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Breast Imaging

Adding value in the era of COVID-19: Increasing usage of a patient-centered radiology consultation service



Melissa Reichman^{a,*}, Elizabeth Kagan Arleo^a, Robert J. Min^b, Keith Hentel^b, Meghan Cahill^c, Tara Ruddy^d, Deirdre Sullivan^d, Michele Drotman^a

^a Weill Cornell Medical College at New York-Presbyterian Hospital, 425 East 61st Street, 9th Floor, New York, NY 10065, United States of America

^b Weill Cornell Medical College, New York Presbyterian Hospital, 525 E. 68th Street Box 141, New York, NY 10065, United States of America

^c Radiology Consultation Service, Department of Radiology, Weill Cornell Medical College, 520 E. 70th Street Star Pavilion, New York, NY 10065, United States of America

^d Radiology Consultation Service, Department of Radiology, Weill Cornell Medical College, 425 E. 61st Street, New York, NY 10065, United States of America

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ABSTRACT

Objective: To examine the effects of COVID-19 pandemic on our department's Radiology Consultation Service (RCS) related to breast imaging, and how utilization of the provided services may have differed as compared to prior to the pandemic.

Materials and methods: A retrospective cohort study of patients and health care providers who consulted the RCS, as well as those patients who had a screening mammogram and/or ultrasound between January 1, 2019 and September 1, 2020. Consultations were performed by an RRA, RN and one of 17 breast imaging radiologists assigned to consults on daily. Descriptive statistics were performed to describe the study subject population.

Results: Between January 1, 2020 and July 31, 2020, a total of 1623 consultations were performed, in comparison to the control period from the year prior (January 1, 2019 to July 31, 2019), when a total of 1398 consultations were performed, representing a 16% increase in one year. Between March 1, 2020 and June 30, 2020, a total of 679 consultations were performed, in comparison to the control period from the year prior (March 1, 2019 to June 30, 2019), when 583 consultations were performed, representing a 16.5% increase in a four-month period. 350 out of 679 (36.8%) consultations addressed COVID concerns.

Conclusions: While much of radiology experienced an unprecedented decrease in imaging studies during the initial peak of COVID-19 crisis, the RCS at our institution showed a significant increase in services provided, evolving to address pressing concerns related to COVID-19.

1. Introduction

In 2013, the Department of Radiology at New York-Presbyterian Hospital (NYP) developed an organized patient-centered Radiology Consultation Service called Weill Cornell Imaging Consultation and Radiologic Expertise Service (WiCares). For the purposes of this paper, it will be referred to as the Radiology Consultation Service (RCS), a service which initially focused on explaining the radiological significance of breast density as well as associated supplemental screening options to patients.¹ The RCS has been increasingly important to our practice over the years, as increasing number of women, as well as referring health care providers, contact the service daily, providing an effective method for patient education, particularly about contradictory guidelines from

different organizations. The direct radiologist-patient interaction has improved patient confidence and perception in the medical decision-making process, specifically around breast density and additional screening options. While not a revenue engine, the added value of a radiology consultation service is that it creates a high level of patient satisfaction with an improved understanding of the radiologist's role.²

In March 2020, the World Health Organization declared the Coronavirus Disease (COVID-19) a pandemic. Shortly after, a state of national emergency was declared in the United States, with many states – including New York – ordering business shutdowns and shelter-in-place directives, and social distancing becoming the new norm for society. As health care institutions in southern New York State became overrun with COVID-19 patients, many institutions, including NYP, followed the

* Corresponding author at: Department of Radiology, Weill Cornell Medicine, 425 East 61 Street, New York, NY 10065, United States of America.

E-mail address: mdb9013@med.cornell.edu (M. Reichman).

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Centers for Medicare and Medicaid services recommendation to place a moratoria on elective procedures and non-essential surgeries, including routine breast cancer screenings. Screening mammograms, and diagnostic studies on women without a clinically concerning symptom such as a six month follow up, were postponed. Beyond breast imaging, many patients struggled with decisions regarding their medical care and imaging during COVID-19, in addition to having questions related to COVID-19 symptoms and the disease itself.

Thus, it is hypothesized that the RCS consultation service has increased in use and value since 2013 when it was initially established, extending beyond just questions related to breast tissue density and screening controversies to concerns about imaging during COVID-19. The purpose of this study is to examine the effects of the COVID-19 pandemic on the breast imaging services of RCS and investigate how utilization of the provided services by patients, physicians and internal staff may have differed as compared to prior to the pandemic.

2. Methods

This is a retrospective cohort study, compliant with the Health Insurance Portability and Accountability Act (HIPAA) and approved by the institutional review board with waiver of informed consent. The study cohort was assembled at our institution, with inclusion criteria including patients and health care providers who consulted with a member of the radiology consultation service team, as well as patients who received screening mammography and/or ultrasound at Weill Cornell Imaging between January 1, 2013 and September 1, 2020. All patients included were 18 years of age or greater. Additionally, dates of March 1, 2020 to June 30, 2020 were selected and compared with a control date range, March 1, 2019 to June 30, 2019 so that indications for consultation during the first peak of the COVID-19 pandemic could be compared to the year prior to the pandemic.

The patients and referring providers consult the RCS phone line 646-962-CARE or contact RCS via email. Consults were divided into Phone Service, calls coming in through the RCS phone line and email from providers/patients versus Problem List consults, where call center representatives onsite and managers flagged breast cases for consult if any questions arose, clarifications, or review was needed. These problem list cases were then worked up by the RCS. Specifically, consultations were performed by a Registered Radiology Assistant (RRA), Registered Nurse (RN) and one of 17 breast radiologists assigned to consultation on a daily basis. The RRA or RN was responsible for fielding all requests, collecting pertinent data and preparing consultation notes. A standard consultation documented patient demographics, relevant history, prior imaging, reason for consult as well as a full consultation assessment and plan. All information was provided to the radiologist via email, phone or through

our electronic consultation documentation system prior to the patient-radiologist interaction scheduled and initiated by the RRA or RN. Consultation notes were signed off by the RRA/RN and radiologist involved. All consultation information was tracked by the RRA or RN, including outcomes and follow up results for quality assurance purposes. The RCS does not charge a fee for a consultation.

Descriptive statistics were performed to describe the study subject population.

3. Results

From the inception of RCS in 2013, it has shown significant growth from 37 consultations between January 1, 2013 and July 31, 2013, to 1623 consultations for the comparable period in 2020 (Fig. 1).

Between January 1, 2020 and July 31, 2020, a total of 1623 consultations were performed. This is in comparison to the control period from the year prior (January 1, 2019 to July 31, 2019), when a total of 1398 consultations were performed. This represents a 16% increase in one year (Fig. 2).

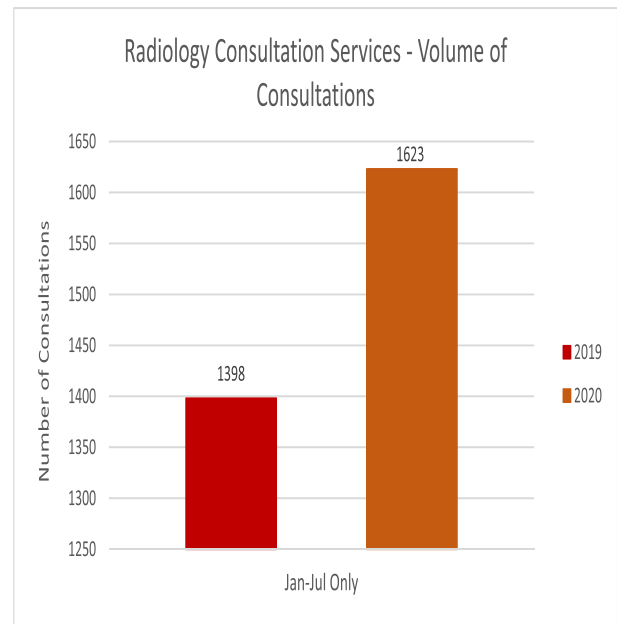


Fig. 2. Radiology consultation services-volume of consultations 2019–2020.

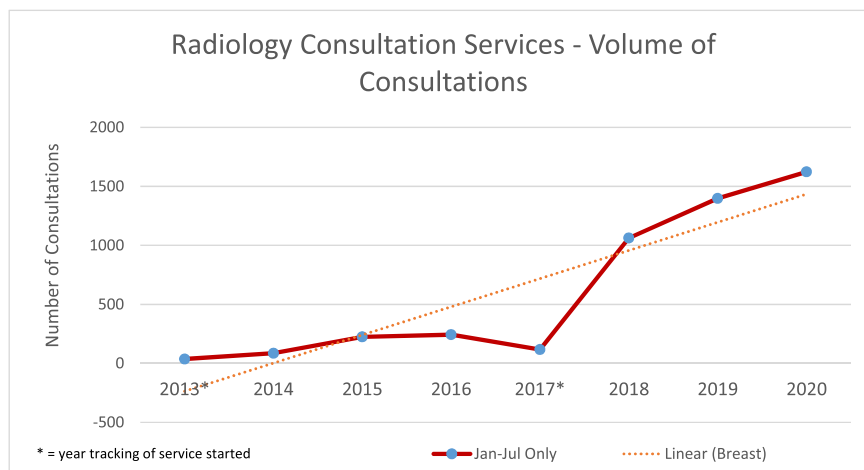


Fig. 1. Radiology consultation services-volume of consultations 2013–2020.

Between March 1, 2020 and June 30, 2020, a total of 679 consultations were performed. This is in comparison to the control period from the year prior (March 1, 2019 to June 30, 2019), where 583 consultations were performed. This represents a 16.5% increase in a four-month period (Table 1).

The number of issues and questions addressed by the radiology consultation service increased by 35% (474 to 640) from 2019 to 2020 (Table 3). 350 out of the 679 (36.8%) of the consultations addressed COVID concerns (Table 1). Moreover, 69.2% of calls coming into RCS through the phone service were related to COVID (Table 2).

In 2020, many of the reasons for contacting the Radiology Consultation Service included dense breast education, results review, recall clarification, radiation concerns, patient symptoms, and questions regarding imaging related to pregnancy and breast feeding, which were common issues addressed in 2019 as well. In both years, other reasons documented for contacting the radiology consultation service included medical record requests, addendum requests, insurance documentation requests, exam contraindications, scheduling inquiries, refusing practice protocol recommendations, and referral requests. As of March 2020, “COVID concerns” was added to the list. The COVID concerns were broken up into 4 sub-categories¹: whether an exam was urgent or non-urgent exam, 174/250 (70%)²; concerns about postponing an exam or not, 69/250 (28%)³; a patient seeking outside care, 6/250 (2%); or⁴ a no show due to COVID, 1/250 (0.4%) (Table 1).

4. Discussion

The purpose of this study is to examine the effects of the COVID-19 pandemic on RCS consultations related to breast imaging, and investigate how utilization of the provided services by patients and/or physicians, and internal staff may have differed as compared to prior to the pandemic. The principal findings were that while radiology practices in the United States experienced unprecedented declines in volumes during the initial peak of the COVID-19 crisis, in contrast our radiology consultation service showed a notable increase in volume.⁵ Additionally, the radiology consultation service was able to evolve in purview and address many of the COVID concerns that arose during the peak of the COVID crisis.

The cause of the unprecedented decrease in imaging volumes across

Table 1
Radiology consultation services breast all: March 16–June 15.

RCS breast all: March 16–June 15	2019 total	%	2020 total	%
Medical records request	23	6.1%	4	0.6%
Addendum request	2	0.0%	1	0.1%
Insurance doc. request	2	0.0%	0	0.0%
Clinical question	34	3.6%	15	2.2%
Exam contraindications	10	0.0%	3	0.4%
Radiation exposure concerns	4	0.4%	6	0.9%
Scheduling inquiry	453	83.2%	389	57.3%
Refusing practice protocol recommendations	27	6.5%	2	0.3%
Referral request	1	0.0%	0	0.0%
Results review	27	0.4%	9	1.3%
COVID concern			250	36.8%
Urgent vs. non-urgent			174	
COVID concern - does not want to postpone			58	
COVID concern - wants to postpone			11	
COVID concern - seeking outside care			6	
COVID concern - no show			1	
Totals	583		679	
		DBT	DBT	
		22	6	

Table 2
Radiology consultation service by phone: March 16–June 15.

RCS phone: March 16–June 15	2019 total	%	2020 total	%
Medical records request	6	5.5%	2	5.1%
Addendum request	2	1.8%	1	2.6%
Insurance doc. request	2	1.8%	0	0.0%
Clinical question	21	19.3%	2	5.1%
Exam contraindications	3	2.8%	1	2.6%
Radiation exposure concerns	3	2.8%	0	0.0%
Scheduling inquiry	36	33.0%	6	15.4%
Refusing practice protocol recommendations	9	8.3%	0	0.0%
Referral request	1	0.9%	0	0.0%
Results review	26	23.9%	0	0.0%
COVID concern			27	69.2%
Urgent vs. non-urgent			13	
COVID concern - does not want to postpone			11	
COVID concern - wants to postpone			1	
COVID concern - seeking outside care			1	
COVID concern - no show			1	
Totals	109		39	
		DBT	DBT	
		13	1	

Table 3
Radiology consultation service by problem list: March 16–June 15.

RCS prob list: March 16–June 15	2019 total	%	2020 total	%
Medical records request	17	6.1%	2	0.3%
Addendum request	0	0.0%	0	0.0%
Insurance doc. request	0	0.0%	0	0.0%
Clinical question	13	3.6%	13	2.0%
Exam contraindications	7	0.0%	2	0.3%
Radiation exposure concerns	1	0.4%	6	0.9%
Scheduling inquiry	417	83.2%	383	59.8%
Refusing practice protocol recommendations	18	6.5%	2	0.3%
Referral request	0	0.0%	0	0.0%
Results review	1	0.4%	9	1.4%
COVID concern			223	34.8%
Urgent vs. non-urgent			161	
COVID concern - does not want to postpone			47	
COVID concern - wants to postpone			10	
COVID concern - seeking outside care			5	
COVID concern - no show			0	
Totals	474		640	
		DBT	DBT	
		9	5	

the country during the second (and to some extent third) quarter of 2020 was multifactorial, with reasons including local and regional stay-at-home orders and limitations on non-urgent imaging, as well as patient cancellations and no shows due to the fear of viral exposure. The abrupt curtailment of imaging caused increased confusion for some patients about ongoing treatment plans and management, questioning what was essential and what could be postponed. The pandemic pushed referring physicians to think more carefully about the exams they order and patients to think about which exams to undergo. Physicians have become more conscientious about their imaging recommendations, relying on the radiologists' clinical judgment of what is essential and minimizing unnecessary potential viral exposure. As a result, we believe that the

radiology consultation service has enabled a more appropriate use of imaging.

In terms of efficacy, consultation is defined as “deliberating together,” and in terms of radiology, it allows the radiologist to play a collaborative role in the patient care, speaking with the patient and other physicians to pool their knowledge and arrive at the best plan possible.⁶ Our RCS enables high quality communication with patients and referring clinicians, before and during the COVID-19 pandemic, the latter of which has been a time of much panic and confusion. The proof of efficacy was in the continually increasing utilization, with the RCS able to utilize its resources to help direct patients regarding answering questions about the urgency of exams and beyond. While there is no direct financial gain to the institution, RCS improves the experience of patients and referring physicians, and differentiates our institution in terms of quality of care.

There is very little in the literature regarding development of organized radiology consultation services and their benefits in widespread implementation. Similar models were described by Khorasani et al. in 1994, however consultation services require a time commitment, and cost that is not directly reimbursed under the fee for service payment model.⁷ The ACR 3.0 imaging initiative, a model for value based care, has defined the radiologist's role in patient care as an engaged member of the health care team. Our RCS parallels the ACR 3.0 goals, to assist in selecting the most appropriate examinations, consulting with the patient, and physicians in a shared decision-making process. Furthermore, our RCS empowers patients to understand their many imaging options and participate in the selection of the best imaging exam based on their unique clinical circumstances. Future evolution of RCS may be helping guide patients' following cancer diagnoses in terms of next step recommendations, and helping to coordinate with the multidisciplinary breast teams.

Limitations to this study include the small sample size, and the limited time frames, given our analysis of a 4-month period to look at the

effects of COVID-19. In addition, the WiCares program serves a patient population in New York City, that may not be generalizable to other patient populations.

5. Conclusion

At a time when radiology experienced an unprecedented decrease in imaging studies during the initial peak of the COVID-19 crisis, the RCS at our institution, in contrast, showed a notable increase in services provided, evolving to address pressing concerns related to COVID-19 and breast imaging. Our experience demonstrates the value of an organized radiology consultation service and may serve as an example for other institutions to adopt a similar program, as patient-centered care is at the forefront of radiology.

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