Facing the

Werner Burkart, IAEA's Deputy Director General, Nuclear Science and Applications, spoke with Sasha Henriques about the IAEA's role in the improving cancer care and control in the developing world.

What will be the most significant achievement of this year's Scientific Forum focus on cancer?

The IAEA has more than 50 years of experience in using nuclear science to benefit mankind, which includes bringing radiation diagnosis and therapy to our Member States. But the general public and the media often know little about this because we have a public image dominated by our role as 'nuclear watchdog'. What many people do not realize is that radiation medicine is the cornerstone of cancer control. Hopefully, the Scientific Forum's focus on cancer will enable us to spread this message.

The IAEA does a lot of work in Africa. What is its principal role and what's the main challenge?

We help countries build their nuclear professional and regulatory frameworks by creating curricula in radiation medicine and medical physics, as well as training regulators and helping them craft the necessary laws to govern the industry.

One of the difficulties with bringing radiation therapy to Africa is the cost of the machines. And the industry produces increasingly complex and expensive machines. If we want to treat the millions of patients, and do it afforda-

bly, we need stable, robust and simple equipment. We have to reduce costs, but ensure that these machines are still able to provide the appropriate radiation therapy. This is not easy, and that's why we sat together with major manufacturers to discuss the issue. I am happy to be able to say that they understand and appreciate that cancer is an unfolding crisis in the developing world.

What kinds of equipment are best suited to cancer care in developing countries?

The cheapest radiation therapy machines rely on a radioactive source — Cobalt 60 or Caesium 137. They are very reliable and robust, and do not even need electricity to generate the radiation. However, the use of these machines has a nuclear security dimension. The high-tech replacement for radioactive sources is the "Linac" — the linear accelerator. They've become cheaper and relatively robust, and now there is the possibility that in the medium term there will be large-scale production of these machines.

The use of Linac machines eases the fears donors may have about the threat of terrorism associated with therapy machines that contain radioactive sources. But, I would like to make it clear that at this stage we cannot discount cobalt machines. In the short

term they will still be the cheapest and the most reliable on the market. But in the medium term, the Linacs have the potential to please everybody.

Let me stress that, while providing machines is important, it is often at the end of the road, after skilled human resources and safety policies are in place.

Why are partnerships with other organisations so important?

Addressing cancer requires a holistic approach; it requires prevention, screening, treatment and palliation. The IAEA is restricted by its mandate and its image in the effort to combat cancer. The IAEA's mandate limits it to the provision of radiation diagnosis, radiotherapy and technologies. It is not in our remit to be involved in prevention campaigns such as tobacco control, no matter how important they are to the fight against cancer. But in other areas, like the early detection of breast cancer (for instance screening and X-ray mammography) we are an important player.

In addition, the IAEA's 'nuclear watchdog' image often prevents us from receiving large donations for the Programme of Action for Cancer Therapy (PACT). A professional and well organised donor, upon being approached, will immediately ask,

Challenge

(Photos: D.Calma/IAEA)

Everybody, every family, every clan sooner or later has to fight the cancer that has befallen one of their loved ones. —Werner Burkart

"How is your project linked to the efforts of the WHO and the cancer control community?"

So, for these two reasons partnerships with agencies like the World Health Organisation (WHO) or the UICC (Union Internationale Contre le Cancer) are critical, if the IAEA aims to be part of cancer control in the developing world.

How is radiotherapy impacting the world, and how will it do so in the future?

Radiation medicine cures, or helps cure, a large fraction of cancers occurring in the developed world. I would urge people not to underestimate the socio-economic importance of radiation medicine.

We have 151 Member States, of which 30 Member States (that is 20%) have nuclear power plants. In the next 15 to 20 years, the number of Member States operating nuclear power plants may rise from 30 to 40, but not much more.

However, every IAEA Member State already has radiation medicine infra-structure, because it is much easier to introduce and apply.

In addition, as the odds of developing cancer with age rise significantly, and as life expectancy in the developing world increases, the incidence of cancer rises sharply. Due to an ageing population, the need for this technology will grow more rapidly than the global economy.

Efforts to prevent cancers have continued for many years. Assuming that these are successful, do you still anticipate that there will be this great need for radiotherapy in coming years?

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Even if the world makes a concerted effort to prevent all preventable cancers from now on, there would still be an almost crippling need for cancer treatment in the next 50 years, if only because of the cigarettes smoked in the past.

Unfortunately, the cancer crisis will be with us for decades to come. And we have a duty to act to mitigate its effects. This is why, just as in years past when communicable diseases were at the top of the health agenda for Member States, it is now time to focus on non-communicable diseases. ⚛

Sasha Henriques is a staff writer in the Division of Public Information. E-mail: S.Henriques@iaea.org