

**IAEA Scientific Forum**  
**CANCER in Developing Countries**  
**Facing the Challenge**  
**Vienna, 21-22 September 2010**

**Session IV**  
**IAEA's Role in the Fight against**  
**Cancer in the Developing Countries**

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# Comments/Recommendations

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- Recycling of equipment (radiotherapy, radiology,...
  - Eg. KFSH&RC → CT's, TeleCobalt unit; Varian 600C linac; 2 more Varian linacs (2300C/D & 2300EX); NGH: 2 linacs; KSU: TeleCobalt
- PACT and Regional Agreements
  - Sharing experiences, guidelines, ...
- Oncology Centers of Excellence: “developed centers within developing countries”
  - Availability of advanced equipment and techniques as well as qualified staff
  - Proximity to other neighboring developing countries or oncology centers

# Saudi Arabia

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- Population ~30 Million
- 25 Cancer Centers
- 13 Radiotherapy Centers (+ 5 planned)
- Launched Saudi Cancer Registry
- Professional Societies:
  - Saudi Oncology Society (SOS)
  - Saudi Medical Physics Society (SAMPS)

# KFSH&RC

## Riyadh



Example of a developed  
center within a developing  
country/region





# King Faisal Specialist Hospital & Research Centre (KFSH&RC)

- ◆ **Leading cancer center in the region**
- ◆ **3000 new cancer patients per year**
- ◆ **It has all cancer treatments: palliative to BMT; 3D to IMRT and IGRT.**
- ◆ **Qualified staff (oncologists, medical physicists, radiologists, technologists, ...)**
- ◆ **Radiation Oncology services started in 1976, 1<sup>st</sup> in the region**
- ◆ **Advanced diagnostic and treatment machines (PET/CT, SPECT, CyberKnife, TomoTherapy, RapidArc, ...)**

# “Historic Event @ KFSH&RC”

Inauguration: March 2009  
Treatment: May 2009



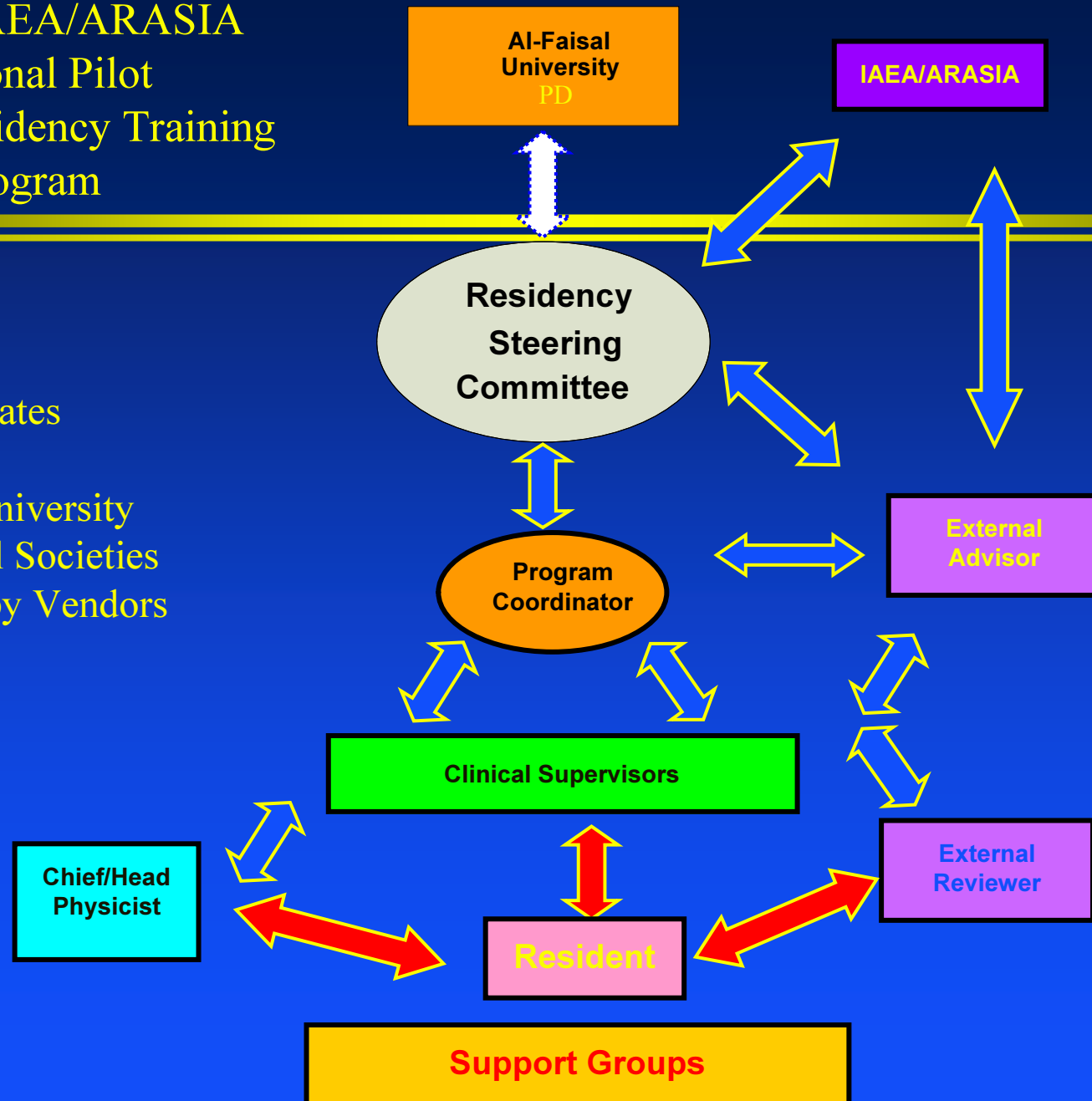
## IAEA/KFSH&RC joint activities

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- KFSH&RC has collaborated with the IAEA in various activities to develop national capacity in cancer treatment and diagnosis within Saudi Arabia and in other neighboring developing countries in the field of radiotherapy, nuclear medicine, quality assurance, medical physics and other related fields.

**Planned IAEA/ARASIA  
Regional Pilot  
Clinical Residency Training  
Program**

IAEA  
ARASIA States  
KFSH&RC  
Al-Faisal University  
Professional Societies  
Radiotherapy Vendors





# INTERNATIONAL CONFERENCE ON RADIATION MEDICINE

CLINICAL APPLICATIONS AND INNOVATIVE APPROACHES

King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia

MARCH 1-4, 2010

## INTERNATIONAL SPEAKERS

Stephen Baker, PhD  
Columbia University, USA  
David Beyer, PhD  
Isotopes Technologies, Germany  
Jean Bourhis, MD, PhD  
Institute Gustave Roussy, France  
Claire Louise Chappell, PhD  
International Atomic Energy Agency  
Arturo Chiti, PhD  
Istituto Clinico Humanitas, Italy  
Walter J. Curran Jr., MD  
Emory University, USA  
Michael J. Dennis, PhD  
University of Toledo, USA  
Skhodan Devic, PhD  
McGill University, Canada  
Jacob Flanz, PhD  
Harvard Massachusetts General, USA  
Udo Gellert, PhD  
University Hospital Erlangen, Germany  
Gail R. ten Haa, PhD  
University of Oxford, UK  
Eric Hall, PhD  
Columbia University, USA  
Konstantinos Hounkale, PhD  
International Atomic Energy Agency  
M. Saiful Haq, PhD  
University of Pittsburgh, USA  
Geoffrey S. Ibbott, PhD  
M.D. Anderson Cancer Center, USA  
Kay-Uwe Kase, PhD  
University of Applied Science, Germany  
Faiz Khan, PhD  
University of Minnesota, USA  
Paul E. Knapman, PhD  
University of Washington, USA  
Massoud Lesner, MD  
University of Connecticut, USA  
Christel Lindqvist, MD, PhD  
Cromwell Hospital, UK  
Thomas Rockwell Mackie, PhD  
University of Wisconsin-Madison, USA  
Ahmed Yasser Abu-Medien, MD  
Heidelberg University, Germany  
Abraham Al-Mamgani, MD  
Erasmus MC-Daniel den Hoed Cancer Center, Netherlands  
Donald McLean, PhD  
International Atomic Energy Agency  
Majid Mohiuddin, MD  
University of Maryland, USA  
Friedrich Nüsslin, PhD  
Technical University of Munich, Germany  
Richard Sennels, MD  
University of North Carolina Hospital, USA  
Penny J. Smalley, RN  
Laser Concepts International, USA  
Fredrik Stahlberg, PhD  
Lund University, Sweden  
Herman Sult, MD, PhD  
Harvard Massachusetts General Hospital, USA  
Alphonse Tighian, MD, PhD  
Harvard Massachusetts General Hospital, USA  
Hirohiko Tsuji, MD, PhD  
National Institute of Radiological Sciences, Japan  
Joke van Dyk, PhD  
University of Western Ontario, Canada  
Johannes van Lier, PhD  
University of Sherbrooke, Canada  
Konstantin Zakaryan, PhD  
Sun Nuclear Corporation, USA  
Cory Zankowski, PhD  
Varian Medical Systems Inc., USA

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## MAJOR THEMES

Radiation Oncology  
Diagnostic Imaging  
Radiobiology and Radiation Protection  
Emerging and Other Topics

## IAEA/KFSH&RC joint activities

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- Training of fellows from other developing countries
- Establishment of King Abdullah Oncology Center and Proton Carbon Ion Therapy facility
- Provision of SSDL and TLD services to the Kingdom and some neighboring countries
- Establishment of IAEA QUATRO & QUATRIL activities in the Kingdom
- Contribution to various IAEA expert panels and missions, e.g., IAEA Comparative Assessment of Nuclear Technologies

# Comments/Recommendations

- Guidance for Radiotherapy Techniques and Machines
  - Cobalt vs. Linacs debate
    - Initial and Operational Costs; Preventive Maintenance; Power requirements/stability; Reliability and Quality of treatment (conformity...); Staffing/Expert requirements; Patient workload ; Safety & Security Issues; ...
  - No one single answer, but “Guidelines”
  - Simple single-energy linac or Advanced TeleCobalt Unit
- Tender Specs and Maintenance Contracts
  - Developing countries installed but not used RT equipment for years (Eg. African Country: LDR Brachytherapy Unit and RT Simulator—not used for 6 years)