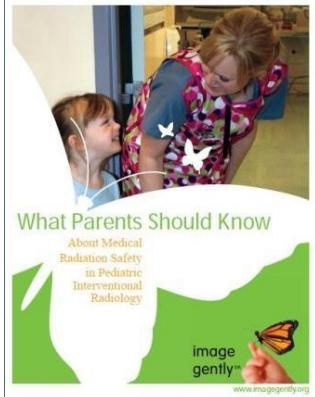


# 10 Bisera: Zaštita od zračenja u pedijatrijskoj intervencijskoj radiologiji

**1. Zapamtite: Određena tkiva u djece tijekom rasta osjetljivija su na zračenje od tkiva odraslih osoba.**

Očekivani je životni vijek djece dulji, a samim tim i vrijeme tijekom kojeg se mogu pojaviti učinci zračenja (karcinom).



## 2. Razgovarajte s roditeljima prije radiološke procedure

- Tražite podatke o prethodnim pregledima
- Odgovorite na njihova pitanja iz područja zaštite od zračenja

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 will be possible in each case, depending on patient size, technical challenge and critical nature of the procedure. Over-exposure is the 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 ([free card downloadable at this link](#)) Answer questions about radiation safety ([parent patient brochure downloadable here](#))

Use ultrasound when possible

Position imaging 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, tipping on the pedal to check position

Collimate tightly. Exclude eyes, thyroid, breast, gonads when possible

Operators and personnel hands out of beam

Step lightly: tap on pedal and review anatomy on last image held rather than with live fluoroscopy when possible; minimize live fluoroscopy time

Minimize use of electronic magnification; use digital zoom whenever possible

Acknowledge fluoroscopy tuning sheets 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 importance of respiratory with radiology and sedation team in advance to minimize unnecessary or unneeded 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. Povećajte svijest mlađih kolega i suradnika analizirajući zaštitu od zračenja svake procedure prije njenog početka. Koristite se listom provjera (Image Gently).**

**4. Unaprijed, detaljno planirajte procedure da izbjegnete neprimjerene ili nepotrebne akvizicijske serije i ponovljene ekspozicije.**



<http://www.pedrad.org/associations/5364/files/>

ImGen\_StpLight\_Chcklst.pdf



**5. Zaštitite djecu zaštitnim sredstvima za štitnjaču, dojke, oči i gonade uvijek kada je to moguće.**



**RPOP Posters webpage!**

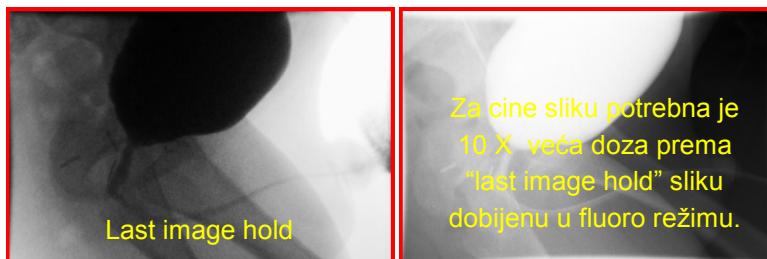
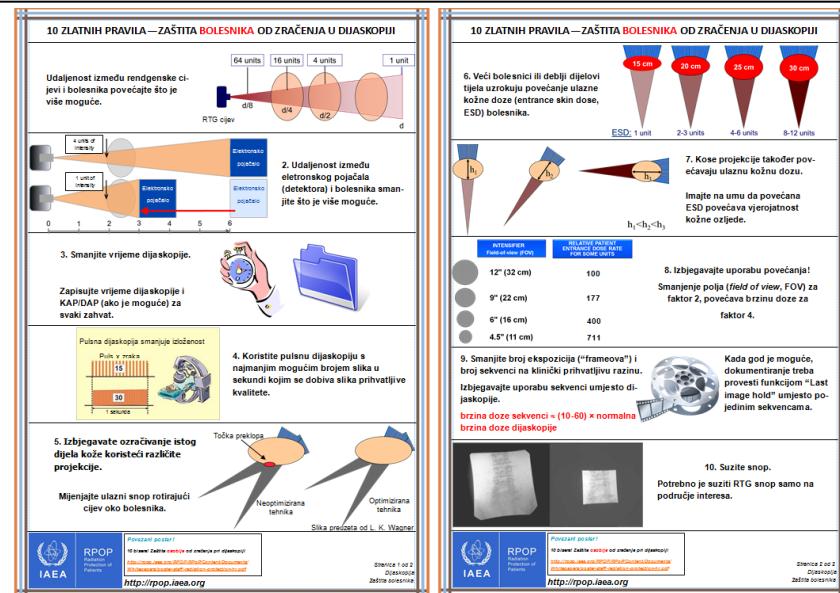
<https://rpop.iaea.org/RPOP/RPoP/Content/AdditionalResources/Posters/index.htm>

<http://rpop.iaea.org> <http://www.pedrad.org/associations/5364/ig/>

# 10 Bisera: Zaštita od zračenja u pedijatrijskoj intervencijskoj radiologiji

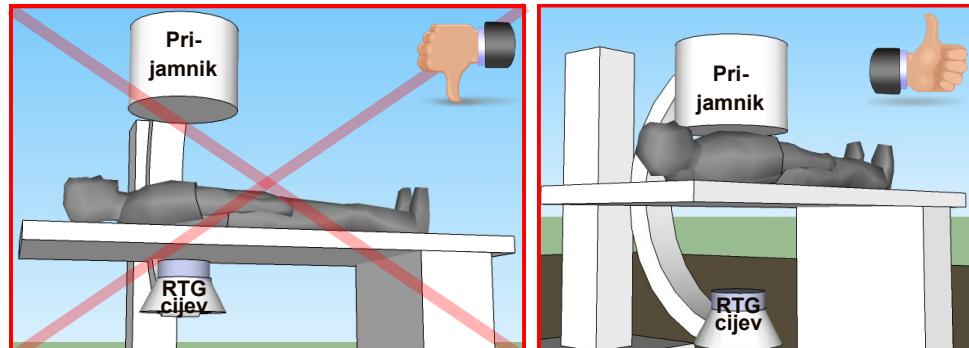
## 6. Koristite optimalnu tehniku:

- Smanjite broj ekspozicija u jedinici vremena ("frame rate")
- Smanjite broj pulseva u sekundi (sa 7.5 na 3) kad je to moguće
- Kod djece lakše od 20 kg, uklonite rešetku ukoliko je to moguće. Umjesto rešetke koristite se air-gapom
- Smanjite vrijeme pregleda
- Izbjegavajte preklapanje polja tijekom ponovljenih sekvenci
- Suzite snop
- Izbjegavajte povećanja (zoom)

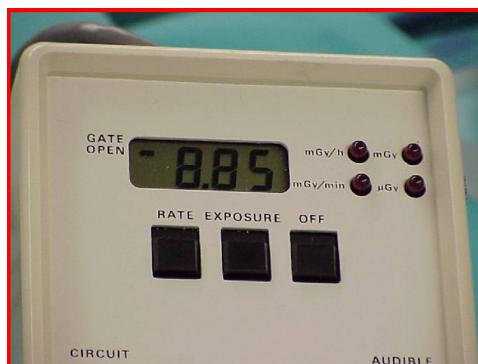


7. Koristite "last image hold" funkciju umjesto dodatnih ekspozicija, uvijek kada je to moguće.

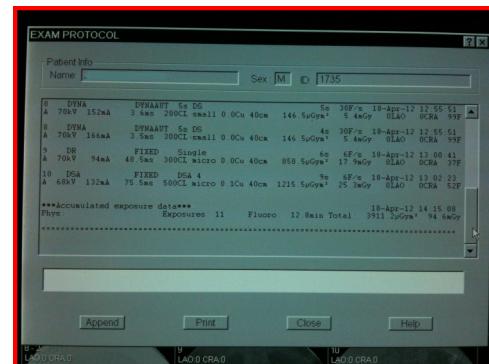
8. Povećajte razmak između bolesnika i rendgenske cijevi. Smanjite razmak između bolesnika i prijamnika slike.



9. Koristite sustav za zapisivanje doza i postojeće tehnike za smanjenje doze.



10. Analizirajte i zapisujte podatke o dozi nakon svake procedure.



RPOP Posters webpage!

<https://rpop.iaea.org/RPOP/RPoP/Content/AdditionalResources/Posters/index.htm>

<http://rpop.iaea.org> <http://www.pedrad.org/associations/5364/ig/>