

## Clinical use of chest tomosynthesis - after five years with the new modality

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**Purpose:** To investigate the use of chest tomosynthesis (CTS) five years after its introduction in clinical praxis at a tertiary center and to explore to which extent CTS could replace computed tomography (CT) and should substitute chest radiography (CR).

**Methods:** A study of examinations performed 24 to 28 months prior to the survey was performed using the radiology information system and picture archiving and communication system. Every posteroanterior CR, CT and CTS examination completed during office hours (07-17) the third week of each month from August to December 2012 was included in the study. By means of predefined criteria it was decided if a CTS would have been appropriate instead of the performed CR and if CTS could have replaced the implemented CT. Regarding the CTS it was judged if CT would have been performed had CTS not been available and whether the use of CTS had resulted in an adverse event (i.e. missed pathology).

**Results:** A total of 2172 examinations had been completed; 1433 CR (714 women, 12-96 years), 523 CT (288 women, 16-95 years) and 216 CTS (125 women, 18 -92 years). It was judged that CT would have been performed in 63% of the CTS cases if CTS had not been available. Regarding the CT examinations, CTS could have served as an alternative in 8% of the cases and concerning the CXR examinations, CTS had been appropriate in at least 14 % of the cases. One adverse event was noted. It was a case where CT examinations prior to and after the intervening follow-up with CTS showed the same ground glass opacities that could not be identified by the CTS examination.

**Conclusions:** The results of the present study indicate that the use of CTS 5 years after its introduction in clinical praxis has not reached its full potential in optimizing the use of CT resources and increasing diagnostic accuracy in chest radiography. CTS may be a viable alternative to CT in approximately 25% of clinical cases and should substitute CR more frequently than today.