

Marching for innovation

Humankind has constantly moved forward because of scientific discoveries; scientists have made significant contributions in fields like medicine, astronomy and agriculture, writes **Venilla Yoganathan**

IT WAS not so long ago that it was considered bad luck to photograph a baby before his/her first birthday as there were high chances the child would succumb to one ailment or another and not survive their first 12 months of life.

But thanks to the contribution of science, immunisation has changed the lives of infants worldwide and today, in most countries, infant mortality rates have steadily declined, with a global average of 32 deaths per 1 000 in 2015 compared with 63 per 1 000 in 1990. In South Africa, the infant mortality rate has dropped from 51 deaths per 1 000 in 2002 to 34 per 1 000 in 2015.

Entire generations now grow up without the threat of devastating diseases like smallpox, which has been eradicated, and every day scientists are prolonging healthier human life with breakthroughs, some small, some momentous, through their identification and treatment of diseases.

"Humankind has constantly moved forward because of scientific discoveries and innovation which touches every facet of our lives, from the food we consume, the products in our home, to the technology like cellphones and Skype that we use every day," said Professor Quarraisha Abdool Karim, associate scientific director at the



Professor Quarraisha Abdool Karim, associate scientific director at the Centre for Aids Programme of Research in South Africa (Caprisa) and colleague Professor Jerry Coovadia protest for science in the Durban city centre.

Centre for Aids Programme of Research in South Africa (Caprisa).

Abdool Karim, one of South Africa's foremost HIV/Aids researchers, said the passion she and other scientists shared for discovery and innovation was what kept humankind advancing. "If we stop that and we only accept things as they are found, they become irrelevant and obsolete and we will go backwards. We have to keep moving forward to keep a constant balance between the whole lot of people who are striving to improve lives, and the whole lot of others who are using the same discoveries to destroy lives," she said.

During a recent visit to Washington, Abdool Karim was excited about the momentum building around the March for Science initiative to raise more awareness about the importance of science in the preservation of human life.

The initiative, sparked by US President Donald Trump's proposal, revealed in his first budget plan last month, to radically cut back on funding for scientific research, has quickly

spread to other parts of the world. Abdool Karim, who returned to South Africa last week, quickly went into action to organise a similar initiative here with interested partners.

The result was Saturday's march from the Durban city hall to Gugu Dlamini Park where members of the public had the opportunity to interact with scientists and take part in interactive science exhibits.

"It is now no longer just about Trump but has grown into a celebration of science.

"It's an opportunity for all of us to hold a mirror up to our lives and acknowledge how science has benefited us, and for us to understand that we really cannot afford not to invest in science."

Fortunately, the South African government, through Minister of Science and Technology Naledi Pandor, has shown an understanding and appreciation of science for the purposes of societal transformation, said Abdool Karim, and has made significant investments in this regard.

And when it came to scientific advancement and discov-

ery, South Africa had much to celebrate.

From Chris Barnard's first heart transplant to the huge strides in the treatment of HIV/Aids, local scientists have made significant contributions in fields like medicine, astronomy and agriculture.

"Right here in Durban, scientists are working on a waterless toilet system which will have a major positive impact on the health and environment; and Professor Jack Moodley and his team at the Nelson Mandela School of Medicine Medical Research Council's Pregnancy Hypertension Unit have discovered an intervention for eclampsia in pregnant women which has saved the lives of thousands of mothers and babies across the world," said Abdool Karim.

The game-changing interventions of Abdool-Karrim and her colleagues at Caprisa in the research and treatment of HIV/Aids are themselves well documented.

Now the Caprisa team is in the process of testing recently-discovered broadly neutralising antibodies as a new form

of prevention technology, and as a possible first step towards the development of an HIV vaccine.

The team has been able to manufacture the antibodies in large quantities in a laboratory and initial tests on animals have shown that even small amounts can destroy the HIV virus.

"The idea would be for us to provide the antibodies in injection form to offer protection, instead of a vaccine.

"The next step would be to develop a vaccine from further study of the antibody," Abdool Karim said.

Although proud and encouraged by the achievements locally, Abdool Karim said it was essential for the momentum to be maintained, and more needed to be done locally and in other developing countries to increase home-grown scientific solutions to problems and challenges unique to them.

"We've become very comfortable adopting and imbibing knowledge developed in highly industrialised countries but we need to strike a better balance so we prioritise challenges

unique to us.

"Despite advancements, HIV/TB, for example, remains a problem in the developing world because it is so fundamentally linked to poverty," she said.

Science, she added, could be the catalyst to create conditions for significant change and make economic transformation happen.

However, the threat from politicians with selfish and narrow interests, and big business concerned only with profits were barriers which the science community and society in general had to guard against.

Activism, the likes of which saw generic forms of anti-retrovirals being released for distribution, was key to ensuring that the benefits of science were equitably spread globally and were not the preserve of a wealthy and elite few.

"We must change perceptions about science as being something a small group of people do in a laboratory, to something that touches each and every one of us in a myriad ways."