

Sustained Increases in The Quality of Imaging Histories Provided by Ordering Providers Resulting from Cross-functional Collaboration and Systems Design

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Problem

- Few imaging orders are placed with complete imaging histories, resulting in some patients experiencing low quality care, poor service and increased costs.

Opportunity: Improving imaging histories can improve patient care

- **Patients:** Get the right test the first time, receive the most accurate interpretation, and avoid unnecessary radiation & expense.
- **Service:** Fewer patients will arrive for a scheduled exam and need to reschedule to a different exam. Fewer patients will undergo unnecessary imaging examinations.
- **Quality:** Right exam performed the first time. More specific imaging interpretations. Fewer missed diagnoses.
- **Affordability:** Fewer unnecessary examinations.
- **People:** Less rework for providers, staff, and radiologists.

Purpose

- The purpose of this quality improvement project was to create sustained improvement in the frequency of more complete imaging histories provided with imaging examinations submitted directly by ordering providers.
- A secondary purpose was increasing the number of characters submitted by ordering providers with imaging examinations.

Methods- PDSA Cycles

The 4 c

What happen
(Cough, injury, abnormal labs

XR RIGHT KNEE AP LAT OBL PATELLAR OR TUNNEL, 3 VIEWS

Accept Cancel Remove

P

Priority: Routine Routine ASAP STAT

Class: Normal

Quantity: 1 (The maximum orderable quantity for this procedure is 1000)

Status: Normal Standing Future

Comments: What happened? When did it occur? Where is the pain? What are you concerned for? ***

Sched Inst: Routine X-rays are performed at all of our Medical Offices on a walk-in basis, you do not need to call to schedule these exams. Note: Leg length exams

Process Inst: This xray may be helpful in screening for acute fractures but generally a weight-bearing film is more helpful. Please order this xray only if patient is unable to weight-bear

Go to unsigned orders Sign Orders (1)

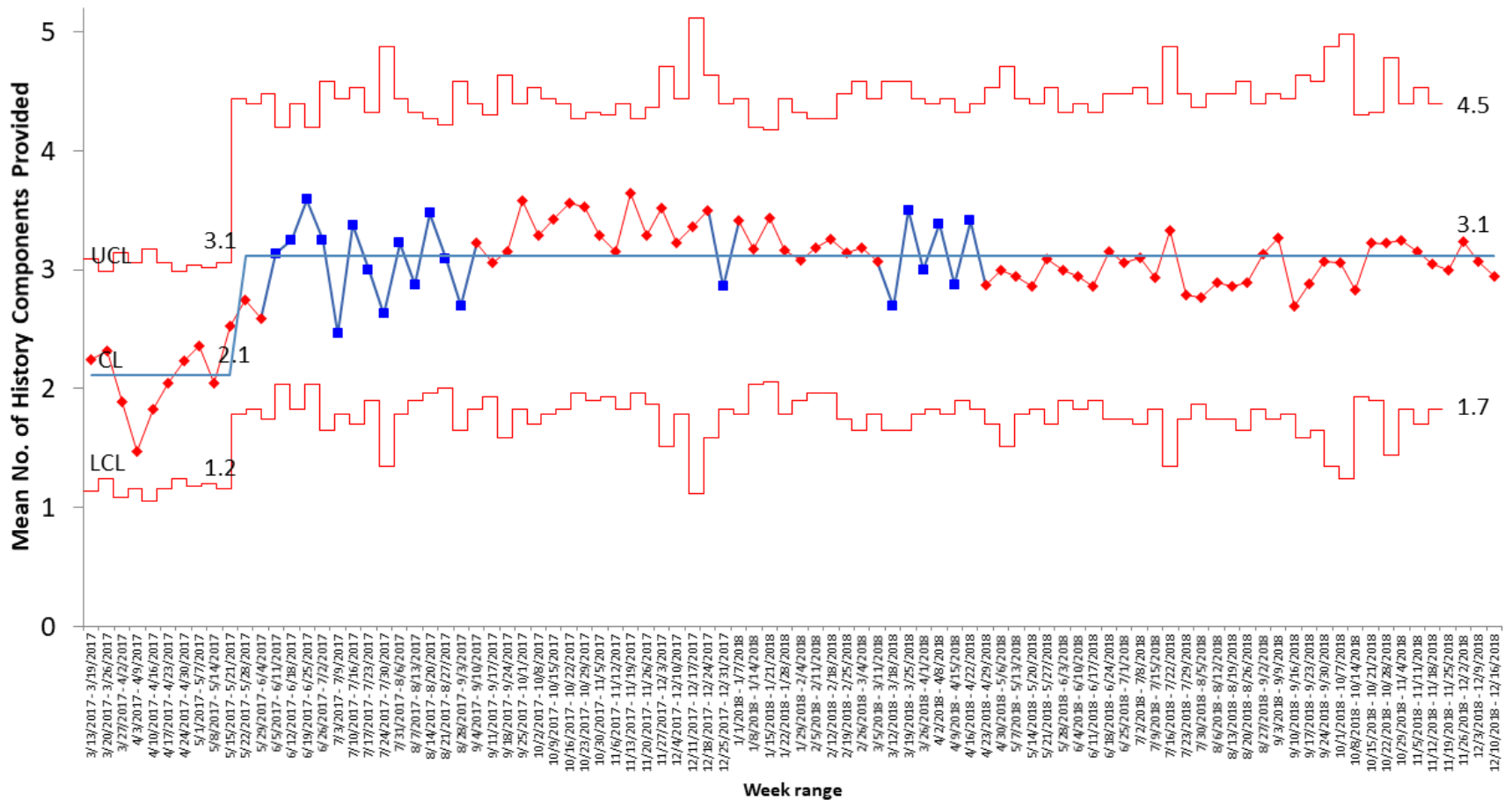
History:

What are you concerned for?
(infection, trauma, inflammation, cancer, etc)

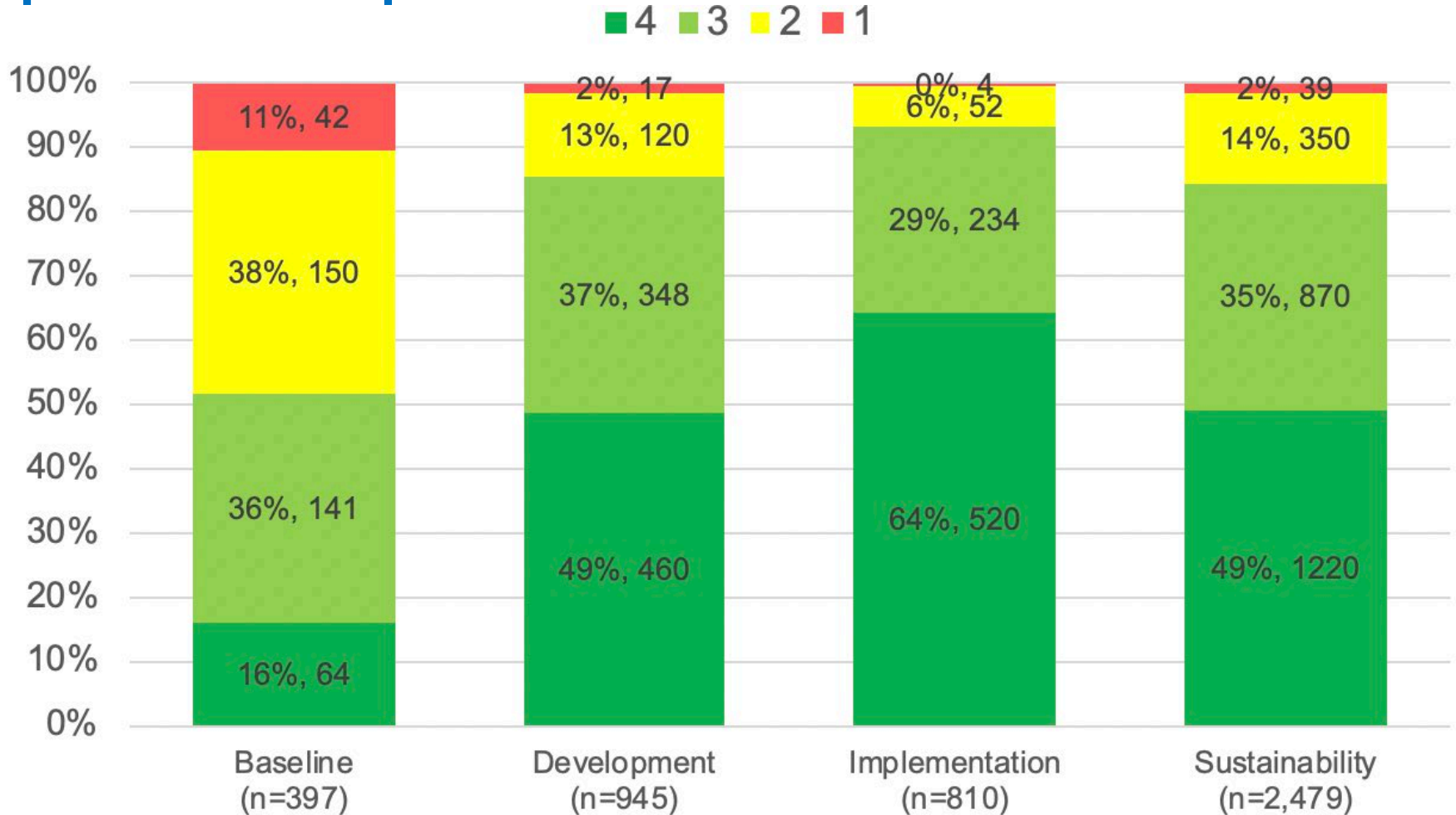
Results- Overview

- 10,236 orders were placed by providers in the study clinic from March 13, 2017, to December 16, 2018.
- Of the orders audited in the baseline period, 16.0% (64/397) of orders audited in the baseline period contained all four history components, which increased to 52.0% (2200/4234; absolute increase of 36.0%, relative increase of 225.0%; $p < 0.0001$) in the subsequent time periods, and improvement was sustained.
- The mean number of characters providers entered in the imaging histories they submitted increased from 45.4 characters per order during the baseline period to 75.4 (66.1% increase, $p < 0.0001$) after the intervention.

Results- A mean of 2.1 history components were provided during the baseline period; that number increased by 47.6% to 3.1 in subsequent periods (Fig. 2). This result was sustained for more than a year.

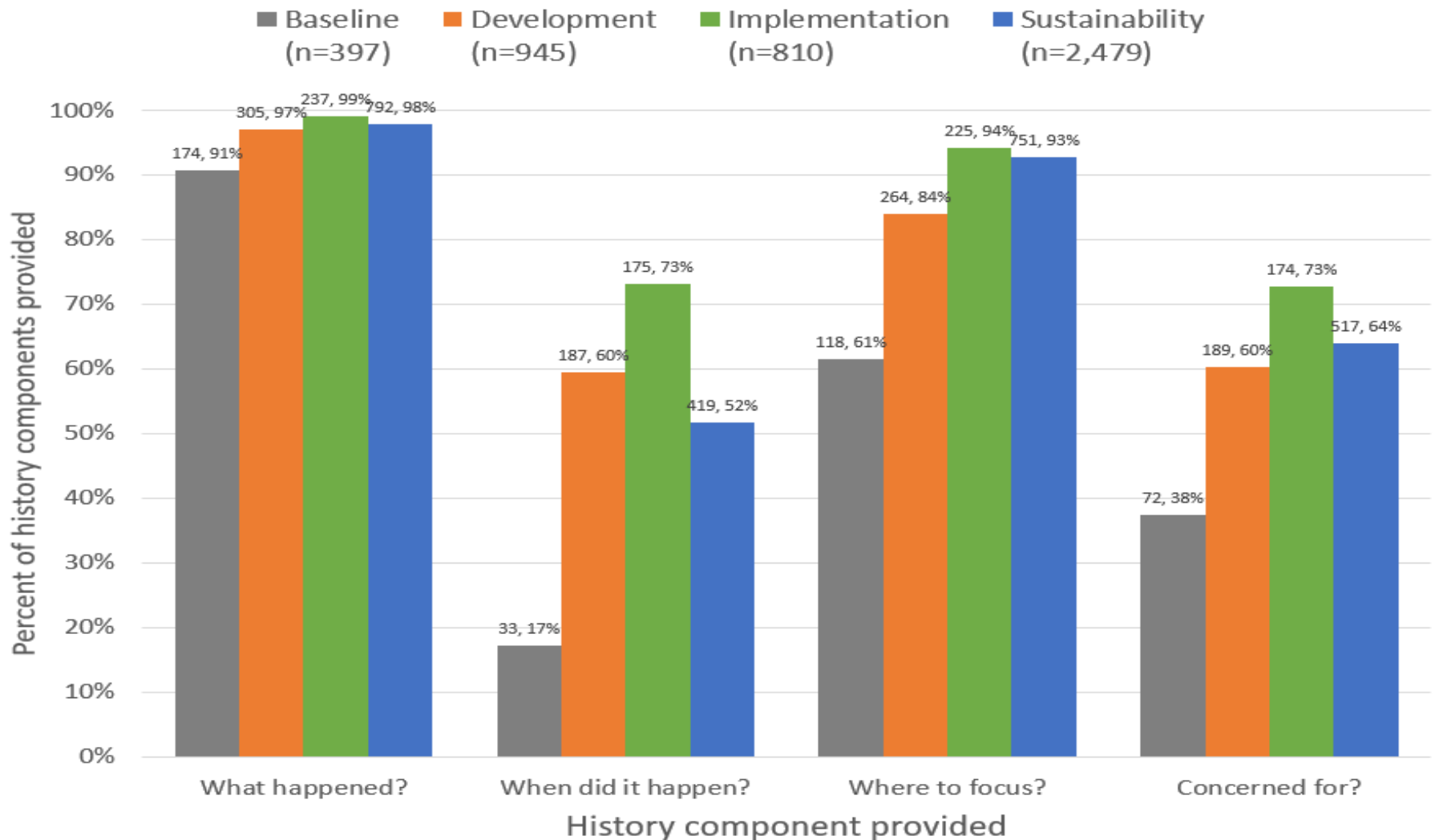


Results- The frequency of orders with 4 history items increased from 16% at baseline to 49% (p<0.0001) during the development phase, to 64% (p<0.001) during the implementation phase

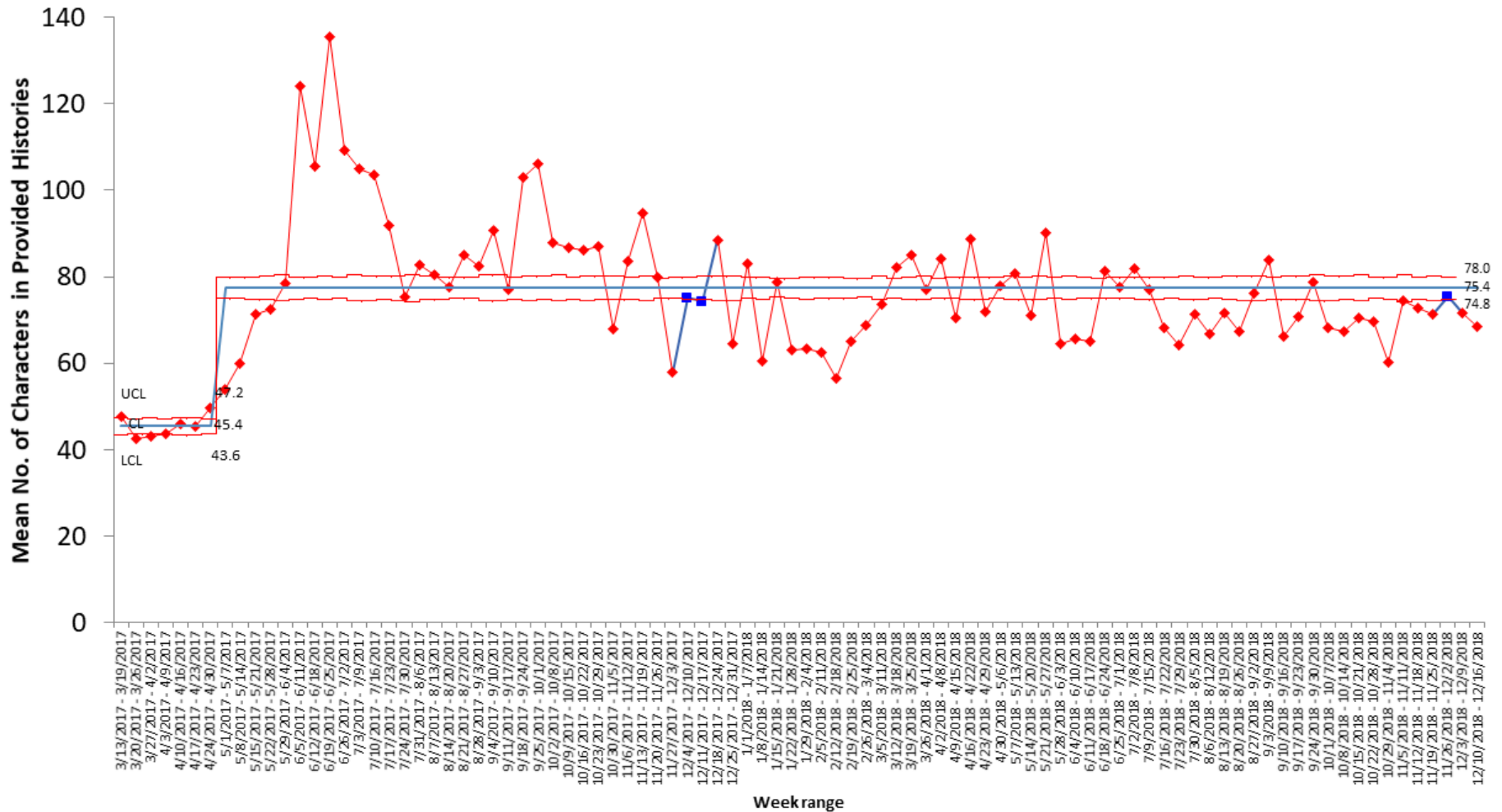


Frequency distribution shows provided complete history components by phase of project. Red, yellow, light green, and dark green indicate 1, 2, 3, and 4, respectively.

Results- Improvements were observed for each history component. Some questions were more commonly answered than others.



Results- The mean number of characters providers entered in the imaging histories they submitted increased from 45.4 characters per order during the baseline period to 75.4 (66.1% increase, $p < 0.0001$) after the intervention. (Prompt question characters were excluded)



Conclusions

- By collaborating with a cross functional team, we created a standardized definition of an imaging history, engineered our systems to include supportive prompts in the order entry interface, and sustainably improved the quality of imaging histories provided directly by referring providers.