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Clinical Perspectives

Improving the use of patient-reported outcomes among patients receiving radiation therapy during the COVID-19 pandemic

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ABSTRACT

Introduction: The use of Patient-Reported Outcomes (PROs) is an important part of care for patients receiving radiation therapy. Established processes for patients to complete symptom screening using PROs were disrupted by the COVID-19 pandemic. This study reports the implementation of a Radiation Therapist led "champion" model to support the use of PROs during the COVID-19 pandemic.

Methods: Patient charts were audited May 3 to May 22, 2020 to measure the initial impact of the pandemic on weekly completion rates of PROs for patients receiving active radiation treatment. Beginning May 25, 2020, two Radiation Therapists acted as champions to promote the use of PROs among patients and staff. Weekly completion rates of PROs were monitored from May 25, 2020 to May 28, 2021. The type of Patient Reported Outcome Measure (PROM) utilized and treatment intent was also recorded.

Results: After implementing the champion model, the weekly completion of PROs increased to an average of 47.0 ± 11.7 (47.5 ± 12.6%) from the initial baseline average of 8.7 ± 1.5 (9.4 ± 2.1%). For PROs completed, the distribution of PROMs was an average of 37.2 ± 9.6 (47.7 ± 12.7%) and 9.8 ± 3.5 (47.0 ± 16.9%) for the Revised Edmonton Symptom Assessment Scale (ESAS-r) and the Expanded Prostate Cancer Index Composite (EPIC) respectively. An average of 5.1 ± 2.9 (26.3 ± 12.7%) and 41.9 ± 10.1 (52.4 ± 14.1%) was recorded for palliative and curative intent respectively.

Discussion: An increased number of PROs were completed after implementing the Radiation Therapist led champion model. Patients receiving a radical course of treatment more frequently completed PROs, which in part reflects the longer treatment courses with increased opportunity for PROs to be completed.

Conclusion: The Radiation Therapist led champion model supported ongoing monitoring and completion of PROs during the COVID-19 pandemic and has now been integrated into the department's standard clinical practice.

RÉSUMÉ

Introduction: L'utilisation des résultats rapportés par les patients (RRP) est un élément important des soins prodigués aux patients recevant une radiothérapie. Les processus établis pour que les patients effectuent un dépistage des symptômes à l'aide des RRP ont été perturbés par la pandémie de COVID-19. Cette étude rapporte la mise en œuvre d'un modèle de « champion » dirigé par un radiothérapeute pour soutenir l'utilisation des RRP pendant la pandémie de COVID-19.

Méthodologie: Les dossiers des patients ont été audités du 3 mai au 22 mai 2020 pour mesurer l'impact initial de la pandémie sur les taux de remplissage hebdomadaire des RRP pour les patients recevant un traitement actif par radiothérapie. À partir du 25 mai 2020, deux radiothérapeutes ont joué le rôle de champions pour promouvoir l'utilisation de RRP parmi les patients et le personnel. Les taux d'achèvement hebdomadaires des RRP ont été suivis du 25 mai 2020 au 28 mai 2021. Le type de mesure des résultats rapportés par les patients (MRRP) utilisé et l'intention de traitement ont également été enregistrés.

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Résultats: Après la mise en œuvre du modèle de champion, la réalisation hebdomadaire des RRP a augmenté pour atteindre une moyenne de 47,0 ± 11,7 (47,5 ± 12,6 %) par rapport à la moyenne initiale de base de 8,7 ± 1,5 (9,4 ± 2,1 %). En ce qui concerne les RRP complétés, la distribution des MRRP était en moyenne de 37,2 ± 9,6 (47,7 ± 12,7 %) et de 9,8 ± 3,5 (47,0 ± 16,9 %) pour l'échelle révisée d'évaluation des symptômes d'Edmonton (ESAS-r) et l'indice composite élargi du cancer de la prostate (EPIC) respectivement. Une moyenne de 5,1 ± 2,9 (26,3 ± 12,7 %) et 41,9 ± 10,1 (52,4 ± 14,1 %) a été enregistrée pour l'intention palliative et curative respectivement.

Discussion: Un nombre plus élevé de RRP a été rempli après la mise en œuvre du modèle de champion dirigé par le radiothérapeute. Les patients recevant un traitement radical ont plus souvent rempli les RRP, ce qui reflète en partie le fait que les traitements sont plus longs et offrent plus de possibilités de remplir les RRP.

Conclusion: Le modèle de champion dirigé par le radiothérapeute a permis de surveiller et de remplir les RRP pendant la pandémie de COVID-19 et a maintenant été intégré dans la pratique clinique standard du service.

Keywords: Radiation therapy; Patient reported outcomes

Introduction

Patient-reported outcomes (PROs) are reports of a patient's health status from the patient's perspective [1]. PROs are determined using patient-reported outcome measures (PROMs) in the form of questionnaires, which are completed by patients [1]. The questionnaire can cover several aspects related to the patient's health status and help communicate to the healthcare team how a patient is feeling [1,2]. PROMs are important tools to optimize patient-clinician communication and guide clinical interventions [3,4]. Routine patient symptom screening using PROs have been shown to improve patient-provider communication, symptom management, and overall patient satisfaction with care [1,3,5–7].

PROs have been integrated into the clinical practice at each of Ontario's Regional Cancer Centres to track and manage cancer symptoms using the Revised Edmonton Symptom Assessment Scale (ESAS-r) and the Expanded Prostate Cancer Index Composite (EPIC), branded as Your Symptoms Matter (YSM) [2,8,9]. Patients are encouraged to complete YSM prior to starting treatment, during treatment, and after treatment is completed. All patients receiving treatment are asked to participate in reporting their outcomes. The majority of patients are asked to complete ESAS regardless of diagnosis or intent. The ESAS assesses cancer related symptoms including: anxiety, depression, drowsiness, appetite levels, nausea, pain, shortness of breath, tiredness, and well-being [2,10]. Patients with early-stage prostate cancer are prompted to answer the EPIC questionnaire, which includes a more comprehensive assessment of prostate cancer-related symptoms within the bowel, sexual function, urinary irritation, urinary obstruction and hormonal/vitality domains [2,11]. The Provincial target rate for symptom screening with YSM was set at 70 percent [12]. The rate of YSM completion is a key performance indicator for the Regional Cancer Centres in Ontario.

To improve symptom management prior to the COVID-19 pandemic, kiosks and tablets were implemented to allow for real-time reporting of symptoms directly to clinicians [8]. Patients reported their symptoms using touch screen kiosks and secure web-based applications, which then facilitated the PROs to be uploaded into the electronic medical record. Cancer Center volunteers also supported completion of YSM assessments by encouraging patients to complete YSM questionnaires. Patients were asked to complete YSM at least once per week to align with the patient's weekly treatment review appointment with the patient's Radiation Oncologist. Although Radiation Therapists complete weekly patient care assessments that address specific treatment related side effects, YSM is a tool to bring forward concerns from the patient perspective that may not be voiced otherwise.

The COVID-19 pandemic has had a significant impact on cancer care [13,14]. During the pandemic, the rate of YSM completion decreased due to the need to minimize the use of high touch surfaces, such as kiosks and tablets, and reduce the number of people in the Cancer Center, such as supporting volunteers. Patients with cancer were less likely to contact physicians, [15] which made PROMs increasingly important to enhance communication between patients and their care providers. During the pandemic, many patient review appointments with the Radiation Oncologist transitioned from in-person to virtual. However, the Radiation Therapists would see the patients each day for their treatment and could change the review appointment to an in-person appointment if needed. As PROs are an important tool to provide high quality of care for patients undergoing cancer treatment, it was important to implement strategies to improve the utilization of PROMs. This study reports the outcomes of a Radiation Therapist led champion model to improve the use of PROs among patients receiving radiation therapy treatment during the COVID-19 pandemic.

Methods

From May 3 to May 22, 2020, weekly reports were generated to establish the initial impact of the COVID-19 pandemic on YSM completion rates for patients receiving active radiation treatment. Reports were generated from the electronic medical record.

From May 25, 2020 to May 28, 2021, weekly reports were generated for YSM completion rates for patients receiving active radiation treatment. YSM completion data associated with

ESAS or EPIC category, as well as treatment intent was evaluated. Descriptive statistics were used to determine the proportions and frequency distributions.

The Radiation Therapist YSM champion model was implemented the week of May 25, 2020. Two Radiation Therapists performing radiation treatment delivery acted as YSM Champions to promote the importance of completing weekly YSM assessments among patients and staff. A typical baseline schedule for radiation therapy involved 14 Radiation Therapists working on 4 radiation treatment units. The YSM Champions generated weekly reports to flag any patients with incomplete assessments. Treatment unit Radiation Therapists were then encouraged by the YSM Champions to monitor YSM completion during weekly chart checks and to add reminders in any patient's charts who have not completed their assessment. For patients that reported a high score on their most recent YSM questionnaire, patient charts were flagged for the treatment unit staff to have a discussion with the patient. The electronic medical record was configured so the YSM scores were prominently displayed when the patient's chart was opened for radiation therapy treatment. The YSM scores then guided the conversation between the Radiation Therapists and the patient. This is performed for all patients and not limited to patients that report a high score. Many YSM scores could be directly addressed by the Radiation Therapists and would not require further referral. However, Radiation Therapists could refer to another healthcare provider if required, such as psychosocial care, dietitians, and/or social work should the patient wish to seek further resources or guidance.

During the COVID-19 pandemic, patients were encouraged to complete their YSM assessment online via the secure Ontario Health-Cancer Care Ontario (OH–CCO) website. Patients were provided with OH–CCO information sheets, which linked to the YSM website at their initial CT simulation appointment to gather a pre-radiation therapy baseline symptom assessment. Baseline symptom assessment documentation is important even for patients with low symptom burden, as patients may experience concerns in the future [16]. Radiation Therapists at the treatment unit reminded patients to complete their weekly YSM questionnaire as a part of the first day patient education. Patients would be given the OH–CCO information sheet again if they stated they had not yet received one previously. Information sheets with QR codes were printed out and placed in patient waiting areas and inside treatment rooms. These QR codes allowed patients to easily connect to and access the secure online YSM website with their electronic devices.

To facilitate YSM completion among patients with language barriers, assessments were made available in a number of different languages. ESAS has been translated professionally into over 20 languages and is freely available on OH–CCO's website [2,10]. The YSM Champions downloaded all ESAS and EPIC assessments in multiple languages from OH–CCO's website so that they were readily accessible at the treatment unit if needed. To assist patients without home computers, without internet access, or who had difficulty completing YSM online, paper copies were made available as needed and manually entered into the patient's chart by Radiation Therapists.

Results

An average of 92 ± 5 distinct patients per week received radiation treatment from May 3rd to May 22nd, 2020. The weekly completion of patient reported outcomes was found to be an average of 8.7 ± 1.5 (9.4 ± 2.1%).

An average of 100 ± 11 distinct patients per week received radiation treatment from May 25, 2020 to May 28, 2021. The weekly completion of patient reported outcomes was found to be an average of 47.0 ± 11.7 (47.5 ± 12.6%). The percent completion of YSM per week is illustrated in Fig. 1. On average, the YSM Champions flagged 38 ± 18 of patient charts each week with reminders for treatment staff to follow up with patients to complete YSM.

For patient reported outcomes completed each week, ESAS and EPIC accounted for an average of 37.2 ± 9.6 (47.7 ± 12.7%) and 9.8 ± 3.5 (47.0 ± 16.9%) respectively. On average, 21.1 ± 4.0% of patients were receiving treatment for early-stage prostate treatment. The percent completion for ESAS and EPIC over time is illustrated in Fig. 2. For

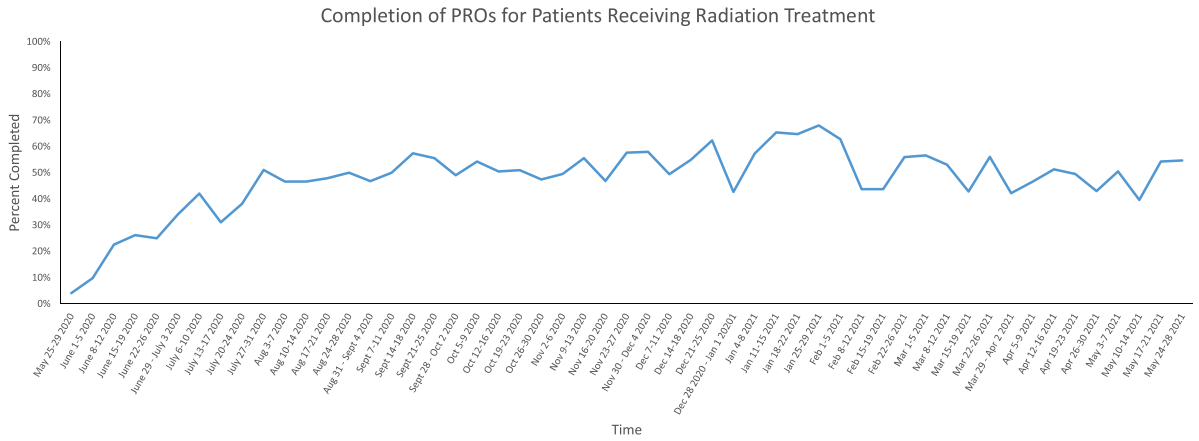

Fig. 1. Completion of PROs for patients receiving radiation treatment. PROs = patient reported outcomes.

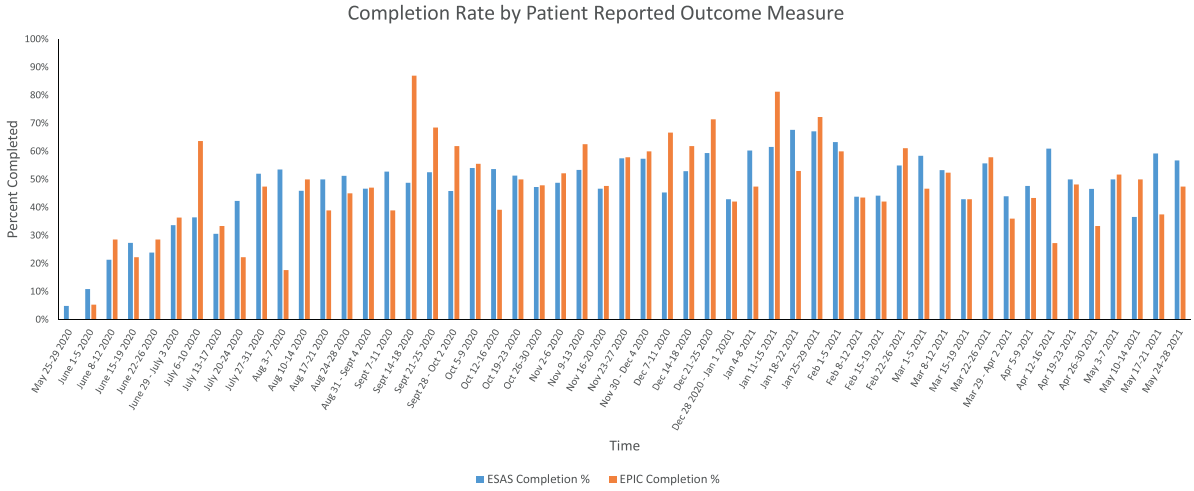

Fig. 2. Completion rate by patient reported outcome measure for patients receiving radiation treatment. ESAS = edmonton symptom assessment scale; EPIC = expanded prostate cancer index composite.

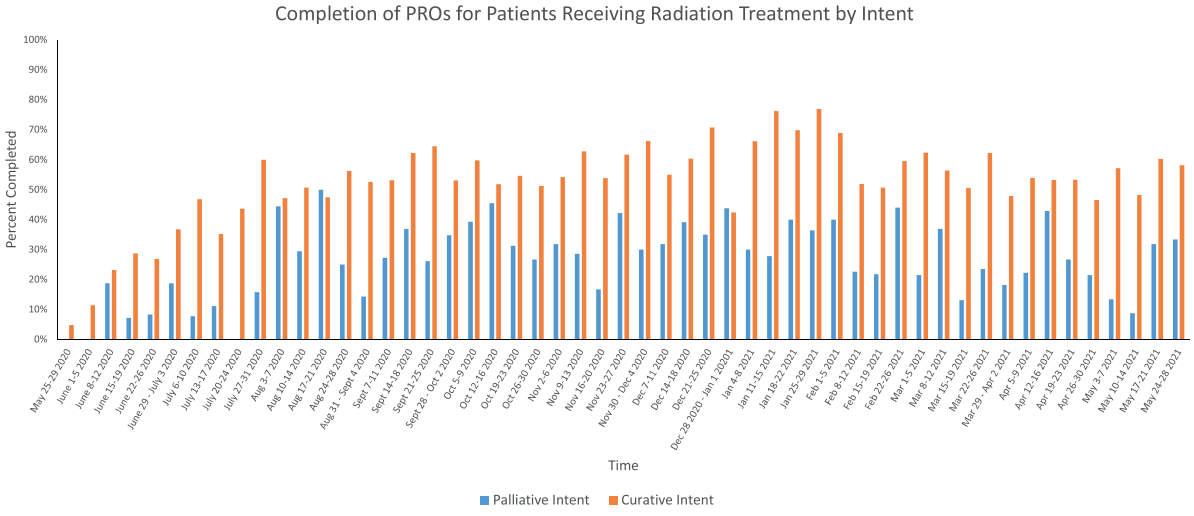

Fig. 3. Completion of PROs for patients receiving radiation treatment by intent. PROs = patient reported outcomes.

patient reported outcomes completed each week, an average of 5.1 ± 2.9 (26.3 ± 12.7%) and 41.9 ± 10.1 (52.4 ± 14.1%) were completed for palliative and curative intent respectively. The percent completion by intent over time is illustrated in Fig. 3.

As the champion model progressed, the overall weekly reminders were added for an average of 38 ± 18 patients.

Discussions

The rate of completed PROs among patients receiving radiation therapy increased after implementing the Radiation Therapist YSM champion model. The champions were strong advocates for YSM as an important tool to facilitate the conversation between patients and healthcare providers and promoted the importance of YSM among both patients and staff. Weekly patient care assessments at the radiation treatment unit typically focused on managing treatment related side-effects and Radiation Therapists may not ask all the cancer related symptoms on the PROM. However, Radiation Therapists see patients every day during their course of treatment and were well positioned to discuss PROs. Completing YSM created an opportunity for communication of how the patient was feeling from their perspective. This approach facilitated a conversation that was guided by the scores to address what was meaningful from the patient's perspective. Radiation Therapists responded directly to YSM scores and could engage other healthcare providers if required. Incorporating PROs into clinical practice helps to integrate the voice of patients with their healthcare team [17]. By encouraging and promoting patients to complete PROMs, studies have shown a survival benefit associated with the usage of PROs in cancer settings [18]. Although PROs are an important component of providing quality patient care, established workflows were disrupted by the COVID-19 pandemic. Volunteers were no longer on site to support YSM, kiosks were disabled, and many patient visits were transitioned from

in-person to virtual. Engaging stakeholders is key to the successful use of PROs [19] and the champion model aimed to engage direct care providers. The Radiation Therapist YSM champion model facilitated and promoted ongoing monitoring and completion of PROs during the pandemic.

The pattern of YSM completion demonstrated a number of peaks and valleys for the rate of YSM completion. The pattern of YSM reminders likely contributed to this pattern. For example, patients who required a reminder to complete YSM the previous week would then be more likely to complete it the following week. Completion rates were also found to level off, which was related to the presence of two YSM Champions, but four radiation treatment units.

Patients receiving treatment with curative intent had a greater rate of YSM completion compared to patients receiving treatment with palliative intent. This difference in part reflects the shorter fractionation schedules for palliative radiotherapy and relatively fewer opportunities to complete YSM. Operationally, there is a difference in workflow for patients receiving palliative treatment as treatment is typically associated with increased urgency, shorter timelines, and decreased opportunity to complete YSM. Fractionation schedules for palliative radiotherapy are typically one day to one week in duration. Patients receiving a radical course of treatment would have had longer treatment courses and an increased opportunity for coaching and reminders from the Radiation Therapy treatment team. Increased focus on improving YSM completion among patients with palliative intent would support the care received by patients receiving radiation treatment as well as with the palliative care team.

When comparing ESAS and EPIC, EPIC has a greater number of more in depth questions. However, a material difference was not observed between the rates of completion for EPIC and ESAS. Longer fractionation schedules associated with early-stage prostate radiotherapy would contribute to more opportunities to complete YSM. Developing strategies to maximize the opportunity for YSM completion among patients that have fewer visits to the Cancer Center would support increased use of PROMs.

There were limitations experienced with this study. Prior to the pandemic, patients would most commonly complete YSM at the Cancer Center. The shift to predominantly completing YSM at home had limitations associated with online completion at home. Patients completing YSM at home needed access and to be able to use a computer and internet. Completing YSM at home also required patients to be able to read and understand English. To assist patients in overcoming these barriers, paper copies were given out as needed, with patients advised to return the completed assessment the following day. This method of completion largely depended on patient compliance and for the patient to remember to bring back their completed form for manual entry into their chart by the treatment therapists. Manual entries were very uncommon. Entering weekly YSM completion reminders as needed into patient's charts required additional time for the Radiation Therapist YSM Champions. Reminders were effective to the extent that Radiation Therapists were prompted to remind patients to complete YSM. Patients rarely voiced refusal to complete YSM. However, the reminder did not always translate into the patient completing YSM. A process to better streamline this workflow is needed to support sustainability. Additionally, although two Radiation Therapists were champions for YSM, there were four radiation treatment units. As a result, the champions were only present on 2 out of 4 treatment units. A strategy to increase the number of champions to one per treatment unit will enable each treatment unit to be directly supported by a Radiation Therapist YSM Champion. The ongoing COVID-19 pandemic also impacted resources available throughout the evaluation period.

This study evaluated the effectiveness of implementing a champion model into one Regional Cancer Center to improve the utilization of YSM during the COVID-19 pandemic. Results of YSM scores are addressed directly by the Radiation Therapists. Future directions include assessing and evaluating the interventions implemented to address patient responses captured by YSM. Further evaluation can also assess the impact to referrals to psychosocial services, social work, or dietician resulting from the Radiation Therapist YSM champion model. The YSM champion model has been integrated into our standard clinical practice for patients receiving radiation treatment. Although rates were improved, an opportunity still exists to further meet and exceed pre-pandemic rates for YSM completion. As pre-pandemic activities resume, such as the reintroduction of volunteers and utilization of YSM kiosks, continued use of the champion model could further improve rates of YSM completion. Other members of the healthcare team, such as nurses and Oncologists, also participate in YSM completion. Physicians commented that patients who completed YSM were more forthcoming during their weekly review sessions. Overall completion rates for patients receiving radiation treatment were notably higher than other areas in the Cancer Center and an opportunity exists to expand the champion approach. Strategies to support sustainability and expansion of the champion model should focus on clinician endorsement and documented action plans to further improve the use of PROMs and optimize the care experienced by patients.

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