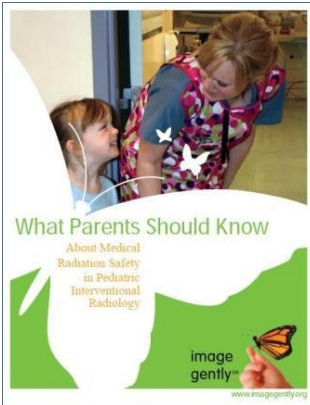


10개 원칙: 중재적 시술에서 **소아**의 방사선 방어

1. 기억할 것: 성장기 소아의 조직은 성인보다
방사선에 더 민감함

소아는 수명이 길어 방사선에 의한 영향이 나타날
가능성이 높음



2. 검사 전 부모와 논의할 것

이전에 방사선 검사를 받은 적이 있는 지 질문할 것

- 방사선 안전에 대한 환자의 우려에 대해 이해시킬 것

image gently

Patient's Name _____ MR# _____ Date of exam _____

Step Lightly Checklist

Review steps below before starting the procedure.

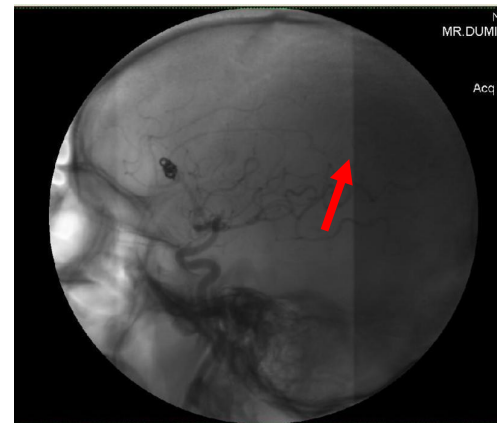
Safety is a team effort: don't be afraid to ask the necessary questions to ensure you are working as a team to keep radiation dose to patients and staff as low as possible.

Reducing radiation dose must be balanced with safe, accurate and effective completion of the procedure. Not all the steps below may be possible in each case, depending on patient size, technical challenge and critical nature of the procedure. Overall patient safety is most important. The goal is to minimize the dose to the patient while providing important and necessary medical care.

- ☐ Ask patient or family about previous radiation (record card downloadable at this link). Answer questions about radiation safety (patient brochure downloadable here).
- ☐ Use ultrasound when possible.
- ☐ Position hanging table shields and overhead lead shields prior to procedure with reminders during the case as needed.
- ☐ Operators and personnel wear well fitted lead aprons, thyroid shield and leaded eye wear.
- ☐ Use pulse rather than continuous fluoroscopy when possible, and with as low a pulse as possible.
- ☐ Position and collimate with fluoroscopy off, tapping on the pedal to check position.
- ☐ Collimate tightly. Exclude eyes, thyroid, breast, gonads when possible.
- ☐ Operator and personnel hands out of beam.
- ☐ Step lightly: tap on pedal and review anatomy on last image hold rather than with live fluoroscopy when possible; minimize live fluoroscopy time.
- ☐ Minimize use of electronic magnification, use digital zoom whenever possible.
- ☐ Acknowledge fluoroscopy timing alerts during procedure.
- ☐ Use last image hold whenever possible instead of exposures.
- ☐ Adjust acquisition parameters to achieve lowest dose necessary to accomplish procedure: use lowest dose protocol possible for patient size, lower frame rate, minimize magnification, reduce length of run.
- ☐ Plan and communicate number and timing of acquisitions, contrast parameters, patient positioning and suspension of respiration with radiology and sedation team in advance to minimize improper or unintended runs.
- ☐ Move table away from X-ray tube in both planes. Move patient as close to detector in both planes.
- ☐ Use a power injector, or extension tubing if injected by hand.
- ☐ Move personnel away from table or behind protective shields during acquisitions.
- ☐ Minimize overlap of fields on subsequent acquisitions.
- ☐ After procedure: record and review dose.

3. 검사 전 안전점검
확인 절차를 통해
팀원 간에 안전에
대한 의식을 증대
시킬 것

4. 부적절한 검사, 검사의 중도 취소, 또는
반복적인 방사선의 노출을 피하기 위해 검사
전에 미리 검사 절차를 상세하게 계획할 것



5. 가능한 한 환자의 갑상선, 유방, 눈 그리고 생식기를 보호할 것



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2페이지 중 1페이지

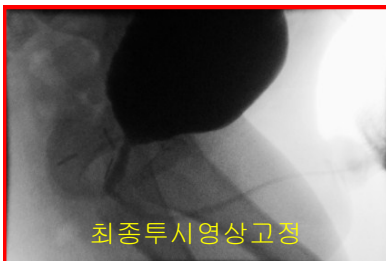
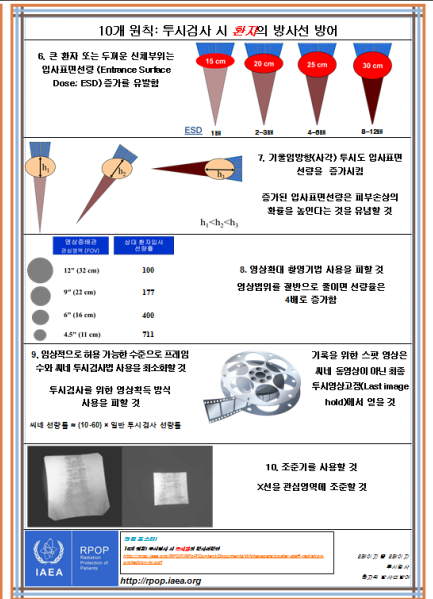
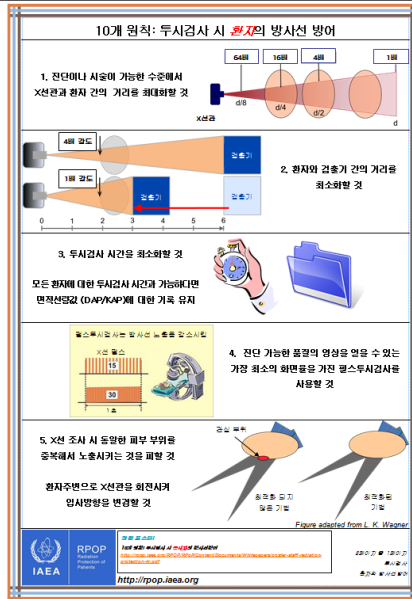
중재적 영상의학

소아의 방사선방어

10개 원칙: 중재적 시술에서 **소아**의 방사선 방어

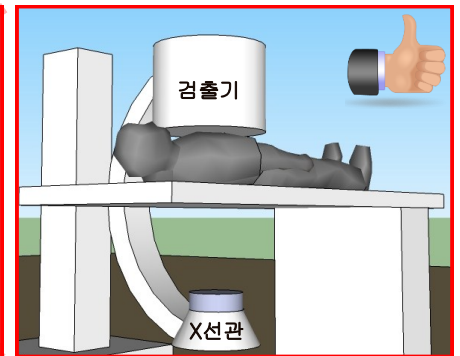
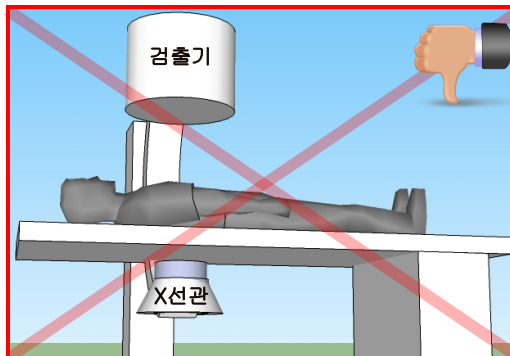
6. 최적화된 촬영기법을 사용할 것:

- 낮은 화면율. 가능하다면 화면율은 초당 7.5 펄스에서 3 펄스로 감소시킬 것
- 20 kg 미만의 유아의 경우 가능하다면 장치로부터 격자를 제거하고 공기-간격 기법을 사용할 것 (air-gap technique)
- 영상촬영 시간을 최소화할 것
- 반복되는 검사 시 영상 범위가 겹치는 것을 최소화 할 것
- 촘촘한 콜리메이션을 사용할 것
- 영상확대 촬영기법의 사용을 최소화할 것

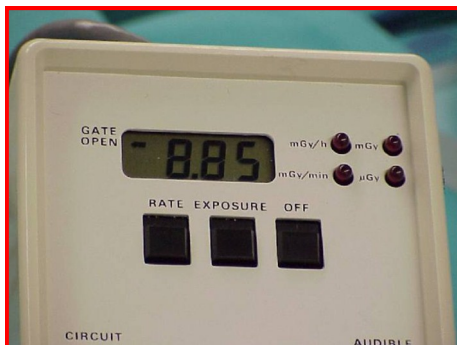


7. 스팟영상을 찍어 추가적인 방사선 노출을 하는 것 보다는 영상이 적절하면 최종투시영상고정(last image hold)을 사용할 것

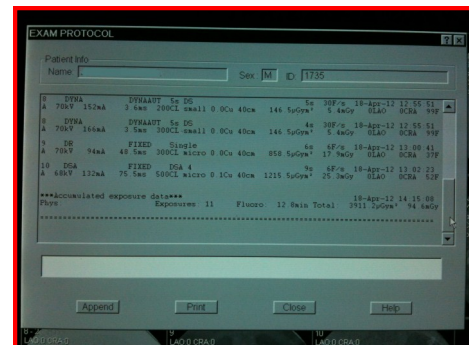
8. 환자와 X선관 간의 거리는 멀리하고, 환자와 검출기 간의 거리는 가깝게 할 것



9. 장치의 선량기록 및 선량감소 기법을 사용할 것



10. 검사 종료 후 방사선 선량을 검토하고 기록할 것



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중재적 영상의학

소아의 방사선방어

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