



**BUILDING  
PARTNERSHIPS  
TO FIGHT  
THE CANCER  
EPIDEMIC**

**PACT**

**PROGRAMME  
OF ACTION  
FOR CANCER  
THERAPY**



**IAEA**

Programme of  
Action for  
Cancer  
Therapy

**PACT**

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A global cancer crisis  
is looming...

To save lives,  
the time to act is now

As many as **84** million people could die of cancer  
over the next **10** years

*International organizations, civil society and the donor community  
must give higher priority to preventing, detecting and treating cancer.*

*By working together to implement effective cancer control strategies,  
we can save the lives of millions of men, women and children.*

# Developing countries will be hardest hit ...

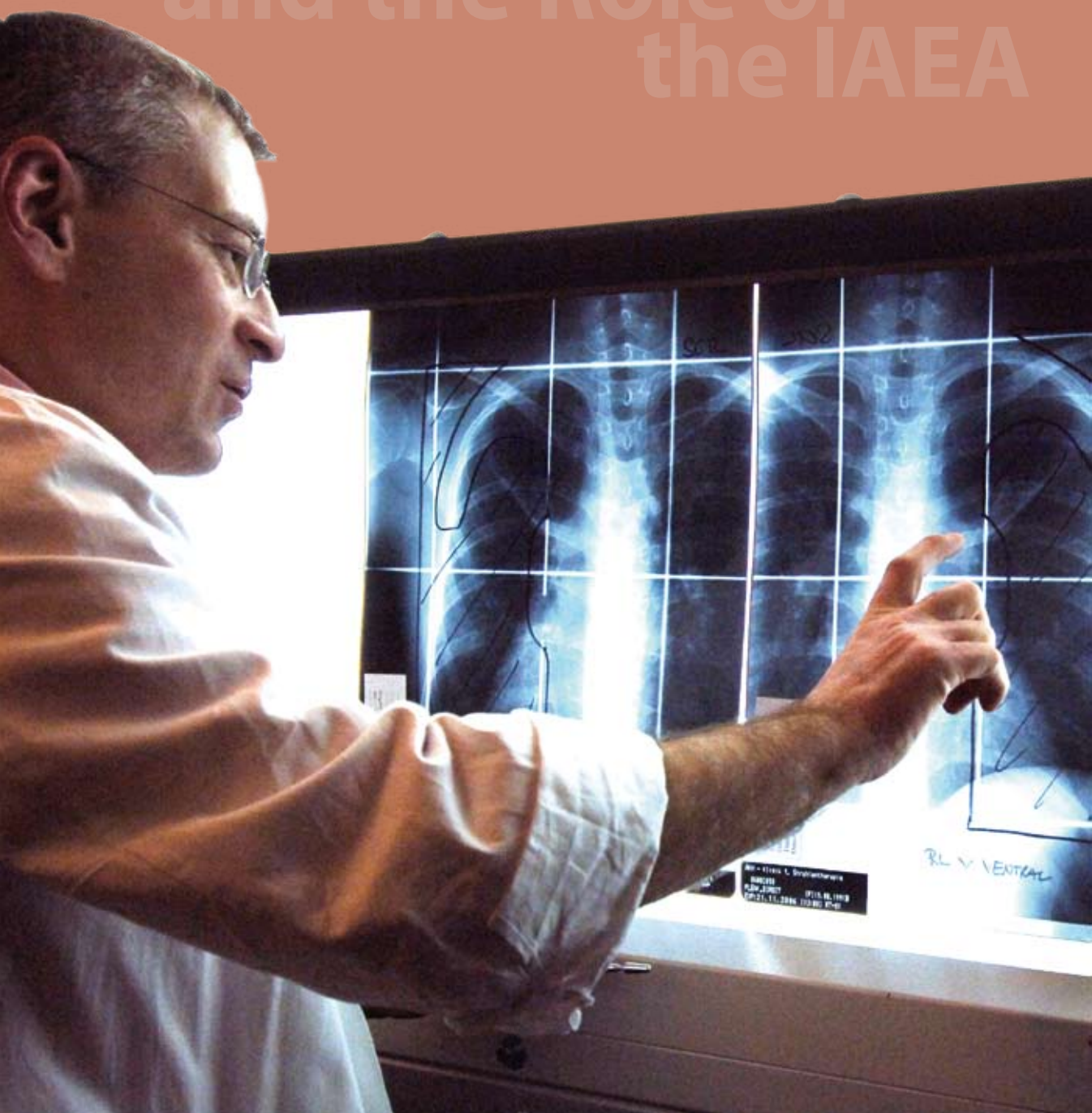
- Cancer kills more people each year than HIV/AIDS, malaria and TB combined.
- Cancer killed 7.6 million people in 2005. By 2020 it could kill 16 million people a year.
- More than 75% of new cancer cases and cancer deaths will be in the developing world.
- More than 70% of cancers in developing countries are diagnosed too late for cure.
- Radiotherapy, which could cure up to 50% of cancers, is largely unavailable in Africa
- In low income countries fewer than 25% of cancer patients have access to radiation therapy, compared to more than 50% in high income countries.
- Over 30 African and Asian countries have no capacity at all to provide radiation therapy.
- In many low income countries cervical cancer kills more women than any other form of the disease. Yet its initial stages can be detected through routine examinations, making it easy to cure.
- Nearly 80% of childhood cancers occur in low income countries, where the cure rate is well under 20%, due largely to delays in diagnosis and inadequate treatment options.



# Radiation Medicine

## PACT FUNDAMENTALS

### Radiation medicine and the role of the IAEA and the Role of the IAEA



The Programme of Action for Cancer Therapy (PACT) was created by the International Atomic Energy Agency (IAEA) in 2004 to help fight the cancer crisis threatening the developing world. PACT builds on the IAEA's 30 years of experience in bringing radiation medicine and technology to developing countries. **Radiation medicine** includes both radiotherapy (or radiation oncology) and diagnostic imaging involving the safe use of ionizing radiation and nuclear medicine procedures.

**A**lso called radiation therapy, radiotherapy is a highly effective treatment for many cancers, potentially curing up to half of all cases. It also plays a key role in reducing the pain suffered by patients whose cancers have become too advanced to be cured, as is all too often the case in many developing countries. An important and cost effective treatment for cancer, it is often used together with diagnostic radiology and nuclear medicine procedures to pinpoint the exact location of tumours. In high income countries, more than 50% of cancer patients receive radiotherapy. In low and middle income countries, the need is even greater because many patients have cancers too advanced for surgery. Radiotherapy is often the only option for treating the cancer or relieving pain in incurable cases.

**F**or more than 30 years, the IAEA has provided low and middle income countries with radiation medicine technology and expertise through its human health and technical cooperation programmes. Acting on its mandate to "accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world", the IAEA has enabled many countries to establish safe and effective radiotherapy capabilities, and to provide higher quality treatment to cancer patients. In this way it has demonstrated that radiotherapy is a mature technology that can be transferred safely and successfully to those in need.

**B**ut with cancer numbers increasing, existing infrastructure and resources cover only a small part of the developing world's needs. Currently, up to 70% of cancer patients have no access to radiotherapy. Over 30 developing countries have no radiotherapy services at all. Yet, expanding radiotherapy capacity alone is not enough to control cancer. For maximum impact, PACT advocates that radiotherapy be integrated into comprehensive cancer control programmes crafted to suit the specific needs of individual countries.

## Radiotherapy can reduce pain and save lives







# National Cancer Control Programmes

The World Health Organization (WHO), in accordance with its mandate as the directing and coordinating authority on international health work, developed the National Cancer Control Programmes (NCCP) strategy. WHO has been implementing this strategy for well over a decade to support countries in the area of cancer control. Technical support to countries will be strengthened with the recent endorsement by the Sixty-first World Health Assembly of the plan to implement the global strategy for the prevention and control of non-communicable diseases.

## Each country is different

Every country has its own specific cancer burden features, risk factors, culture, health system, and available financial and human resources. Each must be carefully assessed in order to establish realistic and achievable priorities for action and, ultimately, produce the most cost effective solutions which are beneficial for the majority of people. Only then can effective cancer strategies be implemented.

PACT works to maximize the impact and effectiveness of radiotherapy by integrating it into comprehensive cancer strategies that encompass all areas of cancer control within the NCCP: *cancer prevention, early detection, treatment and palliative care activities*, as well as *the development of necessary human resources and infrastructure* as recommended by WHO.

This approach is based upon WHO's guidelines defining a national cancer control programme as: *"a public health programme designed to reduce the number of cancer cases and deaths, and improve quality of life of cancer patients through the systematic and equitable implementation of evidence-based strategies for prevention, early detection, diagnosis, treatment, and palliation, making the best use of available resources."* The guidelines also address other challenges in the fight against cancer, such as cancer registration, shortages of trained staff, and infrastructure gaps.



# Balanced Investments in Cancer Control from Prevention to End-of-Life Care

## Integrated System for Comprehensive Cancer Control

Maximize the Impact of Interventions including  
Radiotherapy through Balanced Investments across the System

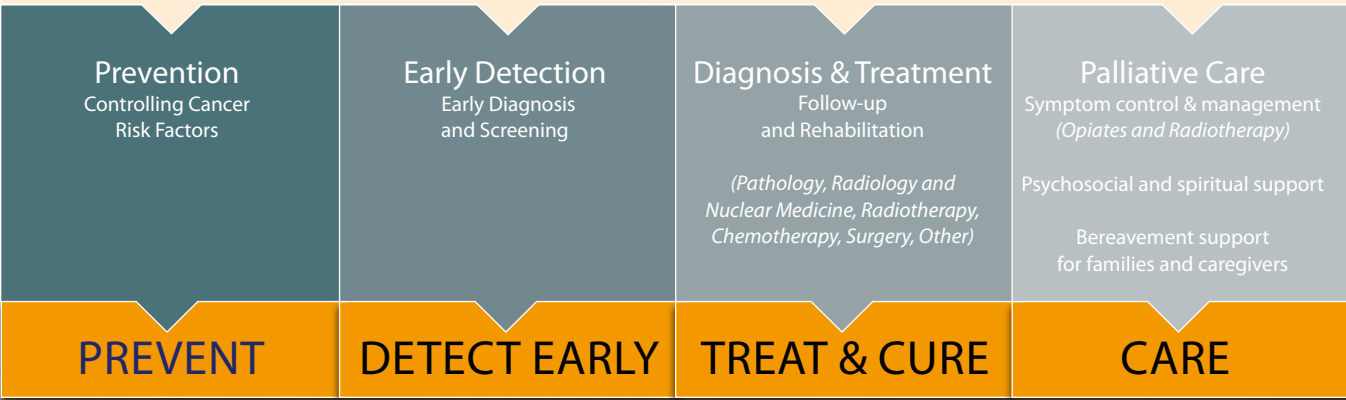
Population based Cancer Control Programmes  
(WHO Guidelines on Planning, Management and Evaluation)

Administrative, Financial and Technical Capacity to Manage the Programme

Cancer Knowledge Transfer and Technology Evaluations

Cancer Epidemiology and Surveillance System

Multidisciplinary Education, Cancer Training and Research  
(Advocacy, Public Education, Policy, Legislation and Resource Mobilization)



The horizontal bars are the enabling components for the delivery of outcomes in the vertical columns. Investments in both the horizontal and vertical fields are determined within the broader context of a particular health system’s development and financing, and the prevailing political and social factors.

PACT has adopted the above model based on WHO’s guidelines. This *Integrated System for Comprehensive Cancer Control* focuses on timely, planned and balanced investments to improve conditions and outcomes for cancer patients. It also encourages a systemic and comprehensive approach, participation of stakeholders, partnerships, focus on patient’s needs, leadership and systematic decision making process, continual improvement, and adoption of a stepwise approach.



# Building Partnerships

PACT works in partnership with WHO and other leading cancer organizations to help low and middle income countries design and implement comprehensive cancer control programmes and mobilize resources.

According to WHO, millions of lives will be lost unless a concerted effort is made to fight cancer now. To meet the challenge, actions need to be coordinated and resources mobilized so that comprehensive and sustainable cancer control programmes are implemented in the developing world.

PACT was launched as an IAEA initiative but its vision is for a global partnership to help low and middle income countries mobilize new resources and funding to confront the cancer crisis.

The World Health Assembly and the General Conference of the IAEA have urged the two organizations to establish a partnership and joint programme in the area of cancer control. Accordingly, a Joint Programme for Cancer Control to coordinate activities and resources supporting the development and implementation of sustainable comprehensive cancer control programmes in low and medium resource countries, is in the process of being established.

## WHO, a Key PACT Partner

WHO and PACT's partners agree on the need to work closely together to gradually bring cancer knowledge, prevention and sustainable cancer cure and care capacities to health systems in low and middle income countries. Building effective cancer control programmes requires public-private partnerships, as demonstrated by other successful global initiatives. Such partnerships must work together to assess needs; help develop relevant national programmes for cancer prevention and control; build capacity to manage these programmes effectively; and attract the necessary funding to implement plans in all regions of the developing world.



# PACT Partners

American Cancer Society (USA)

Axios International (USA/France)

Best Medical International, Inc. (USA/Canada)

C-Change (USA)

State Office for Nuclear Safety (Czech Republic)

International Agency for Research on Cancer

Institut National du Cancer (France)

International Network for Cancer Treatment and Research

International Union Against Cancer

Korea Nuclear International Cooperation  
Foundation (Republic of Korea)

MDS Nordion (Canada)

mondofragilis network (France)

National Cancer Institute, Brazil

National Cancer Institute, USA

National Foundation for Cancer Research (USA)

Open Society Institute

Program for Appropriate Technology in Health (USA)

Tata Memorial Centre (India)

University of Oxford Department of Clinical  
Pharmacology (UK)

World Health Organization (Headquarters and  
the six Regional Offices)





# PACT Partnership and Fundraising Activities

Radiotherapy has a part to play in the treatment of nearly all types of cancer. The early detection of cancer is crucial for curative radiotherapy.

But lack of resources for investment in education, early detection and diagnosis in developing countries means that many patients with potentially curable cancers seek treatment so late that radiotherapy can only palliate and provide a humane death.

PACT's goal is to help developing countries improve and accelerate access to effective diagnostic imaging and radiotherapy services as an essential element of a comprehensive and integrated national cancer control programme that includes cancer prevention, early detection, diagnosis, treatment and palliative care.



# Act together ...

Collaboration with stakeholders is essential for developing countries to build effective and sustainable programmes that prevent avoidable cancers, reduce and treat cancer in its earlier stages, and improve quality of life for all cancer patients. For example, the IAEA's assistance to Ghana in its fight against cancer through the joint efforts of PACT and partners has resulted in the approval of long term low interest loans from the OPEC Fund for International Development (OFID) and the Arab Bank for Economic Development in Africa (BADEA) amounting to \$13.5 million for Ghana to expand and upgrade its cancer cure and care services. This essential financial partnership is helping Ghana set in motion its search for sustained investments, required for improving professional and infrastructure capacity for cancer control.

PACT works with partners to replicate the success in Ghana in other developing nations. PACT mobilizes philanthropic funds, donations of equipment and technology. Where applicable, it harnesses volunteer expertise from the public or private sector to support national cancer control programmes. PACT encourages foundations, companies and individuals to support pioneering efforts to fight the developing world's growing cancer crisis. The PACT network of partnerships is growing globally. It embraces leading cancer organizations, governments, local authorities and the private sector.

Through public-private partnerships, PACT, its international partners, and other stakeholders are combining individual strengths and resources to achieve maximum impact on the cancer epidemic.



# PACT STRATEGIES

PACT is implementing an overlapping, three pronged strategy to fight cancer in the developing world:

## I. *im*PACT Reviews

Drawing upon the combined expertise of health and cancer specialists from the IAEA and its international partner organizations, *im*PACT reviews assess a country's cancer burden and the status of policies, strategies, plans, programmes and infrastructure related to all aspects of cancer prevention and control. The objective of this comprehensive assessment is to help Member States, the IAEA, its partners and donors to identify needs and develop assistance packages that respond in an effective and efficient manner.

All *im*PACT reviews are performed in close cooperation with the requesting government. They are planned in consultation with WHO and conducted jointly with PACT's partner organizations. Full or preliminary *im*PACT reviews have been conducted to date in:

**Albania, Georgia, Ghana, Madagascar, Republic of Moldova, Montenegro, Nicaragua, Peru, Sri Lanka, Syrian Arab Republic, United Republic of Tanzania, Vietnam and Yemen.**



Such reviews require extensive desk studies and several field missions to reach the joint inter-agency final report and recommendations. The reports of full *im*PACT missions are invaluable tools for developing national cancer control plans in the countries visited. More than 50 Member States throughout the world have requested *im*PACT reviews. Support is being sought to meet this clear need within the framework of IAEA's technical cooperation programme.





## II. PACT Model Demonstration Sites

PACT Model Demonstration Sites (PMDS) are designed to showcase the synergies that international partners can achieve by working together with national counterparts to advance comprehensive cancer capacity building in low and middle income nations.

Currently under way in six countries (Albania, Nicaragua, Sri Lanka, United Republic of Tanzania, Vietnam and Yemen), one in each of the WHO regions, the PMDS aim to show that effective, sustainable national cancer control programmes and action plans can be developed and implemented to address the specific cancer needs of a nation. At the same time, PMDS will help raise donor and public awareness for future regional/global initiatives to be funded with larger donations.

The six PMDS countries have established steering committees that are developing national cancer control strategies and action plans to be recommended for adoption and implementation by their governments.



# III. Regional Cancer Training Networks

In concert with the *PACT Model Demonstration Sites*, PACT is working to establish regional cancer training networks for health care professionals. Cancer training must be comprehensive and multidisciplinary, reaching all personnel needed for an effective and sustainable cancer control programme. Experience shows that a major obstacle to advancing cancer care capacity, whether in treatment or prevention, is a shortage of human resources and training in all areas of cancer control. For example, a lack of trained staff can lead to suboptimal utilization

of existing radiotherapy facilities in many developing countries and constrain their ability to expand services for the rapidly growing number of cancer patients. This problem is particularly pronounced in low and middle income countries, from which many health care professionals and workers relocate to higher income countries to pursue better economic opportunities.

In order to achieve sustainable cancer care capacity in these countries, there must be a dramatic increase in the number of professionals who are locally or regionally trained in cancer care and who, crucially, will remain in their home countries to apply their valuable skills. Furthermore, facilities and resources are needed for the education and training of new radiotherapy and cancer public health professionals (at their home institutions, as far as possible), as well as for continuing professional development to encourage the retention of the existing staff.

PACT seeks to accelerate multidisciplinary cancer control training to ensure that investments in programmes, technology and facilities will have maximum public health impact and resonance. PACT's strategy is to create regional cancer training networks whereby countries currently more advanced in terms of cancer control capacity and which share similar conditions, can serve as mentors to less advanced countries in the region. Relying on modern information technology tools and drawing on the positive experience in several developing countries where, despite low resources, very successful training systems have been established, each *Regional Cancer Training Network* will utilize both a *Cancer Control International Mentorship Network* and a *Virtual Cancer Control University*.



## Cancer Control International Mentorship Network

A selection of leading international cancer control and care institutions (mentor institutions) in high and middle income countries will be partnered with a cancer control institution in a low income country, preferably in the same region. Using a model of institutional exchange in multidisciplinary training, consultation and research, and combining remote communications and in-person visits, the mentor institutions will provide ongoing support to institutions within the target region. More than 20 Member States have already offered institutional support.



# Virtual University for Cancer Control

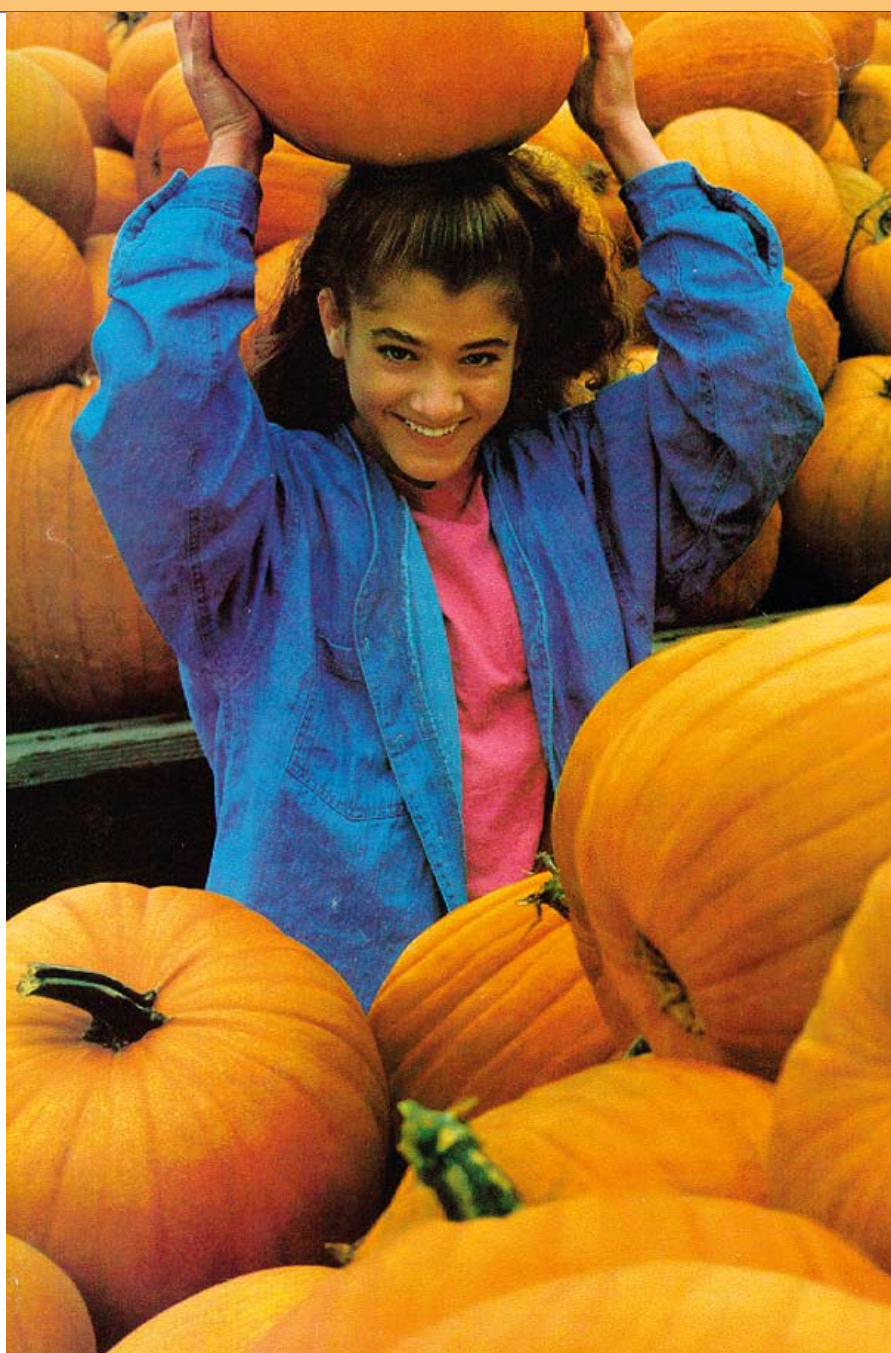
The Virtual University for Cancer Control will provide Internet access for distance learning for ongoing training in state-of-the-art techniques in radiotherapy. It will also allow information exchange and videoconferencing on all aspects of multidisciplinary cancer control, including consultations in individual cases by mentoring institutions and specialists.

Such training will allow large numbers of established experts to teach and mentor without the need to travel long distances. On-line mentoring and supervision will support local teachers and help local practising cancer professionals and students gain the most from continuing professional education and training opportunities, respectively. Local certification, either within the country or the region, will be required to provide recognized qualifications for all trainees.

One of PACT's  
short term  
objectives is  
to develop  
proposals for a

## **Regional Cancer Training Network**

in two regions  
and  
to submit this  
for funding  
consideration.



# Since 2005, **PACT** has ...

- Built working partnerships with leading international and national health organizations in cancer prevention and control.
- Conducted, with partners, multidisciplinary assessments of national cancer control capacity (imPACT reviews) in more than a dozen requesting countries. Worked towards mobilizing resources to meet the requests of over 40 more developing countries.
- Cooperated with WHO and other international and national partners to develop and initiate sustainable, integrated cancer control programmes in six PACT Model Demonstration Site (PMDS) countries located throughout the developing world.
- Mobilized over \$4 million in new grants and donations and \$13.5 million in long term development loans.





# The Road Ahead: in the next 5 years, **PACT** plans to...

- Assist developing countries in all regions to draw up customized frameworks and proposals for the establishment of Regional Cancer Training Networks.
- Draw on lessons from PMDS and regional activities to contribute to the development of a global strategy which addresses cancer in the developing world through national and regional cancer capacity building.
- Cooperate with WHO and interested industry partners to promote the development of improved imaging and radiotherapy techniques, and the adaptation of existing technologies to make them accessible, affordable and suitable for low resource countries. PACT will also encourage manufacturers to license a number of developing countries to manufacture these new or modified designs at lower cost to both the manufacturer and the consumer.



*To achieve these life-saving goals, PACT is working to raise \$35 million in dedicated funding for the PMDS projects. Each year, through its technical cooperation programme, the IAEA devotes \$15 million and its expertise to help developing countries fight cancer.*  
**But more support is urgently needed.**

# How donations support **PACT** programme activities

*Funding allows PACT and its partners to:*

- Support *imPACT* reviews that have been requested by Member States to assess existing (and identify needed) cancer prevention and control capabilities.
- Contribute to the full implementation of PACT *Model Demonstration Site* cancer control programmes and support the technical expertise and processes to evaluate the outcomes in *PMDS*.
- Support multidisciplinary cancer training needs and establish centres for regional training in the developing world, including the creation of essential curriculums for professionals and the development of funding proposals for *Regional Cancer Training Networks*.
- Design funding proposals for additional countries in all regions. Work towards building a global alliance for cancer control to extend the PACT concept from that of an IAEA initiative to a global alliance and fund for cancer prevention, cure and care.





# How donations support **PACT** programme activities

- Up to \$20 000 — Support for *imPACT* reviews and the development of cancer prevention, control and treatment plans in low income nations.
- \$20 000–\$100 000 — Support for in-country *PACT Model Demonstration Sites* including advancing prevention, early detection, treatment and palliative care programmes, as well as provide development and support towards the implementation of national cancer strategies and action plans.
- \$100 000–\$500 000 — Support for the provision of radiation therapy equipment to treat and, when necessary, palliate cancer patients. Establish programmes to provide essential early detection and, where applicable, screening of common curable cancers.
- \$500 000–\$5 000 000 — Support for comprehensive cancer control programmes in a specific country, advancing that nation's cancer control system — from prevention through cure to palliation — benefiting thousands of lives.
- \$5 000 000–\$20 000 000 — Support for comprehensive cancer care programmes and training in a geographical region, to establish *Regional Cancer Training Centres* and to build lasting capacity to prevent, treat, cure and relieve the suffering associate with cancers.

For more information, including itemized cost details, please contact [pact@iaea.org](mailto:pact@iaea.org)

[pact@iaea.org](mailto:pact@iaea.org)

*"A silent crisis in cancer treatment persists in developing countries and is intensifying every year. At least 50 to 60 per cent of cancer victims can benefit from radiotherapy, but most developing countries do not have enough radiotherapy machines or sufficient numbers of specialized doctors and other health professionals."*

Mohamed ElBaradei / IAEA Director General





# Views from our partners

"I am impressed with the vision of PACT, by its substantial progress with scant resources, and by its plans to translate its vision into action ... there are important ways in which the National Cancer Institute can collaborate with the IAEA towards the realization of improved global cancer control."

— *Dr. Mark Clanton, American Cancer Society*

"The strategies for early diagnosis, treatment management, rehabilitation, pain relief and terminal care must be established in a comprehensive and multidisciplinary approach for a total cancer care programme."

— *Dr. Ketayun A Dinshaw, Director, Tata Memorial Centre, India*

"A healthy global civil society ... is needed to strengthen existing intergovernmental organizations and to advocate and act on behalf of a global "good" society that strives to reduce inequities and to address problems that threaten to cause, or are already causing, serious damage to the planet and its people. Cancer is just one of these."

— *Dr. Ian Magrath, President, International Network for Cancer Treatment and Research, Belgium*

"IARC is delighted to work to develop PACT. PACT presents the Agency with a unique opportunity to create a flagship activity in the application of nuclear technologies for the benefit of human health worldwide."

— *Dr. Peter Boyle, Director, International Agency for Research on Cancer*

"UICC considers the success of PACT an absolute priority, since it represents the cornerstone of the health policy which will be necessary to avoid the looming cancer disaster in the developing world."

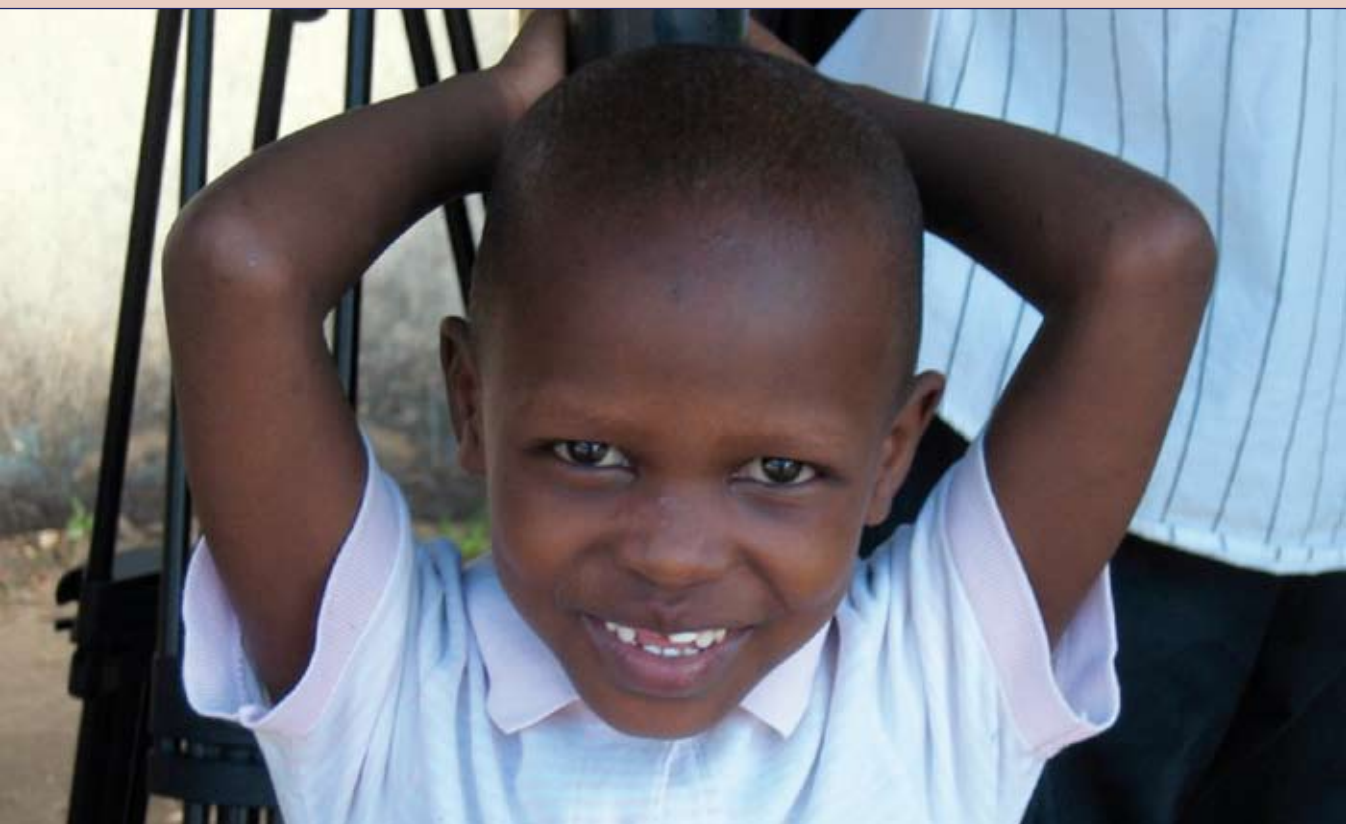
— *Dr. Franco Cavalli, President, International Union Against Cancer*

# PACT is the IAEA's umbrella programme for combating cancer

"PACT represents the IAEA's collaborative approach to maximize the impact of its development initiatives in radiation medicine technologies through comprehensive cancer control programmes. With a worldwide cancer epidemic emerging that will largely affect under-equipped and under-funded developing countries, PACT represents the recognition that no organization can hope to combat this epidemic on its own.

PACT is therefore designed to encourage, under the single banner of cancer control, the formation of a strategic partnerships consisting of UN organizations, international and national NGOs, and public and private sector entities to help build national capacity to fight cancer effectively. By combining the skills and resources of a variety of partners, such a partnership will provide a holistic package of policy, management and technical solutions that will be essential to help bring the cancer epidemic under control in developing countries."

— *Massoud Samiei, Head, IAEA PACT Programme Office*



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Programme of  
Action for  
Cancer  
Therapy

**PACT**

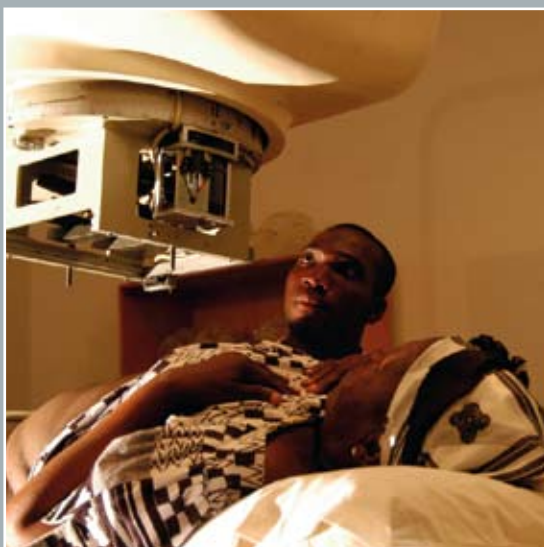
## Cancer Prevention



## Early Detection



## Diagnosis and Treatment, Follow-up and Rehabilitation



## Palliative Care and Support for Patients and Families



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