Further education in radiological emergency preparedness for medical physicists in Sweden

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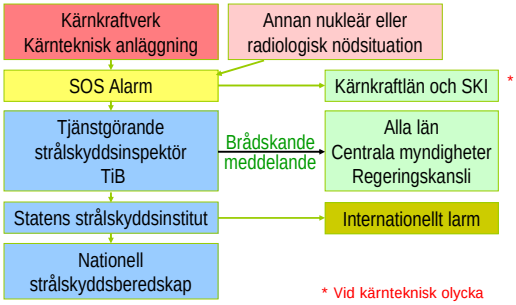
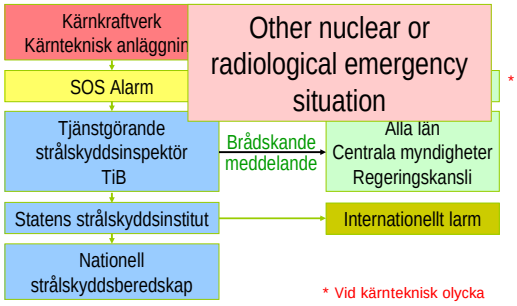
Alarm routes for nuclear or radiological accident in Sweden



Alarm routes for nuclear or radiological accident in Sweden



Other nuclear or radiological emergency situation

- nuclear weapons fallout from explosions abroad
- ”terrorism” – radiological dispersion devices, deliberate contamination, hidden source,…
- transport accidents
- industrial accidents – fire etc.; include also hospitals and universities
- satellites – powered by nuclear reactor or radioactive source

Is it known in advance that radioactive materials is present at the emergency site?

- nuclear weapons fallout from explosions abroad
- ”terrorism” – radiological dispersion devices, deliberate contamination, hidden source,…
- transport accidents
- industrial accidents – fire etc.; include also hospitals and universities
- satellites – powered by nuclear reactor or radioactive source

First responders (1)

- The rescue team may perform measurements with intensimeter SRV2000 if something indicates the presence of radioactive material at the site (eg. transport accident)
- If no indication exists it is unlikely that any measurements will be made by the first responders (some indications are given in ”Åtgärdskalendern”)

First responers (2)

- To get telephone support from radiation protection experts the first responders should contact SSI (according to the plans)
- It is likely that also a medical physicist will be contacted by the local or regional emergency central
- The medical physicist is expected to primarily perform contamination measurements at the emergency ward

The National Board of Health and Welfare: competence descriptions for medical physicists

- The medical physicist should be able to
  - participate as consultative expert of radiological emergency preparedness in case of accidents (transport accidents, nuclear energy accidents etc.)
  - participate in hospital preparedness for large accidents performing measurements and decontamination of patients, dose estimations and risk estimations
  - perform the functions as expert and advisor in radiation and measurements in case of minor accidents and incidents with radiation

Prerequisites for the task

- Medical physicists are radiation experts in a general sense
- Several have practical experience of contamination measurements in a hospital environment
- The tasks are specified in the emergency plan of the hospital
- The education contains very little about radiation protection and measurement techniques in emergency situations outside the hospital
- Several have no experience of practical measurements in radiation protection
- The tasks are not specified in the emergency plan of the hospital

Enhanced national preparedness for radiological and nuclear emergency situations

- A collection of courses within the CPD-programme of Svenska Sjukhusfysikerförbundet (Continuous Professional Development)
- Planned by the Dep of radiation physics at the university of Gothenburg and Medical radiation physics, Malmö at Lund university
- Supported by SSI (emergency preparedness funds)
- The courses may be given as part of PhD-courses
- The courses may be given as regular university courses
  - Starting with one course in Gothenburg autumn 2008

Preparedness and radiation protection in radiological and nuclear emergency situations (1)

- Aims
  - familiarity with threatening pictures
  - knowledge of measures at irradiation and at dispersion of radioactive substances, and decontamination
  - familiarity with the organisation of the national radiation emergency preparednes
  - knowledge of risks and risk communication
  - familiarity with the actors within the emergency preparedness and how they cooperate
  - proficiency in using handheld instruments
  - familiarity with personal dosimetry in these situations

Preparedness and radiation protection in radiological and nuclear emergency situations (2)

- Preparations
  - Presentation of an accident; a discussion of threatening pictures will be partly based on these presentations
- Examination task
  - Description of the organisation at the participant's hospital; how should the activities be organised regarding reception of injured, instrumentation available, decontamination, cooperation etc.

Preparedness and radiation protection in radiological and nuclear emergency situations (3)

- The course was given in Halmstad
  - 2006 (29 participants, of which 14 med. phys.)
  - 2007 (16 participants, of which 12 med. phys.)
- A new course is planned for autumn 2008

Detectors and measuring methods in radiation protection and preparedness (1)

- Aims
  - familiarity with applicability and signal response for some common instruments; quality measures
  - knowledge of how to handle uncertainties and of factors affecting the signal-to-background variation
  - proficiency in using some important handheld instruments
  - familiarity with methods to analys radiometric data (eg. spectrum analysis)

Detectors and measuring methods in radiation protection and preparedness (2)

- Preparations
  - List the available instruments at the hospital and investigate the quality assurance for these
- Examination task
  - Choice from four tasks

Detectors and measuring methods in radiation protection and preparedness (3)

- The course was given in april/may 2008
  - Part 1 in Halmstad (39 participants, of which 21 med. phys.)
  - Part 2 at Barsebäck & Revinge (12 participants, of which 11 med. phys.)
- New course is planned for 2009

"Radiation protection and disaster medicine" (1)

- Aims
  - Introduction to the organisation at hospitals and other authorities
  - Introduction to medical actions at an accident site
  - Knowledge of the role of the medical physicist in relation to other personnel in emergency situations
  - Knowledge of tools for diagnosis, treatment and follow-up of internalyy contaminated and possibly radiation injured patients
  - Knowledge of retrospective dosimetric methods and tools for internal dosimetry calculations

"Radiation protection and disaster medicine" (2)

- The course will be given in Linköping in september 2008
- Developed in cooperation with the Department of Radiation Physics, Linköping
- Will be carried out in cooperation with Centre for Teaching & Research in Disaster Medicine and Traumatology (KMC)

What I ideally would be presenting at the next NSFS-meeting

- All medical physicists in Sweden have participated in the course *Preparedness and radiation protection in radiological and nuclear emergency situations*
- Contents from the three courses presented here are included in the medical physicist programme at the universities
- One or two additional CPD-courses are given
- All swedish hospitals have specified the role of the medical physicist in their emergency plans

Thank you!