1-800 Imaging: Building Partnerships Between Primary Care and Medical Imaging

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THE PROBLEM

In most health care systems, there is little direct communication between primary care physicians (PCPs) and specialists, creating ambulatory settings where PCPs are disconnected from hospitals. When a PCP needs to move a patient into the diagnostic or therapeutic care of a specialist, most systems rely on rigid and anonymous referral pathways. In Canada, many community-based PCPs have very limited access to hospital-based specialty expertise, such as advanced medical imaging, which results in long wait times for elective radiology appointments [1]. When a patient presents to a PCP with symptoms that require urgent or semi-urgent imaging for further workup, reasonably rapid access can often be obtained only by sending that patient to the emergency department (ED), a process that contributes to overcrowding and long wait times in Canadian EDs [2].

The 1-800 Imaging pilot is a unique project, seamlessly integrating community PCPs with a subspecialized, university-affiliated imaging department, avoiding unnecessary ED visits as a means for accessing radiology services. This project is part of an overarching strategy based at Women's College Hospital (WCH) in Toronto, Ontario, Canada, an entirely outpatient facility. Projects such as the "Virtual Ward" [3] and the "Seamless Care Optimizing the Patient Experience" (SCOPE) [4] have been established and evaluated at WCH, consistent with the triple aim of improved population health, patient experience, and cost per capita [5]. The 1-800 Imaging pilot aligned with the SCOPE project and was conducted over an 11-month period. It created a direct connection between PCPs and an academic imaging department. The purpose of this pilot was to assess the frequency of utilization for each service offered, impact on patient management, and overall PCP satisfaction.

WHAT WAS DONE

Setting

In 2012, the SCOPE project was designed as a single point of contact, via one telephone number, to serve a cohort of solo-practice PCPs in the core of downtown Toronto. These PCPs were considered to be isolated from hospital-based services and their patients were high users of the local EDs. The project goal was to reduce ED visits "by providing resources to help care for patients with multiple chronic conditions" [4].

In response to PCP feedback that highlighted the need for navigational support and access to hospital-based medical imaging with subspecialized services, the 1-800 Imaging pilot was collaboratively designed in 2014 by the Joint Department of Medical Imaging, WCH, and Women's College Hospital Institute for Health System Solutions & Virtual Care. This study was approved by the institutional research ethics board.

Program Process

Radiology expertise was added to SCOPE's existing virtual interdisciplinary team, still accessible through a single phone number. During business hours (Monday to Friday, 9:00 AM – 5:00 PM), PCPs were able to reach a dedicated medical imaging call center agent—no voicemail, no holding on line—with direct access to a radiologist. A lead radiologist was identified to champion the project and serve as the primary contact point for PCPs using the call center.

A steering committee of radiologists, primary care leaders, and administrators were tasked with establishing medical imaging services that presented value to callers. While identifying priority areas, the team acknowledged the importance of flexibility and the significance of PCP feedback to continuously refine the services to meet its needs.

The committee decided that the following imaging services would initially be offered:

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(1) *Appropriateness Consultation*: Support in selecting the most appropriate imaging modality when unsure which test was indicated for their patient.
(2) *Radiology Consultation*: Second opinion from a radiologist on images and/or reports from any facility.
(3) *Urgent Imaging*: Depending on the patient's symptoms, the urgency (same day, same week, etc) was mutually defined between the PCP and radiologist, and a walk-in examination or appointment was organized by the call center agent.
(4) *Urgent Reporting*: Expedited dictation of unreported examinations that have already been performed.
(5) *General Information:* Navigational information regarding imaging referrals, general contraindications to certain examinations, contrast injection, etc (provided by the call center agent or radiologist).

Exclusion Criteria

Requests regarding potential acute neurovascular events were excluded; they were referred to a local ED for appropriate triaging and immediate treatment.

What Happened During a Call

Depending on the type of inquiry, the call center agent either provided the required information or connected the PCP to the lead radiologist. If the call required subspecialized knowledge outside of the lead radiologist's area of expertise, the radiologist liaised with an appropriate colleague within the department. The goal was to respond to each inquiry in real time; however, if a radiologist was not available, a mutually convenient time was determined and a return call was scheduled.

The call center agent remained on the line while the PCP and radiologist were in discussion to document the conversation and provide additional support if required (eg, if the radiologist approved urgent imaging, the call center agent proceeded to coordinate the examination).

Data Collection

The described pilot took place from May 2014 to March 2015. Data were collected including services accessed and reasons for using the call center, call volumes, PCP satisfaction, and impact of the call on patient management. At the beginning of each call, the PCPs were asked about planned management of their patient; the question was repeated at the conclusion of their call to determine whether the intervention changed patient management. Upon completion of each call, PCPs were sent a brief e-mail survey asking them whether they would recommend the call center to their colleagues and to rate their overall satisfaction with the service on a five-point scale.

OUTCOMES

Overall Call Volumes

Over the course of the 11-month pilot, a total of 227 calls were made to access 1-800 Imaging services by 36 of the 60 SCOPE physicians (60%). Of these callers, 22 (61%) called more than once. The three most frequent callers used the service 31 times, 24 times, and 24 times, respectively, accounting for 35% of all calls made during the pilot (Figure 1).

Frequent use of the direct link between PCPs and medical imaging during the pilot is not surprising in the Canadian health care environment, where there is high demand for medical imaging from the primary care community. Forty percent of Canadian PCPs report that their patients often experience difficulty getting specialized diagnostic tests such as CT imaging, mammography, and MRI. This is the second-highest proportion among 10 industrialized countries [1] and is often reflected in terms of long wait times for nonurgent advanced imaging examinations [6-8].

Requested Imaging Services

Urgent imaging was accessed most frequently, accounting for 103 of 227 calls (45%) and used by 29 of the 60 SCOPE physicians (48%) (Table 1). The majority of these 103 calls for urgent imaging (95%) resulted in imaging procedures managed through the 1-800

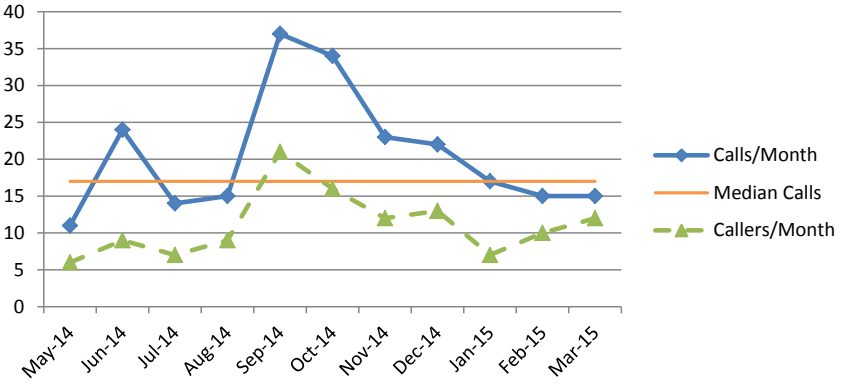

Fig 1. Volumes of calls and unique callers to 1-800 Imaging call center, per month.