



South African Medical Research Council



2009/10 Annual Report Presentation to the Parliamentary Portfolio Committee on Health

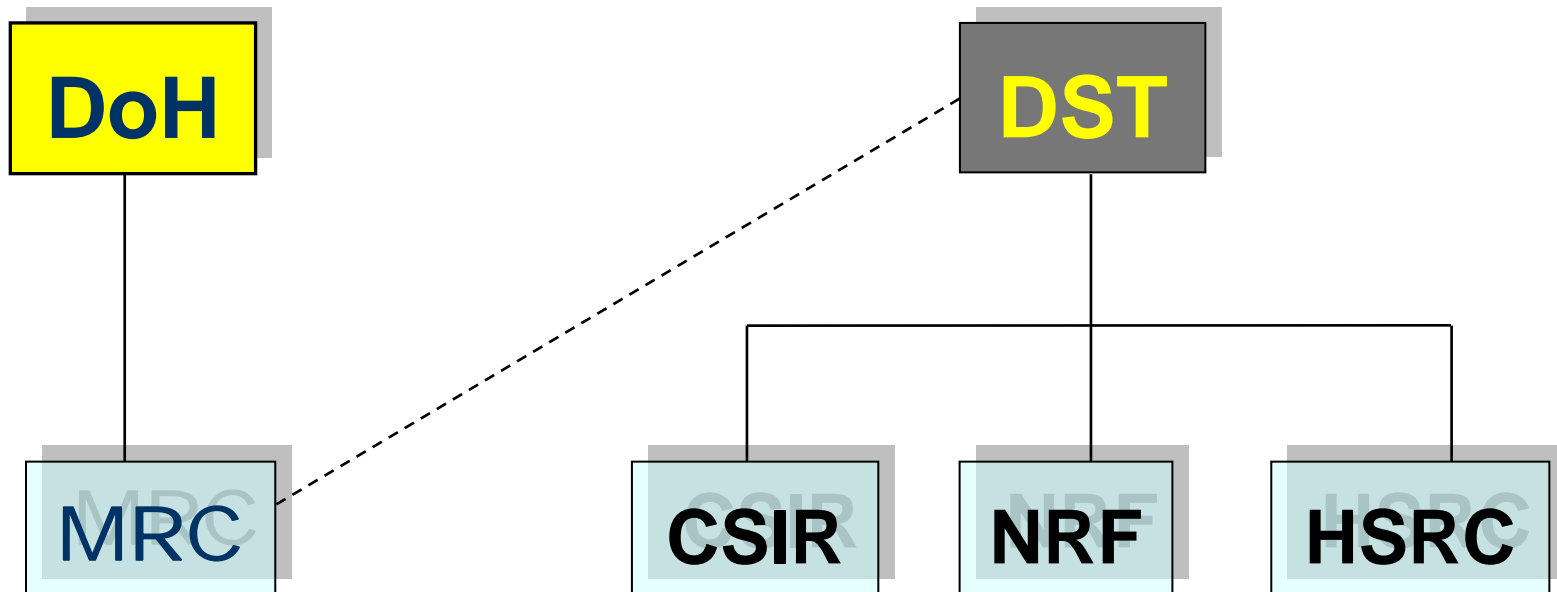
Muhammad Ali Dhansay

27 October 2010

DoH and DST



Building a healthy nation through research





The mandate of the South African Medical Research Council is legislated in terms of Act 58, 1991 :

‘the objects of the MRC are, through research, development and technology transfer, to promote the improvement of the health and quality of life of the population of the Republic, and to perform such functions as may be assigned to the MRC by or under this Act’.

No. 13256
Act No. 58. 1991



GOVERNMENT GAZETTE, 22 MAY 1991
SOUTH AFRICAN MEDICAL RESEARCH COUNCIL ACT 1991

ACT

To provide for the continued existence of the South African Medical Research Council and for the management thereof by a Board; and for matters connected therewith

Vision and Mission



Building a healthy nation through research

The Vision of the is MRC :

‘Building a healthy nation through research’

The Mission of the MRC is :

‘to improve the nation’s health and quality of life through promoting and conducting relevant and responsive health research’



The MRC's logo embodies our vision of
'building a healthy nation through research'

- The focus of our research is depicted by the DNA structure on the left-hand side, which represents both health sciences and the origins of humanity. On the right-hand side is the depiction of a healthy, vibrant human being.
- The use of green stands for 'rebirth and hope'.
- The use of blue embodies the fountain of knowledge that will feed our nation to help improve the quality of life of our people.





Building a healthy nation through research



HEALTH RESEARCH POLICY IN SOUTH AFRICA

2001

Conference on Priority
for Health Research
2006



SOUTH AFRICAN MEDICAL RESEARCH COUNCIL

STRATEGIC PLAN
2005 - 2010

Strategic
Plan

2010/11-2012/13





Alignment with NDOH Strategic Plan

The 2010/11 – 2012/13 Strategic Plan of the National Department of Health highlights the 10 Point Plan which includes Strengthening Research and Development. It further details twenty deliverables for four key areas, viz.

- *increasing life expectancy;*
- *combating HIV and AIDS;*
- *decreasing the burden of TB;*
- *improving health system effectiveness.*

With its current and improved portfolio of research, the MRC will support the department in its endeavours.

SA has a quadruple burden of disease profile, viz.

- **poverty-related conditions**
 - **emerging chronic diseases**
- **violence and injuries**
- **HIV and AIDS**

A case of competing priorities?



‘Cared’

- **Communication** : transparency, and freedom to challenge
- **Accountability** : responsibility, teamwork, leadership and participation
- **Respect** : dignity, honesty, fairness and integrity
- **Excellence and innovation**
- **Development** : reward and recognition

The MRC mission is implemented through the following 9 Strategic Objectives:

Promotion and conduct of research

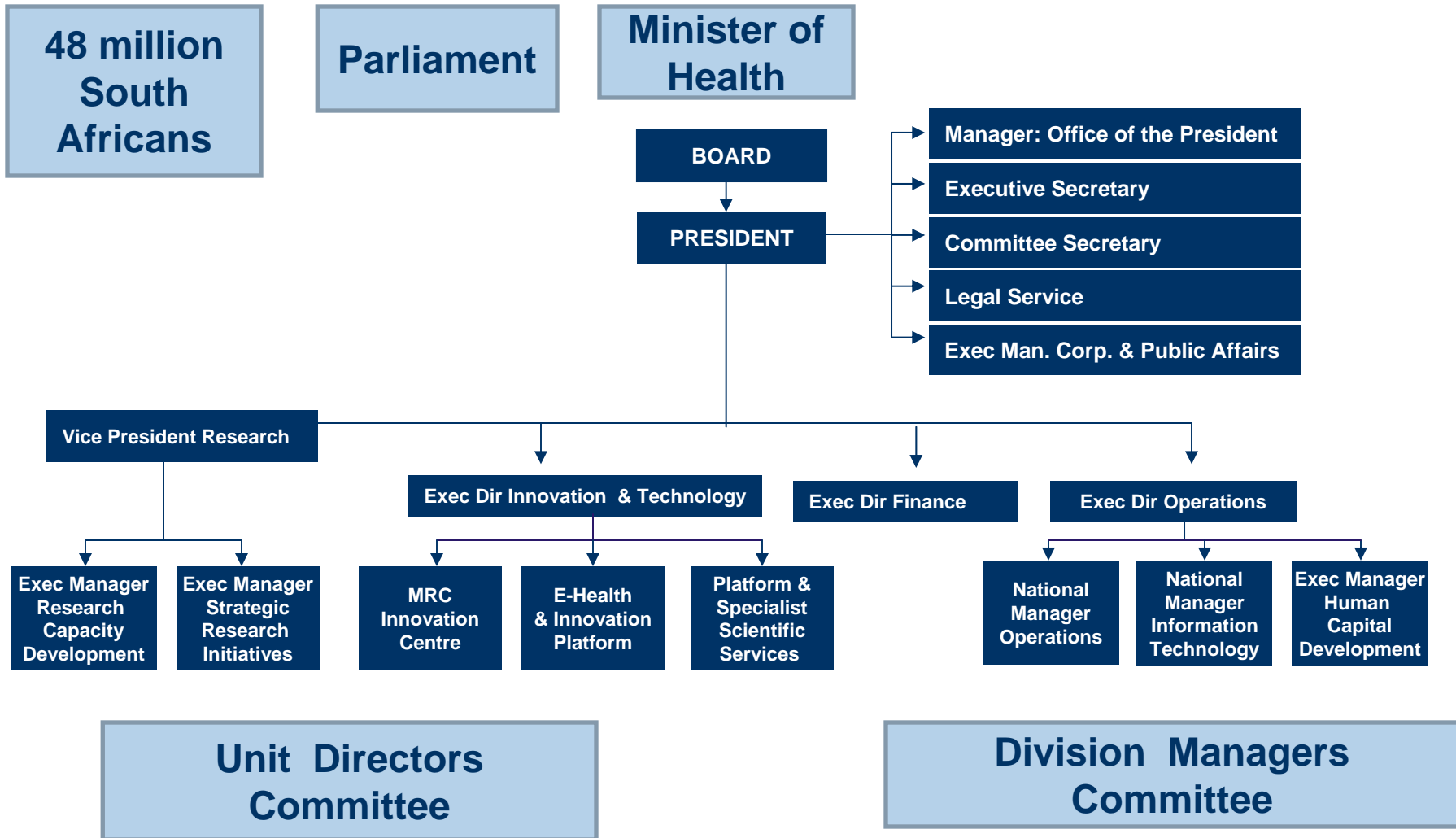
1. Research Strategy and Business Plan

Professional support for research

2. Financial Model Strategy & Plan
3. Opportunity and Risk Management
4. Capacity Development
5. Transformation and Development Plan

Research Translation

6. Innovation Management and Technology Transfer
7. Informatics and Knowledge Management
8. Research Translation
9. Stakeholder Management



BUSINESS MODEL



Building a healthy nation through research

INPUTS

ACTIVITIES

OUTPUTS

OUTCOMES

- Funding
 - Government
 - External
- Intellectual Capital
- Knowledge

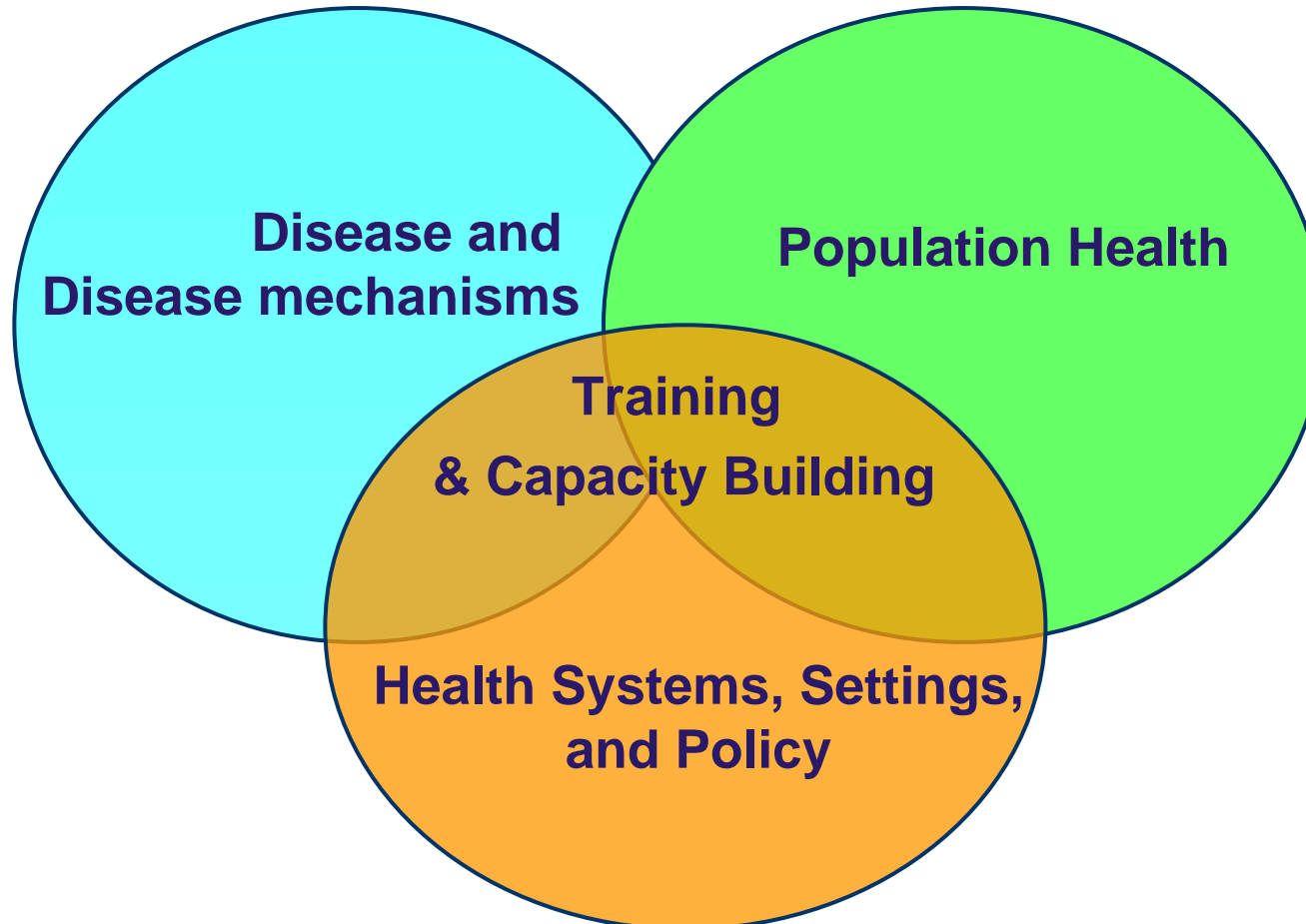
- Research
- Development
- Research Translation
- Technology Transfer
- Research Support

- Knowledge
- Publications
- Technical reports
- Policy briefs
- Patents
- Policy
- Products
- New ventures

- ↑ Health
- ↑ Quality of life
- Career development
- Capacity development
- Economic development
- Social upliftment

IMPACTING

the lives of 48 million South Africans



(Illustrates integration, connectedness and complementarity of research strategies to tackle health challenges)



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HIV and AIDS

South African AIDS Vaccine Initiative (SAAVI)
HIV Prevention Research Unit

Tuberculosis

Clinical and Biomedical Tuberculosis Research Unit
Tuberculosis Epidemiology and Intervention Research Unit
Centre for Molecular and Cellular Biology
Molecular Mycobacteriology Research Unit

Infectious Disease

Diarrhoeal Pathogens Research Unit
Immunology of Infectious Disease Research Unit
Inflammation and Immunity Research Unit
Malaria Research Lead Programme
Respiratory and Meningeal Pathogens Research Unit

Cardiovascular Disease and Diabetes

Chronic Diseases of Lifestyle Research Unit
Diabetes Research Group
Diabetes Discovery Platform
Interuniversity Cape Heart Research Group
Exercise Science and Sports Medicine Research Unit

Crime, Violence and Injury

Crime, Violence and Injury Lead Programme

Cancer

Cancer Epidemiology Research Group
PROMEC Unit
Oesophageal Cancer Research Group
Oncology Research Unit

Health Promotion

Alcohol and Drug Abuse Research Unit
Health Promotion Research and Development Research Unit



Public Health

Biostatistics Unit
Burden of Disease Research Unit
Cochrane Centre
Health Policy Research Unit
Health Systems Research Unit
Rural Public Health and Health Transition Research Unit

Genomics and Proteomics

Bioinformatics Capacity Development Research Unit
Bone Research Unit
Human Genetics Research Unit
Human Genomic Diversity and Disease Research Unit
Receptor Biology Research Group

Women, Maternal and Child Health

Gender and Health Research Unit
Maternal and Infant Health Care Strategies Research Unit
Mineral Metabolism Research Unit

Nutrition

Nutritional Intervention Research Unit

Environment and Health

Environment and Health Research Unit

Brain and Behaviour

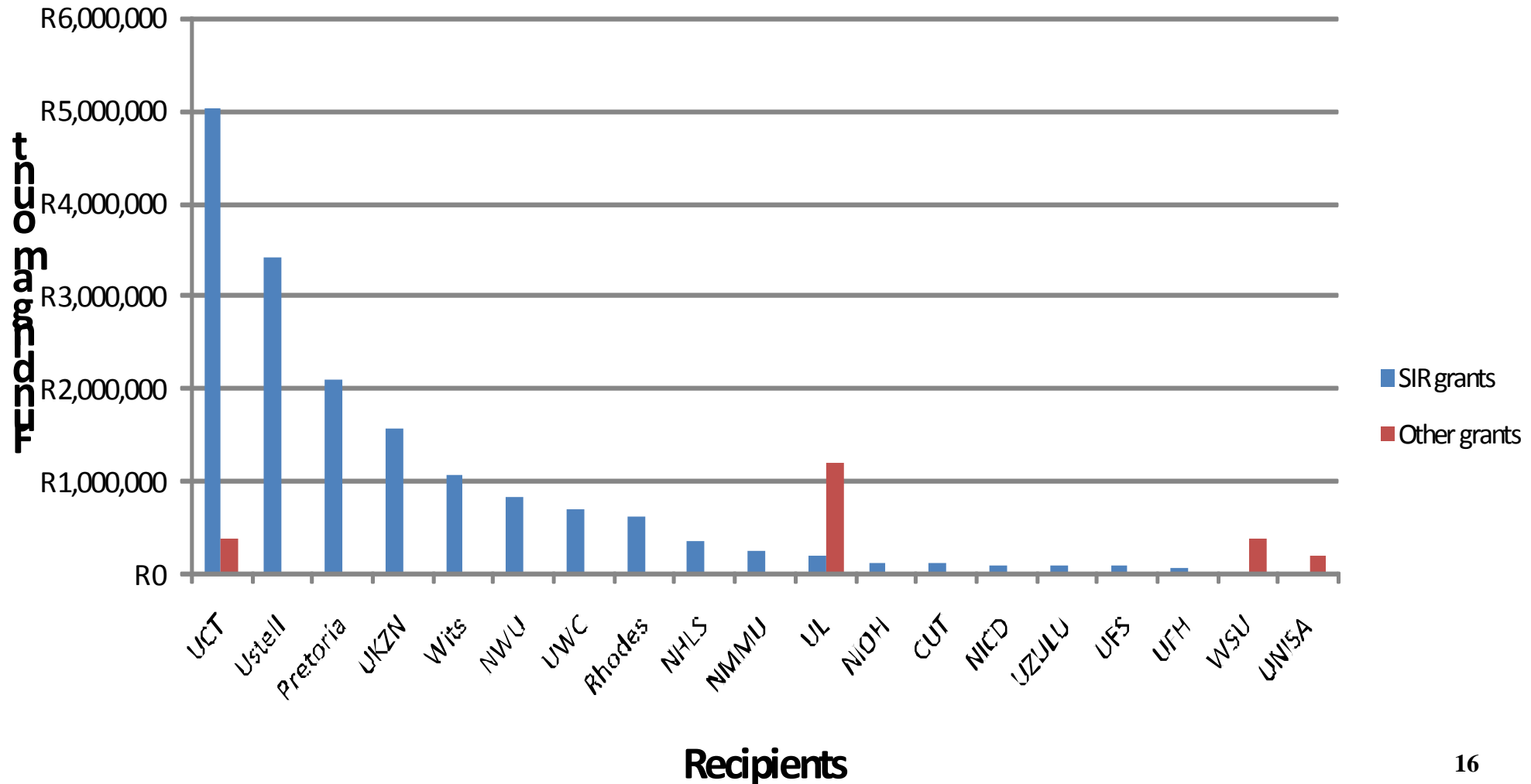
Medical Imaging Research Unit
Anxiety and Stress Disorders Research Unit

African Traditional Medicines

Drug Discovery and Development Research Unit
Indigenous Knowledge Systems



MRC Grants 2010



RESEARCH CAPACITY DEVELOPMENT

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Individual

**MSc; PhD;
Postdoctoral;
Career Awards;
Nurses and Allied
Health
Professionals**

**Post-MBChB &
BChD; Senior
clinicians**

Institution

**Self Initiated
Research
Funding**

**Development
Grants**

**Grant Proposal
Writing &
Scientific Writing**

MRC Units

**Grant funding
to conduct
research**

**Support for
postgraduate
scholarships**

**Conference
attendance &
technical
assistance**

MRC

**Staff
development
grants**

**Management
training**

**Training in
research
Methodologies**



Demographic Profile of Intramural Scientists at the MRC in March 2010

	No.	A	C	I	W	M:F	%F
All Scientists	203	73 (36%)	19 (9%)	41 (20%)	70 (34%)	60:143	70%
Senior Scientists	145	39 (27%)	11 (8%)	31 (21%)	64 (44%)	49:96	66%
Junior Scientists	58	34 (59%)	8 (14%)	10 (17%)	6 (10%)	11:47	81%
Unit Directors	17	1 (6%)	1 (6%)	5 (29%)	10 (59%)	10:7	41%



		% BLACK			
		1997	2008/9	Current SA EE Statistics	2009 Targets
Executive Management	Level 1	25.0	80	22	80
Senior Management	Level 1	13.0	42	27	52
Middle Management	Level 2	15.0	58	37	55
Junior Management	Level 3	42.4	87	58	66
Semi-skilled	Level 4	55.5	98	83	79
Unskilled	Level 5	95.2	99	90	99

817 personnel : in the next 3 – 5 years the MRC expects more black and women scientists to be brought into the research process at the doctoral and postdoctoral level :

- 66% of managers and researchers are black (184/280)
- 28% of managers and researchers are Black African (77/280)
- 66% of managers and researchers are female (184/280)

Occupational Levels	Male				Female				Foreign Nationals		Total
	A	C	I	W	A	C	I	W	Male	Female	
Top management	3 60%	0	1 20%	0	0	0	0	1 20%	0	0	5
Senior management	4 6%	3 4.5%	5 7.5%	20 29.9%	4 6%	7 10.4%	3 4.5%	20 29.9%	1 1.5%	0	67
Prof qualified specialists and mid-management	12 7.8%	7 4.5%	7 4.5%	17 11.0%	27 17.5%	13 8.4%	26 16.9%	37 24.0%	5 3.2%	3 1.9%	154
Skilled junior management	41 10.7%	27 7.0%	13 3.4%	16 4.2%	123 3.2%	63 16.4%	52 13.5%	40 10.4%	4 1.0%	5 1.3%	384
Semi-skilled and discretionary decision making	39 21.4%	11 6.0%	3 1.6%	0	96 52.7%	20 11.0%	8 4.4%	3 1.6%	1 0.5%	1 0.5%	182
Unskilled and defined decision making	19 27.1%	12 17.1%	5 7.1%	1 1.4%	18 25.7%	12 17.1%	3 4.3%	0	0	0	70
TOTAL	118 13.7%	60 7.0%	34 3.9%	54 6.3%	268 31.0%	115 13.3%	92 10.7%	101 11.7%	11 1.3%	9 1.0%	862



		% FEMALE			
		1997	2008/9	Current SA EE Statistics	2009 Targets
Executive Management	Level 1	12.5	20	21	20
Senior Management	Level 1	22.0	48	27	38
Middle Management	Level 2	53.8	68	36	57
Junior Management	Level 3	74.3	75	36	76
Semi-skilled	Level 4	79.4	70	33	69
Unskilled	Level 5	47.6	46	29	54

Historically the MRC relied mainly on government to fund its activities.

With the dawn of democracy in 1994 international acceptance and recognition opened up other avenues for **alternative sources of funding**.

MRC funding has been linked to its growth and expanding international reputation with a budget growing from :

- * **R53 million** in 1994 (90% of which came from the parliamentary grant) to
- * **R536 million** in 2009 (with 42% coming from the parliamentary grant)

Following a SETI Review recommendation in 1997, Government doubled the parliamentary grant between 1998 and 2002.

There has been strong growth in external income from competitive contracts and grants in the past 15 years.



Source of income Rand, thousands	2006/07	2007/08	2008/09	2009/2010	2010/2011
Baseline Grant	157 284	180 222	196 227	221 850	237 288
Year-by-year Increment	2%	15%	9%	13%	7%
Contracts and Grants	176 547	237 216	245 937	269 191	279 006
Overhead, interest, income etc	18 233	39 585	29 700	35 871	43 706
Total	352 064	457 023	471 864	526 912	560 000
Year-by-year Increment	5%	30%	3%	12%	6%

Eighty seven per cent of the external income is from competitive grants and contracts from the world's most prestigious health research organisations such as :

- NIH
- CDC
- Global Fund
- UK MRC
- Bill and Melinda Gates Foundation
- European Union
- WHO
- IDRC
- Isituto Superiore di Sanita
- Department of Science and Technology
- NRF

This is testimony to the growing significance of the MRC as one of the premier health research institutions in the developing world



RESEARCH vs. SUPPORT BUDGET

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RESEARCH UNITS AND PLATFORMS

(Rx1000)

Working capital	
Intramural research units	15,261
Platforms - internal	2,056
Extramural research units	22,682
Capacity development	9,265
Extramural - Self initiated grants	15,930
Total salaries	109,407
DELFT ANIMAL FACILITY	
Working Capital	1,500
Total salaries	1,500
PROFESSIONAL SUPPORT	
Working capital	33,705
Total salaries	48,643
	82,348
	259,949



- The balance sheet and the income statement of the MRC indicate that MRC is able to meet its financial obligations, i.e. there are no indications of insolvency.
- MRC remains exposed in respect of the pension fund, to the extent that some of its members are on the defined benefit plan.

Wasteful expenditure

- An amount of was disclosed as wasteful expenditure – is R90 060
- Contingent liability – R261 308
- Even though there is no signed document yet, this matter has been resolved.



KPIs

- **Audit finding is that the KPIs are badly structured**

Audit Report

- **The audit report was unqualified, but pointed out areas of weaknesses in supply chain management.**

Three major areas related to:

A Expenditure below R500 000 (Total R2 785m)

B Expenditure above R500 000 (R6 156m and R2 017m)

Failure to go on tender in respect of items above R500 000.

We have written to Treasury, explaining the context, and we are awaiting the response.



- C PPPF – R212m (Opening balance) and R24m (current year transactions)**
We have run a tender process, and appointed a service provider to put a suppliers database. Part of their provision is a software, which does the PPPF calculation.

- D Finance leases (R 344 542)**
Treasury requires Treasury approval before finances leases can be entered into. A motivation has been written to Treasury, and we are awaiting their response.



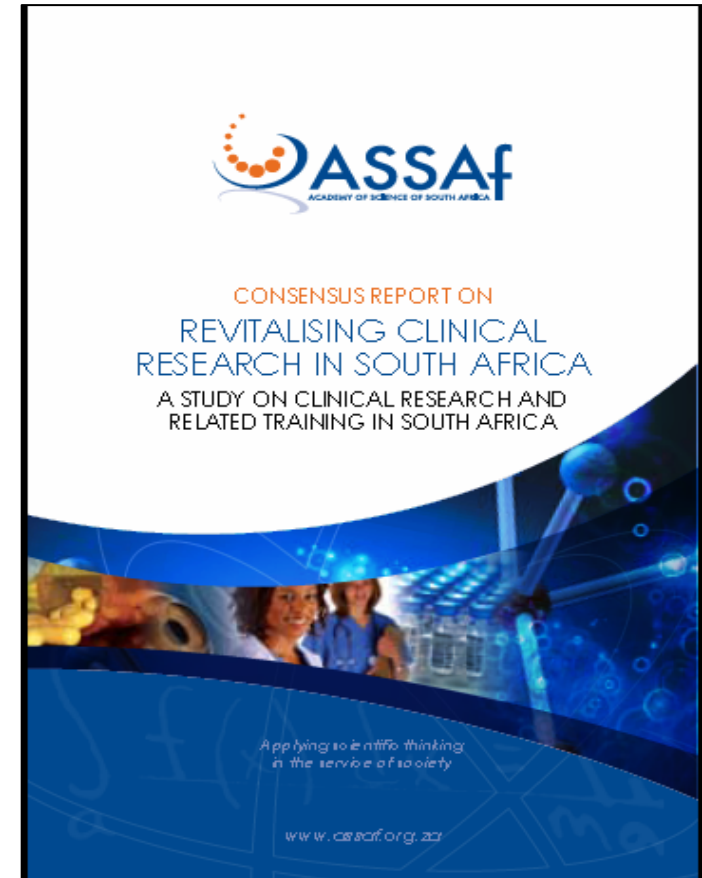
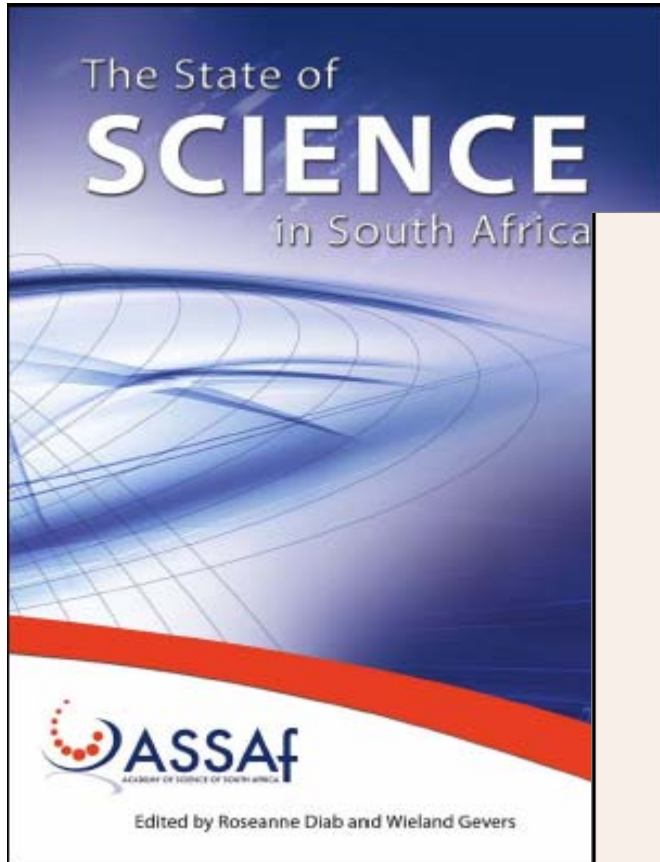
MRC vision : *'building a healthy nation through research'*

Research makes no difference to health unless it is translated

GRIPPPP : **G**etting **R**esearch results **I**nto - **P**olicy
Pactice
Promotion and
Products



Building a healthy nation through research





The Context and Contrast



“A minefield!”



Human faeces





Research Highlights and Research Translation



Rank	CAUSES OF DEATH (BASED ON THE TENTH REVISION, INTERNATIONAL CLASSIFICATION OF DISEASES, 1992)	Number	%
1	Tuberculosis	76 761	12,8
2	Influenza and pneumonia	49 722	8,3
3	Intestinal infectious diseases	37 398	6,2
4	Other forms of heart disease	26 030	4,3
5	Cerebrovascular diseases	25 321	4,2
6	Diabetes mellitus	20 139	3,4
7	Chronic lower respiratory diseases	15 313	2,5
8	Certain disorders involving the immune mechanism	15 253	2,5
9	Human immunodeficiency virus (HIV) disease	13 521	2,2
10	Hypertensive diseases	13 381	2,2
	Other natural causes	254 078	42,3
	Non-natural cause	54 216	9,0
	All causes	601 133	100,0

The Burden of Disease Research Unit

Comparative Risk Assessment Study (2007/08) estimated the burden attributable to selected risk factors, as follows:

1. Unsafe sex/STD	32%
2. Violence	9%
3. Alcohol	7%
4. Tobacco	4%
5. Obesity	3%
6. Underweight	3%
7. Unsafe water	3%
8. High BP	2%
9. Diabetes	2%
10. High cholesterol	1%



- Senior members of the Unit are actively involved in assisting DOH with credible health economics and health systems inputs for the National Health Insurance Policy
- The Unit has a significant impact in research translation into health systems management from local down to the district level, and also through the PRACTIHC Policy project contributes to the understanding of how knowledge is translated into policy.
- The Unit secured a EC project on the promotion of sexual and reproductive health among adolescents. Collaborators are from SA, Tanzania, Uganda, Norway, England and the Netherland.



2008 National Antenatal Sentinel HIV & Syphilis Prevalence Survey

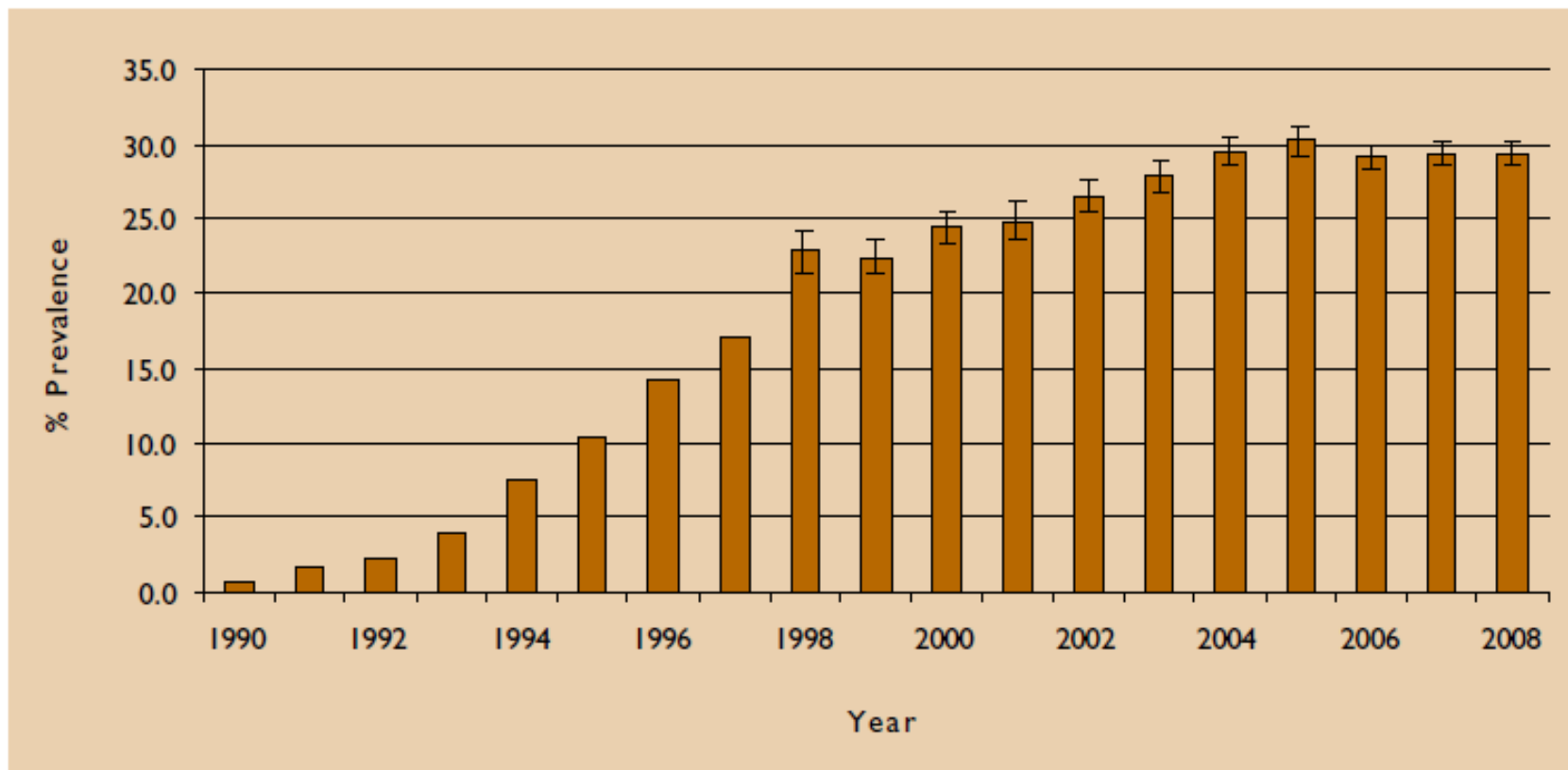


Figure I: HIV prevalence trends among antenatal women, South Africa, 1990 to 2008.



- World Health Organization (WHO) Antiretroviral Therapy Guidelines

The 2009 update of WHO's Guidelines on *Antiretroviral therapy for HIV infection in adults and adolescents*, was based on an appraisal and synthesis of new and emerging evidence. This process included consideration of systematic reviews, GRADE profiles, risk-benefit analyses, technical reports, as well as the findings from impact, feasibility and cost assessments, each contributing to the development of sound global recommendations.

Reviews on *Optimal initiation of ART* and *Interventions for reducing the risk of mother-to-child transmission of HIV* which were incorporated into the *WHO Rapid Advice* and the final approved guidelines will be published later in the year. The review on *Optimal time for initiation of antiretroviral therapy in asymptomatic, HIV-infected, treatment-naive adults* was published in the March 2010 issue of *The Cochrane Library*.



HIV and AIDS



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- Epidemiological data has shown an alarmingly high prevalence of HIV among women in the communities (ranging from 38-47%), with HIV incidence ranging from 5-9%. This pioneering data is the first of its kind among non-pregnant women in the community in KwaZulu-Natal.
- The HIV Prevention Research Unit was an important collaborator in a clinical trial of a vaginal microbicide (PRO2000) that reduced HIV by 30% compared to the placebo – though the result fell just short of statistical significance.
- A follow up study whose results were released in December 2009 showed that the PRO2000 gel was safe but did not prevent HIV infection in women.



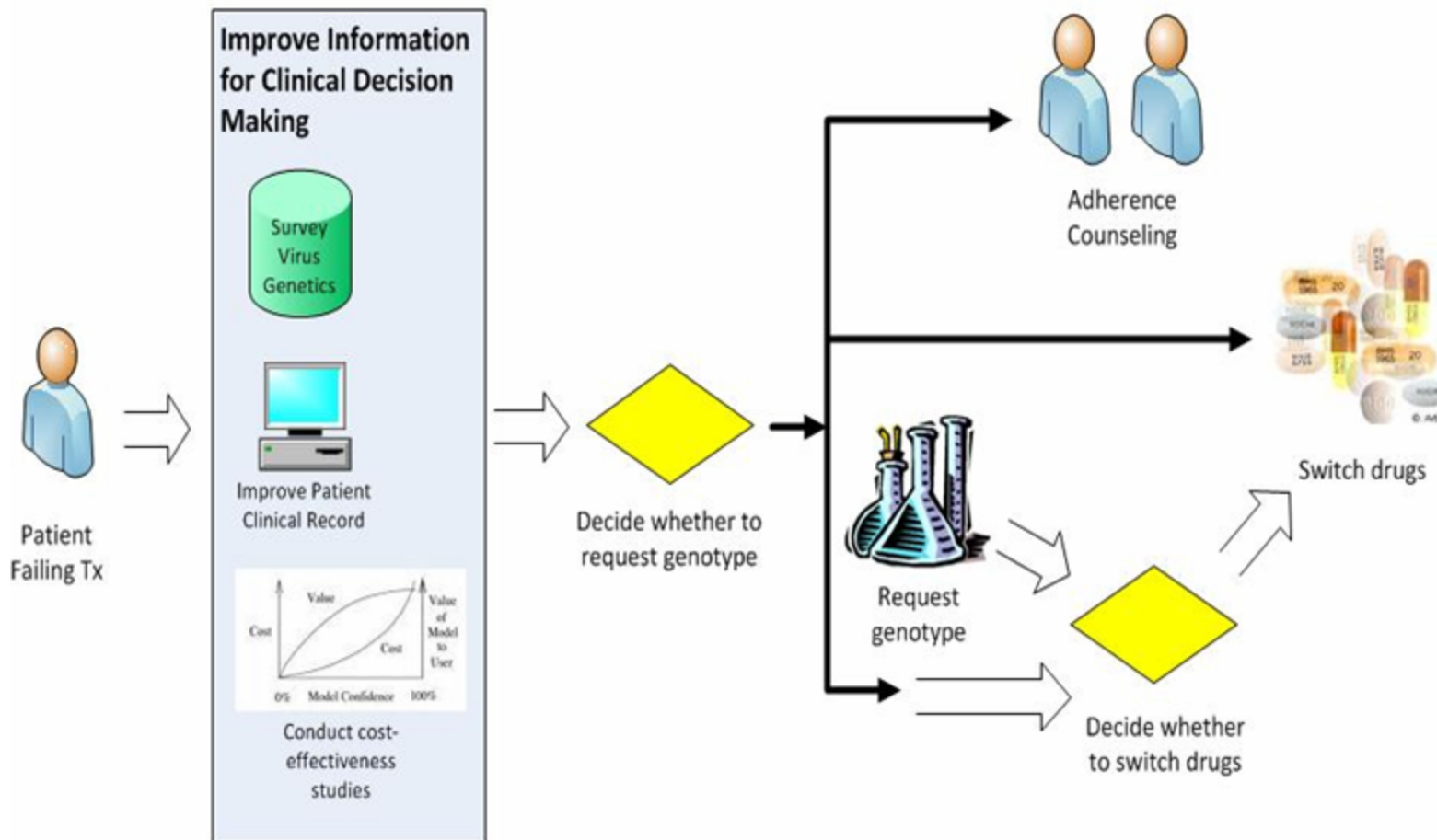
HIV and AIDS



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The Biostatistics Unit have been involved in a series of trials being conducted in the primary care clinics of the Free State. The three trials are: PALSA, PALSA Plus and STRETCH. The aim of these trials was training nurses at this level in the integrated care of lung health diseases, Sexually Transmitted Infections and HIV including the initiation and prescription of ARVs. These are all pragmatic trials evaluating the intervention in the real setting of the daily care in primary care clinics. The training of nurses happens through an outreach training program which does not take away staff from the workplace. Two publications have appeared in 2010 that highlight the benefit of this intervention – the impact on the TB treatment program and the cost effectiveness.

FIRST Project - HIV Antiretroviral Treatment Failure Decision Support in Low-Resource Settings





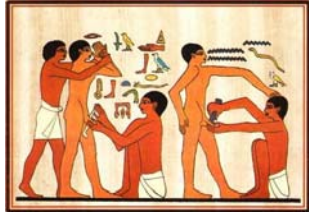
SAAVI'S MANDATE

- **To co-ordinate the research, development and testing of HIV vaccines in South Africa.**
- **SAAVI works with key national and international partners to produce affordable, effective and locally relevant HIV vaccines.**

South African AIDS Vaccine Initiative



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Male circumcision



VCT



Support

**Comprehensive
response to
HIV & AIDS**



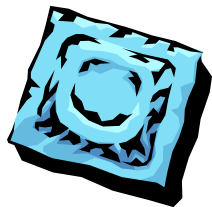
PREP, PEP,
STI treatment



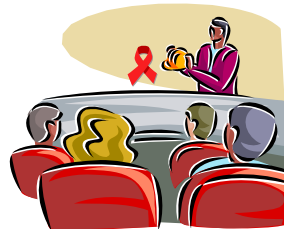
Vaccine research



Care



Male & female condoms



ABC
Prevention



Treatment

Testing the vaccines

- WITS, PHRU
- UCT
- Aurum Health
- CAPRISA
- MEDUNSA
- Walter Sisulu University
- WITS, Agincourt

Community Involvement

- Masikhulisane – SAAVI's Community Involvement Programme

Developing the vaccines

- University of Cape Town
- NICD
- University of KwaZulu-Natal
- University of Limpopo
- MRC Non-human Primate Centre

Data & Bioinformatics

- University of the Western Cape

Behavioural science

MRC Health Promotion Research and Development Unit

Immunology assessment

- National Institute for Communicable Diseases

Ethical issues

- HIV Vaccine Ethics Group – University of KwaZulu-Natal

SAAVI DNA -C2 Vial

Part No.: 4-FF-178 Lot

Vol.: 1.3 mL/vial Sterile

Caution: New Drug - Limited

Use Manufactured on

Althea Technologies, Inc.

South African AIDS Vaccine Initiative



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- SAAVI MVA-C and SAAVI DNA-C2 –phase I human clinical trials.
- The DNA vaccine - University of Cape Town and manufactured by Althea Technologies in the USA.
- The MVA vaccine was conceptualised by the team at the University of Cape Town and developed and manufactured with input from, Therion, and the NIH.
- The vaccines have been in development since 2002 and has been funded by the SAAVI and the NIH.
- The vaccines are specifically targeted at the HIV-1 strain C that accounts for the majority of infections in southern Africa.
- The trial is a phase I trial involving 36 people at two sites in South Africa and 12 people in the USA.
- The trial has been approved by the United States Food and Drug Administration and by the Medicines Control Council in South Africa.
- Trial started in Boston, USA and Cape Town and Johannesburg in SA, end 2008 and July 2009, respectively

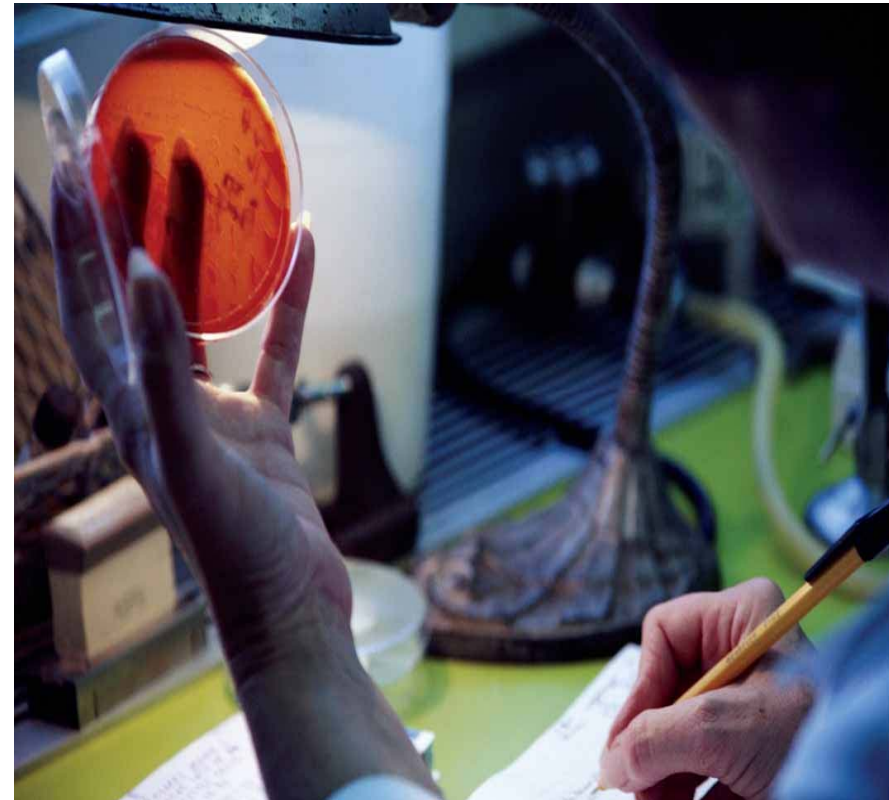
- The overall aim for the SAAVI Directorate in this project is:
 - To maintain the successful coordination, implementation and collaboration of all components of this program, but in particular the “improvement of health service components and clinical trial components”.
- This will be achieved through the following:
 - Goal: To establish and maintain an appropriate organisational structure, management and leadership of the initiative.
 - **This funding will fund activities at 3 trial sites.**
 - **50% of some of SAAVI Directorate and Masikhulisane salaries and operations.**

Tuberculosis



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- **Our TB Units are assisting NDOH with the assessment of the National TB Programme Surveillance System**
- **Also assisted the Eastern Cape DOH in determining the efficacy of the treatment regimen used there.**
- **Dramatically reducing the length of TB regimens from 6 months to 4 months or even a few weeks now seems biologically feasible; and the possibility of eradicating TB from the world in the 21st century is no longer just a pipedream.**





- Community health risk reduction through successful intervention involving knowledge transfer to subsistence farmers in Centane magisterial district in the Eastern Cape.
- Early proof of inhibitory effects of certain herbal teas on papilloma growth indicating possible reduced tumor growth applications in oesophageal cancer.





- The outcome of a five-year vaccine trial conducted in Soweto with 39 876 children showed that the 9-valent pneumococcal conjugate vaccine reduced the burden of invasive disease due to vaccine serotypes by 85% and was also shown to be effective in HIV-infected children
- Profs Klugman and Madhi contributed to the WHO guidelines for the treatment of pneumonia in HIV-infected children. These episodes were prevented by administration of pneumococcal conjugate vaccine
- The National Department of Health introduced pneumococcal conjugate vaccine and rotavirus vaccine into the Expanded Programme on Immunisation for children in 2009

Malaria



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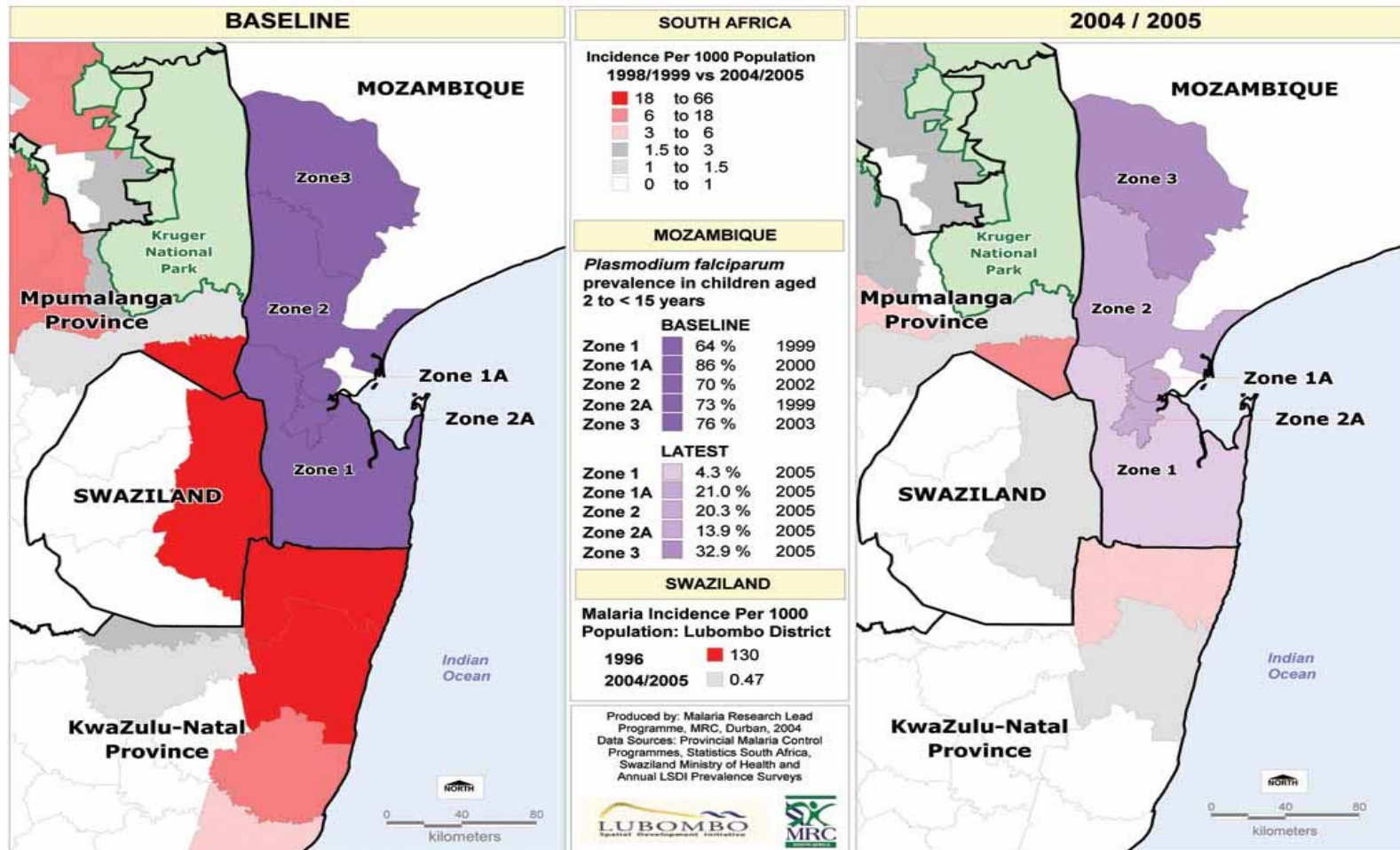


- **A decade of work by the the MRC Malaria Research Unit and its partners in the Lubombo Spatial Development Initiative (LSDI) has resulted in malaria incidence declining in KwaZulu-Natal and Mpumalanga by 99% compared to the baseline of 2000**
- **SADC Ministers of Health have endorsed implementing the LSDI model in the Trans-Zambezi Malaria Control Initiative involving Angola, Botswana, Namibia, Zambia and Zimbabwe, as well as in the Trans-Kunene Initiative involving Angola and Namibia**
- **MARA: Mapping antimalarial drug-resistance in Africa**
- **Malaria Research Unit has influenced changes in WHO global malaria control policy**
- **MRC President was a member of an expert group convened by the Global Alliance for Vaccines and Immunisation (GAVI) to examine the use of Advanced Market Commitments (AMC) to fund drug and vaccine development and supply to low income countries**

Malaria



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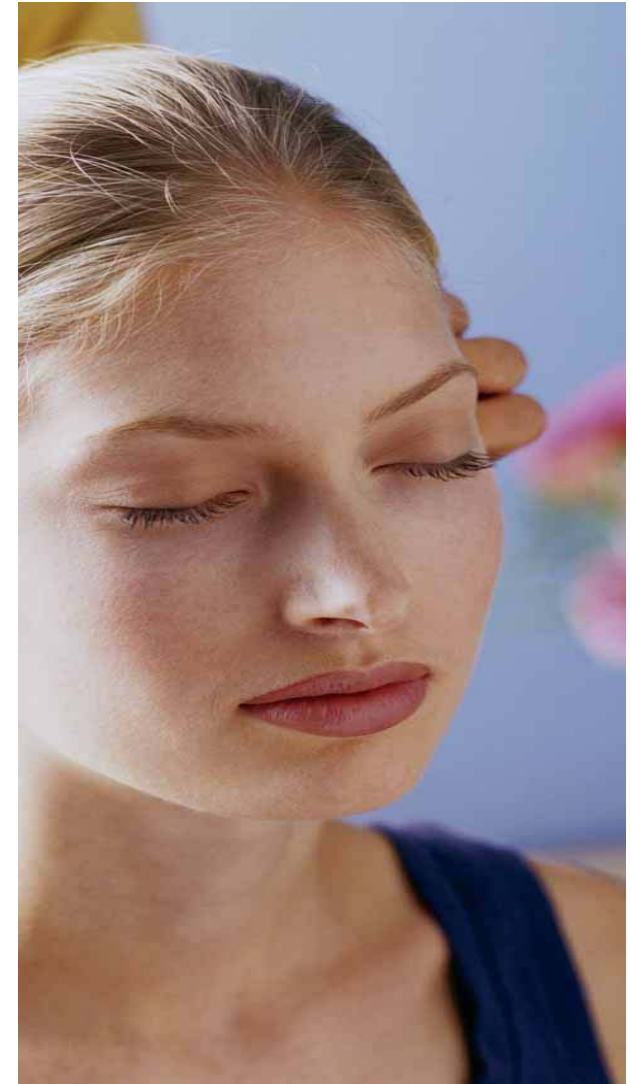


Women's Health



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- **Study of rape perpetration, partner violence and their intersections with HIV**
- **Strengthening responses to sexual assault in the African region**
- **The Unit developed and evaluated the national curriculum for training health professionals (doctors and nurses) in post-rape care**



- **The World Health Organisation (WHO) co-sponsored a technical meeting hosted by the Alcohol and Drug Abuse Research Unit (ADARU) in Cape Town to review evidence relating to the linkages between alcohol consumption and selected infectious diseases and examine potential causal impacts of alcohol use on both the incidence and course of HIV/AIDS and TB**
- **HIV prevention intervention in substance-abusing resulted in increased condom use, reduced alcohol and drug use.**
- **Over the first eight months of the project, 3221 drug users were reached through initiatives that promote HIV and AIDS prevention and address drug risk behaviours and 474 received VCT and their results.**



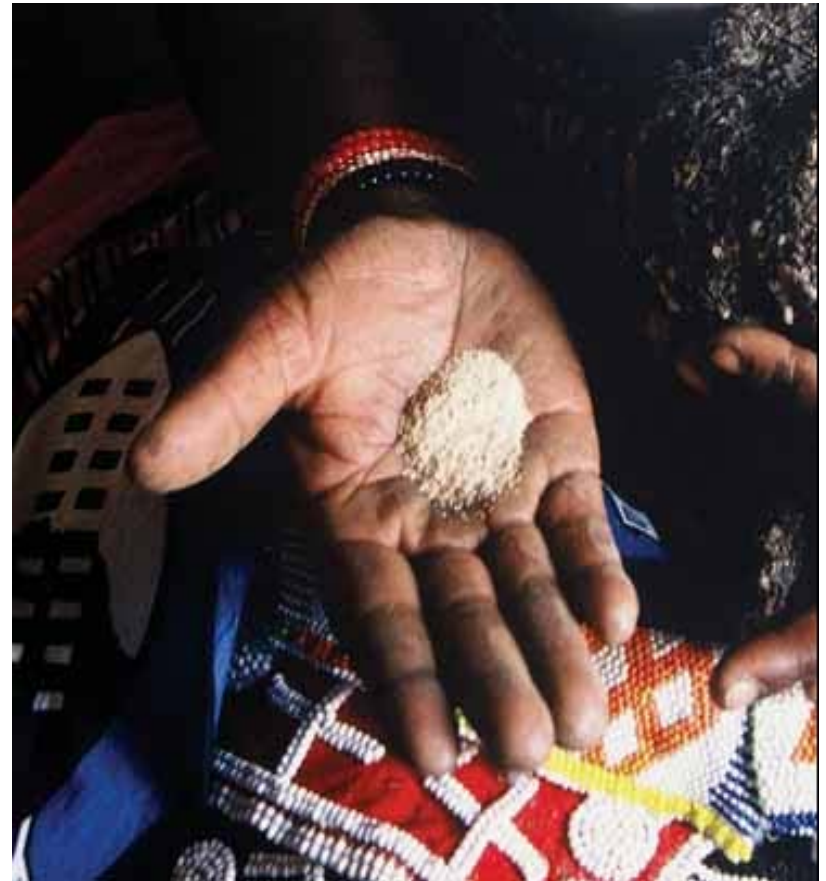
Nutrition

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- Results from a study in a Northern Cape pre-school community have shown that despite a low socio-economic status and a high prevalence of stunting and underweight, vitamin A deficiency was virtually absent in this community
- The Unit contributed substantially to the body of scientific knowledge on nutrition, both nationally and internationally, influencing health policy, public awareness and directly and indirectly public health
- Condensed Food Composition Tables



- Drug Discovery and Development Research Unit – antimalarial activity *in vitro* of curcumin can be further improved by rationally-designed chemical modifications. Curcumin is a major component of turmeric spices used in food.
- Indigenous Knowledge Systems Research Lead Programme - Mutagenicity and antimutagenicity studies of selected traditional medicines were completed
- IKS has also completed *in vitro* and *in vivo* drug metabolizing studies using major cytochrome P450 metabolizing enzymes



Telemedicine



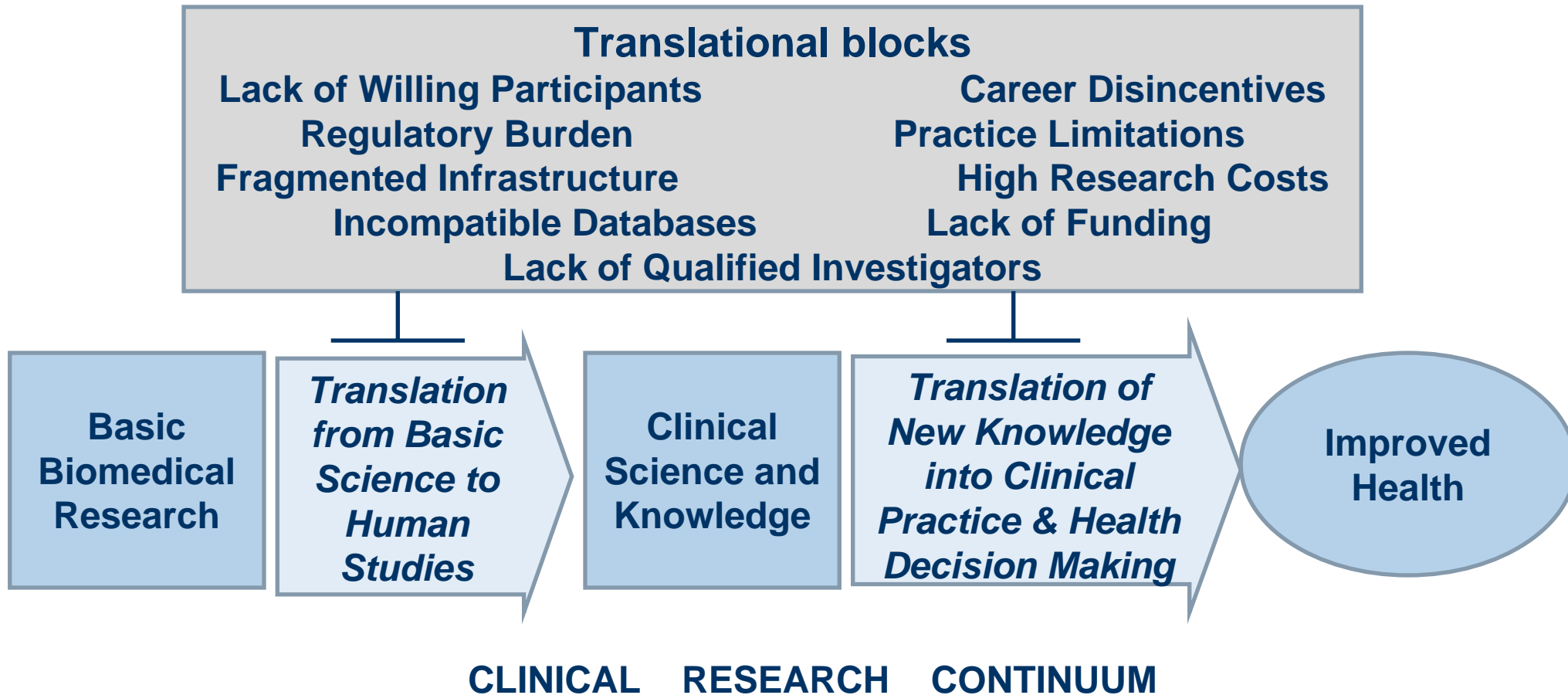
Building a healthy nation through research



- The development of the necessary regulatory, policy, funding, support and coordination framework in which to empower the triple-helix to develop Telemedicine as a viable means for Healthcare in South Africa

- Research and promote drivers for rapid Telemedicine adoption in the Health Sector; and

- Research and development of decision support systems, metrics and business cases indicating the segments of National Healthcare where Telemedicine should be encouraged and developed.



Conclusion



Building a healthy nation through research

- **The MRC continues to grow from strength to strength in terms of the depth and breadth of its research portfolio**
- **Increase in research publication outputs over the twelve-month period**
- **Growth in the external income of the organisation**
- **Increasing numbers of black and female scientists at doctoral and postdoctoral level**
- **Translation of research results into policy, practice, products and health promotion**
- **The MRC moves into the future confident that it can deliver on its mandate of using research, development and technology transfer to provide new health solutions for improving the health and quality of life of all South Africans**

CHALLENGES



Building a healthy nation through research

- **Appointment of the new MRC President**
- **Drafting 2010 -2015 Strategic Plan**
- **Appointment of new MRC Board**
- **Attracting continued funding for research**
- **Translating research findings into practice**
- **Supporting the NDOH in reaching its goals**

Kealeboga

Building a healthy nation through research

Ngiyabonga

Inkomo

Enkosi

Retoleboga

Thank you!

Dankie





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