

Chest radiography: the way forward

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Where are we now?

- ❖ Several studies have demonstrated acceptable concordance of double reading;
- ❖ Chest radiographs are reliable;
- ❖ Chest radiograph readings correspond to biological variables in clinical trials;
- ❖ Chest radiographs are valid tests.





Where are we now?

- ❖ Standard case management (DOTS, Stop TB Strategy) has relegated chest radiography to a minor role;
- ❖ In spite of assumptions, chest radiographs are performed everywhere;
- ❖ There is no quality assurance.





What are the challenges?

- ❖ Chest radiographs were not requested as part of The Union's clinical trial, Study A;
- ❖ All patients had them performed nevertheless;
- ❖ The patients paid for them.





What are the challenges?

- ❖ Centres were asked to provide the radiographs for standard reading;
- ❖ Radiographs from 862 participants were collected;
- ❖ Two chest physicians read them and recorded results using the CRRS system.





What are the challenges?

- ❖ Films were judged unreadable if portions of the lung fields were obscured, if they were too dark or too light or if the chest position was skewed;
- ❖ Concordance between readers was judged using the kappa statistic;
- ❖ A level of agreement that was judged acceptable was $\text{kappa} = 0.4$.





What are the challenges?

- ❖ Independent readings were available on 848 films;
- ❖ 422 (49.8%) were judged to be unreadable by at least one chest physician;
- ❖ The concordance in judging if the film was readable or not was 0.7 (a high level of concordance).





What are the challenges?

- ❖ Among the films that were unreadable, the majority were unreadable due to poor film quality, poor developing or poor storing of the films;
- ❖ The films themselves (their development and storage) are important problems in assuring quality.

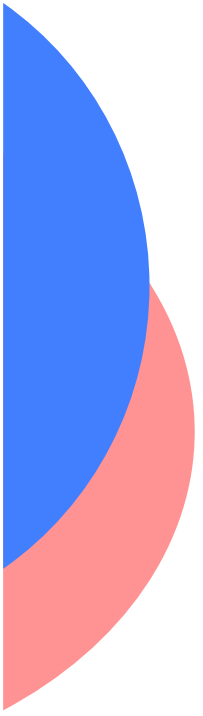




What is the way forward?

- ❖ Avoiding films by using digital images would be an important advance;
- ❖ The data could be much more efficiently stored and transmitted;
- ❖ The settings for the readings would need to be standardized.







What is the way forward?

- ❖ The reading exercise for digital images would need to be repeated as for plain films;
- ❖ Standard procedures need to be defined for obtaining and reading the images to assure quality;
- ❖ These procedures need to be built into new systems being developed.





What is the way forward?

- ❖ New initiatives on electronic interpretation (for example, the CAD4TB project of the Delft Corporation);
- ❖ These need to be coordinated with the basic scientific procedures establishing reliability and validity before being marketed widely.

