹ WHO ¹⁰
Trachoma	84	590 million	Sub-Saharan Africa, Middle East and North Africa	International Trachoma Initiative, ¹¹ Médecins sans Frontières ¹²
Onchocerciasis	37	90 million	Sub-Saharan Africa, Latin America and Caribbean	Basáñez et al. ¹³
Leishmaniasis	12	350 million	India, South Asia, sub-Saharan Africa, Latin America and Caribbean	Desjeux ¹⁴
Chagas' disease	8–9	25 million	Latin America and Caribbean	WHO ¹⁵
Leprosy	0.4	ND	India, sub-Saharan Africa, Latin America and Caribbean	International Federation of Anti-Leprosy Associations ¹⁶
Human African trypanosomiasis	0.3	60 million	Sub-Saharan Africa	Fèvre et al. ¹⁷
Dracunculiasis	0.01	ND	Sub-Saharan Africa	Carter Center ¹⁸
Buruli ulcer	ND	ND	Sub-Saharan Africa	Global Buruli Ulcer Initiative ¹⁹

* ND denotes not determined.



already experiencing health and economic disparities. NTDs impair physical and cognitive development, contribute to mother and child illness and death, make it difficult to farm or earn a living and limit productivity in the workplace.

NTDs include:

Buruli ulcer; Chagas disease; dengue and chikungunya; dracunculiasis; echinococcosis; foodborne trematodiasis; human African trypanosomiasis; leishmaniasis; leprosy; lymphatic filariasis; mycetoma, chromoblastomycosis and other deep mycoses; onchocerciasis; rabies; scabies and other ectoparasitoses; schistosomiasis; soil-transmitted helminthiasis; snakebite envenoming; taeniasis/cysticercosis; trachoma; and yaws.

III. Why are they Neglected?

Unlike other infectious diseases, the importance of neglected tropical diseases is usually underestimated since many of them rarely comes with symptoms (asymptomatic) and have long incubation periods. The connection between death and a neglected tropical disease that has been latent for a long period is often not realized. Areas of high endemicity are often geographically isolated, making treatment and prevention much more difficult.

There are three other major reasons that these diseases have been overlooked: they mainly affect the poorest countries of the developing world; in recent years public health efforts have focused heavily on decreasing the prevalence of HIV/AIDS, tuberculosis, and malaria, commonly referred to as the big three. In other words, they can be generally referred to as poor people's diseases. Far more resources are given to those three diseases because of their higher mortality rates and higher public awareness of them, and

neglected tropical diseases do not currently have a prominent cultural figure to champion their elimination.

IV. Prevalence/Epidemiology

NTDs flourish mainly in rural areas, conflict zones and hard-to reach-regions. They thrive in areas where access to clean water and sanitation is scarce – worsened by climate change. Furthermore, NTDs tend to affect regions without quality healthcare, leaving poor populations vulnerable to these often debilitating diseases and newly emerging threats.

The WHO Global Report 2023 reveals that much progress has been made over the past decade. The population requiring NTD interventions decreased by 25% between 2010 and 2021, from 2.19 to 1.65 billion. As of end of 2022, 47 countries have eliminated at least one NTD; more than 1 billion people were treated for at least one NTD each year from 2015 through to 2019.

Neglected Tropical Diseases Worldwide Burden

Disease	DALYs (million)	Deaths/Yr	Deaths/Yr	Population at Risk (million)
Schistosomiasis	4.5	280,000	207	780
Hookworm	22.1	65,000	576	3200
Ascariasis	10.5	60,000	807	4200
Leishmaniasis	2.1	51,000	12	350
Trypanosomiasis	1.5	48,000	0.3	60
Chagas disease	0.7	14,000	8	25
Trichuriasis	6.4	10,000	604	3200
Leprosy	0.2	6,000	0.4	Not Determined
Lymphatic filariasis	5.8	0	120	1300
Trachoma	2.3	0	84	590
Onchocerciasis	0.5	0	37	90
Cryptococcosis	12	400,000	1	8

V. Tackling/Treatment of NTDs

Because of the multi-dimensional origin and spectra of NTDs, the treatment as well as the prevention usually

require multi-sectoral approaches. The WHO roadmap 2021-2030 reiterates this fact: “ Addressing NTDs requires cross-sectoral approaches that span from bringing medicines to the ‘end of the road’ - thus making “universal health coverage” (UHC) a reality, to relieving the associated mental health burden, to tackling fundamental human rights issues. Vector control, veterinary public health and WASH are key complements to intervention targeting humans. Despite the hydra-headed challenges in the affected countries, the Centre for Diseases Control (CDC) reported that “Since 2006, tremendous progress has been made in controlling NTDs, with 1.6 billion treatments distributed through global efforts including the U.S. Government (USG) NTD program. With a strong public-private partnership, the relatively small USG investment has leveraged more than \$11 billion in drug donations by pharmaceutical companies.”

- For instance, Guinea worm disease (GWD) affected an estimated 3.5 million people in 1986, but in 2016 only 25 cases were reported.

- Rates of lymphatic filariasis (LF) have fallen by more than 70% since the global elimination program began in 2000.
- Onchocerciasis (river blindness) was interrupted in 11 of the 13 major areas of transmission in the Americas and has been controlled throughout much of sub-Saharan Africa.
- Blinding trachoma was eliminated from Iran, Mexico, Morocco and Oman, with additional countries (Ghana, Nepal) on track to eliminate it as well.

In the last few years, many countries have been certified free of one or more of the NTDs.

The WHO road map describes the approaches needed to reach the set targets through activities built on three pillars: “(I) accelerate programmatic actions aiming at reducing incidence, prevalence, morbidity, disability, and death due to NTDs by means of scientific

Table 2. Major Characteristics of the Most Prevalent Neglected Tropical Diseases.

Disease	Vulnerable Populations	Clinical Manifestations and Associated Disabilities	Primary Interventions	Weaknesses of Current Approaches
Ascariasis	School-age children	Malnutrition, growth and cognitive delays	Single-dose albendazole or mebendazole (1–3 times/yr)	Limited access to essential medicines
Trichuriasis	School-age children	Inflammatory bowel disease, growth and cognitive delays	Single-dose albendazole or mebendazole (1–3 times/yr)	Limited access to essential medicines
Hookworm infection	School-age children, women of reproductive age	Anemia, malnutrition, growth and cognitive delays, poor pregnancy outcome	Single-dose albendazole or mebendazole (1–3 times/yr)	Limited access to essential medicines, low efficacy (mebendazole), rapid reinfection, drug resistance
Schistosomiasis	School-age children, women of reproductive age	Hematuria and urogenital disease, intestinal and liver fibrosis, growth and cognitive delays	Single-dose praziquantel	Limited access to essential medicines, potential drug resistance
Lymphatic filariasis	Adolescents, adults	Adenolymphangitis, lymphedema, hydrocele	Single-dose ivermectin or diethylcarbamazine (plus albendazole)	Limited access to essential medicines
Trachoma	Children, adults (especially women)	Trachomatous folliculitis and inflammation, trichiasis, blindness	Surgery, azithromycin, face washing, environmental control	Limited access to essential medicines and public health interventions
Onchocerciasis	Adults	Onchocerca, skin disease, blindness	Single-dose ivermectin	Limited access to essential medicines, potential drug resistance
Leishmaniasis	Children, adults	Cutaneous and mucocutaneous disease, kala-azar	Case detection and management, antimonials, amphotericin B, pentamidine, miltefosine, vector control	Limited access to essential medicines, drug toxicity, drug resistance
Chagas' disease	Children, adults	Cardiomyopathy, megacolon, megaesophagus	Case detection and management, nifurtimox, benznidazole, vector control	Inadequate vector coverage, limited access to essential medicines, poor efficacy
Leprosy	Adults	Lepromatous leprosy, tuberculoid leprosy	Multidrug therapy: rifampicin, clofazimine, dapsone	Limited access to essential medicines
Human African trypanosomiasis	All ages	Sleeping sickness	Case detection and management, pentamidine, suramin, melarsoprol, eflornithine, vector control	Inadequate surveillance, limited access to essential medicines, drug toxicity
Dracunculiasis	All ages	Disfiguring ulcer, secondary bacterial infection	Provisions for safe water, water filtration, larvicides for copepod control, case containment and surveillance	Limited access to public health control measures in Ghana and Sudan
Buruli ulcer	Children	Disfiguring ulcer	Antibiotics, débridement and skin grafting	No preventive methods available, limited access to essential surgical interventions

advances, filling gap knowledge in research, improving the effectiveness of interventions and securing new tools such as effective, standardized, and affordable diagnostics; (ii) intensify cross-cutting approaches by the integrated delivery of interventions that are common to several NTDs, mainstreaming them within national health systems in the context of universal health coverage and cross-sectoral frameworks such as WASH(water, sanitation and hygiene), the Global Vector Control Response 2017–2030 and One Health; and (iii) change operating models and culture to facilitate country ownership, including by enhancing coordination among stakeholders at global, regional, national and subnational level.”

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RABIES

Pharm Abayomi Ogunleke



1. OVERVIEW

Rabies is a zoonotic (caused by germs that spread between animals and humans) disease, designated a neglected tropical disease by the World Health Organization (WHO). It is caused by a neurotropic virus, because it preferentially attacks the nervous system. This is the cause of the abnormal behaviour and other mental dysfunctions associated with it.

Rabies can be caused any one of a number of related viruses belonging to the genus *Lyssavirus*. All mammals, theoretically, can carry rabies, but only a few species are important as reservoirs for the disease. These include dogs, bats, raccoons, foxes, cats, skunks, mongooses, wolves, and jackals. Rabid animals transmit the virus via their saliva, when it comes directly or indirectly (from saliva-contaminated objects) in contact with wounds, scratches and abrasions.

Rabies, when it manifests, is usually 100% fatal. However, pre-exposure prophylaxis/vaccination and post-exposure prophylaxis are available to prevent rabies manifestation and related death.

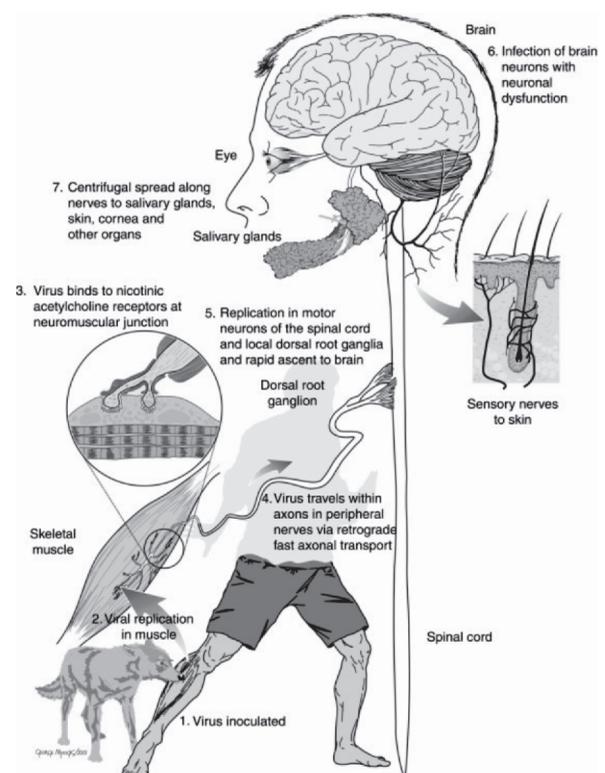
2. RABIES EPIDEMIOLOGY AND RELATED STATISTICS

Rabies predominantly affects poor and rural areas. 95% of deaths associated with the disease occurs in Africa and Asia, largely due to the cost of post-exposure prophylaxis. In recorded history, only about 12 people have contracted rabies and survived without prompt treatment and pre- or post-exposure prophylaxis. Over 59,000 people die from rabies every year, worldwide. Unvaccinated dogs are the cause of 99% of human rabies, worldwide. In contrast, however, in the United States, in the year 2018, 92.7% of human exposure came from wildlife and most human

fatalities came from bats. This reflects a country where vaccination of domestic animals, human pre-exposure vaccination and post-exposure prophylaxis, are relatively more observed. In the US, most human fatalities come from bats, because a large number of people do not know that bats are at the risk of carrying the rabies virus or do not know that they have been bitten by the animal. In the US, post-exposure vaccination has been very successful in reducing the number of human rabies deaths from more than 100 per year to just 1 or 2 annually. While unvaccinated dogs serve as the main reservoir, worldwide, less than 5% of cases in developed nations occur in domestic dogs.

Global Reservoirs of Rabies are:

- Europe: Foxes, bats



- Middle East: Wolves
- Asia: Dogs
- Africa: Dogs, mongooses, antelopes
- North America: Foxes, skunks, racoons, insectivorous bats
- South America: Dogs and vampire bats.

In the US, approximately 120,000 animals are tested for rabies every year, and approximately 6% are found to be rabid. The proportion of positive animals depends largely on the species of animal and ranges from <1% in domestic animals to >10% in wildlife species.

3. RABIES MODE OF TRANSMISSION

Rabies is a disease that spreads between animals and humans. It can be caused any one of a number of related viruses belonging to the genus *Lyssavirus*. All mammals, theoretically, can carry rabies, but only a few species are important as reservoirs for the virus. These include dogs, bats, racoons, foxes, cats, skunks, mongooses, wolves, and jackals. Rabid animals transmit the rabies virus via their saliva, when it comes directly or indirectly (from saliva-contaminated objects) in contact with wounds, scratches or abrasions. Because the virus is in the saliva, a rabid animal does not have to bite to transmit rabies; it can transmit it through saliva contact with any wound openings on the skin. Therefore, wounds should be washed thoroughly with soap and water when they come in contact with animals capable of carrying rabies. It can also be transmitted through mucosa (eyes or mouth) exposure. Inhalation of

aerosolized rabies virus is one potential non-bite route of exposure, though rare. Dogs constitute 99% of the sources of human rabies. Theoretically, human-to-human rabies virus transmission via saliva is possible. Transplantation recipients are also at risk.

There are exposures that go unrecognized. For example, a sleeping individual might be bitten by a bat without suspecting.

Undomesticated canines, such as coyotes, wolves, jackals and foxes, are most prone to rabies and serve as reservoirs. These reservoirs allow rabies to remain an indefinite public health problem.

Rabies also continues to adapt to new hosts, as well as evolve transmissibility in previously "dead-end" hosts. This means it continues to evolve ways of continuing its journey from where it normally stops.

Rabies is not spread by contacts with blood, urine, or faeces, because they do not carry the virus. The virus lives in the nervous tissue and is carried by the saliva. However, contact with blood or fluid coming out from a freshly infected wound or bite carries the risk of rabies transmission. One case of rabies was reported in China after exposure of an open wound to the blood of a person bitten by a dog; the exposed person succumbed to rabies after seeking no medical care, while the bitten individual received post-exposure prophylaxis and did not develop rabies. Apart from saliva source, rabies can also spread through contact with the brain/nervous system tissue from an infected animal.

Bite and non-bite exposures from an infected person could theoretically transmit rabies, but no such cases have been documented. Casual contacts, such as touching a person with rabies, will not spread the disease.

Rabies virus becomes non-infectious when it dries out and when it is exposed to sunlight.

4. RABIES PATHOPHYSIOLOGY

Rabies evades immune surveillance by its sequestration (hiding) in the nervous system. Therefore, antibody response is not observed. Upon inoculation

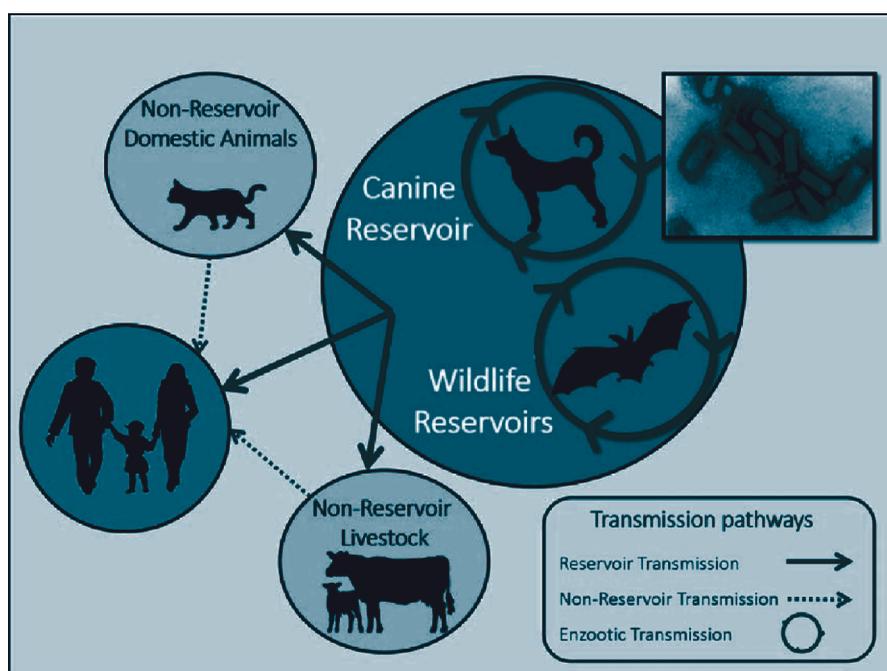


FIGURE 3 Rabies transmission cycle in reservoirs and accidental hosts. doi:10.1128 /microbiolspec.IOL5-0018-2015.f3

(introduction through a bite, wound, etc), it enters the peripheral nerves, where a prolonged incubation follows. The length of this incubation period depends on the size of the inoculum and proximity to the CNS. Amplification occurs until bare nucleocapsids spill into the neuromuscular junction and enter motor and sensory axons. At this point, prophylactic therapy becomes futile, and rabies can be expected to follow its fatal course, with 100% mortality rate. The rabies virus travels along these axons at a rate of 12-24mm/day to enter the spinal ganglion. Its multiplication in the ganglion is heralded by the onset of pain/"pin-and-needle" sensation at the site of inoculum, which is the first clinical symptom and a hallmark finding. From this point, the virus spreads quickly, at the rate of 200-400mm/day, into the CNS, and spread is marked by rapidly progressive encephalitis. It then spreads to the periphery and salivary glands, where further transmission can occur. Neural morphology and life span is normal throughout the course of the disease. Death occurs from general neuromuscular blockade and widespread neuromuscular dysfunction.

In summary, when rabies virus is introduced into a muscle through a bite from another animal, it travels from the site of the bite to the brain by moving within nerves. The animal does not appear ill during this time. The time between the bite and the appearance of symptoms is called the incubation period and it may last for weeks to months, depending on the site of exposure, amount of inoculum, type of rabies virus and immunity in the person exposed. The average duration of incubation is 20-90 days. In some cases, it can be up to a year. The period becomes shorter if exposure site is closer to the brain, e.g, the neck or head. It is shorter with a weaker immune system, and it's shorter with larger inoculum size.

A bite by an animal during its incubation period does not carry any risk of rabies infection, because the virus has not made it to the saliva. Late in the disease, after the virus has reached the brain and multiplied there to cause inflammation, it moves from the brain to the salivary glands and saliva.

5. RABIES SYMPTOMS AND MANIFESTATIONS

One early clinical sign of rabies include pain/"pin-and-needle" sensation at the site of the inoculum. This is very central and a hallmark finding and is as a result of multiplication of the virus in the spinal ganglion. Other early signs include flu-like symptoms, such as malaise, chills,

pharyngitis, fever and headache. After this stage, it moves to the brain to cause brain inflammation and acute neurologic disorders, such as muscle twitch, , prolonged erection of the penis (usually without sexual arousal) also called priapism and focal or generalized convulsions. Patients may die immediately or progress to paralysis, which may be present only in the bitten limb at first but usually becomes diffuse. This is usually simply the case in paralytic or dumb rabies, which stands for one-third of all rabies cases from dogs. However, two-thirds of human rabies cases acquired from dogs manifest as "furious rabies." In this case, patient develop agitation, hyperactivity, restlessness, thrashing, biting, tachycardia, hypertension, facial palsy, mydriasis, excessive salivation, lacrimation, perspiration, confusion or hallucinations. After several hours to days, this becomes episodic and interspersed with calm, cooperative, lucid periods. Furious episodes last less than 5 minutes and may be triggered by visual, auditory, or tactile stimuli or may be spontaneous. This stage may end in cardiopulmonary arrest or progress to paralysis. Bat-associated rabies often manifests with more atypical findings.

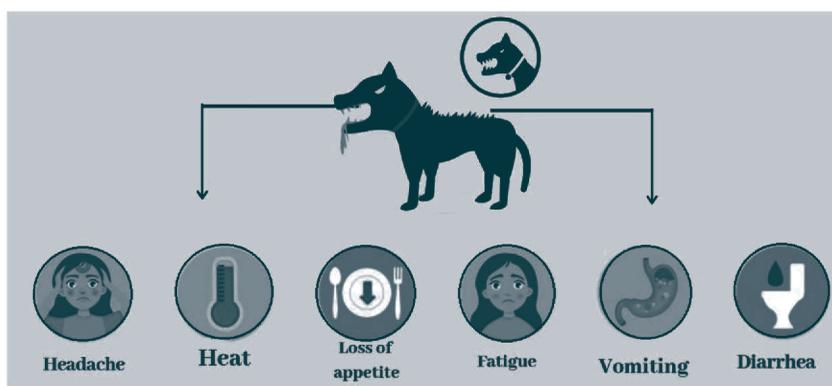
Majority of rabies patients develop hydrophobia. At the late phase, coma sets in. Without intensive care support, respiratory depression, arrest and death, occur shortly.

6. VETERINARY APPROACH TO RABIES CONTROL

It is necessary to vaccinate domestic animals against the rabies virus.

In the occasion of a bite (or other encounters that could transmit the virus) by a possibly rabid animal, it may be necessary to screen such an animal. In animals, diagnosis of rabies requires proper euthanasia and removal of the animal's brain. The tests must include tissue from, at least, two locations in the brain, preferably the cerebellum and the brain stem. The Direct Fluorescent Antibody Test is the

• Symptoms of Rabies



most frequently used, being the most rapid and reliable of all tests available for routine use.

A dog or cat may be observed for 10 days to identify clinical symptoms of rabies, but this method may be more unreliable in other animals. Quick and reliable test involves dissection of the animal's brain.

7. LABORATORY TESTS FOR RABIES

Several tests are needed; no single test is sufficient. Tests are performed on samples of saliva, serum, spinal fluid, and skin biopsies of hair follicles at the nape of the neck. Saliva can be tested by virus isolation or reverse transcription, followed by polymerase chain reaction. Serum and spinal fluid are tested for antibodies to rabies virus. Skin biopsy specimens are examined for rabies antigen in the cutaneous nerves at the base of hair follicles. The skin biopsy test is the most reliable test of rabies during the first week.

8. GENERAL PUBLIC SAFETY MEASURES AGAINST RABIES

Dogs and livestock that have contacts with humans should be vaccinated. An animal can be considered immunized within 28 days after initial vaccination, when a peak rabies virus antibody titer is reached. An animal is considered currently vaccinated and immunized if the initial vaccination was administered at least 28 days previously or booster vaccinations have been administered in accordance with recommendations. Because a rapid anamnestic response is expected, an animal is considered currently vaccinated immediately after a booster vaccination.

Vaccination of dogs and livestock can be started at no sooner than three months of age. Some cat vaccines can be given as early as two months of age. Regardless of the age of the animal at initial vaccination, a booster vaccination should be administered one year later. All dogs, cats, and ferrets should be vaccinated and revaccinated against rabies according to product label directions. If a previously vaccinated animal is overdue for a booster, it should be revaccinated. Immediately following the booster, the animal is considered currently vaccinated and should be placed on a vaccination schedule according to the labeled duration of the vaccine used.

Wounds/scratches/abrasions from animals should be washed thoroughly immediately with soap and water. This can be the first preventive/life-saving measure against rabies virus, as it decreases the chances of rabies virus penetration. Animal bites should generally be avoided and

prevented. Bitten wounds should be washed somewhat vigorously for longer than 10 minutes. Wound debridement may be necessary. Virucidal agents, like povidone iodine, should be used. Where possible, such wounds should not be stitched but allowed to heal by themselves.

Exposure may go unrecognized by a sleeping individual; thus, post-exposure prophylaxis is recommended whenever a bat is discovered in the room of a sleeping or incapacitated person.

A bat appearing docile on the ground or easily caught is ill and presumably rabid. Animals with rabies may act unusually aggressive. Children should be taught not to handle wild animals.

Pre-exposure prophylaxis is strongly recommended for people who are more likely to come into contact with rabid animals, such as veterinarians, researchers, zoo keepers, wildlife rehabilitation experts, animal control officers, or people travelling to regions where rabies is common.

For healthcare professionals and healthcare workers, standard precautions are recommended in the case of patients with rabies in healthcare settings, including use of personal protective equipment during activities that may pose a risk of salivary contamination of mucosa or break in skin.

9. RABIES PROPHYLAXIS

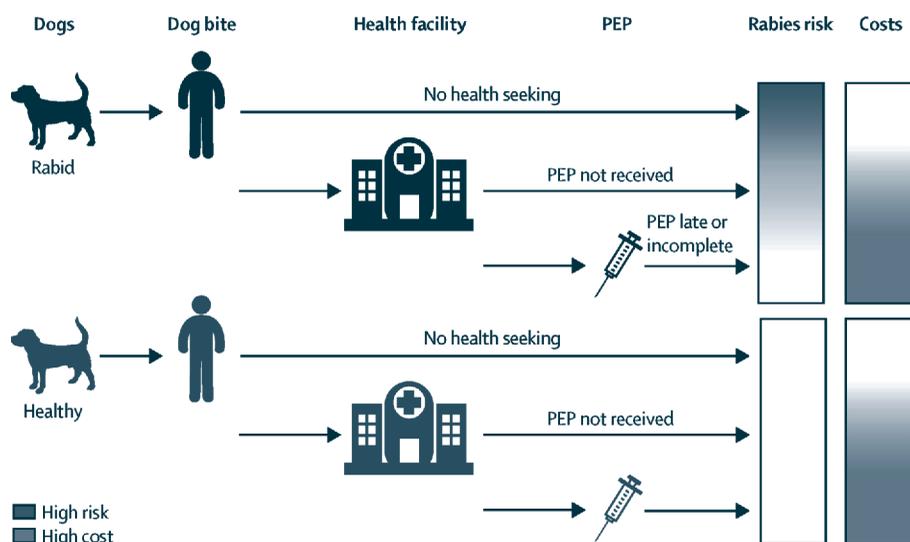
Once rabies begins to manifest, the CNS is already affected and, at this stage, the disease cannot be stopped from progressing and worsening. However, pre-exposure prophylaxis and post-exposure prophylaxis exist for the disease.

Pre-exposure prophylaxis (PrEP) is the protection given to prepare an individual for a possible rabies virus exposure, while post-exposure prophylaxis (PEP) comes after a suspected or actual exposure to the virus. Whether pre-vaccinated (PrEP) or not, everyone who is potentially exposed to the virus (through a bite, scratch, etc) still requires post-exposure prophylaxis.

However, those previously vaccinated will require a reduced amount of vaccine doses and will require no immunoglobulin.

Three types of vaccines are now commonly used for rabies disease prophylaxis. They are used both in pre-exposure and post-exposure cases.

They are:



should be infiltrated around any wound(s) and any remaining volume should be administered IM at anatomical site distant from vaccine administration. In children, the full dose of immunoglobulin may not be enough to completely infiltrate wound sites; therefore, diluting with normal saline is recommended. For emphasis, vaccines and immunoglobulins should not be administered at the same site; they should be far apart. Also, vaccine and immunoglobulin should not be administered with the same syringe. Vaccine should also not be administered through the gluteus

muscle, as antibody response may be reduced. For young children less than 2 years old, the anterolateral thigh is recommended for vaccine administration.

- (I) HDCV (Human Diploid Cell Culture Rabies Vaccine)
 - (II) PCEC (Purified Chick Embryo Cell), and
 - (III) RVA (Rabies Vaccine Adsorbed)
- (A) Post-exposure Prophylaxis for Previously Unvaccinated Individuals: There are different intramuscular schedules for exposed individuals, namely:
- (I) The 5 dose regimen, which consists of vaccine administration on days 0, 3, 7, 14 and 28.
 - (II) The 2-1-1 regimen: Two doses are given on day 0, one through the deltoid muscle of the right arm and the other through the deltoid muscle of the left arm. On day 7, another dose is given, and, on day 21, the last dose is given.

For post-exposure prophylaxis in immunocompromised individuals, antibody response should be assessed 2-4 weeks after vaccination, to determine if an extra dose will be required.

For these exposed individuals who are previously unvaccinated, the rabies immunoglobulin (RIG) should also be given as soon as possible, not later than 7 days, at the dose of 20iu/kg for Human RIG (HRIG) for adults and children (pulled from the sera of immunized human donors) or 40iu/kg of Equine RIG (ERIG) (derived from horses). The administration of rabies immunoglobulin confers quick immunity, before appreciable antibody build-up takes place in about 2 weeks. Vaccines are yet needed, because immunoglobulins do not confer long-term protection. As much as possible, some amount of the full dose of the RIG

- (B) For previously vaccinated individuals, two doses of rabies vaccine is needed, one on day 0 and the other on day 3, while immunoglobulin is not needed.
- (C) Pre-exposure Prophylaxis: Is recommended for those at increased risk of exposure by virtue of their occupation or place of residence. This comprises of three doses, given on days 0, 7, 21 or 28. Those at continuous high risk of exposure will require booster doses.

Those working with live rabies virus are at highest risk. They will require titre value assessment every 6 months and a booster those if titre falls below 0.5IU/mL. For animal handlers working in rabies endemic areas, titre value should be checked every 2 years and booster dose given if titre value is less than 0.5IU/ml. These two types of individuals are at continuous risk and may not even be able to recognize subtle means by which they have been exposed to rabies virus for any form of post-exposure prophylaxis.

In the US, a 2-dose pre-exposure prophylaxis is now being made to replace the 3-dose regimen and to protect for 3 years, with options for maintaining protection beyond 3 years.

Vaccines for intradermal route are now also developed with their guideline, for those who wish to adopt it.

Rabies is yet a real tropical disease. Necessary knowledge, awareness, measures and resources, must be deployed for its effective control.

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TRACHOMA

Pharm Abayomi Ogunleke

1. INTRODUCTION

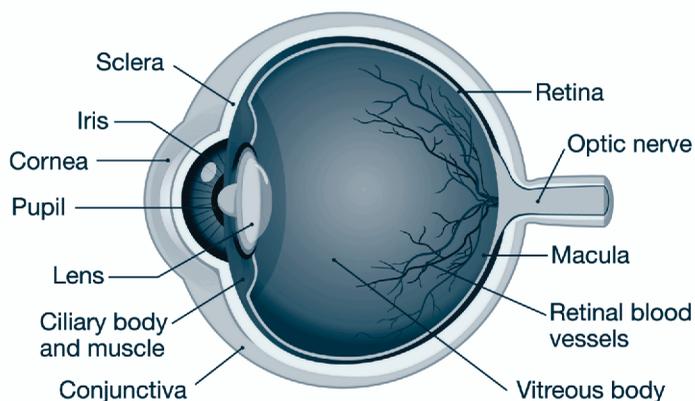
Trachoma, a neglected tropical disease, is the world's leading infectious cause of blindness. Notably, it causes keratoconjunctivitis (combined inflammation of the cornea and conjunctiva). It results from the obligate intracellular bacterium, *Chlamydia trachomatis*.

While the conjunctiva is a membrane that lines the inner surface of the eyelid and also covers the front part of the eye, the cornea is the outer layer of the front of the eye, which helps to focus light for clear sight.

C. trachomatis causes the inflammation of both the cornea and the conjunctiva.

Actually, different serovars(or serotypes) of *Chlamydia trachomatis* exist. A serovar is a form of bacteria, virus or immune cells of different individuals, based on cell surface antigens. This is why the *Chlamydia trachomatis* forms that cause genital infections are different from those responsible for trachoma. Serotypes A-C (namely, A, B, Ba and C) cause trachoma, while D-K cause genital infections.

A single episode of *C. trachomatis* ocular infection produces only a self-limiting mucopurulent (producing pus and mucus) conjunctivitis. It is



repeated infections that lead to conjunctival scarring and distortion of the lid margin, which causes the eye lashes to turn inward and repeatedly rub against the cornea (trichiasis). Without proper care, trachoma ultimately leads to blindness.

2. MODE OF TRANSMISSION AND RISK FACTORS

C. trachomatis spread through contact with discharge from the eyes or nose of an infected person. Hands, clothings, towels and insects can also be routes for transmission. Poor sanitation, crowded living conditions and insufficient clean water and toilets can also increase the spread of trachoma. Disease transmission occurs primarily between children and the women who care for them. Individual-level risk factors include having children siblings with active disease, having a dirty face and crowded sleeping

TRACHOMA



arrangements.

3. EPIDEMIOLOGY

Trachoma is endemic in parts of Africa, Asia, the Middle East, Latin America, the Pacific Islands, and Aboriginal communities in Australia. Worldwide, an estimated 229 million people in 53 countries live in trachoma-endemic areas. In hyperendemic areas, most members of nearly all families may have active disease. Approximately 1.2 million people are blind because of trachoma. It is a disease of poverty and poor hygiene and has no racial preponderance. It persists in areas with low personal and community hygiene, such as communities with inadequate access to water and sanitation in hot, dry, dusty climates.

Trachoma typically affects the most marginalized, deprived members of a community. Active disease most commonly occurs in pre-school children, with the highest prevalence in children aged 3-5 years. Severe blinding trachoma may be nearly twice as common in women as in men. This pattern is believed to result from women assuming more childcare responsibilities, with the proximity to children resulting in increased microbial exposure. 85% of people with active trachoma disease resides in Africa. In Nigeria, it is yet an important public health topic, although so much improvement has happened recently.

4. STAGES OF DEVELOPMENT AND MANIFESTATIONS OF TRACHOMA

The stages of development of trachoma may be divided into active and scarring phase. Most patients with

Stages of trachoma



1. Infection caused by Chlamydia bacterium causes inflammation and thickens the upper eyelid



2. Scarring of the eyelid pulls the eyelashes into the eye

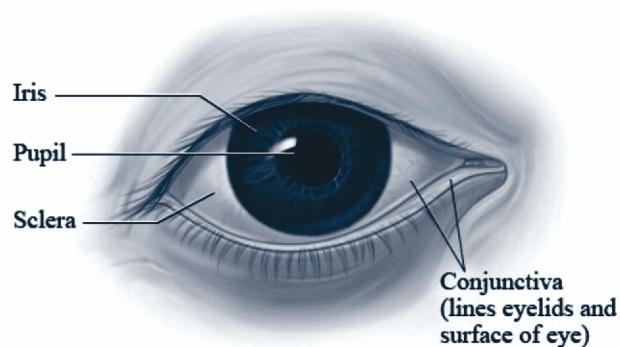


3. The eyelashes scratch the cornea and continue to infect and damage the eye, which can lead to blindness

active trachoma are relatively asymptomatic, but the scarring phase has unique features which often lead to definite diagnosis. Infection with *C. trachomatis* concurrently occurs in other extracellular mucous membranes, commonly nasopharynx, leading to nasal discharge.

Another method of classification identifies 5 stages of the disease, namely:

- (A) **Inflammation-Follicular:** This is the early stage of infection, when five or more follicles (small bumps that contain lymphocytes, visible under magnification) on the inner surface of the upper eyelid (conjunctiva), especially in young children.



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- (B) **Inflammation-Intense:** At this stage, the eyes become highly infectious and irritated, with thickening or swelling of the upper eyelid.
- (C) **Eyelid Scarring:** Repeated infections lead to scarring of the inner eyelid. These scars often appear as white lines when examined with magnification. The eyelid may become distorted and may turn in. This stage is more common in young adults, especially mothers.
- (D) **In-turned Eyelashes (Trichiasis):** The scarred inner lining of the eyelid continues to deform, causing the lashes to turn in, so that they rub on and scratch the cornea.
- (E) **Corneal Clouding (Opacity):** The cornea becomes affected by an inflammation that is most commonly seen under the upper lid.

Continuous Inflammation compounded by scratching from the in-turned lashes leads to clouding of the cornea. This stage occurs mostly with middle-aged patients or grandparents.

In general, all the signs of trachoma are more severe in the upper lid than the lower lid.

(5) LABORATORY STUDIES

The best laboratory technique to confirm the presence of *C. trachomatis* as the cause of trachoma is Nucleic Acid Amplification Tests (NAATs), of which the polymerase chain reaction (PCR) is one example.

(6) PROGNOSIS

This depends on severity at the time of treatment, the appropriateness of the treatment, and the risk of re-infection. Patients in whom early disease is treated appropriately have an excellent prognosis. Re-infection worsens prognosis. Severe disease may be stabilized, but the patient's vision may not improve once corneal scarring has developed, unless surgical options are available.

(7) TREATMENT AND CONTROL OF TRACHOMA

The key to the treatment of trachoma is the SAFE Strategy developed by the WHO. S stands for Surgical Care; A stands for Antibiotics; F stands for Facial Cleanliness; E stands for Environmental Improvement. The WHO recommends 2 antibiotics for trachoma treatment: oral azithromycin and tetracycline eye ointment. Azithromycin eye drops have also been shown to be very effective. However, azithromycin is preferred to tetracycline, because it is easy to administer as a single dose, thereby aiding compliance. Azithromycin has high efficacy and a low incidence of adverse effects. For active trachoma, it is given at 20mg/kg single dose in children, while adults take 1g single dose. Beneficial effects of azithromycin include its genital, respiratory and skin infections treatment. 1% tetracycline eye ointment applied to both eyes for 6 weeks is second-line option.

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THE ROLE OF COMMUNITY PHARMACISTS IN TRADITIONAL COMPLIMENTARY AND ALTERNATIVE MEDICINE (TCAM) PRACTICE

Livy-Elcon Emereonye



According to World Health Organization, medical practice is classified into three namely: Orthodox or Conventional Medicine, Traditional Medicine (TM), and Complementary and Alternative Medicine (CAM). Natural Medicine is a combination of Traditional Medicine (TM) with Complementary and Alternative Medicine (CAM). In other words, Traditional, Complementary and Alternative Medicine (TCAM) is Natural Medicine.

From the above, one can say that there are basically two types of medicines: Orthodox Medicine and Natural Medicine. An unbiased marriage between the two is what is called Integrative Medicine.

Globally, there is an awakened consciousness in the practice of Natural medicine, and Nigeria is not left out in this trend. The Nigeria land mass with its rich bio-flora and biodiversities are of immense advantage.

The philosophy of Natural Medicine (TCAM) is different from that of Orthodox Medicine. The therapeutic substances used in Orthodox Medicine are called medicines (drugs), but in Natural Medicine therapeutic substances are called remedies. Differences also exist in the methods of production and administration of medicines and remedies.

Whatever the case, the patient is not only the target but the end user of both medicines and remedies. This calls for caution and utmost care. There is need for standardization and proper regulations.

Natural medicine is not just broad; the opportunities therein are huge and same goes with the challenges and risks. Thus, the need for adequate training and proper regulation bearing in mind that quacks exist in

every practice and errors can occur in every human endeavour. This can be minimized or mitigated with a functional standard operation procedure.

The community pharmacy is the most accessible health facility in the world. Activities in the community pharmacy are geared towards health promotion, disease prevention and therapeutic management through pharmaceutical care. It is the centre for rational drug therapy through incisive drug audit.

A community pharmacy by operation may include a community-based pharmacy traditional retail setting, a retail pharmacy operating out of both large and small chains or grocery stores, an outpatient pharmacy found within a health systems, a federally qualified health centre, a primary care clinic, compounding pharmacy that prepare medications for patients who require unique dosing or modified formulations, and a specialty pharmacy where patients receive outpatient care for complex medication therapies. Whatever the type, the community pharmacist makes the community pharmacy.

The community pharmacist is the most accessible healthcare professional. Among other things, he provides personalized advice about health issues and medicines when needed, sometimes without the need for an appointment, and often times at no cost. A competent community pharmacist is passionate and dedicated to duty with focus on the patient's wellbeing. This is an opportunity nay a blessing everyone should explore and enjoy without delay or hindrance.

As a drug expert, the primary role of the community pharmacist is to fill prescription, review and detect medication errors as well as recommend and dispense over the counter drugs (OTCs).

The expanded role of a community pharmacist geared towards patient safety include among others to: process prescriptions, check for drug interactions, dispense medications, prepare medications, dispose medications, counsel patients, provide advice, promote healthy lifestyle, and engage in public health programmes.

The roles of a community pharmacist in patient safety has been summarized in

the rights to describe the steps that lead to safe medication use through the right dose of the right medication taken by the right patient at the right time and by the right route for the right indication and right duration. This is the summary of Rational Drug Therapy, and going further, each part of the medication use process may contain different numbers and types of "rights" whose expansion authenticates the indispensable role of the pharmacist in the healthcare team. For example, in the community pharmacy setting, outcomes like the right education, right monitoring, right documentation, and right drug formulation are functions that can only be done properly by the pharmacist, so to safeguard the health of the people, and these rights must apply in TCAM remedies.

The marketing, distribution, dispensing, and even administration of TCAM remedies are key areas community pharmacies and the community pharmacist can play very important role.

Another area where the "trained and certified" Community pharmacist can play important, if not an indispensable role, is in patient counseling.

The monitoring and reporting of possible interactions: remedy-remedy interaction, remedy-food interaction, remedy-drug interaction, as well as adverse events reporting of TCAM remedies are specialized roles of community pharmacists.

The therapeutic role of the pharmacist is required to

establish and review standardized dosing information: dosage, frequency and duration for TCAM remedies especially those administered orally with emphasis on pregnant women and children.

Furthermore, the area of Research and Development in TCAM a gold mine begging to be explored. ACPN and PSN should liaise with Research Institutes and Universities to carry out more research on our bio-flora.

The concept and philosophy of "From Farm to Pharmacy (F2P)" should be embraced and maximized by Community Pharmacists. The opportunity therein is huge. The economic and health benefits are endless.

Being the healthcare professional visited most frequently and seen most often by patients and patient relatives, the community pharmacist is in a vintage position to play a vital role in the continued healthcare and check-ups for patients for optimum health through Orthodox or Natural medicines approach using allopathic drugs or TCAM remedies.

As usually, abuse is inevitable where value is not known, and where the right professionals shy away from their responsibilities, charlatans will take over.

Therefore, there is need for the rational distribution, dispensing and use of TCAM remedies by trained pharmacists in registered premises.

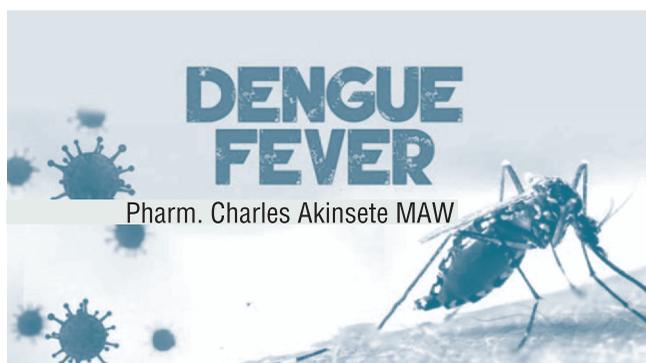
In conclusion, the regulation of the production of TCAM remedies and products should remain with PCN and NAFDAC while TCAM Council when signed into law should regulate the training and practice of TCAM.

Livy-Elcon Emereonye ; Pharmacist, Naturopath and Integrative Healthcare Practitioner is the Chairman of ACPN-TCAM Special Interest Group.

We can do trainings and consultancy on TCAM for interested members

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I. Overview

Dengue, leishmaniasis, and African trypanosomiasis (sleeping sickness) are serious diseases that the World Health Organization (WHO) characterizes as lacking effective control measures. They are transmitted by insect vectors and can result in epidemic outbreaks. Specific treatment is unavailable for dengue, although good supportive treatment can drastically reduce mortality. For leishmaniasis and for sleeping sickness, treatment relies largely on antiquated drugs based on antimony and arsenic, respectively. Sustained control of the insect vectors is difficult for dengue and leishmaniasis because their high reproductive potential allows the vector populations to recover quickly after intervention wherever adequate breeding conditions exist. By contrast, tsetse flies, the vectors for sleeping sickness, have a much lower reproductive potential and could be eliminated over large areas, given adequate organization and surveillance. Through the African Union, African nations are developing a large-scale initiative for area-wide elimination of tsetse flies, partly because of sleeping sickness, but also because of their importance as vectors of animal trypanosomiasis, which poses a serious constraint to livestock development

II. Disease Characteristics and Transmission

Dengue is a mosquito-borne viral disease with a high capacity for epidemic outbreaks. Infection can be asymptomatic or can present with symptoms ranging from mild, self-limiting, febrile illness to severe, life-threatening disease. Two clinical pictures are recognized: (a) dengue fever (DF) and (b) dengue hemorrhagic fever (DHF) or dengue shock syndrome

(DSS).

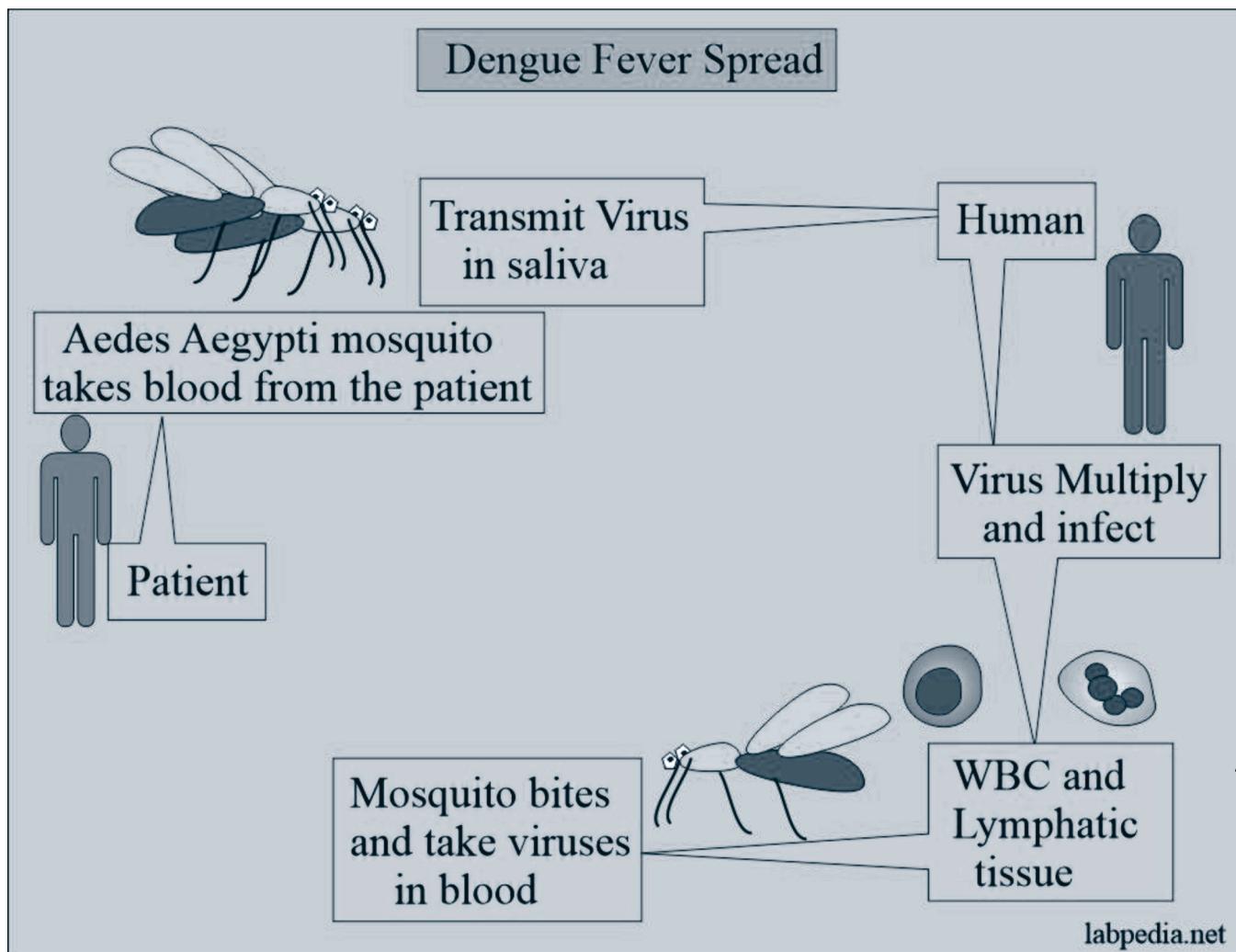
The four dengue serotypes, known as dengue 1, 2, 3, and 4, constitute a complex of the Flaviviridae transmitted by *Aedes* mosquitoes, particularly *A. aegypti*. Infection by any of the four serotypes induces lifelong immunity against reinfection by the same serotype, but only partial and transient protection against the others. Sequential infection by different serotypes seems to be the main trigger for DHF/DSS.

Disease Manifestations

Parasites are transmitted by the bite of infected tsetse flies. They multiply locally in extracellular spaces, producing a characteristic lesion or chancre. The parasites circulate in blood and lymph, resulting in waves of parasitemia with episodes of fever, often accompanied by chills, rigor, malaise, prostration, and weight loss. These symptoms may occur within days of development of the chancre and constitute the hemolymphatic early stage. Febrile episodes become less severe as the disease progresses, and after a variable period, the parasites invade the central nervous system and cerebrospinal fluid, leading to the late stage, with meningoencephalitis typically accompanied by severe and protracted headache, apathy, sleep disorders, irritability, and antisocial behavior.

The clinical features of late-stage sleeping sickness can resemble AIDS. With *T. rhodesiense*, meningoencephalitis typically occurs within weeks of initial infection, whereas with *T. gambiense*, this syndrome occurs later, sometimes after several years. The untreated disease causes relentless deterioration in cerebral function, with patients becoming increasingly difficult to rouse and passing into coma and death. Infection does not seem to confer immunity, so reinfection can occur after treatment.

Dengue is mostly spread by the bite of the *Aedes aegypti* mosquito. Some people have no symptoms, but dengue can also cause flu-like symptoms including fever, nausea, vomiting, rashes, eye pain and muscle, joint, or bone pain. There are no specific drugs to treat dengue, and there is only limited use of vaccines. The



lack of treatment options increases the risk of developing severe dengue – which is potentially fatal.

Dengue is the most widely distributed and rapidly spreading mosquito-borne viral disease in the world, fuelled by climate change, rapid urbanization and population growth. Dengue is classified by the World Health Organization as one of the top ten threats to public health.

In Nigeria, Dengue fever is endemic in almost all states and could be the leading cause of unclassified febrile illnesses. Dengue fever has a mixed distribution among urban, and rural areas and was previously predominantly reported in urban areas than in rural areas.

Surveillance for Dengue fever in Nigeria is subpar due to it is not a public health priority associated with a lack of public awareness of the virus and poor understanding by healthcare professionals evident in

the misdiagnosis and under-diagnosis of the viral infection in many uncategorized febrile illnesses.

The Dengue disease burden may be grossly underestimated in Nigeria. A country is said to be hyperendemic for Dengue when all four serotypes co-circulate at the same time. Case detection, management, and vector control are the main strategies for the prevention and control of dengue virus transmission. Information about Dengue disease burden, its prevalence, incidence and geographic distribution is necessary for decisions on the appropriate utilization of existing and emerging prevention and control strategies

III. Types Of Dengue Fever?

There are four dengue virus (DENV) types (DENV-1, DENV-2, DENV-3, and DENV-4), all of which are capable of inducing severe disease (dengue hemorrhagic fever [DHF]/dengue shock syndrome

[DSS]).

IV. Prevention

DENV transmission occurs when susceptible hosts, DENVs, and mosquitoes capable of transmission are co-located in space and time.

Infection risk exists for anyone living in or traveling in a dengue-endemic region, especially in tropical Asia, Central and South America, and the Caribbean.

In most of these regions, DENV transmission occurs year-round. However, the greatest risk of infection tends to be seasonal or during a recognized outbreak.

V. Treatment And Management

Treatment consists of pain medications and fluids.

Treatment includes fluids and pain relievers.

Severe cases require hospital care.

Can You Be Immune To Dengue Fever?

Yes, you can get immunity to a version of dengue virus once you've been infected with it.

Because there are at least four versions (strains) of the virus (DENV), this is pretty complicated.

Your immune system has tools it can use to recognize infections and get better at fighting them off.

As your body fights a virus, it looks through its toolbox to find out which tool (antibody) it has that can destroy that specific threat.

Antibodies are specific to each harmful invader in your body, fitting to them like a key to a lock.

Antibodies grab onto their specific target and your immune system destroys it.

Once your body knows how to fight that specific virus, you are unlikely to get sick with it again.

After getting one of the four strains of DENV, you shouldn't be able to get that one again.

But the antibodies for that strain don't fit other versions quite perfectly.

So if you get infected by a different version of DENV later on, it can actually use this imperfect fit to trick your immune system (antibody-dependent enhancement).

The different strain can get caught by the antibody from the first strain you had and get pulled into your cells,

but — for reasons not fully understood — it's not destroyed. It's then inside your cells without your cells knowing it's harmful.

This makes it easier for the virus to infect you and cause more serious illnesses

There's no medicine that treats dengue fever. The healthcare provider will give recommendations on how to manage symptoms and if and when a referral should be made. Managing your symptoms is the only way out.

Recommendations may include:

- Keeping yourself hydrated by drinking plenty of water and fluids.
- Getting as much rest as possible.
- Treating pain with pain relief agents.

VI. Prevention

The two main ways to protect yourself from dengue are through avoiding mosquito bites and vaccination.

Mosquito protection.

The best way to reduce your risk of dengue fever is to protect yourself from mosquito bites:

Use EPA-registered insect repellents that contain 20% to 30% DEET or other ingredients known to help keep Aedes mosquitoes away.

Cover exposed skin outdoors, especially at night when mosquitoes are more likely to be around.

Remove standing water (buckets or barrels, bird baths, old tires that may hold rainwater) and fill low spots where water can pool.

Keep mosquitoes outside of your home by repairing holes in screens and keeping windows and doors closed if possible.

Use mosquito netting at night in areas where dengue is common.

If you're pregnant, avoid traveling to areas where

Dengue Fever Prevention Tips



dengue is common if possible.

When traveling, be sure to check with the CDC to understand if there are any outbreaks of illness in your destination before you leave.

In Conclusion,

Hundreds of millions of people get dengue every year. Even if most cases are mild or even symptomless, the thought of severe dengue can be scary.

The word “dengue” may have even come from a word for an evil spirit thought to cause the disease.

Fortunately, you can take steps to reduce your risk of mosquito bites and keep an eye out for the warning signs of severe dengue. If you get sick while traveling, make sure you know where to get emergency medical care.

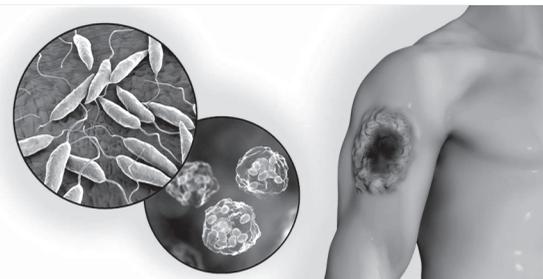
If you get seriously ill with dengue, you’ll most likely recover as long as you get immediate medical treatment.

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LEISHMANIASIS

Pharm Giwa Babajide, MAW



I. Overview

Leishmaniasis is a disease caused by an intracellular protozoan (genus *Leishmania*) transmitted by the bite of a female phlebotomine sand fly. The clinical spectrum of leishmaniasis ranges from a self-resolving cutaneous liker to a mutilating mucocutaneous disease and even to a lethal systemic illness. Therapy has long been a challenge in the more severe forms of the disease, and it is made more difficult by the emergence of drug resistance. With the exception of Australia, the Pacific islands and Antarctica, the parasites have been identified throughout large portions of the world.

Affected regions are often remote and unstable with limited resources for treating the disease. *Leishmania* is one of the most dangerous neglected tropical diseases which is second only to malaria in parasitic causes of death.

II. Types of Leishmaniasis

Leishmaniasis comes in three forms. Different Species of leishmania are associated with each form. Experts believe that there are about 20 leishmania species that can transmit the disease to humans.

- i. **Cutaneous leishmaniasis:**
Cutaneous leishmaniasis causes ulcers or the human skin, it's the most common form of cutaneous leishmaniasis. Treating may not always be required as it is mostly self-healing and rarely leads to complications.
- ii. **Mucocutaneous leishmaniasis:**
This is a rare form of the disease. It is caused by the cutaneous form of the parasite and can only occur several months after skin ulcers heal. In this case, the parasite spread to the nose, mouth and throat which could lead to partial or complete destruction of the mucosa membrane in the areas. Mucocutaneous leishmania is usually considered a subset of cutaneous leishmania it is however more serious as it doesn't heal on its own and always requires treatment.

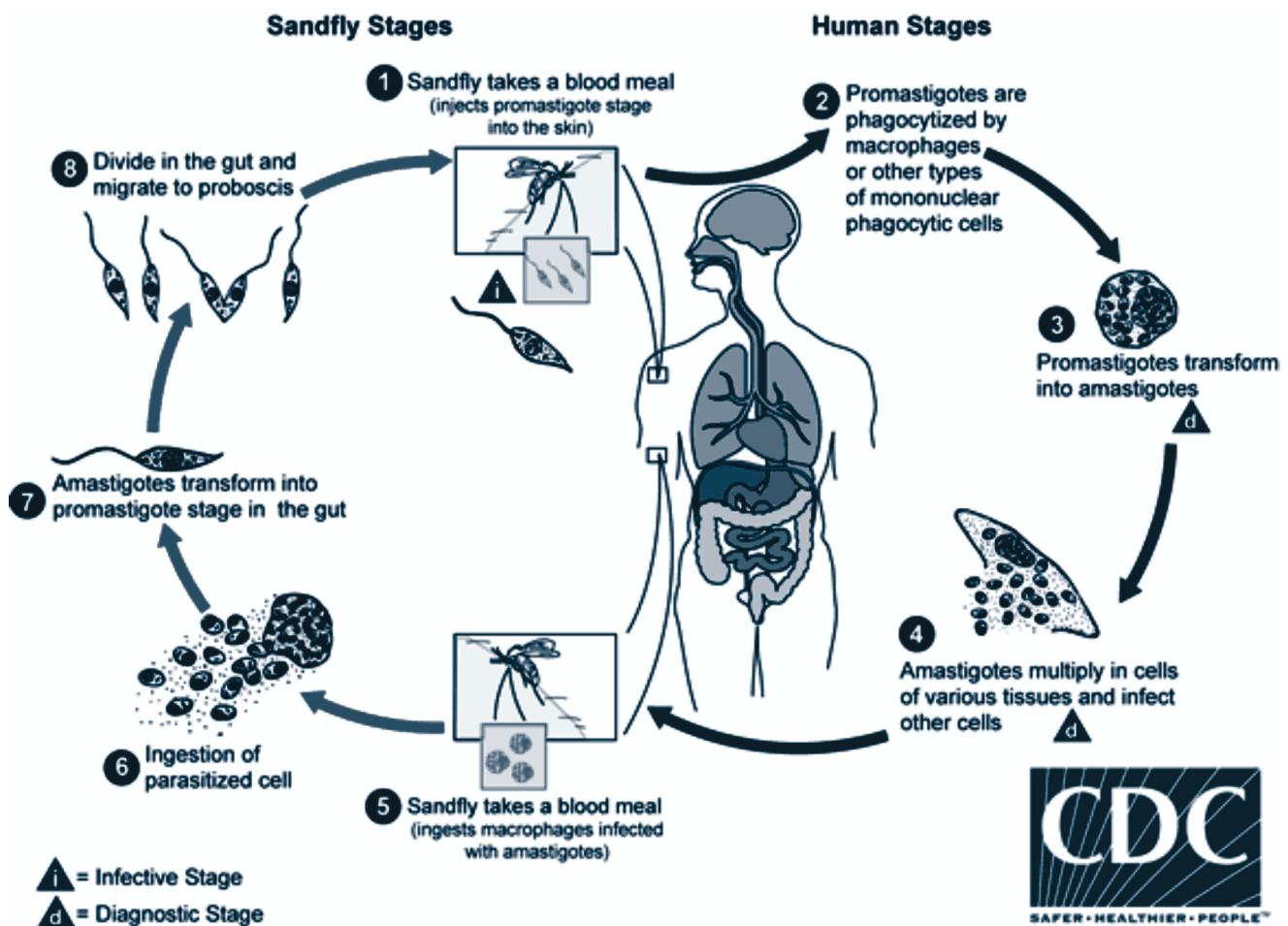
iii. Visceral Leishmaniasis

This is also known as systemic leishmaniasis or Kala-azar. It usually occurs two to ten months after being bitten by a fly. Internal organs like the spleen and liver could be damaged by this disease. It also affects the bone marrow, hence, could have a serious effect on the immune system. The condition is almost always fatal if not treated.

III. Who Is At Risk For Leishmaniasis

Different factors put people at risk of leishmaniasis

- a. **Geography**
Leishmaniasis is found everywhere in the world except Australia and Antarctica. However, 95% of cutaneous cases occur in:
 - The Americas
 - Central Asia
 - The Mediterranean basin
 - The Middle East
 In 2015 over 90% of visceral cases occurred in
 - Brazil
 - Ethiopia
 - India
 - Kenya
 - Somalia
 - South Sudan
 - Sudan
 Environment and climate factors heavily influence the spread of the disease.
- b. **Socioeconomic conditions**
According to the World Health Organisation (WHO), poverty is a determining factor for the disease. In addition, leishmaniasis often occurs in areas where the following conditions are common.
 - Malnutrition
 - Famine
 - Lack of Financial Resources



- Large Migration of people caused by Urbanization, emergency situations, war, environmental changes and climate change
- c. Other infections
Weak Immune System puts people at risk of leishmaniasis. HIV can influence the transmission of leishmaniasis and increase the risk of visceral leishmaniasis. HIV and Leishmaniasis affect similar cells of the immune system.

IV. Symptoms Of Leishmaniasis

A patient can carry some species of leishmania for a long period without becoming ill and symptoms depend on the form of the disease.

- i. Cutaneous Leishmaniasis
The main symptom of cutaneous leishmaniasis is painless skin ulcers that appear a few weeks after being bitten by an infected sandfly. However, sometimes symptoms won't appear for months or years.

- ii. Mucocutaneous Leishmaniasis
Symptoms usually appear one to five years after skin lesions primarily as mouth ulcers, nose and lip ulcers. Other symptoms include:
 - Runny or Stuffy nose
 - Nose Bleeding
 - Difficulty in Breathing
- iii. Visceral Leishmaniasis
Common signs and symptoms which commonly appear two to six months after infection are:
 - Weight loss
 - Enlarged spleen
 - Swollen lymph nodes
 - Bleeding
 - Enlarged liver
 - Weakness

V. Diagnosis

Leishmaniasis is not easily diagnosed and most diagnoses based on symptoms are usually incorrect hence a more

precise diagnosis is often required for example in cutaneous leishmaniasis the doctor may take a small amount of skin for a biopsy where they look for the DNA or genetic material of the parasite. In the case of visceral leishmaniasis, the doctor may look for an enlarged liver or spleen. Bone Marrow Biopsy may also surface in the case.

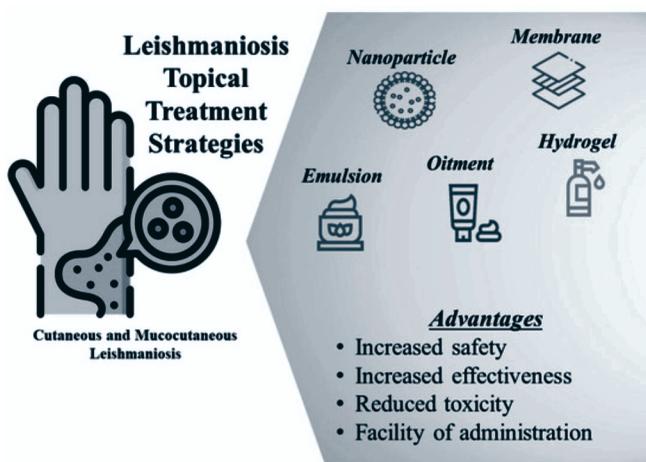
VI. Treatment

Antiparasitic drugs, such as amphotericin B treat Leishmaniasis. However other treatments based on the type of leishmaniasis could also be recommended.

Cutaneous ulcers often heal without treatment. However, treatment can speed healing, reduce scarring and decrease the risk of further disease, skin ulcers that causes disfigurement may require plastic surgery.

For Mucocutaneous leishmaniasis, the lesions don't heal naturally hence treatment is always required liposomal Amphotericin B and Paromomycin can treat Mucocutaneous Leishmaniasis.

Visceral diseases always require treatment. Commonly used medicines include sodium stibogluconate, amphotericin B, paromomycin and miltefosine.



VII. Potential Complications Of Leishmaniasis

Cutaneous Leishmaniasis complications may include

- Bleeding
- Disfigurement
- Other infections due to weakened immune system, which can be life-threatening

Visceral Leishmaniasis is often fatal due to the effects it has on both internal organs and your immune system. HIV or AIDS puts a patient at higher risk of getting this disease, which could also complicate the disease as well as its treatment.

VIII. Prevention Of Leishmaniasis

Since there is no vaccine or prophylactic medication available the only way to prevent leishmaniasis is to avoid getting bitten by a sandfly.

The following steps help prevent being bitten by a sandfly.

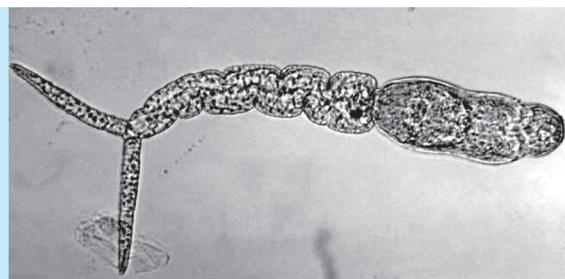
- Wear clothing that covers as much skin as possible. Long pants, long-sleeved shirts tucked into pants, and high socks are recommended
- Spray sleeping areas with insecticide
- Sleeping on the higher floors of a building. The insects are poor fliers
- Use insect repellent on any exposed skin and on the end of your pants and sleeves
- Use screens and air conditioning indoors when possible. Using fans might make it more difficult for the insects to fly.

IX. REFERENCES

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- Healthline Media 2023
- Medscape
- MSD Manual (Professional Version)

SCHISTOSOMIASIS

Pharm Giwa Babajide, MAW_____



I. OVERVIEW

Schistosomiasis is an acute and chronic parasitic disease caused by blood fluke (Trematode Worms) of the genus *Schistosoma*. Estimates show that at least 251.4 Million people require preventive treatment in 2021. Preventive treatment which should be repeated over a number of years, will reduce and prevent morbidity.

Schistosomiasis transmission has been reported in 78 countries. However preventive chemotherapy for schistosomiasis where people and communities are targeted for large-scale treatment is only required in 51 endemic countries with moderate to high transmission.

Three main types of schistosomes are responsible for the two main forms of the condition.

- Urogenital Schistosomiasis
- Intestinal Schistosomiasis

II. WHO IS AT RISK

Anyone can be infected by the parasites by swimming or bathing in contaminated water. The parasite is found in freshwater lakes, rivers, and ponds in the following areas.

- Many parts of Africa including Sub-Saharan Africa and Southern Africa. The worms are also found in Magreb, a region in North Africa and the Nile River Valley in Egypt and Sudan
- Brazil, Surinam, and Venezuela
- Dominican Republic, Guadeloupe, Martinique (the Caribbean)
The risk is low in the Caribbean
- The Southern part of China
- Areas in Southeast Asia and the Philippines and Laos and Cambodia

III. SYMPTOMS

Many people have no symptoms of schistosomiasis. Early signs and symptoms (those that happen within days of being infected) May include itches and a skin rash.

Later symptoms (those that develop within 30 to 60 days of being infected) may include.

- Fever
- Chills
- Cough
- Muscle aches and pains

If untreated symptoms that develop after years of being infected may include.

- Pain in the stomach
- Hepatomegaly (Enlarged liver)
- Haematuria (Blood in the Urine)
- Dysuria (difficulty or painful Urination)
- Haematochezia (Blood in Faeces)
- Miscarriage

Chronic Schistosomiasis may make it more likely that liver cancer. Seizures may also result with schistosome eggs in the brain which could also result in paralysis or inflamed spinal cord.

IV. DIAGNOSIS

Examination of stool and/or Urine for ova is the primary method of diagnosis of *Schistosoma* infections. The choice of sample to diagnose schistosomiasis depends on the species of parasite likely causing the infection.

V. TREATMENT

Currently, the drug used in most people is praziquantel. However, it is only effective against adult worms and does not affect eggs or immature worms, Treatment with this drug is simple and its dose is based on the patient's weight with two doses given in one

day. However, the drug causes rapid disintegration of the worm which in turn allows the human immune system to attack the parasite.

This response can cause localized reactions which may increase the patient's Symptoms. Corticosteroids are often used to reduce the symptoms of this reaction. Unfortunately, this response limits the use of praziquantel. Praziquantel and oxaminquine or artemether are used by some clinicians early in infections or to treat individuals infected with both malaria and schistosomes respectively. Ocular schistosomiasis should not be treated with this praziquantel other organs with heavy parasite infections may not function well and require supportive care with the hyperimmune response abates after drug administration.

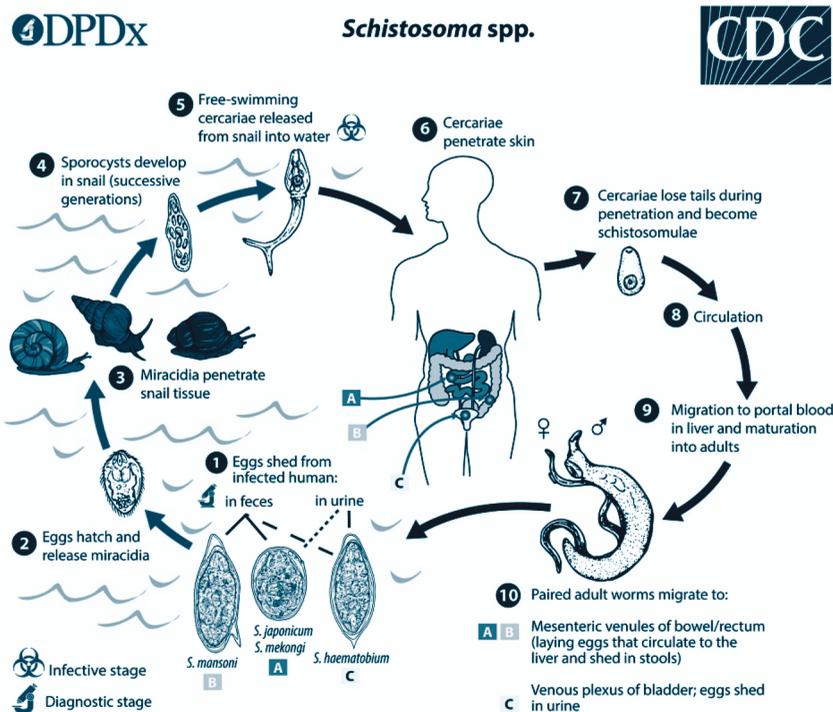
Other drugs (axamniquine, metrifonate, artemisinin and trioxolanes) have been used in some patients but have limited effectiveness.

VI. COMPLICATIONS

The complications that may develop with schistosomiasis usually occur in individuals harboring many parasites and eggs especially when the eggs and parasites have migrated to other organs. In general, complications usually involve the cardiopulmonary, gastrointestinal and central nervous system (CNS), the liver and spleen and urinary tract along with the liver and spleen. Some major complications are high blood pressure (hypertension), seizures, bacterial infections, urinary obstruction, organ damage or destruction and death.

VII. PROGNOSIS

Early antiparasitic treatment, especially with acute



schistosomiasis, may allow people to recover completely without developing chronic disease. A few people get the disease but recover completely. Even patients with early chronic disease can improve with drug treatment.

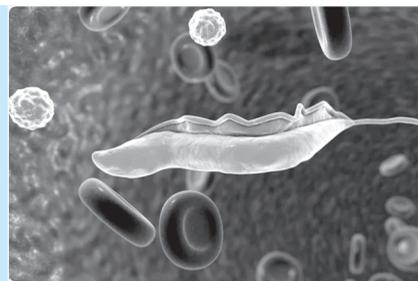
However, the prognosis is worse for people who have other health problems (e.g. suppressed immune system, HIV, Chronic Infections such as Malaria) and subsequently get infected with schistosoma. People with chronic disease may improve with careful antiparasitic drug treatments and symptomatic treatment of the complication associated with the disease.

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TRYPANOSOMIASIS

Pharm Giwa Babajide, MAW



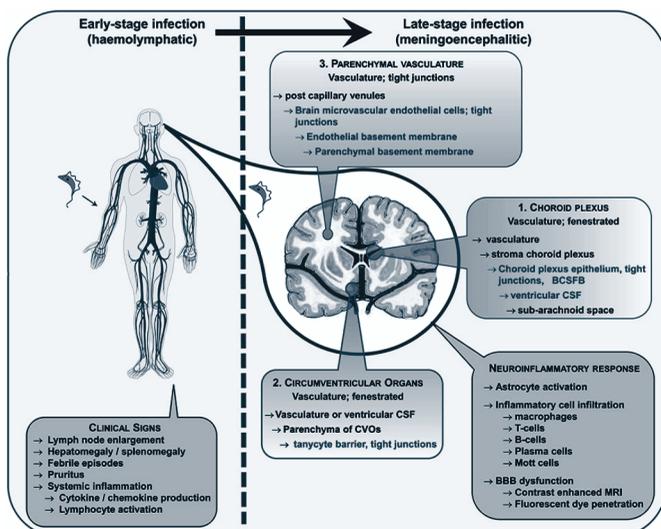
1. Overview

Trypanosomiasis is an infectious disease in both humans and animals caused by certain members of the flagellate protozoa genus *trypanosome* (Family Trypanosomatidae) and spread by certain blood-sucking insects. The life cycle of trypanosomes includes a stage spent in blood or the tissues of a vertebrate host and a stage in the gut of an invertebrate, typically a fly.

Of the various known species of trypanosome only two *T.cruzi* and *T.brucei* cause disease in humans each species is responsible for a different disease *T.cruzi* cause

American trypanosomiasis, also called Chagas disease occurs primarily in the central and south American tropics and it is spread by the bite of redivide bugs (family Redividae) particularly *Triatoma Infestans*, also known as kiss bugs the parasite multiplies in the bloodstream and may enter the heart, liver, and spleen where it causes extensive damage.

Trypanosome brucei is responsible for African



Trypanosoma or sleeping sickness. Which occurs in equatorial Africa two forms, both transmitted by the tsetse fly *glossina*, east African or Rhodesian, sleeping sickness is an acute form of the disease caused by the subspecies *T.brucei rhodesiense*. West African or Gambiense trypanosomiasis is a slower-developing chronic form of the disease caused by *T.brucei gambiense*. Both organisms can eventually invade the brain causing mental deterioration, coma and death.

Other *Trypanosoma* species cause economically important diseases in livestock.

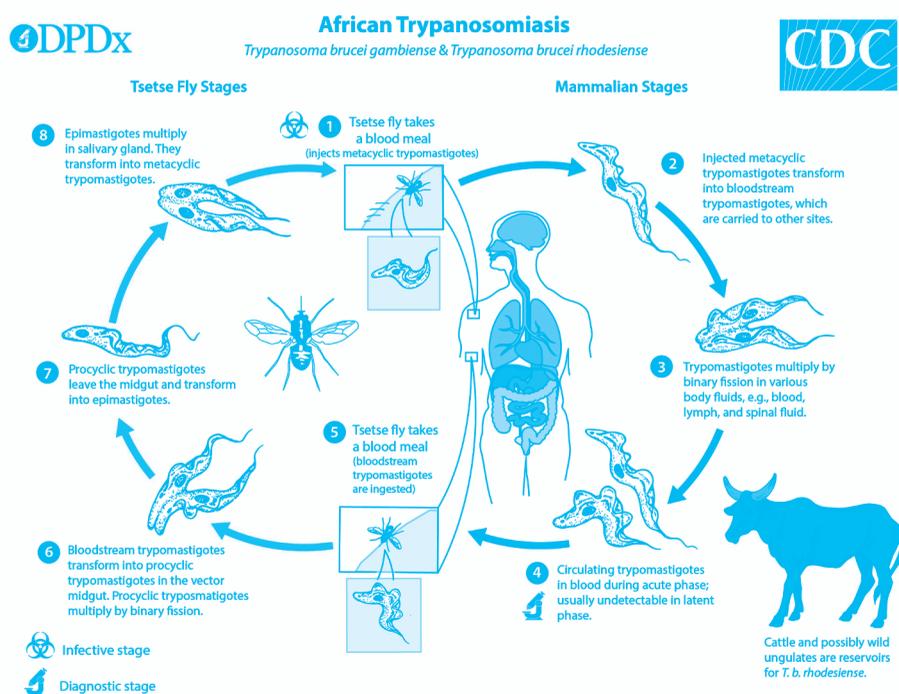
II. DISEASE BURDEN AND DISTRIBUTION

Human African Trypanosomiasis (HAT) threatens mainly the population of remote rural areas with limited health service which complicates its diagnosis and treatment. These populations are also affected by war, displacement and poverty, factors favoring transmission.

Several epidemics occurred over the last century

- Between 1896, mostly in Uganda and the Congo basin
- In the 1920s in several countries
- Between 1970 and the late 1990s

The 1920 epidemic was controlled via a mobile team that scared millions of people. By the mid-1960s, HAT was under control with below 5000 annual cases continent-wide. As surveillance relaxed, a resurgence ensured reaching epidemic proportions in several regions by 1970. In 1998 almost 40,000 cases were reported amidst an estimated 300,000 villages in Angola, the Democratic Republic of Congo (CDR) and South Sudan HAT was the first or second greatest cause of mortality in those communities.



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After continued control efforts, HAT occurrence reached a historic low of under 2000 cases in 2017 and under 1,000 cases in 2018 remaining below that threshold as of 2022. The population at risk estimated for the period 2016-2020 was 55 million people, with

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Trypanosoma brucei is responsible for African Trypanosomiasis or sleeping sickness. Which occurs in equatorial Africa two forms, both transmitted by the tsetse fly *Glossina*, East African or Rhodesian, sleeping sickness is an acute form of the disease caused by the

V. TREATMENT

The Treatment choice depends on the disease form and the disease stage. The earlier the disease is treated; the better the prospect of cure, and the assessment of treatment outcome requires follow-up to 24 months. Clinical assessment and laboratory exams including sometimes of cerebrospinal fluid because the parasite may remain viable and reproduce the disease many months after treatment.

Treatment in the second stage requires drugs that cross the blood-brain barrier. New WHO treatment guidelines for gambiense-HAT were issued in 2019 six drugs are issued.

In gambiense-HAT

- Pentamidine intramuscular: in the first stage generally well-tolerated patients
- Eflornithine intravenous: much faster than melarsoprol. Only effective in gambiense-HAT it is generally co-administered with nifurtimox (nifurtimox eflornithine combination therapy NECT) but can be used also as monotherapy
- Nifurtimox oral: in the second stage only as a component of NECT which is a shorter treatment with four times fewer eflornithine

infusions. Safer and more effective than eflornithine alone.

- Fexinidazole oral: in the first stage and non-severe second stage. To ensure efficacy, intake after a solid meal and under the supervision of trained medical staff is required.

In rhodesiense-HAT

- Suramin intravenous: in the first stage, may provoke adverse effects including nephrotoxicity and allergic reactions.
- Melarsoprol intravenous: in the second stage. An arsenic derivate it has many adverse effects the most dramatic being reactive encephalopathy which is 3-10% fatal

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BURULI DISEASE

Pharm. Okame Okah-Avae_____



A mother walks into your pharmacy with her 9-year-old son complaining about a lesion on his left calf. You may dismiss this as a mosquito bite, however, if those are tender, they may be something else, they may be a skin disease called Buruli ulcer. According to the World Health Organisation, Buruli ulcer is a chronic debilitating disease caused by an environmental Mycobacterium ulcerans, a bacterium that produces a toxin that causes skin damage and sometimes bone. The aetiology of Buruli is unknown, however, it is found in areas of tropical and subtropical regions and currently, 33 countries in Africa, the Americas, Asia and Western Pacific have reported the disease. The number of suspected Buruli cases reported in 2010 was about 5000 but that number has decreased to about 1370 in 2021

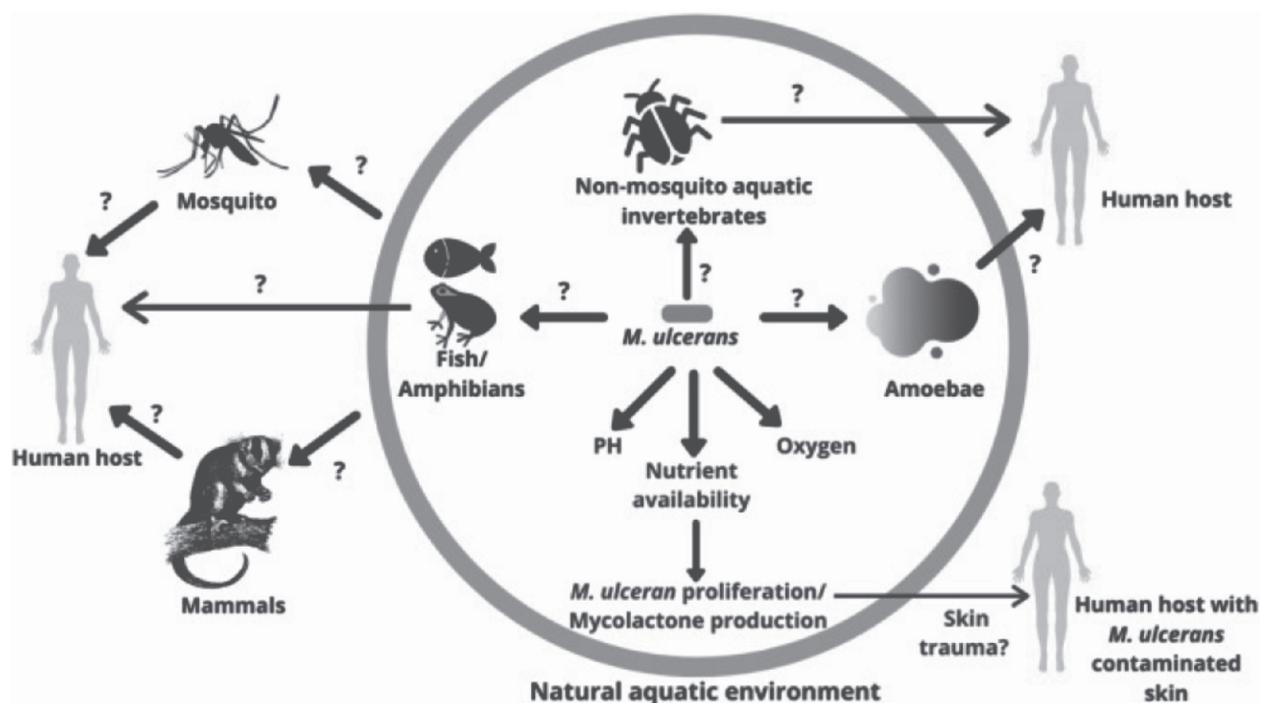
While the mode of transmission remains unclear, it is generally believed that infection is through direct trauma or bites of insects such as water bugs or mosquitoes. 95% of persons with Buruli who were examined present with a single lesion and is usually located on the parts of the body that are usually exposed such as the limbs³.

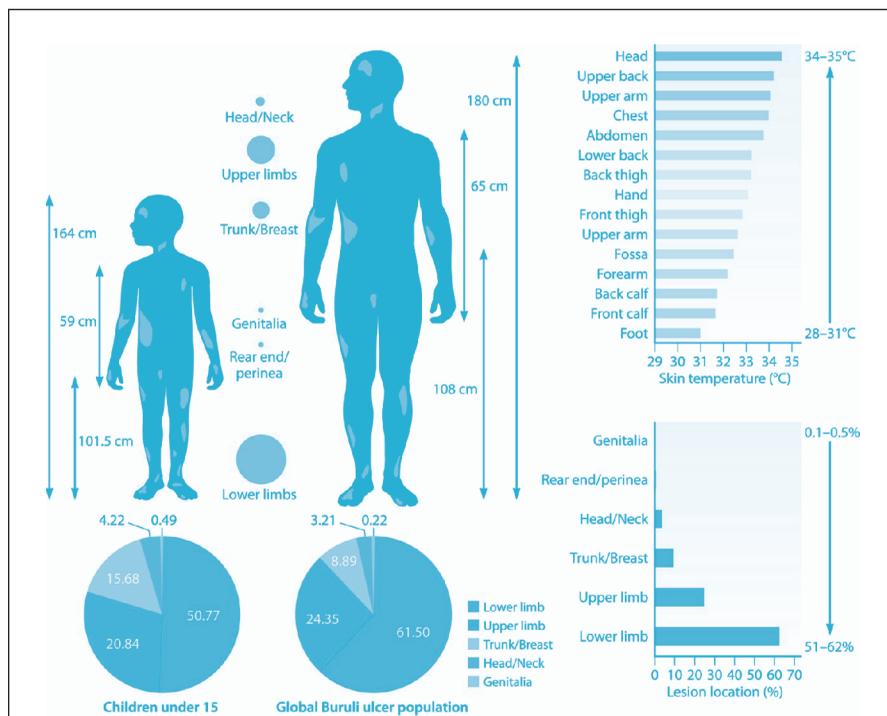


Category II is a single lesion between 5 and 15cm in diameter, plaque and edematous forms



Category III consists of single extensive lesions >15cm in diameter, multiple lesions, lesions at critical sites (e.g. eye, genitalia, joints) and osteomyelitis.





When treating Buruli ulcer WHO recommends an eight weeks course of Rifampicin based combination therapy. The recommended regimen is Rifampicin and Streptomycin or Rifampicin and another oral therapy under direct observation. For pregnant women, a pregnant patient was successfully treated with a combination of Rifampicin and Clarithromycin in Benin. There have been subsequent reports of successful treatment with this combination.

Adverse events are not usually reported during the course of treatment, however, a few patients do experience adverse effects therefore patients should be monitored during treatment and any ADR promptly detected and properly managed.

WHO classifies the *M. ulcerans* infection into 3 categories, category I is a single, small lesion <5cm in diameter

Buruli ulcer usually starts as a painless swelling (sometimes it is mistaken for nothing more than a mosquito bite), a large painless area of indurations, or a diffuse painless swelling of the legs, arms or face. Over time the disease can progress without fever or pain and become an ulcer, in a few occasions, bones can become affected and can cause deformities. Buruli symptoms include skin swelling, damaged skin, damaged soft tissue and growing ulcers. When the ulcer progresses it may become crusty and form a scab that doesn't heal. The ulcer can grow with or without infection.

In most cases experienced health professionals from endemic areas can make a reliable diagnosis of Buruli ulcer, however, this requires training and the ability to differentiate the ulcer from Buruli from that tropical phagedenic ulcers, diabetic ulcers, cutaneous leishmaniasis, chronic lower leg ulcers due to arterial and venous insufficiency and extensive yaws¹. Four standard laboratory methods can be used to confirm Buruli ulcers, IS2404 polymerase chain reaction (PCR), direct microscopy, histopathology and culture. PCR is the gold standard for diagnosis, however, its drawback in its use in Africa is its limited availability. Samples are often stored for bulk shipping and this in turn leads to delays in receiving the results.

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NIGERIA SHOULD BE WORRIED ABOUT NEGLECTED TROPICAL DISEASES

Dr. Adedotun A. Adenusi, Medical Parasitologist, College of Medicine, University of Lagos

In a brief interaction with one of our Resource Persons for our Quarterly Webinar on Neglected Tropical Diseases, Dr Adedotun, A. Adenusi, a Medical Parasitologist and Associate Professor at College of Medicine, University of Lagos, he emphasized the need for multi-sectoral approach as well as the progress made on NTDs in the recent years

Question:

Do you think NTDs are really something to worry about in Nigeria based on their fatality compared to other diseases?

Answer:

NTDs generally, should be a cause of worry in Nigeria, regardless of their fatalities compared to other diseases. Nevertheless, most NTDs are preventable and curable. Although most NTDs have low case fatalities compared to other diseases, they have high burdens in terms of disability-adjusted life years (DALYs) while some, including tuberculosis (the world's leading cause of death from a single infectious agent) have high case fatalities.

Question:

What's the major progress against NTDs in recent years globally?

Answer:

Substantial progress has been made against NTDs in recent years, globally, as follows:

- 23% reduction in the number of people requiring interventions against NTDs between 2010 and 2021 (600 million fewer people between 2010 and 2020).
- At least one NTD has been eliminated from 47 countries by 2023.
- 11% reduction in DALYs related to NTDs between 2015 and 2019
- 63.1% reduction in number of deaths from vector-borne NTDs between 2016 and 2021
- Dracunculiasis (Guinea worm disease, GWD) is close to eradication, with only 13 human cases reported in four African countries as at the end of

2022. Most likely the next infectious disease to be eradicated after smallpox.

- Lymphatic filariasis (LF) and trachoma have been eliminated as public health problems (EHP) in 17 and 10 countries, respectively.
- Onchocerciasis has been eliminated in four countries in the Region of the Americas.
- Decline in the annual number of cases of human African trypanosomiasis (HAT) from > 7000 in 2012 to < 1000 in 2019. 97% decline in the reported number of cases from 1999–2022.
- Continuous decline since 2010 in the number of new leprosy cases reported globally at an average of 1% per year after most endemic countries achieved elimination as a public health problem (EHP; i.e., < 1 case on treatment per 10 000 population).
- 45% decline in the annual number of TB deaths globally between 2000 and 2019
- Alleviation of the human and economic burden imposed by NTDs on the world's most disadvantaged communities.

Question:

It is estimated that more than 15 percent of NTDs reside in Nigeria. What do you think Nigeria can do better to improve this status?

Answer:

- Create greater awareness on NTDs through information, education and communication.
- Stepped-up access to water, and sanitation hygiene (WASH) through provision of pipe-borne potable water, and adequate waste disposal and management facilities.
- There should be behavioural and attitudinal changes towards indiscriminate/open defecation.
- Access to and provision of essential primary healthcare services to ramp up NTD case detection and treatment.
- Sustained preventive chemotherapy (where applicable), and monitoring and evaluation (M & E) for drug efficacy and resistance.
- Complementary public health interventions through safe food practices, and veterinary public health, to reduce transmission rates.



**COMMUNIQUE ISSUED AT THE END OF SOP REVIEW
AND FINALIZATION WORKSHOP FOR COVID-19 VACCINATION
AT COMMUNITY PHARMACIES,
ON WEDNESDAY 18th JANUARY 2023 AT DOVER HOTEL, LAGOS**



The National Primary Health Care Development Agency (NPHCDA) in collaboration with Association of Community Pharmacists of Nigeria (ACPN) supported by USAID Medicines Technologies and Pharmaceutical Services (MTaPS) conducted a 3-Day Workshop from 16th to 18th January at Dover Hotel Lagos for review and finalization of Standard Operating Procedure (SOP) for COVID-19 Vaccination at Community Pharmacies (CPs) in Nigeria.

In attendance were participants from NPHCDA, Executive Secretaries of State Primary Health Care Development Agency Board, Association of Community Pharmacy of Nigeria (ACPN), Pharmacy Council of Nigeria (PCN), Pharmaceutical Society of Nigeria (PSN), MTAps, WHO, UNICEF, Breakthrough Action Nigeria and other stakeholders.

The Executive Director/CEO NPHCDA, represented by Zonal Director South East, Dr, Eric Nwaze in his remarks welcomed participants and appreciated the efforts of the NPHCDA-ACPN Technical Working Group (TWC) and development partners, especially USAID, MTAps for supporting this important initiative. He stressed that the workshop provides an opportunity for Nigeria through NPHCDA to develop a robust SOP and other technical documents in line with global best practices to effectively guide the implementation of COVID-19 vaccination activities at Community Pharmacies, He, therefore, urged participants to put in their best and make meaningful contributions to the documents for subsequent adoption in the country.

The Chairman NPHCDA - ACPN Technical Working Group (TWG), Director Advocacy and Communication, Mr. M.M Abubakar thanked participants for sparing time to attend the workshop in spite of their tight schedules. He equally reaffirmed NPHCDA's commitment in sustaining the partnership beyond Covid-19 vaccination to include other PHC services in the future.

The Chairman ES's forum, Dr Mohammed Usman Adis commended the efforts of NPHCDA and Partners for this laudable intervention, He pledged the commitment of his colleagues to providing necessary support to address key challenges that may hinder successful implementation of the SOP and other technical documents Likewise, he stressed the need for State Primary Health Care Development Agencies to work closely with ACPN to scale up COVID-19 Vaccination at Community Pharmacies across the country.

The representatives of Pharmacy Council of Nigeria (PCN), Association of Community Pharmacists of Nigeria (ACPN) and Pharmaceutical Society of Nigeria (PSN) in their goodwill messages at the workshop, reaffirmed their commitments to work with NPHCDA and other Stakeholders to finalize the SOP and other technical documents to fast track implementation of COVID-19 Vaccination at Community Pharmacies across all states in Nigeria.

After extensive deliberations, the following resolutions were agreed upon:
RESOLUTIONS

National Primary Health Care Development Agency

- NPHCDA-ACPN TWG and stakeholders reviewed drafts of the SOPs and other documents made inputs and adapted the SOPs and the other documents.
- Ensure continuous training of verified Community Pharmacies vaccination teams to provide services
- Ensure availability of vaccine across all states

- Ensure Community Pharmacies key into NPHCDA Electronic management of immunization data (EMID) system
- Ensure ACPN are incorporated into National Covid-19 Technical working Group
- Production of SOP and other technical documents (Guidelines, job aids, IEC materials, etc) to guide vaccination at Cps
- Ensure review and expansion of MOP with ACPN beyond Covid-19 to include other PHC services in the nearest future

Association of Community Pharmacists of Nigeria (ACPN)

- Support production and dissemination of the SOP and other technical documents to approved Cps and other stakeholders
- Work with SPHCDA and State ACPN branches to fast track the scale up of COVID-19 vaccination at CPs across the states
- Jointly monitor implementation of COVID-19 vaccination at Cps
- Support advocacy efforts to stakeholders for buy in and support

State Primary Health Care Development Agency Board

- Work with State ACPN branches to fast track scale up of COVID-19 Vaccination at Community Pharmacies
- Cascade training of Community Pharmacies vaccinating teams
- Support provision of vaccines to designated Community Pharmacies
- Ensure ACPN are incorporated into State COVID-19 Technical working Group
- Jointly monitor implementation of COVID-19 vaccination activities at Community Pharmacies

Pharmacy Council of Nigeria (PCN)

Provide regulatory oversight on the premises, personnel and practice with respect to COVID-19 vaccination in Community Pharmacies

Pharmaceutical Society of Nigeria (PSN)

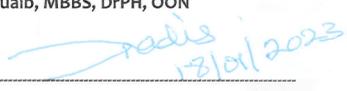
Mainstream issues surrounding ACPN/NPHCDA MOP Implementation in all their conferences and workshops both at national and state level

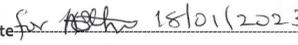
Signed this day, Wednesday 18h January, 2023 on behalf of SPCHDA,B, ACPN, PCN and PSN



Executive Director/ CEO NPHCDA
Dr Faisal Shuaib, MBBS, DrPH, OON

Sign/Date

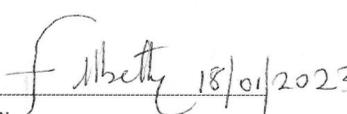
 18/01/2023
Chairman Executive Secretaries Forum SPHCDA/B
Dr Mohammed Usman Adis

Sign/Date  18/01/2023
National Chairman ACPN,
Pharm. Adewale Aderemi Oladigbolu FPSN

Sign/Date

 18/01/2023
Register PCN
Pharm. Ibrahim Babashehu Ahmed FPSN, FPCPharm, FCIA

Sign/Date

 18/01/2023
President PSN
Prof Cyril Odianose Usifoh FPSN; FPCPharm; FNAPharm

COMMUNIQUÉ OF THE 41st ANNUAL NATIONAL SCIENTIFIC CONFERENCE OF THE ASSOCIATION OF COMMUNITY PHARMACISTS OF NIGERIA (ACPN) Theme: NEVER WASTE A CRISIS: COMMUNITY PHARMACISTS LEARNING FOR FUTURE PREPAREDNESS

The 41st Annual National Scientific Conference of the Association of Community Pharmacists of Nigeria (ACPN), was held at the Festival Hotel, Amuwo-Odofin, Lagos State, Nigeria, from Monday, July 25, to Friday, July 29, 2022 under the theme, "Never waste a crisis: Community Pharmacists learning for future preparedness".

The Special Guest of Honour at the opening ceremony was His Excellency, Mr. Babjide Olusola Sanwo-Olu, the Executive Governor of Lagos State, the Chief host was Prof. Cyril Osifoh FPSN, President Pharmaceutical Society of Nigeria (PSN), while the Royal Father of the day was His Royal highness, Oba (Pharm) Ajibola Ademola Julius, Amuludun Iluyomade 1 (TLK), Olusin of Ijara-isin.

The Conference was graced by other eminent Nigerians including, the Registrar Pharmacists Council of Nigeria (PCN) Pharm. Babashehu Ahmed FPSN, Dr Monica Hemben Eimunjeze FPSN, Director Registration and Regulation Affairs, NAFDAC who represented the Director General NAFDAC, Past President of the PSN and President Nigerian Academy of Pharmacy, Prince Julius Adeluyi Adelusi FPSN, Dr. U.N.O. Uwaga FPSN Past President of PSN and Chairman BOT of ACPN, as well as other Past Presidents including Sir Anthony Akhimien FPSN, Pharm. Azubike Okwor FPSN, Pharm. Olumide Akintayo FPSN and Pharm. Ahmed Yakasai FPSN, the President of Nigerian Association of Pharmacists, Pharmaceutical Scientists and Allied Scientists in the Americas (NAPPSA), Dr. Theresa Pounds, and an assemblage of seasoned speakers and panelists.

Chairman of the Opening ceremony was Pharm. (Hon) Gboluga Ikengboju, Member Federal House of Representatives while the Keynote Address was delivered by Dr. Faisal Shuaib, ED/CEO National Primary Health Care Development Agency (NPHCDA).

Highlights of the conference include:

I. Pharmacists Council of Nigeria certified Vaccination/ Basic Life Support Training for

Pharmacists in Partnership with Mercer University, USA,

- ii. The finals of the 2022 ACPN National Anti-Drug Abuse competition (ACPN NADAC) for Secondary School Students nationwide.
- iii. Scientific Poster Presentations of Research Conducted at some Community Pharmacies in Nigeria
- iv. The launching of Julius Adeluyi Adelusi Community Pharmacy Expansion grant.
Presentations and Topics discussed at the Conference are as follows;
 - i. Community Pharmacies as Primary Healthcare Centres in Nigeria; What, How and Why?
 - ii. National Health Insurance and National Emergencies Management; Opportunities and for Community Pharmacists.
 - iii. Roadmap for Community Pharmacist Certification as Care-Providers for Substance Use Disorder.
 - iv. Integrating Traditional, Complementary and Alternative Medicines (TCAM) into Community Pharmacy Practice: A Practical Perspective
 - v. Supply Chain Security for Medicines and Effective inventory Management for Community Pharmacists

After careful evaluation of the presentations at the scientific conference, Conference observed and resolved as follows:

1. Conference recognised the Primary Health Care (PHC) system as the cornerstone of the healthcare delivery, capable of meeting the healthcare needs of the vast majority of the population. It was stressed that the

PHC system encompasses a broad mix of promotive, preventive, protective, curative, and palliative care.

2. Conference concurred that all Health systems contain four essential levels of care: lay self-care, primary professional care, general specialist care and super specialist care. Primary health care (PHC) remained the first level of professional contact in the community and forms the corner-stone strategy for the attainment of a level of Health that will permit socially and economically productive life.

Conference posited that PHC is a community-oriented model, for the discharge of health care services to the population in their communities, in a way that is easy and acceptable to them. Conference relied on WHO declaration that Community Pharmacists are the Health Professionals most accessible to the public, who render services such as

- i. Prevention of diseases and health promotion programs.
- ii. Screening, Identification and classification of non-communicable diseases e.g., hypertension, diabetes.
- iii. Dispensing of medicines in accordance with nationally agreed protocols
- iv. Ensuring accurate supply of medicinal products through a quality process.
- v. Patient counselling as well as care and support for those who are ill.
- vi. Provision of Drug information to health professionals, patients and the general public.
- vii. Maintaining links with other health professionals to support referral.
- viii. Detection of drug therapy problems and resolution of such in collaboration with other health care professionals

Conference took a position that achieving Universal Health Coverage (UHC) is a responsibility for all, especially in these times of expanding population and limited human resources for health. Inclusion of Community Pharmacies as Primary Healthcare Centers in Nigeria will propel improved quality of life which

translates to decrease burden of healthcare on the Government because PHCs in existence are too few to serve the populace and are often under-resourced and lacking in skilled manpower; a depletion resulting from relocation and retirement of trained personnel. Conference critically appraised the totality of the expertise of Community Pharmacists and summarised the output as including but not limited to the reflected:

- i. Provision of some level of Primary Care Services
- ii. Rendition of professional intervention to relieve the burden of Health Care borne by the Government.
- iii. Serve as a buffer in providing some services in order to reach more people in receiving quality healthcare thereby improving health indices.
- iv. Support Government efforts in increasing uptake of health interventions in the state (Covid-19 vaccination, HIV management and Family planning procedures).

Conference therefore strongly urged Government to utilise the peculiar advantage of the network of Community Pharmacists in rural and urban centres to drive its agenda of UCH.

3. Conference reckoned that the National Primary Health Care Development Agency (NPHCDA) is responsible for ensuring the right policies with pragmatic and technical support are put in place. These services are made available, accessible and affordable to the population especially at community level. Conference commended the NPHCDA for reaching out to all pharmaceutical entities in the country for sensitization at the peak of the COVID-19 pandemic in 2021 which is a laudable example of "NOT WASTING A CRISIS" as the pandemic provided an opportunity to involve Community Pharmacists in PHC service delivery. This led to a partnership with the ACPN for COVID-19 vaccination at Community Pharmacies, a partnership which is very strategic to achieving the goal of Primary Health Care development in Nigeria. Conference emphasized that Pharmacists being an integral part of the health care system in any country, must take advantage such that Community Pharmacists will compliment efforts at bringing quality health services closer to the people through the PHC system. Consequently, the ongoing national effort to revitalize the country's PHC system will only be complete, with the Community Pharmacy component fully incorporated. Conference informed

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9. Conference submitted that particular attention be paid to the shortcomings of the NHIS which could limit the success of the NHIA Act such as;

- i. Sidetracking of Community Pharmacists and other secondary providers in the Global capitation payment which adversely affected trust. Thus, payment mechanisms must be right and premised on the lawful precept which prescribes fee for service for CPs and other Secondary as well as Tertiary providers.
- ii. Sub-optimal tariff management under NHIS, though entrenched in the New Act, however calls for review of drug prices every three years which is too long and impractical due to the rate of inflation in frequency and proportion.
- iii. Capacity Development; a need for reawakening and continuing education of the different cadres of Health Practitioners.
- iv. The engagement of licensed Actuaries, who monitor the implementation of the operational guidelines, ensuring equity (in fees for service, distribution of enrollees to providers, effective tariff management amongst other things) and proper risk management for all parties involved, is fundamental to effective implementation of this new NHIA Act of 2022, as provided for, in section 38 of the Act.

10. The conference inferred that no matter the illness, drugs are the last resort of disease. The proper use of drugs, in the right combination, quantity, frequency, with suitable diet, liquids, through the proper route, is very critical to the efficacy of therapy as well as and the duration of convalescence and the economics of therapy. These values captured in Medication Therapy Management (MTM), a service unique to Pharmacists, must be recognised and accorded a service charge in the NHIA. Without a doubt, healthcare without assured quality Pharmaceutical Services is built on defective foundation. ■ Conference reminded the general public that, when drugs of any sort are used outside the recommended indication, dose or duration, the consumer is taking a conscious risk towards self-poisoning. Thus, no drug of any description should be taken without the intervention of a Pharmacist.

11. Conference committed itself to the commissioning of the initiative of a unique labeling model for Community Pharmacists to distinguish professional

handling of medications with regards to appropriate counselling, medications review (MTM), and instruction. Conference seized the discourse to call on the National Human Rights Commission to live up to its mandate of ensuring access to genuine drugs as a right of citizens of the Federal Republic of Nigeria in furtherance of its pact with the PSN in previous dispensations.

12. Conference recognised the importance of creating a scientific database of herbal products of primary health indications and called for a policy reform towards greater incorporation of herbal medicines in healthcare delivery as well as the identification of Community Pharmacists as care providers for substance use disorders and mental health screening.

13. Conference adopted the launching of the Julius Adelus Community Pharmacy Expansion Grant to improve the access of 230 Million Nigerians to Community Pharmacists. In similar spirit, the Conference approved of future plans to immortalise the late Pharm. Jimi Adesanya FPSN the former National Chairman of the Nigeria Association of General Practice Pharmacists (now ACPN) for meritorious services

14. At the end of the Conference, the following Pharmacists were elected to pilot the affairs of the Association for the next one year:

National Chairman,
Pharm. Adewale Oladigbolu, FPSN;
National Vice Chairman,
Pharm. (Mrs.) Bridget Otote Aladi, FPSN;
National Secretary,
Pharm. Ezech Ambrose Sunday MAW;
National Assistant Secretary,
Pharm. Nkiru Chuka-Okoye;
National Treasurer,
Pharm. Omokhafa Ashore MAW;
National Financial Secretary,
Pharm. Babatunde Samuel;
National Publicity Secretary,
Pharm. Keneth Ujah MAW;
National Editor-in-Chief,
Pharm. Giwa Babajide;
Internal Auditor,
Pharm. Ikechukwu Okwor, MAW;
Immediate Past National Chairman,
Pharm. (Dr) Adekola O. Samuel, MAW, DSA.



SUSTAINING ACCESS AND AFFORDABILITY OF HIVST IN NIGERIA THROUGH THE NATIONAL GOVERNANCE OF THE PHARMACY DISTRIBUTION NETWORK AND PARTNERSHIPS WITH ASSOCIATION OF COMMUNITY PHARMACISTS OF NIGERIA

PHARM. WALE OLADIGBOLU FPSN

LEARNING OBJECTIVES

Describe the Pharmacy Distribution Network and its governance structures, including the roles of the Association of Community Pharmacists of Nigeria (ACPN), state AIDS control programs, HIVST technical working groups and HIVST distributors.

Identify the implementation approach of the Pharmacy Distribution Network, as well as the results, impacts, challenges, and lessons learned during the national expansion/scale-up efforts since November 2022.

Learn and reflect on improvement suggestions /recommendations that could catalyze similar efforts towards sustaining access and affordability of HIV self-testing in Nigeria



Oversight Committee: NASCP, NACA, PCN, National ACPN, National HTS Task Team/HIVST Sub-committee, State ACPN, SACA, SASCP, Jhpiego, SFH and JSI.

OVERVIEW OF THE HIVST LOCAL PHARMACY DISTRIBUTION NETWORK

In collaboration with the National AIDS and STI Control Programme (NASCP), National Agency for the Control of AIDS (NACA) and Pharmacy Council of Nigeria (PCN), Jhpiego through the Unitaid-funded HIV Self Testing in Africa (STAR) project established the "HIVST Local Pharmacy Distribution Network" in November 2022.



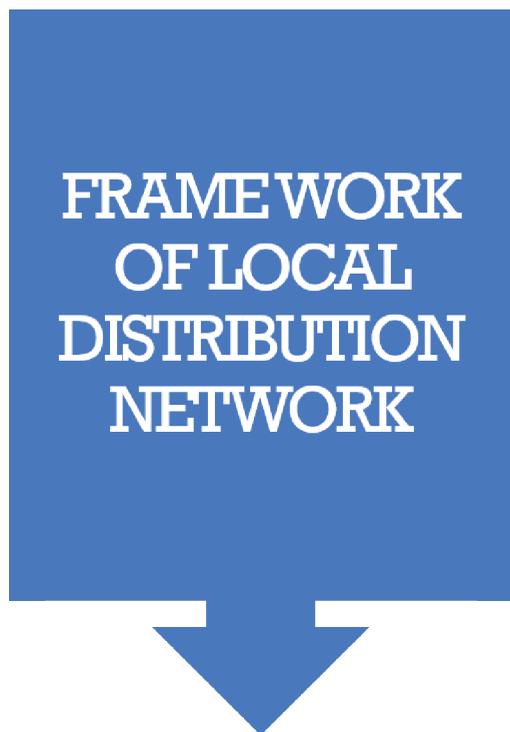
Through partnership with the Association of Community Pharmacists of Nigeria (ACPN),

- provide an effective and efficient coordination mechanism for HIVST demand side financing in the private sector.

Establishment of the Pharmacy Distribution Network

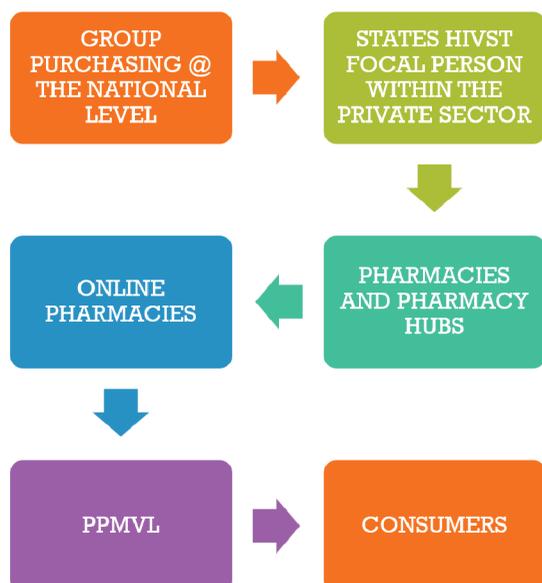
- 17 ACPN State Chapters
- Terms of Reference for the Network was reviewed and agreed upon
- Obtain commitment for investment in HIVST by the private sector stakeholders
- Letter of Commitment signed by 17 ACPN leadership
- Develop an implementable action plan to guide the DSF transitioning
- Special recognition to selected private providers
-
-
-

IMPLEMENTATION APPROACH



LOCAL DISTRIBUTION NETWORK –ROLE OF ACPN

- ACPN aggregates demands and stimulates investment from across the 17 states, while looking for opportunities to expand to the remaining states
- Negotiates price with manufacturers and in country distributors
- Provides funds for logistics of distributing the kits to sub-national levels
- Provision of storage hubs/warehousing of “subsidy” kits at no cost across 4 states (Akwa Ibom, Rivers, FCT and Lagos).
- Create interactive forum for HIVST interested community pharmacies
- Design an innovate platform for reporting via HealthServes.org
- Stock monitoring and control are being handled by volunteers
- Identify and explore opportunities for collaboration that will promote TMA



GROUP PURCHASING INITIATIVE (GPI) OF ACPN

Procurement of 3,400 OraQuick HIVST kits from DKT Nigeria

Subsidy kits from DKT Nigeria

Demand side financing "Buy 1, get 3" model- Jhpiego/STAR

Mylan Blood based HIVST kits- 53000

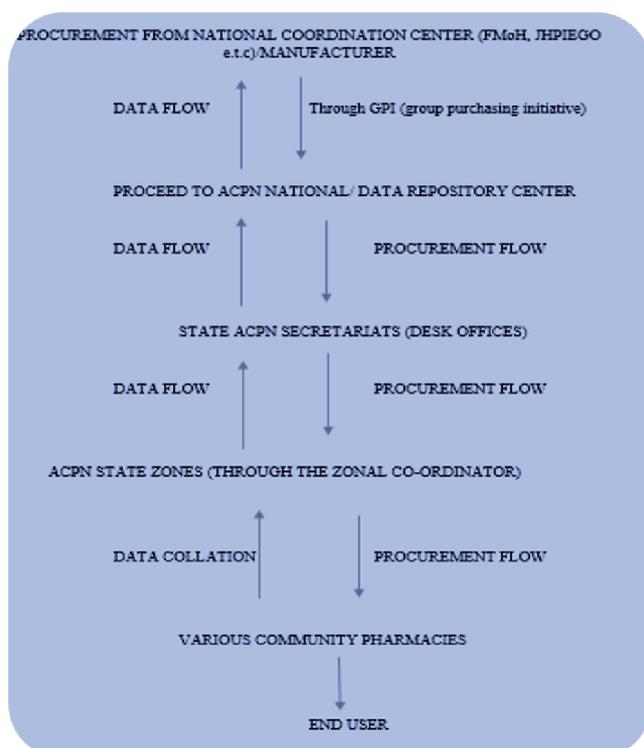
Abbott CheckNow blood based kits 10,000

RESULTS AND IMPACT

- Over 535 community pharmacies benefitting from the network
- Sold/distributed 21826 HIVST kits through the DSF intervention
- Average amount sold to end-users-1000NGN (1.3USD)
- Negotiated price of 1400NGN (1.79) for OraQuick from DKT Nigeria
-
- Recognition at national levels including HIVST subcommittee
- Improved coordination among private sector actors, implementing partners, professional associations, MDAs and regulatory agencies.
- Improved ownership of HIVST efforts by the national and sub national ACPN executives.
- Renewed efforts from manufacturers and distributors to make kits commercially available.
- Contribute to the development of national policy recommendations/guidance on self care including HIVST

CHALLENGES EXPERIENCED BY THE LOCAL DISTRIBUTION NETWORK

- Freeze on subsidy kits from DKT Nigeria slowed down demands
- Uptake from CPs is demand driven; return on investment is speed based
- Integration of PPMVs under the proposed hub and spoke model has been slow
- Data outage on procurement made outside the GPI
- Reporting of HIVST activities (including sales data)
- Engagement with other marketers of HIVST kits aside DKT
- Free HIVST in the private sector competing with paid HIVST
- These challenges are currently being mitigated by intensive consultations with the relevant actors (regulatory agencies, manufacturers, subcommittee etc)
- Through the active negotiation of the ACPN, the freeze on subsidy have been lifted.
- Innovative reporting platform developed to simplify



reporting in the private sector

ROAD MAP TO SUSTAINING ACCESS AND AFFORDABILITY OF HIVST

- Demand creation is critical; Adapt national strategies; conceptual bundling of other SRH products
- Engagement with regulatory agencies, manufacturers/ distributors on pricing, demand creation and availability of HIVST products for commercial purposes. Joint advocacy at national levels
- Engage with individuals/ partners to pay for HIVST and sign post them to pharmacies
- Special engagement with chain Pharmacies and electronic platforms for signposting clients to access points for HIVST
- Continue to engage PPMVs, aggregate demands from them and map PPMV to a hub for product sourcing
- Strengthen mechanism for tracking investment and sales data.
- Source support for CPs to register on Healthserve
- Link Healthserve to national database and grant access to partners .
- Special recognition and appreciation for champions of HIVST (DcPharm award)
- MCPD points for key leaders in HIVST with data reportage. Appoint HIVST Champion for ACPN

COVID 19 VACCINATION IN COMMUNITY PHARMACIES: FACTS, POTENTIALS, CHALLENGES

Doreen Enejoh, CPL
July 10, 2023

OUTLINE

- Background
- Goal
- Activities
- CP Vaccinations: Facts
- CP Vaccinations: Potentials
- CP Vaccinations: Challenges

BACKGROUND

USAID MTaPS was saddled with the responsibility of supporting COVID 19 vaccination through the private health sector and the integration of Community Pharmacies into COVID-19 vaccination by building sustainable structures and systems vis-à-vis curriculum development, certification of practitioners, learning platforms and adaptation of SOPs, job aids and IEC materials to improve quality service delivery.

GOAL

To increase access to COVID 19 vaccination through the Private health sector including Community Pharmacies

TIMELINE

May/June 2022

Stakeholders' engagement
Development of Activity Workplan
Recruitment of MTaPS Team

August/Sept 2022

Training of CPs in Oyo, FCT,
Rivers, Kaduna, A/Ibom, C/Rivers
COVID 19 vaccination Roll Out

Oct/Nov/Dec 2022

Unique EMID codes
Rapid Assessment of Comm Pharm
Motorized Campaign in Oyo

Jan-Mar 2023

SOP, Job aids devt NPHCDA/ACPN TWG
Mid Year Program Review
Certification Training for Pharm
Lagos/Rivers CPs start vaccinating

April-June 2023

Vaccination Outreach Teams in 5 States
Reimbursements for data, Logistics
FGDs with ACPN, PHCDBs, others

HOW WE GOT THERE

Advocacy/Engagement

- Training/Collaboration
- State PHCDB training on SCALES 3.0 Strategy for COVID 19 vaccinations
- Partner-supported training on IPC and Creating empathy with BA-N
- Media sensitization on Radio, TV and online media

Training/Collaboration

- State PHCDB training on SCALES 3.0 Strategy for COVID 19 vaccinations
- Partner-supported training on IPC and Creating empathy with BA-N
- Media sensitization on Radio, TV and online media

Technical Assistance

- Monthly Supportive Supervision
- SOPs and job aids developed

- IEC materials (flyers, banners, promotional materials)
- Reimbursement of Transport logistics and data
- Outreach teams supported with tools, reflective jackets, stipends for targeted outreaches

NPHCDA-ACPN TWG

NPHCDA MOU

Adaptation of SOPs/Job aids



Mid-Year Review



ACPN AND MTAPS PARTNERSHIP

ACPN & MTaPs @ PSN Conference



ACPN Nat & State @ Mid Year Review



SCALES 3.0 Oyo State training



DEMAND CREATION BY ACPN, BA-N & MTAPS

Radio/TV Appearances
Oyo State/Rivers State



**Banners
Rivers State**



**CERTIFICATION OF PHARMACISTS
FOR VACCINATIONS**



Practical session



Group sessions



USAID Ogwuche



BLS-CPR training

**IEC Promotional materials
Cross Rivers State**



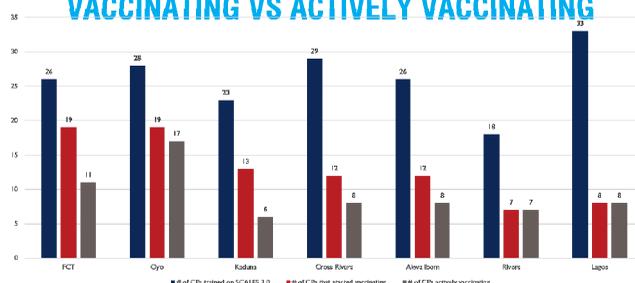
SUPPORT TO PCN

- Development of Vaccination training manual and PPT of manual for incorporation in cycle 6 of MCPD
- Development of Facilitators' guide for use of the vaccination manual.

**COMMUNITY PHARMACIES BY
TRAINING AND ACTIVITY**

	FCT	Oyo	Kaduna	Cross Rivers	Akwa Ibom	Rivers	Lagos
Total # of Pharmacies Trained for COVID-19	49	49	36	41	25	36	34
# of Pharmacies that Accepted Vaccines	59	79	73	14	14	NA	145
# of Pharmacies that Accepted Vaccines on JNC	26	26	21	28	24	18	32
# of Pharmacies that Accepted Vaccines on JNC	9	29	8	29	26	13	21
# of Pharmacies that started Vaccinating	19	12	15	12	12	7	8
# of Pharmacies actively vaccinating	11	12	6	8	8	2	8

**COMMUNITY PHARMACIES: TRAINED VS STARTED
VACCINATING VS ACTIVELY VACCINATING**



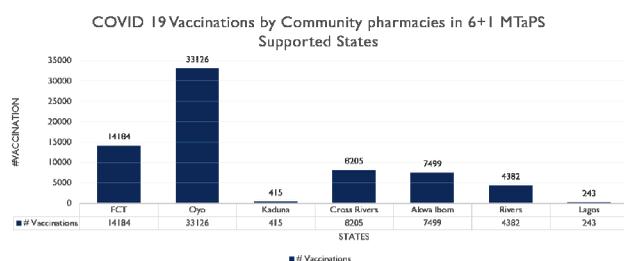
CP STAFF TRAINED ACROSS THE 6+1 STATES

State	Number	Field	total
FCT	40	17	57
Abia State	40	31	71
Delta State	38	23	61
Edo State	45	33	78
Imo State	48	42	90
Osun State	43	33	76
Plateau State	48	3	51
Grand Total	302	180	482

COVID 19 VACCINATIONS BY COMMUNITY PHARMACIES

s/n	State	# of CPs	# Vaccinations	% total of all private facilities	Remarks
1	FCT	12	14184	88%	Started Dec 2020
2	Oyo	13	33126	57%	Started Sep 2021
3	Kaduna	13	415	27%	Started Dec 2020
4	Cross Rivers	12	8205	33%	Started Dec 2020
5	Abia State	12	7499	42%	Started Dec 2020
6	Rivers	7	4382	40%	Started Jan 2021
7	Lagos	5	243	80%	Started Jan 2021
	Grand Total		64074	53%	as of 15th Feb 2022

VACCINATION PERFORMANCE BY CPS PER STATE



POTENTIALS

Routinization of vaccinations

- CPs integration into routine immunization
- Slow cold chain facilities in CPs/Possible pooling of cold chain resources/waste management
- Most accessible and trusted health practitioners to their communities

Technical Assistance

- Consultancies on vaccinations
- Emergency Preparedness and Response for future epidemics
- Embedded Immunization into Pharmacy Curriculum

CHALLENGES

External to Community Pharmacies

- Resistance and disbelief in public sector of ability
- Perception of CPs as profit-oriented and unable to offer CSR
- Non-involvement of CPs ab initio during epidemics

Internal to Community Pharmacies

- High staff attrition
- Reluctance/nonchalance for some CPs to key into this vaccination space
- Lack of cold chain facilities
- Facility dedicated digital systems for documentation and data uploads

SUMMARY

The handshake between USAID MTaPS and Community Pharmacies has increased vaccination coverage, and shown the capacity of Community Pharmacists, as readily accessible healthcare providers, for emergency responsiveness to epidemics. The system put in place for this partnership with the NPHCDA and other stakeholders must be sustained until CPs are fully integrated into the routine immunization/vaccination space.



PHARMACY

The Pharmacy Emblem, a property registered with Corporate Affairs Commission(CAC) (with Reg. No. RT M 63583) belongs to the Pharmaceutical Society of Nigeria (PSN).

The PSN entrusted the Association of Community Pharmacists of Nigeria (ACPN) With power of attorney to manage the Pharmacy Emblem often referred to as the "Green Cross" or the "Rx Sign"

The Emblem made its debut in 1976, and till date, functions as a mark of identification for Registered and Pharmacists' owned Pharmaceutical Premises(Retails).

The Rx sign is a symbol with which the PSN guarantees the general public where to source for quality products and excellent professional pharmaceutical care and services.

The Council of PCN has resolved that the Pharmacists Council of Nigeria (PCN) shall henceforth enforce the Pharmacy Emblem and the Registrar has so been mandated.

The general public should therefore watch out for the Green Cross with Rx sign before patronizing any drug or medicine shops because the Pharmacy Emblem guarantees:

- Genuine and Quality Drugs/Medicines
- Professionalism/Pharmaceutical Care Services
- Health Education and Drug Information
- Conselling and Proper use of drugs

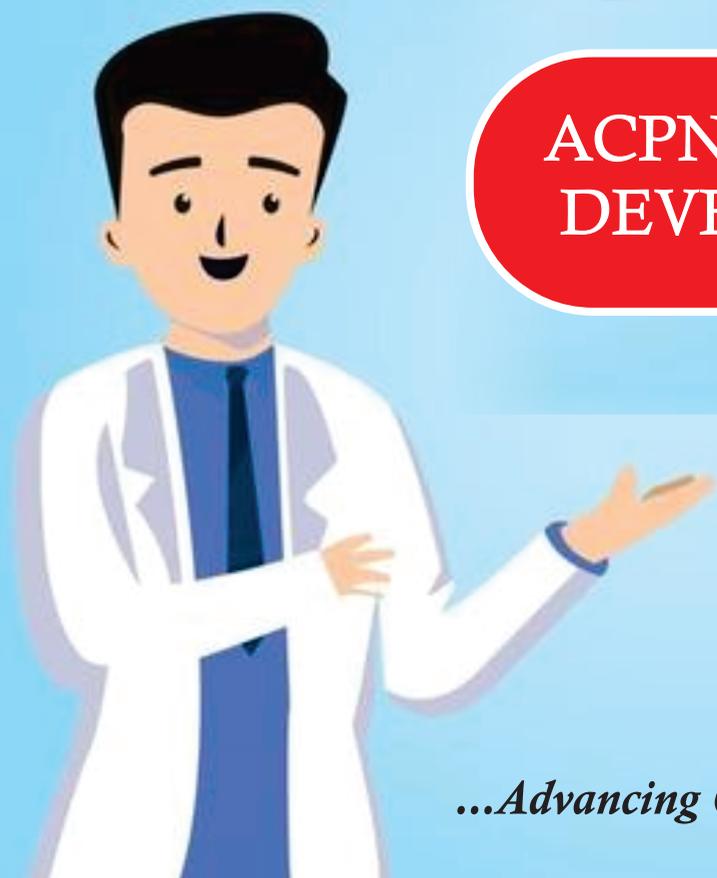


BRISBANE 2023
FIP WORLD CONGRESS
24 - 28 September



81st FIP World Congress
of Pharmacy and
Pharmaceutical Sciences

<https://brisbane2023.fip.org>



ACPN RESEARCH AND DEVELOPMENT UNIT



...Advancing Community Pharmacy Practice

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