

Reach for the Sky!

Lateral Chest Radiograph Adequacy



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I do not have an affiliation, financial or otherwise, with a pharmaceutical company, medical device or communication organization



Background



- ❧ Standard radiographic examination of the chest
 - ❧ Frontal and lateral projections
- ❧ Lateral projection plays an important role
 - ❧ Helps with diagnosis
 - ❧ Excellent source of information in conjunction with frontal view

Background



- ❧ Adequate positioning can be a challenge with the lateral view
 - ❧ Humeri can obscure visualization of lung fields
 - ❧ Possible source of missed pathology
- ❧ No standard for humeri placement on lateral chest radiograph

Arm Abduction Apparatus



Previous Study (2013)



- ☞ Lateral CXRs assessed for arm abduction adequacy
 - ☞ 100 outpatient studies (Edmonton Clinic)
- ☞ Images were independently reviewed for adequacy by a departmental radiologist and technologist

Aim of the Current Study



- ❧ Examine a number of lateral CXRs for arm abduction adequacy
 - ❧ ER department (University of Alberta Hospital)
 - ❧ Outpatient clinic (Edmonton Clinic)

Study Design



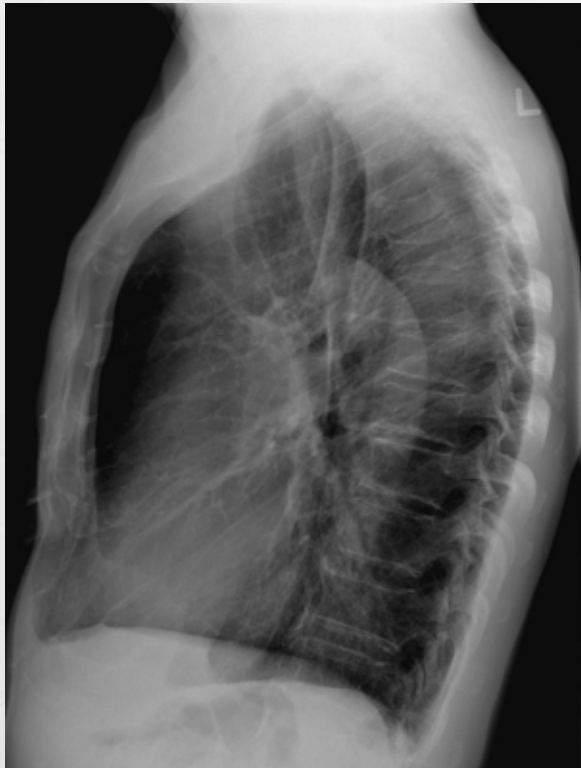
- ❧ Random search in PACS for studies with lateral CXRs performed in ER and outpatient clinic
- ❧ 50 ER (University of Alberta Hospital)
- ❧ 50 outpatient studies (Edmonton Clinic)
- ❧ Images were independently reviewed for adequacy by a departmental radiologist and technologist

Study Parameters



- ❧ No gold standard
- ❧ Subjective scale for assessing humeral abduction
 - ❧ Same radiologist and technologist involved in 2013
- ❧ Radiographs assessed as “adequate” or “inadequate” only
- ❧ Goal: 90%

Adequate vs. Inadequate



Cycle 1



	2016 ER	2016 Outpt	2013 Outpt
Technologist	76%	86%	43%
Radiologist	72%	92%	49%
Target goal (90%)	Not Met	Met	Not Met

Intervention



- ❧ Short PowerPoint presentation sent to departmental technologists
 - ❧ Importance of lateral CXR
 - ❧ Inadequate positioning can be a limitation
 - ❧ Encouraging patients to reach as high as possible
 - ❧ Goal of the project

- ❧ Sharon Steinke
 - ❧ Departmental manager for general imaging
 - ❧ Disseminated message throughout department

Cycle 2



- ❧ 1 month between intervention and new cycle
- ❧ Random search in PACS for studies with lateral CXRs performed in ER and outpatient clinic
- ❧ 50 ER (University of Alberta Hospital)
- ❧ 50 outpatient studies (Edmonton Clinic)

Cycle 2



	2016 ER	2016 Outpt	2013 Outpt
Technologist	80%	94%	67%
Radiologist	78%	88%	96%
Target goal (90%)	Not Met	Met	Met

Results



	2016 ER	2016 Outpt	2013 Outpt
Technologist	76% → 80%	86% → 94%	43% → 67%
	4% increase	8% increase	24% increase
Radiologist	72% → 78%	92% → 88%	49% → 96%
	6% increase	4% decrease	47% increase
Target goal (90%)	Not Met	Met	Met

Results



- ❧ ER lateral CXRs
 - ❧ Overall improvement between cycle 1 and 2
 - ❧ 90% not achieved
 - ❧ Patient factors (more ill patients)
 - ❧ Number of studies small

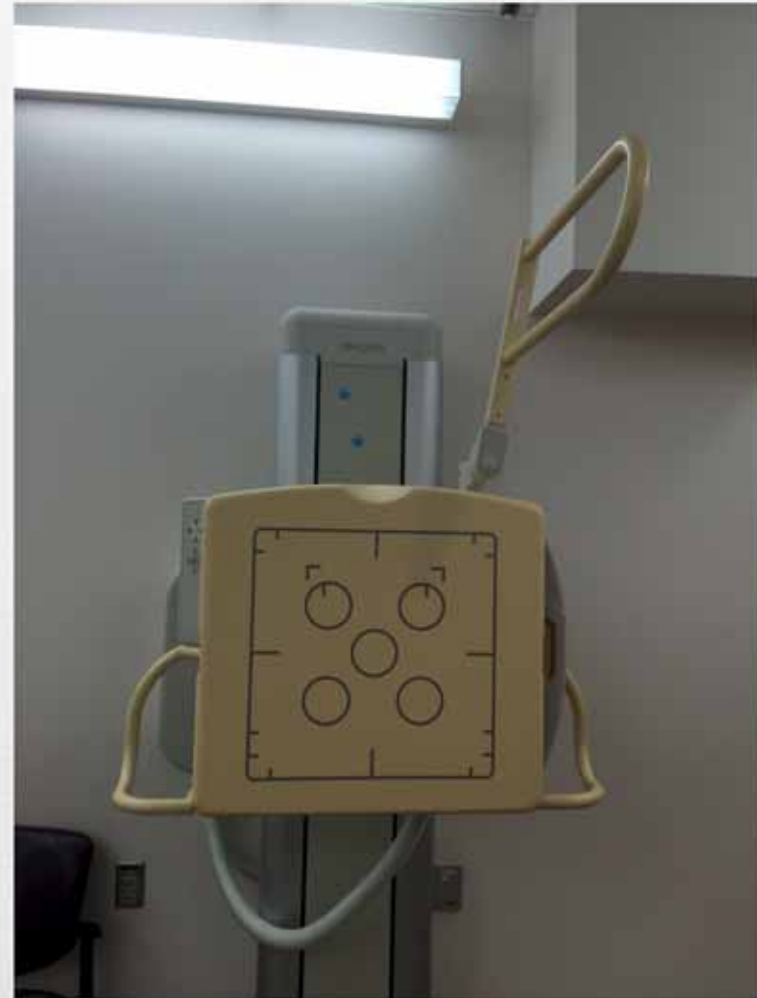
- ❧ Outpatient lateral CXRs
 - ❧ Expect higher numbers in outpatient population
 - ❧ Patient factors (some of the patients more ill, ex: patient with moderate left pleural effusion)
 - ❧ Number of studies small

Conclusions



- ❧ Successful intervention in ER department, although goals not met
- ❧ Successful intervention in outpatient department
- ❧ Future studies should have a larger cache of radiographs to review
- ❧ Reach as high as possible (second bar) for adequate positioning of humeri

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Acknowledgements/ References



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- ❧ Dr. Jordan Fingard
- ❧ Dr. Suki Dhillon
- ❧ Sheara Wilson
- ❧ Sharon Steinke
- ❧ All the technologists at the UAH and Edmonton Clinic
- ❧ Gaber, K.A., McGavin, C.R., Wells, I.P. 2005. Lateral chest X-ray for physicians. *Journal of the Royal Society of Medicine*. 98(7):310-312

Thank you



Questions/Comments