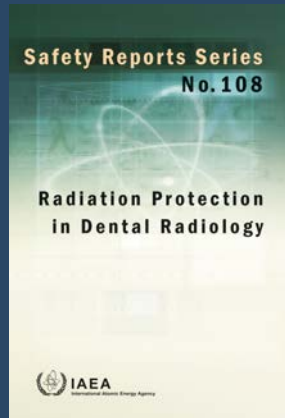


RADIATION PROTECTION IN DENTAL RADIOLOGY

Integration in specialist training



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SPECIALIST TRAINING IN DENTOMAXILLOFACIAL RADIOLOGY (DMFR)

Countries with a recognized specialty in DMFR for dentists (3-4 years):

- 5 (10%) countries within Europe (UK, Sweden, Finland, Norway, Turkey)
- USA, Australia, Japan, West Africa, etc.

Specialists educate both undergraduates and general dental practitioners in radiation protection

- In that education, IAEAs report and training material will be useful

Link to the specialist training program in UK:

https://www.gdc-uk.org/docs/default-source/specialist-lists/dmfr-curriculum-october-2010.pdf?sfvrsn=93e94f27_2

OTHER POST-GRADUATE PROGRAMS IN DMFR

- Master programs
- Other educational and research programs
- More or less equal to specialist training – for faculties/teachers
- Educators for under- and postgraduates at institutions, but usually not for GDPs in general – here a recognised specialty can play an important role for continuing education in radiation protection

POST-GRADUATE COURSES IN DMFR

- Courses for further education for general dental practitioners working with other modalities than those included in undergraduate studies

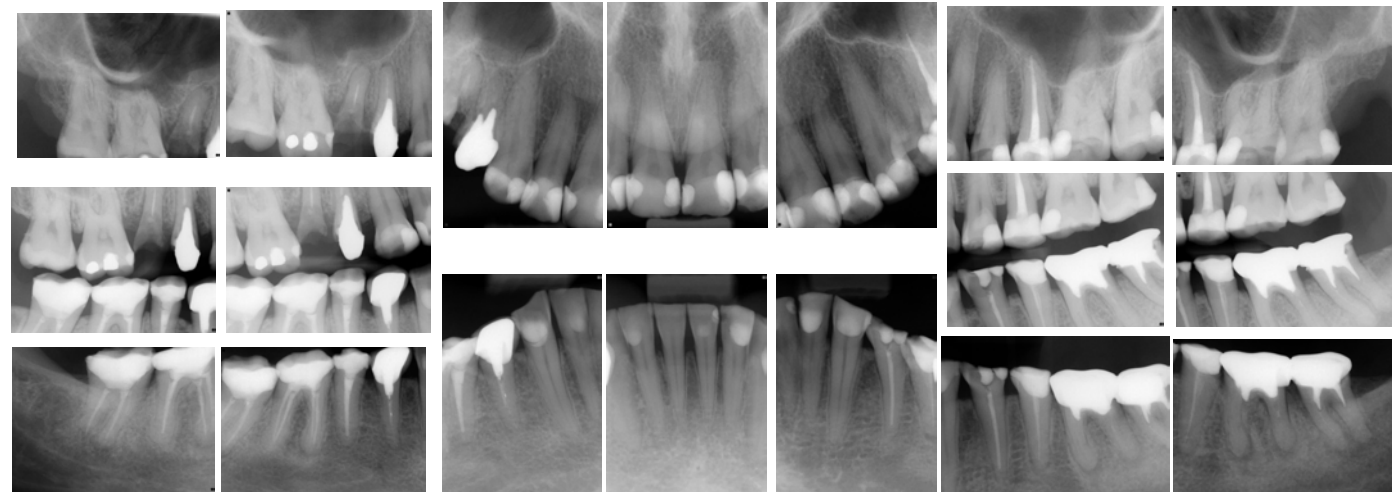
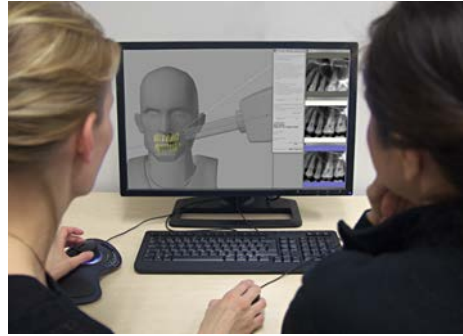
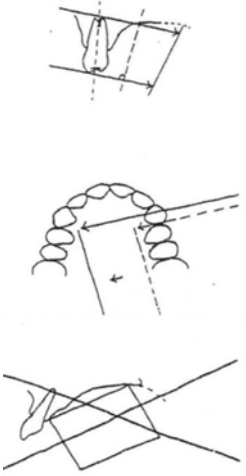
Including education in justification and optimisation

Skills in performing an examination will optimise the procedure

Skills in diagnostics are important to justify the examination



Intraoral examination - in Undergraduate education

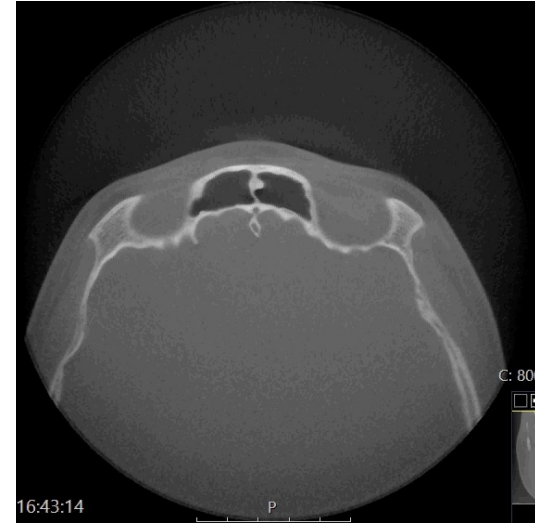




Panoramic and cephalometric methodology
Under- or post-graduate education



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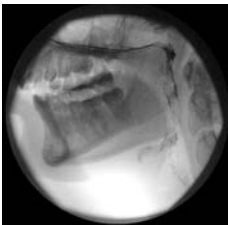
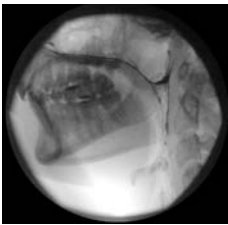
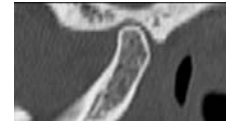
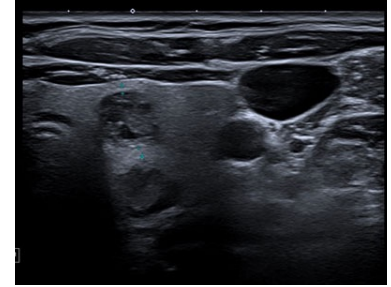
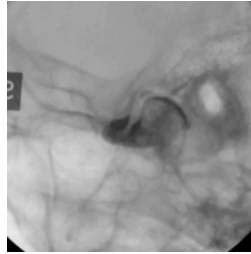
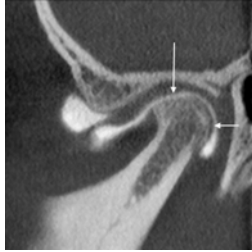
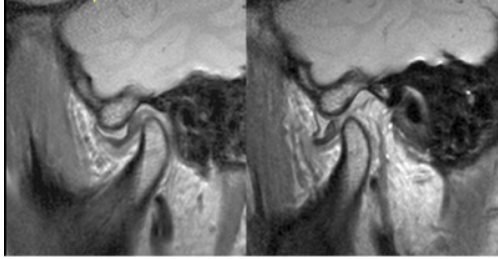


Cone beam computed tomography, CBCT most often requires some kind of further education - and in some countries collaboration with specialists in DMFR



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THE SPECIALTY IN DMFR CAN INCLUDE MANY MODALITIES



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EDUCATION IN PANORAMIC AND CEPHALOMETRIC IMAGING



Learning outcomes providing skills important for in radiation protection should include e.g.:

- knowledge in the technique and the limitations of the method
- judgement of when it is justified and how to optimize the examination
- Practical skills in imaging and diagnostics

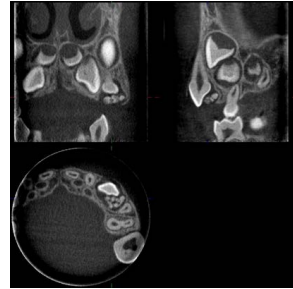
The education should be provided by dentist with deeper knowledge and in collaboration with a medical physicist and include radiation shielding, e.g., design of the x-ray room etc.

- Recommendation: Study IAEA's guidelines

CBCT

REGULATIONS AND POSTGRADUATE EDUCATION

- To own a CBCT-machine in Sweden and Norway, general dental practitioners have to collaborate with a medical physicist and a specialist in DMFR
- The DMFR specialist is responsible for justification, optimisation and diagnostics/reporting of all acquired examinations
- The regulations for use of CBCT differs between countries
- The owner always needs education in the technique but knowledge of radiophysics, radiation biology and protection including justification and optimisation must also be included
- **Recommendation:**
Study and implement IAEA's guidelines and training material



SPECIALIST TRAINING

LEARNING OUTCOMES IMPORTANT FOR RADIATION PROTECTION

The specialist trainee should be able to

- Lead the development within the specialty
- Set up routines in general practice for optimisation and justification
- Take responsibility for (under-) and postgraduate education in DMFR
- Collaborate with referrers (e.g., by giving feedback on justification)



SPECIALIST TRAINING LEARNING OUTCOMES



The specialist trainee must demonstrate...

- knowledge in radiation physics, radiation biology and radiation protection, important for DMFR
- knowledge of methods for measuring radiation doses
- knowledge of principles for optimization of x-ray examinations
- ability to take responsibility for justification of radiographic examinations



EDUCATION FOR SPECIALIST TRAINEES

IN RADIATION PROTECTION

- Courses – in radiation physics, radiation biology and radiation protection - including medical physicists as teachers
- Courses, seminars and self studies of guidelines, rules and regulations - here IAEA's report and training material will be useful
- Practical exercises and measurements
- All followed by assessments



CONCLUSION

- Postgraduate and further education in DentoMaxilloFacial Radiology - should in general increase, as the use of advanced radiographic methods increases
- Here IAEAs guidelines and training material will be extra useful
- Specialists in DMFR can support that – and therefore, it would be beneficial to have a recognized specialty for dentists worldwide

Thanks to all who have been working with finalizing IAEAs safety report



Thank you
for your
attention!

Eva Levring Jäghagen



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