BACKGROUND

Nova Scotia follows a decentralized model for the dispensing of oral cancer therapy prescriptions, with the majority of medications provided by community pharmacy practitioners outside the cancer clinic system. Formalized internal cancer clinic safety processes regarding oral cancer therapy and universal coordination with community pharmacy are both being initiated in Nova Scotia. A joint 2014 study between Cancer Care Nova Scotia and Humanité revealed 57 safety checks within the system for parental cancer therapy, against only 6 for patients receiving oral treatments. Both a published internal provincial survey2 and a Pan-Canadian survey of community pharmacists also indicate a lack of comfort and a need for further education to adequately care for patients receiving oral cancer therapies. Provincial drug information resources and toolkits aimed at providing point-of-care medication counseling tools to community pharmacists regarding oral cancer therapy are available in Nova Scotia, however they are inconsistently used by community pharmacists in our province according to internal website statistics. A provincial impact assessment performed during the development of provincial oral cancer therapy standards identified that resources were needed to both establish early safety processes for oral cancer therapy patients and to provide a formal liaison role with community practitioners to ensure seamless care. A proposed case management model was developed alongside the provincial standards in order to facilitate this work.

DESIGN

An oncology pharmacist was assigned to a 1 FTE for a 6 month pilot (January to June 2016) at the Cape Breton Cancer Centre to develop and operationalize a proposed Oral Systemic Therapy Case Manager (OSTCM) position in order to facilitate congruence to recent provincial standards. The role of the position was: (1) to establish internal safety processes regarding initiation of oral cancer therapy prescriptions, (2) to provide a liaison role with community pharmacy for formal two-way communication regarding patient/drug information, and (3) to educate regarding the point of care information resources available provincially.

New patients from the medical oncology and hematology services being prescribed an oral agent for cancer treatment (excluding hormonal therapies) were eligible for referral to the service. The pharmacist worked internally with the prescribing physician, clinic nursing, patient navigator and social work/medication resource to coordinate and catalogue the necessary steps in the process (Figure 1) to ensure quality and safety as established in the provincial standards. The pharmacist managed each new oral systemic therapy prescription through formalized assessment of adherence potential, order verification, drug interaction checking and coordination to establish access and funding. Prescriptions were forwarded directly to the community pharmacy by the OSTCM with a coordination phone call detailing patient diagnosis, dosing, scheduling, required patient counseling and follow up monitoring. Identified drug interactions and adverse effect mitigation strategies were communicated to the community pharmacist, and overview of the provincial information resource for the treatment was given to raise awareness of the tools and work towards long term education. Information on drug availability was obtained from the community pharmacy for coordination of treatment start dates and to arrange initial patient education. Community pharmacists were forwarded a survey several days after the interaction for feedback.

Patients were provided medication counseling by the OSTCM to review both general safe handling, cytotoxic precautions (where applicable) and drug specific information including adverse effects and management. An initial follow up call by the OSTCM was given within 2-3 days after initiation of therapy to identify any early issues with adherence and/or adverse effects. Patients were then scheduled for continued follow up with the clinic for the duration of treatment at the physician’s discretion. The OSTCM pharmacist documented the various interventions electronically in the patient profile in the MEDITECH® computer system and in clinic paper chart.

Primary analysis included the delivery of an operational plan for safety processes, results of patient feedback and community pharmacy survey, and any cost avoidance data that could be identified. A secondary analysis of the quality and accuracy of the medication history collection process of the center was also included as part of a regular quality initiative.

RESULTS/STATISTICS

An operational Point of Care Checklist (Figure 2) was developed as a documentation and communication tool to guide safety and clinical tasks for patients initiating oral cancer therapies in the center.

Patient Care Highlights

- A total of 62 patients were referred to the OSTCM service.
- There were a total of 442 oral systemic therapy specific activities documented by the OSTCM pharmacist.
- 35% of all new systemic therapy patients at the clinic were prescribed oral cancer treatments during the term of the pilot.
- 33% of patients referred to the OSTCM had at least one drug-drug interaction (of various significance) that required a documented intervention to avoid or mitigate. Ninety-seven (97) percent of OSTCM recommendations were accepted by either physician or community pharmacist.
- 100% of patients expressed positive feedback with the service.
- 85% of all best possible medication histories reviewed as part of the project were complete and free from discrepancies upon analysis.

Community Pharmacy Highlights

- Thirty (30) different community pharmacies were involved in coordination and education with the OSTCM during the 6 month pilot period.
- 66% of community pharmacists who completed the forwarded survey were unaware of the provincial oral systemic therapy point of care drug information resources.
- 100% survey respondents stated their understanding of the patient’s treatment plan and management improved after interaction with the OSTCM.

Cost Avoidance Highlights

![Figure 2: Plan of Care Checklist for Oral Cancer therapy patients](image)

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Adjusted Average Cost per Intervention US$ (Wong et al)</th>
<th>Adjusted Average Cost CDN$</th>
<th>Total Cost Avoided (1 FTE) During Pilot Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug Interaction (N=27)</td>
<td>436.86</td>
<td>585.11</td>
<td>15797.97</td>
</tr>
<tr>
<td>Prevent or manage drug allergy (N=1)</td>
<td>316.97</td>
<td>424.54</td>
<td>424.54</td>
</tr>
<tr>
<td>Adjust dosage or frequency (N=3)</td>
<td>398.28</td>
<td>533.44</td>
<td>1600.32</td>
</tr>
<tr>
<td>Prevent or manage adverse drug event (N=6)</td>
<td>738.67</td>
<td>989.35</td>
<td>5936.10</td>
</tr>
<tr>
<td>Total Cost Avoidance for selected interventions (N = 37)</td>
<td>23758.93</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 3: Select interventions analyzed for cost avoidance based on average cost data previously published by Wong et al.

DISCUSSION

A combination of increasing use of oral systemic therapy for cancer treatment and the decentralized dispensing model in Nova Scotia places an increased responsibility on community pharmacists in the cancer care process in our province. Formalized communication between the clinics and community practitioners, along with education are essential to provide quality and seamless care to patients receiving these treatments. The OSTCM role allowed for timely coordination of the complex internal safety processes involved in initiating patients on oral cancer therapy and may be a potential model for clinics to use when developing approaches to establish or improve upon oral cancer therapy services.

Patient feedback was highly positive, but more follow up is needed to gauge the effect on longer term medication adherence. Community pharmacy survey respondents indicated that communications with the OSTCM resulted in a clearer understanding of their patients’ treatment plans, medication schedules, and adverse effect identification and management. The duration of the pilot did not allow for measurement of a change in community pharmacists’ comfort level in the continued management of these patients identified as an issue in other established literature3,4 and is a longer term goal of the service. Increased awareness of the provincial drug information resources was indicated by survey respondents as well.

The cost avoidance analysis potentially underestimates the true financial impact of the role; as cost information from other interventions, and saved nursing time around drug education and initial follow up were not available at time of analysis. More robust data collection is planned for a potential longer term phase of the OSTCM service.

Physician and nursing staff gave overall positive feedback regarding the program and provided support for the OSTCM through patient referrals. The results of the project were presented to local and provincial senior leadership with a business plan and budget submission for provincial OSTCM roles submitted in late Fall 2016 and is currently awaiting a funding decision.

REFERENCES

2. ten Brinke M, Broadfield L. Pharmacists’ readiness to practice to provide clinical care for patients receiving oral treatment for cancer. Hospital Pharmacy Residency Project. Halifax, Nova Scotia: Capital District Health Authority and Dalhousie University; 2014.