

CRI NEWSLETTER:

January – June 2024

Welcome to the first CRI newsletter for 2024

Our newsletters highlights the many cancer-related research activities in the Faculty of Health Sciences. Previous editions of the newsletter are published on the [CRI website](#).

A tribute to Professor Lynette Denny

by Dr Rakiya Saidu



Professor Lynette Denny, a pioneering figure in cervical cancer prevention research and a dedicated advocate for women's health, died on 9th June 2024 after a long period of ill health.

Lyn obtained her PhD from the University of Cape Town in 2000 with her thesis on "Evaluation of alternative strategies for the prevention of cervical cancer in low resource settings." This launched her career as a distinguished researcher, a gynaecology cancer expert and a world-renowned scientific leader. She initiated the Khayelitsha Cervical Cancer Screening Project in 1995 in collaboration with partners from Columbia University, New York. This "community lab" based at Khayelitsha Site B clinic and made from shipping containers was the site of some of the most important cervical cancer prevention studies carried out by Lyn. The results of which have had global impact.

Lyn was also the Director of the SAMRC UCT Gynaecology Cancer Research Centre (GCRC), one of only three clinical cancer research centres funded by the SAMRC in 2015. Through the GCRC, Lyn brought together a diverse team of clinical, laboratory, and public health scientists.

Lyn's scientific contributions and uncompromising humanitarian values have left an indelible mark on all of us. Her legacy lives on...

Rest well dear Lyn.

Student and faculty presentations/conferences/meetings

Presentations at the International Society for Laboratory Hematology (ISLH) conference held in Nantes, France this year:

-Prof Jessica Opie:

Hodgkin lymphoma: Investigating circulating natural killer cells in an HIV endemic setting. J. Opie, J. Isaacs, J. Oosthuizen, E. Verburch, Z. Mohamed, D. Chetty, G. Davison. Poster presentation. ISLH, Nantes, France 2024. *(pictured below, left)*

-PhD Candidate Ms Lillian Andera:

Lymphoid neoplasms in a South African HIV endemic setting categorised according to the 5th edition of the World Health Organisation Classification of Haematolymphoid Tumours. L. Andera, D. Chetty, Z. Mohamed, D. Oelofse, J. Oosthuizen, K. Brown, G. Panchoo, K. Antel, K. Simba, G. Kritzing, S. Cassim, A. Ramburan, J. Opie, V. Louw, E. Verburch. Poster presentation. ISLH, Nantes, France 2024. *(pictured below, centre)*

Dr Brigid McMillan presented at the South African Society of Medical Oncology (SASMO) in collaboration with South African Stem Cell Transplant Society (SASCeTS) 3rd joint SASMO-SASCeTS Conference in Cape Town:

Surveillance of multi-drug resistant bacteria and bloodstream infections in haematopoietic stem cell transplantation patients: Insights from a sub-Saharan African tertiary centre. LPM van Leeuwen, B McMillan, G Tadzimirwa, J Oosthuizen, K Brown, L Doornekamp, ECM van Gorp, E Prentice, N Papavarnavas, A Davidson, Y Goga, J du Toit, CE du Toit, M Goeijenbier, E Verburch. Oral Presentation. SASMO-SASCeTS 2024 Congress. *(pictured below, right)*



Research news (grants, partnerships, awards/honors)

A/Prof. Karen Shires received the National Health Laboratory Service (NHLS) Research Trust Pathology Research Award for her research looking at cancer testis antigen use as biomarkers in multiple myeloma.

Prof Sharon Prince received the following awards:

- a "B" rating by the South African National Research Foundation.
- an invitation to serve on the selection committee of the King Faisal Award in Saudi Arabia for excellence in science. This award is given to dedicated individuals whose contributions make a positive difference to the science community.
- a SA / China (MOST) Joint Research Programme (JRP)
- a Poliomyelitis Research Foundation grant
- a Faculty Research Equipment Infrastructure grant
- a UCT University Research Committee Conference Travel grant

Training/teaching events and meetings

The South African Oncology and Limb Salvage Society had an inaugural meeting on the 17th and 18th of May where Orthopaedic Oncology surgeons from around the country met to learn about sarcoma related topics and discuss difficult cases. The event was a great success and enjoyed by all. *(Photo below)*



Through the NIH Fogarty grant, **Blood Research and Enhanced Training against HIV-South Africa (BREATH-SA)**, the Department of Haematology hosted a protocol writing course from 10-15 June in Cape Town. Masters and PhD students, including 4 candidates each from UCT, University of the Free State (UFS), and South African National Blood Services (SANBS) were guided to develop their research protocols with help from experts.

10 Years of Bridging the Education Gap: The Access to Care Cape Town Program

The Access to Care Cape Town program celebrates its 10th Anniversary. This program is a radiotherapy training initiative launched in 2014 is a partnership between Varian, the University of Cape Town, and the Cape Peninsula University of Technology. Designed to offer short courses for qualified radiotherapy professionals across Africa, the program aims to equip attendees with the skills to safely adopt new technologies in radiation oncology. Over the past

decade, 293 professionals from 13 countries in Africa, the Middle East, and Pakistan have participated.

In the first semester of 2024, teams from Botswana, Zimbabwe, Nigeria, and Yemen completed the **"From 2D to 3D-CRT" course**. The course concluded with an in-person week in Cape Town in May, featuring hands-on training at the Radiotherapy Department of Groote Schuur Hospital. Participants engaged in linear accelerator quality assurance, patient positioning and immobilization, treatment planning, and strategic radiotherapy department design. We are proud to see the valuable skills gained by the participants and remain confident that the Access to Care program continues to bridge the gap in radiotherapy education.

(Photographs from the course, Prof Jeannette Parkes, course participants, and radiotherapy equipment shown below)



Cancer Prevention and Control (CPC), MPH module

The Masters of Public Health program Cancer Prevention and Control module ran its 7th course in the first semester of 2024. Convened by convener **Prof Jennifer Moodley**, and supported by teaching assistant **Alexandra Payne**, the module provides an introduction to the principles of cancer prevention and control, and covers a broad range of topics including: the global burden of cancer, applied cancer epidemiology, cancer genetics, risk factors, prevention, screening, surveillance and cancer registries, behavioural and lifestyle interventions, challenges in providing cancer treatment, childhood cancer, palliative care, survivorship advocacy and

cancer control plans. The module takes an interdisciplinary applied approach. Teaching staff included clinical, public health and basic science experts. This year's iteration of the course saw 16 students, ranging from multiple departments within the school of public health including epidemiology and biostatistics, social and behavioural science, health economics, and health systems.

Research project news

ARCHERY

A new AI-related research study (ARCHERY) in cancer of cervix started in early 2024 in the Department of Radiation Oncology. ARCHERY is a 4-year prospective observational study to evaluate the quality and economic benefit of AI-based automated radiotherapy treatment planning. The study focuses on cervical, head and neck, and prostate cancers, which are common in LMICs, and for which radiotherapy is the main curative treatment. The study will recruit 990 patients across six public-sector cancer hospitals in India, Jordan, Malaysia, and **South Africa**, including Groote Schuur Hospital. The study is led by Prof Ajay Aggarwal, Kings College London. **Prof Jeannette Parkes** is the local PI with **Drs Sameera Dalvie, Julie Wetter, Nazia Fakie and Santhuri Viranna** as local investigators.

If the study objectives are met, the AI-based software will be offered as a not-for-profit web service to public sector state hospitals in LMICs. We anticipate this will support rapid adoption into daily practice and facilitate the expansion of high-quality radiotherapy in these countries. This, in turn, will improve access and affordability of this critical treatment option, and therefore also improve survival and the quality of life of patients with cancer globally. For more information on ARCHERY see <https://www.mrcctu.ucl.ac.uk/studies/all-studies/a/archery/>

African aWAREness of CANcer and Early Diagnosis (AWACAN-ED) Programme



AWACAN-ED is an NIHR-funded Global Health Research Group that builds on the previous African Women Awareness of CANcer (AWACAN) project, led by **Profs Jennifer Moodley and Fiona M Walter (Queen Mary University of London)**. AWACAN-ED started in October 2021 and runs for 4 years. The team includes a multidisciplinary group of researchers from South Africa, Zimbabwe and the United Kingdom working together with a large team of

collaborators to improve care-seeking and address barriers to early cancer diagnosis in Southern Africa. The programme focuses on cervical and breast cancer in women and colorectal cancer in both men and women.

Data Collection for Workstream 1 is complete now and consisted of the following 3 elements:

1. Cross-Sectional survey where we reached 91% of our recruitment target with 1032/1134 breast, cervical and colorectal cancer patients recruited in South Africa and Zimbabwe
2. Health Facility Assessments in South Africa and Zimbabwe where we surveyed 22 Primary care and 12 Secondary/Tertiary care facilities
3. In-Depth Interviews with 56 healthcare workers in South Africa and Zimbabwe

Sincere thanks to the field teams and our collaborators. The analysis of this extensive and rich body of data is currently well underway.

Work is also well-underway on Workstream 2 in the following areas:

- A systematic review of mHealth tools for public use
- Review of current national guidelines for breast, cervical and colorectal cancer in South Africa, Zimbabwe and the UK
- Review of currently available infographics about breast, cervical and colorectal cancer in South Africa and Zimbabwe
- A series of workshops with groups of Clinicians and Community members to explore existing barriers to early detection of cancer and what tools or interventions could improve this situation.

All of this input will be used to inform and guide the development of tools for both Primary care providers and the Community to enable earlier detection of cancer, which will be evaluated in Workstream 3.

For more on the AWACAN-ED project see <https://awacan.online>

Student news and graduations

Medical Biotechnology & Immunotherapy (MB&I) graduations

-Tatenda Lovemore Bvudzijena - Developing novel SNAP tag based antibody fusion proteins directionally conjugated to fluorophores for immunophenotyping of AML (MSc, first class pass 83%)

-Emmanuel Adebowale Fajemisin - Generation and therapeutic evaluation of CD64-targeting immunotherapeutics on CD64+ cell lines and ex vivo

differentiated human macrophages (MSc, first class pass 85%)

-Jesmika Singh - The development of recombinant fusion proteins for immunotherapy of human triple negative breast cancer (MSc, first class pass 93%)

Mr Athi Welsh was selected as one of thirty exceptional PhD students and postdoctoral fellows from around the world to take part in the American Chemical Society's 2024 CAS Future Leaders Program.

From the Dept. of Human Biology, Prince laboratory:

-Mr Mhlahli Vuyo Mlaza, Mr Karabo Serala and Mr Thato Medupe have been awarded the UCT Accelerated Transformation of the Academic Programme (ATAP) Postdoctoral fellowships.

-Dr Annick van Niekerk and Mr Athi Welsh were both awarded the prestigious NRF innovation postdoctoral fellowship.

-Dr Lucy Macharia and Dr Saif Feroz Khan were both awarded FHS postdoctoral fellowships.

-Ms Carly Burmeister was awarded a competitive European Association for Cancer Research (EACR) and UCT travel grants which allowed her to present her research findings at the joint EACR-AACR conference on basic and translational research: how to bring basic science discoveries to the clinic in Dublin, Ireland.

-Ms Carly Burmeister was awarded the Best Young Researcher Award at the annual South African Medical Research Council (SAMRC) Biomedical Research and Innovation Platform (BRIP) symposium. In addition, she was awarded the best poster award at the Department of Human Biology, Integrative Biomedical Sciences and Pathology (HiP) joint research day and third place for her presentation at the Arturo Falaschi Conference "Advances in prostate and cervical cancer research".

-Ms Claire Bellis was awarded first prize for PhD students at the annual South African Medical Research Council (SAMRC) Biomedical Research and Innovation Platform (BRIP) symposium. In addition, she was awarded a travel grant for her to attend the Frontiers in Cancer Science (FCS) conference in Singapore.

Dr Obey Mawire passed his MMed dissertation under the supervision of A/Prof Estelle Verburgh and Dr Zunaid Barday. His research was titled "Post-transplant lymphoproliferative disorders: a retrospective analysis of a single renal transplant centre"

Dr Shakira Dawood passed her MMed dissertation under the supervision of A/Prof Estelle Verburgh and

A/Prof Zainab Mohamed. Her research was titled "Evaluation of prognostic risk factors at diagnosis and treatment outcomes in adult patients with early-stage Hodgkin lymphoma in Cape Town, South Africa"

Dr David Richardson obtained his MMed (Haem) degree with distinction at UCT. His project was titled "From the marrow to the blood: Optimising the diagnosis of iron deficiency in the setting of inflammation" and was supervised by A/Prof. Jessica Opie and Prof. Louw in collaboration with Dr. Jody Rusch (Chemical Pathology, UCT).

Dr Victoria Norman obtained her MMed (Haem) degree with distinction at UCT. Her project was titled: "Effects of sample handling on the detection of key molecular markers in myeloid neoplasms" and was supervised by A/Prof. Karen Shires and Dr. Daleen Kriel.

Marion Stone obtained her M.Sc. titled "Defining the Functional Role of MAGE-C1 in Multiple Myeloma" with A/Prof K Shires as the supervisor

Aaliyah Saferdien graduated and received her PhD degree on March 26th – Title of her dissertation: "Anti-cancer effects of aqueous extracts of *Dodonaea viscosa* on Burkitt lymphoma". This project was supervised by A/Prof. Shaheen Mowla (*photograph below Dr Aaliyah Saferdien left, Dr Shaheen Mowla, right*).



Recent Cancer Publications

1. Moodley J, Unger-Saldaña K. The role of racial and ethnic discrimination in breast cancer disparities. *Lancet*. 2024 May 11;403(10439):1827-1830. doi: 10.1016/S0140-6736(24)00699-8
2. Lambarey H, Blumenthal MJ, Chetram A, Joyimbana W, Jennings L, Orrell C, Schäfer G. Reactivation of Kaposi's sarcoma-associated herpesvirus (KSHV) by SARS-CoV-2 in non-hospitalised HIV-infected patients. *Ebiomedicine*. 2024 Feb 1;100.
3. Tibenderana RM, Blumenthal MJ, Bukajumbe E, Schäfer G, Mohamed Z. Clinical Significance of Elevated KSHV Viral Load in HIV-Related Kaposi's Sarcoma Patients in South Africa. *Viruses*. 2024 Jan 26;16(2):189.
4. McLeod M, Torode J, Leung K, Bhoo-Pathy N, Booth C, Chakowa J, Gralow J, Ilbawi A, Jassem J, Parkes J, Mallafré-Larrosa M. Quality indicators for evaluating cancer care in low-income and middle-income country settings: a multinational modified Delphi study. *The Lancet Oncology*. 2024 Feb 1;25(2):e63-72.
5. Viranna S, Wu HT, Dalvie S. Treatment outcomes of Epstein-Barr virus-associated nasopharyngeal carcinoma. *South African Journal of Oncology*. 2024 Jan 29;8:279.
6. Krause SR, Gwyther L, Olivier J, Mohamed Z. How registrar palliative care training affected palliative care integration in South African oncology. *SA Journal of Oncology*. 2024 Apr 30;8:294.
7. Tibenderana RM, Blumenthal MJ, Bukajumbe E, Schäfer G, Mohamed Z. Clinical Significance of Elevated KSHV Viral Load in HIV-Related Kaposi's Sarcoma Patients in South Africa. *Viruses*. 2024 Jan 26;16(2):189.
8. Mutebi M, Aryeetey NA, Alemu HK, Carson L, Mohamed Z, Doleeb Z, Lasebikan N, Dharsee NJ, Msadabwe S, Ramogola-Masire D, Mwanzi S. Challenges faced by women oncologists in Africa: a mixed methods study. *BMJ Oncology*. 2024 Mar 1;3(1).
9. Fogliata A, Burger H, Groenewald A, Punt L, Parkes J, Cozzi L. Intensity-modulated therapy for breast cancer patients. Practical guidelines and tips for an effective treatment planning strategy. *Advances in Radiation Oncology*. 2024 May 6:101535.
10. Kanyora A, Omondi R, Ongoma P, Omolo J, Welsh A, Prince S, Gichumbi J, Mambanda A, Smith G (2024) Mononuclear η^6 -Arene Ruthenium(II) Complexes with Pyrazolyl-Pyridazine Ligands: Synthesis, CT-DNA Binding, Reactivity towards Glutathione, and Cytotoxicity, *Journal of Biological Inorganic Chemistry*, <https://doi.org/10.1007/s00775-024-02043-3>.
11. Roufosse B, Serbu C, Marschner C, Prince S, Blom B (2024) Homo and Heteromultimetallic Complexes Containing a Group 8 Transition Metal and μ -diphosphine Bridging Ligands Involved in Anticancer Research: A Review, *European Journal of Medicinal Chemistry*, <https://doi.org/10.1016/j.ejmech.2024.116528>.
12. Welsh A, Serala K, Prince S, Smith G (2024) Selective Targeting of Regulated Rhabdomyosarcoma Cells by Trinuclear Ruthenium(II)-Arene Complexes, *Journal of Medicinal Chemistry*, <https://doi.org/10.1021/acs.jmedchem.4c00256>.
13. van Niekerk A, Chakraborty S, Chellan P, Prince S, Mapolie S (2024) Binuclear palladacycles with ionisable and non-ionisable tethers as anticancer agents, *Journal of Inorganic Biochemistry*, <https://doi.org/10.1016/j.jinorgbio.2024.112608>.
14. Zinman PS, Welsh A, Prince S, Smith G (2024) Aminoquinoline-Based Ruthenium (II) and Iridium (III) Polypyridyl Complexes: Investigating Potential Photosensitisers for Cancer Treatment via Photodynamic Therapy, *Journal of Organometallic Chemistry*, <https://doi.org/10.1016/j.jorganchem.2024.123183>.
15. Welsh A, Matshitse R, Khan S, Nyokong T, Prince S, Smith G (2024) Trinuclear ruthenium(II) polypyridyl complexes: Evaluation as photosensitizers for enhanced cervical cancer treatment, *Journal of Inorganic Biochemistry*, <https://doi.org/10.1016/j.jinorgbio.2024.112545>.
16. Zinman PS, Welsh A, Omondi RO, Khan S, Prince S, Nordlander E, Smith G (2024) Aminoquinoline-based Re(I) tricarbonyl complexes: Insights into their antiproliferative activity and mechanisms of action, *European Journal of Medicinal Chemistry*, <https://doi.org/10.1016/j.ejmech.2023.116094>.
17. Musalula S., Naran K., Madheswaran S., Ramamurthy D., Mungra N., Dzobo K., Martin D., Barth S. – Machine learning and bioinformatic analyses link the cell surface receptor transcript levels to the drug response of breast cancer cells and the

drug off-target effects. PLoS ONE 19(2):
e0296511 (2024), doi:
10.1371/journal.pone.0296511.

18. Arasanz Picher E., Wahajuddin M., Barth S., Chisholm J., Shipley J., Pors K. – The capacity of drug-metabolizing enzymes in modulating the therapeutic efficacy of drugs to treat rhabdomyosarcoma. *Cancers* 16: 1012 (2024), doi: 10.3990/cancers16051012
19. Opie J, Verburgh E, Bailly J, Mayne E, Louw V. Hematological Complications of Human Immunodeficiency Virus (HIV) Infection: An Update From an HIV-Endemic Setting. *Open Forum Infect Dis.* 2024 Mar 19;11(4):ofae162. doi: 10.1093/ofid/ofae162. PMID: 38601746; PMCID: PMC11004791.
20. G. Davison, J. Opie, S. Davids, R. Mohammed, N. Novitzky. Early recovery of natural killer cells post T-cell depleted allogeneic stem cell transplantation using alemtuzumab “in the bag”. *Transplant Immunology* Vol 84, June 2024. <https://doi.org/10.1016/j.trim.2024.102045>

Please send any cancer-related news, events, publications and conference information for the period July – December 2024 for inclusion in our next semi newsletter to:

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