

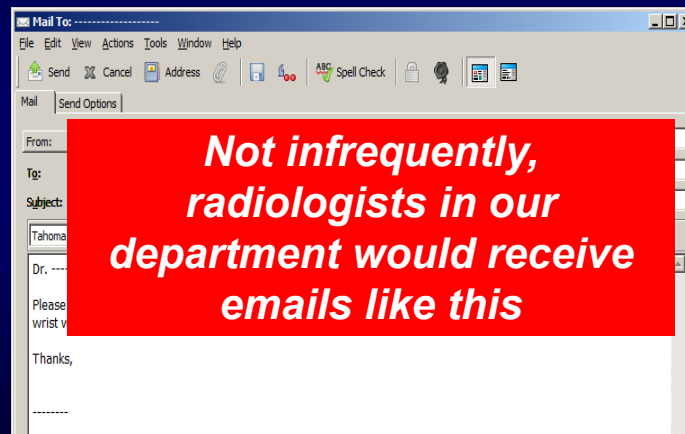
# Quality Storyboard Exhibit: Use of Standardized Templates to Decrease Errors of Technique Description in Radiology Reports

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## The Problem



## The Problem

- **Dictated, finalized radiology report** → sent to billing department
- **Billing dept. flags studies due to:**
  - Insufficient history/clinical information related to a billable diagnosis
  - Left/right discrepancy
  - Incomplete or non-diagnostic studies

## The Problem

- At our institution #1 cause of flagged studies is due to **mismatch between the radiographic technique stated in the radiologist's report and the assigned billing code**
- Example:
  - Radiology report incorrectly states 1 view (frontal) of the chest was obtained. However, 2 views (frontal and lateral) were actually obtained and correctly assigned to that billing code
  - Radiology report correctly states 2 views (AP and lateral) of the LEFT knee were obtained. However, the study was incorrectly completed and therefore coded for billing as a 4 view study of the knee

## The Problem

- Incongruence of the reported views versus actual views obtained are problematic:
  - Requests to the radiologist for addendums
  - **Inefficiency**, creating **more work** not only for the radiologist, but also the technologist, and billing department/coders
  - Errors in radiology reports call into **question the validity** of the entire report including whether or not the report refers to the correct patient

## Purpose

- Decrease number of errors in the reporting of the radiographic technique in radiology reports throughout our health system
  - i.e. number of and specific radiographic views
- Ability to decrease the frequency of these mismatches improves:
  - Efficiency
  - Workflow
  - Accuracy
  - Billing and collection

## Methods: Collecting Data Behind the Problem

- Data collection from coders:
  - Review of all radiographic studies marked for review by the coders (information typically reviewed by the administrative office and the lead radiography technologist) starting in January 2014 and continuing through February 2015
  - Tracked total number of studies marked for review as well as the subset of studies flagged for review due to mismatches of reported radiographic technique

## Methods: Standardization

- Foundation of the process of improving the workflow and decreasing mismatches: **standardization**
  - Creation of standardized **report templates** which all radiologists would use
  - Study specific report templates were created for all plain film examinations within our dictation program
  - Reports were vetted for formatting, grammar, and content by department section heads
    - Every procedure code was **mapped** to a matching report template as the default

# Sample Standardized Report Templates

## Chest

CLINICAL INFORMATION: [ ]

COMPARISON: [None]

TECHNIQUE/PROCEDURE: [ ]

FINDINGS:

LUNGS AND PLEURAL SPACES: [The lungs are clear. There is no pleural effusion or pneumothorax.]

CARDIOVASCULAR AND MEDIASTINUM: [Cardiomediastinal silhouette is within normal limits.]

UPPER ABDOMEN AND OSSEOUS STRUCTURES: [Unremarkable]

IMPRESSION: [Normal chest.]

## Knee

CLINICAL INFORMATION: [ ]

COMPARISON: [None]

TECHNIQUE/PROCEDURE: [ ]

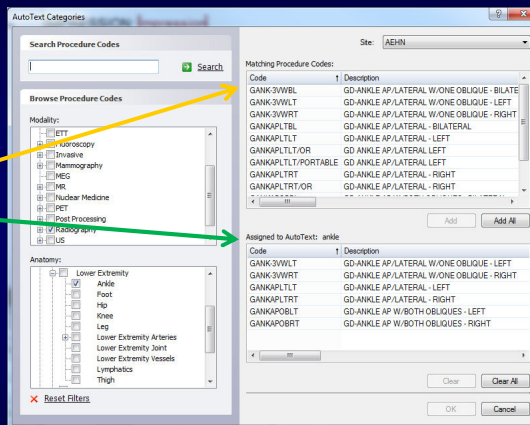
FINDINGS:

[There is no fracture or dislocation. The knee joint is normal in appearance without radiographic evidence of arthritis. No joint effusion is seen. The soft tissues are within normal limits.]

IMPRESSION: [Normal radiographs of the knee.]

## Autotext Mapping in PowerScribe Ankle Sample

From a long list of possible matching procedure codes (yellow arrow), the desired procedure codes were selected and assigned to the autotext template (green arrow)



## Methods: Standardization

- New default templates were programmed to auto-populate in PowerScribe 360 the instant a dictation is begun
  - Ensures that when a radiologist initiates a dictation, this default template will automatically appear
- Continuing with the theme of standardization we the implemented **auto-population of the technique** of the study
  - Directly imported billing description of study in PACS directly into the report template into Powerscribe
  - Takes away necessity of the radiologist to manually dictate technique, removing a possible source of error

The screenshot displays the PowerScribe 360 interface. The main window shows a report template with the following sections:

- CLINICAL INFORMATION:** left ankle pain (highlighted with a yellow circle and an arrow pointing to a callout box).
- COMPARISON:** None.
- TECHNIQUE/PROCEDURE:** GD ANKLE AP/LATERAL W/ONE OBLIQUE LEFT (highlighted in red).
- FINDINGS:** There is no fracture or dislocation. The ankle mortise is intact. The soft tissues are within normal limits.
- IMPRESSION:** Normal radiographs of the ankle.

A callout box on the right side of the screen contains the text: "Clinical information auto-populated via a merge field from information in PACS".

The interface also shows a sidebar on the left with various tool icons and a bottom status bar with fields for Exam Date, Procedure, MRI, Chest Num, Patient Name, Gender, Accession, Status, Hanging, Patient, and Modified.

CLINICAL INFORMATION: left ankle pain

COMPARISON: None

TECHNIQUE/PROCEDURE: GD ANKLE AP/LATERAL W/ONE OBLIQUE LEFT

FINDINGS:

There is no fracture or dislocation. The ankle mortise is intact and the surrounding soft tissues are within normal limits.

IMPRESSION: Normal radiographs of the ankle.

Technique is also auto-populated in the report verbatim from PACS via a merge field

Docs	Priority	Impression	Src	Match	Description	Study Date	Mod	#	Img	Status	Accession #
	R	N/A	Syna pse	100%	GD ANKLE AP/LATERAL W/ONE OBLIQUE LEFT	10/1/2015 10:36:48 AM	DX	3		Complete	8264741e
	R	N/A	Syna pse	100%	GD ANKLE AP/LATERAL W/ONE OBLIQUE LEFT	9/3/2015 10:13:00 AM	DX	4		Finalized	8229157
	S	N/A	Syna pse	100%	GD ANKLE AP/LATERAL W/ONE OBLIQUE LEFT	8/24/2015 3:16:33 PM	DX	3		Finalized	8216397
	S	N/A	Syna pse	100%	GD TIBIA/FIBULA LEFT 2 VIEWS AP and LAT	8/24/2015 2:14:16 PM	DX	2		Finalized	8216183
	S	N/A	Syna pse	100%	GD ANKLE AP/LATERAL W/ONE OBLIQUE LEFT	8/24/2015 2:11:11 PM	DX	3		Finalized	8216182

CLINICAL INFORMATION: left ankle pain

COMPARISON: None

TECHNIQUE/PROCEDURE: GD ANKLE AP/LATERAL W/ONE OBLIQUE LEFT

FINDINGS:

There is no fracture or dislocation. The ankle mortise is intact and the surrounding soft tissues are within normal limits.

IMPRESSION: Normal radiographs of the ankle.

The side (left/right) is also included in the auto-populated technique. Thus, reducing the chances of an additional possible source of error.

Docs	Priority	Impression	Src	Match	Description	Study Date	Mod	#	Img	Status	Accession #
	R	N/A	Syna pse	100%	GD ANKLE AP/LATERAL W/ONE OBLIQUE LEFT	10/1/2015 10:36:48 AM	DX	3		Complete	8264741e
	R	N/A	Syna pse	100%	GD ANKLE AP/LATERAL W/ONE OBLIQUE LEFT	9/3/2015 10:13:00 AM	DX	4		Finalized	8229157
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	S	N/A	Syna pse	100%	GD ANKLE AP/LATERAL W/ONE OBLIQUE LEFT	8/24/2015 2:11:11 PM	DX	3		Finalized	8216182

## Results

- **January** system wide default radiographic report templates with the automatically populating technique section were instituted on **10/30/2014**
  - Total number of studies for addendum based on mismatch of technique alone:
    - Average: 51.9
    - Median: 50
    - Range: 32 – 76
    - Percent of total (average): 52%

## Results

- **November 2014 – February 2015**
  - Total number of studies for addendum:
    - Average: 39.25
    - Median: 33
    - Range: 13 - 54
  - Number of studies for addendum based on mismatch of technique alone:
    - Average: 7.75
    - Median: 6
    - Range: 4 - 15
    - Percent of total (average): 20%



# Results Comparison

## Pre-Implementation

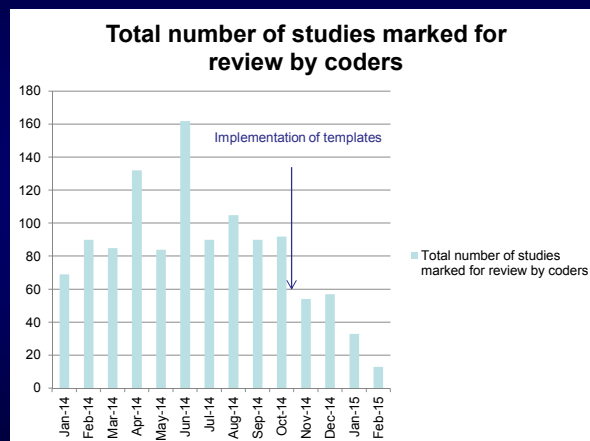
- Total for addendum (any reason):
  - Average: 99.9
- Addendum for technique:
  - Average: 39.25
- Percent of addendums of total that were for incorrect technique:
  - 52%

## Post-Implementation

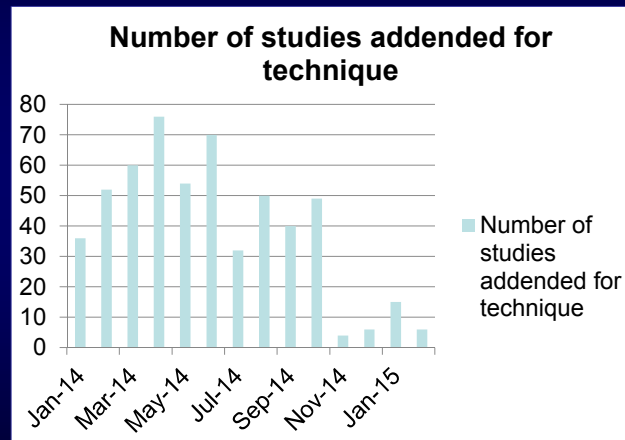
- Total for addendum (any reason):
  - Average: 51.9
- Addendum for technique:
  - Average: 7.75
- Percent of addendums of total that were for incorrect technique:
  - 20%

Using a student t-test the reduction in both the total number of cases marked for review and the number of cases addended for technique reached statistical significance (p-value = 0.0025 and 0.000003, respectively).

# Results



## Results



## Conclusions

- Our quality improvement project using implementation of system wide default radiology report templates with the technique section automatically populating the radiology report from the billing description resulted in:
  - Dramatic, statistically significant decrease in:
    - Total number of radiographic examinations marked for review by our billing coders
    - Total number of addendums to reports issued for the purposes of correcting or clarifying technique to match the billing code
  - Improves the quality and accuracy of our radiograph reports
  - Increases efficiency and accuracy of our department's billing