

# Ask EuroSafe Imaging Tips & Tricks

## Paediatric Working Group

# Interacting with children during radiographic procedures

**Berit Møller Christensen** (Jönköping University, Sweden)

**Claudio Granata** (IRCSS Istituto Giannina Gaslini, Genova, Italy)

**Alexander Schegerer** (Lucerne Cantonal Hospital, Switzerland)

## Children's rights

The Convention on the Rights of the Child highlights the need to promote equality in communication between health care professionals and children seen in health care (Unicef, 2018).

In this regard, participation and person-centeredness is important in the interaction with each child to provide adequate information on the radiographic process in a way that the child can understand.

## Children's rights

Charter of Fundamental Rights of the European Union, article 24:

- Children shall have the right to care as is necessary for their well-being.
- They may express their views freely. Such views shall be taken into consideration on matters which concern them in accordance with their age and maturity.
- The child's best interests must be a primary consideration.

# Children's development

- Children's cognitive development is, according to Piaget, divided into 4 stages. He viewed intellectual growth as a process of adaptation (adjustment) to the world (Piaget 1953)



# Children's development

## **0-2 years: Sensorimotor stage**

- Experience the world through senses and action

## **3-6 years: Preoperational stage**

- Egocentric
- Symbolic and animistic thinking

## **7-11 years: Concrete operational stage**

- Understand other people's perspective
- Thinking logically about concrete things

## **12 – years: Formal operational stage**

- Abstract reasoning

Piaget, (1953)

## 0-2 years: Sensorimotor stage

This stage is a period of rapid cognitive growth.

During this period, infants develop an understanding of the world through trial and error using their senses and actions.

They are often afraid of unknown people and separation from parents during a procedure may cause anxiety.

In preparation of a radiographic procedure, basic needs of the infant should be met, and the parents should be adequately informed of the procedure.

## 2-6 years: Preoperational stage

The symbolic thinking is clearly expressed in language and imagination.

At the beginning of this phase, the child sees the outside world only from their own perspective and has difficulty understanding how others think and feel (egocentric).

The child assumes that everyone experiences the world in the same way as they do and therefore does not always express how they feel because we should already know that.

Be at the child's level and explain the procedure in easy terms. Repeat the information during the procedure to be sure that the child understands.

## 7-12 years: Concrete operational stage

The child has an internal logical thinking and understands conversation, reversible reasoning and can familiarize themselves with other people's perspectives.

Furthermore, children of this age have a better idea of time, (past, present and future).

They can apply logical reasoning, but their thoughts are still dependent on their actual actions with the objects. They can therefore apply logical operations, but these are concrete in their execution.

Be clear about the procedure and give the child an opportunity to ask questions.



## 12- Years: Formal operational stage

The adolescent understands various concepts.

They reflect on their own thinking, use hypothetical concepts and work more systematically, evaluate different ideas and understand that there is often more than one answer to a question.

A tough attitude may be a way of hiding anxiety.

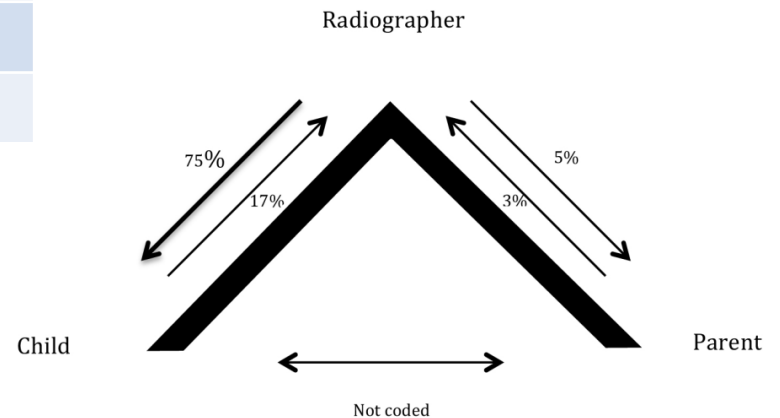
Adolescents at this stage may not want to have their parents present during the procedure.

Be clear about the procedure and give the adolescent an opportunity to ask questions.

# Verbal interaction

Research shows the distribution of verbal interaction between children and radiographers during a radiographic procedure (Björkman et al 2013)

Age groups	Task focused utterances	Socio emotional utterances
3-6 years	70.3%	29.7%
7-11 years	75.2%	24.8%
12-15 years	83.1%	16.9%
Total	75.0%	25.0%



# Children in the Radiology Department

- As health care professionals in a radiology department, we need to keep in mind, that within this high technology environment, which is our everyday environment, it is a place that may bring forth various feelings in a child.
- First, it may be a new and unknown place that seems frightening, leading to feelings of anxiety and distress.
- The reason for the visit to the Radiology Department may be due to illness or injury also causing anxiety and pain which may be exaggerated during the procedure.

(Björkman 2014)

- The interaction between the radiographer and the child is vital for the outcome of the examination (Björkman et al 2013).

# Children in the Radiology Department

- The interaction may be challenging – especially when meeting a child with special needs such as autism spectrum disorders

(Gimbler Berglund et al 2013)

- Lack of knowledge about the problems associated with autism spectrum disorders (ASD) in health care professionals may cause problems in the interaction with the child

(Lindberg et al 2012, Bultas et al 2016)

## Children with special needs

- It is well-known that children with special needs, for example children with ASD, tend to be more anxious than typically developed children. (Johnson & Rodriguez, 2013).
- In addition, those children may have difficulties, which may be a challenge when seen for a procedure in the Radiology Department.
- Difficulties may include, communication, both to express themselves and to understand verbal information.
- Also, there may be difficulties with social interaction, for example, not being able to “read” and understand the situation.

## Children with special needs

- Often children within the autism spectrum are inflexible, in that they are dependant on routines and are highly sensitive to changes in their environment.
- In addition, they might be sensitive to stimuli such as touch, for example, a light touch may cause pain.
- Also, visual stimuli could be overwhelming and “too much”...

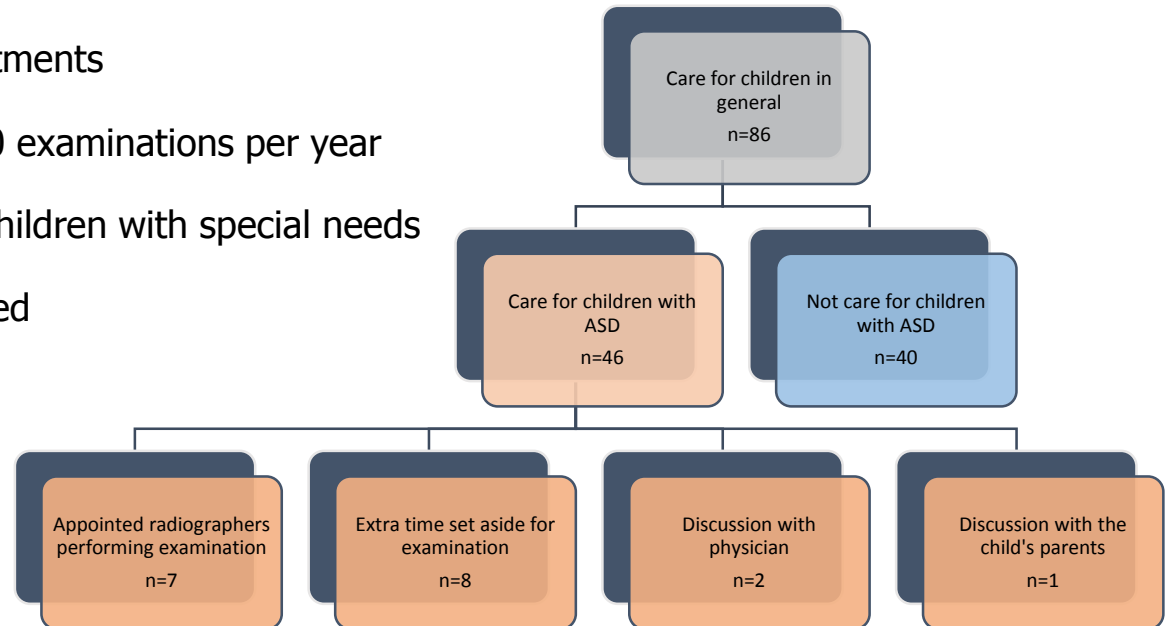
## Children with special needs

- Children with special needs are frequent users of a variety of health care systems, including procedures and treatment in the Radiology Department.
- Also, as they often experience more anxiety than typically developed children, it is even more important that the interaction between the child and the radiographer is a successful one. In order to have the child participate in the procedure in the best way possible, there is a prerequisite for good care and an optimum procedure.

# Children with special needs

- Research shows the distribution of Radiology Departments taking care of children with special needs (Björkman et al 2016)

- Survey of 86 Radiology Departments
- Performing more than 100 000 examinations per year
- 46 departments take care of children with special needs
- No specific routines are adapted





## Interaction with children

Parents find that health care professionals do not understand the complexity of interacting with children with special needs (Davignon et al., 2014).

Adapted information to the child's level of understanding is necessary to meet each child in a person-centered way and to achieve participation and a successful outcome of the health care procedure (Björkman et al., 2014).

Adapted information should be provided regarding benefits and risks of the procedure (WHO 2016).

More tips can be found on the following sites:

[https://www.who.int/ionizing\\_radiation/pub\\_meet/radiation-risks-paediatric-imaging/en/](https://www.who.int/ionizing_radiation/pub_meet/radiation-risks-paediatric-imaging/en/)

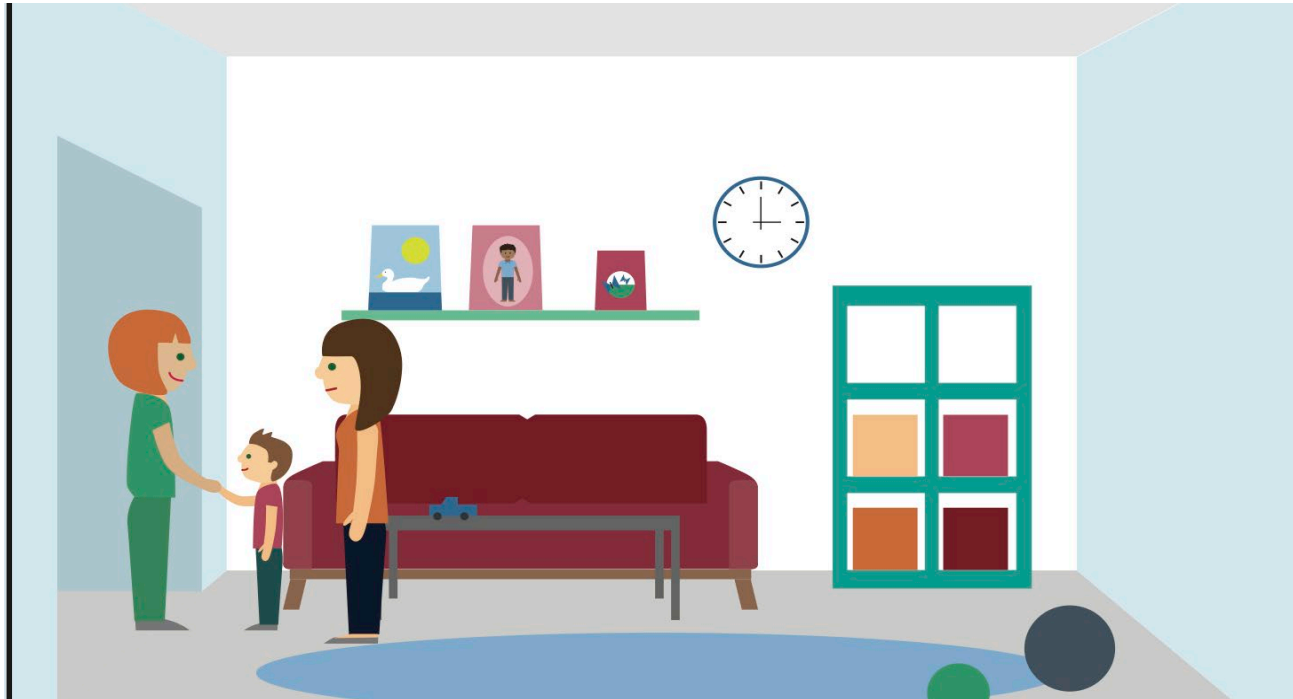
<https://www.imagegently.org>

## Interaction with children

- Inclusion of different parts must be considered as an advantage, since children of different ages and developmental stages have different needs. Furthermore, if parents are involved, it is shown to influence improved communication and social functioning (Gårdling, 2017).
- One way to achieve a person-centered encounter and to support the communication is to use illustrations as part of an Augmentative and Alternative Communication (AAC); (Beukelman et al., 2013).
- It is rather common that children within the autism spectrum tend to have difficulties with communication, both in understanding verbal interaction and expressing themselves verbally.

## Tools to facilitate interaction

- Illustrations can be used in the interaction with children during radiographic procedures (Møller Christensen et al 2019)



When it is time for your examination, the radiographer will come for you.

## Tools to facilitate interaction

- Guidelines can help when planning for a procedure. A check-list can be used to prepare for a person-centered meeting with the child and family.
- It is important that health care professionals are aware of how the child communicates – for example, the child communicates through pictures or maybe uses other, alternative communication aids.

(Gimbler-Berglund et al 2017)

## Tools to facilitate interaction

- It may help the health care professional to have information regarding what the child likes or dislikes and what worries and calms the child in order to achieve participation.
- Regarding the child's sensitivity to stimuli, it is important to know how the child reacts to sound, light and touch. Other contextual needs should also be taken into consideration in order to prepare for the procedure and interaction in the best way possible.

(Gimbler-Berglund et al 2017)

# Tools to facilitate interaction

## Guidelines

- Planning
- **Checklist**
- Environment
- Time
- Communication
- Health care professionals

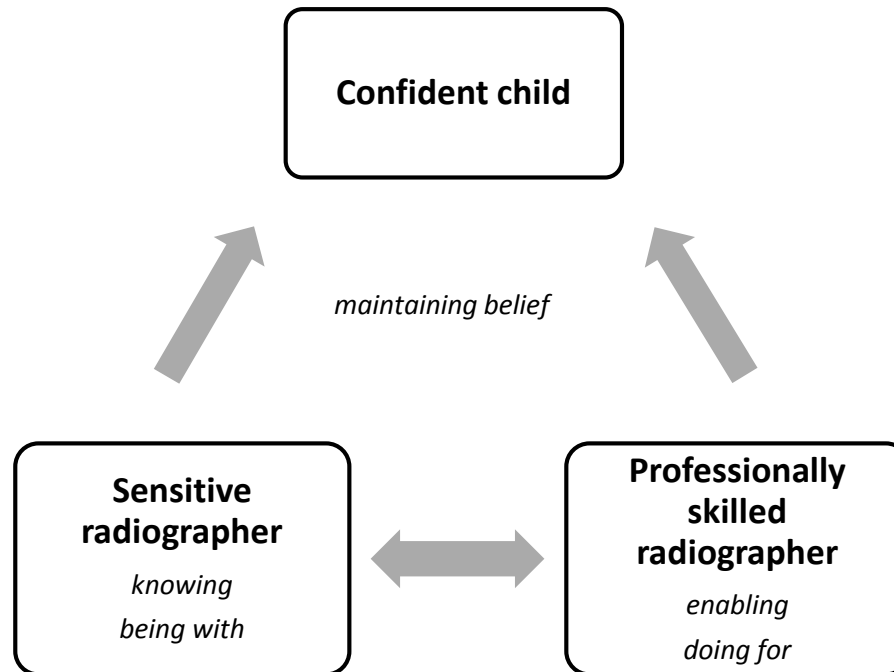
(Gimbler-Berglund et al. 2017)

### Checklist – person-centered

- How the child communicates
- The child's special interest
- What the child likes/dislikes
- What works/does not work to achieve cooperation
- What worries/calms the child
- How the child shows anxiety
- How the child reacts to sound, light, touch
- Cognitive impairment
- Contextual needs

# Conclusion

Professionally skilled and sensitive radiographers are a prerequisite for a successful interaction with children during radiographic procedures



The Radiographer Caring Model (Björkman 2014)

## Conclusions

- Person-centeredness in the radiographic process is a prerequisite for a successful interaction with children and their family.
- Interaction and information adapted to each child's level of understanding may facilitate participation in the radiographic procedure.
- Guidelines and pictures developed for the radiographic context can be used to facilitate the interaction during radiographic procedures.



## References

- Berglund, I.G., Björkman, B., Enskär, K., Faresjö, M., Huus, K. Management of Children with Autism Spectrum Disorder in the Anesthesia and Radiographic Context. *Journal of Developmental Pediatrics*. 2017; 1-12
- Beukelman, D.R., & Mirenda, P. *Augmentative and Alternative Communication: Supporting children and adults with complex communication needs*. Baltimore: Paul H. Brooks Pub. 2013.
- Björkman, B.; Golsäter, M.; Simeonsson, R.J.; Enskär, K. Will it Hurt? Verbal Interaction between Child and Radiographer during Radiographic Examination. *Journal of Pediatric Nursing*. 2013; 28, 10-18.
- Björkman, B. *Children in the Radiology Department – a study of anxiety, pain, distress and verbal interaction*. Jönköping University: Dissertation Thesis; 2014.
- Björkman, B., Gimble berglund, I., Enskär, K., Faresjö, M., Huus, K. Peri-radiographic guidelines for children with autism spectrum disorder: a nationwide survey in Sweden. *Child; vare, health and development*. 2016; 1-6.
- Bultas M.W.; McMillin, S.E.; Zand, D.H. Reducing barriers to care in the Office-based health care setting for children with autism. *Journal of Pediatric Health Care* 2016; 30;5-14.

## References

- Carlsson, I. M., Nygren, J. M., & Svedberg, P. Patient participation, a prerequisite for care: A grounded theory study of healthcare professionals' perceptions of what participation means in a paediatric care context. *Nursing Open*, 2018; 5(1), 45-52
- Charter of Fundamental Rights of the European Union, article 24. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:12012P/TXT>
- Davignon, M.N.; Friedlaender, E.; Cronholm, P.F. Parent and provider perspectives on procedural care for children with autism spectrum disorders. *Journal of Developmental Behaviour Pediatrics*, 2014; 35:207-215.
- Gimbler-Berglund, I.; Ericsson, E.; Proczkowska-Björklund, M.; Nurse anaesthetists' experiences with pre-operative anxiety. *Nurs Child Young People*. 2013; 25:28-34.
- Gimbler-Berglund. I.; Björkman, B.; Enskär, K.; Faresjö, M. Management of Children with Autism Spectrum Disorder in the Anesthesia and Radiographic Context. *Journal of Developmental and Behavioral Pediatrics*. 2017; 1-12.
- Gårdling, J. *When children undergo radiotherapy. Exploring care, developing and testing preparation procedures*. Lund University: Dissetration Thesis; 2017; 1-12.

## References

- Johnson, N.L.; Rodriguez, D. Children with autism spectrum disorder at a pediatric hospital: a systematic review of the literature. *Pediatric Nursing*. 2013;39:131-141.
- Lindberg, S.; von Post, I.; Eriksson, K. The experiences of parents of children with severe autism in connection with their children's anaesthetics, in the presence and absence of the perioperative dialogue: a hermeneutic study. *Scandinavian Journal of Caring Science*. 2012; 26:627-634.
- Møller Christensen, B.; Nilsson, S.; Stensson, M. Developing communication support for interaction with children during acute radiographic procedures. *Radiography*. 2019;
- Piaget, J. *The origin of intelligence in the child*. London: Routledge & Kegan Paul; 1953.
- Söderbäck, Coyne, Harder. The importance of including both a child perspective and the child's perspective within healthcare settings to provide truly centred care. *Journal of Child Health Care*, 2011; 15(2), 99-106
- UNICEF Sverige. Barnkonventionen: FN:s konvention om barnets rättigheter. Stockholm: Unicef Sverige, 2018.
- World Health Organization. COMMUNICATING RADIATION RISKS IN PAEDIATRIC IMAGING (2016) [https://www.who.int/ionizing\\_radiation/pub\\_meet/radiation-risks-paediatric-imaging/en/](https://www.who.int/ionizing_radiation/pub_meet/radiation-risks-paediatric-imaging/en/)