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Reviewing imaging examination results immediately after study completion with a radiologist: Patient preferences and assessment of feasibility in an academic department

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Abstract

OBJECTIVE—To assess patient preferences on receiving radiology results and reviewing their images/findings directly with a radiologist after exam completion.

MATERIALS AND METHODS—A prospective survey of English speaking out-patients undergoing either non-oncology CT of the chest/ abdomen/pelvis or non-obstetrical ultrasound (US) examinations was completed between 12/2010- 5-2011. Items such as preferences on result communication, knowledge of a radiologist and anxiety prior to and after radiologist-patient consultation were recorded. Average wait and duration of consultation was documented.

RESULTS—Eighty-six patients (43 male, mean age 52) enrolled (37 CT and 49 US exams). 48 (56%) identified a radiologist as a physician who interprets imaging. 70 (82%) preferred hearing results from both ordering provider and radiologist which increased to 78 (91%) after consultation ($p=0.03$). Prior to and after consultation, 84 (98%) and 85 (99%), respectively, indicated they would be comfortable hearing normal or abnormal results from the radiologist. 85 (99%) agreed that reviewing their exam with a radiologist was helpful. 84 (98%) indicated having option of reviewing or always wanting to review future exams with a radiologist. Following consultation, anxiety decreased in 41 (48%), increased in 13 (15%) and was unchanged in 32 (37%) ($p=0.0001$). Average wait and consultation times (in minutes) were 9.9 and 10.4 for CT and 1.2 and 7.1 for US.

CONCLUSION—Patients prefer hearing exam results from both their ordering provider and the interpreting radiologist, with most patients finding radiologist consultation beneficial. Patients are comfortable hearing results from the radiologist with the majority displaying decreased anxiety after consultation.

INTRODUCTION

While direct communication of mammography results by radiologists to patients is the norm, direct communication of the results of other imaging studies has stirred controversy[1-7]. Recently, several opinion pieces have voiced varying recommendations and visions for the evolving role of the diagnostic radiologist, including increasing direct

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patient communication or sending patients' results directly via mail or email similar to that currently practiced in mammography [6-12].

Previously published works have attempted to assess both patient and referring physician preferences regarding methods of communicating radiology results and improving the radiology report, with variable results [1, 2, 4, 13-16]. Prior survey studies have displayed a strong patient preference for obtaining results immediately after exam completion, as well as directly from the radiologist [1, 4, 17, 18]. Direct communication of results by the radiologist may also improve patient care both by closing the loop in communication between a patient and the ordering provider and by empowering a patient through active discussion in the decision making process. [7, 17, 19]. Despite these previous reports, little has changed in the practice pattern of most radiologists, particularly in the US, with the exception of some private practice groups [7, 8, 20].

To our knowledge, this topic has not been fully evaluated in an academic/teaching center for non-mammographic studies. The purpose of our study is to assess patient preferences on computed tomography (CT) and ultrasound (US) result communication directly by the radiologist as well as to assess patients' prior radiology experiences and/or knowledge of a radiologist's expertise and function. Unique to our study was incorporating assessment of satisfaction with a direct radiologist-patient consultation session where preliminary results were provided to the patient immediately after exam completion by a radiology fellow in an academic teaching hospital.

We hypothesized that patients would value direct consultation with the radiologist and would opt for the ability to do so during future exams. We expected it could be done in a time efficient fashion and that patients would be comfortable hearing both normal and abnormal results. We also hypothesized that direct communication with the Radiologist would decrease patient anxiety.

MATERIALS AND METHODS

A HIPAA compliant IRB approved prospective single institution non-randomized non-blinded survey study was completed between December 2010 and June 2011 at our institution. We used a non-psychometrically validated original survey instrument as no validated survey existed at the time of the study (see appendix 1 and 2). Adult (over age 18) English speaking out-patients undergoing either CT exam of the torso, CT abdomen/pelvis or non-obstetrical / non-vascular lab US examinations (exams to be interpreted by our abdominal/body radiology section) were eligible to participate. Patients with exam indication to evaluate known malignancy or those with musculoskeletal indications were excluded. Those undergoing screening examinations for malignancy were eligible.

Patients were recruited Monday through Friday on the day of their radiology examination at one of two sites within our radiology department where outpatient CT and US examinations are performed. Day of the week of enrollment was based on availability of participating investigators when not assigned to clinical duties. The out-patient schedule and submitted history were available to review and one of three board certified abdominal radiology fellows determined eligibility, obtained consent prior to exam completion and conducted the review session with the patient. Consenting patients meeting eligibility criteria were prospectively but not consecutively enrolled. To avoid any bias regarding knowledge of a radiologist, name badges were inverted and co-investigators introduced themselves only as a member of the radiology department conducting a study. Prior to undergoing their exam, those that enrolled completed the pre-examination survey (see appendix 1) which was checked for completeness by the investigator. The radiological exam was completed as per

our normal department protocol. For ultrasound, all examinations are performed by an onsite sonographer who then reviewed the study for completeness with the onsite radiologist or radiology fellow. Real time scanning by a radiologist was performed at the reviewing radiologist's discretion (for study patients this process was completed by the participating investigator reviewing the exam). For CT exams, the CT technologist paged the investigator when the exam was completed. The time from exam completion to investigator-patient review was recorded. When deemed necessary by the fellow, an attending radiologist was available to review the exam prior to the investigator-patient review, and this was recorded when done. Ordering providers were also contacted prior to or following investigator-patient consult session when deemed necessary per our normal departmental protocol (e.g. new malignancy detected or other unexpected/critical finding which would warrant immediate action by the ordering provider).

After initial review of the exam by the participating investigator, patients were escorted to a private reading area where the exam images were reviewed directly by the investigator with the patient on our PACS display system. Basics of the exam, overview of patient anatomy, and any pertinent findings were discussed. Any questions raised were answered to the best ability of the investigator and referred back to the ordering physicians when deemed appropriate. Patients were verbally given preliminary results and reminded to follow-up with their ordering provider who would receive a final interpretive report as per normal department protocol. The duration of encounter was recorded and patients completed the second survey (see appendix 2) at consultation session conclusion. All exams were reviewed by an attending radiologist with the participating fellow on day of exam and all final reports included a statement that a preliminary report was provided directly to the patient.

The final report of all exams included in the study were reviewed after study closure by one board certified abdominal radiologist with greater than 20 years experience who did not participate in any of the consultation sessions. This radiologist classified the significance of the findings discussed by the radiologist with the patient. A modified categorization system based on the CT colonography extracolonic reporting and data system was used. Category 1 included normal exams/anatomic variants; category 2 included clinically unimportant findings (e.g. simple cysts); category 3 included likely unimportant finding but incompletely characterized (e.g. complex renal cyst, thyroid nodule, pancreatic cyst, fatty liver); and category 4 included potentially important findings. Category 4 findings were communicated to the referring physician, either based on American College of Radiology (ACR) guidelines or the pertinence of the finding based on exam indication (e.g. potentially malignant mass, acute diverticulitis in patient with abdominal pain) [21]. In addition a limited cost analysis was performed by completing a retrospective analysis of all billed procedures and CT and US exams interpreted over a 20 day block (4 weeks) during April and May 2011 for one of the participating fellows during normal clinical practice while working on our CT and US services. No patients were enrolled by the fellow during this time. CPT codes for each exam were extracted and RVU's assigned allowing a calculation of estimated revenue which was completed by our billing department. Revenue/minute of fellow time was calculated using our standard 8 hour workday.

Statistical analysis was completed using SAS software version 9.1.3 (SAS Institute, Cary North Carolina). Fisher's exact test was used to assess for statistical significant differences between responses and exam type, gender and race. Wilcoxon signed rank test was used to assess for within-subject differences in anxiety level pre and post consultation session and Wilcoxon rank sum tests were used to compare wait and encounter times. McNemar's test was used to assess for significance in patient preference of how to receive test results (survey question 5). A p-value of <0.05 was used to determine statistical significance.

RESULTS

Of 108 patients approached for enrollment, 86 (80%) agreed to participate (43 male, mean age 52, range 26-83). Of these, 37 completed CT and 49 completed ultrasound examinations. There was no statistically significant difference in any of the results when stratified by gender or exam type (CT vs. US). 64 (74%) patients were White/Caucasian, 10 (12%) Black/African-American, 4 (5%) Asian, 5 (7%) Other. By race, only pre-encounter survey question 5 assessing preference on how patients would prefer to hear results, and post encounter survey question 3 assessing option of reviewing future exams with the radiologist, showed statistically significant differences ($p=0.01$ and 0.03 respectively) (Table 1). Race was not a statistically significant variable ($p=0.7$) when re-assessing patient preferences on how they would prefer to hear results after completing the radiologist consultation session (post encounter survey question 5).

Out of the 86 patients enrolled, 77 (90%) stated they fully understood the reason for the exam and 9 (10%) stated they partly understood. 85 (99%) of the patients' stated reason for exam and that listed on the order history were felt to be concordant by the participating investigator. When assessing knowledge of a radiologist, 48 (56%) correctly identified a radiologist as a physician who interprets imaging, while 33 (38%) believed a radiologist was a technician, 4 (5%) believed a radiologist was a nurse and 1 (1%) stated they did know what a radiologist was.

There was a statistically significant change ($p=0.03$) in patients' stated preference on how they would like to hear results. 70 (82%) indicating preference to hear results from both the ordering provider and the radiologist prior to the consultation session, which increased to 78 (91%) after consultation (Table 2). Six of the eight patients who initially chose to hear results from the PCP or ordering provider on the pre-encounter survey changed their preference to hearing results from the radiologist and the PCP/ordering provider on the post encounter survey.

Prior to consultation 84 (98%) patients indicated they would be comfortable hearing normal or abnormal results with 2 (2%) only wanting to hear normal results. Post consultation, this changed to 85 (99%) and 1 (1%) respectively ($p>0.05$). As seen in Figure 1, 99% of patients agreed or strongly agreed that reviewing their examination and results with the radiologist was helpful and/or beneficial. Results assessing option to review future exams on the same day even if it meant waiting longer for the results (post encounter survey question 3) yielded the following results; 71/86 (83%) reported a desire to always review future exams, 13/86 (15%) would like to review results but only when they ask, and 2/86 (2%) did not want to review future exams. 77/86 (90%) of patients stated having the option to review future exams with the radiologist would make them more likely to return to our institution for their exams, with the remaining 10% stating it would have no effect on where they go.

Patient anxiety levels before and following consultation showed a statistically significant change ($p<0.0001$); decreasing in 41/86 (48%), increasing in 13/86 (15%) and remaining the same in 32/86 (37%) of patients. The mean reported anxiety score decreased from 2.5 to 1.9 after consultation session. No statistically significant differences were noted when correlating anxiety levels/change in anxiety level and exam results category, race, sex, exam type or number of prior ordering provider visits/appointment length. The CT/US exam results were assigned category 1 in 18/86 (21%), 32/86 (37%) category 2, 29/86 (34%) category 3, and 7/86 (8%) category 4. No statistically significant correlation between findings category and any of the survey questions, exam type, race, gender, and change in anxiety level after consultation was found. The attending was needed for consultation by the participating fellow prior to reviewing the exam with the patient in 7/86 (8%) cases of which

4 cases were assigned category 4 findings ($p<0.001$). Of the seven exams listed as category 4 (potentially important or pertinent to exam) one patient had an increase in reported anxiety, 2 remained the same and 4 reported decreased anxiety after radiologist-patient consultation session.

Table 3 analyzes the results of pre-encounter survey questions 1 and 2, which detail the number of prior visits and length of the most recent visit with the ordering provider. There was no statistical correlation between the number of prior appointments with the ordering provider and patient preference regarding whom they preferred to hear results from. 17/86 (20%) patients stated they had a prior radiological test discussed with them (pre-encounter survey question 6) of which ultrasound (chosen by 10 patients) and x-ray (chosen by 8 patients) were most common.

Following CT examination, the average wait time was 9.9 minutes (range 1-21) and consultation time 10.4 minutes (range 3-22). Following an US examination this was 1.2 (range 0-10) and 7.1 (range 2-19) minutes respectively. No statistically significant correlation between duration of radiology consultation and duration of last appointment, number of prior appointments with ordering provider or having reviewed radiology exams in the past was noted. No significant differences in wait and encounter times was noted when stratifying by exam findings, category level, or need for attending consultation.

Estimated revenue based on RVU analysis of all billed CT or US guided procedures and interpreted diagnostic exams over 4 weeks (20 work days) for one participating fellow yielded \$29,254 of estimated revenue. Based on our normal 8 hour work day this yields approximately \$1463/day or \$3.05/minute of fellow time. Using our estimated revenue of \$3.05/minute of clinical time and average consult time of 10.4 (for CT) and 7.1 (for US) minutes yields an estimated "cost" of \$31.72 and \$21.66 respectively per exam.

DISCUSSION

In radiology, the degree of direct patient contact is extremely variable depending on the type of exam that is being completed, degree of involvement of the interpreting or operating radiologist and the geographic region of practice [8]. Restructuring the method of delivering results to patients offers an area of possible enhancement within the daily practice of radiology. The augmentation of value of a radiologist through direct patient communication may also hold great potential [9]. In addition, a blended practice pattern of establishing patient relationships via direct result communication and imaging review may help alter patient behavior [22, 23]. Arguments for increased interaction with patients and direct communication have ranged from patients' desire to hear results after exams, legal and ethical responsibility, and increasing promotion of the field of radiology and its role in healthcare [5-7, 9, 18]. Direct communication of results by radiologists may also result in improved patient care by closing the communication loop [6, 7, 19, 24]. Prior work analyzing a novel direct electronic communication with referring physicians regarding important, but non urgent findings, encountered during exam interpretation displayed 15.4% of these notifications went unread [24]. In addition, increased direct communication may also help improve public awareness of radiologists. Our data showed only 56% of patients recognized a radiologist as a physician who interprets imaging exams. This is similar to prior survey work conducted by the American College of Radiology in 2008 which showed only 48% of respondents knew that a radiologist was a licensed physician who interprets results of imaging tests [22].

Many opposed to direct communication of results have raised several important points ranging from increased legal liability, possible harm by communicating results without full

patient history/results, lack of an established relationship with the patient, lack of time due to high clinical volume (especially in private practice environment), creating increased work for referring physicians, and discomfort when communicating bad news such as a new diagnosis of malignancy [4, 6, 7, 10, 13, 25]. A survey conducted in 1992 showed that as results become more complex or severe, there was a decrease in both the radiologist's desire and referring physician's acceptance of result disclosure by the radiologist [13].

The preferences of patients receiving care in the United States have been investigated in prior survey studies and displayed preference for direct disclosure of results by the interpreting radiologist both within and outside of mammography[1, 4, 14, 17]. Our study differs from prior work with 91% of our patients expressing preference to hear results from both the radiologist and ordering provider after completing our consultation session. This is much higher than a recent survey only study where 14% of patients chose this method for normal results and 27% for abnormal results [1]. Our data also showed a much higher acceptance (99%) of hearing both normal and abnormal results from the interpreting radiologist after the consultation session. This discrepancy likely relates to a more uniform acceptance once patients meet the radiologist and review the results/exam in person as done in our study.

Additionally, our results revealed a statistically significant change in reported anxiety levels; with most patients reporting decreased anxiety after radiology consultation session. A similar trend in patient preference to hear results quicker found in prior work was confirmed by our study with the vast majority of patients (98%) choosing the opportunity to always review or have option to review future exams with a radiologist the same day even if it meant waiting longer [1]. The benefit of immediate communication would eliminate the additional waiting to hear from the ordering provider under normal current practice, a time described by many patients as a period of high anxiety [7, 25]. However, it should be noted that even those patients in our study with clinically significant or important findings (assigned category 4) showed no statistical difference in desire to review future exams with the radiologist or perceived benefit of reviewing the exam with the radiologist. In addition, most in this category also reported a decrease in anxiety levels after consultation.

An important issue to consider is the time that such encounters take and the result on the workflow in a radiology practice. We found that the overall time for reviewing ultrasound exams was shorter than that of CT which likely relates to the number of images in each exam. As ultrasound exams tend to be shorter, they can be reviewed quicker and at our institution (and many other academic settings) the exams are always reviewed by a radiologist prior to patient dismissal, so no additional time was needed for this portion of the study protocol. The consultation session duration was also shorter for ultrasound than CT. Range of session time was variable, largely based on the complexity of the exam/number of images, the exam findings and patient questions. We acknowledge that instituting direct communication may temporarily diminish revenue as prior work in mammography assessing direct communication concluded, "talk isn't cheap" [14]. Based on our data analysis, a radiologist could expect a "cost" associated with time needed to review results directly with the patient, which is not reimbursed.

As this was a pilot study not previously performed at our institution it was new to both the investigators and patients. Many of our patients had never seen their images or had them formally reviewed and hence had many basic questions which necessitated overview of the exam, and review of basic of anatomy with the patient prior to reviewing actual results. We would expect the time to review studies would improve as practices and patients become more accustomed to this process.

Unique patients' preferences based on cultural and geographic background was suggested by a prior German study which showed slight preference in receiving results from the referring physician rather than the radiologist [26]. While our data is limited by small sample size a similar preference was also seen in patients within race category Asian and Other (Table 1) prior to the consultation session. In addition, as shown in Table 1 a higher percentage of patients in these race categories opted to only review future exams with a radiologist when they ask while most Caucasian or African American patients opted to always review future exams with the radiologist. This may relate to a partial language barrier for these patients especially if the ordering provider/PCP speaks their primary language.

There are several limitations to our study. There is a potential for selection bias by enrolling only those patients that have an interest in meeting with and having results given by a radiologist. We did not formally document the reasons that eligible patients chose to decline enrollment and it is possible that those patients were not comfortable interacting with or hearing results from a radiologist. We did not assess patient education in this study, with prior work showing a statistically significant trend in higher educated patients asking for results immediately or the exact reason patients found the consultation helpful (i.e. quicker results, education on disease process, enjoyed viewing images, etc) [18]. Only a limited cost analysis based on typical revenue generated by a fellow in our department was performed. Potential loss in revenue would be variable based on the number of exams reviewed and productivity of the radiologist. Our cost analysis did not assess any effect on patient outcomes, reduction in downstream costs such as eliminating unnecessary follow up appointments to receive results, or change in exam volume from initiation of this practice (which has been reported to increase referrals/revenue) [20]. In addition, all consultations were performed by a radiology fellow minimizing impact on the radiology attending's work flow. While this method may not be applicable to most private practice groups, similar methods of allowing direct result communication are already being performed by some groups [20]. Incorporating direct communication into daily practice could potentially mean that groups would have to decrease scheduled patients per day to allow communication time or assign a provider to act as a "patient consultant" for the day. Further work is needed to better evaluate potential changes in practice management and revenue if direct communication of results was implemented or offered. Only three different individuals, all of whom were American Board of Radiology certified radiologists completing an abdominal radiology fellowship, participated in the patient consultations sessions and therefore data may be skewed by these investigators' communication abilities, "bed-side" manner, and clinical knowledge which may not apply to all radiologists. No assessment of our referring physicians' opinion on this model was undertaken but prior work assessing referring physician comfort with result disclosure by radiologists has indicated acceptance, especially when the result is normal or with "mild" abnormality [13, 16]. We acknowledge the limitation of applying our results to all patients given that our study excluded hospitalized patients, known oncology patients and patients undergoing exams for neurologic or musculoskeletal indications, which are read by separate sub-specialized radiologists at our institution. Lastly, 58% of our exams were rated as normal or with clinically unimportant findings, which could have resulted in better acceptance by our patients regarding direct communication of results by the radiologist.

We believe acceptance of a new role of the diagnostic radiologist in result communication in CT, US or MRI could mirror that seen after implementation of MQSA in mammography [7]. While direct radiologist communication of results to patients will likely remain a hotly debated topic, our study clearly demonstrates that patients desire direct communication of results after exam completion, are comfortable hearing both normal and abnormal results and anxiety decreases (for most patients) following result communication. The time added to

daily practice by incorporating result communication seems reasonable and will likely decrease with time, yielding more informed and satisfied patients.

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Appendix 1

Pre-Review Survey

Your current age:

Male or female (circle)

Circle which best describes your race:

White Black/African American Native American Asian Other

Study ordered by: _____

1. Approximately how many times have you been seen by the provider/providers listed above for your care and what was the length of the visit leading to this exam order?

<u>Number of visits</u>	<u>Visit length</u>
a) None	a) 0-15 minutes
b) One to three times	b) 15-30 minutes
c) Three to five times	c) 30-45 minutes
d) Greater than five times	d) Greater than 45 minutes

2. Exam you are having today is a **CT** or **Ultrasound** (circle answer).

You have completed this specific test approximately how many times previously?

- a. None
- b. 1-5
- c. 6-10
- d. More than 10

3. Do you understand why your current CT/Ultrasound examination was ordered?

- a. I fully understand Please briefly list the reason this exam was ordered:
- b. I partly understand
- c. I do not understand

4. To your knowledge, please circle the statement that best describes what you think a Radiologist is.

- a. A Radiologist is a technician that takes imaging tests such as X-rays, CT scans, ultrasound and MRI

- b.** A Radiologist is a physician who specializes in interpreting imaging tests such as X-rays, CT scans, ultrasound and MRI
 - c.** A Radiologist is a nurse that specializes in interpreting imaging tests such as X-rays, CT scans, ultrasound and MRI
 - d.** I do not know what a Radiologist is
- 5.** Which best describes how you would like to hear the results of your CT/Ultrasound examination?
 - a.** I would prefer to hear the results from my primary care physician or provider that ordered this exam
 - b.** I would prefer to hear the results from the person interpreting the exam
 - c.** I would prefer to hear the results from both the person interpreting the exam and my primary care physician or provider that ordered the exam
 - d.** I prefer not to hear the results
- 6.** Have you ever previously had the results of a radiology test discussed with you in person by a member of the Radiology department?
 - a.** Yes – Please see question 7 below
 - b.** No
- 7.** If yes, the test that was discussed was a/an (circle all that apply)
 - a.** X-Ray including mammogram
 - b.** CT scan
 - c.** MRI
 - d.** Ultrasound
 - e.** Nuclear medicine study
 - f.** Invasive procedure (examples- biopsy, drainage, angiogram, etc)
- 8.** Which best describes the results you would be comfortable hearing from the person interpreting this exam?
 - a.** I only want to hear normal results
 - b.** I only want to hear abnormal results
 - c.** I want to hear either normal or abnormal results
- 9.** Regarding your pending examination, please circle the number which best describes your level of anxiety right now with 0 being no anxiety and 5 being very anxious/terrified
 - a.** 0
 - b.** 1
 - c.** 2
 - d.** 3
 - e.** 4
 - f.** 5

To be completed by member of Radiology department

Time patient returned to waiting area after exam completion/time encounter began:

Appendix 2

Post exam review survey

Time of encounter:

Hx obtained from pt:

Was attending consulted: Yes No N/A

1. I found reviewing the CT/ultrasound examination with the Radiologist helpful/beneficial.
 - a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
2. After reviewing the study with the Radiologist, please circle the number which best describes your level of anxiety right now with 0 being no anxiety and 5 being very anxious/terrified.
 - a. 0
 - b. 1
 - c. 2
 - d. 3
 - e. 4
 - f. 5
3. Would you prefer the option of reviewing future CT/ultrasound exams with the Radiologist the same day even if it meant waiting longer for the results?
 - a. Yes, I would always like to do this
 - b. Yes, but only when I ask to do this
 - c. No

After having reviewed your examination with a radiologist please re-answer the two questions below.

- 4 Which best describes the results you would be comfortable hearing from the Radiologist?
 - a. I only want to hear normal results
 - b. I only want to hear abnormal results
 - c. I want to hear either normal or abnormal results
- 5 Which best describes how you would like to hear the results of your CT/ultrasound examination?

- e) I would prefer to hear the results from my primary care physician or the provider that ordered this exam
 - f) I would prefer to hear the results from the Radiologist interpreting the exam
 - g) I would prefer to hear the results from both the Radiologist and my primary care physician or provider that ordered the exam
 - h) I prefer not to hear the results
- 6 Having the option to review my future examinations with the Radiologist after it was completed would:
- a. Make me more likely to return to XXX for my future radiology examinations
 - b. Have no effect on where I go for Radiology tests
 - c. Make me less likely to return to XXX for my future radiology examinations

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Figure 1.
Number of patients who found reviewing the CT/Ultrasound exam with the radiologist helpful/beneficial (n) (post-encounter survey question 1)

Patient preference by race on how they would prefer to hear results of examinations prior to consultation session and desire to review future results with radiologist (Pre-encounter survey question 5 and post encounter survey question 3)

Table 1

	Race				
	White/Caucasian	African American/Black	Asian	Other	
Results					
Whom would you like to hear results from? (p=0.01)	From PCP/ordering provider	4 (6%)	1 (10%)	2 (40%)	1 (14%)
	From interpreter of exam	4 (6%)	1 (10%)	0	3 (43%)
	From Both	56 (88%)	8 (80%)	3 (60%)	3 (43%)
Do you want to review future exams? (p=0.03)	Always want to	56 (88%)	9 (90%)	2 (40%)	4 (57%)
	Only when I ask	7 (11%)	1 (10%)	3 (60%)	2 (29%)
	Never	1 (1%)	0	0	1 (14%)

Table 2

Patient preferences on how they prefer to hear results of radiology examination prior to after consultation session (Pre and post encounter survey question 5)

POST	From PCP or ordering provider	From person interpreting exam	From both	Total
PRE				
From PCP or ordering provider	1	1	6	8 (9%)
From person interpreting exam	0	3	5	8 (9%)
From both	1	2	67	70 (82%)
Total	2 (2%)	6 (7%)	78 (91%)	86

Table 3

Patient prior exam and visit data (pre-encounter survey questions 1 and 2)

Patient characteristics	N (%)	
Number of prior exams	CT	Ultrasound
None	9 (11)	14 (16)
1-5	21 (24)	24 (28)
6-10	4 (5)	10 (12)
>10	3 (3)	1 (1)
Number of prior visits		
None	1 (1)	
1-3	39 (45)	
3-5	11 (13)	
>5	4 (35)	
Last visit length in minutes		
0-15	12 (14)	
15-30	39 (45)	
30-45	27 (31)	
>45	8 (9)	