RESEARCH

Bringing cancer under control
As a leading role player in research, CANSA is one of the very few public funded organisations in South Africa that has sustainable funding for research.

These funds, mainly donated by bequest, have been invested by experts for use in research within CANSA. Currently the research fund exceeds R100 million and just over R5 million was used for the period under review for five types of research, categorised Types A, B, C, D and E.

**Type A** - Projects initiated and executed at institutions such as universities and parastatal organisations

**Type B** - Environmental carcinogen research projects initiated and managed by CANSA

**Type C** - Projects optimising CANSA’s service, initiated or agreed to by CANSA

**Type D** - Research projects that are large or multi-disciplinary and institutional to achieve a common goal, with a definite goal of national importance (high annual budgets in excess of R1 million)

**Type E** - These projects cover a wide spectrum of activities including symposia and congresses initiated, funded and co-funded by CANSA, as well as post-graduate cancer bursaries and co-sponsoring of travel grants for researchers presenting at research conferences overseas

CANSA ensures that the scientific findings and knowledge gained from our research realign our advocacy focus (our watchdog role) and strengthen our health and service delivery programmes to the greater benefit of the public. The scientific findings and knowledge gained from our research are used in many different ways:

- Add to global knowledge on cancer
- Realign our health programmes
- Vitalise our cancer reduction role in education and legislation
- Determine our advocacy role
- Strengthen our watchdog role
- Identify which cancer reducing products qualify for the Seal of Recognition

**EXTENDING OUR LEADERSHIP ROLE**

(TYPES A, D & E)

**Type A**
- CANSA’s Type A research projects focus on epidemiology, early detection, prevention and care - undertaken by universities and other reputable institutions. They also cover a wide field of cancer research and are generally conducted by productive and energetic young scientists and are a good source of possible patents. A total of 31 projects were funded to the value of almost R4.3 million with R700,000 being supplemented by the institutions. Since 2003, there has been a 300% enrichment of selected categories in CANSA funded Type A research projects. Researchers are expected to publish the research results in peer-reviewed journals.

**Type D**
- After 10 years of existence, the Cancer Research Initiative of South Africa (CARISA) - a partnership between CANSA and the Medical Research Council (MRC) - ceased to exist as from end March 2014. CARISA was created in 2004 as a platform to obtain new cancer research funds, especially from overseas. Unfortunately this aim was not achieved and no new funds were forthcoming from international or South African institutions. In order to keep the CARISA staff and logistics, CANSA and the MRC each contributed R500,000 p.a. to CARISA up until end March 2014. Funds were also used to finance research projects which have either terminated or taken over by CANSA.
South Africa is exposed to solar radiation more than most countries, resulting in skin cancer. However, the right amount of Vitamin D3 may assist with the reduction of breast, colorectal and prostate cancer. Causation is mainly due to ionising radiation causing DNA strand breaks and cancer reduction is due to the formation of vitamin D3 in the skin which is an anti-cancer chemical. There needs to be a healthy balance between the two modes of action of solar radiation. The different population groups in South Africa living near the North or South of the country need to get just enough exposure to solar radiation. Too little could cause vitamin D3 shortage and too much could cause deadly melanoma. Discussions started with scientists at the University of Johannesburg and Stellenbosch Medical School to obtain accurate data and initiate statistical analysis.

Cancer in Africa: Bridging Science and Humanity (theme for AORTIC 2013)
CANS contributed R400 000 as a co-sponsor towards the 2013 African Organisation for Research & Training in Cancer (AORTIC) International Conference that was held in Durban, South Africa, from 21 - 24 November 2013.

Our Head of Research chaired and presented the plenary session titled ‘Environment and Occupation in Cancer’ on 24 November 2013. The outgoing CANS CEO, presented at the Training and Advocacy workshop on 21 November 2013 while our Head of Health, spoke at the Cancer Survivors Forum on the same day.

We further hosted an exhibition booth to showcase cancer-control activities and information which was manned by the staff from CANS Research and the CANS Durban Care Centre.

CANS awarded travel grants for the following:
- Moonira Mullah of the University of Johannesburg attended the International Gynecologic Cancer Society Congress in April 2013 in Indonesia and presented on ‘The value of partnerships in cervical screening using liquid based cytology and HIV testing in Port-Elizabeth’. She also attended the 2013 African Organisation for Research & Training in Cancer (AORTIC) International Conference that took place in November 2013 in Durban, South Africa to present a joint poster presentation with CANS’s National Manager: Care and Support regarding ‘Together we can make a difference in cervical cancer prevention in South Africa’ highlighting the role that corporate partnerships can play in the fight against cervical cancer, especially in the Eastern Cape.
- Fanechka Esterhuysen of the University of the Western Cape attended the 21st Annual International Conference on Intelligent Systems for Molecular Biology and the 12th European Conference on Computational Biology (ISMB/ECCB) in Germany in July 2013 and presented a poster titled ‘Accurate multi-category classification of breast cancer subtypes using gene expression barcodes and machine learning’.
- Dr Jennifer Geel, Paediatric Oncologist from Charlotte Maxeke Johannesburg Academic Hospital, attended the 45th Congress of the International Society of Paediatric Oncology (SIOP) conference in China on 28 September 2013 and presented three abstracts on childhood cancer related topics.

Dr Nicole van der Merwe from the Stellenbosch University presented a paper entitled ‘The significance of CYP2D6 pharmacogenetic testing in oestrogen receptor-positive breast cancer patients(ID#131)’ at the SASHG 2013 Congress that took place at The Maslow Hotel, Sandton, Gauteng, in October 2013.

Medical Scientist, Cornelius Nattey, from the National Institute for Occupational Health/National Cancer Registry attended the 15th World Conference on lung cancer that took place in Sydney, Australia in October 2013 and presented a paper on ‘Lung cancer risk attributable to occupation: in a case control study in black South Africans, 2001-2008’.

These are conducted in-house, in collaboration with established research institutions to yield results belonging entirely to CANS. The results are used to underpin our watchdog role, as well as to screen and evaluate products and where appropriate, award the product with the CANS Smart Choice Seal.

The Seal encourages you to read product labels and make informed choices. Approximately 8-10 projects are maintained simultaneously. We subscribe to the concept that the avoidance/removal of carcinogens within our environment, as well as optimal health, can help to reduce the risk of cancer. Certain foods and supplements, as well as leading a balanced lifestyle can help to enhance health.
<table>
<thead>
<tr>
<th>Tile of project</th>
<th>Key highlight / outcome</th>
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<tbody>
<tr>
<td>Cancer Cluster</td>
<td>The Department of Health requested CANSA to investigate a residential suburb where a very high cancer incidence has been noticed by the residents. To date nothing could be found to explain this and future studies will focus on radon and gold mine dump dust in the houses.</td>
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<td>Fracking</td>
<td>Millions of litres of fracking fluid that contain carcinogens are pumped underground to release shale gas. There is good evidence that fracking can go wrong and that the fluid can be inadvertently released into underground drinking water aquifers which could be disastrous in the Karoo. To litigate against fracking contamination, base-line data of the drinking water is necessary to prove that originally the water was in good shape. CANSA analysed underground drinking water from a farm near Cradock and the data will be released in late 2014.</td>
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<td>Omega Caro-e Clinical Study</td>
<td>CANSA awarded the Seal of Recognition to this South African supplement as it contains the unique combination of fish oil (free of heavy metals) and a palm oil concentrate containing 11 different carotenoids and five different forms of Vitamin E. A clinical trial started in August 2014 to analyse the blood of people taking the capsules to ascertain if the components are absorbed or not and whether inflammation markers (thought to be involved in cancer) are reduced or not.</td>
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<td>Thermal Invoice Paper</td>
<td>Thermal paper used for proof of transactions and at ATM machines contains chemicals - Bisphenol A (BPA) and Bisphenol S (BPS) - that have been linked to cancer. These chemicals are absorbed through the skin, pass through the body and are excreted in urine. This is a massive cancer threat affecting millions of consumers with no obvious solution yet. In Sweden it’s been shown that a certain cream can protect the skin against chemical absorption, which may protect till operators in supermarkets who absorb at least 10 times more than the average shopper. CANSA plans to test suitable creams for blocking BPA absorption.</td>
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<td>Kitchen Filters</td>
<td>The public are becoming more aware of the need for pure drinking water, but are not clear on which filter to choose for their tap water. CANSA aims to evaluate the various filters in terms of different molecules that are trapped, such as chlorine and Bisphenol (BPA). We could then award a Smart Choice Seal to the best filter.</td>
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<td>Uranium In Teeth</td>
<td>Most Potchefstroom residents drink tap water that isn’t treated with carbon, coming from the Mooi River. It’s possible that this water could at least periodically be contaminated with uranium from the Wonderboomspuit catchment. The chemical content of adult teeth from long-term residents is being analysed to test this hypothesis. Results are still pending.</td>
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**ENHANCING SERVICE DELIVERY (TYPE C)**

**Dignity Tool**

The CANSA sponsored Dignity Tool is an online tool to assess the quality of care and support given to cancer patients. During the last year, this tool was enhanced to accommodate the requirements of the Movember Foundation support programmes to help determine the status and well-being of prostate and testicular cancer patients.

**Paediatric Mapping**

Based on the Paediatric Cancer Mapping Programme (a collaboration between CANSA and North-West University), a student at the Potchefstroom campus completed a M.Sc. study entitled ‘Mapping and analysing cancer incidence in South Africa’. The technology to map cancer cases throughout South Africa (10 x 10 metre area) is available for use in the future. The Paediatric Cancer Registry used, was provided by Professor Cristina Stefan from the University of Stellenbosch/Tygerberg Hospital.

**Cancer Registration Workshop**

The outgoing CANSA CEO and Vikash Sewram, Director of the African Cancer Institute (Stellenbosch University) facilitated a workshop on 20 September 2013, hosted by CANSA in Bedfordview, regarding the current state of cancer registration in South Africa. Participating guests included Prof Freddy Sitas from the Australian Cancer Registry and Dr Elvira Singh, Head of the National Cancer Registry in South Africa (National Health Laboratory Service) as well as our Acting Head of Advocacy and Head of Health. The discussions centered on the National Cancer Registry being population-based and/or pathology-based.
A series of cancer research booklets have been produced to date:

**Booklet One** - The very real prospect of eradicating liver cancer in Southern Africa - Prof Michael Kew, University of Cape Town

**Booklet Two** - Tracking the Cervical Cancer Virus in South African Men and Women - Prof Anna-Lise Williamson, University of Cape Town

**Booklet Three** - Designing Weapons against Cancer in Silico Analysis, Synthesis and in Vitro Evaluation of Novel Anticancer Agents - Prof Annie Joubert, University of Pretoria

**Booklet Four** - Gene Therapy for Cancer Treatment - Prof Patrick Arbuthnot, University of the Witwatersrand

**Booklet Five** - Novel Strategies in Chemotherapeutic Intervention - Prof Anna-Mart Engelbrecht, University of Stellenbosch

### National Talks & Presentations by: Head of Research, Dr Carl Albrecht

<table>
<thead>
<tr>
<th>DATE</th>
<th>Details of event</th>
<th>Topic</th>
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<tbody>
<tr>
<td>13 and 20 April, 2013</td>
<td>Presentation to oncology nurses at the Roche Oncology departments in Cape Town and Gauteng</td>
<td>Myths vs truth about alternative medicine</td>
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<td>22 May 2013</td>
<td>Talk at the launch of Harmless House Products in Bedfordview</td>
<td>Cleansing the planet and 90% of all cancers are caused by the environment</td>
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<td>3 July 2013</td>
<td>Indigenous Plant Use Forum Congress in Nelspruit</td>
<td>Mode of action of Sutherlandia frutescens as an anti-cancer plant</td>
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<td>8 July 2013</td>
<td>Talk to oncologists and oncology nurses at Sandoz Oncology in Gauteng</td>
<td>Fighting cancer in the kitchen</td>
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<td>31 July 2013</td>
<td>Talk to oncologists at Novartis and Sandoz Oncology in Cape Town</td>
<td>Is alternative ethical?</td>
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<td>24 August 2013</td>
<td>Cuppa For CANSA event at Saldanha in the Western Cape</td>
<td>Stopping cancer in the kitchen</td>
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<tr>
<td>3 September 2013</td>
<td>Presentation to students and staff at the oncology department of the Tygerberg hospital</td>
<td>How to apply for a bursary from CANSA</td>
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<td>12 September 2013</td>
<td>Presentation at the University of the 3rd Age in Milnerton, Cape Town</td>
<td>Cancer prevention and plastics</td>
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<tr>
<td>27 September 2013</td>
<td>Address to local women’s group in Dewestdorp in Free State</td>
<td>Die stryd teen kanker in die kombuis</td>
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<td>5 November 2013</td>
<td>Guest speaker at ‘Science meets the Media’ symposium at the University of Stellenbosch</td>
<td>Truth vs myths about cancer</td>
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<tr>
<td>25 November, 2013</td>
<td>Presentation at the 2013 African Organisation for Research &amp; Training in Cancer (AORTIC) International Cancer Conference in Durban</td>
<td>Preliminary results on lead and uranium pollution on the West Rand</td>
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<td>16 March 2014</td>
<td>Invited by the Independent Clinical Oncology Network (ICON) to address general practitioners in Durban</td>
<td>Alternative cancer therapy: What, Who, Why and Why not?</td>
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During April 2013, the outgoing CANSA CEO and the Head of Research attended a cancer conference at the M.D. Anderson Cancer Hospital in Houston, Texas, USA and also visited the American Association for Cancer Research (AACR) in Washington D.C. Excellent contacts were made in Houston, especially with Prof Bharat Aggarwal who is a world expert on inflammation and the use of curcumin from turmeric to counter inflammation. In Washington DC, Dr Artemis Simopoulos was visited in connection with the ratio of omega-6 to omega-3 and the importance of this in relation to cancer.

Following the 2013 World Cancer Leaders’ Summit co-hosted by CANSA in November 2013, the French Cancer Society, for the first time, invited both the outgoing CANSA CEO and the Executive Director of the Medical Research Council to join the International Cancer Research Funder Committee held in Paris in January 2014. The outgoing CEO was further requested to chair one of the sessions focussing on challenges facing childhood cancers and also delivered a short presentation on challenges facing childhood cancers in Africa. At least 40 leaders in cancer control and research funding attended the meeting at the time.

The AG Oettlé Memorial award is presented in remembrance of the late Dr AG Oettlé, a full-time and highly esteemed cancer researcher who was financed by CANSA and worked at the South African Institute for Medical Research in the sixties. He discovered that there was an epidemic of oesophageal cancer in Africa and especially the East Coast of South Africa. It’s the highest prize awarded to South Africans who have made valuable contributions in the field of cancer research or rendered cancer service of outstanding value to the public and CANSA.

Dr Leon Gouws was awarded for his pioneering role in establishing a sustainable and effective network of private oncologists and oncology companies in South Africa. He’s a foremost oncologist and entrepreneur who started the first effective and sustainable organisation of private oncologists in South Africa, i.e. GVI Oncology. He is now establishing similar companies in Australia.

Prof Freddy Sitas is one of the foremost cancer epidemiologists in the world and is currently in Sydney, Australia where he manages the Australian Cancer Registry. He studied at the London School of Hygiene and the University of Oxford where his work showed for the first time that Helicobacter pylori is a cause of stomach cancer. He received the award for his pioneering work over many decades on the epidemiology of cancer in South Africa and Australia, with special emphasis on his efforts to develop the South African Cancer Registry. His work has helped to link the bacterium, Helicobacter pylori to stomach cancer and the Human Herpes 8 virus to Kaposi’s sarcoma.

Prof Ben Smit, a previous Head of the Department of Radiotherapy of the Faculty of Medicine, Stellenbosch University, was selected for outstanding contributions to radiotherapy. He developed the so-called Smit Sleeve which is a simple plastic device for guiding the radiotherapy source to the cancer. It has revolutionised the treatment of cervix cancer all over the world for the past 32 years. It is safer, more effective and cheaper. Prof Smit also found time to serve as a past Chairman of the Cancer Council of the Western Cape.

THE AG OETTLÉ MEMORIAL AWARD

CONNECTING GLOBALLY

GOING FORWARD

• Establishing CANSA as the main funder of cancer research in South Africa
• Maintaining about 10 Type B projects aimed at removing carcinogens from the environment or strengthening cancer-resistance
• Completing the base-line fracking project on drinking water
• Completing the first clinical trial on Omega Caro-E
• Finding a solution to replace thermal till slips that contain possible carcinogens with safer materials or methods
• Further exploration and testing of affordable and potable water filters

2013/2014