Ontario Medical Association

Centralized Requisitions for Diagnostic Imaging Working Group

Final Report

August 2025

Table of Contents

Working Group Composition **3**

Executive Summary **4**

Introduction **6**

Issue **6**

Mandate **8**

Objectives **8**

Opportunity and Health System Context **9**

Working Group Establishment **10**

Methods **10**

Recommendations **11**

Communication and Engagement with System Partners **11**

Standardized Referral Forms **12**

Referral Development Process **13**

Referral Content and Organization **14**

Patient Details **15**

Digital-specific Factors **17**

Paper-specific Factors **18**

Implementation **19**

Central Intake **20**

Conclusions **21**

Working Group Composition

Members of the Working Group:

Dr. Scott Laing (Chair), Family Physician

Dr. Winnie Lee (Vice Chair), Radiologist

Dr. Farah Abdulsatar, Pediatrician

Dr. Edward Hirvi, Family Physician

Dr. Lana Kiehn, Family Physician

Dr. Ryan Margau, Radiologist

Dr. Faysal Naji, Vascular Surgeon

Dr. Marilyn Crabtree, ex-officio member representing OMA Forms Committee, Family Physician

With thanks to Dr. Brenda Copps, Family Physician, for her early contributions

OMA Staff:

Naomi Pullen, Director, Health Policy, Ontario Medical Association

Katina Kominos, Senior Manager, General Assembly, Ontario Medical Association

Nina Palikuca, Coordinator, General Assembly, Ontario Medical Association

Samantha Tyberg, Director, Health Policy, Ontario Medical Association

With thanks to Linda Petersen, former Sr. Advisor, Health Policy, for her contributions

Executive Summary

There is much work on-going in the health system to find innovative opportunities to reduce physicians' administrative burden. It has been well-established both that administrative burden is a significant issue for physicians, being one of the largest contributors to burnout, and that it has negative impacts on health system capacity and sustainability. The Ontario Medical Association (OMA) has therefore been working for the past four years on various strategies to reduce administrative burden, with many discrete sources of burden requiring multi-faceted solutions.

In 2022, the OMA's Priorities and Leadership Group (PLG) identified improving the diagnostic imaging referral process as a priority to contribute to this burden reduction. In the current system, countless different referral forms[1] exist for the same services, there are inconsistencies in the communication of referral data, and these forms' multiplicity and complexity create unnecessary work and frustration both for physicians referring their patients and for physicians receiving referrals.

To address this priority, the OMA's Health Policy Panel (HPP) established a dedicated working group composed of referring and receiving physicians. The group was tasked with a mandate to explore standardized referral forms and central intake for diagnostic imaging to streamline the diagnostic imaging referral process.

At the same time, given the significance of this issue in the health system, other system actors began parallel efforts to undertake work to begin standardizing diagnostic imaging and other referrals. During the development of the working group's mandate, Ontario Health West had begun developing a standardized referral form for MRI and CT. As well, as our working group began its work, Ontario Health in collaboration with Amplify Care (formerly eHealth Centre of Excellence) began broader work to develop standardized electronic referrals (eReferrals) including for all diagnostic imaging, as part of the provincial Patients Before Paperwork initiative.

While there are different perspectives on the idea of standardized referral forms and central intake, this reinforced the importance of the OMA exploring this issue with physician leadership to ensure that inevitable health system changes are informed by physician expertise. Our working group therefore pivoted to a nimble approach wherein we prioritized relationship building and ongoing engagement with these groups to establish ourselves as key partners and informants for this work. We shifted our timelines to align with the Ontario Health project, and ensured we developed our recommendations when we could inform their standardized eReferral development.

[1] Note, the working group name and mandate refers to diagnostic imaging requisitions, but the language used in this report is standardized referral forms (SRFs) to align with the terminology used by Ontario Health.

The working group's engagement with partners was thoughtfully planned and executed not only to influence the present work but to also build relationships for future efforts. With this approach, we were able to influence the Ontario Health strategy to include an open, member-wide consultation, and to have Amplify Care representatives join certain working group meetings. We also were able to obtain a dedicated presentation to Ontario Health and Amplify Care on our recommendations for their development of a standardized eReferral for diagnostic imaging. This report outlines the working group's activities and the resulting recommendations, including those that go beyond the current work of Ontario Health and Amplify Care. These include recommendations for referral modalities beyond eReferral, for central intake for diagnostic imaging, and for the OMA to maintain the relationships built with key system actors through this work. These recommendations were developed based on consultations with OMA sections, key evidence, discussions with system partners, and the diverse experiences and expertise of the members of the working group. They create a foundation for all work to come and allow space for effective implementation planning. Throughout this process, the HPP was kept closely informed and we maintained representation at nearly every working group meeting to ensure alignment and oversight. The recommendations were also shared with OntarioMD, who will be key in implementation efforts and related discussions at the OMA/OMD/MOH Digital Health Advisory Table (DHAT).

Our key recommendations are outlined below, with related sub-recommendations articulated in the full report:

- Be flexible and prioritize continuing relationships built with system partners – Ontario Health and Amplify Care – as their ongoing digital health initiatives will impact physicians.
- The OMA should continue engaging Ontario Health and Amplify Care and informing the development of standardized referral forms and establishment of central intake systems.
- Co-develop standardized referral forms with receiving and referring clinicians that work across paper, fax, and digital referral systems.
- Standardized referral forms should follow a uniform structure and be informed by referral form best practices to optimize intuitive use.
- Patient demographic questions should be asked in an inclusive way and limited to information that impacts provision of care.
- For eReferral, include clinical decision support and ensure forms are integrated with all verified EMRs and common HISs.
- Paper-based standardized referral forms must continue to be available.
- The implementation of standardized referral forms requires clear guidelines and education for all involved health care professionals.
- Central intake should be co-designed with referral sending and receiving physicians and other ordering clinicians.

Introduction

Issue

The OMA Priority and Leadership Group identified OMA members' need for standardized diagnostic imaging referral forms and diagnostic imaging central intake as a top priority. Ontario physicians are faced with increasing administrative burdens and operating costs and are at risk of burnout. These burdens are complex, but members expressed that inefficient referral systems and highly variable referral forms are significant contributors.

Inefficiencies and complexities in referral systems are multifactorial, including the complex structure and organization of Ontario's health care system, inconsistent referral guidelines,[2] and variable practice patterns. Referral systems involve many steps, starting from determining when a referral is appropriate through to completion of the specialist's management. Two major pain points that OMA members expressed are the variability in referral forms and the siloed referral systems that create barriers to facilitating patient care.

Referral forms are highly varied which places undue administrative burdens and cognitive loads on physicians and their staff. Importantly, Ontario family physicians are spending 19.1 hours per week on administrative tasks.[3] Inefficiencies that increase these burdens are well known to increase the risk of burnout and increase operating costs.[4] With over 2.5 million Ontarians without a family physician, addressing these issues is increasingly important.[5] This variability is likely secondary to poor guidance on what referral information is necessary for high quality referrals and individual practice patterns.[6] The purpose of creating referral forms is to improve referral quality;[7] however, many health care organizations and clinicians have created their own forms that address their unique workflows, data needs, and eligibility criteria. This has resulted in many different digital and paper referral forms currently in use.

---

[2] Doherty M, Thom B, Gardner DS. Administrative Burden Associated with Cost-Related Delays in Care in U.S. Cancer Patients. Cancer Epidemiol Biomarkers Prev. 2023 Nov 1;32(11):1583-1590. doi: 10.1158/1055-9965.EPI-23-0119. PMID: 37644659.

[3] Ontario College of Family Physicians. 2023, May 17. Family Medicine: A Profession in Crisis. https://ontariofamilyphysicians.ca/wp-content/uploads/2023/09/family-medicine-a-profession-in-crisis_ocfp-report.pdf

[4] Doherty M, Thom B, Gardner DS. Administrative Burden Associated with Cost-Related Delays in Care in U.S. Cancer Patients. Cancer Epidemiol Biomarkers Prev. 2023 Nov 1;32(11):1583-1590. doi: 10.1158/1055-9965.EPI-23-0119. PMID: 37644659.

[5] Ontario Medical Association. 2024. Stop the Crisis. https://www.oma.org/advocacy/stop-the-crisis

[6] Laing S, Jarmain S, Elliott J, Dang J, Gylfadottir V, Wierts K, Nair V. Codesigned standardised referral form: simplifying the complexity. BMJ Health Care Inform. 2024 Jun 19;31(1):e100926. doi: 10.1136/bmjhci-2023-100926. PMID: 38901862; PMCID: PMC11191734.

[7] Akbari A, Mayhew A, Al-Alawi MA, Grimshaw J, Winkens R, Glidewell E, Pritchard C, Thomas R, Fraser C. Interventions to improve outpatient referrals from primary care to secondary care. Cochrane Database Syst Rev. 2008 Oct 8;2008(4):CD005471. doi: 10.1002/14651858.CD005471.pub2. PMID: 18843691; PMCID: PMC4164370.

Referring physicians and their staff experience barriers to care delivery when requested referral data is excessive and/or answers are unavailable or incorrect, or when outdated referral forms were completed resulting in rejected referrals. Since each form is unique, referring physicians must cognitively recalibrate to each unique form's layout and data requests. While physicians' Electronic Medical Records (EMRs) and eReferral can facilitate the completion of referral forms, each paper or PDF form must be manually rebuilt to an integrated form or printed and completed by hand which takes significant time. Referral processes also significantly impact consulted physicians who receive referrals that are incomplete, contain insufficient information to adequately triage, or are inappropriate for their scope of practice or not necessary for the patient's clinical condition. Each of these results in declined referrals or additional cognitive burdens to understand the request and communication with the referring physician to clarify details. Additionally, incomplete and poor-quality referrals increase the risk of patient harm and decreased quality of care through delays or inappropriate investigations and treatments.[8]

Beyond the referral forms themselves, most family doctors cannot easily refer their patients to the appropriate specialist with the shortest wait time in their area, which can mean longer wait times for patients. The referral process is overly complicated, with issues for the patient, referring physicians, and receiving physicians. For patients, the current process involves unnecessarily long lead times even before being put on a specialist's waitlist, which may delay care, allowing their health condition to worsen and cause undue stress on patient mental health. This process can be more difficult, or even impossible for those without a primary care clinician. For referring physicians, the current referral process often requires manual searching, navigation, back-and-forth communication, completion of unique referral forms, and referral to multiple specialists to ensure patients receive appropriate specialist care. For receiving physicians, they must manage the burden of reviewing and rejecting inappropriate referrals, potentially reducing their capacity to provide patient care. Additionally, the current referral system has been identified as a contributor to gender bias in referral patterns.

As a result of these challenges, an idea was put forward for the PLG to explore standardized referral forms and central intake for diagnostic imaging, and this idea was voted on by PLG members as the highest priority idea for the Health Policy Panel.

[8] Mathias H, Heisler C, Morrison J, Jones J. A Retrospective Evaluation of the Quality of Referrals to IBD Specialist Care and Its Influence on Patient Outcomes: P-063. American Journal of Gastroenterology 113():p S15, February 2018.

Mandate

The mandate of this working group was to develop high-quality recommendations to inform the development of a standardized referral form that could be deployed provincially for ordering diagnostic imaging tests, focusing on radiology imaging, excluding MRI and CT.[9]

Specifically, the mandate of the Centralized Requisitions for Diagnostic Imaging working group was three-fold:

1. Define data elements for a standardized diagnostic imaging referral form that provide sufficient clinical information for the receiving radiology service to understand the request and the nuances necessary to triage, schedule and book the appropriate appointment. Consider common-free text options that could be incorporated into standardized fields such as check boxes or drop-down menus.
2. Develop high-quality recommendations to inform the handling of centralized ordering of diagnostic imaging tests where central intakes currently exist and as they are developed regionally under the Patients Before Paperwork team.
3. Consider data elements that could and should pull and then feed into an electronic workflow to eliminate duplication of data entry and its inherent risk for transcription error, and to support any number of data collection purposes that can inform population health management.

Objectives

The objective of this work is to provide tangible and actionable recommendations to the OMA Board of Directors relating to diagnostic imaging referral form standardization and central intakes. The working group ensured that the recommendations were well informed by the OMA section chairs, the literature, and leaders within Ontario's health care system. The recommendations provided in this report are intended to provide tangible and actionable key recommendations within several domains. There are additional recommendations for each domain, which were identified through consultation as important points to consider when implementing these recommendations or to provide additional context. Overall, these recommendations aim to improve the diagnostic imaging referral process for the benefit of referring physicians, receiving physicians, patients and the health care system.

[9] The original working group name and mandate described centralized requisitions for diagnostic imaging. However, based on discussion with the Health Policy Panel, the mandate was later clarified to focus on standardized requisitions for ordering diagnostic imaging. Standardized is a more accurate term, as a standardized referral form is an enabler and foundational element of any centralized triage systems.

Note, the working group name and mandate refers to diagnostic imaging requisitions, but the language used in this report is standardized referral forms (SRFs) to align with the terminology used by Ontario Health (OH).

Opportunity and Health System Context

SRFs can achieve several benefits. For receiving physicians, referrals would be more accurate and complete, reducing or eliminating back-and-forth communication, scheduling delays, and unnecessary or inappropriate imaging tests. For referring physicians, a standardized form would reduce the time spent on completing referral forms by reducing the cognitive load of completing a standardized and user-friendly referral form. For patients, SRFs could improve timely access to diagnostic imaging since complete referrals do not require follow up or clarification before booking. Ultimately, transitioning to SRFs may lessen some of the administrative burdens, increasing physicians' capacity for patient care and improving physician and their staff members' experiences.

Implementation of SRFs will also facilitate the establishment of central intakes (CI) since creation of an agreed-upon referral form across all participating specialists is a crucial step in CI development. Central intakes have numerous benefits including decreasing wait times by simplifying the referral process on both the sender and receiver sides, reducing administrative burden for physicians, level loading across appropriately trained specialists, which then helps to address gender bias in referral patterns, and supports the maximization of health system capacity.

Through this work, the working group identified that multiple organizations were already working toward both SRFs and CI. The Ministry of Health, OH's Patients Before Paperwork initiative, and Amplify Care[10] have been collaborating in this work since at least 2021. At inception of this working group, OH had nearly finished development of a SRF for MRI and CT referrals. This led the working group to focus its mandate on non-MRI and CT diagnostic imaging modalities including x-ray, ultrasound, mammogram, bone densitometry. However, the scope of Ontario Health's SRF has evolved and now includes all diagnostic imaging modalities, but specifically only for eReferral modalities. Since completion of this report will be after Ontario Health has finalized the diagnostic imaging standardized eReferral form, this working group took the opportunity to leverage our expertise, connect into the Ontario Health work, and provide input on the form. Additionally, Ontario Health has been creating SRFs for many specialties. The Working Group advocated for broad clinical review by all physicians in Ontario and connected Ontario Health with OMA staff to facilitate an OMA member-wide consultation process. The recommendations in the report informed the advice given to Ontario Health about the SRF and to inform future SRF work the OMA may undertake. Ontario Health is creating SRFs for many specialties in phases and plans to iterate

[10] Amplify Care is a not-for-profit organization that assists clinicians, healthcare organizations, and Ontario Health Teams across Ontario with the meaningful and sustainable adoption of digital health tools.

on existing forms post-implementation for quality improvement. Relatedly, OntarioMD has also been working with the province on eForms integrated with EMRs, and their experience and expertise will be important as the OMA works towards implementation efforts.

Working Group Establishment

The "Centralized lab requisitions for imaging and bloodwork" priority was approved by the OMA Board of Directors on June 22, 2022, following which the HPP defined the mandate, objectives and requirements for a working group considering the work underway with the Ontario Health and the OMA Forms Committee. Working group members were recruited through an open call to all OMA members over four weeks, and over 90 applications were received. All applications were reviewed and evaluated using a skills matrix by OMA staff and panel chairs. Working group member selection was intentionally designed to include both referring and receiving physicians with a broad range of expertise and experiences. An ex-officio position for a physician member of the OMA Forms Committee was included to ensure alignment with and leverage the expertise of the committee. Working group membership was finalized and approved by the OMA Nominations and Appointments Committee in 2023, and the working group began meeting in early 2024.

Methods

The working group members collaborated on the engagement, interpretation, and recommendations provided here.

The working group engaged health system partners, consulted OMA section chairs, reviewed examples of existing SRFs,[11] and reviewed select academic and grey literature related to SRFs, including the OMA Forms Committee's Guiding Principles and Criteria for Form Review Checklist. Those engaged were Ontario Health, Amplify Care, the OH West Standardized MRI/CT Requisition Working Group, and Accreditation Canada. OMA sections were consulted initially to understand each section's needs related to a diagnostic imaging SRF and central intake. The findings were used to develop the recommendations in this report. The second round of consultations was to seek feedback and validate the recommendations, ensuring that we adequately understood the needs and balanced conflicting views. Given the broad applicability of diagnostic imaging SRFs and central intake, the working group engaged the OMA sections that send the highest volume of diagnostic imaging referrals. The following sections responded and were engaged: Diagnostic Imaging, General and Family Practice, Urology, Rheumatology, Vascular Surgery, and Medical Oncology. We reached out to additional sections with high volumes of diagnostic referrals that we did not hear back from. Engagement questions for these consultations can be found in Appendix B.

[11] Waterloo Wellington Region Standardized X-Ray & Ultrasound Requisition; OH West Draft Standard MRI & CT Requisition

The Diagnostic Network was engaged post-consultation period as it was formed after the working group's work had been completed.

Engagement with Ontario Health and Amplify Care was done to understand the work that was already completed or underway. Amplify Care had already completed a comprehensive review of all available, clinically used, Ontario-based, eReferral diagnostic imaging referral forms. The Amplify Care review included a summary of all the data fields present on these diagnostic imaging forms. Amplify Care was also exploring how these referral forms could be integrated to point of care systems (EMRs and Hospital Information Systems (HISs)) to reduce and ideally eliminate duplicate data entry. At the time of writing, Amplify Care and Ontario Health under the Patients Before Paperwork initiative were actively developing SRFs for many specialities across several phases. Working group members met approximately every two months to review the data collected from our consultations, define recommendations, and generate this report.

Recommendations

The following recommendations are divided into themed categories based on the input that we received for improved clarity. Each section highlights a key recommendation as well as sub-recommendations. The key recommendations were identified by the working group as the most pertinent for the OMA board to consider. The sub-recommendations were identified as important to consider, but less impactful or important than the key recommendation. The mandate of this working group was specifically diagnostic imaging referral forms, but the working group feels that many of these recommendations also apply to referral forms in general.

Communication and Engagement with System Partners

Key Recommendation: Be flexible and prioritize continuing relationships built with system partners – Ontario Health and Amplify Care – as their ongoing digital health initiatives will impact physicians.

One of the most important outcomes of this working group was the collaborative relationships built through this work. Ontario Health and Amplify Care are undertaking multiple initiatives to improve

Sub-Recommendations:

- Proactively empower OMA section chairs to engage in OMA initiatives.
- Develop an engagement strategy for Ontario Health initiatives that ensures appropriate OMA sections are adequately represented.
- Leverage OMA connections to ensure initiatives reflect the diversity of physicians and practice types.
- Continue listening to OMA members to shape and support OMA priorities.

the health care system processes, workflows, and implement new digital technologies. We found that these initiatives are progressing quickly, including changes to referral pathways, referral forms, and development of central intakes. Accordingly, it is crucial that the OMA be nimble and flexible to respond to upcoming initiatives and engage early to ensure the OMA plays a meaningful role in guiding future developments. It is also important that OntarioMD's expertise is leveraged, such as through OMD peer leaders, and that related work is aligned with early and on-going engagement.

During our work, we approached the OMA sections that send the highest volume of diagnostic imaging referrals. However, we were only able to successfully engage six sections, which was fewer than intended. We received excellent insight from the OMA sections that were engaged but recognize that these six sections do not adequately represent all specialties and may have biased our recommendations. Despite this challenge, we connected the OMA with Ontario Health and Amplify Care to advertise an open clinical review on all their SRFs. The intention was to ensure that many OMA members were engaged in providing feedback on the SRFs that were being developed. It would be valuable if additional relevant sections could be engaged and any barriers to engagement addressed for future additional work.

Standardized Referral Forms

> **Key Recommendation: The OMA should continue engaging Ontario Health and Amplify Care and informing the development of standardized referral forms and establishment of central intake systems.**

Both Ontario Health and Amplify Care are actively developing SRFs for many specialties in phases. There will also be quality improvement cycles to further refine the forms post-implementation. This provides an opportunity for the OMA to help establish clear governance and decision-making processes relating to SRFs, ensuring appropriate physician representation and input. We have provided input into diagnostic imaging SRFs, but early collaboration on other SRFs will help build these collaborative relationships, improve OMA credibility as a valuable health system partner, and influence these fast-moving initiatives.

Referral Development Process

Key Recommendation: Co-develop standardized referral forms with receiving and referring clinicians that work across paper, fax, and digital referral systems.

Co-development has previously demonstrated positive outcomes in Ontario,[12,13,14] and the working group overwhelmingly heard that paper, fax, and digital referral systems must all be accounted for. Currently, referrals are sent by paper, by fax, and digitally, which is dependent upon both the referring and receiving clinicians' technological capabilities. There are still regions without reliable access to the internet or digital referral systems, so SRFs must be created for clinicians using paper and fax. This includes creation of SRFs that integrate into OntarioMD-certified EMRs that facilitate form completion, and PDF versions for paper-based health care settings. OntarioMD can also support implementation for their insights into digital workflows and EMRs. SRFs also need to be tailored to each of these modalities, as formatting, design, and structural approaches often do not translate to ideal usability between different modalities.

Sub-Recommendations:

- Include a full range of physicians in the SRF development process, not just digitally savvy/experts.
- Include all health care professionals and workers that interact with referral forms in the SRF development process.

We heard in our consultations that digital expert physicians add significant value to SRF development and other digital health initiatives. However, we also heard it is important to include average and less digitally savvy physicians in these initiatives to ensure that practical aspects of a typical physician's workflow are accounted for. As well, many health care professionals and staff interact with referral forms beyond physicians. In the context of diagnostic imaging, this includes nurse practitioners, physician assistants, nurses, technologists, and administrators among others. Including input from non-physicians will help optimize the effectiveness and usability in real world settings.

[12] Laing S, Jarmain S, Elliott J, et al. Codesigned standardised referral form: simplifying the complexity. BMJ Health Care Inform 2024;*31*:e100926. doi:10.1136/ bmjhci-2023-100926

[13] Halvorsrud K, Kucharska J, Adlington K, Rüdell K, Brown Hajdukova E, Nazroo J, Haarmans M, Rhodes J, Bhui K. Identifying evidence of effectiveness in the co-creation of research: a systematic review and meta-analysis of the international healthcare literature. J Public Health (Oxf). 2021 Apr 12;43(1):197-208. doi: 10.1093/pubmed/fdz126. PMID: 31608396; PMCID: PMC8042368.

[14] Sumner, J, Ng, CWT, Teo, KEL, et al. Co-designing care for multimorbidity: a systematic review. BMC Med 22, 58 (2024). https://doi.org/10.1186/s12916-024-03263-9

Referral Content and Organization

Key Recommendation: Standardized referral forms should follow a uniform structure and be informed by referral form best practices to optimize intuitive use.

Amplify Care and Ontario Health have developed referral form best practices documentation to guide SRFs development.[15] These best practices define design principles that prioritize user experience, referral quality, and minimize administrative burdens. It includes guidance on the organization, structure, phrasing, and appropriate content for SRFs. The best practices also include guidance to limit extensive referral forms that request information that may not be available to the referring clinician, do not impact triage decisions, or are best collected directly from patients. Following consistent formatting is anticipated to reduce cognitive burdens as referring clinicians become accustomed to the layouts, facilitating easier and faster referral form completion. This consistency is also expected to reduce confusion and errors for both referring and receiving clinicians. Formatting SRFs according to user experience design principles will intuitively lead users through the form, limit clutter, direct attention to important areas, and limit attention to the least important information. We heard that clinicians do not benefit from excessive questionnaires, intrusive references to clinical decision support or clinical best practices, and other superfluous information.

Sub-Recommendations:

- Ensure sufficient space to capture narrative history and clinical information.
- Use a standard, clear date format on all referrals and referrals.
- Be consistent in the directionality of "Yes/No" question responses with "Yes" indicating something of clinical value or importance; for multiple "Yes/No" questions, include an option for "none of the above" and the phrasing should be logical with a "none of the above" statement.
- Order options in a logical way, including from most commonly to least commonly applicable where appropriate; in order from most to least severe for screening questions; and in order from head to toe for body parts, but note that referrals should not list hyper-specific options for body parts.
- Use discrete fields as much as possible and use open text boxes for complex instructions and clarification where needed.
- Define standard definitions of urgency and timeframes.
- Include as many modalities as possible on one form as long as supports and resources are in place to determine where tests should be performed.

[15] Laing S, Jarmain S, Elliott J, Dang J, Gylfadottir V, Wierts K, Nair V. Codesigned standardised referral form: simplifying the complexity: BMJ Health & Care Informatics 2024;31:e100926.

We heard in our consultations that clinicians do not want referral forms built solely around checkboxes and drop downs. Radiologists, technologists, and administrative staff need concise but sufficiently detailed histories to facilitate appropriate triage to the correct imaging modality and scheduling timeframe. However, not all details can be captured in this way. Accordingly, referring clinicians must be able to describe the nuance of the situation through free-text fields to ensure the testing performed and scheduling timelines are appropriate. Without this information referrals are sometimes inappropriately triaged to the wrong test, patients wait too long, and radiologists are uncertain of the clinical issue to comment on.

Inconsistent date formatting causes confusion, cognitive burdens, and can contribute to medical errors. We heard that OMA members want all forms to follow a standard, such as the Canadian Standards on Date Formatting (YYYY-MM-DD). Following these standards will help ensure consistency across all forms and limit confusion.

Concerns were also raised about lists of “Yes/No” style questions and inconsistent phrasing. Specifically, switching the implication of a Yes or No options can lead to confusion, errors, and cognitive burdens. These types of questions should be phrased consistently so that selecting a “Yes” answer is identifying something of clinical importance. Additionally, the phrasing must align with the other questions within the list to avoid switching the meaning of responses. Specific use cases include CT and MRI safety screening, where a “Yes” response should affirm there is something clinically meaningful that requires radiologist or technologist attention. In this context, if no safety risks are present, then "No” should be selected for all responses to reduce the cognitive burdens associated with answering such questions and minimize errors.

Regarding the organization of options in drop down menus or lists, it is important to consider the context to determine the organization. The options should be organized in a logical way, which may not be alphabetical order. In the context of diagnostic imaging, this may mean organizing body parts from head to toe. When options are organized alphabetically, each option should be thoughtfully defined to ensure the first word is meaningful to facilitate selection. An example of this may be "Pain – Acute" instead of “Acute Pain”. Following this styling consistently can improve efficiency and reduce cognitive load of moving through a form

Members also identified the value of discrete fields for common options which can facilitate form completion and maximize the consistency of information collection. The consistency can help receiving staff and physicians quickly understand a request, while enabling limited options for open text boxes as needed helps to explain nuanced instructions. In the context of diagnostic imaging SRFs, a check box for “Chest X-Ray" is helpful to compare to only a free-text area where responses may be highly variable and require interpretation.

Through this work we also identified that the definitions of “urgency” is not well defined. We universally heard and the CPSO policies state that conveying urgency is important for clinical

context. However, there needs to be better agreement upon the definitions of referral urgency that is appropriate for the clinical context and relevant clinical standards. SRFs should also enable referring clinicians to specify why a referral is considered urgent to facilitate appropriate triaging of appointments. We anticipate that the definition of urgency will vary across different clinical indications, and integration of clinical decision support tools may facilitate this understanding.

Finally, if possible inclusion of multiple imaging modalities on one form can help streamline requests. When there is a unique form for each modality type, referring clinicians find this increases their administrative burdens, particularly when requesting multiple imaging modalities. However, consolidating modalities to a single form should not hinder referral triage. Additionally, patient are often responsible for contacting diagnostic imaging facilities to schedule their appointments, which could lead to confusion as not all facilities have the technological capacity to complete all possible diagnostic imaging tests. This may necessitate creation of resources for patients to help direct them to the appropriate clinics for testing, like the Ontario Health Mammogram Wait Time tool.[16]

Patient Details

Key Recommendation: Patient demographic questions should be asked in an inclusive way and limited to information that impacts provision of care.

We heard concerns about the level of detail of demographic questions on some referral forms. The purpose of collecting demographic information should be to facilitate inclusive and accessible care, however, there are concerns about patient privacy or discrimination when referral forms ask for too much detail. We recommend minimizing the collection of demographic data to that which is necessary for inclusive care delivery.

Sub-Recommendations:

- Align patient demographic questions with the provincial guideline on sociodemographic data collection and use
- Provide inclusive gender options and asking for preferred pronouns so the receiving clinic can use them
    - Preferred pronouns being used in a medical setting has a significant impact on the well-being of patients[1]
- Ask about patient language spoken and if an interpreter is required
- Ask patients' consent to be contacted electronically for scheduling and information sharing purposes where possible

Whenever possible, demographic information requested should align with the Ontario Health guidelines on sociodemographic data collection and use. These guidelines have been developed through collaboration with equity deserving populations. Through our consultations we understand

[16] https://www.ontariohealth.ca/system/reporting/wait-times

the need and value in correctly gendering individuals, as this can have a significant impact on health outcomes. Gender is an example of an appropriate demographic question to include on referral forms, however recognizing this should be an option field that is only completed when the context is appropriate to limit administrative burdens. Language spoken and the need for an interpreter is also very important and has implications from initial contact to booking through to completion of the requested testing. Communicating with patients in their preferred language helps reduce health system waste as patients are more likely to show up to their appointments and understand direction the day of their imaging. It is also important where possible to align these questions with how they can most seamlessly align with EMR formatting.

Digital-specific Factors

Key Recommendation: For eReferral, include clinical decision support and ensure forms are integrated with all verified EMRs and common HISs.

The ability to include clinical decision support in the form itself or in links to resources is a key and unique benefit of digital eReferral forms. Clinical decision support related to diagnostic imaging referrals should be based on the Canadian Association of Radiologists guidelines. As eReferral systems are still spreading, it is important that non-eReferral digital options be integrated and fully functional in HISs and EMRs, which should be implemented in collaboration with OntarioMD.

Sub-Recommendations:

- Ensure clinical decision support is not obtrusive and that it does not need to be clicked through or reviewed to move through the pathway.
- Use collapsible drop-down menus.
- Minimize “hard stops”, wherein access to certain questions is blocked based on the answer to another.
- Avoid additional requirements beyond those of paper-based forms.
- Continue to work with Ontario Health and the Ministry of Health to create centralized systems for form hosting, version control, updates, quality improvement, and user support to ensure long-term functionality.

Clinical decision support is a helpful resource, but it will not need to be viewed every time the referral is used so it should leverage digital formatting mechanisms (e.g., hovering to view) so that it does not add unnecessary clicks or take up space and make a referral more cumbersome. Similarly for collapsible menus, digital form formatting opportunities like these can help keep the form simple and minimize clicks and clutter.

However such digital formatting and structural opportunities should be utilized only when helpful; “hard stops” based on specific responses can create unnecessary barriers to providing useful information. For example, checking “no” to a patient being pregnant should not bar access to certain other questions as the patient may become pregnant while awaiting the test.

As well, in digital modalities the lack of page boundaries and the ability to collapse options and use other digital formatting mechanisms has, in the past, led to over-inclusive requirements in some digital forms, thereby undermining the benefit of the digital modality. Digital forms should be viewed as an opportunity to streamline the paper-based experience rather than match it with additional requirements.

Finally, a centralized form-hosting system should include creation of EMR-integrated digital forms until electronic referral adoption is much higher, and this should include OntarioMD as they are already involved in such work for certain forms.

Paper-specific Factors

Key Recommendation: Paper-based standardized referral forms must continue to be available.

While digital modalities create streamlining and integration opportunities, paper-based options must continue to be available to recognize the different capacities and resources for different settings, such as limitations in rural and Northern environments.

Sub-Recommendations:

- Have simple and straightforward formatting.
- Limit paper forms to one-page where possible.
- Have a transition period of acceptance when new form changes are introduced.
- Avoid including instructions for patients on the referral itself.

When developing a paper-based SRF, boxes and options cannot be collapsed on a paper form like they can on a digital form, so paper-based forms must be tailored rather than copying all the elements and formatting of digital forms. Mindful also of the realities of paper forms, readability (e.g., font size, spacing) and inclusion of necessary information must take priority but as feasible limiting SRFs to one page creates a streamlined approach.

When changes are made to paper-based SRFs, the copies being used can take time to replace. Form changes are also often incremental, so old forms should continue to be accepted for a period of time so that referrals are not rejected for minor form variations and patients can continue to receive timely care.

As well, particularly with standardized forms, site specific instructions cannot be embedded in the form so to ensure patients receive accurate clinic-specific information, it should come from the receiving clinic to the patient at the time of booking. But to ensure patients receive timely and useful information, there should be a mechanism for multi-channel communications, informed by Patient and Family Advisory Council engagement processes.

Implementation

Key Recommendation: The implementation of standardized referral forms requires clear guidelines and education for all involved health care professionals.

Evidence has shown that once a standardized referral form is developed, simply distributing it will not support implementation success. Education is necessary to achieve positive uptake.[17] In particular, specific education on definitions of urgency is needed to ensure senders are conveying urgency consistently and that urgency is based on clinical appropriateness.

Sub-Recommendations:

- Institutional buy-in must be secured to ensure standardized forms are accepted and implemented across care settings.
- Communication of impending changes with sufficient advance notice and utilization of multiple communication channels to reach form users.
- Aligned implementation timing within the system context, ensuring there are not multiple changes being undertaken and implemented at overlapping times.
- Provision of transition periods with a change management approach so that new changes take effect gradually and there is time and support to learn new processes.

Implementation and change management approaches overall need to be considered and informed by all relevant health care professionals and workers involved in the use of SRFs to achieve successful implementation. This involves the settings using SRFs, clearly and sufficiently communicating changes, planning implementation with an eye to the system context and other on-going initiatives, and providing transition periods that allow for evaluation processes and iterative approaches to address unintended outcomes.

[17] Akbari A, Mayhew A, Al-Alawi MA, Grimshaw J, Winkens R, Glidewell E, Pritchard C, Thomas R, Fraser C. Interventions to improve outpatient referrals from primary care to secondary care. Cochrane Database of Systematic Reviews 2008, Issue 4. Art. No.: CD005471. DOI: 10.1002/14651858.CD005471.pub2

Central Intake

Key Recommendation: Central intake should be co-designed with referral sending and receiving physicians and other ordering clinicians.

Standardized referral forms, in addition to the aforementioned benefits, are also an essential building block for a central intake system to further reduce wait times for patients and decrease burdens experienced by referring and receiving physicians.

Sub-Recommendations:

- Central intake planning should take a patient-centred approach and be developed through a health equity lens
- Central intake priorities should focus on those with the longest wait times (i.e., not x-ray and ultrasound in the short-term).
- A directory is needed to support patients and clinicians navigating service access.
- A mechanism for patient and clinician preference must be maintained.
- A central intake system should have latitude to respect the referrer-receiver relationship while ensuring the intentions of the system are not undermined.
- Clinical decision support guidelines should be utilized by central intakes and referenced if a referral is received that does not meet the guideline.
- New systems and approaches should leverage learnings from existing systems within other specialties while considering what is unique about diagnostic imaging.

This working group is aware of the Patients Before Paperwork initiative already underway to develop a central intake system in Ontario and appreciates the necessity of standardized referral forms for an effective and efficient central intake. Building on the first recommendation to the OMA, while some members expressed concern about central intake, work is nonetheless happening within the province to move this forward. The OMA will need to continue its engagement with Ontario Health on central intake to ensure it works well for members. Physicians must be meaningfully engaged in this work with the same principles as outlined for SRFs – a range of digital expertise, a range of central intake familiarity, and representation from all those that will need to use and be impacted by central intake systems. The working group was able to undertake early engagement with referring and receiving physicians on central intake, which yielded the sub-recommendations to address certain potential challenges, but further additional engagement and co-development is necessary. Furthermore, it will be crucial to plan for outcome and impact evaluation processes from the outset to identify and address unintended consequences of these systems.

Conclusions

As Ontario Health advanced their work on standardized referral forms and central intake, this working group had to take a flexible approach that focused on relationship-building and ensuring we created a role for ourselves as key partners. Despite shifting timelines, we put significant effort into member consultations, thoughtful review of the various perspectives and evidence, and consensus-building to make recommendations to benefit both referring and receiving clinicians, which we were able to already advocate on to Ontario Health.

As a result, in meeting its mandate this working group not only was able to influence on-going provincial strategies, but also demonstrated the value in bringing together physicians and partners from different areas of the health system to co-develop solutions that can actually work for all. Maintaining engagement and alignment with Ontario Health and highlighting the benefits and successes of co-development will be key as the OMA advocates on behalf of all physicians in the continually changing referral landscape.

Appendix A: Work Plan

Month	Activity
Working Group Meeting: January 31, 2024	
January	• Kick-off, orientation, mandate review and clarification with panel
Working Group Meeting: June 14, 2024	
June	• Developed consultation plan (note: administrative disruption following January meeting and scheduling conflicts delayed second meeting)
July	• Consult with Ontario Health West • Consult with Diagnostic Imaging
Working Group Meeting: August 27, 2024	
August	• Review existing regionally standardized forms/drafts
September	• Consult with Ontario Health Central Intake/Standardized Forms project leads and eHealth Centre of Excellence • Collate recommendations from August meeting and start early components of report
Working Group Meeting: October 25, 2024	
October	• Working Group review preliminary recommendations • Continue consultation • Continue engagement with OH/eCE • Report to panel
Working Group Meeting: December 13, 2024	
December	• Consultation with sections
January	• Continue drafting report • Check in with panel
Working Group Meeting: February 21, 2025	
February	• Review consultation findings and advise • Review early draft recommendations
March	• Develop full draft of report
Working Group Meeting: April 8, 2025	
April	• Full review of recommendations
Working Group Meeting with Ontario Health: May 16, 2025	
May	• Discussion with OH and eCE on provincial draft DI eReferral • Second phase of consultation to validate recommendations with sections
June	• Continue consultations
Working Group Meeting: July 29, 2025	
July	• Implement consultation findings • Finalize recommendations
August	• Report finalization • Preparation for board
September	• Presentation to board

Appendix B: Consultation Questions

The below questions were asked to each specialty section consulted:

1. Standardization of DI referral forms
    a. How do you feel about a standardized DI referral form?
    b. How would a standardized DI referral form impact your work?
    c. What barriers would you face when using a standardized DI referral form?
        i. What would help alleviate those barriers?
    d. What must a standardized DI referral form do to be effective for you?
2. Central intake for DI referrals
    a. How would you feel about a central intake for DI referrals?
    b. How would a central intake for DI impact your work?
    c. What barriers would you face when using a DI central intake?
        i. What would help alleviate those barriers?
    d. What must a DI central intake do to be effective for you?