

MRC

THE SOUTH AFRICAN MEDICAL RESEARCH COUNCIL

news

NEWSLETTER | VOLUME 39 | ISSUE 1 | July 2011



Aiding disease
management
through genetic testing

Exercise and healthy
food choices for learners

Long-term rural data
informs public health



BUILDING A HEALTHY NATION THROUGH RESEARCH



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MRC News is a publication of the South African Medical Research Council (MRC) and is produced by the MRC's Corporate and Public Affairs Directorate.

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Printing: MRC Studio

MRC News aims to inform the public and other stakeholders about the South African Medical Research Council's research outputs and policy, as well as the outputs of MRC-supported research.

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Editorial



Dear Reader,

This edition of MRC News will help give a different perspective on some pertinent issues we deal with on a daily basis.

A visit to rural Mpumalanga, where the MRC's Rural and Public Health Transition Research Unit conducts valuable research on rural populations revealed how critical long-term data collection is. Over time, it helps with rural development, which is ultimately what will exemplify better health care in rural settings. In two separate articles, this edition highlights the difficulties of conducting research in remote and hard-to-reach areas; how the same research collected under challenging conditions informs health interventions nationally and even internationally; the value of community involvement; and the need to train more health demographers to sustain and support current research.

We also take a closer look at how scientists relay their work to the public in the form of national expos, workshops and school visits, in partnership with various local government departments. Like the thousands of learners who are entertained by science experts, you will find that local science festivals are fun events for all ages to enjoy. Educational materials, books, workshops and science shows are available at science expos to entertain both young and old.

With the support of the education department, eight local primary schools have been part of a pilot project to help learners make better food choices and increase their overall physical energy. HealthKick is a World Diabetes Foundation initiative, which is aimed at reducing the health-risk profile of learners from an early age.

We hope you enjoy this and every future edition of MRC News, because it offers you, our valued Readers, exclusive coverage on a wide range of health-related topics.

Lenadine



Decades of genetic testing have revealed that certain population groups are prone to certain diseases. Therefore, Prof. Himla Soodyall is part of an elite group of scientists in the world that is conducting genetic research to help prevent the onset of diseases in certain groups.



GENETIC TESTING FOR DISEASE MANAGEMENT

Even though many of us know that there are sources of many health-related problems, we somehow do little to prevent the onset of related diseases. However, many decades of genetic research has begun to unravel patterns of illness that are common in certain populations. For this reason, the roots of diseases must be managed. This is the view of Prof. Himla Soodyall, one of 10 scientists across the world who is conducting groundbreaking research – her focus is sub-Saharan Africa – under the sponsorship of the National Geographic Society. Having conducted fieldwork in South Africa, the Democratic Republic of the Congo, Madagascar, Mozambique, Uganda and Zimbabwe, she heads research into indigenous populations and maintains that even though genetic testing can improve disease management significantly, we need to educate people to become more proactive about their own health so that prevention prevails.

Science can definitely play a key

role in helping people understand that they are able to prevent some diseases, such as those caused by smoking and alcohol abuse, according to Prof. Himla Soodyall, Director of the MRC Unit for Human Genomic Diversity. “The part we seem to underplay is in education, but how do you educate people to deal with health issues in a responsible way? With HIV and AIDS, you know your behaviour in terms of your sexual practices can contribute to the escalation of the disease. So we normally try to find drug relief at the end of the day to treat the end result rather than focus on the earlier preventative sort of things.”

Prof. Soodyall’s view that it is important to manage the origin of a disease, stems from the fact that certain diseases are more common in some population groups than they are in others, and occur more frequently in some parts of the world than in others. “When we’re talking about multi-factorial diseases, the ones where many genes contribute to diseases like diabetes and hypertension – the source of non-communicable disease, the ones not

associated with parasites – then we need to excavate the layers of structure in that population, which aspects of population gene patterns are there surely by chance as our species have evolved and then which spectrum of that variation is linked with disease. Now this you can only do from



Prof. Himla Soodyall with samples used for genetic testing.



(Top and insert): Prof. Soodyall's presentation "Diverse People Unite".

a population genetic approach. So that's where I believe my research intersects with health."

After more than 20 years of genetic research, Prof. Soodyall continues to make inroads in the field and has evidence that genetic testing can help improve the management of diseases. For example, a simple genetic test for a single gene defect can help to detect cystic fibrosis. "Where we know what the mutations are and we know the baggage with respect to a population history, you can test for a particular disease and the information has gone to the point for many years where the testing can even be done prenatally to help the family manage the disease. Now for many diseases where many genes come into effect we don't have those scenarios, but not all of them are debilitating and life-threatening, so all genetic preventions can do in that scenario is give the individual and the family a head-start in helping to manage the disease," said Prof. Soodyall.

"South Africa is probably one of the best places in the world where you will see quite an amalgam of differences in one geographic area. So yes, genetic testing is one outcome of knowledge, understanding genetic mechanisms of disease, the usage of drugs, pharmaceutical products, because it's not one cap fits all, you've got to tailor it for a particular mutation that are more commonly found in certain groups of people," she added.

In order to strike a balance, in Prof. Soodyall's view, we need to employ education mechanisms to manage the prevention of diseases, and as far as possible, do this

holistically in terms of early diagnosis and therapeutic drug control. An extreme we are faced with, however, is the fact that we are looking for vaccines to cure diseases like HIV and better treatment for tuberculosis, to name but a few challenges. It is here that genetics can intervene and play a key role in the holistic management of disease.

In an article focusing on genetic studies of African populations, published in the journal *Human Genetics* in 2008, genetic variation in Africa was highlighted as playing a role in the prevalence of infectious diseases like HIV/AIDS, malaria, schistosomiasis and tuberculosis. Bearing the health and economic challenges of the African continent in mind, researchers found that an overall acceptance of genetic susceptibility to infectious diseases is necessary to improve the health of people living on the African continent. The researchers also noted that the constant changing patterns of the cultural core of sub-Saharan Africa have led to higher levels of non-communicable diseases. To help curb this spiralling increase, genetic testing would go a long way towards preventing and treating such diseases.

"Whether we have sufficient scientists

dealing with the critical issues of intervention for disease is an interesting question, because in many scenarios the infrastructure that we have in the country, the way in which we can think and to launch whether we would like to see ourselves at the end of the day as active scientists contributing to these scenarios, there's a bit of a void in terms of that. Whether you're in South Africa, Cameroon or Kenya it basically is one of the woes of being a researcher on the African continent. Today we have information where an entire genome sequence (total DNA) is available, we have people who are experts in biotechnology, bioinformatics, mining and analysing this data but whether we can do it at the same level that we require dealing with Africa's problems on the African continent is definitely a big hiccup. And I talk from experience, it's great to say that yes we have bioinformatics nodes and teaching, as well as capacity, but are we driving those scientists who can dictate the pace at which the science is conducted at competitive edges to our overseas colleagues."

Prof. Soodyall feels that there are gaps to fill and we need to find ways of engaging, attracting and attaining top scientists. "So we need to start as a profession where we professionalise research. If we really are serious about research in this country we must make it attractive to people so we'll attain the best. We are 'doubblers' because we have many serious issues that as responsible scientists we intercept at community and national level and so there's only few of us who can carry that out with aplomb and with some degree of authority. So you get indulged into various activities, I'm not saying we shouldn't do it, I believe as a scientist and humanitarian we need to do that – but where does that leave our science at the end of the day?"

References

1. Genetic studies of African populations: an overview on disease susceptibility and response to vaccines and therapeutics. *Human Genetics*. 2008. Jul; 123 (6):557-98. Epub 2008 May 30. Sirugo G, Hennig BJ, Adeyemo AA, Matimba AA, Newport MJ, Ibrahim ME, Ryckman KK, Tacconelli A, Mariani-Constantini R, Novelli G, Soodyall H, Rotimi CN, Ramesar RS, Tishkoff SA, Williams SM.
2. Alu Insertion Polymorphisms and Human Evolution: Evidence for a Larger Population Size in Africa. *Genome Research*. 1997. 7:1061-1071. Stoneking M, Fontenius JJ, Clifford SL, Soodyall H, Arcot SS, Saha N, Jenkins T, Tahir MA, Deiniger PL, Batzer MA.



LONGER-TERM DATA INFORMS HEALTH

Rural data collection first started in 1992 in Mpumalanga Province as part of an ongoing demographic surveillance process of households across 21 villages. The long-term presence contributed to higher response rates over time, which also meant significantly improved data.

A demographic surveillance system entails long-term, community-focused data collection with an element of community involvement to drive research outcomes. As far back as the 1970s, World Fertility Surveys and Demographic and Health Surveys have been conducted, but these systems had integral limitations. For example, the people collecting the data did not necessarily live in the areas they were studying and so may not have had a complete understanding of the data and findings, which they then often turned into policy guidelines with the aid of global and national agencies.

Based on this, the Agincourt Health and Demographic Surveillance System was first started in the most rural parts of the Mpumalanga Province. The site was a

substantial distance from the nearest tar road and needed rapidly improved service delivery. The surveillance system had three distinct characteristics that would ensure that it would be able to collect high-quality, long-term population data: a long-term presence in the community, a main goal of improving health care provision and services, and a commitment to community involvement. An annual census of the entire population has been conducted in the area since 1992 and community-related research projects have been ongoing there for more than 21 years. This long-term presence and community involvement has contributed significantly to higher response rates, including service delivery improvements and ultimately, improved data quality – a gem for disease prevention and future interventions.

Irrespective of ongoing engagement projects such as the one in Agincourt, understanding health issues is complex and requires qualitative skills. “We do have some areas where we think there’s been terrific success,” said Prof. Steve Tollman, Director of the MRC/Wits Rural and Public Health Transition Research Unit. For example, research within the three Agincourt sites showed that people were not accessing their child support grants mainly because of outstanding key documentation and the fact that travelling to the relevant service points to apply for these documents was difficult for poor households struggling to make ends meet.

Key research findings highlighting these constraints were presented to the Local Departments of Home Affairs and Social Security. Mobile Home Affairs services and Social Security campaigns were subsequently introduced, which helped more than 8 000 people from 20 rural villages to apply for identity documents and birth certificates within the space of two days. To ensure sustainability of the initiative, six child support grant extension officers were introduced by the Local Department of Social Security in Mpumalanga. “It is simply the truth that those who need services and facilities most tend to have them least. By asking a number of simple questions in our annual census and vital events update it was necessary to track this community and we have learnt a number of simple things. The reason why people and

particularly, pensioners, did not access their grants was because they did not have identity documents, another reason was that poor people lived further away from Home Affairs or Social Development offices," Prof. Tollman said.

"Similarly, we have work that crosses the boundary between environmental and natural resources on the one hand; and health and population on the other, and we know that that has made quite an impact in discussions among agriculture and forestry. We know that we are unusually well set up, both in this country and in the region and sub-continent as a whole, to understand much better what the impact of global recession is on the livelihoods of poorer communities and off course, by implication, how to respond to that from a policy programme point of view," he said.

"There is work that crosses the sectors, we're doing more now with the Education Department where we're evaluating a Soul City Initiative (Khulani project) taking place in multiple schools. It is focused on strengthening the resilience of primary school children who basically grew up in tough environments, tough neighbourhoods and by strengthening their resilience, we hope to improve their performance at school," Prof. Tollman added. This Soul City Initiative is targeting primary school children aged 10–12 years through the interventions 'Schools as Nodes of Care' and Soul Buddyz Clubs.

"Children have to deal with quite a lot of trauma; there are quite a lot of sick people at home, deaths of parents, poverty, sometimes a lack of hope and a lack of role models. I don't want to paint a bleak picture, because actually Bushbuckridge is a vibrant society to live in, but there are problems. Soul City is doing an intervention with the Department of Education where they are putting Soul Buddyz Clubs into schools and working with school governing bodies to develop schools as nodes of care. Because we follow children (Grades 4–6) over time, we can identify what their home situations are and what has happened at those houses over time, and evaluate their emotional resilience; how they cope with the situations they are in," said Ms Rhian Twine, Agincourt's LINC Office Coordinator. Researchers have already collected baseline data on the social and emotional well-being of children from 10 primary schools in the sub-district of Agincourt. A post-intervention evaluation will



Ms Rhian Twine, who helped set up the Agincourt LINC Office.



Prof. Steve Tollman, Director of MRC/Wits Rural and Public Health Transitions Research Unit.

take place to help inform the national roll-out of the project. In 2002, Ms Twine helped set up the Learning, Information dissemination and Networking with Community (LINC) Office to assist community development forums with proper interaction sessions around Agincourt research.

LINC Coordinator, Ms Twine, emphasised that the communities in which they work expect regular feedback on all the projects across the various study sites. Regular meetings are held to discuss the impact of various research studies, to the point where fact sharing takes place – village-specific fact sheets are distributed regularly. These fact sheets contain profiling information to help the various villages shape their own development. Access to social grants was one of the many LINC initiatives through which research was translated into policy and taken to the relevant local authorities (health, welfare, education and environmental affairs) to embark on effective programme development interventions.

"Community engagement within our study site happens at many different levels, so at household level, it is really when our fieldworkers go into households and speak to members about the research projects and the most important part thereof is the informed consent process. It is everyone's choice whether they engage in our research or not," Ms Twine said. Despite the informed

consent from respondents, it was necessary to seek the permission from traditional and civil leaders before starting the population monitoring process. Ms Twine said that gaining the respect from community and village leaders was a crucial first step towards nurturing long-term relationships for the long-term surveillance they intended to do.

Because Agincourt data has long-term benefits, it is crucial that it is captured under secure conditions and by well-trained staff. "The production, handling and archiving of data starts with the handling of the socio-demographic information system. The data set is a backbone for how different projects link or articulate and it also covers areas of data sharing. And data sharing happens at a number of different levels. One of our most important decisions was to establish the capacity (the data entry) which occurs within Agincourt fielding sites, we are there courtesy of our community hosts. In principle, data is entered on-site and available to the community; and there have been surveys which have assisted with electrification and water articulation projects," Prof. Tollman said.

Agincourt is a founding member and one of 37 member sites of the International Network for the Demographic Evaluation of Populations and Their Health (INDEPTH), which was started in 1998. There are three INDEPTH sites in South Africa: the Dikgale Demographic Surveillance System (DSS) sites in Mpumalanga and Limpopo respectively and the Africa Centre (Hlabisa) in northern KwaZulu-Natal. "The research that comes out of a DSS leads to the development of knowledge for the greater community and not only for South Africa, because we are also part of the INDEPTH network. We are part of a collaboration of many sites throughout the world," Ms Twine concluded.

References

1. Tollman, S and Khan, K. *Health, population and social transitions in rural South Africa. Supplement 69. August 2007. Scandinavian Journal of Public Health. ISSN 1403-4956.*
2. *Research into health, population and social transitions in rural South Africa: Data and methods of the Agincourt Health and Demographic Surveillance System.*
3. Madhavan, S; Collinson, M; Townsend NW; Khan, K; Tollman, SM. *The implications of long term community involvement for the production and circulation of population knowledge. Demographic Research: Volume 17, Article 13, November 2007.*

MAKING SCIENCE MATTER

Research translation is probably the most important component of any research endeavour, and should involve the affected communities and allow people access to information to foster trustworthy relationships.

“Research translation, to a large extent, relies on community involvement and there is an onus on scientists to keep the communities informed of the progress of research in order to build community partnerships. If people are expected to trust scientists, relationships of trust have to be nurtured and this is an often forgotten component of research translation. Scientists may not realise the dire need for this yet, but it is very important. More emphasis is being placed on science communication and community engagement on an international level, based on the fact that the public has a right to know, because most of the public funding is going into research.”

These are the words of former Medical Research Council (MRC) researcher and former SciFest Africa Director, Ms Vera Adams. She worked in the Nutrition Intervention Research Unit during her 12 years of being an MRC researcher. Her work entailed research into intestinal parasites in children from mostly disadvantaged communities. “We had community projects and an important component of our research was the need to communicate our results to the public because they’re the ones that we’re doing the research on and they have the right to know the results. And also, a sense to create an ownership of the project so that the community can take it over and manage and sustain it, and we’ve done that successfully with our de-worming programme that we



Ms Vera Adams, former Director of SciFest Africa and former MRC researcher.

set up while I was at the MRC,” Ms Adams said. The fact that the community was able to sustain the project proved that the model worked and could be replicated in other communities. “Teachers would de-worm the children regularly, and they kept accurate treatment registers and that went on for a couple of years. The success rate was so high that we reduced the prevalence rate from 80% to about 20% after a three-year period of de-worming, which the teachers and school nurses were in charge of. There was always this component of ‘the public has a right to know.’ Research needs to be explained to so that they become aware and understand and they can take part in it.”

Ms Adams said that although research translation is quite different from research, she finds it exciting to work with top international and national scientists, and seeing their work being showcased in a public arena (such as SciFest Africa). She thinks that science councils have a crucial role to play in research translation. “It’s the

duty of the scientists to communicate to the public. As a scientist, you are often rated by the number of peer-reviewed articles you have published in a journal per year and your performance is based on that. So, the emphasis is more on publication rather than communicating the research into a language that is understandable to the general public. We as scientists have to realise the importance of including science communication and research translation as part of our research projects.

There’s still a lot to do in terms of getting the community aware and letting them know that they have the right to know and question what scientists are doing. So in terms of that there is a great challenge but I’m using what I learnt at the MRC in my current work because we had a community engagement component in our project. Science councils and places like the MRC can play an invaluable role in achieving this because most of their projects are in the community. They just need to engage more and promote themselves more in the communities and they will be regarded with less suspicion. However, it is not just a matter of going to a community meeting and spitting out research results. It must be translated into a language that people understand, therefore the aspect of research translation should be embedded in researchers,” Ms Adams added.

In terms of the actual event, Ms Adams has identified other gaps in terms of bringing science to ordinary South Africans. “We have so many health scientists in this country, why aren’t there more exhibits? There’s the social component of science as well, which we need to bring in as well. People mustn’t just think of science as hard-core science and we all need to link that up. In terms of collaborations, it’s very important that we don’t work in isolation, we’re not going to achieve anything. By working together in partnerships we will create the culture of science throughout South Africa.”

The Eastern Cape Department of Education is committed to exposing as many learners as possible to science events by providing accommodation, transport

and lunch. In 2008, about 600 learners came from Eastern Cape Schools alone and in 2009, a total of 900 learners visited Scifest, which speaks of a concerted effort to help bridge some of the gaps in especially disadvantaged communities. "Everybody is restricted with budgets and especially the Department of Education. To have the initiative of bringing more people is also very exciting for us; it shows their commitment to the festival. There was a regional festival in 2008 to which schools responded and they were eager to come to the bigger festival as well, so that explains the amount of learners and that's the one vehicle we're using. We hosted another successful regional festival in 2009, generously supported by the Embassy of Finland. We have schools from Nelspruit and Kimberley, and people come year after year because of the quality of and the exhibits that we have. And the kids really have a good time." Ms Adams' take-home message is "Give yourself that space to explore and feel free to explore, open up your mind, the world is your oyster, even if you're not in science, come and see what can be done if you give yourself the opportunity to just be open."

Prof. Tim Noakes, Director of the UCT/MRC Unit for Exercise Science and Sports Medicine, urged people from all walks of life to attend scientific events and take an interest in science because it is not exclusive to science students and learners. 'We need to teach everyone how to think critically and not just to accept things as truth, because as one student asked me after delivering my presentation: "Is there anyone I can believe?" I said no, there isn't,' he said. Prof. Noakes highlighted the fact that information is so freely available that getting hold of facts should not be difficult at all. "But we need to teach people how to interpret such information. That's what I've discovered in the last four or five years. I try and inspire people and say you can take on the rest of the world as long as you're open-minded and courageous – you can teach someone how to know what the truth is. And that's a global problem, it's not just in South Africa or on the African continent that we have to educate people on how to think and how to choose information."



(Top to bottom): Inquisitive learners visiting the skin exhibition.

The Agincourt Health and Demographic Surveillance System encompasses data that has been collected since the early 1990s in the rural sub-district called Agincourt in Bushbuckridge, Mpumalanga. Agincourt data is widely used to inform a wealth of health interventions.

RIGHT:
Prof. Sangeetha Madhavan
photographed while on a visit to South Africa.



“GOLD MINE” FOR FUTURE HEALTH INTERVENTIONS

The Agincourt Health and Demographic Surveillance System (DSS), situated in the rural and most remote parts of Mpumalanga, has been successfully conducting census annually since 1992. This Medical Research Council/University of the Witwatersrand demographic surveillance system has established that long-term community involvement leads to improved quality data being collected, and it informs the direction of intended research.

By including the communities from more than 21 villages, crucial data collection over time has helped to inform health interventions, not only for the communities in and around Agincourt, but also to the benefit of the rest of South Africa, and sub-Saharan Africa. As the extensive Agincourt database continues to grow, more data is available to inform health interventions to help prevent some of the main health priorities, including HIV and AIDS, diabetes, chronic diseases, tuberculosis, cancer and related conditions. More importantly, the data aims to identify the fundamental challenges on a grassroots level, which requires in-depth knowledge of

the ongoing challenges in these villages.

In a paper published in the journal *Demographic Research*, researchers from local and international institutions explored the importance of generating longer-term population data. Dr Sangeetha Madhavan, Assistant Professor at the Department of African-American Studies at the University of Maryland, said the DSS ideology wanted to steer away from the traditional way of doing research in a community which is unfamiliar to the research team. “That clearly is not ethical and quite often it leads to bad data because you don’t actually understand what’s going on in these places and they’re very complicated situations, everything from understanding disease, to why people die and why young people are having babies at the age of 16. What is unique about Agincourt, is that they realised a long time ago that, in order for us to collect good quality data, which is important to inform interventions, actually depends on establishing a good relationship with the community. This means mutual respect, by making a real effort to understand how people in the community are thinking about certain problems,” she

said. Dr Madhavan is an Honorary Professor at the University of Witwatersrand’s School of Public Health and linked to the Maryland Population and Research Center.

Having worked and lived in South Africa for more than 12 years, at Agincourt and Wits University respectively, Dr Madhavan is familiar with the work of Agincourt and well-connected to the community. She visits the site annually to do follow-up work. Brown University anthropologist, Dr Nick Townsend, has been conducting similar fieldwork for as many years as Dr Madhavan in Agincourt. “Nick and I have spent a lot of time trying to understand what social connectivity means in these communities, what family and kinship mean and who is obligated to help who and the impact of this on children.” Because the work was small scale, they did not always focus on all 21 villages. “Instead, we focused on a small group of kids and their families in two particular villages and we spent four months there and every day went there trying to understand what’s going on in these families, why isn’t this person talking to that person, why is it that this person is at that church and that person in another

church – at that level, you may find that that would give you a different story. I've always thought of the census as this great universal population-level data and you can draw samples from it and that kind of stuff, but one thing it cannot do, and was never designed to do, is to really go in-depth into what's going on in a family," Dr Madhaven said.

To address the gap between census and the demographic surveillance system in Agincourt, feedback sessions involving the whole community (of every single village) had been conducted annually after the census data has been collected. These sessions aimed to establish ongoing conversation. "It is an opportunity for the community to feed back and say what they think the reasons are why people are dying, for example. It provides important information for the research team. Agincourt cannot create jobs, if this is an issue, for example, but what it can do is to create the data to help fund entrepreneur programmes for certain age groups who seem to be unemployed and healthy. The fact that there is now a full-time liaison person helps keep the community involved and empowered by the creation of the data and ensures that they do not feel exploited.

"Even though it would be the intention of a researcher to publish their data, the only thing that matters to the community, is how the research will impact on their lives. That makes the community liaison person so important because it's great to tell the community about all this data but then taking that and doing something, that's the gap that's really hard to fill. You cannot simply tell them 'here's data, go do something'. This is how this liaison officer post came about; to link the community with the data, actually use it in a way that is beneficial to them. That is something that I think is quite unique because the one-shot surveys cannot do that and researchers are not there to be able to do follow-ups. Agincourt also has limited resources available and can't be promising things to people, but having to think of ethical things. If they want to continue their research for the next 20 years, the community does have to feel like they are getting something out of it, that makes total sense. I think there is real effort being made in that direction," Dr Madhaven went on to say.

"In theory, this data set is in some sense a gold mine, because of its longitudinal nature, so yes, for research purposes it's great, and if you really wanted to see what's been going on with HIV, how it has impacted



on this community, this is exactly the kind of data set you would need. This is the kind of stuff that should be informing how ARVs should be distributed and how grants should be distributed. The fieldworkers are the gold mines; they can tell you which questions to choose and how to approach a sensitive topic like sexuality and HIV. The role of the fieldworkers is crucial to develop the community linkages, the fact that they are from these communities makes a huge difference on how the community views us, the non-villagers (foreigners)", she added.

Dr Madhaven went on to explain how challenging the process of data collection is in rural populations, from accessing communities to gaining their trust to allow ongoing information sharing. "I think it's also because of demography and population studies, and the troubled history that it's had in South Africa, the collection of population statistics is very problematic in this country because of what happened in the past (Apartheid). And when I took the position at Wits as a demographer it was after a long time because it was in some sense a way for the Department (Sociology) to stay away from anything that resembled monitoring people or counting people because of this really bad Apartheid legacy. These things

"This means mutual respect, making a real effort to understand how people in the community are thinking about certain problems,"

take a long time to change. The population studies made a lot of people uneasy; the notion of being monitored, of having a surveillance system, seems a bit strange, especially here.

"Surveillance means people are watching you and what you are doing, especially for people who are living illegally, the last thing they want to do is to be part of data collection. Understandably, they are going to be very nervous about telling you anything about themselves because they would fear being reported and deported." That is one part of the problem, another, Dr Madhaven said, is that quantitative training, is lacking in this country and demographers are not trained well enough to handle data of high magnitudes. "You need to have a certain number of basic skills to be able to work with this kind of data of about 75 000 people. For a lot of students, it's very intimidating, that's a long-term problem and we've seen this because of the students who have come through the population programme, a lot of them struggle with basic mathematics. We need to change this, because it is sad (the African centre is also a DSS site), we have all this data, which is longitudinal, which is not being used often enough. A lot of effort is being made at a training level to get more South African students involved, being able to train them well enough to use longitudinal data," Dr Madhaven concluded.

References

1. Madhavan, S; Collinson, M; Townsend NW; Khan, K; Tollman, SM. *The implications of long term community involvement for the production and circulation of population knowledge. Demographic Research: Volume 17, Article 13, November 2007.*
2. Tollman, S and Khan, K. *Health, population and social transitions in rural South Africa. Supplement 69. August 2007. Scandinavian Journal of Public Health. ISSN 1403-4956.*
3. *Research into health, population and social transitions in rural South Africa: Data and methods of the Agincourt Health and Demographic Surveillance System.*



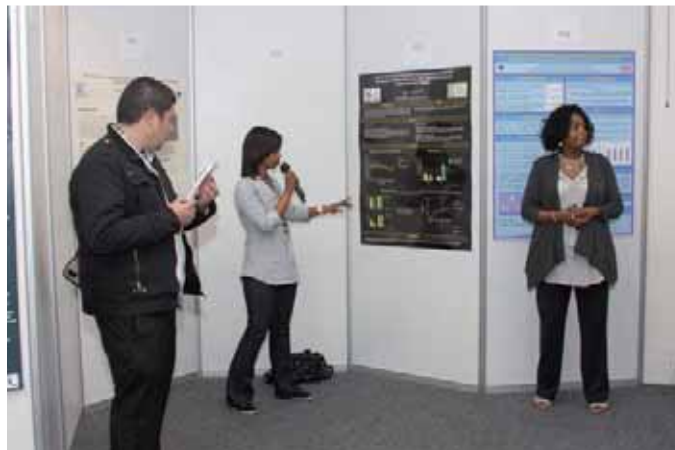
4th MRC Research Day 2010



MRC Research Day continues to attract hundreds of new researchers to its exhibition platform every year. It is an opportunity for young scientists, including Master's and Doctoral students, as well as Postdoctoral Fellows to showcase research that which is conducted either within MRC research units, or within higher education institutions in South Africa.

The Research Capacity Development sub-directorate of the MRC hosts the event annually to recognise excellent research excellence and help cultivate the talents of health scientists in the southern African region on an ongoing basis. MRC Interns, holders of MRC Bursaries and Scholarships attended MRC Research Day 2010 with their respective supervisors and mentors.





STRAND CHILD-SAFETY

The Cape Flats community of Strand has embraced initiatives to fight the high incidences of crime and violence, which dampens the development of the youth in their community. The aim is to augment leadership skills from an early age and discourage criminal activity.

In 2008, the National Injury Mortality Surveillance System (NIMMS) recorded 36 795 injury-related deaths. Of the 31 177 reported cases of non-natural deaths in the country, violence accounted for just more than one-third (31.5%) of all deaths, followed by transport injuries at 29.4%. NIMMS data showed that fatal injuries, especially those due to road accidents and

violence, were fast becoming major public health concerns for South Africa. This data can help authorities identify potential victims and areas of crime, dangerous dwellings, as well as alcohol and drug abuse patterns – and inform appropriate interventions. As a World Health Organisation-designated “Safe Communities” area, the Strand community became the basis of research conducted by

the Medical Research Council's Safety and Peace Promotion Research Unit (SAPRU), formerly known as the Crime, Violence and Injury Lead Programme. Issues emanating from road traffic accidents, burns, as well as crime and violence, are main concerns when it comes to child safety issues throughout the country, reports LENADINE KOZA.

Ms Neziswa Titi, Research Intern at





the MRC Unit, SAPRU, said that they have been conducting research in Nomzamo and Broadlands Park since 1996. Therefore, it is easy to implement new programmes in the Strand area – they know the area well. They also conducted a needs assessment before embarking on their latest initiatives. "Whenever we do research, we implement it in the Strand, because we can monitor and evaluate it properly, and build on existing programmes. I had meetings with Strand leaders and asked them what the needs of the area were. We are dealing with issues that they raised with us (burns, crime and violence and road traffic safety). We chose them because they had

raised them and obviously we know that with kids, those are the main issues, when it comes to children's unintentional injuries in South Africa," she said. Members from the Department of Community Safety and the South African Police Service (SAPS) regularly address learners from various Strand schools to instil awareness about criminal activities, with a particular emphasis on eradicating drug-trafficking in schools.

Constable Jovanne Meyer explains what his job entails: "We empower and educate the community about crime prevention without the intervention of the police; the way they handle themselves and how children should have an open mind

about crime being around them. Being vigilant, being awake and being aware that anything can happen at any moment and just because we hear about crime outside does not mean it would not happen to us. A lot of the time we find that the crime is actually happening inside the house and that constitutes domestic violence, also part of our focus points. We also educate the children to be safe and try to eliminate the elements that are 'the drug-runners' that you get in your schools, and the dangerous weapons they carry to school."

Constable Meyer explained that primary schools are included in the crime prevention initiatives, because the drug



lords are targeting young learners to instigate criminal activities on school premises. "Older kids are easily identifiable by police as drug-runners, but the youngsters, as young as Grades 4 and 5, are not easily seen, because they are always on the streets. Police know that so they're not going to think twice when driving past them. But then those are the children who are actually being used and pulled in by the drug lords by giving them (children) sweets, money and other items like cellular phones. They use everything to lure them for their purposes and for selling drugs, and at the end of the day, those children also get hooked. There was a child who has been smoking dagga from the age of seven years, he is in high school now, and those are the kind of things we're looking at. But things have definitely changed and it is an ongoing process, but you have to be vigilant and you have to maintain your purpose. You cannot back down for one second," Constable Meyer said. He alluded to the fact that they have sustainable projects running in the Strand area and that their crime-prevention drive is ongoing to help protect the youth from a life of crime.

"Being young is already tough enough without these extra elements of drugs and violence. There's also domestic violence and alcohol abuse at home, so for us to have the police presence here, to have that sense of safety, it's a good thing to know that you can just be a child without having to worry about all the other elements – then the groundwork is set for making a success of your life. But if the presence isn't there, as a youngster, 'I almost feel threatened and I have to do things for other people instead of focusing on my schoolwork', that's very detrimental to their development," Constable Meyer went on to say.

Schools are "protected" with the use of Bambanani volunteers, who have been trained by the Department of Community Safety to help ensure safer schools. The volunteers are able to deal with a range of socio-economic conditions within communities, according to Ms Miriam Kamaldien, Project Manager at the Department of Community Safety in the Western Cape. She is optimistic that the programme is already bearing fruit and that more and more of the youth are realising that they are responsible for their own future.

"Crime incidences are reported at the SAPS and also at schools, therefore the Department of Education, the SAPS and the Department of Community Safety work together. We identify high-risk schools

based on high-risk areas. Strand is one of our high-risk areas and we have about 124 schools that are high risk because of the crime that is reported in those areas. This is an opportunity for the volunteers to see other projects in action and for the schools to see other projects to ensure the safety of communities. We select groups of 20 to attend leadership camps, but we do not do it ourselves, we work in collaboration with other stakeholders. They facilitate the camps and we identify the needy schools and potential leaders among the learners who would benefit from attending the leadership camps," Ms Kamaldien explained. At these camps, the learners are equipped with leadership skills, which they bring back to the school and empower fellow learners with, through presentations and by creating awareness against crime. The aim is to inspire others to become leaders instead of ambassadors of drugs and crime.

"There is a lot of criminal activity on school premises, because gangs are actually using the schools as recruitment centres."

"There is a lot of criminal activity on school premises, because gangs are actually using the schools as recruitment centres. Because there are a lot of resources in the urban areas, we chose the semi-rural areas to bring some of the services to them. If we collaborate on efforts and intervene in schools through the Bambanani project, with collaborators like the MRC, we are creating an alternative to crime and drugs which we want to give to our children – and there's a future out there. The project will be rolled-out provincially following (this) second pilot project. Nationally, we are seen as a benchmark, we go to schools in other provinces and do presentations on the school-safety models that we are working on. There is also the hands-off-our-children model (HOOC-model), which incorporates a pool of trained volunteers who have been enlisted on a database to perform various HOOC tasks, so it is a two-pronged approach that we are using. School safety is through Bambanani to prevent the gangs from influencing children on school grounds. This is done through the deployment of volunteers to prevent gangsters from accessing learners at schools. Child safety is about going to different schools and teaching learners how to respect, love and value each other," Ms Kamaldien added.

Workshops are held for educators to help them understand what is expected of the learners who have been chosen for the Bambanani leadership programme (camps). "Sustainability will be through the constant contact that we will have and we also have to provide guidance and mentorship. This is the start of the process and it is going to take hard work. We have a group of trained volunteers from all over the Western Cape who simultaneously form part of a skills-transfer process, whereby they transfer leadership skills to young learners in high-risk areas. These volunteers would have graduated as Community Development Workers through the Department of Community Safety and would be able to cope with a range of socio-economic issues and crises," she explained.

Mr Ben Nohija, Deputy Director of Road Safety Management in the Western Cape, said that children are often involved in road accidents in the Strand area. Therefore, road safety campaigns are frequently held at primary schools to address pedestrian safety, as well as ignorance in terms of how to cross the road safely. "With the children we need to make sure that they do not play in the road, but in safe places. In the Western Cape, out of the total number of fatalities we get a percentage of about 47% that represent pedestrian casualties. So, it is very important that we address issues around their safety, more especially those communities who are living next to busy roads. Many squatter camps are close or next to busy highways.

"It does happen that pedestrians sometimes ignore pedestrian bridges because there are criminal elements who are asking people a fee to use those bridges and they also vandalise the lighting that is provided on these bridges, which makes pedestrians visible. Older people also complain that the pedestrian bridges are too far from them, and if they are using walking aids, it would be difficult to access such bridges. In many cases, it is a case of poor lighting and muggings so people use short cuts," Mr Nohija said.

He highlighted the importance of forming partnerships to help sustain road safety and anti-crime initiatives, because it would also help with networking throughout the province. "There are some institutions that we do not reach because maybe we do not know about their existence. For example, the MRC will probably give us more people than we can work with. In order to sustain such projects, we also do come back to the schools and do educational workshops with the educators," he concluded.



GIVING LEARNERS A *HEALTHKICK!*

With the high burden of cardiovascular disease and diabetes globally, the World Diabetes Foundation has funded a school-based programme to instil healthier eating habits in learners from an early age, as well as promote their physical activity.

The World Health Organisation estimated that more than 1,1 million people died of diabetes in 2005 and the global health body further projected that the number of diabetes deaths would double between 2005 and 2030. This increasing global burden of chronic diseases, particularly diabetes, is mainly caused by a combination of overweight, obesity and physical inactivity. However, the world body urges people to avoid these common causes, including smoking, and combine healthier eating habits with regular



Members of the HealthKick team with principals from the Metropole North and Cape Winelands/Overberg education districts.

exercise to delay or ultimately – prevent – the onset of diabetes. To help fight the global scourge of the disease, which mainly affects low- and middle-income countries, the World Diabetes Foundation (WDF), in partnership with the Medical Research Council (MRC), have made funding available to improve the lifestyles of young learners who are at risk of developing diabetes and other

chronic diseases in later life. The Chronic Diseases of Lifestyle Research Unit of the MRC conducted formative research in 2007 involving 100 randomly selected primary schools in the Western Cape and found that physical inactivity and unhealthy diets were fundamental problems at these schools. Following a three-year intervention aimed at improving the eating habits and physical well-



being of Grade 4—7 learners, 16 purposively selected schools have now moved to the implementation phase of the HealthKick programme, which is mainly funded by the WDF, as LENADINE KOZA reports.

At the action planning meetings held at the various schools, teachers from St Mark's (Ceres), Botrivier, Kleinmond,

Educator's Manual, according to Dr Anniza De Villiers, Research Manager for the HealthKick Programme and the MRC's Chronic Diseases of Lifestyle Research Unit.

"We did a survey in 2007 among Grades 4—5s and looked at their diet intake – specifically how much fruit and vegetables they ate and how fit they were.

"At the beginning of 2009, we did another survey to see the profile of Grade 4s and it was shocking to see that, in the whole group, every child ate about 0.8% of the recommended daily intake of fruit and vegetables."

Lukhanyo (Hermanus), Winsley (Bellville), Elnore (Elsies River), Dr Van der Ross (Belhar) and Masonwabe (Delft) Primary Schools have indicated their willingness to help make their school grounds healthier environments for learners. They vowed to make a difference by changing the items of school tuck-shops, adopting nutrition guidelines and by starting vegetable gardens at school. Fun activities to promote movement would also be introduced during break times and extra-mural activities (including dance) are some of the healthy alternatives that were suggested with the help of the well-resourced kit that was sent to all eight schools in 2008. The teachers' resource kit also contains contributions from the Heart and Stroke Foundation of South Africa, including a Hearty Schools Programme

At the beginning of 2009 we did another survey to see the profile of Grade 4s and it was shocking to see that, in the whole group, every child ate about 0,8% of the recommended daily intake of fruit and vegetables. We initially wanted to combine the curriculum and slot our programme in with that, but have since collapsed the different groups," Dr De Villiers said. She said that the initial action-planning booklets did not clearly specify the link between the possible actions from teachers – for improved physical activity and nutrition levels of learners – and the goals of the intervention. Therefore, Life Orientation educators were targeted during recent meetings with schools, although other educators were not excluded from the HealthKick Intermediate Phase Life Orientation Curriculum Action Planning

Sessions for 2010.

The HealthKick tool-kits were originally developed in line with the education curriculum in addition to consultations with the district municipalities of the Western Cape. Many revisions had been incorporated in an attempt to accommodate the necessary shortfalls and because the resource kits fell short of a proper implementation point, teachers were given simple options to choose from and introduce at their schools. They could either introduce nutrition and physical activity guidelines, or ensure that tuck-shops or vendors make healthier options available. "We don't want to take income away from the school. If you don't like the intervention we are offering, which is to introduce fruit to the menu about once a week. The Heart and Stroke Foundation tuck-shop assistance programme has been very successful in other schools," Dr De Villiers said. Vegetable gardens, health committees and the introduction of fun activities for learners during intervals, as well as the promotion of extra-mural sporting activities, are also recommended. Hosting poster events as an option has been successfully linked to cancer awareness campaigns at St Mark's Primary School. Parents and community members were invited to the poster judging event where only fruit and vegetable salads were served. Other family-oriented activities could include fun walks or mini soccer days.

"If you actually look at the choices, they all lead to the same thing, the other thing we discovered is trying to find the key



to help learners to eat healthier. We've tried to replicate activities which have worked in some of the schools. The curriculum, and what we're offering in our resource guides, are along the same learning outcomes. We're now trying to figure out areas of implementation," said Prof Vicky Lambert, Associate Professor at the University of Cape Town (UCT) Exercise Science and Sports Medicine Research Unit, who is a Principle Investigator for the Programme. She emphasised the fact that schools are not required to follow both avenues, "we would like to assist them with either. In terms of guidelines, the schools must decide what they want help with." In 2007, Prof. Lambert was involved in a systematic review of best practice interventions for promoting healthy diets and increasing physical activity, and it culminated in the "what works" document, which is available on the WHO website.

Endorsed by the Western Cape Education Department, the key components of the HealthKick Programme include unhealthy diets, physical inactivity, the 2007 Healthy Active Kids Report Cards, as well as the systematic review conducted by UCT. Researchers established that the school interventions would be most successful if they were offered at primary school level and implemented by qualified educators of Grade 4–7 learners. Olympic gymnasts, after doing skipping demonstrations at several of the HealthKick schools, are keen to assist with the introduction of skipping events

at schools that indicate such an interest. Skipping ropes and other basic equipment have been supplied to all schools, together with the resource toolkits, although it is up to educators to decide whether they would like to enhance their existing campaigns or introduce 'healthier' ones. Dr De Villiers said that they would like to see diabetes being prioritised, because the Western Cape Diabetes Association would provide diabetes awareness resources and posters towards a Demim for Diabetes Day.

HealthKick is currently in phase three, with the second survey already underway, as planned with the learners already in Grade 6. Dr De Villiers said that they would be using multilevel repeated measures and would have a cohort analysis. They have also been doing an environmental assessment every year and developed a more in-depth set of questionnaires.

Phase two of the intervention involved eight co-implementation and eight self-implementation schools, whereby the intervention schools were guided through action planning, targets for healthy nutrition and the physical environment at the school. They also received toolkits with resources (one per school). The control group received a healthy school "tips" document and a printed resource guide but no physical manifestation of resources.

During the formative assessment of the 100 randomly selected primary schools from the rural and urban education districts, it was found that (for unhealthy diets) sweets

and crisps were the main items sold at all the schools and tuck-shops. Fifty percent of principles identified unhealthy diets as the top priority for learners and 50% of schools had signs sponsored by a leading softdrink brand. Only 19% of principles indicated that their sports facilities were adequate. After completing the intervention mapping, researchers set out to identify the best behavioural outcomes, which closely aligned to the national food-based dietary guidelines.

Ms Jillian Hill, Research Intern based in the Chronic Diseases of Lifestyle Research Unit of the MRC, highlighted the problem of unhealthy eating and the subsequent physical inactivity experienced by some learners. She said that it tied in with some of the challenging social conditions of most of the learners' respective communities. "Issues include parents being drunk, children being neglected, and another comment that came out was that they eat what they want to eat. But it is not really true – they eat what is there", Ms Hill said.

She added that some of the successes included a Cancer Day event with a fruit and vegetable theme, which indicated to the learners and their parents that healthy eating does not need to be expensive. "The socio-economic issues we really cannot do anything about, but we thought of reminding the educators that HealthKick is a preventative project that is geared towards helping children make informed decisions about their health when they can afford to do so."



Prof. Corfield with Prof. Pink from the TV-show Knock Knock! on SABC3. The science programme showcases experiments and illustrations of the impact of science on our lives. Like Prof. Corfield's workshops, his demonstrations are fun and lively to captivate and challenge the minds of people. He attended Prof. Corfield's DNA detective workshop during a local science festival in Grahamstown.

THE *FUN SIDE* OF SCIENCE

Few scientists are able to do scientific experiments like molecular scientist Prof. Valerie Corfield does every time she engages an audience with her hands-on workshops and colourful exhibitions.

Following almost 40 years of research in biological science, Prof. Valerie Corfield has earned national and international acclaim as a specialist scientist in human molecular genetics. Based at the University of Stellenbosch's Centre for Molecular and Cellular Biology, she has, over the last decade, also focused her energies on public engagement activities to assist in research translation. She has designed a number of workshops on HIV/AIDS, tuberculosis

(TB), DNA, enzymes, drug abuse and skin, sprucing them up from time to time in an attempt to continue to excite audiences.

Prof. Corfield has collaborated with other scientists in her community initiatives, but retaining a support base remains one of her biggest challenges. She firmly believes that variation can continuously stimulate different reactions better than lecture-style information sharing would. Her ability to communicate science at a lay person's level makes her one of the most entertaining and



Dr Robea Ballo from UCT

engaging scientists in South Africa, reports LENADINE KOZA

"What I do with public engagement is actually part of my scientific hobby. I went to SciFest about 10 years ago and then I did a DNA workshop, which is related to my work in general, but I wanted to give it an aspect that would interest people and give insight into the use of DNA in forensics. Since then, I've developed a lot of different workshops; I like to do something different every year or two. For many years, I have done a workshop



Dr Lester Davids (UCT) engages a learner at the TB exhibition.

on HIV/AIDS that many other people have used and Ms Khalipa Ramahlape from the MRC used to work with me on these workshops and others on enzymes and food technology,” Prof. Corfield said.

She emphasised that even though it is vitally important that science is delivered to communities in a language that they understand, research translation can be daunting to ordinary scientists. They constantly face budget constraints and have to source funding to keep their projects afloat – other aspects like translating research for purposes other than scientific outputs can easily be placed on the backburner. “It is one of my biggest difficulties, and at times my greatest frustration, but it’s very hard to get a sustained effort and involvement from other scientists and there are probably several reasons for that, one of which is that there isn’t really recognition amongst scientists themselves and amongst funding bosses to give them the leeway and the free time to do this.”

“If you’re a young, ambitious scientist with a grant, you have to account to your grant holders, you have students to account to as well and do not have time for outreach activities. So those really are the two main problems. Students who are involved in public engagement as postgraduates, leave and go to other universities and then get sucked up in the pressures of research. They go out into other jobs where there isn’t the time for

them to go and do outreach. I’d like to say that my own boss, Prof. Paul van Helden, has been very supportive of my efforts over the years and has recognised the advantages of outreach activities.”

“I’ve got an exhibition about skin, called ‘The Skin You’re In’, another exhibition is called ‘The Trouble with TB’ and there’s

“There are a lot of diseases that are relevant in South Africa as well as skin conditions, if not actual diseases.”

a workshop that’s simply known as ‘Tik’s Tricks’.” The latter, Prof. Corfield explains, she developed partly because there was such a high prevalence of methamphetamine (also known as Tik) abuse in the Western Cape. In ‘Tik’s Tricks’, she explains to people how the brain functions and how this drug counteracts the activities of the brain, tricking it to the extent that irrational behaviour starts to occur in the person who is abusing the drug. The two exhibitions, on the other hand, are relevant to South Africa as a whole, particularly the youth and teachers. “With The Skin you’re in, I recently teamed up with two researchers, Drs Lester Davids and Robea Ballo from the University of Cape Town’s Department of Human Biology, who have a real interest in outreach as well, and who were keen to get involved. They helped me improve the exhibition, renovate it, form

collaborations and look for funding to really take this initiative places.”

“With the skin, we look at many different aspects. We look at the skin as an organ and we let kids discover what it’s about. I tell them, ‘let’s explore the physiology of the skin, see how it works, and as the biggest organ of our body what does it do?’ That’s looking at the skin in terms of health, which then gives us an opportunity to look at the skin in disease. There are a lot of diseases that are relevant in South Africa, as well as skin conditions, if not actual diseases. There’s skin cancer obviously, and we emphasise that all population groups are actually susceptible to skin cancer although obviously in fair-skinned people it’s more of a problem.”

“We talk about albinism because carriers of albinism in black populations of South Africa are actually more common than in many other parts of the world and I noticed that a lot of the black school kids and their teachers are particularly interested in albinism because they know people with albinism. It’s a recessive condition, meaning the parents may be normally pigmented and suddenly, unexpectedly, they have a child with albinism and they’d like to know why, so we talk to them,” Prof. Corfield added.

As a molecular cell biologist, Dr Davids conducts research on the skin, predominantly looking at skin reflectors of ultraviolet (UV) rays and how we can protect the skin from the damaging effects of UV. He also looks at skin cancers, the mechanistic effect, as well as the cell biology of skin cancer and how people can prevent the development of it.

“I think it started to sink in with learners that we need to look after our skin because it is the first line of defence against the external environment. We will continue to hopefully build a vision to take exhibitions further and not only engage the learner but also the public out there, make the adults aware of what our skin needs and why we have to love the skin we’re in,” Dr Davids said.

A section of the exhibition caters for little children so they can feel and touch the different types of hair. At science exhibitions, a bed-of-nails (belonging to the MTN Science Centre) helped to give a hands-on experience and it also gave the learners a platform to have fun. When lying on the bed-of-nails, the even distribution of bodyweight would prevent damage to the skin. “As for TB, we look at it in a very serious way, but use a metaphor – a little green bug that



(Main and insert) Daring Dot explains the trouble with TB and the various stages of the diseases to interested learners.

represents the TB mycobacterium (a nasty mean-looking little bug) and tell the story of Daring Dot, a heroine, wearing a red cloak. She's called Dot, derived from Direct Observed Treatment, where TB patients actually have to take their medication in front of a volunteer (Dot strategy), and she wears a cloak and a yellow mini-skirt with red dots on it and boots. Refusing to allow budget constraints deter her, Prof. Corfield used her own funds and asked her sister in London to make the outfit for her cartoon character from a picture reference and it was exported to South Africa. But Prof. Corfield made the yellow boots, which had to be one-size-fits-all, herself. With the help of yellow knee-high socks and yellow mock-Croc shoes, she completed the boot-effect that was needed to complement Daring Dot. This is one of the many innovative mannequins that she uses during her workshops, exhibitions and educational initiatives at schools and communities.

"I usually encourage a young thin person to wear the Daring Dot outfit. We're not being gender-specific; I said the guys can wear that outfit if they like, but they've been less willing to do so. I also tell the kids about a character called Mr Cough-it, who coughs a nasty spray of water over people and we show how when you cough, the droplets go out into the air and that makes people interested, because here's Daring Dot and she has her cape on and she's a super-heroine and there's Mr Cough-it

spraying water over them and they ask about that," she added.

"These hands-on workshops and exhibits encourage disease prevention, especially with regards to TB, which, if left untreated, can lead to more harmful strains of the illness like multi-drug and extremely multidrug-resistant TB. "We use the metaphor of little growing bugs in the lung, it's a nice warm place to live and we tell how if they change, a mutant is born. We link this to the importance of taking antibiotics, we give a message of hope all the time, but stress that it's also about behaviour and choices. If one is unfortunate and becomes infected with TB one must go to the doctor in good time, take the medicine, use the Dot strategy, go for the necessary X-ray screening and be socially conscious and aware. We then talk about the problem of extreme drug resistance."

"We use the analogy of why you have to take TB drugs for six months by likening it to weeding a garden. For example, if you weed it once, the next week the weeds are back up again so go right back and weed again until you've gotten rid of all the weeds. It's the same with the TB – you've got to continue taking the medicine for six months. We have a cartoon strip that shows kids playing football and they get infected, one takes his medicine religiously and six months later he is better. His friend, however, follows another path, goes clubbing, smokes, doesn't remember to take his medicine every day, and in six months' time he is in



hospital on second-line antibiotics and on a much longer course for recovery," she said.

Initiatives like Prof. Corfield's workshops and Drs David's and Ballo's outreach activities give the youth better alternatives to help shape their future. "We can lecture them as much as we like – who am I, some old lady to be lecturing don't do drugs, don't practice unsafe sex, don't cough all over people? They hear that all the time. I'm trying to get them to understand what the science is so they're better informed to make their own decisions about their behaviour and how they want their lives to turn out. There is always an emphasis on getting role models who will discuss where they've come from, how they got to be where they are and what they do. You could have someone who talks to kids, translates the work they do to them in the right kind of way, and engages with kids so they entertain them."

Prof. Corfield also highlighted the need to recognise the talents within the scientific community and to reward scientists who do great work in engaging young and old in the wonders and importance of science, and showing them that with knowledge comes power.

Reprints:

Centre for Molecular and Cellular Biology

1. Abdallah AM, Verboom T, Weerdenburg EM, Gey van Pittius NC, Mahasha PW, Jiménez C, Parra M, Cadieux N, Brennan MJ, Appelmelk BJ, Bitter W. PPE and PE_PGRS proteins of *Mycobacterium marinum* are transported via the type VII secretion system ESX-5. *Mol Microbiol.* 2009; 73(3): 329-40.
2. Andersen PS, Havndrup O, Hougs L, Sørensen KM, Jensen M, Larsen LA, Hedley P, Thomsen AR, Moolman-Smook J, Christiansen M, Bundgaard H. Diagnostic yield, interpretation, and clinical utility of mutation screening of sarcomere encoding genes in Danish hypertrophic cardiomyopathy patients and relatives. *Hum Mutat.* 2009; 30(3): 363-70.
3. Bezuidenhout J, Roberts T, Muller L, van Helden P, Walzl G. Pleural tuberculosis in patients with early HIV infection is associated with increased TNF-alpha expression and necrosis in granulomas. *PLoS One.* 2009; 4(1): e4228.
4. Bitter W, Houben ENG, Bottai D, Brodin P, Brown EJ, Cox JS, Derbyshire K, Fortune SM, Gao L-Y, Liu J, Gey van Pittius NC, Pym AS, Rubin EJ, Sherman DR, Cole ST, Brosch R. Systematic genetic nomenclature for type VII secretion systems. *PLoS Pathogens.* 2009; 5(10): e1000507.
5. Black GF, Thiel BA, Ota MO, Parida SK, Adegbola R, Boom WH, Dockrell HM, Franken KL, Friggen AH, Hill PC, Klein MR, Lalor MK, Mayanja H, Schoolnik G, Stanley K, Weldingh K, Kaufmann SH, Walzl G, Ottenhoff TH; GCGH Biomarkers for TB Consortium. Immunogenicity of novel DosR regulon-encoded candidate antigens of *Mycobacterium tuberculosis* in three high-burden populations in Africa. *Clin Vaccine Immunol.* 2009; 16(8): 1203-12.
6. Brink PA, Moolman-Smook JC, Corfield VA. Mendelian-inherited heart disease: a gateway to understanding mechanisms in heart disease Update on work done at the University of Stellenbosch. *Cardiovasc J Afr.* 2009; 20(1): 57-63.
7. Chaoui I, Sabouni R, Kourout M, Jordaan AM, Lahlou O, Elouad R, Akrim M, Victor TC, El Mzibri M. Analysis of isoniazid, streptomycin and ethambutol resistance in *Mycobacterium tuberculosis* isolates from Morocco. *J Infect Dev Ctries.* 2009; 3(4): 278-84.
8. Chegou NN, Black GF, Kidd M, van Helden PD, Walzl G. Host markers in QuantiFERON supernatants differentiate active TB from latent TB infection: preliminary report. *BMC Pulm Med.* 2009; 9: 21.
9. Cobat A, Gallant CJ, Simkin L, Black GF, Stanley K, Hughes J, Doherty TM, Hanekom WA, Eley B, Jaïs JP, Boland-Auge A, van Helden P, Casanova JL, Abel L, Hoal EG, Schurr E, Alcaïs A. Two loci control tuberculin skin test reactivity in an area hyperendemic for tuberculosis. *J Exp Med.* 2009; 206(12): 2583-91.
10. Crotti L, Monti MC, Insolia R, Peljto A, Goosen A, Brink PA, Greenberg DA, Schwartz PJ, George AL Jr. NOS1AP is a genetic modifier of the long-QT syndrome. *Circulation.* 2009; 120(17): 1657-63.
11. Daniels WM, Fairbairn LR, van Tilburg G, McEvoy CR, Zigmond MJ, Russell VA, Stein DJ. Maternal separation alters nerve growth factor and corticosterone levels but not the DNA methylation status of the exon 1(7) glucocorticoid receptor promoter region. *Metab Brain Dis.* 2009; 24(4): 615-27.
12. Detjen AK, Loebenberg L, Grewal HM, Stanley K, Gutschmidt A, Kruger C, Du Plessis N, Kidd M, Beyers N, Walzl G, Hesselning AC. Short-term reproducibility of a commercial interferon gamma release assay. *Clin Vaccine Immunol.* 2009; 16(8): 1170-5.
13. Diacon AH, Pym A, Grobusch M, Patientia R, Rustomjee R, Page-Shipp L, Pistorius C, Krause R, Bogoshi M, Churchyard G, Venter A, Allen J, Palomino JC, De Marez T, van Heeswijk RP, Lounis N, Meyvisch P, Verbeeck J, Parys W, de Beule K, Andries K, Mc Neeley DF. The diarylquinoline TMC207 for multidrug-resistant tuberculosis. *N Engl J Med.* 2009; 360(23): 2397-405.
14. Djoba Siawaya JF, Beyers N, van Helden P, Walzl G. Differential cytokine secretion and early treatment response in patients with pulmonary tuberculosis. *Clin Exp Immunol.* 2009; 156(1): 69-77.
15. Djoba Siawaya JF, Chegou NN, van den Heuvel MM, Diacon AH, Beyers N, van Helden P, Walzl G. Differential cytokine/chemokines and KL-6 profiles in patients with different forms of tuberculosis. *Cytokine.* 2009; 47(2): 132-6.
16. Donald PR, van Helden PD. The global burden of tuberculosis - combating drug resistance in difficult times. *N Engl J Med.* 2009; 360(23): 2393-5.

17. Espie IW, Hlokwe TM, Gey van Pittius NC, Lane E, Tordiffe AS, Michel AL, Müller A, Kotze A, van Helden PD. Pulmonary infection due to *Mycobacterium bovis* in a black rhinoceros (*Diceros bicornis minor*) in South Africa. *J Wildl Dis.* 2009; 45(4): 1187-93.
18. Hayward D, van Helden PD, Wiid IJ. Glutamine synthetase sequence evolution in the mycobacteria and their use as molecular markers for *Actinobacteria* speciation. *BMC Evol Biol.* 2009; 26; 9:48.
19. Hedley PL, Jørgensen P, Schlamowitz S, Moolman-Smook J, Kanters JK, Corfield VA, Christiansen M. The genetic basis of Brugada syndrome: a mutation update. *Hum Mutat.* 2009; 30(9): 1256-66. [Review]
20. Hedley PL, Jørgensen P, Schlamowitz S, Wangari R, Moolman-Smook J, Brink PA, Kanters JK, Corfield VA, Christiansen M. The genetic basis of long QT and short QT syndromes: a mutation update. *Hum Mutat.* 2009; 30(11): 1486-511. [Review]
21. Heradien M, Revera M, van der Merwe L, Goosen A, Corfield VA, Brink PA, Mayosi BM, Moolman-Smook JC. Abnormal blood pressure response to exercise occurs more frequently in hypertrophic cardiomyopathy patients with the R92W troponin T mutation than in those with myosin mutations. *Heart Rhythm.* 2009; 6(11 Suppl): S18-24.
22. Hesseling AC, Mandalakas AM, Kirchner HL, Chegou NN, Marais BJ, Stanley K, Zhu X, Black G, Beyers N, Walzl G. Highly discordant T cell responses in individuals with recent exposure to household tuberculosis. *Thorax.* 2009; 64(10): 840-6.
23. Hoek KG, Schaaf HS, Gey van Pittius NC, van Helden PD, Warren RM. Resistance to pyrazinamide and ethambutol compromises MDR/XDR-TB treatment. *S Afr Med J.* 2009; 99(11): 785-7.
24. Kagina BM, Abel B, Bowmaker M, Scriba TJ, Gelderbloem S, Smit E, Erasmus M, Nene N, Walzl G, Black G, Hussey GD, Hesseling AC, Hanekom WA. Delaying BCG vaccination from birth to 10 weeks of age may result in an enhanced memory CD4 T cell response. *Vaccine.* 2009; 27(40): 5488-95.
25. Katerberg H, Lochner C, Cath DC, de Jonge P, Bochdanovits Z, Moolman-Smook JC, Hemmings SM, Carey PD, Stein DJ, Sondervan D, Boer JA, van Balkom AJ, Polman A, Heutink P. The role of the brain-derived neurotrophic factor (BDNF) val66met variant in the phenotypic expression of obsessive-compulsive disorder (OCD). *Am J Med Genet B Neuropsychiatr Genet.* 2009; 150B(8): 1050-62.
26. Kruse M, Schulze-Bahr E, Corfield V, Beckmann A, Stallmeyer B, Kurtbay G, Ohmert I, Schulze-Bahr E, Brink P, Pongs O. Impaired endocytosis of the ion channel TRPM4 is associated with human progressive familial heart block type I. *J Clin Invest.* 2009; 119(9): 2737-44.
27. Louw GE, Warren RM, Gey van Pittius NC, McEvoy CR, Van Helden PD, Victor TC. A balancing act: efflux/influx in mycobacterial drug resistance. *Antimicrob Agents Chemother.* 2009; 53(8): 3181-9. [Review]
28. Louw GE, Warren RM, van Helden PD, Victor TC. Rv2629 191A/C nucleotide change is not associated with rifampicin resistance in *Mycobacterium tuberculosis*. *Clin Chem Lab Med.* 2009; 47(4): 500-1.
29. Marais BJ, Hesseling AC, Schaaf HS, Gie RP, van Helden PD, Warren RM. *Mycobacterium tuberculosis* transmission is not related to household genotype in a setting of high endemicity. *J Clin Microbiol.* 2009; 47(5): 1338-43.
30. Marcotty T, Matthys F, Godfroid J, Rigouts L, Ameni G, Gey van Pittius N, Kazwala R, Muma J, van Helden P, Walravens K, de Klerk LM, Geoghegan C, Mbotha D, Otte M, Amenu K, Abu Samra N, Botha C, Ekron M, Jenkins A, Jori F, Kriek N, McCrindle C, Michel A, Morar D, Roger F, Thys E, van den Bossche P. Zoonotic tuberculosis and brucellosis in Africa: neglected zoonoses or minor public-health issues? The outcomes of a multi-disciplinary workshop. *Ann Trop Med Parasitol.* 2009; 103(5): 401-11.
31. McEvoy CRE, van Helden PD, Warren RM, Gey van Pittius NC. Evidence for a rapid rate of molecular evolution at the hypervariable and immunogenic *Mycobacterium tuberculosis* PPE38 gene region. *BMC Evol Biol.* 2009; 9: 237.
32. McEvoy CRE, van Helden PD, Warren RM, Gey van Pittius NC. Multiple, independent, identical IS6110 insertions in *Mycobacterium tuberculosis* PPE genes. *Tuberculosis.* 2009; 8(6): 439-442
33. McIlleron H, Willemse M, Wereley CJ, Hussey GD, Schaaf HS, Smith PJ, Donald PR. Isoniazid plasma concentrations in a cohort of South African children with tuberculosis: implications for international pediatric dosing guidelines. *Clin Infect Dis.* 2009; 48(11): 1547-53.
34. Michel AL, Coetzee ML, Keet DF, Maré L, Warren R, Cooper D, Bengis RG, Kremer K, van Helden P. Molecular epidemiology of *Mycobacterium bovis* isolates from free-ranging wildlife in South African game reserves. *Vet Microbiol.* 2009; 133(4): 335-43.

35. Møller DV, Andersen PS, Hedley P, Ersbøll MK, Bundgaard H, Moolman-Smook J, Christiansen M, Køber L. The role of sarcomere gene mutations in patients with idiopathic dilated cardiomyopathy. *Eur J Hum Genet.* 2009; 17(10): 1241-9.
36. Möller M, Nebel A, Valentonyte R, van Helden PD, Schreiber S, Hoal EG. Investigation of chromosome 17 candidate genes in susceptibility to TB in a South African population. *Tuberculosis (Edinb).* 2009; 89(2): 189-94.
37. Müller B, Hilty M, Berg S, Garcia-Pelayo MC, Dale J, Boschirolti ML, Cadmus S, Ngandolo BN, Godreuil S, Diguimbaye-Djaibé C, Kazwala R, Bonfoh B, Njanpop-Lafourcade BM, Sahraoui N, Guetarni D, Aseffa A, Mekonnen MH, Razanamparany VR, Ramarokoto H, Djonne B, Oloya J, Machado A, Mucavele C, Skjerve E, Portaels F, Rigouts L, Michel A, Müller A, Källénus G, van Helden PD, Hewinson RG, Zinsstag J, Gordon SV, Smith NH. African 1, an epidemiologically important clonal complex of *Mycobacterium bovis* dominant in Mali, Nigeria, Cameroon, and Chad. *J Bacteriol.* 2009; 191(6): 1951-60.
38. Nusbaum C, Ohsumi TK, Gomez J, Aquadro J, Victor TC, Warren RM, Hung DT, Birren BW, Lander ES, Jaffe DB. Sensitive, specific polymorphism discovery in bacteria using massively parallel sequencing. *Nat Methods.* 2009; 6(1): 67-9.
39. Onajole OK, Govender K, Govender P, van Helden PD, Kruger HG, Maguire GE, Muthusamy K, Pillay M, Wiid I, Govender T. Pentacyclo-undecane derived cyclic tetra-amines: synthesis and evaluation as potent anti-tuberculosis agents. *Eur J Med Chem.* 2009; 44(11): 4297-305.
40. Parsons SD, Gous TA, Warren RM, de Villiers C, Seier JV, van Helden PD. Detection of *Mycobacterium tuberculosis* infection in chacma baboons (*Papio ursinus*) using the QuantiFERON-TB gold (in-tube) assay. *J Med Primatol.* 2009; 38(6): 411-7.
41. Ronacher K, Hadley K, Avenant C, Stubbsrud E, Simons SS Jr, Louw A, Hapgood JP. Ligand-selective transactivation and transrepression via the glucocorticoid receptor: role of cofactor interaction. *Mol Cell Endocrinol.* 2009; 299(2): 219-31.
42. Schaaf HS, Victor TC, Venter A, Brittle W, Jordaan AM, Hesseling AC, Marais BJ, van Helden PD, Donald PR. Ethionamide cross- and co-resistance in children with isoniazid-resistant tuberculosis. *Clin Chest Med.* 2009; 30(4): 667-83.
43. Uys PW, van Helden PD, Hargrove JW. Tuberculosis reinfection rate as a proportion of total infection rate correlates with the logarithm of the incidence rate: a mathematical model. *J R Soc Interface.* 2009; 6(30): 11-5.
44. Uys PW, Warren R, van Helden PD, Murray M, Victor TC. Potential of rapid diagnosis for controlling drug-susceptible and drug-resistant tuberculosis in communities where *Mycobacterium tuberculosis* infections are highly prevalent. *J Clin Microbiol.* 2009; 47(5): 1484-90.
45. van der Spuy GD, Kremer K, Ndabambi SL, Beyers N, Dunbar R, Marais BJ, van Helden PD, Warren RM. Changing *Mycobacterium tuberculosis* population highlights clade-specific pathogenic characteristics. *Tuberculosis (Edinb).* 2009; 89(2): 120-5.
46. van der Spuy GD, van Helden PD, Warren RM. Effect of study duration on the interpretation of tuberculosis molecular epidemiology investigations. *Tuberculosis (Edinb).* 2009; 89(3): 238-42.
47. van der Spuy GD, Warren RM, van Helden PD. The role of molecular epidemiology in low-income, high-burden countries. *Int J Tuberc Lung Dis.* 2009; 13(4): 419-20.
48. Warren RM, Streicher EM, van Pittius NC, Marais BJ, van der Spuy GD, Victor TC, Sirgel F, Donald PR, van Helden PD. The clinical relevance of *Mycobacterial* pharmacogenetics. *Tuberculosis (Edinb).* 2009; 89(3): 199-202.
49. Watkins DA, Hendricks N, Shaboodien G, Mbele M, Parker M, Zezi BZ, Latib A, Chin A, Little F, Badri M, Moolman-Smook JC, Okreglicki A, Mayosi BM; ARVC Registry of the Cardiac Arrhythmia Society of Southern Africa (CASSA). Clinical features, survival experience, and profile of plakophilin-2 gene mutations in participants of the arrhythmogenic right ventricular cardiomyopathy registry of South Africa. *Heart Rhythm.* 2009; 6(11 Suppl): S10-7.
50. Wright CA, Hesseling AC, Bamford C, Burgess SM, Warren R, Marais BJ. Fine-needle aspiration biopsy: a first-line diagnostic procedure in paediatric tuberculosis suspects with peripheral lymphadenopathy? *Int J Tuberc Lung Dis.* 2009; 13(11): 1373-9.
51. Wright CA, Warren RM, Marais BJ. Fine needle aspiration biopsy: an undervalued diagnostic modality in paediatric mycobacterial disease. *Int J Tuberc Lung Dis.* 2009; 13(12): 1467-75. [Review]

Chronic Diseases of Lifestyle Research Unit

1. Monyeki KD, Kemper HC, Makgae PJ. Development and tracking of central patterns of subcutaneous fat of rural South African youth: Ellisras longitudinal study. *BMC Pediatr.* 2009; 9: 74.

2. Petersen Z, Nilsson M, Everett K, Emmelin M. Possibilities for transparency and trust in the communication between midwives and pregnant women: the case of smoking. *Midwifery*. 2009; 25(4): 382-91.
3. Evans WD, Blitstein J, Lynch C, de Villiers A, Draper C, Steyn NP, Lambert EV. Childhood Obesity Prevention in South Africa: Media, Social Influences, and Social Marketing Opportunities *Soc Mar Q*. 2009; 15(1): 22-48.
4. Whati L, Senekal M, Steyn NP, Lombard C, Nel J. Development of a performance-rating scale for a nutrition knowledge test developed for adolescents. *Public Health Nutr*. 2009; 12(10): 1839-45.
5. Peer N, Bradshaw D, Laubscher R, Steyn K. Trends in adult tobacco use from two South African Demographic and Health Surveys conducted in 1998 and 2003. *S Afr Med J*. 2009; 99(10): 744-9.
6. Petersen Z, Nilsson M, Everett K, Emmelin M. Possibilities for transparency and trust in the communication between midwives and pregnant women: the case of smoking. *Midwifery*. 2009; 25(4): 382-91.
7. Senekal M, Steyn NP, Nel J. A questionnaire for screening the micronutrient intake of economically active South African adults. *Public Health Nutr*. 2009; 12(11): 2159-67.
8. Schneider M, Bradshaw D, Steyn K, Norman R, Laubscher R. Poverty and non-communicable diseases in South Africa. *Scand J Public Health*. 2009; 37(2): 176-86.
9. Steyn NP, Parker W, Lambert EV, Mchiza Z. Nutrition interventions in the workplace: evidence of best practice. *S Afr J Clin Nutr*. 2009; 22(3): 111-117
10. Steyn NP, Lambert EV, Parker W, Mchiza Z, de Villiers A. A review of school nutrition interventions globally as an evidence base for the development of the HealthKick programme in the Western Cape, South Africa. *S Afr J Clin Nutr*. 2009; 22(3): 145-152
11. Goedecke JH, Dave JA, Faulenbach MV, Utzschneider KM, Lambert EV, West S, Collins M, Olsson T, Walker BR, Seckl JR, Kahn SE, Levitt NS. Insulin response in relation to insulin sensitivity: an appropriate beta-cell response in black South African women. *Diabetes Care*. 2009; 32(5): 860-5.
12. Goedecke JH, Levitt NS, Lambert EV, Utzschneider KM, Faulenbach MV, Dave JA, West S, Victor H, Evans J, Olsson T, Walker BR, Seckl JR, Kahn SE. Differential effects of abdominal adipose tissue distribution on insulin sensitivity in black and white South African women. *Obesity (Silver Spring)*. 2009; 17(8): 1506-12.
13. Berman P, Collins M, Baumgarten I, Seoighe C, Jennings CL, Joffe Y, Lambert EV, Levitt NS, Faulenbach MV, Kahn SE, Goedecke JH. Association between the 4 bp proinsulin gene insertion polymorphism (IVS-69) and body composition in black South African women. *Obesity (Silver Spring)*. 2009; 17(6): 1298-300.
14. Dugas LR, Cohen R, Carstens MT, Schoffelen PF, Luke A, Durazo-Arvizu RA, Goedecke JH, Levitt NS, Lambert EV. Total daily energy expenditure in black and white, lean and obese South African women. *Eur J Clin Nutr*. 2009; 63(5): 667-73.

Safety and Peace Promotion Research Unit

1. Ahmed R, Ratele K, Bawa U. Satyagraha and resilience: From violence prevention to liberation. *Soc Change*. 2009; 39(4): 550-567.
2. Burrows S, Swart L, Laflamme L. Adolescent injuries in urban South Africa: A multi-city investigation of intentional and unintentional injuries. *Int J Child Adolesc Health*. 2009; 2(1): 117-130.
3. Lazarus S, Baptiste, D. Seedat, M. Community counseling in African contexts. *Journal of Psychology in Africa (JPA)*. 2009; 19(3): 449-454.
4. Odendaal WA, Van Niekerk A, Jordaan E, Seedat M. The impact of a home visitation programme on household hazards associated with unintentional childhood injuries: A randomised controlled trial. *Accid Anal Prev*. 2009; 41(1): 183-190.
5. Ratele K. Sexuality as constitutive of whiteness in South Africa. *NORA - Nordic Journal of Feminist and Gender Research*. 2009; 17(3): 158-174.
6. Seedat, M. A Manifestation of community psychology in primary health care. *Journal of Critical Psychology Counselling and Psychotherapy (JCPCP)* 2009; 9(2): 98-115.
7. Seedat M, Van Niekerk A, Jewkes R, Suffla S, Ratele K. Violence and injuries in South Africa: Prioritising an agenda for prevention. *Lancet*. 2009; 374(9694): 1011-22.
8. Van Niekerk A, Laubscher R, Laflamme L. Demographic and circumstantial accounts of burn mortality in Cape Town, South Africa, 2001-2004: an observational register based study. *BMC Public Health* 2009; 9: 374.

MRC/Wits Rural Public Health and Health Transition Research Unit

1. Kimani-Murage E, Manderson L, Norris SA, Kahn K. 'You opened our eyes': care-giving after learning a child's positive HIV status in rural South Africa. *Health Soc Care Community*. 2009; 18(3): 264-271.
2. Reniers G, Eaton J. Refusal bias in HIV prevalence estimates from nationally representative seroprevalence surveys. *AIDS*. 2009; 23: 621-29.
3. Reniers G, Araya T, Davey G, Nagelkerke N, Berhane Y, Coutinho T, Sanders EJ. Steep declines in population-level AIDS mortality following the introduction of antiretroviral therapy in Addis Ababa, Ethiopia. *AIDS*. 2009; 23: 511-518.
4. Reniers G, Araya T, Berhane Y, Davey G, Sanders EJ. Implications of the HIV testing protocol for refusal bias in seroprevalence surveys. *BMC Public Health*. 2009; 9:163.
5. Ogunmefun C, Schatz E. Caregivers' sacrifices: the opportunity costs of adult morbidity and mortality for female pensioners in rural South Africa. *Dev South Afr*. 2009; 26(1): 95-109.
6. Schatz E. Reframing vulnerability: Mozambican refugees access to state funded pensions in rural South Africa. *J Cross Cult Gerontol*. 2009; 24(3): 241-258.
7. Chopra M, Lawn JE, Sanders D, Barron P, Abdool Karim SS, Bradshaw D, Jewkes R, Abdool Karim Q, Flisher AJ, Mayosi BM, Tollman SM, Churchyard GJ, Coovadia H, Lancet South Africa team. Achieving the health millennium goals for South Africa: challenges and priorities. *Lancet*. 2009; 374(9694): 1023-1031.
8. Mayosi BM, Flisher AJ, Lalloo UG, Sitas F, Tollman SM, Bradshaw D. The burden of non-communicable diseases in South Africa. *Lancet*; 2009; 12; 374(9693): 934-947.
9. Madhavan S, Schatz E, Clark B. Effect of HIV/AIDS –related mortality on household dependency ratios in rural South Africa 2000-2005. *Population Studies*. 2009; 63(1):37-51.
10. White MJ, Hunter LM. Public perception of environmental issues in a developing setting: environmental concern in coastal Ghana. *Social Science Quarterly* 2009; 90(4):960-982.
11. Wagner R, Newton CR. Do helminthes cause epilepsy? *Parasite Immunology*. 2009; 31: 697-705.
12. Connor MD, Modi G, Warlow CP. Differences in the nature of stroke in a multiethnic urban South African population: The Johannesburg Hospital stroke register. *Stroke*. 2009; 40(2):355-62.
13. Goudge j, Rusel S, Gilson I, Gumede T, Tollman SM, Mills A. Illness related impoverishment in rural South Africa: why does social protection work for some households but not others? *J Int Dev*. 2009; 21(20): 231-251.
14. Mayosi BM, Flisher AJ, Lalloo UG, Sitas F, Tollman SM, Bradshaw D. Transmissible cancer in Africa – Authors' reply. *Lancet*. 2009; 374(9707); 2052-2053.

Human Genomic Diversity Research Unit

1. Schlebusch CM, Naidoo T, Soodyall H. SNaPshot minisequencing to resolve mitochondrial macro-haplogroups found in Africa. *Electrophoresis*. 2009; 30(21): 3657-64.



Vision

Building a healthy nation through research

Mission

To improve the nation's health and quality of life through promoting and conducting relevant and responsive health research