



MURIA NEWS

Newsletter of the Medicines Utilization Research in Africa (MURIA) Group. Vol 3. No 1. December 2017.

NAMIBIA HOSTED THE THIRD TRAINING WORKSHOP AND SYMPOSIUM ON DRUG UTILIZATION RESEARCH IN AFRICA

The Medicines Utilization Research In Africa (MURIA) Group continues to advance drug utilization research (DUR) across Africa and promote sustainable rational uses of medicines (RUM). This was enhanced with the success of the Third Annual Training Workshop and Symposia on Drug Utilization Research in Africa (MURIA 3). Unlike the previous symposia hosted by The University of Botswana, Gaborone in 2015 and 2016 respectively, this year's meeting took place between 26 and 28 June, 2018 at The University of Namibia, Windhoek, with the theme 'Medicines Utilization Research in Africa influencing patient care and policy'.

The meeting had over 100 participants from countries across Africa, Europe and the Americas including Botswana, Brazil, Ghana, Italy, Kenya, Namibia, Nigeria, South Africa, Swaziland, Tanzania, Zimbabwe, Zambia, USA and the UK. Upon arrival, on Sunday evening, 25 June 2017 MURIA members including workshop presenters gathered at the Safari hotel for a pre-meeting review and dinner. This afforded participants the opportunity to socialise and discuss plans for networking as well as the content for the training session. The morning of Monday 26 June featured the opening ceremony in the main auditorium of the University of Namibia Health Sciences Campus with the management team of The University of Namibia and other important dignitaries including Ms Jo Lomas, the British High Commissioner to Namibia, who kindly graced the occasion. The University Management Team in attendance included Dr. Kalumbi Shangula (Assistant Pro Vice Chancellor – Health Sciences Campus), Prof. Tim Rennie (Associate Dean – School of Pharmacy), Prof. Peter Nyarango (Dean – Faculty of Health Sciences) and Prof. Frednard Gideon (Pro Vice Chancellor – Academic Affairs).

Prof. Kalumbi Shangula in his welcome address noted with great delight the topic of 'Maternal to Child Transmission of HIV' listed for discussion, which he considered a pertinent issue in Namibia, recounting the challenges faced by the health authorities of Namibia in putting together a programme that is now regarded the most successful health programme in the country. The Associate Dean of The School of Pharmacy, Prof Tim Rennie, berated the widespread misuse of antibiotics across Africa and the rising prevalence of Anti-Microbial Resistance (AMR) in Namibia and other parts of Africa. He commended the organisers of the workshop for the inclusion of undergraduate and postgraduate student presentations that featured in this meeting for the first time. While welcoming delegates to Namibia and The University of Namibia in particular, Prof Peter Nyarango, the Dean of The Faculty of Health Sciences, also lent his voice to the need to urgently address the problem of AMR, make medicines affordable particularly for patients with chronic non-communicable diseases (NCDs), while working towards the emergence of new novel antimicrobials. Thereafter, The Pro Vice Chancellor, University of Namibia, Prof Frednard, declared the workshop opened, advocating for more networking among the participants, soliciting academia and industry collaborations in training and researching and emphasizing the need to create opportunities for sponsored doctorate degree programmes in AMR, with MURIA and other international partners coming up with policy statements and guidelines on various aspects of drug utilization in Africa.

Subsequently, Dr Francis Kaleemera, the chairperson of the local organizing committee and Prof Brian Godman introduced the workshop sessions, which were divided into two groups: Introductory and Advanced groups respectively. The Introductory Drug Utilization (DU) workshop covered the general introduction to DU research with emphasis on methodologies including ATC/DDD systems, qualitative DU research and introduction to statistical techniques applicable to DU research. The Advanced workshop group was further divided into two tracks 2A and 2B respectively. Track 2A featured hands on session on statistics and advanced analysis as well as presentations on 'Developing and Implementing quality indicators for drug utilization studies'. Track 2B featured workshops on the following topics: Available data sources and Pharmacoepidemiology methodologies and applications with emphasis on use of data on import, local production, and procurement for drug utilization research, use of claim databases and introduction to patient level databases. Other topics discussed by the advanced group on day one were 'Research project and proposal writing' and 'Qualitative research in DU studies' with questions and answers session following each presentation. The first day of the meeting was rounded off with an outdoor informal dinner for interested participants.

The second day of the meeting, 27 June, 2017 featured morning and afternoon sessions dedicated to research presentations and updates from various countries on research activities. The day kicked off with a welcome remark by The Chief Pharmacist of Namibia following which presentations were made by participants on various topics including: 'Development of Horizon Scanning activities and its implications for Africa', 'Managed entry agreements and pricing considerations for medicines across countries- building on the European experience', 'An innovative web-based Pharmaceutical Information Dashboard' showcasing how it has enhanced evidence based decision making in ART pharmaceutical services in Namibia. There were also feedbacks from delegates from Zimbabwe, Botswana and South Africa on the on-going cross-national antimicrobial Point Prevalence Surveys (PPS) by Sekesai Zinyowera, Natalie Schellack and Bene Paramadhas. Furthermore, Olayinka Ogunleye and Joseph Fadare made a joint presentation on the completed and on-going studies in Nigeria regarding antimicrobials and NCDs as well as other activities including the promotion of Drugs and Therapeutics Committees. Margaret Oluka and colleagues from Kenya also gave feedback regarding ongoing antimicrobial national action plans. Of note in this session was the participation of Maribel Salas, a member of the Board of International Society of Pharmacoepidemiology (ISPE) and her partner, Luciane Cruz Lopes from Brazil who both showed great interests in MURIA activities and further developments. Maribel Salas shared an update on a joint project between ISPE and MURIA members that she is currently leading on the development of Good Practices for Drug Utilization Studies in Countries from the Latin America and African Regions. The project aimed at enhancing good practices and the quality of DUR in these regions. There were also other oral presentations on the topic of antimicrobial utilization by participants including a potential MURIA Positioning Statement on 'Strategies to improve antibiotic prescribing and dispensing in Africa' proposed by Natalie Schellack and Anastasia Guantal which further stimulated discussions on the inappropriate use of antimicrobials in Africa and potential solutions. The day which also featured posters sessions and abridged oral presentations of posters mostly by students was brought to a close with the presentation by Ilse Truter on 'Dispensing patterns of anti-migraine agents with focus on seasonal variations in prescribing in South Africa'.

The third day of the meeting, 28 June, 2017 featured additional oral presentations on Paediatric Antiretroviral Treatments in Namibia, Insulin prescription errors in a public tertiary hospital in Kenya, Predictors of adherence to oral antihypertensives among patients in Ghana and a similar study from primary health care settings in South Africa and Namibia respectively, Quality of Anticoagulation with warfarin at a tertiary hospital in Botswana and a presentation on 'Access to medicines for children in Nigeria' reporting an exploratory study on the quality of oral essential cardiovascular medicines and diuretics. The meeting ended with a consensus session on the way forward for the group brainstorming on future directions and agreements on potential studies, publication strategies and funding sources. The group identified specific areas of research interests and constituted working groups for each respectively. Workshop presentations are available at The MURIA website: <http://muria.mandela.ac.za/>. Participants departed Windhoek in high spirits looking forward to the next meeting in 2018 to be hosted again in Namibia.



Participants at The Third Training Workshop and Symposium of MURIA Group held at The University of Namibia, Windhoek between 26th and 28th June, 2017.

MURIA 3 IN PICTURES.







NEWS FROM ACROSS COUNTRIES

Botswana

The Point Prevalence Studies (PPS) on Antibiotics have been progressing in Botswana with the update results presented at a one day symposium on antibiotics orchestrated via the University of Botswana (Prof. Amos Masele and Dr Joyce Jkatlwane), MURIA (headed by Profs. Brian Godman and Amos Masele), the Ministry of Health and the Associated Fund Administrators (AFA). The University of Botswana again provided its excellent facilities for this meeting, building on the first meeting in February 2016 (Masele A et al. Research activities to improve the utilization of antibiotics in Africa. Expert review of pharmacoconomics & outcomes research. 2017;17:1-4). The meeting was opened by the Dean of the Faculty of Medicine, University of Botswana. In attendance was also Emily Summers from the British High Commission (<http://muria.mandela.ac.za/Botswana-Symposium-October-2017>). Prof. Mashalla discussed recent research findings on the prescribing of antibiotics in primary healthcare centres (now published - Mashalla Y et al. Assessment of prescribing practices at the primary healthcare facilities in Botswana with an emphasis on antibiotics: Findings and implications. International Journal of Clinical Practice. 2017), before Mme Matome and Dr Joyce Jkatlwane discussed current prescribing patterns for the management of URTIs among private ambulatory care physicians in Botswana, and Dr Sajini Souda discussed the recent study carried out on the use of prophylactic antibiotics to prevent surgical site infections. Subsequent presentations included an update of WHO activities in Botswana to reduce AMR and Dr Celda Tiroyakgosi doing likewise including the development of the Botswana NAP. The final presentations included summary findings of the PPS studies, and key issues, including both the public and private hospitals (Bene Paramadhas, Fatima Sinkala and Brigid Malone). The meeting ended with an agreement of next steps.

Ghana

MURIA group and activities has been introduced to pharmacists, pharmacy students and members of the Ghana chapter of The West African Postgraduate College of Pharmacists and it is hoped that the Annual meeting of the West Africa Postgraduate College of Pharmacist to be hosted in Ghana in March 2018 will be a good forum to further promote MURIA among pharmacists in West Africa. Current research works in Ghana includes a multi-centre comparative in vitro study of levofloxacin and ciprofloxacin activity against uropathogens, adherence to oral hypoglycaemic agents and antihypertensive drugs. The Point Prevalence Study on Antibiotics is being planned for 2018..

Kenya

Antibiotic Point Prevalence Survey (PPS)

Pilot phase PPS was initiated by the school of pharmacy and the School of Medicine of the University of Nairobi in collaboration with the Ministry of Health (MOH), Kenya, Funding and technical support has been provided by US CDC (Atlanta) and Washington State University, USA, The first PPS has been conducted in September 2017 at the Kenyatta National Hospital (KNH) which is the largest tertiary teaching and referral hospital in Kenya (~2000 bed capacity) . Preliminary results has been presented at the regional Infection Prevention Network (IPNET) conference which generated substantial interest from local and regional hospitals. In 2018, US CDC has availed funding for PPS in two additional regional hospitals (600-700 bed capacity).

MURIA Kenyan Team at the Eurodurg 2017

MURIA Kenyan delegation of Margaret Oluka, Anastasia Guantai and Dorothy Aywak attended the Eurodurg 2017 conference at the University of Strathclyde, Glasgow, Scotland. The Kenyan delegation presented several abstracts of various studies such as: “a systematic review of self-purchasing of antibiotics in Low and middle income countries (LMIC)”; “Audit of the use of aminoglycosides in pediatric patients at a tertiary hospital in Kenya”; “Prevalence and characteristics of drug use in pregnancy in a rural hospital in Kenya”. An oral presentation was given by Margaret Oluka on “Incidence and risk factors for medication errors in pediatric patients in a County referral hospital in Kenya”.

Graduate program in Pharmacoepidemiology and Pharmacovigilance at the School of Pharmacy, University of Nairobi.

The School of Pharmacy at the University of Nairobi wishes to extend an invitation to other African countries that wish to train personnel in Pharmacoepidemiology and Pharmacovigilance to send students to our highly rated two year graduate training program in pharmacoepidemiology and pharmacovigilance . (www.uonbi.ac.ke/college_of_health_sciences/school_of_pharmacy/department_of_pharmacology_and_pharmacognosy)



Margaret Oluka presenting a poster at the Eurodurg 2017, at the University of Strathclyde, Glasgow, Scotlad.



Dr Margaret Oluka and Prof Anastasia Guantai presenting a poster on “self-medication using antibiotics at community Pharmacies in Middle and Low income countries: A systematic Review at Eurodurg 2017.

Nigeria

The Nigerian MURIA team continues to collaborate with colleagues across Africa and globally with a number of manuscripts submitted for publications in recent times. Similarly, the on-going Antimicrobial Point Prevalence Survey across member countries is planned to take off in Nigeria by January 2018 alongside other planned studies for year 2018.

South Africa

A pilot PPS was conducted at Dr George Mukhari Academic Hospital using paper-based data collection instruments developed by a group of key stakeholders, principally from Botswana, and subsequently used in a PPS in Botswana. Parallel to the paper-based data collection, a web-based mobile application was developed, for simultaneous data collection and capture, using the PPS instruments. The results of the pilot survey were presented as a poster at the 2017 EuroDURG Conference in Glasgow, 16-18 November 2017.

The mobile application was successfully tested at the same hospital and will be used for data collection in a multi-centre antimicrobial PPS in South Africa, including all ten academic central hospitals, ten regional or district hospitals and 18 community health centres. Data collection training for this survey will take place early March 2018, with commencement of data collection soon thereafter.

Swaziland

Current activities in Swaziland include membership drive for MURIA, planning towards conduct of pattern and quality of drug prescriptions in government health facilities and the PPS.

SUMMARY OF MURIA PUBLICATIONS

MURIA Publications as at 2 November, 2017

Publications in journals

Published/ Accepted

1. Massele A, Burger J, Katende-Kyenda NL, Kalemeera F, Kenaope T, Kibuule D, Mbach O, Mubita M, Oluka M, Olusanya A, Anand Paramadhas B, van Zyl P, Godman B. Outcome of the first Medicines Utilisation Research in Africa Group meeting to promote sustainable and rational medicine use in Africa. [Expert Rev Pharmacoecon Outcomes Res.](#) 2015;15(6):885-8
2. Fadare O, Gustafsson LL, Godman B, Kgatlwane J, Massele AY, Ogunleye O, Truter . DEVELOPING COUNTRIES SUBCOMMITTEE OF THE CLINICAL PHARMACOLOGY DIVISION. THE MEDICINES UTILIZATION RESEARCH IN AFRICA (MURIA) GROUP AND IUPHAR CO-ORGANIZED A WORKSHOP IN BOTSWANA FOR THE PROMOTION OF RATIONAL USE OF MEDICINES. *Pharmacology International*. No. 85 December 2015: 17 – 20
3. Gaida R, Truter I, Grobler C, Kotze T, Godman B. A review of trials investigating efavirenz-induced neuropsychiatric side effects and the implications. [Expert Rev Anti Infect Ther.](#) 2016;14(4):377-88
4. Kalemeera F, Mbango C, Mubita M, Naikaku E, Gaida R, Godman B. Effect of changing from first- to Second- Line Antiretroviral Therapy on Renal Function: A Retrospective Study based on data from a Single Health Facility in Namibia. [Expert Rev Anti Infect Ther.](#) 2016;14(8):777-83
5. Ogunleye OO, Fadare JO, Massele AY, Godman B, Gustafsson LL. IUPHAR Sub-Committee on Clinical Pharmacology in Developing Countries and Medicines Utilization Research In Africa (MURIA) Group Co-Organized Second Training Workshop on Drug Utilization Research in Africa. *Pharmacology International* 2016; 5-7. Available at URL: https://www.iuphar.org/files/Newsletters/Pharmacology_International_2016_December.pdf
6. Kibuule D, Mwangana M, Naikaku E, Kalemeera F, Godman B, Sagwa E. An analysis of policies for cotrimoxazole, amoxicillin and azithromycin use in Namibia's public sector: findings and therapeutic implications. [Int J Clin Pract.](#) 2017;71(2)
7. Massele M, Burger J, Kalemeera F, Jande M, Didimalang T, Kalungia AC, **Matshotyana K** et al. Outcome of the second Medicines Utilisation Research in Africa Group meeting to promote sustainable and appropriate medicine use in Africa. Second MURIA Group Workshop and Symposium. *Expert Rev Pharmacoecon Outcomes Res.* 2017;17(2):149-152.
8. Ngambi PG, Kalungia AC, Law MR, Kalemeera F, Truter I, Godman B, et al. Evidence on the cost-effectiveness of lifelong antiretroviral therapy for prevention of mother-to-child transmission of HIV: implications for resource-limited countries in sub-Saharan Africa. [Expert Rev Pharmacoecon Outcomes Res.](#) 2017;17(5):459-467
9. Mataranyika PA, Kibuule D, Kalemeera F, Godman B, Rennie WT, Kaura H. Liver enzyme elevations in a cohort of HIV/AIDS patients on first-line antiretroviral therapy in Namibia: Findings and implications. *Alex J Med* (2017), <http://dx.doi.org/10.1016/j.ajme.2017.03.002>
10. Rwegerera G, Moshomo T, Gaenamong M, Taibat Oyewo TA, Gollakota S, Mhimbira FA, Fadare J, Godman B, Meyer JC, Rivera YP. Antidiabetic medication adherence and associated factors among patients in Botswana; implications for the future. *Alex J Med* (2017), <http://dx.doi.org/10.1016/j.ajme.2017.01.005>
11. Kalemeera F, Cockeran M, Mubita M, Kibuule D, Naikaku E, Massele A, Godman B. The Potential Effect of Using the Cockcroft-Gault Method on Tenofovir- Associated Renal Impairment Reports and on Clinical Decisions Regarding Tenofovir Use in Individual Patients: Implications for the Future (In Press *Journal of Infectious Diseases & Preventive Medicine*)
12. Massele A, Godman B, Adorka M, Fadare J, Gray A, Lubbe M, Ogunleye O, Truter I. Initiative to progress research on Medicine Utilisation in Africa – formation of the MURIA group. [Expert Rev Pharmacoecon Outcomes Res.](#) 2015;15(4):607-610
13. Akunne O, Godman B, Adedapo DA, Truter I, Fadare JO. Statin prescribing among hypertensive patients in south-west Nigeria; findings and implications for the future. [J Comp Eff Res.](#) 2016;5(3):281-8
14. Fadare JO, Adeoti AO, Desalu OO, Enwere OO, Makusidi AM, Ogunleye O, Sunmonu TO, Truter I, Akunne OO, Godman B. The prescribing of generic medicines in Nigeria: knowledge, perceptions and attitudes of physicians. *Expert Rev Pharmacoecon Outcomes Res.* 2016;16(5):639-650
15. de Bruijn W, Ibáñez C, Frisk P, Pedersen HB, Alkan A, Vella Bonanno P, Brkičić LS et al. *Introduction and utilisation of high priced HCV medicines across Europe; implications for the future. Frontiers in Pharmacology* 2016; 7; Article 197 ps: 1-18

Kibuule D

16. , [Kagoya HR](#), Godman B. Antibiotic use in acute respiratory infections in under-fives in Uganda: findings and implications. [Expert Rev Anti Infect Ther.](#) *Expert Rev Anti Infect Ther.* 2016;14(9):863-72
17. Kalungia CV, Burger J, Godman B, de Oliveira Costa J, Simuwelu C. Non-prescription sale and dispensing of antibiotics in community pharmacies in Zambia. [Expert Rev Anti Infect Ther.](#) 2016;14(12):1215-1223
18. Oshikoya KA, Oreagba IA, Godman B, Oguntayo FO, Fadare J, Orubu S, Massele A, Senbanjo IO. Potential drug-drug

- interactions in paediatric outpatient prescriptions in Nigeria and implications for the future. [Expert Rev Clin Pharmacol](#). [Expert Rev Clin Pharmacol](#). 2016;9(11):1505-1515
19. Ezenduka CC, Nworgu CE, Godman B, Masseur A, Esimone CO. Antimalarial drugs treatment pattern among pregnant women attending antenatal care clinics in Nigeria and the future implications, [Int J Clin Pract](#). 2016;70(12):1041-1048
 20. Olusanya A, Ogunleye O, Godman B, Fadare J, Danesi M. Adverse effects of carbamazepine monotherapy among patients in Nigeria – a pilot study and implications. [J Comp Eff Res](#). 2017;6(1):33-42
 21. Masseur M, Tiroyakgosi C, Matome M, Desta A, Muller M, Anand Paramadhas B, Malone B, Kurusa G, Didimalang T, Moyo M, Godman B. Research activities to improve the utilisation of antibiotics in Africa. [Expert Rev Pharmacoecon Outcomes Res](#). 2017;17(1):1-4
 22. Godman B, Fadare J, Kibuule D, Irawati L, Mubita M, Ogunleye O, Paramadhas BDA et al. Initiatives across countries to reduce antibiotic utilization and resistance patterns; impact and implications. 2017; 539-576 in Drug Resistance in Bacteria, Fungi, Malaria, and Cancer - Arora, Sajid, & Kalia Eds. Publisher Springer Nature. ISBN 978-3-319-48682-6. Available at URL: <http://www.springer.com/us/book/9783319486826#>
 23. Godman B, Baker A, Leporowski A, Morton A, Baumgärtel C, Bochenek T, Fadare J et al. Initiatives to increase the prescribing of low cost generics; the case of Scotland in the international context. *Medical Research Archives* 2017; 5 (3): 1-34
 24. Ezenduka CC, Faleiros DR, Godman B. Evaluating the treatment costs for uncomplicated malaria at a public healthcare facility in Nigeria and the implications. *PharmacoEconomics Open* 2017; 1:185–194
 25. Jande M, Katabalo DM, Sravanam P, Marwa C, Madlan B, Burger J, Godman B, Oluka M, Masseur A, Mwita S. Patient-related beliefs and adherence toward their medications among the adult hypertensive outpatients in Tanzania. *J. Comp. Eff. Res.* 2017; 6(3): 185–193
 26. Ambetsa MO, Oluka MN, Okalebo FA, Mulwa NC, Fadare J, Godman B. One-day out-patient prescribing patterns at a national referral hospital in Kenya. *Afr. J. Pharmacol. Ther.* 2017. 6(2): 96-101
 27. Nakwatumbah S, Kibuule D, Godman B, Haakuria V, Kalemeera F, Baker A, Mubita M. Compliance to guidelines for the prescribing of antibiotics in acute infections at Namibia's national referral hospital: a pilot study and the implications. [Expert Rev Anti Infect Ther](#). 2017;15(7):713-721
 28. Rampamba EM, Meyer JC, Helberg E, Godman B. Knowledge of hypertension and its management among hypertensive patients on chronic medicines at primary health care public sector facilities in South Africa; findings and implications. [Expert Rev Cardiovasc Ther](#). 2017;15(8):639-647
 29. Fadare JO, Oshikoya KA, Obimakinde OS, Sijuade AO, Afolayan JM, Adeleke AA, Godman B, Ojumu ODO. Drug Prescription Patterns for Dental Outpatients in Nigeria; findings and implications. [Acta Odontol Scand](#). 2017;75(7):496-506
 30. Oshikoya KA, Oreagba IA, Godman B, Fadare J, Orubu S, Masseur A, Senbanjo IO. Off-label prescribing for children with chronic diseases in Nigeria; findings and implications. [Expert Opin Drug Saf](#). 2017;16(9):981-988
 31. Afriyie DK, Amponsah SK, Dogbey J, Agyekum K, Kesse S, Truter I, Meyer JC, Godman B. A pilot study evaluating the prescribing of ceftriaxone in hospitals in Ghana: findings and implications. [Hosp Pract](#). 2017;45(4):143-149
 32. Godman B, Fadare J. Commentary - Non-guideline-recommended prescribing of proton pump inhibitors; implications for the future to reduce over use. *Curr Med Res Opin*. 2017;33(11):2085-2087
 33. Matsitse TB, Helberg E, Meyer JC, Godman B, Masseur A, Natalie Schellack N. Compliance to the Primary Health Care Treatment Guidelines and the Essential Medicines List in the Management of Sexually Transmitted Infections in Correctional Centres in South Africa: Findings and Implications. [Expert Rev Anti Infect Ther](#). 2017;15(10):963-972
 34. Rwegerera GM, Moshomo T, Gaenamang M, Oyewo TA, Gollakota S, Rivera YP, Masaka A, Godman B, Shimwela M, Habte D. Health-related quality of life and associated factors among patients with diabetes mellitus in Botswana. *EPrint - Alex J Med* (2017) - <http://dx.doi.org/10.1016/j.ajme.2017.05.010>
 35. Mwita S, Jande M, Marwa K, Hamasaki K, Katabalo D, Burger J, Godman B et al. Medicines dispenser's knowledge on the implementation of an artemisinin-based combination therapy policy for the treatment of uncomplicated malaria in Tanzania. *Jn Pharm Health Serv Res Eprint* 2017. DOI: 10.1111/jphs.12187
 36. Matlala M, Gous AG, Godman B, Meyer JC. Structure and activities of Pharmacy and Therapeutics Committees among Public Hospitals in South Africa; findings and implications. [Expert Rev Clin Pharmacol](#). 2017;10(11):1273-1280
 37. Mbui JM, Oluka M, Guantai EM, Sinei KA, Achieng L, Baker A, Jande M, Masseur A, Godman B. Prescription patterns and adequacy of blood pressure control among adult hypertensive patients in Kenya; findings and implications. [Expert Rev Clin Pharmacol](#). 2017;10(11):1263-1271
 38. Bester T, Schellack N, Gous AGS, Stolz A, Meyer JC, Godman B. Evaluating initial antimicrobial use in an adult medical intensive care unit at an academic teaching hospital in Pretoria, South Africa. *African Journal for Physical Activity and Health Sciences*, October (Supplement), 1-13.
 39. Terblanche A, Meyer JC, Godman B, Summers R. Knowledge, attitudes and perspective on adverse drug reaction reporting in a public sector hospital in South Africa: baseline analysis. *Hosp Pract*. 2017 Sep 27:1-8
 40. Nashilongo MM, Singu B, Kalemeera F, Mubita M, Naikaku E, Baker A, Ferrario A, Godman B et al. Assessing adherence to antihypertensive therapy in primary health care in Namibia: findings and implications [Cardiovasc Drugs](#)

[Ther.](#) 2017 Oct 14

41. Meyer JC, Schellack N, Stokes J, Lancaster R, Zeeman H, Defty D, Godman B et al. Ongoing initiatives to improve the quality and efficiency of medicine use within the public healthcare system in South Africa; a preliminary study (In Press Frontiers in Pharmacology)
42. Opanga SA, Mwang'ombe NJ, Okalebo FA, **Godman B**, Oluka M, Kuria KAM. DETERMINANTS OF THE EFFECTIVENESS OF ANTIMICROBIAL PROPHYLAXIS AMONG NEUROTRAUMA PATIENTS AT A REFERRAL HOSPITAL IN KENYA: FINDINGS AND IMPLICATIONS (In Press Journal of Infectious Diseases & Preventive Medicine)
43. Mashalla M, Setlhare V, Masseur A, Sepako E, Tiroyakgosi C, Kgatlwane J, Chuma M, Godman B. Assessment of prescribing practices at the primary health care facilities in Botswana with an emphasis on antibiotics; findings and implications (Accepted for publication International Journal of Clinical Practice)

Submitted publications (Selected)

- van der Sandt N, Schellack N, Mabope LA, Mawela MPB, Kruger D, Godman B. Surgical antimicrobial prophylaxis among paediatric patients in South Africa comparing two different settings (Re-submitted to The Pediatric Infectious Disease Journal)
- van der Sandt N, Schellack N, Mabope LA, Mawela MPB, Kruger D, Godman B. Knowledge and perception of medical practitioners on surgical antimicrobial prophylaxis among paediatric patients in South Africa and the implications (being submitted to African Journal of Paediatric Surgery)
- Schellack N, Bronkhorst E, Coetzee R, Godman B, Gous AGS et al. SASOCP position statement on the Pharmacist's role in antibiotic stewardship 2017 (Submitted for publication – South African Journal of Science)
- Fadare JO, Oshikoya K, Ogunleye O, Desalu O, Ferrario A, Enwere O, Adeoti A, Sunmonu TA, Masseur A, Baker A, Godman B. Drug promotional activities in Nigeria: Impact on the prescribing patterns and practices of medical practitioners and the implications (Submitted to Hospital Practice)

Published/ Accepted Abstracts

1. Truter I, Godman B, Baker A, Bucsis A, Fadare J, Hesse U, Martin A, Kwon H-Y, Zara C, Bennie M. Are multiple interventions needed to influence physician prescribing behaviour: implications for the future? *Pharmacoepidemiology and drug safety* 2016; 25 (Suppl. 3): 230-1
2. Truter I, Tiroyakgosi C, Matome M, Desta A, Muller M, Amu F, Fadare J, Kibuule D, Madzikwa N, Mbwaswi R, Naikaku E, Oluka M, Ogunleye O, Godman B. Medicine utilisation capabilities in Africa: current status, implications and future prospects. *Pharmacoepidemiology and drug safety* 2016; 25 (Suppl. 3): 232
3. Nanzigu S, Gustafsson LL, Eriksen J, Navér L, Soeria-Atmadja S, Obua C, Kekitinwa A. Efavirenz-Ugandan cross national study challenges and opportunities. MURIA Conference Anti Infections. 2016: 2 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)
4. Souda S, Powis KM, Lockman S, Ajibola G, Makhema J, Roger L Shapiro RL. Infant Cotrimoxazole Prophylaxis Associated with Commensal Gut Flora Resistance. MURIA Conference Anti Infections. 2016: 12 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)
5. Kalemerra F, Mbango C, Mubita M, Naikaku E, Gaida R, Godman B. Effect of changing from first- to Second- Line Antiretroviral Therapy on Renal Function. MURIA Conference Anti Infections. 2016: 13 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)
6. Mubita M, Kalemerra F, Cockeran M, Naikaku E, Kibuule D. Effect of Renal Function Assessment Methods on Tenofovir Disoproxil Fumarate's Safety Reports: Pharmacovigilance. MURIA Conference Anti Infections. 2016: 15 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)
7. Amu AA, Akinsola HA, Mashau NS. The effect of health education intervention on the level of knowledge of HIV/AIDS among factory workers in Matsapha, Swaziland. MURIA Conference Anti Infections. 2016: 22 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)
8. Godman B, Tiroyakgosi C, Matome M, Paramadhas BA, Amu AA, Fadare J, Kalungia A, Kibuule D, Jande M, Madzikwa N, Oluka M, Ogunleye O, Truter I. Changing environment for drug utilisation studies in Africa: Implications for the future. MURIA Conference PV NCD DU Studies. 2016: 15 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)
9. Godman B, Masseur A, Fadare J, Ogunleye O, Amu AA, Burger J, Oluka M, Kalemerra F, Truter I. Initiatives to progress drug utilisation projects in AFRICA via the newly formed MURIA group. MURIA Conference PV NCD DU Studies. 2016: 17 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)

Masseur A, Afriyie

10. D, Burger J, [Ezenduka C](#), [Fadare J](#), Kalungia A, Kibuule D, [Meyer J](#), [Ogunleye O](#), [Oluka M](#), Truter I, Godman B African countries are working together to enhance medicine use (HTAi Rome - ID # 247)
11. F KALEMEERA, C OBERHOLSTER, I SEGAMWENGE, D KIBUULE, E NAIKAKU; M MUBITA, B GODMAN. Renal function outcomes in patients receiving TDF-containing antiretroviral therapy: A retrospective pilot study in Namibia. MURIA 3 2017; 24. Available at URL: <http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURIA%203/MURIA3-AbstractBook-July-2017.pdf>

Posters

12. Matome M, Godman B. Management of URTIs in the Private Sector in Botswana. MURIA Conference Anti Infections.

- 2016: 3 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)
13. Paramadhas BD, Tiroyakgosi C, Godman B. Point Prevalence Study on Antibiotic Utilization among Public Hospitals in Botswana. MURIA Conference Anti Infectives. 2016: 7 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)
 14. Matshotyana K, Padidar S, Mazibuko G, Dlamini-Nqeketo S, Sithole S, Molla-Kassie G, Nxumalo N, Lelisa Duga AL. Comparison of selected prescribing indicators measured before and after the implementation of standard treatment guidelines in Swaziland. MURIA Conference Anti Infectives. 2016: 8 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)
 15. Kalungia CV, Burger J, Godman B, Simuwelu C Prevalence and practice of non-prescription sale and dispensing of antibiotics in selected community retail pharmacies in Lusaka district of Zambia. MURIA Conference Anti Infectives. 2016: 10 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)
 16. Ezenduka C, Nworgu C, Godman B, Masele A. Antimalarial drugs treatment pattern among pregnant women attending antenatal care clinics in Anambra state, South East Nigeria. MURIA Conference Anti Infectives. 2016: 17 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)
 17. Truter I, Lamprecht J. Antimalarial prescribing patterns in South Africa. MURIA Conference Anti Infectives. 2016: 20 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)
 18. Fadare J, Ogunleye O, Enato E, Godman B, Gustafsson LL. Presence and Functionality of Drug and Therapeutics Committees (DTC) in Selected Nigerian Hospitals – Results of a Pilot Study. MURIA Conference PV NCD DU Studies. 2016: 2 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)
 19. Matshotyana K, Padidar S, Mazibuko G, Dlamini-Nqeketo S, Sithole S, Molla-Kassie G, Nxumalo N, Duga AL. Comparison of selected prescribing indicators measured before and after the implementation of standard treatment guidelines in Swaziland. MURIA Conference PV NCD DU Studies. 2016: 3 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)
 20. Jande M, Katabalo DM, Sravanam P, Marwa K, Madlan B, Burger J, Godman B, Mwita S. Adherence and patient related beliefs towards their medications among the adult hypertensive outpatients in Mwanza, Tanzania. MURIA Conference PV NCD DU Studies. 2016: 6 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)
 21. Rwegerera GM, Moshomo T, Gaenamong M, Oyewo TA, Gollakota SG, Mhimbira FA. Antidiabetic medication adherence and associated factors among diabetic patients attending a tertiary clinic in Gaborone, Botswana. MURIA Conference PV NCD DU Studies. 2016: 10 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)
 22. Kairuz T, Truter I, Pudmenzky A, Fredericks I, Rossato L, Hollingworth S. Using de-identified dispensing data to identify possible medication misuse and facilitate cross-national comparison. MURIA Conference PV NCD DU Studies. 2016: 11 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)
 23. Godman B, Ezenduka C, Fadare J, Furst J, Kalungia A, Kibuule D, Masele A, Ogunleye O, Truter I. Multiple interventions are typically needed to influence prescribing and dispensing behaviour; fact or fiction? MURIA Conference PV NCD DU Studies. 2016: 16 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)
 24. Fadare JO, Oshikoya KA, Oreagba IA, Oguntayo FS, Orubu S, Senbanjo IO, Masele A, Godman B. Potential drug-drug interactions in paediatric outpatient prescriptions at four Nigerian general hospitals. MURIA Conference PV NCD DU Studies. 2016: 18 (Available at URL: <http://muria.nmmu.ac.za/2nd-MURIA-Training-Workshop-and-Symposium,-25-27-J>)
 25. Godman B, Masele A, Kibuule D. Developing & implementing quality indicators for drug utilisation studies. Available at URL: <http://muria.mandela.ac.za/3rd-MURIA-Training-Workshops-and-Symposium>
 26. Qamar N, Godman B, Masele A, Campbell S, Baker A, Kagoya HR, Kibula D. Validity of WHO/INRUD prescribing indicators in Namibia's primary health care: findings and implications. MURIA 3 2017; 4. Available at URL: <http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>
 27. Mashalla Y, Setlhare V, Sepako E, Masele A, Chuma M, Kgatlwane J, Tiroyakgosi C, Godman B. Assessment of prescribing practices at Primary Health Care facilities in Botswana with emphasis on antibiotics; findings and implications. MURIA 3 2017; 4. Available at URL: <http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>
 28. Salas M, Lopes LC, Godman B, Truter I, Fadare J, Galicia D, Oluka MN, Appenteng K, Burgeer J, Ankrah D, Ogunleye O, Bidonde J. Good Practices of Drug Utilization Studies in Countries from the LatAm and African Regions. MURIA 3 2017; 6. Available at URL: <http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>
 29. Schellack N, Dlamini N, Meyer JC, Godman B. Point prevalence survey of antimicrobial utilisation in an academic hospital in the Gauteng province, South Africa. MURIA 3 2017; 7. Available at URL: <http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>
 30. Paramadhas BDA, Kgatlwane J, Tiroyakgosi C, Matome M, Masele A, Godman B, Eriksen J, Gustafsson LL. Antibiotic Utilization Studies Using Point Prevalence Survey in Botswana. MURIA 3 2017; 8. Available at URL:

<http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>

31. Onyago E, Okalebo F, Oluka M, Kinuthia R, Godman B. An audit of aminoglycosides use in the paediatric wards of a tertiary hospital in Kenya. MURIA 3 2017; 8. Available at URL: <http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>
32. Joseph Fadare, Olayinka Ogunleye, Arno Muller, Garba Iliyasu, Okezie Enwere, Brian Godman. The current state of antimicrobial stewardship programs in Nigerian tertiary healthcare facilities. MURIA 3 2017; 9. Available at URL: <http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>
33. Nakwatumbah S, Kibuule D, Haakuria V, Kalemeera F, Baker A, Mubita M, Godman B. Compliance to guidelines for the prescribing of antibiotics in acute infections at Namibia's national referral hospital: a pilot study and the implications. MURIA 3 2017; 12. Available at URL: <http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>
34. Schellack N, Meyer JC, Ubaka C, Malan L, Engler D, Skosana P, Oluka M, Opanga S, Godman B, Kalungia AC, Mtapuri-Zinyowera S, Fadare J, Kibuule D. Position statement – Over the counter use of antibiotics in Africa. MURIA 3 2017; 15. Available at URL: <http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>
35. Khaemba CN, Guantai EM, Oluka MN, Sinei KA, Baker A, Godman B. Incidence and Determinants of Medication Errors among Paediatric In-Patients at a Rural Referral Hospital in Kenya. MURIA 3 2017; 17. Available at URL: <http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>
36. Rampamba EM, Meyer JC, Godman B, Baker A, Helberg E. Adherence to chronic antihypertensive medication by patients managed at primary health care facilities in a rural district of Limpopo Province, South Africa. MURIA 3 2017; 18. Available at URL: <http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>
37. Rampamba EM, Meyer JC, Helberg E, Baker A, Godman B. Knowledge of hypertension and its management among hypertensive patients on chronic medicines at primary health care public sector facilities in South Africa; findings and implications. MURIA 3 2017; 19. Available at URL: <http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>
38. Nashilongo MN, Singu B, Kalemeera F, Mubita M, Naikaku E, Godman B, Baker A, Kurdi, Kibuule D. Assessing adherence to antihypertensive therapy in primary health care in Namibia: findings and implications. MURIA 3 2017; 19. Available at URL: <http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>
39. Schellack N, Bester T, Gous AGS, Stoltz A, Meyer JC, Godman B. Evaluating initial antimicrobial use in an adult medical intensive care unit at an academic teaching hospital in Pretoria, South Africa. MURIA 3 2017; 22. Available at URL: <http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>
40. Matsitse TB, Helberg E, Meyer JC, Godman B, Massele A, Schellack N. Compliance to the Primary Health Care Treatment Guidelines and the Essential Medicines List in the Management of Sexually Transmitted Infections in Two Correctional Centres in South Africa: Findings and Implications. MURIA 3 2017; 22. Available at URL: <http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>
41. Terblanche A, Meyer JC, Summers RS, Godman B. Impact of a pharmacist-driven pharmacovigilance system in a secondary hospital in the Gauteng Province of South Africa. MURIA 3 2017; 25. Available at URL: <http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>
42. Kirira GM, Oluka MN, Guantai EM, Godman B, Maitai CK. Prevalence and characteristics of medicine use among pregnant women in a Kenyan Hospital. MURIA 3 2017; 27. Available at URL: <http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>
43. Mbui JM, Oluka MN, Guantai EM, Sinei KA, Achieng L, Baker A, Godman B. Prescription patterns and adequacy of blood pressure control among adult hypertensive patients in Kenya; findings and implications. MURIA 3 2017; 29. Available at URL: <http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>
44. Rwerere GM, Moshomo T, Gaenamong M, Oyewo TA, Gollakota S, Yordanka Rivera YP, Masaka A, Godman B, Shimwela M, Habte D. Health-related quality of life and associated factors among patients with diabetes mellitus in Botswana. MURIA 3 2017; 30. Available at URL:

<http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>

45. Moosa A, Bezuidenhout S, Meyer JC, Godman B. Patient knowledge regarding medicine management of type-2 diabetes among patients attending Community Health Centres in South Africa. MURIA 3 2017; 31. Available at URL: <http://muria.mandela.ac.za/muria/media/Store/documents/Abstract%20book%20-%20MURAI%203/MURIA3-AbstractBook-July-2017.pdf>
46. TB Matsitse, E Helberg, JC Meyer, B Godman, A Masele, N Schellack. Compliance to the Primary Health Care Treatment Guidelines and the Essential Medicines List in the Management of Sexually Transmitted Infections in Correctional Centres in South Africa: Findings and Implications (Accepted for EuroDURG 2017)
47. Bester T, Schellack N, Gous AGS, Stolz A. Meyer JC, Godman B. Evaluating initial antimicrobial use in an adult medical intensive care unit at an academic teaching hospital in Pretoria, South Africa (Accepted for EuroDURG 2017)
48. Onyango Elias, Okalebo Faith, Oluka Margaret, Kinuthia Rosaline, Brian Godman. An audit of aminoglycosides use in the paediatric wards of a tertiary hospital in Kenya (Accepted for EuroDURG 2017)
49. M Matlala, AGS Gous, JC Meyer, B Godman. Formulary management activities of public sector Pharmacy and Therapeutics Committees in the Gauteng Province of South Africa: An analysis of observations of Pharmacy and Therapeutics Committee meetings (Accepted for EuroDURG 2017)
50. Jennifer M, Oluka MN, Eric M, Guantai EM, Sinei KA, Achieng L, Baker A, Godman B. Prescription patterns and adequacy of blood pressure control among adult hypertensive patients in Kenya; findings and implications (Accepted for EuroDURG 2017)
51. Christabel N. Khaemba, Eric M. Guantai, Margaret N. Oluka, Kipruto A. Sinei, Amanj Baker, Brian Godman. Incidence and Determinants of Medication Errors among Paediatric In-Patients at a Rural Referral Hospital in Kenya (Accepted for EuroDURG 2017)
52. George M. Kirira, Margaret N Oluka, Eric M. Guantai, Brian Godman, Charles K. Maitai. Prevalence and Characteristics of Medicines Use Among Pregnant Women in a Kenyan Hospital. (Accepted for EuroDURG 2017)
53. A Lubasi, JC Meyer, A Baker, A Masele, Celda Tiroyakgosi, B Godman. Adherence to antiretroviral treatment amongst patients in Botswana: A multi-measure approach to guide future practice (Accepted for EuroDURG 2017)
54. A Moosa, S Buidenhout, JC Meyer, B Godman. Patients with type-2 diabetes attending a community health centre in Pretoria, South Africa: Do they know how to manage their chronic condition to improve future care? (Accepted for EuroDURG 2017)
55. E Rampamba, JC Meyer, E Helberg, A Baker, B Godman. Adherence to chronic antihypertensive medication by patients managed at primary health care facilities in a rural district of Limpopo Province, South Africa (Accepted for EuroDURG 2017)
56. E Rampamba, JC Meyer, E Helberg, A Baker, B Godman. Knowledge of hypertension and its management among hypertensive patients on chronic medicines at primary health care public sector facilities in South Africa; findings and implications (Accepted for EuroDURG 2017)
57. A Terblanché, JC Meyer, RS Summers, B Godman. Impact of a pharmacist-driven pharmacovigilance system in a secondary hospital in the Gauteng Province of South Africa (Accepted for EuroDURG 2017)
58. Dennis Makau, Sylvia Opanga, Margaret Oluka, Loice Achieng, Brian Godman, Anastasia Guantai. Evaluation of Self Medication with Antibiotics Among Patients in Low and Middle Income Countries: A Systematic Review Protocol (Accepted for EuroDURG 2017)

UP COMING EVENTS

The Fourth MURIA Training Workshop on Drug Utilization Research

The fourth MURIA Training Workshop on Drug Utilization Researches has been scheduled to take place between 17 and 19 June, 2018 at The University of Namibia, Windhoek. Details of the meeting including calls for abstracts submission will be available on MURIA website (<http://muria.mandela.ac.za/>) soon.

World Congress on Pharmacology (WCP-2018)

The International Union of Basic and Clinical Pharmacology (IUPHAR) will hold her next world congress on Pharmacology in Kyoto, Japan between 1 July and 6 July, 2018. Abstract submission opened 1 August, 2017 and closes 14 December, 2017. Further details are available on the congress website: <http://www.wcp2018.org/>

MEMBERSHIP INFORMATION

Membership of MURIA Group is open at no cost to interested related professionals from the academia, government and regulatory agencies. Please see MURIA website (<http://muria.mandela.ac.za/>) for details.