REVITALISING THE MRC

Current state of the organisation

&

A proposal for the way forward

REPORT PREPARED BY:

PROFESSOR SALIM S. ABDOOL KARIM,

PRESIDENT OF THE MRC

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MRC SOUTH AFRICA

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AT THE SOUTH AFRICAN MEDICAL RESEARCH COUNCIL

BUILDING A HEALTHY NATION THROUGH RESEARCH

Revitalising the MRC:

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Note: the words "medical research" are used in keeping with the legal name of the organisation, but are defined to include all forms of health research, including socio-behavioural research, public health research, clinical research, basic laboratory research and operational research. The words "health research" are more inclusive and could readily be substituted wherever medical research appears in the text.

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1. BACKGROUND

1.1 A brief history of the MRC

The South African Medical Research Council (MRC) was established in 1969, in terms of the MRC Acts (19 of 1969 and 58 of 1991). The organisation's most important functions were 'to promote the improvement of the health and the quality of life of the population of the Republic' by performing 'research, development and technology transfer'. The Act further stipulates that the MRC will be accountable to a Board, the members of which are appointed by the Minister of Health. Creating a separate medical research organisation (medical research was performed by the CSIR at that time) by establishing the MRC was a landmark in the field of scientific research in South Africa.

There were initially three structural levels of research: units, groups and institutes.

1. The MRC provided long-term support for research units that were built around outstanding scientists on their topics of interest. These units were to be set up for an initial period of seven years, although on review, this term could be extended or the unit be disbanded.
2. Research groups would mainly operate within a hospital and were to be funded for up to five years. They were established only under certain circumstances, for example, where a particular field of research needed to be accelerated, or where there appeared to be a lack of support for research development into a particular subject.
3. The function of research units was to carry out work of a 'permanent nature' of 'national importance'. Unlike research units and groups, institutes were completely under the MRC's control. The only institute that was incorporated into the MRC in its first year was the National Research Institute for Nutritional Disease.

This decision to incorporate the Nutritional Disease Institute into the MRC led to the first intramural activities involving researchers employed and hosted by the MRC, which opened the way to a number of other units being created. The intramural programme expanded over the years and was mainly devoted to public health research. This programme now dominates the MRC's organisational model and is a major aspect of the MRC's research activities.

Since its inception, the MRC has made a number of laudable achievements. These include:

- developing and sustaining a solid health research infrastructure and a culture of quality research in a developing country
- successfully integrating public health research with basic and clinical research as a major factor in a dominantly biomedical-oriented environment
- highlighting the need for health systems research.

Additionally, the work of the MRC has made a significant impact on public health. The MRC's research findings in a range of areas have contributed to the establishment and subsequent improvements in public health surveillance, especially regarding malaria, TB, HIV, alcohol and substance abuse, gender-based violence, nutrition, cancer, injuries and death. One of the biggest achievements of the MRC was its research on smoking that resulted in major policy changes.

In November 1997, the MRC was reviewed by an international panel as part of the national review of the country's science and technology system, commissioned by the Department of Arts, Culture, Science and Technology (DACST) – the SETI Review. The Review reported that during the previous three years, the MRC had undergone significant transformation 'in line with the national objectives of the new South Africa'. The Review Panel stressed the importance of the MRC remaining an autonomous body 'directly accountable to the people of South Africa through the Department of Health'. The Panel also recommended a substantial increase in the MRC's budget and placing more emphasis on priority-driven research. The need for increased funding was also stressed, and the finding of the panel was that 'the Medical Research Council is "a national asset", which is being successfully transformed to discharge its responsibilities and functions'.

1.2 The 2010 SETI review of the MRC

Thirteen years later, in 2010, another SETI Review was conducted. The review was conducted at a critical time when a number of key decisions had to be made in relation to the MRC. A new Board and a new President had to be appointed, amendments to the MRC Act were expected to be put before Parliament in 2011, and a Strategic Plan for the period 2010–2015 had to be developed. Some of the key findings of the Review are summarised below.

Declining scientific stature of the MRC

The Panel noted that, unfortunately, the reputation of the MRC has declined in recent years. The MRC now suffers from the outside perception that its grants are pitifully small and not worth the considerable time and effort involved in applying for, and reporting on. The MRC is no longer viewed as a frontrunner within the wider medical research environment, locally and abroad.

Declining extramural support at the expense of the MRC's intramural research

The Panel noted that the MRC now has a large intramural component, with some having grown out of the earlier transplant of the Nutritional Diseases Institute to the MRC, and others have been more recently initiated. The MRC's extramural programme has kept its essential character, covering a wide range of fields. However, because of the budgetary pressures emanating from the intramural units, most of the enabling support previously provided in the form of formal posts and equipment, especially to the extramural units, has been progressively reduced to 'seed funding' for operational costs, short-term assistantships and minor equipment. In the early 1990s, a typical extramural MRC-University Research Unit was awarded between three and six fully funded, university-administered senior and other research posts, major equipment and generous operating funds, often constituting the majority of the unit's total funding. In 2010, this had been reduced to funding for one or two assistantships, minor equipment and some operating funds, covering 10–20% of its total research activities. So, the main benefit to Unit Directors now is limited to 'MRC unit branding'. Since host universities of extramural MRC units provide the infrastructure and backing in the form of financial, human resource, library/information and other services, the overall cost per unit to the MRC of the extramural programme is much smaller than that of its intramural programme i.e. extramural units provide more research output for each MRC rand.

Inappropriate positioning of the MRC in the National System of Innovation

The Review Panel expressed concern that the National Department of Health (NDOH) had so far only been able to express a limited interest in the MRC and had not performed many of

the necessary stewardship functions to the best of their ability. Hence, the Panel questioned whether the NDOH is the most appropriate sole reporting body for the MRC and recommended a change to bring the MRC within the mainstream of the National System of Innovation by making the MRC's line of reporting to the Department of Science & Technology.

Governance deficiencies

At the time of writing the Review, under the previous Board, the Panel found that the Board was failing to fulfil its key functions adequately. The agenda of the Board were often crowded with fiduciary matters that needed urgent or constant attention and this seriously reduced the time that the Board had available to discuss the core business of the MRC, that is, its contribution to the country's health research. The Panel noted that while the Board complied with many of the required provisions of the Act, it did not seem to have a 'shareholder compact' with the Minister of Health, nor a Board 'charter' setting out its responsibilities. There was also no Board Secretary, which made it difficult to resolve issues concerning the correct minuting of Board decisions, conflicts of interest, and Board operations generally.

Operational shortcomings within the MRC

A key finding of the SETI Review was that the executive management of the MRC had been unwilling or unable to properly implement the 'MRC unit system'. This brought increasing pressure on the support services, and has also prevented the renewal and restructuring of units. Executive management had not been rigorously applying the criteria for establishing or renewing MRC units. This has meant that the MRC now has some poorly conceived units and also some units that are past their 'sell-by date'.

Challenges have been developing at the MRC in respect of operational support provided to the researchers by Finance, Human Resources and Operations. The Review found that finance systems were not designed to enable research. The systems were not easy to use, efficient or transparent. Equally problematic were the Human Resources support functions at the MRC. Several serious administrative problems were also identified during the Review, including the unreliable financial management of grants by the finance support system, loss of potential outstanding grantees, and high administrative demands placed on researchers by support staff.

Outputs and outcomes of the MRC

The Review found that many of the key indicators under 'research translation' reflect impressive outcomes of MRC work in terms of national health benefits. There are national and global impacts of MRC research findings, such as changes in national policies; changes to guidelines or policies in international institutions. Despite this, the National Department of Health has a negative perception of MRC performance and is of the view that the MRC is not providing value for money, and that it is not impacting on policy and practice.

Revitalising clinical research in South Africa

A very small component of the MRC's current research portfolio is dedicated to clinical research, other than in the form of clinical trials for infectious disease therapies or population-based socio-behavioural studies. This was viewed as a significant shortcoming as the ASSAf report highlighted the decline in clinical research under the current MRC's watch.

Benchmarking the South African MRC against foreign exemplars

The Review Panel compared the MRC against similar institutions elsewhere, in countries with differing degrees of development (UK, India and Kenya). Below are some of the key findings that were common to all the institutions:

- There is a broad similarity in the way in which the research institutions are governed and advised, and support extramural research. All but the Kenyan consortium also have extensive intramural activities. The complexity and scope of each system is roughly proportional to the 'development status' of the country concerned.
- Governance at the top level tends to be multi-stakeholder, including government, business and health service representatives, as well as various senior health-science experts.
- National burdens of disease and health-risk assessments are at the forefront in research priority-setting.

1.3 Recent external opinions of planning and operational challenges in the MRC

Following the 2010 SETI review, the MRC developed a new 3-year Strategic Plan for the period 2011–2013. Following the review of this strategic plan by the National Department of Health and the National Health Research Committee, this plan was rejected by the Department of Health. In its response to the report, the Department of Health said that the Strategic Plan 'fails to show how the MRC will change its work to address the national imperatives of increasing life expectancy, decreasing maternal and child mortality rates, combating HIV and AIDS and STIs, and decreasing the burden of disease from TB; and strengthening health system effectiveness'. The response outlines in detail a number of major flaws in the Plan that led to its rejection. Subsequently, a new MRC Strategic Plan for 2012/13–2016/17 was drawn up and this has been accepted by the Department of Health.

An operational challenge in the MRC is outlined in the Auditor-General's audit report. While the audit opinion stipulates an unqualified audit, some shortcomings were highlighted around irregular expenditure and inadequacies in financial management.

2. PURPOSE AND METHODS

2.1 Purpose

The overall purpose of this report is to provide an assessment of the MRC and specifically to:

- describe the organisational state of the MRC
- identify the MRC's strengths and weaknesses
- assess whether the MRC is currently well positioned to address the country's health research priorities

This assessment was undertaken to provide the essential information and lay the basis for a strategy for the MRC going forward.

2.2 Methods

In compiling this report, a detailed review of a number of documents was conducted, comprising:

- MRC Annual Report 2010/2011
- 2010 External SETI Review of the MRC
- MRC audit report 2010/2011
- 2011 National Health Research Summit Report
- Report to South Africa Medical Research Council on *BIAS FREE* Framework Workshops for MRC Staff and Interns

Meetings were held with the staff of each of the MRC units / departments; the full schedules of which are provided in Appendix A. All the staff from each MRC unit / department were invited to meet with the President of the MRC. In addition, the President of the MRC visited some universities to meet with extramural MRC Directors (Appendix A).

Each meeting followed a similar format and structure. Following individual introductions to staff members, the MRC President asked those attending what they thought the MRC stood for. They were also given the opportunity to express what they felt were the successes, problems and challenges of the organisation. Their opinions and perceptions of research outputs that should be expected from the organisation's senior researchers were also canvassed. Finally, they were asked to volunteer suggestions of what should be changed in the MRC. A synopsis of the discussions during these meetings is provided in the units' reports in Appendix B (Note: these are not minutes or a consensus view of the discussions at the meetings – they are the notetaker's summary of these discussions).

The Head of each unit / department was requested to produce a report on specified areas, including staff complement, budget information and publications (Appendix B). These reports provided the data for the analyses of publications and research productivity, as well as staff and financial status.

An initial preliminary report following initial consultations with the staff, which was prepared by the MRC President, was not accepted by the MRC Board in May 2012; the Board recommended instead that the staff and key stakeholders be consulted. These consultations were undertaken in June and July as follows:

Step 1: The Blue Report was produced in early June focusing only on the state of the organisation

Step 2: The staff were briefed on the Blue Report in each centre and invited to comment either by e-mail or anonymous phone calls by 3 July. A total of 104 responses were received; a summary of these comments is included as Appendix C.

Step 3: Each comment received was reviewed and the report edited as appropriate. This led to the Black Report, which was released on 4 July, and which presented a broader view of the state of the organisation and a new proposal for the way forward

Step 4: The staff were briefed on the Black Report in each centre and invited to comment either by e-mail or anonymous phone calls by 23 July. A total of 69 responses were received

Step 5: The responses were reviewed and the report edited once again to produce a report for consideration by the MRC Board at its meeting on 31 July 2012.

3. THE CURRENT STATE OF THE ORGANISATION

3.1 Pockets of excellence continue to flourish despite challenges

Through a review of the scientific contributions from each unit, a picture emerges of pockets of excellence within the MRC with some world-class scientists who are producing excellent science that is impacting globally and locally on policy and practice. This is particularly so in the domains of surveillance, prevalence of diseases and their risk factors and estimates to guide public health prioritisation and policy making. The Gender and Health Research Unit is a shining example of research excellence in the MRC.

The Gender and Health Research Unit has produced scientifically rigorous national estimates of rape and gender-based violence and have raised the profile of this problem both nationally and internationally though articles in some of the highest impact journals like Science. The 7 senior researchers in this Unit have published 10 first-author articles each year; an average that is higher than 1.4 first-author journal articles per staff member each year in the last 3 years. In terms of articles in high impact journals, the unit has published about 3 per year, more than half of which are first-authored by researchers in the unit. It is noteworthy that this Unit has, in the last 3 years, published 5 papers (2 as first-author) in The Lancet. The unit's external income is about twice their MRC allocation.

The research described above provides just one example of the important research contributions being made by the MRC. Across the board, the MRC's researchers are keen to make a difference and conduct research that will impact positively on health.

This report does not expand further on these pockets of excellence in the MRC as it was prepared to specifically focus on the challenges that need to be addressed. The reader of this report should not take the disproportionate amount of space devoted to the MRC's difficulties to reflect the scale of the problems relative to the successes. Since the MRC's official Annual Report provides a good account of the organisation's achievements, it would be perfunctory to repeat that information here. Hence most of the rest of the findings are focused on the challenges facing the organisation.

3.2a 'Pulling in different directions' – the lack of a common vision

A central theme emanating from the discussions with staff is the loss of the primacy of science and scientific excellence within the organisation. Each group is pulling in a different direction without a clear common understanding of the overall vision and goal of the organisation. The current vision statement adds to some of this confusion as some within the MRC have interpreted it to mean that the MRC must be directly involved in building a healthy nation by service provision and community education rather than through research. More importantly, the administrative departments within the MRC have grown disproportionately and administration dominates the daily tasks of researchers thereby detracting from the research mission.

The essence of the 2010 SETI review findings of declining scientific stature of the MRC, some poorly conceived units and some units that are past their 'sell-by date', declining support for clinical research, disproportionately low allocation to extramural research, governance deficiencies and finance/administrative systems that are not designed to enable research, remain applicable to the MRC today.

3.2b Leadership vacuum

There has been a leadership vacuum within the MRC, the consequences of which have had a significant impact on the way in which the organisation is currently being run. The lack of leadership has led to a failure to establish a common purpose and to confusion as to what the current mission of the organisation is. This confusion and instability has resulted in staff, even those in senior management positions, being unclear whether their actions and contributions are being appreciated and supported. The lack of leadership was a common area of concern among all units within the MRC. This problem manifested in multiple ways (note: direct quotations from staff during the meetings are shown in inverted commas):

- 'There is no cohesion and no common vision'
- 'You cannot get a decision'
- 'Everyone seems to be running the organisation.'
- A number of units are uncertain about their future and direction as they have been without a director for some time.
- A number of units are also uncertain about the way that they fit into the structure and function of the MRC, because of a lack of direction and support.
- There is a widely held opinion that there is a lack of communication between the Board, EMC and staff.
- 'We do not have representation at EMC'. Scientists feel that this is part of the reason why the organisation has become too concerned with administration instead of focusing on research.
- 'We need inspired leadership to become a successful organisation.'

Another consequence of the lack of leadership is a lack of clarity around lines of reporting, with many of the units unsure of whom they are supposed to be reporting to. 'That's a good question' was the response when some units were asked who they reported to. This lack of direction has resulted in units developing and following their own direction and 'doing their own thing'.

In the context of the leadership vacuum within the MRC, research seems to have been relegated to lower priority and excellence through leading high-quality, high-impact science is the exception rather than the norm. With several research leadership positions being vacant, several research units and research support departments have become dysfunctional. Overall, the organisation is not adequately focused on the highest priorities in the country, its decision-making is too centralised, its funding mechanisms have not kept pace with global trends and has not adequately addressed research that develops new interventions, technologies and approaches to control South Africa's biggest health problems.

3.2c Erosion of staff confidence in the MRC's management

The relationship between staff and management in the current MRC is one beset by a lack of trust and confidence due, in some instances, to miscommunication. Some examples highlight this challenge.

Backdating of promotions:
One example of the breakdown in trust in management is the circumstances surrounding staff promotions in 2011. In 3 separate notices to staff, management made it clear that promotions will be backdated to 1 April. However, when the delayed promotions process was completed in November 2011, those who were promoted were informed that their promotions were backdated only to August 2011. The reason for this change, which was not adequately communicated to those who were promoted, was that the MRC budget allocated for promotions was inadequate for the funds needed to backdate the promotions to April 2011. The shortage in the budget stemmed from there being more promotions than anticipated in 2011. As a result, management made a decision, based on a precedent several years earlier, to backdate promotions only up a point (August) where the budgeted funds were available.

The amounts paid to staff as annual performance bonuses:
Perhaps the deepest festering open wound in the organisation is the sensitive issue of bonuses. The current performance management policy was approved by the MRC Board in 2007. The document provides in great detail how the performance system will be implemented but contains no guidance on the bonus. Each year, going as far back as 2004, a bonus guideline document was developed as a management tool to guide payment of bonuses. The guideline document varies from year-to-year but contains the clause that bonuses are dependent on availability of funds and includes provision for re-directing research grant 'profits' towards the cost of the bonuses (referred to 'top-up').

The bonus guideline document stipulates a set of percentages to pay for a performance score ranging from 3.0 to 5.0. In some years, these percentages have been much higher than would be expected, while in other years, the percentages were substantially lower. In 2010, management decided not to pay the percentages based on the previous years - resulting in a staff petition. The newly appointed Board made a decision in relation to 2010 bonuses, noting their concerns that the bonus levels are high for a public entity. The Board also noted that the national government and provinces usually set bonuses at about 1.5% of the salary budget, while the MRC was paying out up to 7.9% of the salary budget in bonuses. The Board made it clear that the practice of 'top-up' should not be allowed in future and that management should address the 2011 bonuses pro-actively with a policy which should be submitted to the Board's HR and Remuneration Committee.

While there was an undertaking to address the bonus issue pro-actively in 2011, some unusual steps followed – a 'bonus policy' was not developed and R3.5million was allocated for bonuses in 2011/2 MRC budget – this amount is just below 2% of the salary budget. It is difficult to understand why funds were allocated for bonuses when the MRC has an overall R43million deficit in the budget. Since the Board had already previously decided to reject, after due consideration, the 'top-up' practice, this left a total of R3.5million available for 2011 bonuses, substantially less than the amount paid in 2010. As a result only a fraction of the previous year's bonuses were paid to staff in 2011. This matter has caused great angst among staff who were deeply disappointed that management and the Board did not provide them with bonuses at the level of those received in 2010.

It is noteworthy that bonuses are paid to a large majority of staff since few, if any, get a score below 3.0. Its objective as a means to encourage higher performance is completely undermined by firstly, the modest targets set and secondly, by rewarding someone doing his/her stated job as a performance worthy of a performance bonus. It seems that the

performance scores do not follow a statistically normal distribution around the midpoint score. The vast majority of staff receive scores which suggest high performance – which is hard to understand when, more than half of the senior researchers (rank of senior scientist or higher) in the MRC had not published, in 2011, at least one journal article as lead author, which would in most research organisations be considered the bare minimum research output for senior researchers.

Excellence and going beyond the call of duty does not seem to be routinely needed to get a bonus in the MRC – simply doing the allocated job, or sometimes even less, seems to be adequate. As one staff member said, "mediocrity is the accepted standard." In the organisation, the bonus is the only additional pay to staff to meet their 'crisis commitments' and additional expenses such as holidays, that cannot be covered by their monthly salaries (as the MRC does not provide a separate 13th cheque – instead, a 1/12th fraction of the 13th cheque is included in each of their 12 monthly paychecks).

During the meetings with staff, they openly and consistently expressed how they felt short-changed and deprived of their bonus. At the same time, the Board's expectations regarding the development of a bonus policy during 2011 were not realised. Further, the Board gave detailed consideration to the 'top-up' approach and raised several legitimate concerns to management's request to re-direct research grant funds to bonuses, particularly if these funds were not listed in the approved grant budgets as bonuses. Despite this decision, whose rationale does not seem to be widely understood, there is a widespread support among staff that the 'top-up' should be allowed, even though this would be a questionable use of donor funds budgeted for other purposes being re-directed to bonuses without the permission of the donors. The lack of effective communication and the policy vacuum, in the midst of past practice which paid MRC staff substantially larger bonuses than the public sector, made possible partly through the questionable practice of 'top-up', has resulted in staff resentment of the actions of management and the Board.

Allocation of posts and contract posts:
Several comments were made relating to inconsistent decision-making in relation to the allocation of new posts. There were several comments to the effect that the "criteria and process for obtaining new baseline funded posts are not transparent as some unproductive research units get posts while more productive ones do not". It is unclear how decisions are made to allocate new posts. There is no competitive process where all applications for posts are submitted in response to a deadline for all to be considered and prioritised at once. Instead requests for baseline posts are submitted on an ad-hoc basis to management for a decision. Challenges also exist regarding the payment of acting allowances for posts, the repeated renewal of contracts of staff (some beyond a decade), and career pathing for staff.

3.2d Unclear vision or identifiable legacy

There is a lack of clarity regarding what the MRC is trying to achieve. While the MRC has had several major achievements, it is telling that very few MRC staff could name a single major MRC success – new or old – when asked. They are not even aware of some of the recent high-impact publications. Unfortunately, few could cite the organisation's accomplishments. It is hard for staff to be proud of working for an organisation when they have no idea how the organisation is making a difference and changing the world to make it a better place.

The organisation is being distracted from doing cutting edge relevant research, which should be its main focus. A key distraction is the frustration among staff in their attempts to comply with legislative requirements and administrative procedures. Administrative processes, especially supply chain management processes, have usurped scientific goals as the important and dominant topic of discussion in the organisation. Currently, management is too caught up in the details of administrative compliance, which leaves little time to concentrate on the important task of fostering good science.

Being overburdened with administration was a common complaint amongst the researchers. One of the main issues was with procurement and the supply chain management process. The following are some of the points that were raised:

- 'The focus of the MRC used to be on science, but now after three years of trying to become compliant, the tail is wagging the dog.' 'The support services need to provide more help and support to researchers, for example, Finance could help units prepare the budgets for grant applications.'
- Compliance has placed a huge burden on Unit Directors and unit members, leaving very little time to do actual research. 'The administration processes are preventing us from doing our jobs.'
- The MRC has to comply with legislation, but not all legislation suits a science organisation. 'Relationships between the government and MRC management need to be developed and strengthened in order to help mould the compliance process to suit a science organisation such as the MRC.'
- 'Staff retention is a huge problem. The low salaries mean that once people have been trained, they often go elsewhere in search of better paid positions.'
- 'Also, knowledgeable staff are leaving and are not being replaced. The organisation needs to make way for new people to come in, without losing institutional memory.'
- 'There is a lack of timeous communication from scientists to support services in terms of articulating what they need and when they will need it.'
- One example of the challenges in the way research and support units relate to one another is how Legal Services feel that the other units have an unrealistic view of what they can do in a certain amount of time, and have no real knowledge about the processes and time involved in what they do.
- The following comment describes a common feeling among the units: 'There is so much potential within the unit that we are very excited about, but the administration units are just worried about compliance and this squashes our enthusiasm to develop and grow.'

3.2e Frustrating Procurement and Finance department procedures

Every unit, without exception, complained about the procurement system. Some of the issues and comments raised included the following:

- The procurement system does not allow units to specify which companies they have to use. This is a huge problem for the research units, who often tailor their protocols to specific reagents and equipment.
- There are long delays between placing an order and receiving the goods, which can be disastrous for some units. For example, while the procurement complaint is not unique to the Primate Unit and Delft Animal Centre, they have some very unique issues to deal with, such as feed for animals that cannot wait weeks for an order number. 'There is a "one size fits all" mentality in procurement. There is no flexibility in terms of compliance that takes into account the function of the units.'

- The frustration is entrenched and continuing to grow - 'Procurement will cause me to be on Prozac by the end of the year.'

A number of research units have had the problem of having to change service providers in the middle of a project. This is challenging and counter-productive. The problem seems to be one that stems from the initial process – when the original tender is awarded, there is no provision for the option of extending the provider's services until the project is completed, while new projects are required to utilise the services of the new supplier.

During the meetings with the researchers, there were several complaints that the Finance department is not service orientated, and is inconsiderate and unhelpful. They often do not reply to email queries until second or third requests are sent. Even when this is taken up with the head of department, no apology is given and Finance staff are not questioned as to why queries are not being responded to. Researchers are made to feel that the department is doing them a favour.

3.3a Skewed resource allocations

The MRC receives an annual Government grant for its operations – this is also referred to the baseline grant. This funding is supplemented with substantial funds raised by the MRC's researchers through external grants and contracts. The US government is the single largest funder of the MRC through the NIH and CDC. The baseline grant together with overhead cost recoveries and interest generated comprise the MRC's income for its annual budget. This budget funds the salary and operating costs of intramural research units, provides funding for extramural research and covers the cost of the MRC's administration.

In 2012/13, MRC received a 3% increase on its previous year's allocation. The total amount of the current 2012/13 annual baseline grant allocation is R246 million (note: all numbers are rounded off). However, the MRC's budget for this year is R346 million, ie. R100 million more than the government grant (see table below). This difference is made up by R11 million is from DoH for SAAVI, R19 million is interest earned, R22 million is overhead recoveries from grants and R5 million is sundry income, leaving a shortfall of R43 million, which is being funded by the 'reserves'.

Of the total R346 million in the 2012/13 MRC budget, intramural units received a total budget of R111 million (33% of the total baseline allocation). Of this intramural research budget, approximately R97 million has been allocated to salaries – 87% of the total intramural research budget allocation. The intramural Technology Directorate received R14 million (4%), while the research platforms and funding programmes received R23 million (7%). Compared to the total intramural expenditure of R148 million (43%), the administration budget is R130 million (38%) and the extramural research funding is R67 million (19%). Salaries comprise a major component of the budget:

- Intramural – R97 million of the R111 million spent on salaries (87%)
- Platforms – R11 million of R24 million spent on salaries (46%)
- Technology & Innovation – R10 million of R14 million spent on salaries (71%)
- Administration – R64 million of R130 million spent on salaries (49%)

The table below provides a summary of the current baseline budget.

HIGH-LEVEL BASELINE BUDGET SUMMARY 2012/13	
High-level budget category	**Budget amount**
1. Intramural Research Units	111 359 338
2. MRC grants to universities and other external agencies	66 676 783
3. Research platforms, support and funding programmes	23 918 212
4. Technology & Innovation Directorate	14 193 233
5. Administration	130 042 001
Total baseline budget	**346 189 567**

HIGH-LEVEL BASELINE INCOME SUMMARY 2012/13	
Category	**Budgeted amount**
1. Approved budget 2012/13	344 489 567
2. Additional budget request (SCM)	1 700 000
3. Budgeted deficit	(43 056 567)

BUDGETED BASELINE INCOME 2012/13	
Category	**Budgeted amount**
1. Government grant	245 563 000
2. SAAVI contract	11 000 000
3. Investment income	19 000 000
4. Skills levy recovered	1 070 000
5. Sundry income	4 500 000
6. Overhead recovery from contracts for 2012/13	22 000 000
Total projected income	**303 133 000**
Projected deficit (to be funded from MRC cash reserves)	(43 056 567)

Intramural Research Units	**111 359 338**
Biostatistics	10 056 011
Nutritional Intervention Research Unit	8 926 693
Programme on Mycotoxins and Experimental Carcinogenesis	8 899 933
HIV Prevention Research Unit	7 913 869
Malaria Research Unit	7 655 614
Environment and Health Research Unit	5 440 181
Tuberculosis Epidemiology and Intervention Research Unit	5 389 402
Health Systems Research Unit	5 238 209
Burden of Disease Research Unit	4 898 064
Health Promotion Research and Development Unit	4 835 254
Alcohol and Drug Abuse Research Unit	4 173 439
Tuberculosis Clinical and Biomedical Research Unit	4 062 832
Indigenous Knowledge Systems Research Unit	3 988 609
Safety and Peace Promotion Research Unit	3 676 714
Gender and Health Research Unit	3 640 961
Oncology Research Unit	3 121 737
Chronic Diseases of Lifestyle Research Unit	2 757 661

Diabetes Biochemistry division	1 464 835
Cardiovascular and Metabolic Disease	1 351 842
Diabetes research	803 801
Health policy	544 517
WHO Collaborative Centre	200 000
Traditional medicines	50 000

MRC grants to Universities and other external agencies	**66 676 783**
Extramural research Units	32 222 164
Self-Initiated Research	18 800 000
Research Capacity Development	13 334 619
Ad-Hic External Funding	2 320 000
Research Platforms, support and funding programmes	**23 918 212**
Diabetes Research and Discovery Platform	5 841 276
CARISA	500 000
SAAVI	11 000 000
Cochrane Centre	2 331 536
Primate Unit	4 245 400
Technology and Innovation Directorate	**14 193 233**
Innovation Centre	5 799 748
E-HRIP Unit	100 000
Telemedicine Research and E-Health	1 860 740
Biomedical Informatics Research	2 692 117
Web & Media Technologies	2 007 087
Health Informatics	705 503
Administration	**130 042 001**
Office of the President	10 336 008
Vice President Research	1 948 262
Legal Office	2 692 779
Risk Management (incl SHE)	2 676 497
Corporate Communication	5 263 345
Finance & Contracts	25 525 138
IT	10 250 231
Human resources	13 298 566
Office of International Affairs	487 169
Management Information & Knowledge Systems	1 604 774
Research Management & Administration	3 752 604
Information Services	2 399 773
Strategic Initiative Unit	1 153 435
SCM & Facilities Management	38 173 007
Total budget	**346 189 567**

Note: not all line items have been included; this table provides budget allocations for the key departments in the MRC

The current MRC budget dips into and spends almost all the available funds in the 'reserves'. The funds available in the 'reserves' will only be minimal in the next financial year, which will present a challenge in next year's budget.

The budget allocation to intramural research is more than twice (43% vs 19%) the extramural research. With such a large fraction of the intramural budget spent on salaries (87%), only 13% of this budget is available for operational research expenditure. Both extramural and intramural units receive only a fraction of their operating (and salary) costs from the MRC and rely heavily on raising external funding. One worrying aspect is that the MRC spends almost as much (R130million vs R148million) on administration as it does on funding the core business of the MRC – research.

3.3b MRC falls short as custodian of all SA medical research

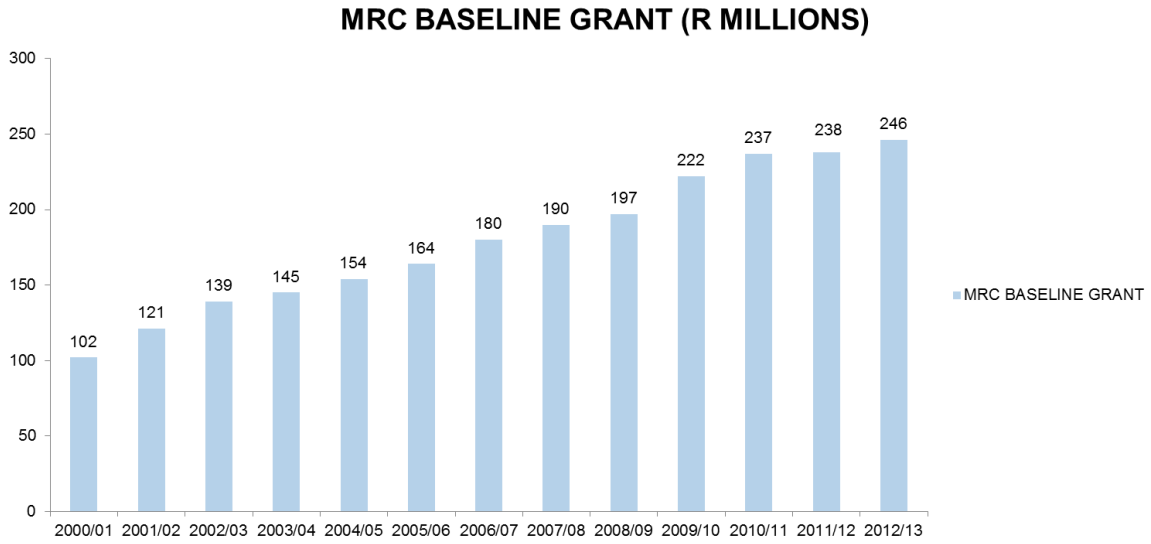
The current approach of the MRC is largely inwardly focused with little attention being given to extramural research activities. Indeed, medical research in the country, outside the intramural MRC units, is so severely under-funded, it is a wonder that that South Africa's global research standing has not deteriorated even further. This is probably because the post-apartheid era has opened opportunities for South African researchers to apply to international research agencies. The MRC spends about $9million (R67million = 19% of the MRC baseline allocation) which is less than what the Department of Science and Technology is spending on medical research. For comparison, the US CDC provides the MRC with more funding ($10.8million per year) than the MRC provides for all University-based medical research ($9million per year). It is particularly telling that the US NIH spends about 5 times (± $50million) what the MRC spends a year on University medical research in South Africa. Put plainly, the US NIH is a critically important research funder for South African medical science; much more so than the South African MRC.

Surprisingly, the MRC has no policy on the amount of its baseline allocation that should be allocated to intramural compared to extramural research. The current ratio where extramural research receives less than half the intramural allocation will systematically starve University-based medical research of funding. At present, the MRC has no champion for extramural research at Executive level and it has not been making any attempts to bridge this gap and ensure that extramural medical research is better funded from the government's coffers.

The MRC is falling short in fulfilling its mandate as custodian of all of South African medical research; it has not been able to ensure adequate funding for extramural medical research to sustain a vibrant medical research environment in the country.

3.3c Diminishing baseline grant from the Department of Health

The MRC baseline grant is lower than the grant income of South Africa's two largest research units (who receive almost no MRC funds). The size of the MRC's baseline grant is so grossly inadequate that it threatens South Africa's standing in medical research. Even within the MRC, one unit – the HPRU – has external grants which exceed the MRC's total allocation to intramural research units. This single unit (and there are several more in South Africa with even larger budgets) secures external funding that is more than twice what the MRC allocates for all of the medical research being done in all of the Universities in South Africa.



The growth in the MRC's budget has simply not kept pace with the needs of medical research in South Africa. In the last 4 years, the MRC baseline grant from the government has increased by about 3% per year over the last 4 years from R222million in 2009 to R246million in 2012 (see Figure above). In effect, with inflation, the MRC's available funding has been diminishing in the period since 2008. Indeed, the size of the government's allocation to medical research indicates the extent to which it is not taken seriously as a public good, as a contributor to the knowledge economy and as the principal source of new knowledge to improve the health of our nation. At its current level of funding, the MRC has little chance of being a serious player in the global stage of medical research, this requires investments in clinical research infrastructure, laboratories and the ability to undertake research across the spectrum from the most basic molecular and cellular studies to animal research to clinical investigations to public health projects and to health systems studies and interventions.

The MRC, which carries the citizen-mandate for medical research, needs to ensure no one component of this value chain is compromised and starved of resources. This can only be done with adequate resources. A rough estimate requires the MRC budget double over the next 2 years and treble over the next 5 years reaching about R850million by 2017 (allowing for 5% annual inflation). This represents an expenditure level of 0.75% of the government's health expenditure – noting that South Africa is a signatory, in November 1998 in Bamako, to the "Call to Action" commitment that the country will spend 2% of its health budget on health research. Without such a commitment from the South African government to appropriately fund medical research, many of the high-level goals set in this report will be difficult to achieve.

3.4 Outdated organisational and funding approaches

The MRC's mission and organisational approach have developed incrementally and are no longer ideal to meet the demands of a modern world-class research organisation.

The lack of organisational coherence due to incremental and opportunistic growth over time has created duplication and departments with inappropriate functions. One example is that the MRC currently has two departments maintaining information on MRC publications information: the library (Information Services) and Management of Information and Knowledge Services (MIKS). These two departments do not work together or communicate with each other. Instead, there is animosity between the two units due to their overlap in their functions and roles. Disappointingly, between them, the MRC still does have a readily accessible and reliable repository of all MRC publications.

There are a number of other examples that illustrate how the organisation has grown incrementally, resulting in incoherence in its structure:

- There are two separate internal MRC departments that are tasked with awarding grants to researchers - the Research Administration and Management department and the Research Capacity Development department. The latter has an open competitive annual call for applications with peer-review as the criterion for funding while the former does not seem to have a coherent strategy or call for applications, with an competitive or open, peer-reviewed process.
- The MRC has no desired target number of intramural and extramural research units. Further, few, if any, units are being closed and, as a result, the ability to accommodate new units is severely constrained. More importantly, there seems to be no coherence in the way the intramural are organised, and there seems to be no requirement for a critical mass of scientists to constitute an MRC unit.
- A Chronic Diseases of Lifestyle Unit exists, but there is also a separate unit called the National Collaborative Research Programme on Cardiovascular and Metabolic Disease (NCRP CV & MD), which consists of a Director with no other senior researchers. No clear reason could be identified for why the latter unit was recently created or even why it was established separately in the first place. Similarly, the Oncology Unit seems to have a single senior researcher (the Director) with no clarity as to why this unit was created. These two cases are not isolated instances; the MRC funds 3 units to conduct diabetes research in Cape Town; one of which comprises a single researcher directing a Diabetes Biochemistry "Unit" at UWC.
- The MRC has several units conducting research on HIV/AIDS (eg. HPRU, Health systems, SAAVI, etc) but it does not have:
  - an overall strategy for HIV research
  - a mechanism for bringing synergy to the country's vast AIDS research capacity contained in multiple separate research units on HIV and TB, or
  - a programme for research on the single largest medical intervention in South Africa ie. the provision of antiretroviral treatment to 1.7million people; an intervention that eventually aims to put about 10% of the nation (about 5 million people) on daily medication for the rest of their lives.
- The MRC is investing large sums of money in new laboratories and a new tablet making factory at Delft for the Indigenous Knowledge Systems (IKS) Research Unit.
- The MRC funds four separate research units to conduct TB research – 2 in Cape Town, 1 in Durban and 1 in Pretoria. While the two units in Cape Town, which comprise a NRF Centre of Excellence on TB research, have well-established collaborations and joint activities, overall collaboration amongst all four units is less well-developed. There is at present no overall TB research strategy or a mechanism to co-ordinate the programmes and explore potential synergies across the four units. The Durban unit does not seem to have its own research agenda, it is mainly conducting multi-centre trials while the Pretoria unit does not seem to be conducting research as it

focuses on technical assistance. Similar lack of coherence and integration was seen in smoking research, which is being done by three separate MRC units.

- There are inordinate delays in the finalisation of contracts by the Legal Department, a problem that has impacted on productivity.
- The e-HRIP group which includes the Biomedical Informatics Research Division within the MRC that focuses on using information and communications technologies (ICTs) for health. Much of what is being done seems to service activity rather than research. The separate divisions (which include, Telemedicine, Mobile Health and Health Informatics and Web and Media Technologies) within eHRIP are disjointed, and a related section on Bioinformatics has a complex relationship with an embedded separate company within the MRC. Clearer direction is needed in this group and its role, leadership and direction needs to be resolved.
- There are some units within the MRC that were created historically for good reason, for example, PROMEC was created to address the potential impact of mycotoxins on health mainly because of its association with oesophageal cancer. However, current evidence suggests to mycotoxins are only partly involved in this cancer and possibly in neural tube defects. The raison d'etre for the existence of this unit, which now includes a substantial focus on food safety, under current health priorities is unclear. Similarly, the research needs in nutrition are now diverse, ranging from obesity as a risk factor for cardiovascular disease to micronutrients impacting on childhood growth. Current nutrition research in the MRC includes collaborations with multiple local and international partners, but collaborations with MRC researchers studying chronic diseases or childhood diseases is sub-optimal. The Nutrition Unit produces the South African Food Composition Database, an essential tool in nutrition research. There is a need for much better integration of different aspects of nutrition research with the various MRC research groups that are studying the short and long-term impact of nutrition on the health. A similar lack of integration exists with regard to health promotion, which should be part of almost every unit in the MRC (eg. HIV, Alcohol, etc) but is conducted by a separate unit with little evidence of collaboration with the other units.
- Another unit which is focused on a health condition that is not high priority in South Africa (but is high priority in other countries in Southern Africa) is the Malaria Research Unit. South Africa is in the pre-malaria elimination category, with about 11025 malaria cases and 119 deaths due to malaria a year. Much of this unit's work is focused on the mosquito vector (species identification, diagnostic test, drug susceptibility, etc.). In addition, technical assistance to the DOH and to neighbouring countries is a major component of the work being done in this Unit.
- SAAVI had great potential as the first PDP-equivalent hosted by the MRC. However, it has withered, its funding has been severely eroded, and its current research programmes have not kept pace with priorities in vaccine research. While SAAVI currently has a Strategic Plan and a business plan submitted to the DOH, its research on key areas in vaccine development (for example, neutralising antibodies) remains under-developed due to funding challenges. It is unfortunate that it cannot be viewed as a success story in the MRC, as the PDP model of funding key health technologies has become dominant in the last decade in the way that medical research is funded globally. The MRC has a niche opportunity to adopt this strategy for a range of potentially high impact health technologies and will need to find a way to reverse the fortunes of SAAVI and expand to other HIV-prevention technologies as well.
- The MRC is undertaking some research in the global emergency on global warming, mainly at the Environment and Health Research Unit. This work has focused on

policy. An overall approach to research on global warming is needed. Further, the MRC does not have a functional 'greening' strategy at its facilities.

- The MRC should be a national resource for data management services. The MRC was previously at the forefront of new data management tools in research projects. However, this functionality and this expertise was moved out of the MRC to various entities such as the Knowledge Translation Unit at UCT. Unfortunately, the MRC does not have, at present, a dedicated data management service to provide regulatory quality data management.
- Research productivity in the MRC has been impacted by lack of synergy and intra-organisational collaboration. There are 136 senior level researchers at the rank of Senior Scientist or above within the Intramural MRC units listed in the tables below, and they publish about 203 papers a year (see tables below). The MRC's extramural research units produce about twice this number of journal articles. Within the intramural programme, the Biostatistics Unit contributes the most articles (47 per year). Of the 21 intramural units, 10 have published less than 1 paper (any author position) per senior researcher per year and 18 units have published less than 1 first authored paper per senior researcher per year from 2009 to 2011. Of the 136 senior researchers (rank of Senior Scientist or higher), 28 have published at least one first-author paper per year. Fourteen of the 21 intramural units have published at least one article (any authored position) in a high-impact journal (Impact Factor > 5) in the last 3 years. Of these 14 units, 7 have published at least 1 first-authored high impact article in the last 3 years. Nine of the MRC's units require more than R1million from the MRC to produce 1 journal article (any authored position) while 13 units required more than R2million to produce a first-authored article. A detailed account of each unit is provided in Appendix B.

The tables below show the variability in publication outputs from the different research units.

Research Groups	Total No. of staff	No. of senior scientists and above	Ave No. papers /year	No. papers /senior researcher/ year	No. papers /total staff/year
Intramural Research Units					
Alcohol and Drug Abuse	31	9	8.3	0.9	0.27
Burden of Disease	15	10	6.0	0.6	0.40
Chronic Diseases of Lifestyle	9	4	3.3	0.8	0.37
Environment and Health	12	9	4.3	0.5	0.36
Gender and Health	10	7	11.7	1.7	1.17
Health Promotion Research & Development	16	7	3.0	0.4	0.19
Health System	48	16	23.3	1.5	0.49
HIV Prevention	269	13	18.7	1.4	0.07
Malaria	27	7	8.7	1.2	0.32
Cardiovascular and Metabolic Disease	1	1	4.3	4.3	4.33
Nutritional Intervention	21	6	7.0	1.2	0.33
Oncology	7	2	2.0	1.0	0.29
Mycotoxins and Experimental Carcinogenesis	19	9	14.0	1.6	0.74
Safety and Peace Promotion	11.5	4.5	5.3	1.2	0.47
Tuberculosis Clinical and Biomedical	37	4	2.7	0.7	0.07
Tuberculosis Epidemiology & Intervention	24	4	4.3	1.1	0.18
Biostatistics	19	9	47.0	5.2	2.47
The Cochrane Centre	7	3	11.0	3.7	1.57
Diabetes Discovery Platform	15	6	3.7	0.6	0.24
Indigenous Knowledge System	7	3	0.3	0.1	0.03
Primate Unit and Delft Animal Centre*	14	2	1.7	0.8	0.12
Total for all groups	**608**	**136**	**203**	**1.4**	**0.28**

Research Groups	No. of senior scientists and above	No. first authored papers /year	% first authored	First authored paper/senior researcher/ year	No papers in journals with IF>5 2009-2011 (first authored)
Intramural Research Units					
Alcohol and Drug Abuse	9	5.33	60.0	0.59	5 (0)
Burden of Disease	10	2.3	38.9	0.23	6 (1)
Chronic Diseases of Lifestyle	4	1.0	30.0	0.25	2 (0)
Environment and Health	9	1.0	23.1	0.11	1 (0)
Gender and Health	7	10.0	85.7	1.43	8 (5)
Health Promotion Research & Development	7	2.0	67.0	0.29	0
Health System	16	8.3	35.6	0.52	9 (2)
HIV Prevention	13	3.3	17.9	0.26	10 (1)
Malaria	7	4.3	50.0	0.62	1 (0)
Cardiovascular and Metabolic Disease	1	1.7	38.5	1.67	5 (1)
Nutritional Intervention	6	1.7	23.8	0.28	0
Oncology	1	0.3	16.7	0.17	0
PROMEC	9	8.0	57.0	1.56	0
Safety and Peace Promotion	4.5	4.3	81.3	0.96	2 (1)
Tuberculosis Clinical and Biomedical	4	0.0	0.0	0.00	6 (0)
Tuberculosis Epidemiology & Intervention	4	0.7	15.4	0.17	2 (0)
Biostatistics	9	1.0	2.1	0.11	16 (0)
The Cochrane Centre	3	3.7	33.0	1.22	21 (6)
Diabetes Discovery Platform	6	2.3	63.6	0.39	0
Indigenous Knowledge System	4	0.3	100.0	0.11	0
Primate Unit and Delft Animal Centre	2	1.0	60.0	0.50	0
Total for all groups	**125**	**59.3**	**34.3**	**0.47**	**76 (17)**

*note: the Primate Unit and Delft Animal Centre is primarily responsible for the care of animals

Research Groups	MRC Budget as % of Total Budget	Ave No. papers /year	Total cost /paper/year	MRC budget/paper /year	MRC budget/first authored paper/year
Intramural Research Units					
Alcohol and Drug Abuse	20	8.3	R2,512,564	R502,824	R667,750
Burden of Disease	86	6.0	R95,676	R816,344	R2,099,170
Chronic Diseases of Lifestyle	89	3.3	R930 117	R827,298	R2,757,661
Environment and Health	100	4.3	R1,255,426	R1,255,426	R5,440,181
Gender and Health	38	11.7	R822,857	R312,082	R364,096
Health Promotion Research	54	3.0	R2,960,087	R1,611,751	R2,417,627
Health Systems	16	23.3	R1,416,941	R225,133	R633,537
HIV Prevention	5	18.7	R8,245,416	R23,957	R2,374,161
Malaria	27	8.7	R3,228,629	R883,340	R1,766,680
Cardiovascular & Metabolic	68	4.3	R461,608	R311,964	R811,105
Nutritional Intervention	84	7.0	R1,513,769	R1,275,242	R5,356,016
Oncology Research Unit	86	2.0	R1,806,542	R1,560,869	R9,365,211
PROMEC	78	14.0	R809,852	R635,710	R1,112,492
Safety and Peace Promotion	40	5.3	R1,728,919	R787,867	R861,157
TB Clinical & Biomedical	29	2.7	R5,172,325	R1,523,562	R13,792,866
TB Epi & Intervention	9	4.3	R14,096,620	R1,243,708	R8,084,103
Biostatistics	96	47.0	R222,957	R213,958	R10,056,011
The Cochrane Centre	41	11.0	R513,278	R211,958	R635,873
Diabetes Discovery Platform	49	3.7	R3,277,137	R1,593,075	R2,503,404
Indigenous Knowledge System	24	0.3	R50,046,162	R11,965,827	R11,965,827
Primate Unit & Animal Centre	72	1.7	R3,533,760	R2,547,240	R4,245,400
Total for all groups	**24**	**203**	**R2,611,587**	**R627,093**	**R1,828,433**

- Staff complement taken from HR records for December 2011.
- Total budget (all sources and MRC budget) was provided by the Finance and Contracts Department and is for the year 2011/12.
- Publications: Only publications published (printed, e-publication) in ISI accredited Journals in the years 2009 to 2011 were counted. The latest ISI accreditation list of 2010 was used. Journals were validated on the name of the Journal and on the ISSN number. The ISI impact factor for 2010 was used for classification into higher or equal to an impact factor of 5 or less than 5
- The Health technology and administrative departments are not included. Indicators were calculated for each unit based on their complete reported publication lists, i.e., a publication with authors from 2 different units are counted in both. However, the overall number of publications in the total row of the tables excludes duplicates, i.e., publications shared by different units were counted as one publication for the total.

- Some units, for example, the Diabetes Biochemistry division, were not included in the list as their information was not available.
- Note: the indicators on the National Programme on Cardiovascular Disease and Metabolic Disorder, which consists of a single senior person, were therefore sometimes outliers
- The Units shaded in grey have additional research support roles in the organisation besides their empiric research.

Research Groups	Total No. of staff	No. of senior scientists and above	Ave No. papers /year	No. papers /senior researcher/ year	No. papers /total staff/year
Extramural Research Units					
Anxiety and Stress Disorders	25	10	48.0	4.8	1.9
Bioinformatics Capacity Development	42	5	12.0	2.4	0.3
Bone research	11	2	4.3	2.2	0.4
Cancer Epidemiology	7	3	1.0	0.3	0.1
Developmental Pathways to Health	35	8	16.0	2.0	0.5
Diarrhoeal Pathogens	23	3	21.7	7.2	0.9
Drug Discovery	40	5	23.7	4.7	0.6
Exercise Science and Sports Medicine	97	21	49.7	2.4	0.5
Health Policy	39	4	15.0	3.8	0.4
Human Genetics	54	11	8.3	0.8	0.2
Human Genomic Diversity and Disease	11	1	4.0	4.0	0.4
Immunology and Infectious Diseases	34	9	11.3	1.3	0.3
Inflammation and Immunity	25	6	10.3	1.7	0.4
Inter-university Cape Heart	78	26	9.3	0.4	0.1
Maternal and Infant Health Care Strategies	18	10	9.7	1.0	0.5
Medical Imaging	63	12	16.3	1.4	0.3
Molecular and Cellular Biology	70	14	48.0	3.4	0.7
Molecular Mycobacteriology	14	7	5.7	0.8	0.4
Oesophageal Cancer	30	8	7.0	0.9	0.2
Receptor Biology	25	12	11.7	1.0	0.5
Respiratory and Meningeal Pathogens	44	17	28.3	1.7	0.6
Rural Public Health	36	6	15.7	2.6	0.4
Stellenbosch Group Cape Heart	37	7	7.0	1.0	0.2
Total for all groups	**858**	**207**	**384.00**	**2.2**	**0.5**

Research Groups	MRC Budget as % of Total Budget	No. of senior scientists and above	No. first authored papers /year	% first authored	First authored paper/senior researcher/ year	No papers in journals with IF>5 2009-2011 (first authored)
Extramural Research Units						
Anxiety and Stress Disorders	27	10	13.0	27.1	1.3	3
Bioinformatics Capacity Development	17	5	1.0	8.3	0.2	1
Bone research	87	2	3.7	84.6	1.8	3
Cancer Epidemiology	42	3	0.0	0.0	0.0	0
Developmental Pathways to Health	23	8	4.3	27.1	0.5	1
Diarrhoeal Pathogens	49	3	2.7	12.3	0.9	7
Drug Discovery	6	5	0.3	1.4	0.1	0
Exercise Science and Sports Medicine	8	21	20.3	40.9	1.0	3
Health Policy	11	4	7.3	48.9	1.8	1
Human Genetics	64	11	1.0	12.0	0.1	0
Human Genomic Diversity and Disease	29	1	0.0	0.0	0.0	0
Immunology and Infectious Diseases	11	9	1.0	8.8	0.1	2
Inflammation and Immunity	27	6	3.0	29.0	0.5	1
Inter-university Cape Heart	42	26	3.0	32.1	0.1	1
Maternal and Infant Health Care Strategies	6	10	1.7	17.2	0.2	2
Medical Imaging	9	12	5.0	30.6	0.4	1
Molecular and Cellular Biology	8	14	4.3	9.0	0.3	7
Molecular Mycobacteriology	18	7	2.0	35.3	0.3	2

Oesophageal Cancer	23	8	1.3	19.0	0.2	0
Receptor Biology	30	12	1.3	11.4	0.1	1
Respiratory and Meningeal Pathogens	4	17	8.0	28.2	0.5	9
Rural Public Health	4	6	1.3	8.5	0.2	2
Stellenbosch Group Cape Heart	39	7	3.3	47.6	0.5	3
	14	**207**	89.0	24.1	0.4	**50**

- Post graduate students are included in the staff numbers. There are senior scientists who are not full time staff members but have allocations such as 10% or 20%. No adjustment was made for this
- First authored publications were counted based on the names that were provided in the budget reports.
- The total number of unique publications extracted from the extramural units stands at **973.**
- The number of co-authored publications unique irrespective of IF is **706.** These have not been grouped by IF since the internal MRC publications have to be added to the overall pool and duplications between external and internal eliminated. This process is on-going.
- In the overall pool of co-authored publications one will have to look at the publication itself to ascertain whether such a publication can be counted for the extramural or intramural base on the position of the co-authors and the affiliations.

3.5 Other findings

A range of other issues emerged during consultations with the MRC staff and the visits to the MRC facilities:

- Maintenance of some of the MRC buildings has not been kept up, especially Durban, where the main front entrance greets visitors with a stack of rusting broken freezers. The MRC in Durban is housed in four separate buildings, placing an obstacle to inter-unit collaboration in Durban and duplication of administrative services. The space problems in Durban are compounded by the poorly planned use of existing space (e.g. data encoders have individual offices) and the duplication of laboratories within the Ridge Road building. This is not unique to Durban, in Pretoria, students are allocated individual offices and in some instances, small new offices were created for them. There seems to be little appreciation of how the organisation of space needs to enhance scientific interaction and enhance random intermingling among scientists – some of the best ideas and collaborations emerge from these kinds of chance interactions. The current space philosophy is focused on individualism and the isolation and separate of individual MRC units rather than on their interactions and intermingling. This has led to unacceptable situations where MRC units are in the midst of shopping centres and commercial business parks, instead of the MRC's research campuses, medical schools or universities.
- The quality of peer-review in the MRC sub-optimal. Recent reviews have not addressed the key tough questions that needed to be asked and, on occasion, reviews have comprised scientists who are too junior. Disappointingly, some of the reviews have not been rigorous peer reviews. The problem with the peer-review process is the choice of Chair of the panel and of clarity regarding what is required. In the absence of criteria for the standards and excellence expected, the reviews tend to depend on who happened to serve on the panel and it precludes comparison across reviews.
- There is no internal quality assurance department in the organisation. In today's highly regulated research environment, it is essential for medical research bodies to have an internal quality assurance department responsible for auditing individual studies being undertaken to ensure regulatory and good clinical practice compliance.
- The MRC library does not have access to the top 10 medical journals! Further, scientists are not being provided with e-tables of contents from the key journals in their fields, which makes it difficult for them to keep abreast of the latest findings.
- Most scientists, who do not have university affiliations, do not have adequate access to online journals.

4. PROPOSAL FOR A WAY FORWARD

Two broad options are available for the way forward. Option 1 is to maintain the current course with its programmes and activities – but reduce duplication and let natural attrition help balance the budget over the next decade or so. In option 1, the focus will be on improving the functioning of the current MRC's research programmes and administration. In Option 2, several changes are envisaged - re-focusing the organisation, prioritising its research activities, ensuring the organisation fulfils its mission to support all medical research in South Africa and modernising the way it aims to fulfil its mission.

The positive attribute of Option 1 is that it strengthens existing MRC research and administration and promotes the MRC's current research activities. The shortcomings include its limitations in not addressing the critique in the SETI review, it leaves in place an organisation not well placed to respond to SA's priorities and will likely fail to instil confidence in key stakeholders. Further, this approach will incur repeated budget deficits and substantial budget cuts which will likely lead to continuing low morale, suboptimal overall productivity, mal-alignment against the country's priorities, suboptimal impact and continuing decline in scientific stature.

A positive attribute of Option 2 is focus on scientific excellence and health impact with a clear set of priorities. The strengths and limitations of Option 2 are spelt out below.

4.1 The three key principles

In devising a way forward with Option 2, three key principles are used to guide the process. All of the recommendations made in this document can be assessed according to these three principles. The principles include: The centrality of Scientific Excellence, the MRC's responsibility for all medical research in South Africa, and the importance of selecting priorities for intramural research to maximise the impact on improving the health of the nation.

The centrality of scientific excellence

As a research institution that aims to be at the forefront of health research, the MRC needs to strive for excellence and to set benchmarks that show it is leading medical research in this country. To do this, the MRC needs to focus on the fundamental outputs of scientific research: publications to demonstrate new knowledge. Without generating new knowledge, the MRC cannot contribute to the country's needs. MRC scientists and administrators need to reinstate this fundamental requirement. The organisation needs to reinstate the generation of new knowledge as its beacon. This is key to regaining scientific stature and reputation.

The MRC needs to go even further, to re-establish itself as a research leader and rebuild South African medical research as a leading country in medical science internationally.

To achieve this, the following approaches are proposed:

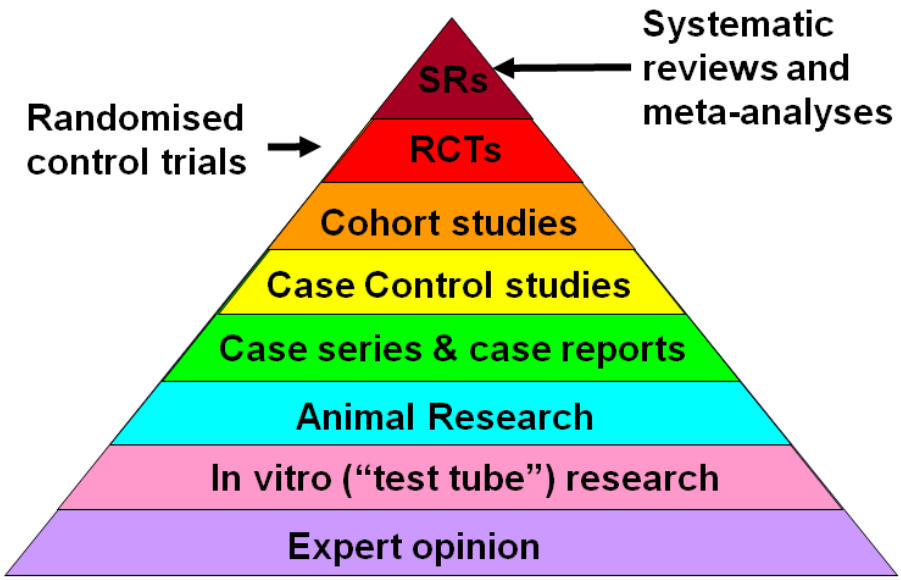
a. Creation of an enabling environment of free expression - so that scientists have freedom of thought, are encouraged to think differently and challenge the boundaries of our knowledge

b. Provide clarity and define what new knowledge generation is and how it differs from extending existing knowledge or confirming existing knowledge
c. Ensure that all MRC researchers at the rank of Senior Scientist or higher are aware that they are expected to publish at least one first-author article each year.
d. Distinguish between publications where the MRC is playing a supportive role versus where the MRC is leading the research. Provide clarity on what constitutes science and scientific leadership through the generation of new research ideas and how this differs from data collection for studies developed by others. Provide clarity that mere participation for data collection in international multi-centre studies should not be misconstrued as science. Participation in multi-centre studies should not simply be a service delivery. The scientific contribution in the realm of new ideas is fundamental to scientific participation. While collaboration with international scientists and participation in multi-centre studies is useful and important component of MRC activities, this should not dominate in any of the MRC's units. Self-initiated research, where MRC scientists have developed the original ideas, developed the study proposals and raised the funds, should comprise more than 50% of the research being conducted in MRC units.

MRC has a custodian responsibility for medical research in South Africa

Taking responsibility for the state of the country's medical research means according intramural and extramural research with the same level of importance – neither one is more important than the other.

The MRC's intramural research is a key programme to ensure that medical research addresses the burden of disease in South Africa. A strong and vibrant intramural infrastructure working towards finding the necessary solutions is desperately needed. The importance of extramural research is that it is the engine that drives clinical research in hospitals and ensures that scientific research underpins medical research and training, and ensures that universities can take up their rightful role in generating medical research. The following diagram is 'the evidence pyramid' and demonstrates how both intramural and extramural research needs to contribute to all levels.



Prioritise intramural research to maximise impact on health

The MRC needs to focus on its mandate and prioritise the scope of its intramural research in order to achieve excellence and critical mass. In prioritising, the areas of research that may be included in the scope of the MRC's intramural research is explained in more detail below.

4.2 Re-organising the MRC to become a modern research agency

The MRC needs to balance its role as an organisation conducting research with its role as custodian of all medical research in South Africa. It is proposed that both be funded equally. It is proposed that the MRC should set its goal as a 40-40-20 split in the MRC budget ie. 40% of the MRC's baseline grant to intramural research, 40% to extramural research and 20% to administration. There should be a systematic increase in extramural funding, including for clinical research to remedy the current 43% - 19% - 38% imbalance over the next few years to achieve the targeted 40% - 40% - 20% split.

The MRC needs to stop proliferating research units without due consideration to what can be sustained without compromising productivity and quality. The scope of intramural and extramural research at the MRC cannot continue expanding, while the budget remains static or declines, as has happened in the last 4 years. Unchecked growth leads to under-funding and compromises each research unit's effectiveness as it will then have too few scientists and meagre operating expenses budgets and will consequently experience difficulty attracting top scientists as the unit's research leader. The funding mechanisms used by the MRC will need to be expanded beyond the unit-model and self-initiated grants. Both the latter mechanisms are important but the MRC should no longer rely on just these two mechanisms.

In order to maximise impact to improve health, the intramural focus should be on the main causes of ill-health – the main contributors to the burden of disease in South Africa. This will mean fewer units but each unit should have critical mass (at least 3 well-established senior investigators who are scientifically productive and can secure their own grants), strong scientific leadership and clear plans to develop new knowledge to impact the highest priority causes of ill-health – a critical step to achieving greater effectiveness and impact on the health priorities of the nation.

It is proposed that the MRC be restructured to comprise three revised components:

- Intramural research
- Extramural research
- An innovation entity

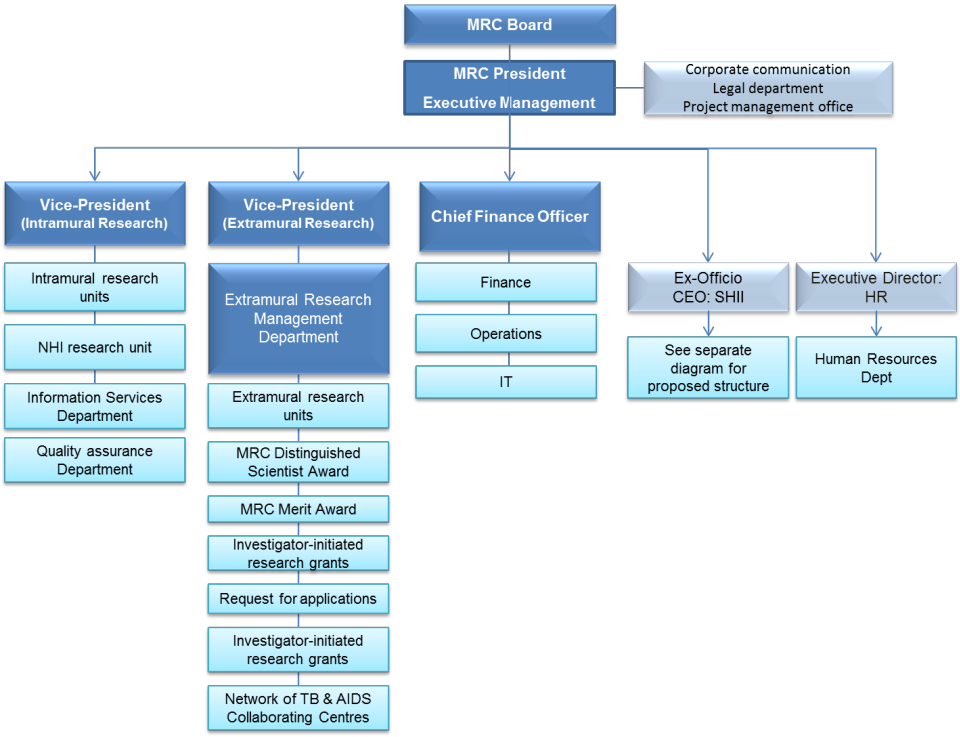
The diagram below shows a proposed new structure for the MRC.

Re-orientating the intramural research

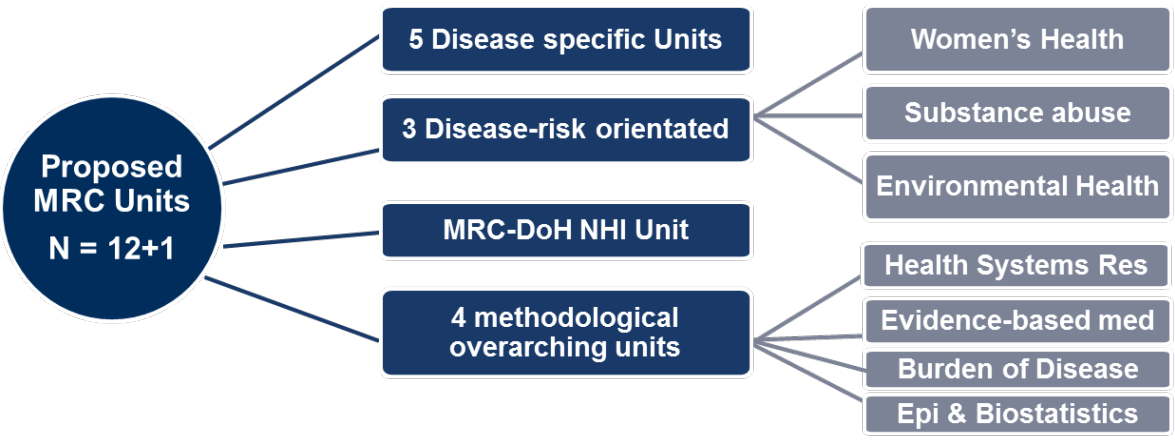
The highest priorities are derived from the most common conditions responsible for the country's Burden of Disease, in keeping with international best practice. In South Africa, the quadruple burden of disease is placing enormous strain on the country's health services and is responsible for most of the years of life lost and the disability-adjusted years of life lost.

Further, intramural units should only be constituted when there is a strong likelihood of constituting critical mass of researchers to lead the research and provide mentorship and

supervision to the rest of the team. The establishment of intramural units, such as the MRC's current Injury Research Unit, in partnership with Universities should be encouraged.



It is proposed that the intramural research comprise no more than 12 MRC intramural research units: five of which should be disease specific, three should be disease-risk oriented and the remaining four should be over-arching methodological units which are not focused on any one disease or risk-factor. In addition, it is proposed that there should be a joint MRC-DoH intramural unit focused on NHI research. The approach of joint funding for intramural research units may be encouraged, depending on the success of the NHI unit as the first of this type of jointly funded unit.



All of these units should be sufficiently well funded to be able to fulfil a self-defined research agenda in addition to raising grants and participating in multi-centre studies, provided that multi-centre study participation does not constitute more than 50% of the research activities in each unit. Each of these units should feel free to include research across the spectrum of

methodologies from social science on the related socio-economic causes in ill-health, to public health research, to clinical research to basic science, as appropriate to address the high priority questions in each area ie. intramural units should not be restricted to a single methodology. Training, mentorship and internal staff capacity development should also be central part of the goals of each intramural research unit

The disease-specific intramural units proposed are based on the current top 10 causes of death in the Burden of Disease listing (Source: Debbie Bradshaw, Burden of Disease Unit), which includes:

- HIV
- TB
- Chronic diseases (stroke, asthma, diabetes, and heart disease)
- Injuries and violence
- Childhood diseases (including malnutrition, the main causes of perinatal and childhood mortality such as diarrhoea, pneumonia and meningitis).

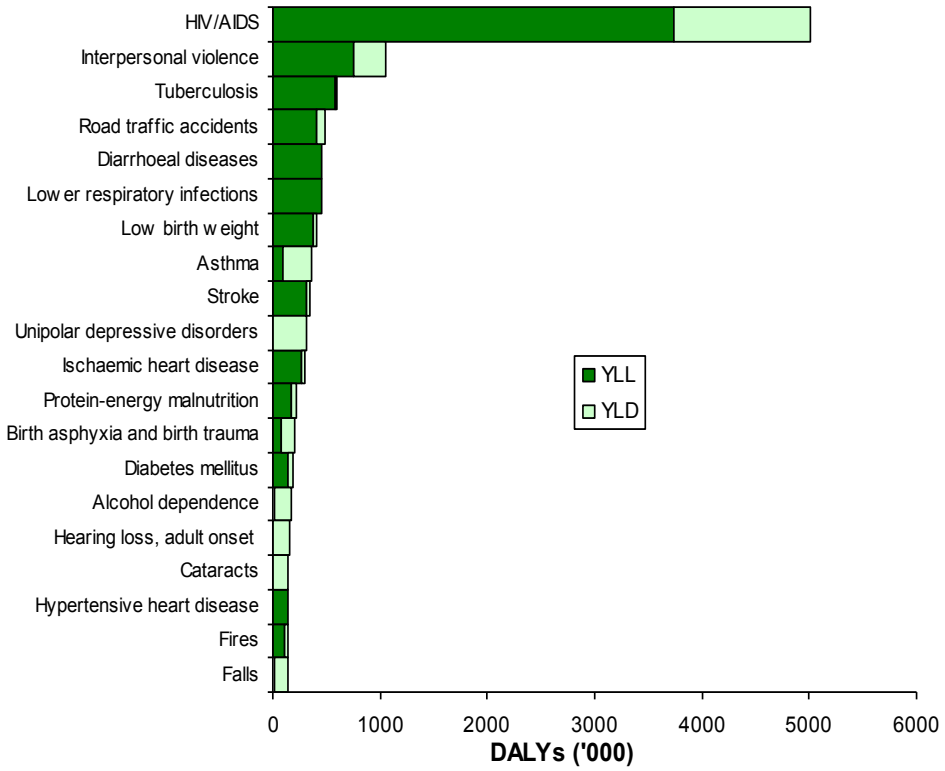
What should the research priorities be?
Top 10 causes of death in the burden of disease

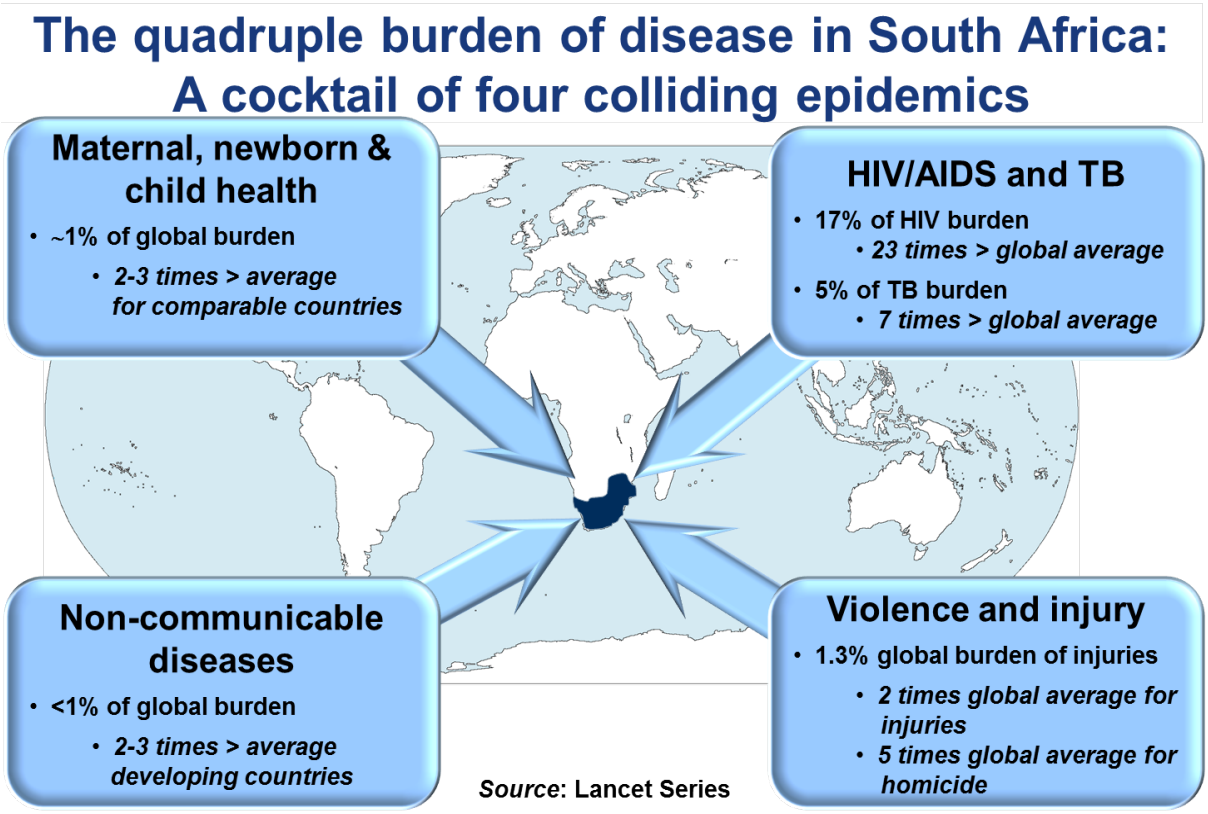
TABLE 16.4: Leading 10 single causes of death Persons, 2009

Cause of death	Deaths	%	Cause of death	YLLs	%
HIV/AIDS	195,690	31.6	HIV/AIDS	4,612,572	37.6
Cerebrovascular disease	36,854	5.9	Tuberculosis	719,105	5.9
Hypertensive heart disease	35,957	5.8	Lower respiratory infections	650,691	5.3
Tuberculosis	34,568	5.6	Diarrhoeal disease	617,252	5.0
Lower respiratory infections	33,420	5.4	Interpersonal violence	565,827	4.6
Ischaemic heart disease	27,755	4.5	Cerebrovascular disease	463,809	3.8
Diarrhoeal disease	25,855	4.2	Hypertensive heart disease	447,313	3.7
Interpersonal violence	23,205	3.7	Ischaemic heart disease	346,437	2.8
Road injuries	13,248	2.1	Road injuries	311,010	2.5
Diabetes mellitus	13,212	2.1	Meningitis and encephalitis	210,190	1.7
Top 10 causes	439,763	71.0	Top 10 causes	8,927,468	72.8
Total	619,410	100.0	Total	12,254,778	100.0

Source: Bradshaw, Norman and Schneider, 2007

In the table above, the top 10 causes of death are listed for South Africa in 2009. In the figure below, the Burden of disease estimates (DALYs), which include both mortality and morbidity for South Africa in 2000, are provided. The additional condition that enters the Top 10 when morbidity is taken into account is mental health. Extending the list to the Top 15 will lead to the inclusion of nutrition and diabetes.





The proposed risk-oriented units should focus on the quadruple disease burden and the key conditions and risk factors driving these high-burden health problems, such as women's health (gender disparities, abortion, rape, reproductive health, maternal mortality, etc),

substance abuse (alcohol, smoking, illicit drugs, mental health, etc) and environmental health (environmental causes of childhood pneumonia and diarrhoea, global warming, etc).

The proposed over-arching units should not be disease-specific but cut across all conditions – these methodological units could focus on evidence based medicine, burden of disease, health systems research, and research methods/epidemiology/biostatistics support.

The proposed joint MRC-DoH NHI unit will need to have substantial health systems research capability. By partnering with the DoH, the work of the MRC will be easily accessible to those making decisions about policies, strategies, systems and practices in healthcare at national and provincial level. The aim of the MRC-DoH NHI Unit should be to undertake research across multiple conditions and include surveillance and monitoring in NHI pilot districts, plus a broader range of health systems research and health economics activities. To be able to do this, staff from the various MRC intramural units will be encouraged to collaborate with and hold joint appointments with the NHI unit.

It should be noted that health systems research will be required well beyond a focus on the NHI and will need to be conducted in a dedicated Health Systems research unit. Research on ensuring cost-effective and efficient implementation of evidence-based curative and prevention technologies and interventions will need to be undertaken in conjunction with disease-specific units, for example, research on improving services to achieve high TB cure rates will need to be undertaken jointly with the TB research unit. However, overarching health systems research should be undertaken in the health systems research unit.

Protein energy malnutrition will need to be a focal area of the childhood diseases research unit while obesity and nutritional challenges relating to chronic diseases will need to be undertaken in the Chronic Diseases Research unit. Mental health, which is ranked 10th in terms of its contribution to combined mortality and morbidity should be considered for the next intramural MRC unit when funds become available. At present, this important area of research is being conducted in a strong extramural unit. Areas of research that feature in the second 10 conditions in the burden of disease, eg. obstetric complications in childbirth, cancer, food safety/nutrition, etc. are important areas of research that could be prioritised when new extramural research units are being established.

Due to the need to continue building health information systems, the existing Health Informatics unit and its WHO Collaborating Centre for the Family of International Classifications (WHO-FIC) at the MRC could be incorporated into the Health Systems unit.

Each unit should have a Scientific Advisory Board of eminent local and international scientists appointed by the Vice-President (Research). The Scientific Advisory Board should be available to the unit's researchers on an ongoing basis to provide independent review and advice on each new study within the unit and should undertake a fully-fledged unit review at least once every 3 to 5 years.

To achieve the transition from the current intramural configuration to the proposed new configuration will require careful and detailed planning as well as consultations as appropriate.

Revamping extramural research

In terms of its extramural research units, the MRC should drive a new initiative to broaden and deepen its involvement in health research in South Africa. The years of under-funding of extramural research will need to be reversed. Initially, the focus of extramural expansion should be in medical schools (to address the decline in clinical research), thereafter expanding to other health disciplines. To do this, it is proposed that the MRC establish five extramural research funding mechanisms: extramural research units, MRC Distinguished Scientist Award, MRC Merit Award, investigator-initiated research grants and RFAs (Request For Applications). Each of these is explained in greater detail below. As with intramural funding, all extramural funding should include funding specifically for capacity building.

- Extramural research units: The current approach and criteria for establishment of extramural units should continue. The number that should be funded at any one time should not exceed 26 (twice the number of intramural units). Rigorous peer-review, through a revamped research administration department, will determine continuation or termination of extramural MRC units. Extramural research units should take the form of large grants guaranteed for periods no longer than 5 year at a time. Unlike intramural research units where the staff are on the MRC payroll, for extramural units all staff should on the host institution's payroll. The current practice of locating MRC staff in extramural units should not be expanded any further; instead grant funding should be used to create posts at the host institution.

- Creation of National Network of collaborating centres in HIV and TB: Due to the shear burden of the HIV and TB epidemics and the number of non-MRC units already active in this area, it is proposed that the MRC create a South African consortium for HIV and TB research. All existing HIV and TB research units in South Africa should be invited to apply to become part of this consortium – successful applicants should be accorded 'MRC HIV & TB Collaborating Centre' status, provided a core grant, offered participation in nationwide research projects, and should be required to attend consortium meetings to enhance co-ordination and drive a national agenda in HIV and TB.

- MRC Distinguished Scientists Award: The MRC should invite all of South Africa's leading senior medical researchers to apply to become an MRC Distinguished Scientist. The goal is to fund the country's top 50 scientists through this mechanism. A fixed amount is provided each year for three years to each MRC Distinguished Scientist. The amount of funding should be sufficient (R1million over 3 years) to attract the country's top scientists and to establish this as a prestigious title. The funding of Distinguished Scientists should be modelled on the Howard Hughes Fellowship ie. minimal restrictions on how this money should be spent on the research.

- MRC Merit Award: The MRC should invite South Africa's up-and-coming researchers, who have been awarded their PhD within the past five years, to apply for an MRC Merit Award. The goal is to fund the country's brightest young stars (along the lines of the NRF's p-award) with a fixed amount each year for three years (for example, R250,000 over 3 years).

- Investigator-initiated grants: The current self-initiated research grant process needs to undergo some changes to make it more competitive. The current process should be revamped to become the investigator-initiated grants programme, in which it is proposed that the MRC fund projects for up to three years (maximum total budget of R750,000) based solely on scientific merit. One variant of this funding approach is leverage funding, where the MRC is asked to partner with other funders in supporting a study – such a study would have to pass scientific review through this process and the MRC could then consider any appropriate amount as leverage funding.

- Request for applications (RFAs): This aim of this new funding mechanism is to drive research activities in high-priority areas and to enhance institutional capacity building. In the latter instance, long-term partnerships will need to be built with historically disadvantaged institutions to provide long-term support and funding to help build local institutional and individual-scientist capacity.

These new initiatives will need to be supported administratively; careful planning will be needed to develop the appropriate administrative capabilities to support these 5 funding mechanisms.

A new approach to funding innovation

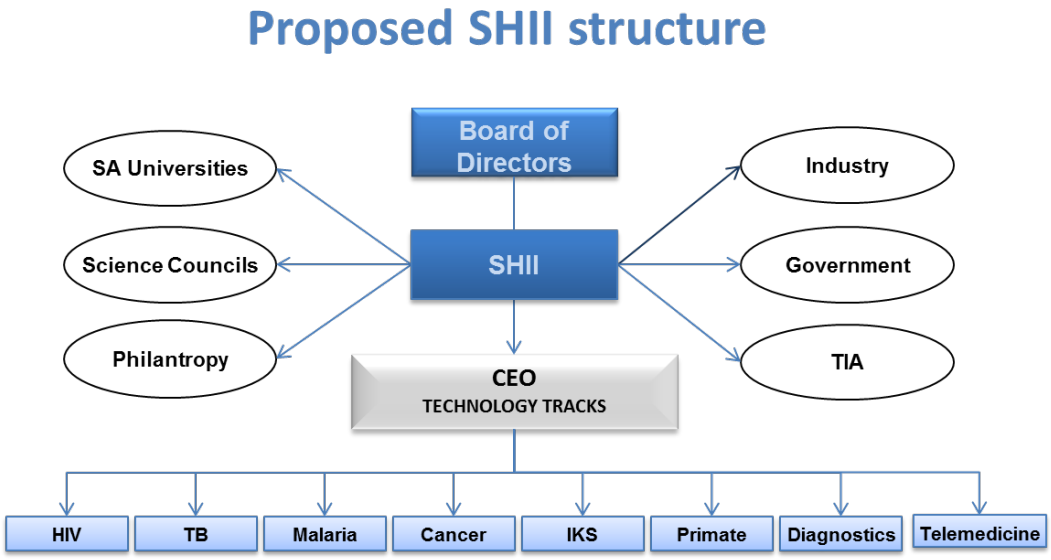
Within the past 10–15 years, there has been a successful global move towards the PDP (Product Development Partnership) funding model. The MRC should create a new entity, modelled on the PDP funding approach, called the 'Strategic Health Innovation Initiative' (SHII). It is intended that SHII, as a lead South African PDP, will be a mechanism for multiple partners to provide funding for health innovations (Proposed structure below).

SHI should be established as an independent non-profit legal entity with the involvement of multiple funders, for example, the private sector, philanthropy, the Technology Innovation Agency (TIA), and government departments such as DST and DTI. Large donors and biotechnology experts should serve in governing Board of the entity (for example, one representative on the Board of SHII for every R10million contributed to SHII). It is proposed that the MRC host the entity, provide space, administrative support and leverage funding.

It is proposed that the initial focus areas of research, to be created as tracks within SHII, comprise:

- malaria vaccines and therapies
- HIV prevention technologies (including SAAVI and its vaccine programme)
- TB vaccines and therapies
- Indigenous health technologies and knowledge systems
- Cancer (including CARISA)
- Primate research platform
- Diagnostic technologies, especially point-of-care diagnostics (including ANDI).
- eHealth, including Telemedicine and mHealth

This PDP will largely be a funding mechanism to fund consortia to undertake research in defined priority areas where funding has been secured. It will not conduct in-house research but will commission research and contract with other agencies to conduct its research programme.



In addition, the MRC needs to have an in-house Technology Transfer Office (TTO) for MRC generated intellectual property (IP). The TTO could be responsible for:

- Identifying, protecting & commercialising IP generated by the MRC's intramural units, e.g., new inventions, copyrights, and datasets
- Raising awareness among the MRC's intramural researchers on the importance of IP, the IPR Act, the MRC's IP Policy, protecting IP before publishing and other general issues they need to be aware of in the course of their research with respect to IP and commercialisation.
- Facilitate research translation more broadly, i.e. the translation of research results into proposed new policies and practises and dissemination of research results to the relevant audiences, e.g. Government, health practitioners etc.

Careful planning and consultations with staff will be needed to derive the most appropriate mechanisms for realising the goals and activities in SHII.

The various proposals in this document are open for discussion and debate, which is essential to ensure the organisation has the benefit of getting everyone's ideas on the way forward and exploring all the options with as many opinions as possible before making a determination on the way forward. It is proposed that meetings be held with the Heads of intramural units and departments to further discuss the proposed changes, if any, and how the changes may affect each unit/department.

4.3 Efficiency and effectiveness of the MRC administration

The MRC is currently spending a disproportionately high fraction of its budget on administration (38% of the MRC budget). At present, the MRC spends 3.5 times more on its Finance Department than on its AIDS research. The Finance Department budget is 2.5 fold higher than the largest MRC research unit. It is proposed that the administration be assessed, under the guidance of the incoming Chief Finance Officer, to determine if any improvements in administrative efficiency and effectiveness are needed. The creation of a position of Vice-President for extramural research, without increasing the number of Executive level positions, may require some changes in line of reporting for the IT and Operations functions at the MRC.

It is proposed that the Executive Management Committee be re-organised as follows:

- The President: Directly responsible for Legal, Corporate Communications and a Project Management Team
- The Vice-President (intramural research): Responsible for intramural research units, the NHI research Unit, the Ethics and Quality Assurance Department, and information services (library)
- Vice-President (extramural research): Oversight of the six extramural research funding and review mechanisms as well as institutional capacity building initiatives
- Chief Finance Officer: Responsible for Finance, IT and Operations (including Facilities)
- Executive Director for Human Resources is a position created as an Executive level position, even though it is not equivalent to a Vice-Presidential position.
- The CEO of SHII is invited to serve ex-officio (participation with no voting rights) to enhance linkages, co-ordination and collaborations between the MRC and SHII

Re-organising the Executive Committee in this way should also go some way to consolidate the Executive portfolios for coherence and enhanced functionality. Preference should be given (although this is not essential) for the CEO of SHII to be based in Cape Town, the Vice-President (extramural research) in Pretoria and the Vice-President (intramural research) in Durban so that there is an Executive presence at each of the three main MRC centres.

4.4 Creation of a Research Quality Assurance Department

It is proposed that the MRC should engage with ACRO (a TIA-funded clinical trials platform) to create a new MRC department responsible for monitoring all MRC funded research. Such a department will be responsible for ensuring that all research in the MRC (clinical trials, epidemiological research, etc) meets good clinical practice (GCP) standards and that they comply with research regulatory body requirements. The goal should be, 'to assess at least one study in each MRC unit and one study in each MRC-funded university at least once a year. The Quality Assurance Department will include the ethics Committee's administration. The QA function will likely be required throughout the implementation and reporting on studies, and beyond to controlled storage (and potential use) of the data from studies.

4.5 Revising the supply chain management procedures

The essence of medical research is the need to challenge ideas and to chase up new leads, to explore an interesting serendipitous finding, etc. As a result, a high degree of flexibility is needed. Undertaking medical research is not like constructing a house where all the costs can be predicted and rigid project management timelines followed. Hence, it is inappropriate to apply rules created for government departments to also apply to the MRC. There seems to be little point in the MRC being a parastatal if the rigidity and bureaucracy associated with a government department. Research needs creativity and spontaneity - this necessitates a different approach to the financial management of the MRC compared to a government department. It is proposed that the MRC explore the full scope of current rules and regulations for procurement in state entities to find a way to provide the benefits of financial control that safeguard the organisation from fraud and corruption while providing flexibility and cost-effective procurement.

4.6 Information Services

The MRC should maintain a repository of every journal article that carries its name. These should be archived and the list should be available as a searchable database on the MRC website. Further, it is proposed that procedures be put in place to ensure that every MRC grantee acknowledges MRC financial support in their articles and that every MRC Distinguished Scientist mentions this affiliation in all his/her papers. Further, the library should ensure that it has access to all the important journals. The library should establish a service where each MRC researcher gets e-Table of Contents for journals in their field. The library should also assist researchers in monitoring their citations and in keeping them informed of changes in journal impact factors. Importantly, the new Information Services department should provide the Unit Directors and Executive Management with helpful analyses of the organisations progress with publications and provide the assimilated information necessary to enable the MRC to monitor its performance as an international research organisation.

4.7 Special financial considerations

The MRC needs to secure a capital investment from the government of about R160million to meet the maintenance backlog and to address the space challenges in Durban. There is a need for a MRC Durban campus where all the Units are housed. There could be a central laboratory that would provide service facilities particularly for clinical trials undertaken by different Units. A space audit is recommended to assess the space and renovation needs across all the MRC centres. This audit can then be the basis for planning the capital redevelopment of the MRC's campuses in Parow, Pretoria and Durban.

The MRC also needs to establish how it can go about seeking treasury approval to maintain a contingency fund (like a cash reserve) of R50 million. Such a reserve should be established to ensure that the MRC is able to act with haste to any health crisis that needs urgent research, for example, an influenza outbreak or investigation of a new TB strain. It is anticipated that a fraction of this reserve will be used each on such emergencies and that the reserve will be reimbursed at the beginning of each financial year from the baseline grant. Having no reserve means that the MRC has no means whereby it can rise to the challenge of urgent needs medical research needs.

Finally, it is proposed that the MRC prepare a submission to the Department of Health and Treasury with a request for a doubling of its budget over the next 3 years (Submission 1). A further proposal for a trebling of the MRC budget over 6 years starting 2013 should be contemplated (Submission 2), on condition that the MRC can demonstrate that it can or has provided 'value for money' when its budget was initially doubled under the first submission. The request should make it clear that the MRC has good plans and procedures in place to absorb and spend these additional funds and that the government is a signatory to the Bamako agreement on the 'Call to Action on Research for Health'.