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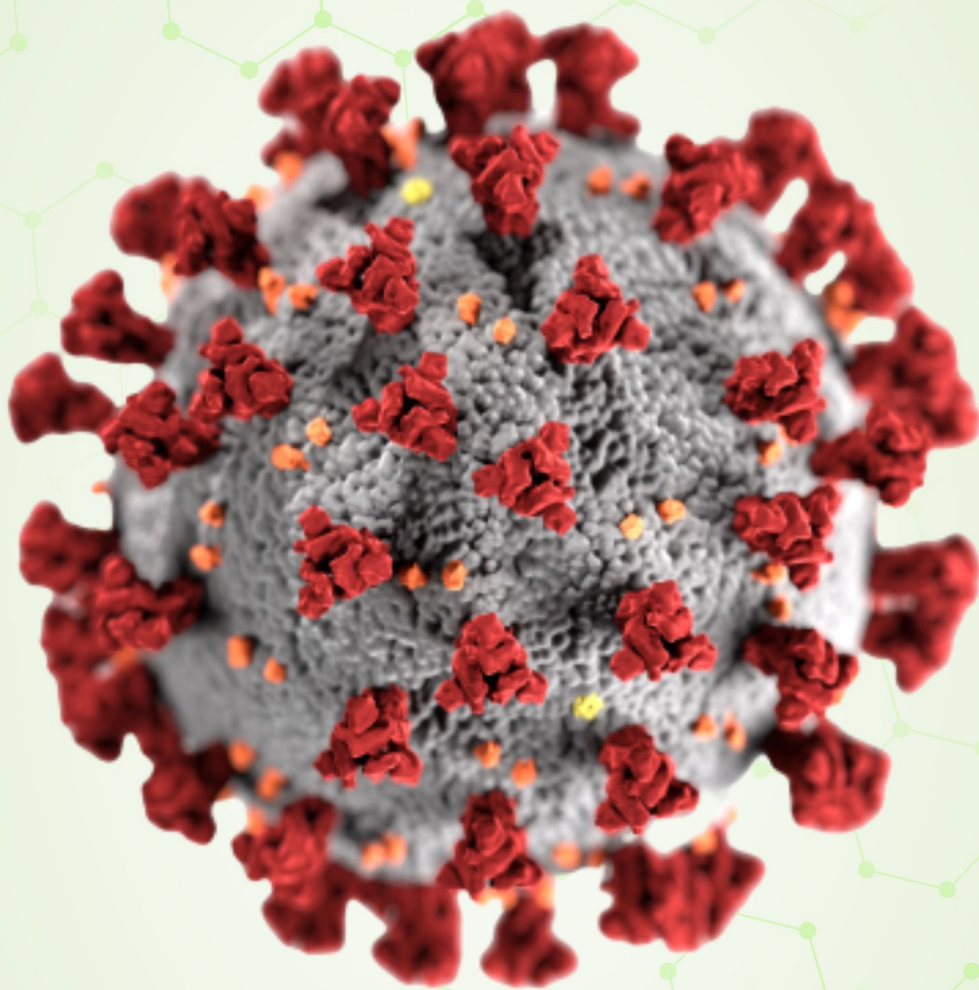
ISSN 0331 - 670X

# The Nigerian Journal of Pharmacy

THE OFFICIAL ORGAN OF THE PHARMACEUTICAL SOCIETY OF NIGERIA

FOUNDED 1927

## BOOK OF ABSTRACTS



# 94<sup>th</sup>

Annual National Conference of  
the Pharmaceutical Society  
of Nigeria November 1-6, 2021



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## FOREWORD

The book of abstracts for the 94th Annual National Conference of the Pharmaceutical Society of Nigeria, 2021 contains 23 abstracts in the different fields of Pharmacy practice. In recognition of our promise to communicate evidence from pharmacy and the pharmaceutical sciences, we are absolutely delighted to publish the book of abstracts, that have also been presented as posters. This is also included as a supplementary issue of the Nigerian Journal of Pharmacy. The abstracts showcase work from across Nigeria and internationally. They reflect the profession's commitment to innovation in pharmacy and evidence-based practice to support the delivery of high-quality patient care. From a focus on Challenges of Implementing the Pharmaceutical Care Concept to Pharmaceutical care interventions during covid 19 pandemic in an outpatient setting; and Innovative Management of Community Pharmacies during COVID-19 Public Health Emergency; Pharmacists have exhibited high potential for collaborative research which is crucial in charting a course to highlight the need for and importance of the 21<sup>st</sup> Century Pharmacist in the health care team. Research showing casing novel repurposed formulations such as development of a dispersible pediatric pyrazinamide tablet and Phytochemical evaluation and biological activities of a phytonutrient rich extract of *aspergillus striatus*, amongst others are a testament to ongoing research within and outside the country poised to make meaningful impact in increasing our resources for management of diseases.

The abstracts highlight the collaborative nature of pharmacy research and demonstrate a collective understanding of the value of shared knowledge in advancing practice, as shown in the researched titled "Prescription of Medicines for the Management of Childhood Acute Watery Diarrhea" carried out in a Tertiary Hospital in Ebonyi State, Nigeria. This research is birth from our program "*WETIN PHARMACIST DEY DO SEF*" which aims to increase pharmacist visibility in the hospital workspace. This is in tandem with the theme of this year's conference which is focused on Strengthening the Pharmaceutical sector through research and collaboration. More of such important collaborative and disruptive research interventions will be show cased in the near future.

We are very grateful to the members of the abstract review panel, and to all the reviewers who have worked with the Nigerian Journal of Pharmacy. The commitment of their time and expertise to the abstract and manuscript review process has ensured prompt review of both full papers and conference abstracts. I encourage all delegates to interact with the abstract presenters either in person or via emails during the conference. I also congratulate all the award-winning abstracts.

**Dr. Margaret O. ILOMUANYA (FCBR)**

Editor in Chief

Nigerian Journal of Pharmacy

**ABSTRACT PRESENTED AT 94th Annual National Conference  
of the Pharmaceutical Society of Nigeria, 1-6, 2021**

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<b>PSNNJP 014</b>	Osahon Penaere T. and Erhunmwunsee Osazemen	Osahon Penaere T.	Willingness to take covid-19 vaccine among undergraduate students of University of Benin, Edo state, Nigeria
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<b>PSNNJP 022</b>	Adekuoye AS, Oreagba IA and Aina BA	Aina BA	Adverse effects following immunization (AEFI) of covid-19 vaccine in some health facilities in Lagos state.
<b>PSNNJP 023</b>	Uloma N. Ubani-Ukoma, Oluwatobi A.Mosanyo, Divine K. Ubochi, Margaret O. Ilomuanya	Uloma N. Ubani-Ukoma,	Evaluation of Chloramphenicol-eluting Hydrogel Lens as a Sustained Release Alternative for the Treatment of Anterior Ophthalmic Infections

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PSNNJP 001



## Challenges of Implementing the Pharmaceutical Care Concept

Olu-Lawal, M. O<sup>1</sup>., Esimai, P.<sup>2</sup>., Femi-Oyewo, M. N<sup>2</sup>., and Saliu, S. D<sup>3</sup>

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**Background:** Pharmaceutical care is an all-embracing invention in pharmacy that transcends the barrier of provision of pharmaceutical products. It is a patient-centered, outcome-oriented pharmacy practice that requires pharmacists to work in concert with other health professionals to promote health, prevent disease, and assess, monitor, and modify medication use to ensure that drug therapy regimens are safe and effective. The aim of this study was to assess the state of practice of pharmaceutical care and the willingness of other health professionals to key-in to its use.

**Methods:** Key-informant interview and semi-structured questionnaire was administered on 23 pharmacists in the employment of the State Hospital, Asubiaro and the LAUTECH Teaching Hospital, Osogbo in Osun State. Ethical approval was obtained from the Osun State Health Research Committee.

**Results:** Out of the 23 respondents, 73.9% did not possess the required clinical skills to effectively practice Pharmaceutical care. 69.5% could not use appropriate software for drug information. 65.2% are unwilling to change the traditional method of pharmacy practice. Majority of the respondents (91.3%) believed that implementing pharmaceutical care requires more time and efforts and should attract more remuneration. 78.3% agreed that other health professionals are uncomfortable with the implementation of pharmaceutical care.

**Conclusion:** In conclusion, although pharmaceutical care has been in existence for decades, its widespread implementation is yet to be realized. Also, though the knowledge exists, there are inadequate skills for pharmaceutical care practice. A number of other barriers also militate against its implementation. The study revealed that these barriers are however not insurmountable.

**Keywords:** Pharmaceutical care, Patient-centered, Clinical Pharmacy.

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PSNNJP 002



## Insulin at 100: access on the African continent

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**Background:** Diabetes is a major health issue that is increasing at an alarming rate worldwide and with covid 19 pandemic, access to care for diabetic patients has been severely impaired. About 19 million people in Africa have diabetes, and about a third of this population require insulin. Studies show that less than half of this population have access to insulin which may lead to severe complications and eventual death. The purpose of this research is to identify the reasons for lack of access to insulin in Africa and propose sustainable solutions.

**Method:** a general review of the literature was carried out by searching online sources such as Google Scholar and PubMed using relevant key words; insulin, accessibility, availability, Africa. They were screened, evaluated, and checked by reviewers for appropriateness.

**Discussion:** Projections for 2030 shows about a two fold increase in the prevalence of diabetes in Africa, this will lead to a significant increase in the number of people requiring Insulin.

Lack of access to insulin in Africa is multifactorial in nature. Lack of production plants being a factor, has led to Africa's total reliance on the global trading system to obtain insulin through import. Also, the lopsidedness in developmental policies, where diabetes is often left out of the operational strategies of the main aid actors despite the increasing morbidity and mortality arising from the complications. There is a marked unbeneficial effect of the Oligopoly enjoyed by the three leading leaders of insulin production (Eli Lilly, Novo Nordisk and Sanofi) on African continent. Regulatory requirements for insulin need to be stringent enough to protect the health of people but not to hinder market entry. These 3 companies hold 95% of the market share and as such control the global supply and pricing of insulin. Local production of insulin in Africa is required and needs government and private sector collaboration to be sustainable.

**Conclusion:** It has been a century since the discovery of insulin, effective collaborations should be patient centered by scaling up access to essential medicines and devices for all, and universal health coverage for all should be made a reality. Advocacy should be amplified to create awareness about the challenges in access to insulin and innovative ways to improve access should be considered.

**Keywords:** Insulin, access, cost, Africa



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PSNNJP 003



## Evaluation of Hydroxypropylated starches as excipients in diclofenac sodium tablet formulations

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**Background:** Starch modification can be achieved using physical and chemical means to improve its physicochemical characteristics and stability. These modifications enhance their potential applications, including their use in specialized drug delivery systems. This study aims to explore the excipient potential of cassava and potato starches modified via hydroxypropylation in diclofenac sodium tablet formulations.

**Method:** Twelve batches of diclofenac sodium granules were prepared using varying amounts of the HP-starches as binder (mucilage) and filler (powder) using the wet granulation method. Drug-excipient interaction using FTIR and granule flow properties were investigated before compression into tablets. The formulated tablets were evaluated for weight uniformity, hardness, friability and *in-vitro* drug release. Kinetics and mechanisms of drug release from the tablets were determined from the drug release profiles of the tablets.

**Results:** the native starches were white in colour and smooth in texture while the HP-starches were off-white, coarse and glassy. The HP-cassava and potato starches significantly increased in solubility with 79.4 and 14.7%, respectively. The HP-starches also exhibited a reduction in volume of sedimentation while only the HP-cassava starch showed a reduced water retention capacity of  $1.7133 \pm 0.9672$ . Percentage syneresis was lower in both HP-cassava and potato starches with  $4.16 \pm 2.34$  and  $1.08 \pm 0.96\%$ , respectively. The HP-cassava and potato starches had excellent flow with corresponding Carr's indices of  $5.96 \pm 0.99$  and  $5.23 \pm 0.05$  and angles of repose of  $19.98^\circ$  and  $20.50^\circ$ , respectively. Drug release from the tablets was sustained ranging from 43.60 - 81.67% release within 8 h with the release following a first order kinetics and the mechanism of release was through erosion and based on the Hixson-Crowell model. Drug-excipient studies showed absence of any interaction.

**Conclusion:** Hydroxypropylation enhanced the solubility, reduced volume of sedimentation and improved freeze-thaw stability of the starches. It also increased the water retention capacity and moisture sorption of potato starch. The tablets formed with the HP-starches exhibited sustained release characteristics.

**Key words:** Hydroxypropylated starches, Diclofenac, drug release, chemical modification

## **Pharmaceutical care interventions during covid 19 pandemic in an outpatient setting**

Ogunsesan Kayode O.<sup>1</sup>, Adekoya Omobolanle F.<sup>1</sup>, **Olaoye Damilola Q.**<sup>1,2</sup>

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**Background:** Clinical pharmacy practice requires the assessment of prescriptions and relevant clinical data of patients to optimize the effectiveness and safety of treatments. Interventions by the pharmacists have always been considered as a valuable input by the health care team in the patient care process by reducing the medication errors, rationalizing the therapy and reducing the cost of therapy. However, the unprecedented Covid 19 pandemic, brought about changes to pharmaceutical care practice as window dispensing was reintroduced as the standard of care in pharmacy. The aim of the study is to assess the level of prescriptions intervened by clinical pharmacists during the pandemic at out-patients clinical pharmacy unit as a testament to the importance of pharmaceutical interventions in all clinical situations.

**Method:** This was systematic retrospective study designed to evaluate and characterize the interventions by pharmacists in medical out-patient (MOP), Pharmaceutical care Unit of the University College Hospital, Ibadan. The study was carried out by assessing records of all intervened prescriptions during all clinic days at the Medical Out-patient pharmacy of University College Hospital, Ibadan within the Covid 19 scaling down period; January 10, 2021 to August 26, 2021. It was conducted after an official permission obtained from the Deputy Director of Pharmaceutical Services, University College Hospital, Ibadan. Intervened prescriptions were categorized in 13 predefined fields. Severity of consequences were ascertained according to PCNE classification

**Results:** The total number of prescriptions assessed was 6,563 with 4,448 prescriptions dispensed. A total number of 176 prescriptions were intervened within this period which is about 3.9 % of dispensed prescriptions. Majority n=49 (27.8%) of the interventions done were on need for additional medication. Transcription errors due to illegibility of prescription or missing sections of prescription was 15.9 % of the total. Medication switch recommendation accounted for 9.7% of the intervened prescriptions while Therapy duplication was exactly 9%. Overdose was the least intervention done taking 0.56% of the interventions. Sub therapeutic dose and drug-drug interactions were pegged at 6.25% and 6.81% respectively.

**Conclusion:** Despite the recommendations by the FIP for Pharmacists to revert to window dispensing, it is apparently important to actively continue to carry out pharmaceutical care activities and put measures in place to identify and resolve potential and actual drug therapy problems.

**Keywords:** COVID-19 · Pharmaceutical care · Drug-Therapy Problems · interventions

# 94<sup>th</sup> Annual National Conference of the Pharmaceutical Society of Nigeria November 1-6, 2021

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ABSTRACT

PSNNJP 005



## Vaccine Hesitancy in Geriatric population: a limiting factor to herd immunity from vaccination in Nigeria

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**Background:** Vaccination is currently considered as one of the most successful public health measure to curbing highly infectious disease. Sadly, the growing spread of myths and misinformation has been reducing the public's confidence in vaccination process. Vaccine hesitancy stands as a barrier to full population immunity against highly infectious diseases. Coincidentally, the rapid developments of COVID-19 vaccines globally have risen more concerns about the safety of the vaccines hence projected to increase public hesitancy to taking the vaccine. The aim of this study was to conduct a comprehensive and systematic regional assessment of COVID-19 vaccine hesitancy in a community-based sample

**Method:** A multi-item valid and reliable questionnaire was created through comprehensive literature review (to ensure face validity) and expert suggestions (to ensure content validity). The questionnaire was deployed online via social media sites to recruit south western Nigerian adults above the age of 50 from the general population. Assisted filling was done for adults who could not fill in the forms. Collected data were entered into the IBM Statistical Package for Social Sciences for analysis. Appropriate references were drawn from analysis.

**Results:** A total of 478 individuals participated in the study where the majority were: females (60.9%), The likelihood of getting a COVID-19 immunization in the study population was: very likely (40%), somewhat likely (28%), not likely (12%), definitely not (20%), with individuals who had lower education and income, or perceived threat of getting infected being less likely to get COVID-19 vaccine. Reasons for not taking the vaccine ranged from religious beliefs, to lack of belief in the existence of the virus to concerns on vaccine safety. In multiple regression analyses, vaccine hesitancy was predicted significantly by sex, education, income, and the perceived threat of getting infected from the vaccine

**Conclusion:** Majority of the geriatric population are willing to take the Covid 19 vaccines while there's still need to increase awareness to dispel myths surrounding the vaccination process.

**Keywords:** COVID-19 · Pandemic · Vaccine · Geriatric · Prevention · Infection

## Developing Novel Drug Delivery Systems for Antibiotic-Sensitive SARS-Cov-2

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**Background:** Pharmaceutical development scientists are currently looking for how to harness resources towards self-sufficiency in local drug production; the gum obtained from *A. esculentus* pods has been reported to have desirable properties that make it a suitable polymer substitute for the more expensive synthetic polymers in gastroretentive drug formulations. Although oral formulations are the most convenient and preferred route of delivering drugs into the systemic circulation, the challenge of short gastric retention time is what floating drug delivery system (FDDS) seeks to address. This study evaluated novel floating drug delivery systems for drugs being used in covid-19 and related infections

**Method:** The buoyancy properties of three drugs, Erythromycin, Levofloxacin, and Promethazine, used in the treatment of serious infections, including covid-19, were interrogated in tablets containing okra gum, carrageenan, cellulose acetate phthalate, and chitosan. Physico-mechanical properties and swelling indices of the tablets were assessed using standard methods. The *in-vitro* buoyancy and ISO 17025 one-point release in 0.1N HCl were also determined.

**Results:** The tablets were generally elegant, non-friable, and possessed acceptable hardness, while the swelling indices showed that the polymers were able to imbibe fluid and swell appreciably. Erythromycin formulations showed zero floating lag times; similarly, all promethazine formulations except batch P4 showed zero floating lag times and thus excellent floatation. Levofloxacin formulations, in contrast, demonstrated no floating ability. *In vitro* release study showed that no erythromycin formulation released its content until 24 h later (E6), unlike promethazine formulations which released 50 % of its drug content within 10 min of coming in contact with the test medium. The corresponding values for levofloxacin formulations were 30 min for batches L1 – L3 and 60 min for L4 – L5.

**Conclusion:** Okra gum, carrageenan, and chitosan, which are abundantly available in Nigeria, could be optimized towards developing novel FDDS for drugs useful for treating infectious diseases like covid-19 now assuming chronic character.

**Keywords:** Polymers, Kinetics, Anti-infectives, Floating Drug Delivery

## **Drug utilization pattern among elderly outpatients in the university of port harcourt teaching hospital**

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**Background:** Inappropriate use of drugs is a global problem affecting the healthcare system. This is of particular importance in the elderly as the prevalence of drug use increases with increasing age. The subject of irrational prescription is of utmost importance regarding pharmacotherapy in the elderly since they use more medicines than the younger population and are at a high risk for developing adverse drug events. The main aim of this study is to assess the drug utilization pattern among elderly medical outpatients in university of Port Harcourt teaching hospital using WHO core prescribing indicators.

**Method:** The retrospective study was conducted for a twelve month period, January to December 2019. Prescriptions of outpatients 60 years and above were collected and documented. A total of 600 patient folders were withdrawn from the medical record unit of the outpatient clinic and prescriptions reviewed. Using a data collection form, patient data retrieved included but not limited to patient demography, drug name, dosage form, strength, dose, quantity and amount. Collected data was checked for inappropriate medication use in older adults when compared with the World Health Organization standards for medicines use.

**Results:** The majority of patients (67.3 %) were aged 60-69 years, while the most commonly found comorbidities were hypertension and diabetes mellitus. Average number of drugs per prescription was 5.2. Percentage of encounters with an antibiotic and injection prescribed were 19.8 % and 25.7 %, respectively. A total number of drugs prescribed by its generic name were 2163 (65.3 %). Among 3313 medicines prescribed, 2822 (85.2 %) were prescribed from the Essential Medicine List. Cardiovascular agents (26.2 %) were the most frequently prescribed class of drug followed by endocrine drugs (20.8 %).

**Conclusion:** The study identified some deficiencies in prescribing indicators at the outpatient clinic of University of Port Harcourt Teaching Hospital. The assessment showed that the current prescription pattern and drug use among elderly outpatients in the hospital is associated with polypharmacy and some degree of therapy duplication suggestive of inappropriate medication use. Prescribing from the Essential Medicines List, use of injectable and antibiotics, as well as drugs prescribed in generic names did not satisfy World Health Organization recommendation.

**Keyword:** Medication, Prescription, Utilization

## Phytochemistry and antidiabetic activity of the seed extracts of *Eleusine coracana* Linn

Oseghale O Irene<sup>1</sup>, Imieje Vincent<sup>1</sup>, Falodun Abiodun<sup>1</sup>, Osayemwenre Erharuyi<sup>1</sup>, Igbe Ighodaro<sup>2</sup>, Olapeju Bolanle<sup>2</sup>, Edosuyi Osazee<sup>2</sup>, Osahon Ogbeide<sup>3</sup>.

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**Background:** Diabetes is a metabolic disorder that has become a major public health issue affecting millions of people worldwide. The disease often results in severe complications, which may lead to death. This study was carried out to determine the antidiabetic effects of the extracts of the seeds of *Eleusine coracana*

**Method:** The powdered seeds were extracted with methanol using the soxhlet apparatus. The extract obtained was concentrated to dryness and fractionated by vacuum liquid chromatographic process using different solvent systems in order of their increasing polarity. The fractions obtained were subjected to antioxidant screening using standard methods. The streptozotocin-induced diabetic rats were treated with oral doses of 200 mg/kg and 400 mg/kg b.w of the crude extract and selected fractions for 7 days.

**Results:** The antioxidant screening revealed that the ethyl acetate: methanol (1:1) fraction exhibited the highest free radical scavenging activity (FRAP=79.02 ± 1.59) compared to the crude extract and other fractions. Antidiabetic studies revealed a significant ( $P \leq 0.05$ ) decrease (32%) in blood glucose level from 245.30±17.10 mg/dL to 166.00±24.79 mg/dL in the animals treated with 200 mg/kg of the ethyl acetate: methanol (1:1) and 46 % decrease in glucose level at a dose of 400 mg/Kg from 343.80 ± 87.13 mg/dL to 184.50±23.95 mg/dL. The methanol extract and other fractions also cause a decrease in blood levels in the experimental animals.

**Conclusion:** The seeds of *Eleusine coracana* contain essential minerals and phytochemicals, which may have contributed to the observed antioxidant activities of the extract and fractions. Also, the ability of the extract and fractions to effectively reduce blood glucose level, especially at the 200 mg/kg bw dose, is a pointer that the seeds of *Eleusine coracana* can be formulated for management of diabetes.

**Key words:** Diabetes, *Eleusine coracana*, antioxidants, phytochemicals.

# 94<sup>th</sup> Annual National Conference of the Pharmaceutical Society of Nigeria November 1-6, 2021

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PSNNJP 009



## Development of a dispersible paediatric pyrazinamide tablet: A model compounding formulary in resource limited primary healthcare settings.

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**Background:** WHO-End TB Strategy which targets the substantial reduction/elimination of paediatric TB incidence and mortality by 2035 necessitates the adoption of proactive measures to attain this set goal. In accordance to the WHO definition of primary healthcare, compounding of cost-effective pharmaceuticals in primary healthcare settings is an essential component of healthcare delivery. This study sought to develop an optimized paediatric pyrazinamide dispersible tablet as a compounding formulary model in resource limited primary healthcare settings

**Methods:** Paediatric oral dispersible tablets of pyrazinamide were developed by the wet granulation method using polyvinyl pyrrolidone as binder and sodium carboxymethyl cellulose as super disintegrant at concentrations of 0.025 - 0.25 % w/w. Pre and post compression evaluations respectively for the granule and tablet batches were undertaken in accordance with established standard methods. Results were statistically analyzed using one way analysis of variance (ANOVA) with significance set at  $p \leq 0.05$ .

**Results:** The granule batches micromeritics variables were acceptable and indicative of good flow properties. The tablet batches passed all the official tablet evaluation criteria, with no statistical significance between the batches. However, tablet batches that contained lower concentrations of SMC failed both the disintegration and dispersion tests. Optimal tablet formulation was obtained at SMC concentrations of 0.2 and 0.25. % w/w.

**Conclusion:** An optimized formulation of a paediatric oral dispersible tablet of pyrazinamide that could be applied as a primary healthcare compounding model in a resource limited setting has been developed.

**Keywords:** Paediatric Tuberculosis, Pyrazinamide, Dispersible tablet, Sodium carboxymethyl cellulose.

# 94<sup>th</sup> Annual National Conference of the Pharmaceutical Society of Nigeria November 1-6, 2021

CONFERENCE  
ABSTRACT

PSNNJP 010



## Prescription of Medicines for the Management of Childhood Acute Watery Diarrhoea at a Tertiary Hospital in Ebonyi State, Nigeria.

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**Background** The burden of childhood diarrhoea in Nigeria is huge and has been persistently high over the years with an estimated 205 under-fives dying daily. A simple combination of oral rehydration salts (ORS) and zinc tablets (ORS/Zinc) has been proven and approved for its treatment since it is beneficial for rehydration which is the goal of therapy for diarrhoea. However, huge resources that could be used for other health issues are currently spent on antibiotics and other medicines which are not beneficial for rehydration, thereby exposing children to unnecessary medications and other drug therapy problems. This study was set to evaluating the prescription of medicines for acute watery diarrhea (AWD) in under-five children and to determine the appropriateness of these prescriptions.

**Methods** This study was carried out in a tertiary hospital in Abakaliki, Ebonyi State. It was a retrospective review of prescriptions of medicines for AWD in under-fives for a period of 28 months (January 2019 to April 2021). All available cases of AWD (338) were extracted from the prescription registers for the study period. Data was entered into SPSS version 24.0 and descriptive analysis was done. The guideline set by WHO for the management of AWD was followed for evaluating the prescriptions.

**Results** Out of the 338 cases of AWD, 190 (56.2%) occurred in male children and 265 (84.4%) in children under 24 months. Of the total cases, 291 (86.1%) received prescriptions containing ORS, zinc, and probiotics either alone or in different combinations with only 154 (45.6%) containing ORS and zinc together. Of these prescriptions with ORS/Zinc, 47 (30.5%) also contained antibiotics, antimalarials and infusions. In total there



were 99(29.3%) and 48 (14.2%)prescriptions containing antibiotics and antimalarials respectively. The most frequently prescribed classes of antibiotics were sulfonamides (41; 40.6%), cephalosporins (29; 28.7%) and fluoroquinolones (13; 12.9%). Less prescribed antibiotic classes include macrolides, penicillins and nitroimidazoles. Other groups of medicines prescribed were analgesics, antihelmintics, oral potassium and antacids and antihistamines. Overall, only 107 (36.8%) prescriptions were appropriate for the management of AWD.

**Conclusion** This study has revealed that only 36.8% of the AWD cases received appropriate prescriptions according to guideline. Majority of the cases received inappropriate prescriptions not beneficial for the management of AWD in under-fives.

**Keywords:** Acute watery diarrhoea, Under-fives, Prescriptions, Medicines.

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PSNNJP 011



## Pharmacists' perception of their roles and involvement in Coronavirus Disease 2019 (COVID-19)

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**Background:** Coronavirus disease 2019 (COVID-19) was declared a “public health emergency of international concern” in January 2020 and a pandemic in March 2020 by WHO<sup>1</sup>. With lockdown observed globally, there is greater dependence on pharmacists as the first point of contact to meet the public's healthcare needs. Pharmacists have already been trained and confirmed their important roles in patient care and emergencies during previous pandemics<sup>2</sup>. However, the roles of pharmacists and their perception of these roles in responding to COVID-19 disease have not been clearly defined.

**Objective:** This study aims to document pharmacists' perceptions of their roles in the COVID-19 outbreak and adequacy of training for emergency/pandemic situations.

**Method:** An online survey using pharmacists WhatsApp groups was carried out. Sample size was calculated as 384. A mobile App, FormsApp, was used to create and disseminate the survey among pharmacists' WhatsApp groups. Collected data was exported to Microsoft Excel and descriptive and thematic analysis with coding carried out. Ethical approval was obtained from the Lagos University Teaching Hospital (LUTH), Idiara, Lagos.

**Results:** A total of 716 respondents participated in the study. The result shows 56% female participation, and respondents' mean age as 39.0410.46 years. Most participants (99%) think pharmacists have a role to play in the response to the COVID-19 pandemic. Most common roles by respondents are counselling and advice (95%), information dissemination (91%) and sales of protective gear (60%). Aside these, respondents would like to be

involved in clinical services including drug use evaluations (54%), research activities (48%) and ADR monitoring (52%) as part of their roles in the pandemic. About 47% of the respondents believe pharmacists are adequately trained for emergencies while less than a quarter (24.3%) rated pharmacists' involvement in COVID-19 pandemic as fully involved.

**Conclusion:** From the study, pharmacists identified health education and counselling; production of sanitizers/PPE and drug therapy management as key roles for pharmacists in the pandemic while to improve involvement, training of pharmacists, provision of PPE and collaboration with emergency teams were identified.

**Keywords:** COVID-19; Pharmacists Roles; Perception; Emergencies; Pandemic.

## **Comparative prescription patterns of antipsychotics in public health facilities at North-Eastern and North-Central Nigeria**

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**Background:** In the care of patients, assessment of the use of drugs is very imperative as it shows the quality of care delivered to patients by the caregivers. **The purpose of the study was** to compare the prescription patterns of antipsychotics in two public healthcare facilities in Nigeria using World Health Organization indicators.

**Methods:** The studies were conducted at the General Hospital, Offa (GHO), Kwara State, and the Federal Neuropsychiatric Hospital, Maiduguri (FNPHM), Borno State. A total of 625 prescriptions in each of the facilities were selected by random sampling. Ethical considerations were sought and obtained in the two facilities studied. Descriptive statistics in the form of frequency, percentage, mean and standard deviation were used.

**Results:** The average number of drugs prescribed per encounter was 3.9 in the GHO, while 1.2 was recorded in the FNPHM. Injections were prescribed in 14.4% and 18.7% of encounters in the GHO and the FNPHM, respectively. One hundred percent (100.0%) of the drugs were prescribed by generic name in the GHO and 98.2% in the FNPHM. The percentage of drugs from the Nigeria Essential Drug List was 72% in the FNPHM and 100% in the GHO.

**Conclusions and Implications:** The prescribing indicators assessed were found to be below standard in the FNPHM while the GHO showed polypharmacy. There is a requisite for constant monitoring of the prescribing patterns of antipsychotic drugs in the two studied facilities to minimize inappropriate drug usage.

**Keywords:** Antipsychotics, prescriptions, indicators.

## **Repurposing of tadalafil for management of ethanol- induced and reserpine in 0.5% acetic acid-induced gastric ulcer.**

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**Background:** Drug repositioning is a system whereby drugs already in use is redirected and channeled for another therapeutic use. Drug repurposing is necessitated by the fact that diseases are becoming resistant to conventional drugs and new drug discovery and development process has become quite expensive coupled with long duration of development process. Tadalafil is PDE5 inhibitors. It is indicated in the management of Erectile dysfunction and is an active, reversible, competitive inhibitor of phosphodiesterase 5 (PDE5), an enzyme that degrades cGMP. It has been discovered that Peptic ulcer can be resistant to conventional anti- ulcer therapy or reappear after initial treatment. Another study reported increase in the rate of resistance to Proton pump inhibitor (PPI). European Medicines Agency and the Ministry of Health in Nigeria has banned all Histamine<sub>2</sub>- Receptor Antagonist base on the report issued by the US Food and Drug Administration after discovering that the popular heartburn medication Zantac (Ranitidine) contains low levels of the nitrosamine impurity (N-nitrosodimethylamine) (NMDA) impurity in the Zantac product. Tadalafil is thereby being investigated for its potential for managing Gastric ulcer.

**Method:** Two models were utilized in this study i.e the ethanol-induced model and reserpine in 0.5% acetic acid Model where wistar rats were used as the animal model. Food was withdrawn 24 h and water 2 h before the commencement of the experiment. Ulcer lesion was established with 0.5 ml of 95% ethanol (p.o.) and treated with either Tadalafil (50mg); Tadalafil (50, 100 & 200mg/kg) + Ethanol (1ml/200g); Ethanol alone (1ml/200g); DMSO + Ethanol (1ml/200g) or standard Omeprazole (30mg/kg). Ethanol was given 1 hour after the drugs were administered intragastrically via the aid of an orogastric cannula. In the reserpine in 0.5% acetic acid Model Male adult albino rats grouped into 5 (n=6) were used for this experiment. The animals received tadalafil (50, 100 and 200mg/kg) respectively, or received Omeprazole (30mg/kg), 1 h prior to administration of 0.25 g/kg reserpine in 10 ml/kg 0.5% acetic acid. All drugs were administered intragastrically via the aid of an orogastric cannula via the. 4 h later, the animals were sacrificed by cervical dislocation. The stomach were removed and opened along the greater curvature. The tissues were fixed with 10% formaldehyde in saline. Macroscopic examination was carried out with a hand lens and scored for the presence of lesions. The Ulcer score, Ulcer index, and Preventive ratio of drugs were calculated.

**Conclusion:** Tadalafil possess some element of cytoprotection property by its ability to inhibit phosphodiesterase 5 (PDE5), an enzyme that degrades cGMP to Enhance Nitric oxide, a vasodilator thereby promoting gastric mucosal blood flow and mucosal

**Keywords:** Gastric ulcer, Tadalafil, Ethanol, Wistar rats

# 94<sup>th</sup> Annual National Conference of the Pharmaceutical Society of Nigeria November 1-6, 2021

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## Willingness to take covid-19 vaccine among undergraduate students of University of Benin, Edo state, Nigeria

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**Background:** Following the discovery of COVID 19 virus in China, it is expected that the pandemic will continue to impose enormous burdens of morbidity and mortality while severely disrupting economies and reducing GDP worldwide due to the increase in cases detected world wide. Acceptance of the newly developed COVID-19 vaccine by the general public particularly in Colleges and Universities where rate of transmission is high is important for normalcy to return to the world. The aim of this study is to explore the perception and acceptance of the COVID-19 vaccines among resident undergraduates of a Federal University in Nigeria.

**Method:** This study adopted a descriptive, quantitative survey based approach with a study population of 2450 undergraduates in the halls of residence. Participants were selected using a non-probability convenience sampling technique of sample size of 333 calculated based on the assumption of a 50% vaccine acceptance rate, a 5% margin of error and a confidence interval of 95%. A 30 item self-structured questionnaire collecting information on demographics, knowledge levels of Covid-19 and Covid-19 vaccines, vaccine coverage and willingness to take the Covid-19 vaccine was administered in person to the respondents. Descriptive statistics on frequency distributions and percentage was used to analyze the responses.

**Results:** There were 333 respondents of which 169 were females. Knowledge levels were relatively high as indicated of almost 100% on Covid-19 and 99.4% on the vaccines. Results also indicated low Covid-19 vaccination coverage, only 3.9% had taken the vaccine and 44.3% of respondents indicated refusal to take the vaccine.

**Conclusion:** This study has reported a low Covid-19 vaccination coverage with high refusal of respondents on acceptance of the vaccine. There is need to increase awareness on the Covid-19 vaccine as this will increase vaccination and promote safety from the pandemic in the University.

**Key words:** Covid 19, Vaccine, Student, Pandemic

# 94<sup>th</sup> Annual National Conference of the Pharmaceutical Society of Nigeria November 1-6, 2021

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## Facilitating access to quality assured medicines in a pandemic: the COVID-19 experience

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**Background:** Community pharmacies are the mainstay of medicine distribution globally. However, periods of public health emergencies such as the COVID-19 pandemic disrupts medicines logistics compromising medicines access to an already vulnerable populace. This study assessed challenges community pharmacies experienced in accessing quality medicines from sources of supply and the issue of ensuring access to quality medicines to their clients. The study provided answers to the questions on what community pharmacists experienced as challenges in maintaining access to medicines to clients and the coping strategies they employed in improving clients' access to quality medicines during the COVID-19 pandemic.

**Methods:** The research employed a qualitative method of data collection in exploring the experiences of eighteen community pharmacists purposively selected across pharmacies located in major town centers, outskirts of the states and in locations of mixed socio-economic populace in the south western states of Lagos, Osun and Oyo during the period of the COVID-19 lockdowns of June 2020. Audio recorded discussions facilitated data collection using an in-depth guide that addressed the objectives. Data collected were subjected to thematic analysis with each session transcribed verbatim and read through to identify patterns and themes across comments from the respondents.

**Results:** Difficulty in accessing supplies, entry of fake and sub-standard medicines into the supply chain, roadblocks hampering movement of supply vehicles, harassment of supply vehicles by security agents, stockouts of medicines, increased cost of maintaining inventory, poor access by clients who live far from the closest pharmacy, and increased demand for certain medicines were challenges reported. Coping strategies included sourcing from multiple suppliers, giving security agents cash inducement to allow quick passage, procurement of larger stockpile of products at each supply, sourcing from other pharmacies, procuring cheaper generics for some clients, introducing value-added services of home-deliveries, social media consults with suppliers and clients and personal pick-ups of orders.

**Conclusion:** Community pharmacies networking and improving medicine forecasting based on prevailing medicine demand during times of public health emergencies is essential. Advocacy to heads of security agencies is necessary to appreciate the essential nature of medicines to the health of the citizenry and make an order to always support movement of supplies across the highways. Further research could investigate sources of entry of fake products and the overall cost of maintaining adequate supplies in community pharmacies during the COVID-19 pandemic.

**Keywords:** COVID-19 pandemic, logistics, community pharmacies, access to medicines

## **Innovative Management of Community Pharmacies during COVID-19 Public Health Emergency: A Case Study**

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**Background:** During periods of public health emergencies such as the COVID-19 pandemic maintaining community pharmacy operations in a manner that ensures safety of clients and staff who continue to provide services is a challenge. This case study describes the strategies employed in managing operations of a community pharmacy in Lagos during the COVID-19 pandemic.

**Methods:** The study employed qualitative methods in conducting an in-depth exploration of the management, during the COVID-19 full and partial lockdown periods of 2020, of a high-profile community pharmacy involved in retailing, importation and distribution of pharmaceuticals with locations across Nigeria. Data collection involved audio recorded interview session using an in-depth interview guide, observation of pertinent issues in the pharmacy using a pre-designed observation checklist and photo sessions of management processes by permission. The recorded interview was thematically analysed to generate cogent themes presented as results for the study.

**Results:** The pharmacy innovated management processes that covered infection control measures based chiefly on a non-contact procedure among staff and between staff and clients; handling of payment by total absence of cash payments; diligent use by staff of personal protective equipment (PPE) -initially the full PPE regalia by staff, and as the pandemic continued and became more understood, the use of masks, googles and hand gloves, and use of disposable hand glove by clients; the use of technology in communicating client's needs among staff in and outside of the pharmacy and in dispensing tallies to clients; a continual knowledge upgrade and dissemination of current pandemic situation to staff in the pharmacy and to other locations; and use of developed guidelines for managing operations.

**Conclusion:** Management of community pharmacies during periods of public health emergencies requires a continuous understanding of the public health situation to make the necessary adaptations. Use of available technology enhances management of community pharmacies both in routine practice and in public health emergency situations. Though adoption of some technologies could be of high financial implication for up-coming community pharmacies, appropriate adaptation of these processes to local contexts will also achieve the same goal of enhancing management of community pharmacies in periods of public health emergencies. Further research could focus on the cost benefits of using technology in managing community pharmacies during periods of public health emergencies.

**Key words:** innovative management, community pharmacies, public health emergencies, COVID-19



## Depression and Self-Medication Practices among Undergraduate Medical Students in a Nigerian University

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**Background:** Evaluating depression and self-medication among university students like medical students is a key aspect of understanding their health status and wellbeing, medication needs as well as areas requiring intervention towards improving their quality of life, education performance, and productivity. The objective of the study was to evaluate depression and self-medication practices among undergraduate medical students in Usmanu Danfodiyo University, Sokoto.

**Methods:** A cross-sectional descriptive design was used for this online (google-form) survey among medical students from five departments: Pharmacy, Medicine and Surgery, Medical Laboratory Science, Nursing Science, and Radiography. The validated Patient Health Questionnaire (PHQ9) and a structured data collection form were used to evaluate depression and self-medication practices respectively. The depression score was graded 0-27 and classified as no depression (<1), minimal (1-4), mild (5-9), moderate (10-14), moderately severe (15-19), and severe (20-27) depression. The survey was conducted in the middle of the First Semester of the 2019/2020 academic session (March-April, 2021). The data collected were analysed using descriptive (means and frequencies), one-way ANOVA, cross-tabulation, and chi-square analyses at  $p < 0.05$ .

**Results:** The overall mean depression score of the students was  $5.6 \pm 4.0$  with no difference between students from different departments ( $F_{(df)} = 0.179_{(4)}$ ,  $p = 0.949$ ). Most of the participants suffered from either minimal ( $n = 137$ , 39.5%) or mild ( $n = 135$ , 38.9%) depression. Almost all the participants ( $n = 321$ , 92.2%) practice self-medication. The practice of self-medication was driven by mild illnesses ( $\chi^2_{(df)} = 21.7_{(1)}$ ,  $p < 0.001$ ), previous experience with the symptoms ( $\chi^2_{(df)} = 19.4_{(1)}$ ,  $p < 0.001$ ) and previous prescriptions ( $\chi^2_{(df)} = 7.4_{(1)}$ ,  $p = 0.006$ ). Analgesics ( $\chi^2_{(df)} = 12.3_{(1)}$ ,  $p < 0.001$ ) and drugs for constipation/diarrhoea ( $\chi^2_{(df)} = 14.4_{(1)}$ ,  $p < 0.001$ ) were mostly utilised for managing ailments like pain ( $\chi^2_{(df)} = 10.6_{(1)}$ ,  $p = 0.001$ ), fever ( $\chi^2_{(df)} = 9.5_{(1)}$ ,  $p = 0.002$ ) and constipation/diarrhoea ( $\chi^2_{(df)} = 9.2_{(1)}$ ,  $p = 0.002$ ). Depression was found to be significantly associated with self-medication ( $\chi^2_{(df)} = 38.6_{(15)}$ ,  $p = 0.001$ ), sleep disorders ( $\chi^2_{(df)} = 14.2_{(5)}$ ,  $p = 0.014$ ), patronising drug hawkers ( $\chi^2_{(df)} = 38.6_{(5)}$ ,  $p < 0.001$ ) and lower study level ( $\chi^2_{(df)} = 32.4_{(20)}$ ,  $p = 0.039$ ).

**Conclusion:** Medical students in the university had minimal to mild depression. Almost all the students practice self-medication, mostly due to mild illnesses, previous experience with the symptoms, and previous prescriptions. Analgesics and drugs for constipation/diarrhoea were mostly utilised to manage conditions like pains, fever, constipation and diarrhoea. Depression was associated with self-medication practice, sleep disorder, patronizing drug hawkers and lower study level. These findings should be used by health practitioners, education and other policymakers to improve the health, quality of life, education and productivity of medical students.

**Key Words:** Depression; Medical Students; Nigeria; Self-medication; Undergraduate.

# 94<sup>th</sup> Annual National Conference of the Pharmaceutical Society of Nigeria November 1-6, 2021

CONFERENCE  
ABSTRACT

PSNNJP 018



## Community acceptance and willingness to pay for hypothetical COVID-19 Vaccines in a developing Country: A web-based nationwide study in Nigeria

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**Background:** Some promising COVID-19 vaccines are soon to be available but getting the African community to accept them may be challenging. This study assessed the acceptability and willingness to pay (WTP) for hypothetical COVID-19 vaccines among Nigerians.

**Methods:** A cross-sectional, web-based study was conducted among the Nigerian populace between October 18 to 30, 2020. A 20-item questionnaire was used to collect responses through Google Form which was shared to consenting participants through two social media platforms. Multivariate logistic regression was used to determine the sociodemographic factors that were predictive of respondents' willingness to accept the COVID-19 vaccines. Statistical significance was set at  $p < 0.05$ .

**Results:** Six hundred and eighty-nine respondents completed the survey, with 50.5% being females. Exactly 43.3% of respondents reported that they would accept a hypothetical vaccine if it is currently available, 62.1% said they would accept it in the future while 71.1% agreed to accept it if recommended by healthcare providers. 31.9% of respondents accepted the vaccine for their self-protection and half of those not accepting it (51.3%) said they did not want to "be used as an experiment". Respondents who were of oldest ages (aOR=0.330, 95% CI:0.141-0.767,  $p=0.010$ ), of Christian religion (aOR=3.251, 95% CI:1.301-8.093,  $p=0.011$ ), and aware of a possible vaccine being made available (aOR=0.636, 95% CI:0.440-0.920) were significantly more unwilling to accept the vaccine. The median range of WTP was US\$1.2-2.5.

**Conclusion and Implications:** There is a low acceptance in Nigeria for a COVID-19 vaccine if it was available now, but much higher if it is recommended by a healthcare provider. A high proportion of willing respondents indicated a positive WTP for the vaccine. There is need for healthcare providers to educate their patients on the need to take the COVID-19 vaccine.

**Keywords:** COVID-19; hesitancy; vaccine; willingness to accept; willingness to pay

## PHYTOCHEMICAL EVALUATION AND BIOLOGICAL ACTIVITIES OF A PHYTONUTRIENT RICH EXTRACT OF *Aspergillus striatus*, AN ENDOPHYTE FROM *Senna alata* (LEGUMINOSAE)

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**Background:** Endophytes reside within the cells of medicinal plants hence possess most promising phytochemicals from the plants which elicits varying biological activities. The study was carried to evaluate the phytochemical profile and determine the biological activities of *Aspergillus striatus* extract an endophyte from *Senna alata*.

**Methods:** Standard chemical methods were used for the isolation, screening, molecular characterization, sequencing and gas chromatography-flame ionization detector (GC-FID) instrument used for the analysis and quantification of phytochemicals. The extract was screened for antilipidemic activity on high fat fed mice and anthelmintic activity of the extract was carried out using standard protocol with albendazole as the positive control.

**Results:** The endophyte isolated was characterized and identified as *A. striatus*. The endophytic extract of *S. alata* demonstrated a significant ( $p < 0.05$ ) decrease in hyperlipidemia and produced a significant ( $p < 0.01$ ) anthelmintic activity which was dose-dependent. The phytochemical screening revealed the presence of saponin, steroids, flavonones, catechin, sparteine, proanthocyanin, anthocyanin in appreciable amounts with catechin being the highest in concentration.

**Conclusion:** The extract displayed very good biological activities hence the phytochemical constituents responsible can be harnessed. However, consumption of this plant without standardization is not advised due to the presence of oxalates and cardiac glycosides which could impair the kidney and heart functions.

**Keywords:** Phytochemical, Anthelmintic, Antilipidemic, Endophyte, Sequencing

## Development and formulation of an herbal mouthwash for sustainable oral hygiene

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**Background:** Oral health is an important component of health and overall well-being. It has been reported that use of inappropriate measures in the dental environment could contribute to the indirect transmission of COVID-19 between cohabitants. The quality of the herbal mouthwash components consisting of mainly clove and lemon juice used in this study was assessed for authenticity and antimicrobial properties in a previous study and shown to have promising antibacterial effects.

**Method:** the physical properties and antimicrobial profile of different formulations of the mouthwash were evaluated against *Staphylococcus aureus*, *E. coli* and *Candida albicans* using standard chemical and drug susceptibility tests.

**Results:** The results showed chemical stability over a 7-day period in terms of colour, clarity, pH, and sterility. Four formulations containing dilutions ranging from 100 -12.5 % showed comparable antimicrobial activities to two commercial mouthwashes used as positive controls. The formulation incorporating 50% active ingredients showed the highest zone of inhibition at 22±2.5 mm against *Staphylococcus aureus* when compared to the two standards which had values of 20±0 and 21±5.5 respectively. The zones of inhibition observed for the standards were comparable for the formulation with 100% against *E. coli* whereas the herbal formulation at 100% showed over 60 % increase in activity against *Candida albicans* when compared to the two standards.

**Conclusion:** The results of the study indicate potential usefulness of this formulation in maintaining oral hygiene and for harnessing traditional alternative and herbal medicines to contemporary pharmacy practice.

**Keywords:** Herbal mouthwash, oral hygiene, microbes

# 94<sup>th</sup> Annual National Conference of the Pharmaceutical Society of Nigeria November 1-6, 2021

CONFERENCE  
ABSTRACT

PSNNJP 021



## Pharmacy Specialization in Nigeria: A survey

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**Background:** With the continuing evolution of health systems and patient care, there is an increased demand for pharmacists to take on roles which are extended, specialized and more advanced than current entry level scope of practice. Specialization is a higher, but narrow, focus on an area of pharmacy practice which increases productivity and proficiency. This study assessed the need and level of pharmacy specialization, as well as the barriers and recommended approaches for its implementation in Nigeria.

**Method:** A cross-sectional online survey of Pharmacists in Nigeria was conducted using a developed pre-tested self-administered questionnaire between May and June 2020. Study participants were pharmacists registered in Pharmacists-only WhatsApp groups. Data was analyzed using descriptive statistics and the Pearson Product Moment Correction (r) was used to determine significant relationship between variables.

**Result:** A total of 147 participants (35% female) from 75% of the States in Nigeria completed the survey. Over 72% of respondents were aged 30 to 49, with less than 20 years post-graduation, and were spread across all areas of pharmacy practice including 33% in hospital and 26% in community practice. Post graduate qualifications of PhD, Masters and West African Postgraduate College of Pharmacists (WAPCP) was attained by 7%, 36% and 31% of the participants respectively. Although 85% of respondent were aware of areas of pharmacy specialization in Nigeria, only 12% felt it was recognized in Nigeria. A mix of skill certification and hands-on training (55.1%), mentoring process (38.1%) and school-based learning (32%) was preferred as approach by 62% of respondents. Gender, age, and area of practice had significant effects on level of pharmacy specialization with P values 0.43, 0.025 and 0.035 respectively; while post graduate qualification and highest qualification had significant effects on the level of satisfaction (P values 0.000 and 0.043 respectively).

**Conclusion:** The study demonstrated the need for pharmacy specialization in Nigeria. Pharmacists in Nigeria generally assessed the level of pharmacy specialization in the country as very low, but there was an overwhelming desire for its implementation and formal recognition. Key pharmacy institutions in Nigeria should develop, standardize, and roll out pharmacy specialization programs to increase the impact of pharmacy services.

**Key words:** Pharmacy Specialization, Postgraduate qualifications, Pharmacy Practice

## **Adverse effects following immunization (AEFI) of covid-19 vaccine in some health facilities in Lagos state.**

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**Background:** Adverse events following immunization (AEFI) refers to any unfavourable event that occurs following vaccination related to the vaccine administration and or its handling. Surveillance for adverse events following immunization is an important component of any national immunization program because, it is critical to assessing the safety of vaccines and to detecting potentially rare and severe adverse events and responding in a timely manner.

This study was to identify adverse events following Covid-19 vaccination in two tertiary health facilities in Lagos State.

**Methods:** A retrospective active surveillance method was used at evaluating the incidence of adverse events following immunization (AEFI) with Covid-19 vaccine AstraZeneca as well as its safety. All the 2,082 first dose COVISHIELD vaccine recipients in the health facilities used in the study were approached through phone calls to collect data on AEFI. The frequency, duration, severity, and outcome of the adverse reactions were recorded. Incidence of AEFIs in different age groups and gender were analysed. Presence of any Adverse Events of Special Interest (AESI) were also evaluated.

**Results:** Out of the 2,082 vaccine recipients, 888 (43%) did not experience any adverse effects while 1,194 (57%) vaccine recipients experienced adverse effects. A total of 83 adverse effects were reported and the most frequently reported adverse reactions were headache, pain at the injection site, nausea, body pains, dizziness, drowsiness, myalgia, joint pains, chills/rigor, malaise, fever, fatigue, heavy arm, increased appetite and temperature and pain in the arm.

The adverse reactions reported by the participants were mild to moderate in severity and resolved within a few days. There was no report of hospitalization, anaphylaxis or death.

**Conclusion:** The short-term adverse reactions of the vaccine were mild to moderate in severity and short in duration. The findings of this study will help to address vaccine hesitancy caused by worries about severe adverse effects associated with the Covid-19 vaccine. Since the Covid-19 vaccine is a new vaccine, further studies need to be carried out to observe the long-term effects of the vaccine.

**Key words:** Adverse effects, Covid-19, Vaccine, Health facilities

# 94<sup>th</sup> Annual National Conference of the Pharmaceutical Society of Nigeria November 1-6, 2021

CONFERENCE  
ABSTRACT

PSNNJP 023



## Evaluation of Chloramphenicol-eluting Hydrogel Lens as a Sustained Release Alternative for the Treatment of Anterior Ophthalmic Infections.

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**Introduction:** Ophthalmic drug delivery is challenging because of ocular barriers to foreign substances including drugs. Poor bioavailability (1 to 5%) and systemic drainage as a result of multiple instillations of eye drops could lead to poor prognosis and systemic adverse effects. This study evaluates the use of chloramphenicol eluting contact lens as a safe, effective and sustained release alternative to chloramphenicol eye drops.

**Method:** Chloramphenicol (CPL) was loaded into Narafilcon A silicon hydrogel contact lens by soaking method. Drug uptake and release were monitored at 278 nm using UV/Vis spectrophotometer and the clarity of the modified lenses was determined by kinetic analysis at 600 nm. The efficacy of the chloramphenicol lenses against *Escherichia coli* and *Streptococcus pneumonia* was compared to the conventional eye drop at 5% concentration using the agar well diffusion method.

**Result:** Approximately 100% of Chloramphenicol 274 µg loaded into the lenses were released in 22 hours and percentage clarity of 94% proved the transparency of the modified lenses were not compromised. Korsmeyer Peppas n value of 0.52 confirmed drug release to be by fickian diffusion. The zone of inhibition obtained from the antibiotic loaded lenses showed better sensitivity to the organisms tested when compared to 5% CPL Eye Drop.

**Conclusion:** Narafilcon A chloramphenicol eluting contact lens is a possible sustained release alternative to the use of conventional eye drops in the treatment of anterior ocular infections.

**Keywords:** Ocular delivery, contact lens; chloramphenicol; sustained release



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*AS MEN OF HONOUR WE JOIN HANDS*

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- Upper & lower respiratory tract infections
  - Gynecological infections
  - ENT infections
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**ENHANCIN 625**  
 Each Firm sealed label contains:  
 Amoxicillin USP equivalent to amoxicillin 6250 mg  
 Clavulanic acid (equivalent to Clavulanic acid) 625 mg

**INDICATIONS**  
**ENHANCIN TABLETS** (amoxicillin/clavulanic acid) is indicated in the treatment of infections caused by susceptible strains of other energy intake organisms in the conditions listed below:  
 Lower Respiratory Tract Infections caused by *Streptococcus pneumoniae*, *Haemophilus influenzae* and *Moraxella catarrhalis*.  
 Other Infections caused by *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Staphylococcus aureus*, *Escherichia coli* and *Enterobacteriaceae* spp.  
 Other Infections caused by *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Staphylococcus aureus*, *Escherichia coli* and *Enterobacteriaceae* spp.

**PRECAUTIONS**  
 While amoxicillin/clavulanic acid potassium increases the cholelithogenic low variety of the penicillin group of antibiotics, periodic assessment of organ system functions, including renal, hepatic and hematopoietic function, is advisable during prolonged therapy.  
 A high percentage of patients with mononucleosis who manifest enlarged spleens or splenomegaly may have splenic rupture. Splenic rupture should not be administered to patients with mononucleosis.  
 Amoxicillin/clavulanic acid potassium should be administered with caution to patients with a history of allergic reactions to penicillins or cephalosporins (usually involving Pseudomonas or *Candida*), the drug should be discontinued and/or appropriate therapy instituted.

**DOSE AND ADMINISTRATION**  
**ENHANCIN 125** (amoxicillin/clavulanic acid potassium) every 12 hours or one **ENHANCIN 375** (amoxicillin/clavulanic acid potassium) every 8 hours. For more severe infections and reduction of bacterial load, the dose should be one ENHANCIN 375 (amoxicillin/clavulanic acid potassium) every 8 hours.  
**ENHANCIN 625** (amoxicillin/clavulanic acid potassium) every 8 hours.  
 Pediatric Patients: Pediatric patients weighing 40 kg or more should be dosed according to the adult recommendations.  
**Administration:** **ENHANCIN TABLETS** (amoxicillin/clavulanic acid potassium) may be taken without regard to meals; however, **ENHANCIN DESICCATED POUCH PACKS** (amoxicillin/clavulanic acid potassium) and clavulanic acid are administered at the start of a meal.



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