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**EXPERT
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Initiative to progress research on medicine utilization in Africa: formation of the Medicines Utilization Research in Africa group

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MURIA Group Introductory meeting

Port Elizabeth, South Africa 27–28 January 2015

This 2-day meeting brought together drug utilization (DU) researchers from across Africa. The purpose was to share current DU research findings to further DU research across Africa including the development of a medicines utilization research group. This led to the formation of the Medicines Utilization Research in Africa (MURIA) group, with a tentative vision and mission as well as the first planned research methodology training course and a symposium in Botswana later in the year. Future research projects were also planned including studies on DU of antiretrovirals in Botswana and across Africa as well as ways to enhance the appropriate use of antibiotics and increase generic utilization.

Pharmaceutical policy typically varies by income level and traditions; however, the goal in all countries is to enhance the rational use of medicines. In low-income countries, households incur potentially catastrophic expenses when family members become ill. The principal policy goal therefore is to improve access to essential medicines in these countries to reduce maternal and child mortality as well as mortality from other highly prevalent diseases including AIDS, malaria and tuberculosis (TB). In higher income countries, the goal is to develop and maintain comprehensive and equitable healthcare in the face of growing pressures. This has resulted in multiple policies to improve the managed entry of new high-priced medicines as well as increase the prescribing of low-cost generics to release valuable resources for re-direction including funding increased use of medicines with a growing elderly population [1,2].

Countries need to learn from each other to achieve their goals since the unnecessary use of medicines has considerable resource implications. These include increasing the number of

adverse events with the possibility of hospitalization and death, increasing antibiotic resistance as well as potentially depriving patients of the benefits of medicines [3]. This necessarily includes analyzing treatment patterns alongside health policies in their own and surrounding countries, and using the findings to shape future policies. In Africa, this can also include researching complementary and alternative medicines [4]. These issues and challenges resulted in an identified need to bring together researchers from across Africa to discuss their ongoing and future research to enhance the rational use of medicines. This was the principal driver behind the recent meeting in Port Elizabeth, South Africa, the subsequent formation of the Medicines Utilization Research in Africa (MURIA) group and the progression of the first workshop in Botswana later in 2015.

Main highlights of the meeting in Port Elizabeth

Ilse Truter welcomed everyone to Port Elizabeth [5]. Proceedings started with a brief

history of activities to develop a Medicines Utilization group in Africa building on other initiatives, notably the International Society for Pharmacoepidemiology, EuroDURG and the recent World Congress for Basic and Clinical Pharmacology in South Africa (2014). This built on her considerable expertise, starting with the establishment of the Drug Utilization Research Unit (DURU) in 1994. This has resulted in a constant stream of postgraduate students and publications, including central nervous system medicines [6–10].

Johanita Burger and her colleagues from the research entity Medicine Usage in South Africa (MUSA) of the North West University in South Africa subsequently discussed their extensive drug utilization (DU) program, which consists of four key research objectives:

- To determine and compare medicine utilization patterns and costs in Southern Africa
- To evaluate the impact of policy decisions on the equity, affordability and availability of medicines
- To investigate factors that may influence the appropriate use of medicines
- To develop pharmaceutical care models to improve appropriate medicine usage

Their research experience includes: Pharmaceutical care/Clinical aspects to enhance appropriate use of medicines; DU review and environmental influences on medicine usage; Pharmacoepidemiology/Pharmacoeconomics and Pharmacy practice with aspects including the standard, availability, access and affordability of pharmaceutical services. This has resulted in multiple collaborations with other researchers across Africa [7,8,11,12], which will continue.

Jaran Eriksen presented a number of DU studies he has been involved with including optimizing dosing regimens for antiretrovirals (ARVs) in children and adults in Uganda [13]; mHealth projects in pregnant women with HIV and their newborns (South Africa); algorithms for optimizing treatment in critical care (Tanzania) as well as studies assessing needs and attitudes to the implementation of information and communication technology to enhance the rational use of medicines among healthcare staff in rural Tanzania [14].

Matthias Adorka discussed ongoing research in Namibia, which includes antibiotic prescribing practices in outpatient departments of public hospitals and affiliate clinics [11,12] as well as: assessment of current antibiotic prescribing in respiratory tract infections; the development of a computerized algorithm for the appropriate prescribing of antibiotics in the treatment of respiratory tract infections in primary healthcare settings; and Therapeutic Drug Monitoring of anti-TB drugs in drug-resistant patients. Other projects included assessing gentamicin therapy in the elderly and whether there is a need to carry out renal function tests before commencing therapy using a pharmacokinetic approach. The methodology involves cross-sectional and prospective studies including taking blood samples and serum creatinine measurements. The intention being to assess the association between development of

gentamicin toxicity and gentamicin blood levels and population clearance in the target patient group to provide future guidance.

Ongoing DU research in Nigeria includes potential ways to reduce drug:drug interactions in patients with HIV through physicians consulting more than one drug:drug interaction database, studies demonstrating frequent medication errors among pediatric nurses and the use of complementary and alternative medicines [4,15–17]. Other studies have shown that adherence to medicines to control hypertension has been poor with BP control remaining unsatisfactory, although other studies have shown that medication adherence and treatment satisfaction among psychiatric outpatients are generally good [18,19]. Studies have also shown high rates of polypharmacy and inappropriate prescribing among the elderly as well as low rates of generic prescribing and overuse of antibiotics [20,21]. All these studies are aimed at identifying specific problems to address to enhance the rational use of medicines.

Finally, Brian Godman discussed cross-national studies undertaken with health authority personnel from across Europe to compare the impact of different demand-side measures to enhance the preferential prescribing of high quality low-cost generics versus originators and patented products in a class where all products are seen as therapeutically equivalent at appropriate doses [2]. Recent research has shown that countries are learning from each other with measures to enhance the utilization of generics and this will continue [2]. This research was facilitated by the development of the Piperska group [22], whose early mission was “to ensure robust systems are in place in Europe to enhance the rational use of drugs, including new expensive drugs, to improve health”.

It was subsequently agreed that there should be a pro-active group in Africa stimulating cross-national research to enhance the rational use of medicines. This resulted in an agreed name – the MURIA group – with a draft vision and mission, which is currently being refined [23]. The MURIA group should be a multidisciplinary network of healthcare professionals striving to promote sustainable, rational medicine use in Africa. This can be achieved through collaborative research and capacity building, with the objective of improving the quality of life of patients, as well as the quality of medicine utilization in Africa. It is intended that the vision of MURIA will be achieved through training, collaborative research, information sharing and facilitation of access to data across Africa. As a result, aiming to address current challenges regarding DU research in Africa [23]. The first step is a 2.5-day workshop and symposium around DU in Gaborone, Botswana at the end of July 2015 [24], which will cater for all personnel including those just starting research in this area to those actively undertaking medicine utilization research. This will be achieved through two workshop streams (parallel sessions) – one Introductory and one Advanced – including all aspects of DU research. Subjects include basic and advanced methodologies including challenges, ways to influence prescribing behavior, basic and advanced statistics as well as discussions on ethics, databases

and communication programs. The speakers are principally those who took part in the inaugural MURIA meeting in Port Elizabeth.

The workshop will be followed by a symposium for researchers to present their projects and findings, with DU of ARVs a principal theme. This will allow workshop attendees to see some of the theory put into practice. The registration fees have been kept deliberately low to attract researchers from across Africa, made possible by a grant from the Swedish Research Council to develop DU research around ARVs in Botswana.

A number of research projects are also ongoing. These included projects summarizing key healthcare characteristics among African countries including Botswana, South Africa, Namibia, Swaziland, Lesotho, Nigeria, Zimbabwe, Ghana, Tanzania, Uganda, Kenya, Rwanda and Ethiopia, incorporating total health and pharmaceutical expenditure, key characteristics around healthcare provision and its financing. In addition, documenting database characteristics in each country as well as current DU capabilities. Initial disease areas for comparing utilization and policies across countries include antibiotics and ARVs. This will start with southern Africa countries, building on previous research surrounding antibiotics [7,11,12,20,25]. Other

research topics include policies surrounding generics as well as complementary and alternative medicines.

Overall, it was a highly fruitful meeting in Port Elizabeth laying the foundation for an interactive and productive MURIA group.

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