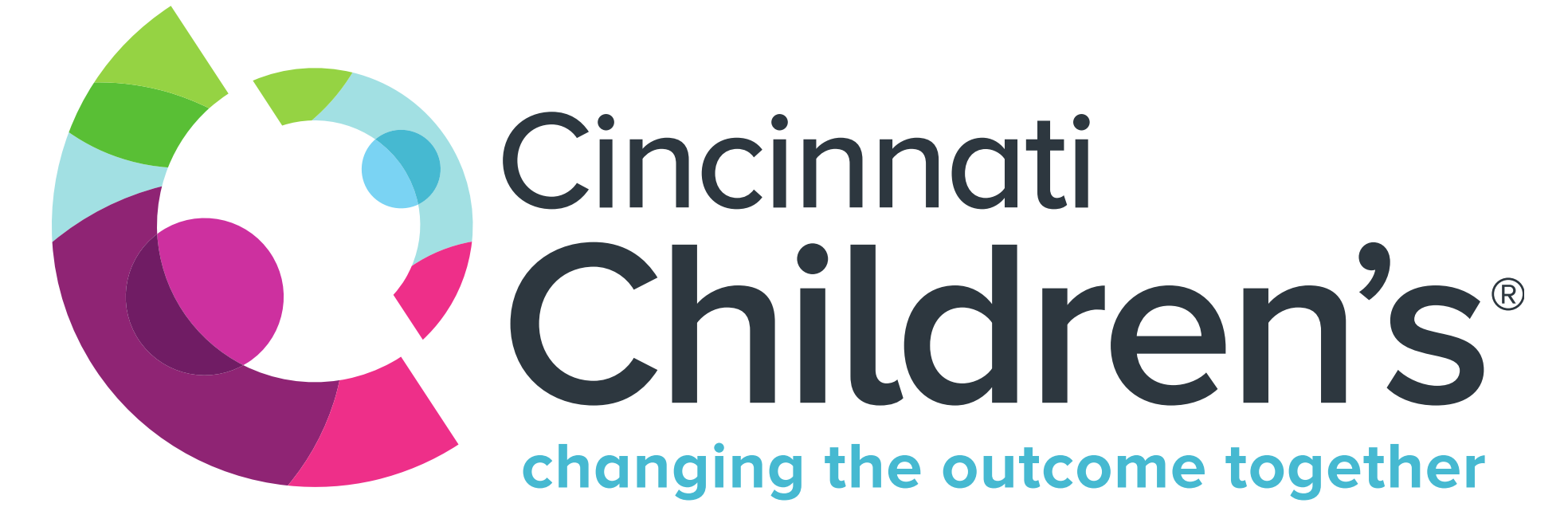


# RESPECT – Radiology Employees Striving for Productive and Effective Communication



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### PURPOSE

Effective teamwork is predicated on good communication between team members. Recently, the technologists in our department reported an increasing number of negative interactions between radiologists and technologists. A baseline survey identified that only 45% of technologists would describe their interactions with radiologists as very good or excellent. The purpose of this improvement work was to change the culture in our department, with the specific goal of increasing the percentage of technologists who describe their interactions with radiologists as very good or excellent from 45% to 90% by the end of 2019.

### METHODS

This project took place in a large academic radiology department of a tertiary care children's hospital between June 2018 and the present. The radiology department consists of 36 faculty radiologists, 10 pediatric radiology fellows, and 195 technologists. Imaging is performed across the region in 10 different locations. Radiologists work on-site at only 3 locations. Technologists communicate via telephone at offsite locations and in person and via telephone when radiologists are on site.

Comment category	Positive or negative comment	Comment
Telephone interactions	Positive	Dr. X is always a pleasure to talk with over the phone when you have a question.
	Positive	I feel very comfortable asking questions and calling radiologist for help.
	Mixed	I feel very comfortable asking questions and calling radiologist for help. Occasionally when I call to ask for a study to be checked, it is either because the protocol states "please check images" or I see something that I am questioning. After asking for a check, I often get a response by DR. X similar to "Why am I checking this?"
	Negative	Sometimes radiologists seem irritated that they have to check studies over the phone. I know they are busy sometimes too, but this is protocol when things aren't normal. They will ask me questions multiple times, which means they are not listening to me when I am presenting the case.
	Negative	Dr. X was very short & abrasive when on the phone. Today, s/he was checking scans in the reading room. TWICE - s/he snapped at me for calling. I realize that s/he is busy, but it is disrespectful.
	Negative	Working with Dr. X and Dr. Y in ultrasound on Tuesday was great. Both of them were happy to help with anything and everything.
In-person interactions	Positive	Dr. X is so friendly with patients, families, and staff every time s/he is at our outpatient hospital. The other day s/he came back through at the end of his shift to thank "us" for helping her/him through the day and to say goodbye. Usually the Radiologists do not come through to say they are leaving for the day.
	Negative	Radiologists always seemed bothered when we let them know that there are teleradiology studies to be read. Not all, but several get frustrated and it feels like they are mad at us.
	Negative	I have had more than 1 tech complain to me about the same radiologist rolling his/her eyes during conversations.
	Negative	I have walked into the reading room and asked if a radiologist could help in fluoro. No one responded or even acknowledged that I had asked a question.
	Negative	We are trained to "notify the Radiologist ASAP" in certain situations but sometimes we are met with anxiety and frustration. It feels like the Radiologist is upset that we are interrupting them in the reading room.
	Negative	Dr. X is just rude and nasty. S/He talks over us technologists and its unacceptable. If we acted in this manner, we wouldn't have a job.
Trainee interactions	Positive	Dr. X was very helpful this weekend and always treated me respectful as I had a couple situations which I had to go to ask her/him questions.
	Positive	Dr. X is always so nice and personable! A few weeks ago, I had a parent comment on how nice and understanding s/he was after a fluoro procedure.
	Mixed	I am not always comfortable seeking help from the fellows. I am always comfortable asking for help/advice from the radiologists.
	Negative	Some of the fellows are less confident and having support from the attending is helpful to minimize issues for technologists.
	Negative	Some fellows are still not stating who they are when answering the phone or they will say their first name but that doesn't help me when I work in the outpatient world and have no interaction with them face to face.

Table 1: Sample comments from technologists categorized by telephone interaction, in-person interaction, and trainee interaction. Each comment is also classified as having a positive, negative, or mixed tone. Note that the comments have been edited for clarity and to ensure anonymity.

### METHODS (continued)

A multi-disciplinary improvement team was created to improve interactions. The team included radiologists and technologists from all divisions in the department as well as child life specialists and reading room assistants. Based on the comments obtained from the initial and subsequent surveys (Table 1), the team identified three main areas of focus: in-person interactions, telephone interactions, and trainee interactions. Three subgroups were then formed to address each area of focus. Each subgroup worked to identify some of the root causes for negative interactions, and then initiated a series of interventions to attempt to reduce the frequency of negative interactions and increase the frequency of positive interactions. The detailed interventions for each subgroup are presented in Table 2. Interventions were trialed via small test of change, and, if deemed to be effective, were quickly adopted within the department. Ineffective interventions were either modified or abandoned. No specific intervention was tested in isolation. Thus, any improvement was considered to be the result of a series of interventions.

Category	Intervention	Result
Telephone interactions	Create script for answering phone	Modify – script felt forced
	Create recommendation for identifying self when answering phone	Adopt – successful intervention
	Implement automated call distribution system	Adopt – number of unneeded calls to reading room decreased, calls triaged to more appropriate location
In-person interactions	Tally in-person interactions as positive or negative in quality control area immediately after interaction	Modify – technologists did not tally interactions, move form to another location
	Tally in-person interactions as positive or negative in reading room immediately after interaction	Abandon – technologists did not tally interactions, move form to another location
	Implement secure messaging application to enable radiologists to answer pages/questions during conferences	Abandon – radiologists did not routinely answer pages via secure messaging application
	Change schedule so that a radiologist is assigned to the reading room during all conferences	Adopt – radiologists were not available in reading room when needed to the reading room during all conferences
	Individual survey responses shared with radiologists	Adopt – radiologists were routinely notified of how they were perceived by technologists
	Create opportunity for technologists to shadow radiologists in reading room	Abandon – technologists not able to easily get away from clinical duties radiologists in reading room
Trainee interactions	Trainee schedule time to shadow technologists	Modify – trainees often did not schedule time with the technologists
	Schedule time for trainees to shadow technologists	Adopt – trainee feedback extremely positive; implemented for radiography, CT, and MRI
	Create "Meet and Greet" session for new trainees	Adopt and expand – "Meet and Greet" session deemed a positive experience and created a new social interaction for technologists and radiologists during work day
	Provide education for how to answer the telephone during orientation	Adopt – trainees understood different scenarios and accepted standard way to answer telephone

Table 2: Series of interventions employed to improve interactions between radiologists and technologists. The result of each intervention is listed in the third column.

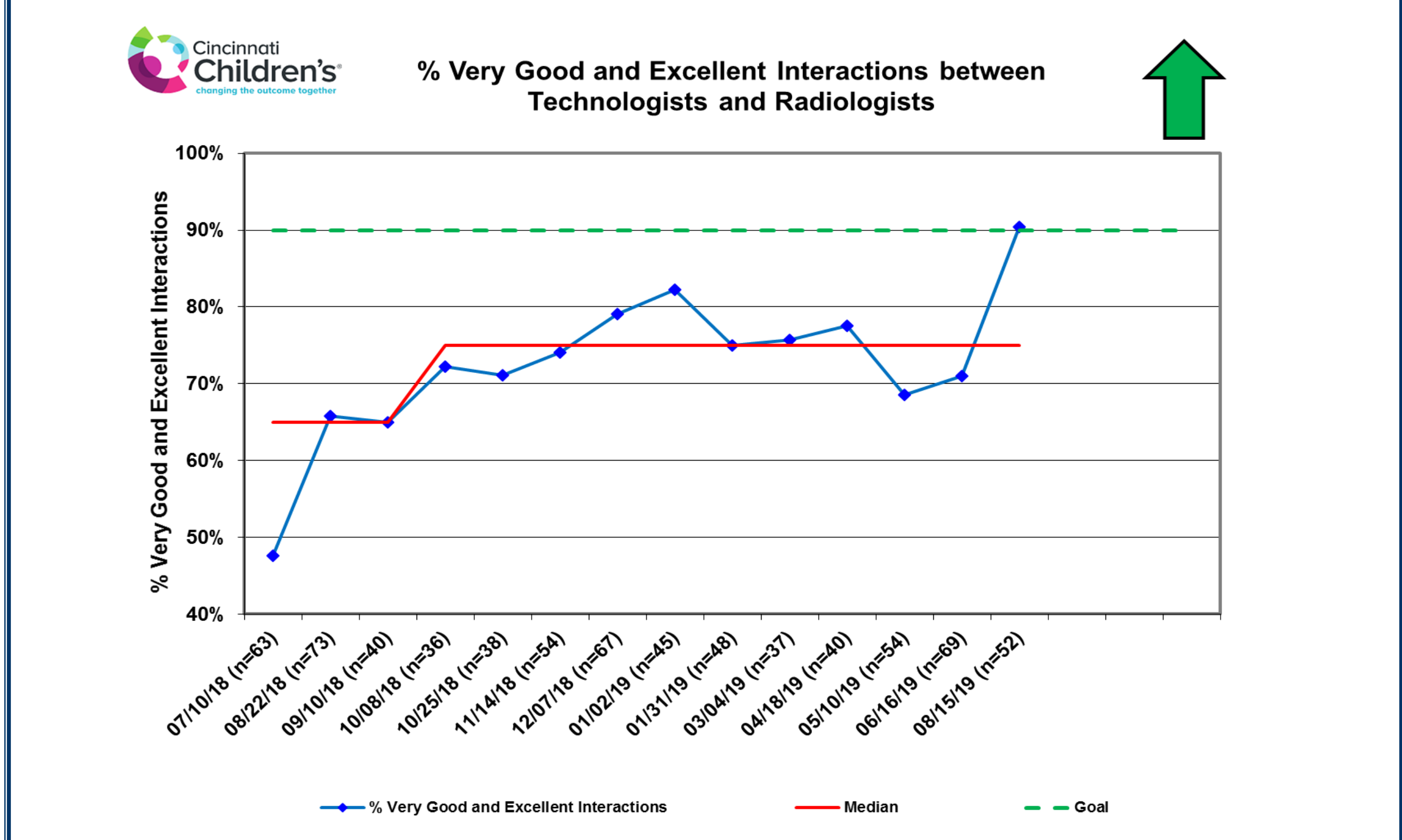


Figure 1: P-Chart showing the percentage of very good and excellent interactions between technologists and radiologists over time.

### METHODS (continued)

Improvement was assessed through a departmental survey sent to technologists every three weeks, on average. The survey measured response to the following question: "How would you rate your interactions with radiologists over the past two work days?" Responses were assessed using a 5-point Likert scale. The percentage of very good (4) and excellent interactions (5) were tracked over time on a P-chart (Fig. 1). Statistical process control rules were used to assess if a significant change in the interactions had occurred. In addition to the primary survey question, technologists were offered the opportunity to provide free-text comments supporting their assessment. A single radiologist evaluated all comments and scored them as positive or negative. If multiple radiologists were identified in the comment, the comment was counted multiple times to account for each radiologist. If multiple radiologists were described but not identified, the comment was only counted once. Positive (Fig. 2) and negative (Fig. 3) comments were tracked for each radiologist and presented in a semi-anonymous fashion (radiologists were given a unique number so that they could identify their personal data but could not identify other's data). Aggregate information (Fig 4.) was also presented to all radiologists.

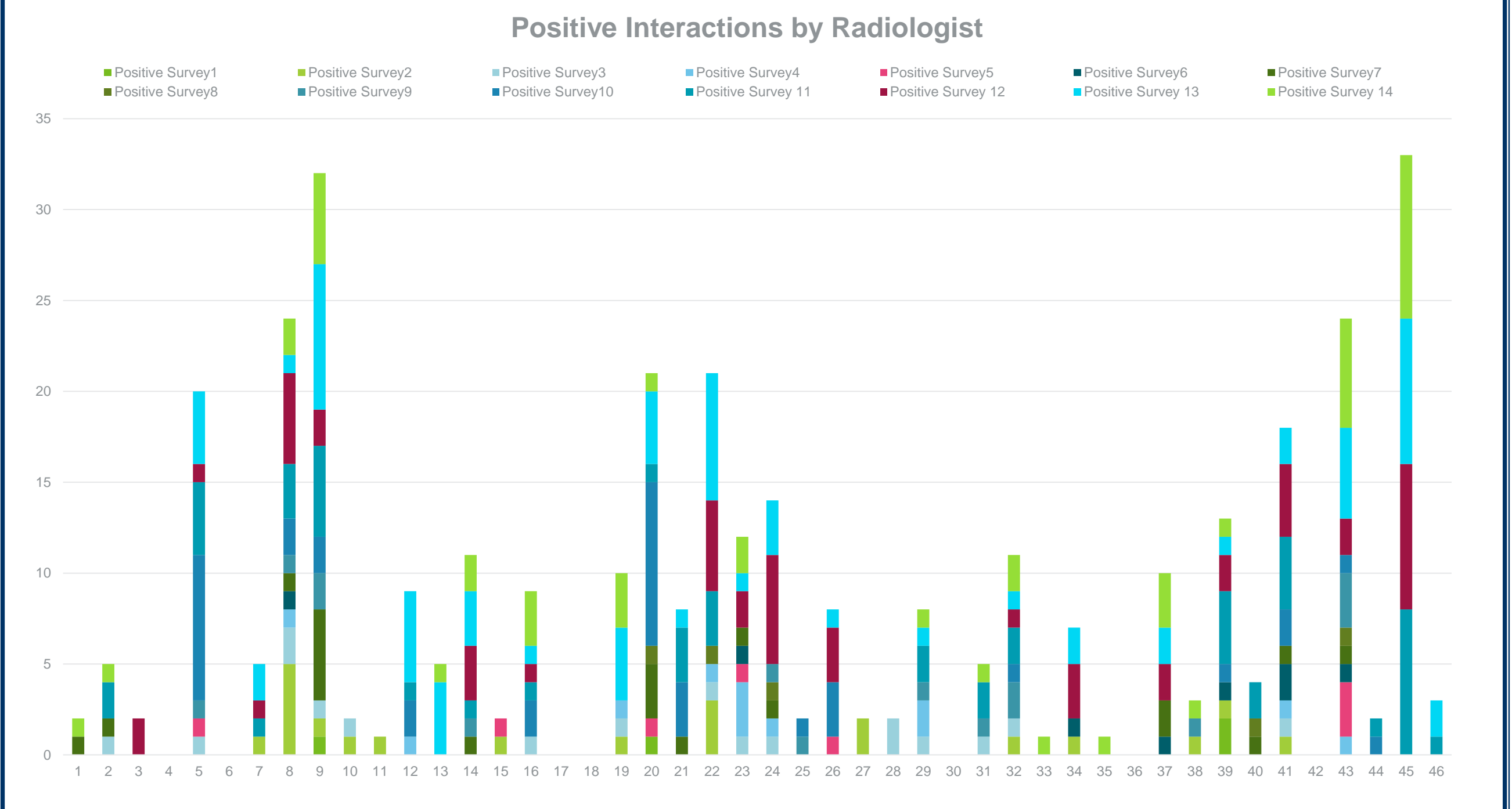


Figure 2: Stacked bar graph showing the frequency of positive interactions by radiologist. Each bar represents the number of times a specific radiologist was identified in a positive comment by a technologist. The different colors within each bar represent the survey where the positive comment occurred.

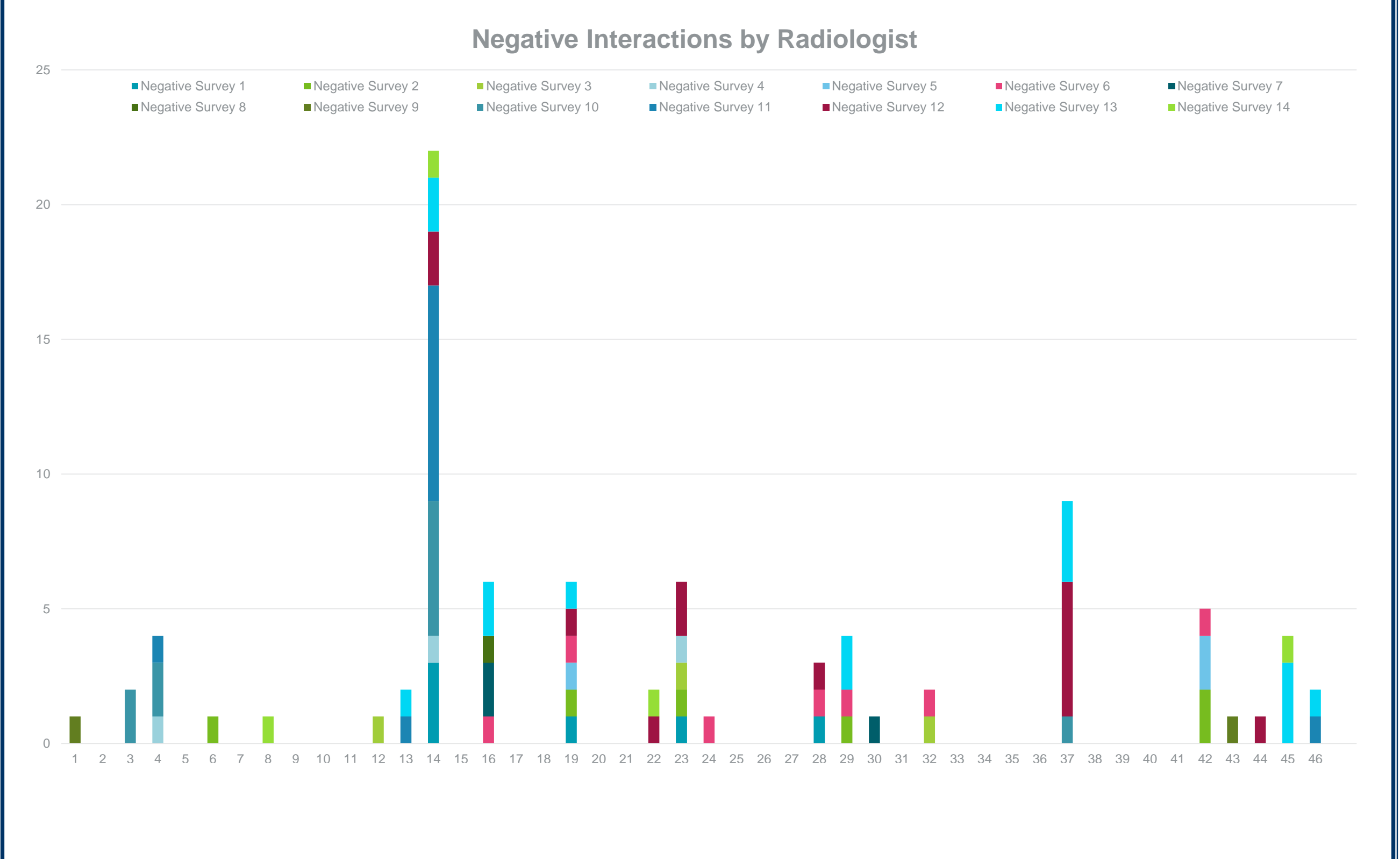


Figure 3: Stacked bar graph showing the frequency of negative interactions by radiologist. Each bar represents the number of times a specific radiologist was identified in a negative comment by a technologist. The different colors within each bar represent the survey where the negative comment occurred.

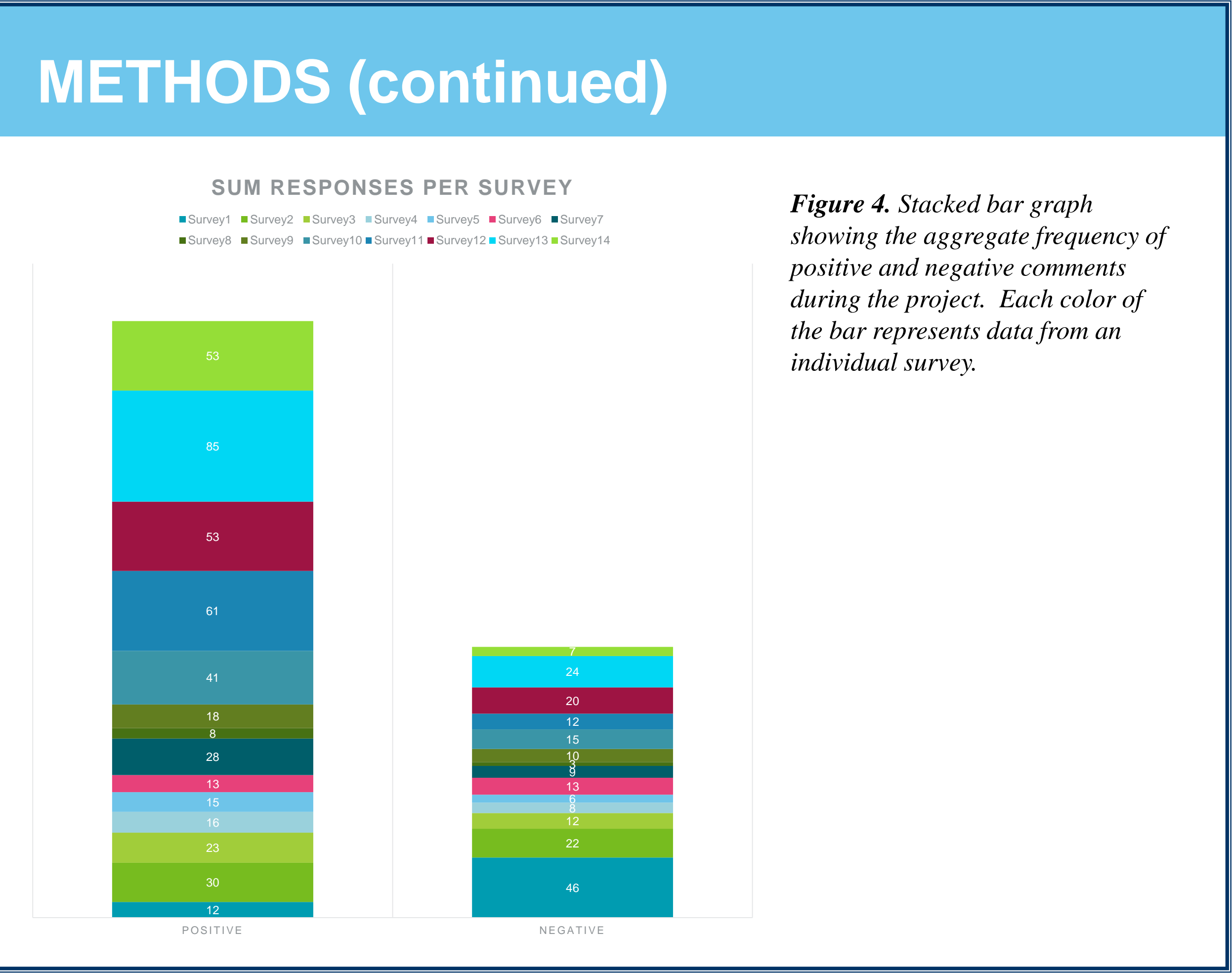


Figure 4: Stacked bar graph showing the aggregate frequency of positive and negative comments during the project. Each color of the bar represents data from an individual survey.

### RESULTS

Over the course of this improvement project, multiple surveys were sent to the 195 departmental staff. On average, there were 51 respondents per survey (range 36-73) for a mean response rate of 26%. The percentage of technologists who describe their interactions with radiologists as very good or excellent increased from 45% to 90% by August 2019. This improvement occurred gradually through the series of interventions. Through the course of the project we have received 663 free-text comments from the survey; of these, 456 comments (69%) have been positive.

Individual radiologists were offered the opportunity to review comments via a one-on-one meeting with one of the project leaders, a Vice-Chief in the Radiology Department. During the one-on-one sessions, the project leader shared the theme of comments with the radiologist but withheld verbatim comments in order to protect the identity of the technologist. During this discussion, the project leader offered suggestions on ways to improve interactions. Radiologists identified as outliers with regard to the number of negative comments were coached on their behavior during the year and during the annual review process.

Through this improvement work, we identified two themes which we believe lead to negative interactions. First, a power-gradient exists between radiologists and front-line staff. Second, as workloads have increased, and the department has become distributed over multiple physical locations, there are fewer informal interactions between radiologists and technologists. The combination of factors has prevented radiologists and front-line staff from knowing each other on a personal level. Because of this, small interpersonal shortcomings, such as tone of voice, lack of eye-contact, or failure to identify oneself (including last name and role) when answering the phone have greater importance and are more likely to cause a negative interaction.

While we achieved our goal in August 2019, we do not believe that our work is complete. We aim to continue to improve interactions so that very good and excellent interactions are routinely part of our culture. During the second year of improvement we plan to focus on intra-team communications and creating a culture of feedback.

### CONCLUSION

Quality improvement methodology can be used to improve culture. Through a series of interventions, we have been able to improve the percentage of technologists who describe their interactions with radiologists as very good or excellent from 45% to 90%.