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MILK CENTRE NEWSLETTER

ISSUE 14

Funded by NIHR | National Institute for Health and Care Research



MILK Team Celebrates Two Decades of Pharmacokinetics Research

The Pharmacokinetics research group received a Recognition of Excellence Award at the 7th IDI Science Fair 2026, celebrating two decades of pharmacokinetics research that has contributed to designing safer drug regimens and optimising treatment for individual patients.

The recognition highlights a longstanding scientific journey at the Infectious Diseases Institute (IDI), Makerere University, built on research, mentorship and collaboration to improve understanding of how medicines behave in the body.

Reflecting on the milestone, MILK CENTRE Principal Investigator Prof. Catriona Waitt acknowledged the pioneers whose vision and leadership helped establish pharmacokinetics research at IDI. These include Dr. Ceppie Merry, alongside Dr. Mohammed Lamorde and Prof. Pauline Byakika-Kibwika, who helped lay the foundations for this work when pharmacokinetics was still a relatively new field in the region.



Prof. Catriona Waitt

"It is a delight to celebrate the impact of pharmacokinetic research at IDI, which has aimed to ensure the right patient gets the right dose at the right time. The MILK-CENTRE would not exist without the strong foundation laid in IDI's early days, and without the ongoing mentorship and support of colleagues around the world, particularly Prof Colin Pillai and the Pharmacometrics Africa programme, founded in 2018. It is exciting to see how a small group of dedicated scientists, driven by a strong vision and tireless spirit, established what is now a vibrant community of practice: the Uganda Chapter of Pharmacometrics Africa."

The programme continued to grow through contributions from Dr. Christine Sekaggya-Wiltshire, Dr. Fiona Cresswell, and Prof. Waitt, along with a wider network of researchers, mentors, and international collaborators. Their collective efforts have strengthened research capacity and advanced the application of pharmacokinetics and pharmacometrics to important clinical questions. We are also grateful for the ongoing support and mentorship from Pharmacometrics Africa and many colleagues and collaborators around the world.

Building on this legacy, the MILK programme addresses a critical gap in medicine research, limited evidence on the safety and appropriate use of medicines during breastfeeding.

MILK CENTRE has established an integrated research platform combining clinical study design, drug bioanalytics, pharmacometrics modelling, and stakeholder engagement across projects addressing diseases such as malaria, tuberculosis, postpartum depression, and gestational diabetes. This approach has enabled context-informed research, generation of high-quality lactation pharmacokinetic data, and engagement of stakeholders to translate findings into practice. The studies have improved understanding of how medicines pass from maternal blood into breast milk and the potential exposure of breastfed infants. This evidence supports informed treatment decisions and helps breastfeeding mothers access the medicines they need. For the MILK team, the award recognises years of scientific investment, mentorship, collaboration, and capacity building, while highlighting the importance of including breastfeeding mothers and their infants in research.



Dr. Francis Ojara

By combining clinical pharmacokinetic studies with advanced pharmacometric modelling, the team investigates how medicines transfer from mothers into breast milk and the potential exposure of breastfed infants. This work aims to generate evidence that supports informed treatment decisions while helping mothers access the medicines they need.

For the MILK team, the award recognises more than a single study. It celebrates years of scientific investment, mentorship, collaboration and capacity building, while reinforcing the importance of including breastfeeding mothers and their infants in research.



Dr. Aida Kawuma

Achieving this milestone and recognition has been made possible by the pioneers, partners, and colleagues, past and present, who have contributed to MILK's growth. Looking ahead, MILK aims to strengthen South–South collaborations with institutions across Africa and the Global South. We also plan to expand partnerships with industry and policymakers to ensure research informs policy and improves health outcomes for breastfeeding women and their infants. Building local research capacity through partnerships with Ugandan universities, including Busitema, Lira, Muni, Gulu, Soroti, KIU, and Mbarara, will be a key priority. Ultimately, our goal is to establish a sustainable in-country resource for lactation pharmacokinetics research that generates evidence to guide the safe and effective use of medicines during breastfeeding.

As the programme advances its ambition to establish a Centre of Excellence for Lactation Therapeutics Research and Engagement, the team remains committed to generating evidence that can inform clinical practice and improve outcomes for mothers and their babies.

Advancing the Future of Drug Research: PBPK Modelling Workshop in Mbarara

How can mathematical models help researchers predict how medicines behave in the human body? This question guided the Western Cluster Workshop on Applications of Mathematical Models in Quantitative Pharmacology, with a focus on Physiologically Based Pharmacokinetic (PBPK) Modelling, hosted by Mbarara University of Science and Technology (MUST).

Organised by the MILK PBPK study through the MILK-CENTRE initiative at the Infectious Diseases Institute (IDI), Makerere University, the workshop brought together participants from MUST, Kampala International University, Kabale University and Fins Medical University to build foundational knowledge and practical skills in quantitative pharmacology.

Dr. Martin Amanya, the Head of the Department of Pharmacology and Therapeutics at MUST, welcomed participants, while the MUST Vice Chancellor, Professor Pauline Byakika, delivered the opening remarks, highlighting the importance of opportunities for scientific learning and collaboration.

Through sessions led by experts from Pharmacometrics Africa, Uganda Chapter, including Professor Catriona Waitt, Francis Williams Ojara, Joshua Kiptoo, Davies Otieno and Henry Enzama, participants explored the fundamentals of pharmacokinetics and pharmacodynamics, the core components of PBPK models, computational modelling tools and applications in drug development, safety assessment and dose optimisation.

A case study on hydroxyurea dosing demonstrated how mathematical modelling can help investigate real-world drug research questions.



Joshua Kiptoo

> ***Facilitating the workshops was a rewarding experience to me, as much as the participants. We had intense and lengthy discussions about PBPK models and its real-life application, which meant more than curiosity among the participants. So, the question is no longer whether there is commitment to embrace PBPK modeling, but the opportunity to share knowledge with the wider scientific community***

The workshop also offered an opportunity to reflect on the growth of pharmacometrics in Uganda. Looking back to the launch of the Ugandan chapter of Pharmacometrics Africa in 2021, Professor Waitt highlighted the progress made and the enthusiasm demonstrated by university leadership and participants.

For MILK-CENTRE, developing PBPK modelling expertise is particularly relevant to understanding how medicines behave during breastfeeding and strengthening the evidence needed to inform maternal and infant health. More broadly, these skills can help researchers investigate drug exposure across diverse populations and contribute to context-relevant drug research. We are grateful for funding from the Gates Foundation to enable this work to gain momentum.

Building expertise in quantitative pharmacology requires sustained training, mentorship and collaboration. By connecting mathematics, physiology and pharmacology, researchers in Uganda and across Africa can strengthen their capacity to generate evidence and advance the future of drug research.

Leading with Purpose: Simon Asiimwe Graduates from PML Fellowship

Simon Peter Asiimwe, Public Engagement Specialist at the Infectious Diseases Institute (IDI), has graduated from the Public Management and Leadership (PML) Fellowship, an important milestone in his personal and professional leadership journey.

The fellowship, offered by Franklyn Institute of Leadership and Public Management in partnership with Syracuse University and Arizona State University, provided an opportunity for reflection, growth, and practical learning on intentional leadership, active listening, integrity, collaboration, multiplication, and empowering others to create meaningful change.

Through the programme, Simon strengthened his understanding of how leadership principles can be applied in everyday professional life. These lessons are particularly relevant to his work in public engagement and research communication, where building trust, strengthening partnerships, and ensuring community voices are heard are essential to meaningful research impact.



Simon Peter Asiimwe

> ***The PML Fellowship has strengthened my skills in intentional leadership, active listening, collaboration, and empowering others. I have learned that effective leadership is not just about achieving individual goals, but also about adding value to others and creating meaningful, lasting change. I intend to apply these lessons in my work at the Infectious Diseases Institute by strengthening community engagement, mentoring colleagues, fostering collaboration, and ensuring that our research communication initiatives respond to the needs and voices of the communities we serve. The programme has reinforced my commitment to leading with purpose and focusing on the impact we create together.***

As he moves forward, Simon is committed to applying these principles by mentoring colleagues, fostering collaboration, and using communication and public engagement to support positive change in communities. For Simon, graduation is not simply the completion of a programme, but a renewed commitment to leading intentionally, adding value to others, and creating lasting impact.

MILK-CENTRE PhD Scholar Sumayiya Nalubega Reflects on Global Bioethics Discussions in South Africa

The MILK-CENTRE Bioethics PhD Scholar, Sumayiya Nalubega attended the 18th World Congress of Bioethics and the Feminist Approaches to Bioethics Conference in South Africa in July 2026. Held in Africa for the first time, the congress brought together scholars and researchers to explore ethical challenges in healthcare and research.

Discussions focused on health equity, African data sovereignty, reproductive justice, artificial intelligence, and including marginalised voices in research. Sumayiya particularly reflected on the ethics of care and the importance of recognising the social relationships and caregiving responsibilities that influence healthcare decisions.

A key highlight was presenting her doctoral research concept on the Ethical, social, regulatory, and legal considerations for the inclusion of breastfeeding women and their infants in clinical research. The presentation provided valuable feedback and opportunities to connect with bioethics scholars and potential research collaborators.

Some of the unforgettable and truly exciting moments at the conference were presenting my doctoral research concept for the first time to an international audience. My research addresses a critical yet often overlooked gap in research ethics. Receiving insightful feedback from international scholars was both encouraging and invaluable in shaping my research at its early stages. Even more exciting was the opportunity to meet and interact with leading Bioethicists whose published work had inspired and guided my academic journey. I left the conference with fresh perspectives to strengthen my doctoral research and professional connections. I am deeply grateful to my Principal Investigator, supervisor, and mentor, Prof. Catriona Waitt, for the generous financial support that made this experience memorable and enriching



Sumayiya Nalubega

The experience strengthened the importance of moving beyond identifying ethical challenges to advocating for practical solutions that promote justice, dignity, and equity in healthcare and research.

What If We Could Predict How Medicines Behave? Exploring the Power of PBPK Modelling in Mbale

Researchers and students from Busitema University and Soroti University gathered in Mbale on 30–31 July 2026 for the Eastern Cluster Workshop on Applications of Mathematical Models in Quantitative Pharmacology, organised by the Infectious Diseases Institute (IDI), Makerere University, and hosted by Busitema University.

The workshop introduced participants to Physiologically Based Pharmacokinetic (PBPK) modelling, an approach that combines information about human physiology, drug properties and mathematical equations to predict how medicines move through the body.

From understanding how drugs are absorbed, distributed, metabolised and eliminated to exploring measures of drug exposure such as Cmax and AUC, participants examined the science behind these models. Practical sessions introduced computational tools and model-building approaches, while discussions on drug safety, special populations and model validation highlighted both the potential and limitations of model-based predictions.



Davies Otieno

Facilitating the three MILK PBPK workshops was a valuable learning and teaching experience. Balancing the technical PBPK modelling concepts while keeping in mind the participants' questions and practical use case scenarios was a key highlight. The discussions highlighted the importance of making complex modelling concepts accessible without losing their technical depth. Overall, it was a useful experience that strengthened my teaching and facilitation skills.

The learning extended to real-world applications, including a case study on using PBPK modelling to optimise hydroxyurea dosing. This demonstrated how mathematical modelling can help researchers investigate drug behaviour and support evidence-informed dosing decisions.

An important message from the workshop was the need to expand opportunities for specialised scientific training beyond Uganda's capital. Dr. Dan Kibuule, the Dean of the Faculty of Health Sciences at Busitema University called for more capacity-building workshops delivered through regional universities and institutions, emphasising the importance of bringing training opportunities closer to researchers and students across the country rather than concentrating them in Kampala.

Most models used to guide medicine dosing were developed using populations that look nothing like ours. Changing this requires building expertise within our own universities, not just in Kampala or abroad. The introductory PBPK workshops in Gulu, Mbarara and Busitema were a small step towards that goal. We came away having learnt as much as we taught. Participants raised locally relevant questions, from herbal medicine research to linking drug exposure with treatment effects. The research agenda is already there; what was missing was access to the tools.



Henry Enzama

Hosting the workshop in Mbale demonstrated how regional institutions can provide valuable spaces for scientific learning, knowledge exchange and collaboration. Decentralising such opportunities can help more researchers access emerging skills, build professional networks, and contribute to Uganda's growing research community.

This approach also creates opportunities for universities to strengthen their role in developing local scientific expertise and supporting research that responds to regional and national priorities.

Through the Lens



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