



# **Pediatric doses in Computed Tomography in Serbia**

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# Introduction

- ❖ An increased number of Computed Tomography (CT) examinations in children has been observed world wide
- ❖ Due to the high radiosensitivity and longer life expectancy for children, the radiation protection of paediatric patients in CT has been especially emphasized in recently published papers

The purpose of this study was to collect the initial data of patient doses in paediatrics CT in Serbia

# Materials and methods

There are three dedicated paediatric hospitals in Serbia that are CT equipped

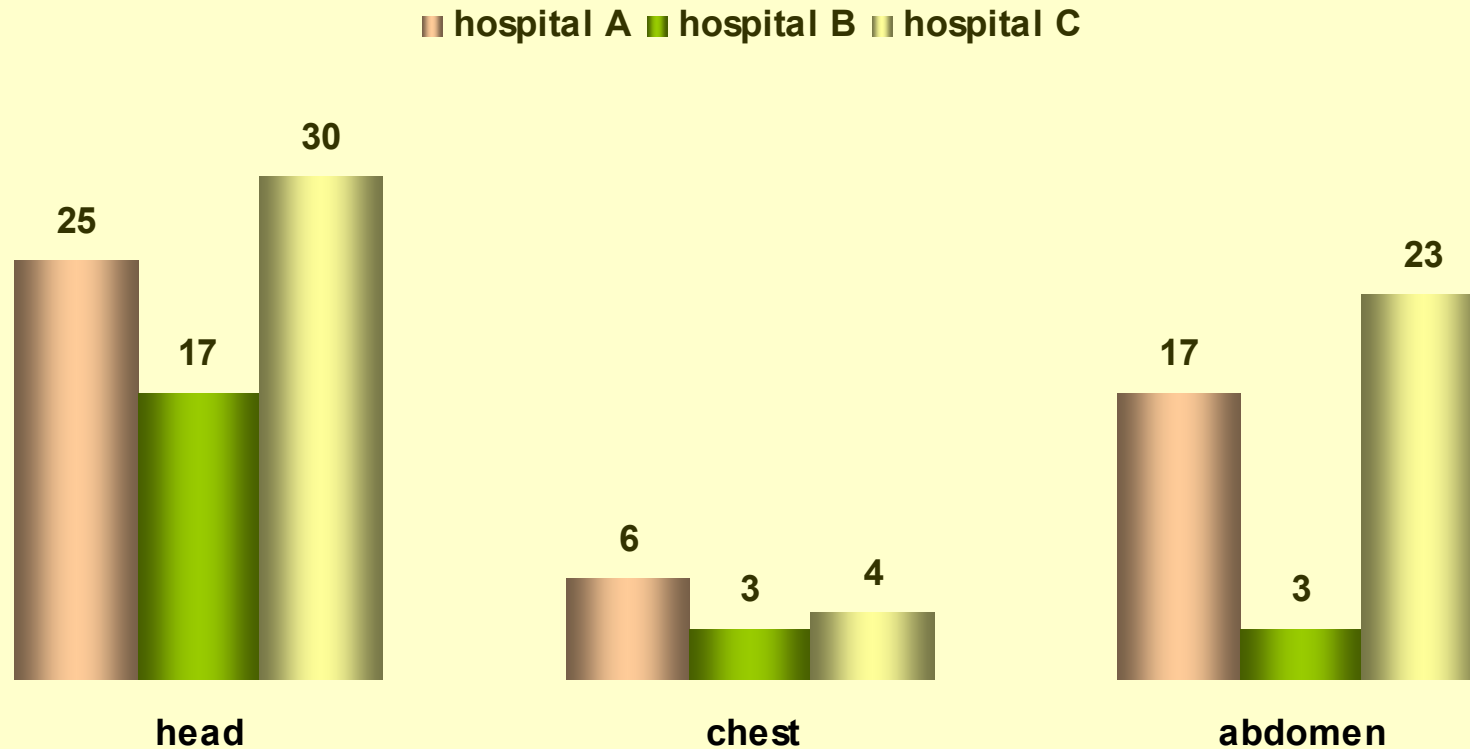
- ❖ hospital A: **Toshiba Aquilion 16**
- ❖ hospital B: **Siemens Somatom Emotion 16**
- ❖ hospital C: **General Electric BrightSpeed**



# Data collection:

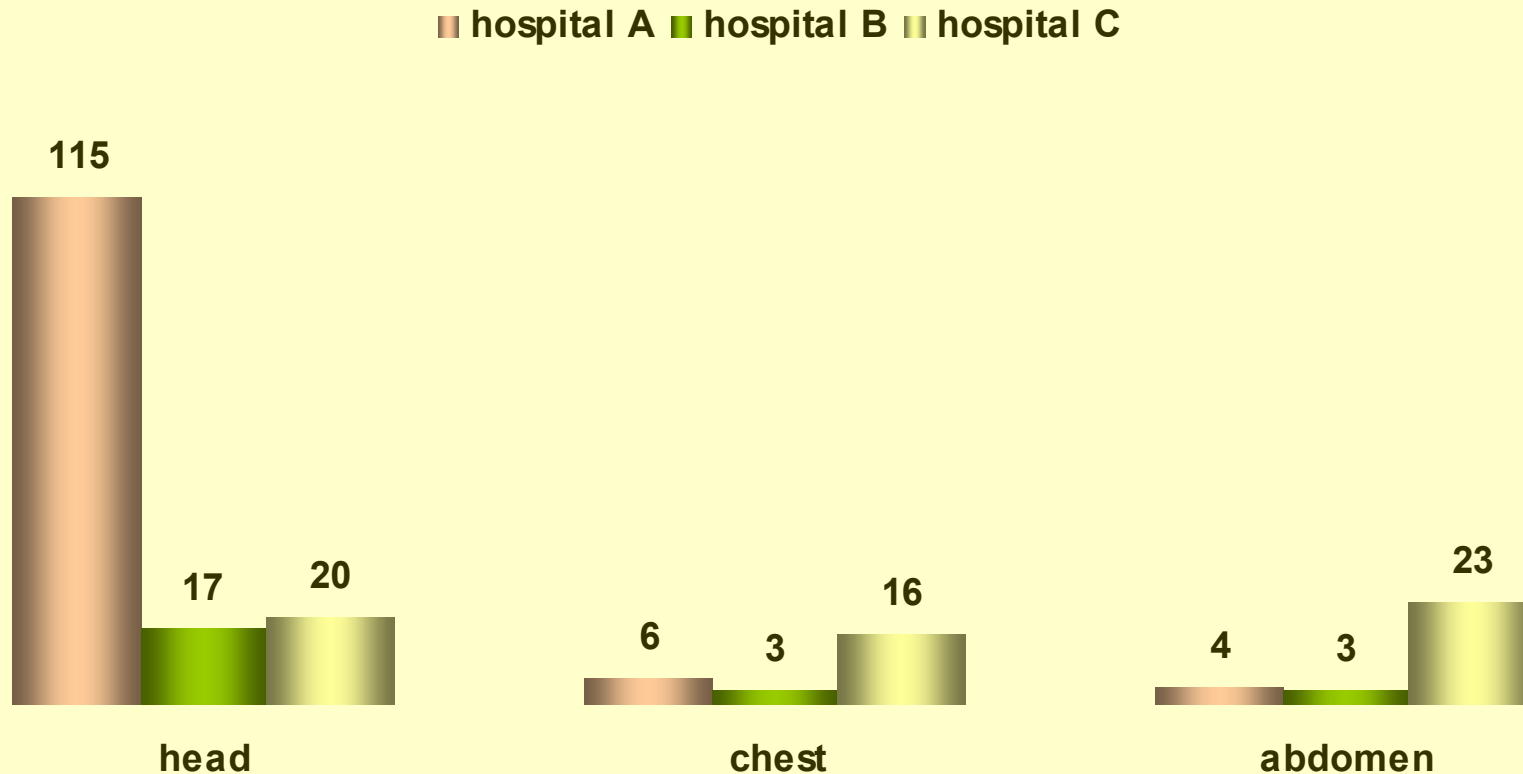
- ❖ the data were collected from the routine protocol in terms of  $CTDI_{vol}$  for **head**, **chest** and **abdomen**
- ❖ according to the age, patients were divided into four groups:
  - I) < 1 year
  - II) > 1 – 5 years
  - III) > 5 – 10 years
  - IV) > 10 – 15 years
- ❖ unfortunately,  $CTDI_{vol}$  was not verified by measurements!

# Results



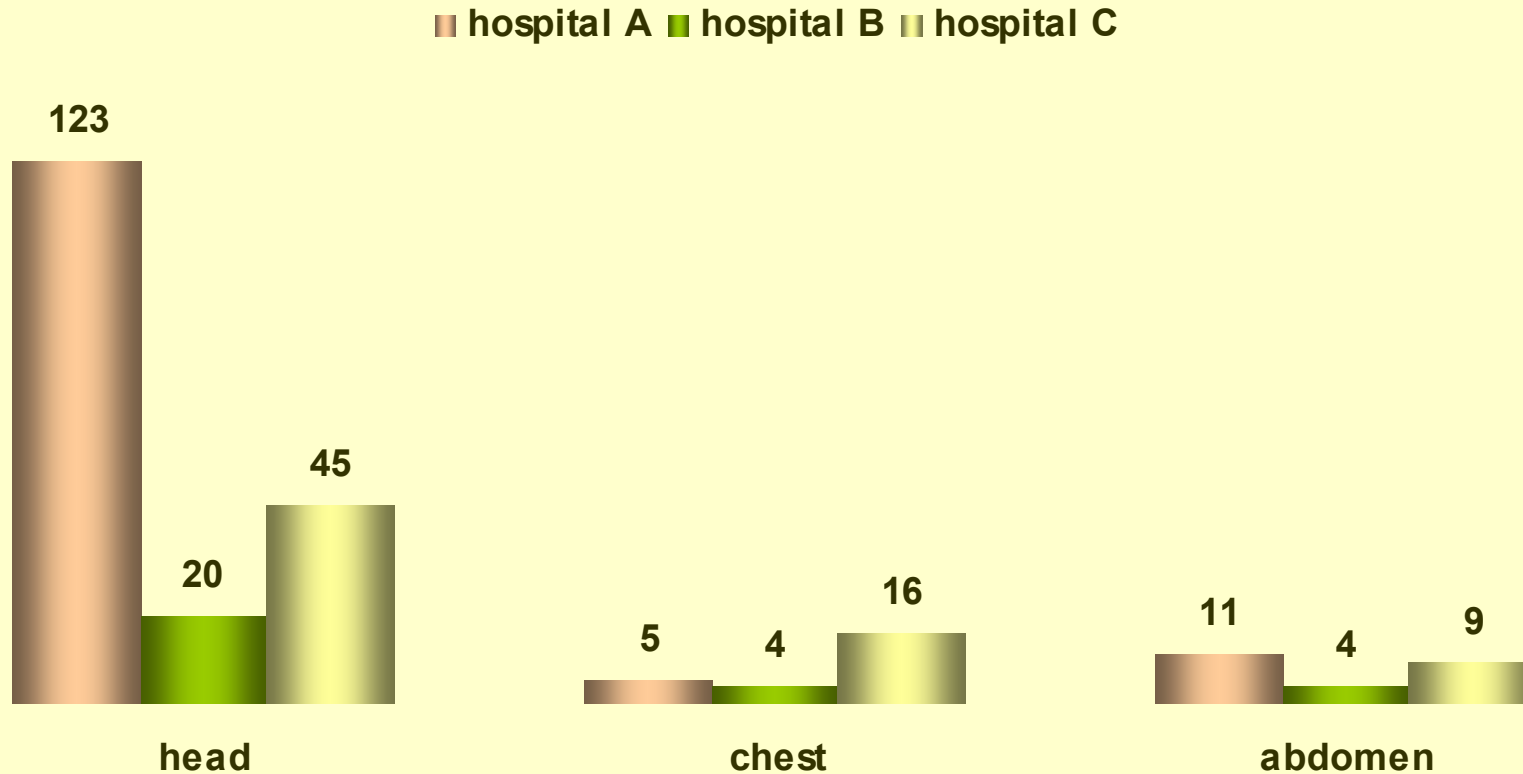
*CTDI<sub>vol</sub> values (in mGy) collected from the routine protocols for the pediatric patients under the age of 1 year*

# Results



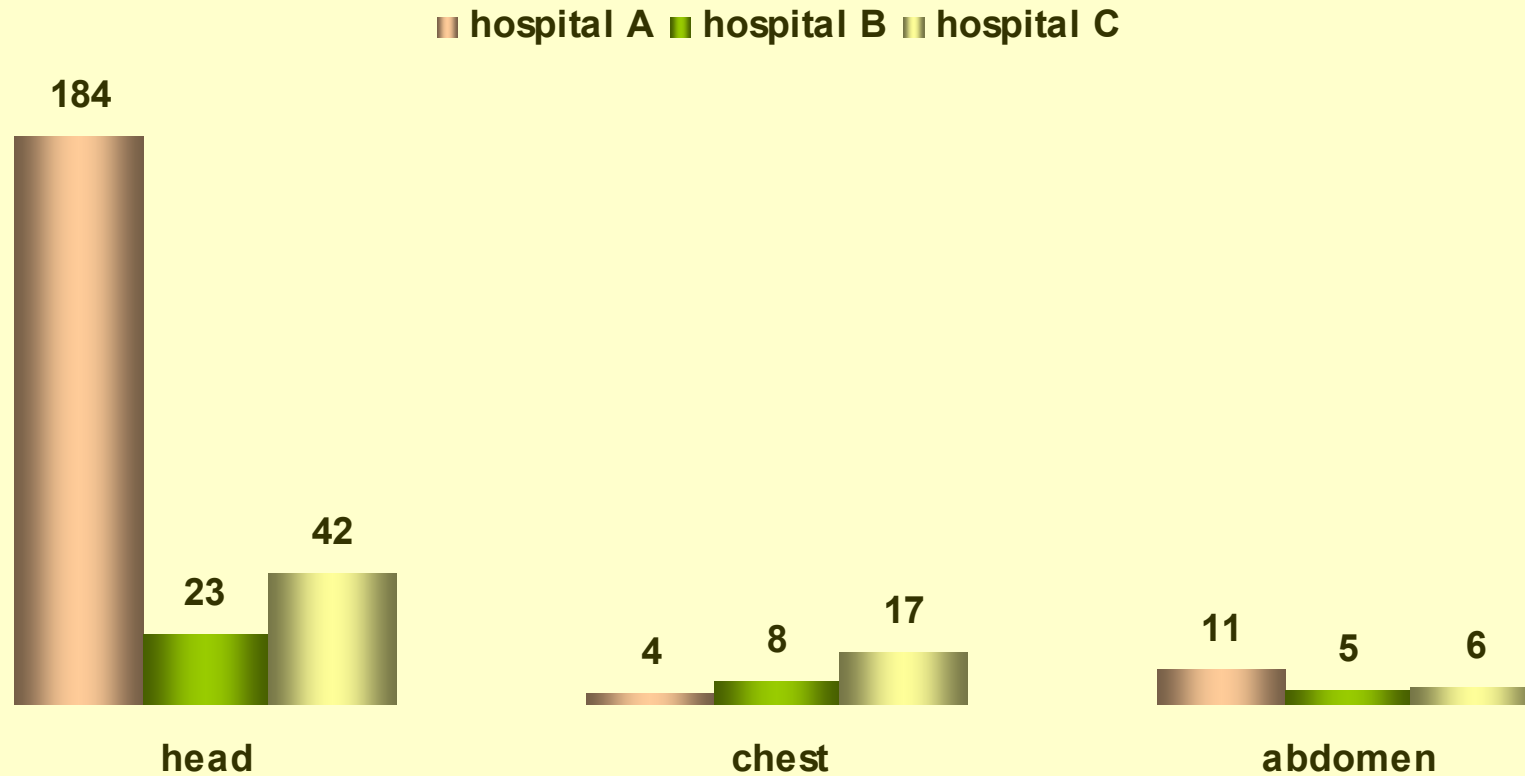
*CTDI<sub>vol</sub> values (in mGy) collected from the routine protocols for the pediatric patients, age >1 – 5 years*

# Results



*CTDI<sub>vol</sub> values (in mGy) collected from the routine protocols for the pediatric patients, age >5 – 10 years*

# Results



*CTDI<sub>vol</sub> values (in mGy) collected from the routine protocols for the pediatric patients, age >10 – 15 years*



# Conclusion

- ❖ the differences between the dose values implicate that there is a possibility for optimization
- ❖ using a no optimized protocol for paediatrics can lead to the 2-3 times higher dose than in case of adults
- ❖ *therefore, the special attention must be paid regarding the optimization of protocols for paediatric patients!!!!*
- ❖ further work should be directed to investigation that includes more data about the patient doses