ORIGINAL ARTICLE

Orthopaedic Outreach: An innovative programme for orthopaedic patients in remote areas of Newfoundland and Labrador

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Abstract

Introduction: Wait times to see an orthopaedic consultant can be lengthy. Remote communities such as Labrador City and Goose Bay, located in Labrador in the province of Newfoundland and Labrador, often do not have an orthopaedic specialist locally and patients are required to travel great distances to attend clinic appointments. The objectives of this report are to describe our Orthopaedic Outreach Programme where patients receive fracture assessments and care for musculoskeletal concerns at two local clinics by a visiting orthopaedic surgeon. We also describe the justification for the Orthopaedic Outreach Programme and list the benefits; financial and otherwise.

Methods: A review of the programme, operating out of Happy Valley-Goose Bay and Labrador City, using electronic medical records, was undertaken from 1st January 2015 to 31st December 2019 including demographics and procedures completed. Travel and hotel costs were estimated.

Results: Over the last 5 years, the Orthopaedic Outreach Programme treated 1,698 patients at the 2 clinics. Cost savings were estimated at $366,768 per annum. The cost savings over the last 5 years were estimated at a total of $1,833,840. This does not account for patient's time off work and lost revenue that would occur when they make the trip to St John's for a clinic appointment.

Conclusions: Our Orthopaedic Outreach Programme was implemented to improve access to orthopaedic services in the remote areas of Labrador. This report aims to describe the result of a programme focused on providing orthopaedic care to individuals who would otherwise be required to travel great distances for their care.

Keywords: Orthopaedics, outreach, remote

Résumé

Introduction: Les temps d'attente pour voir un orthopédiste peuvent être longs. Les communautés éloignées telles que Labrador City et Goose Bay, situées au

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Labrador dans la province de Terre-Neuve-et-Labrador, n'ont souvent pas de spécialistes en orthopédie sur place et les patients doivent parcourir de grandes distances pour se rendre à leurs rendez-vous en clinique. Les objectifs de ce rapport sont de décrire notre Programme de sensibilisation à l'orthopédie dans le cadre duquel les patients reçoivent des évaluations de fractures et des soins pour des problèmes musculosquelettiques dans deux cliniques locales par un orthopédiste en visite. Nous décrivons également la justification du programme et énumérons les avantages, financiers et autres.

Méthodes: Un examen du programme, opérant à partir de Happy Valley-Goose Bay et Labrador City, à l'aide de dossiers médicaux électroniques, a été entrepris du 1er janvier 2015 au 31 décembre 2019, y compris les données démographiques et les procédures effectuées. Les frais de déplacement et d'hôtel ont été estimés.

Résultats: Au cours des 5 dernières années, le programme de sensibilisation à l'orthopédie a traité 1 698 patients dans les deux cliniques. Les économies de coûts ont été estimées à 366 768 $ par an. Les économies réalisées au cours des 5 dernières années ont été estimées à un total de 1 833 840 $. Ce montant ne tient pas compte du temps d'arrêt de travail des patients et des pertes de revenus qui se produiraient lorsqu'ils se rendent à St John's pour un rendez-vous à la clinique.

Conclusion: Notre Programme de sensibilisation à l'orthopédie a été mis en œuvre pour améliorer l'accès aux services orthopédiques dans les régions éloignées du Labrador. Ce rapport vise à décrire le résultat d'un programme axé sur la fourniture de soins orthopédiques à des personnes qui, autrement, seraient obligées de parcourir de grandes distances pour recevoir leurs soins.

Mots-clés: Rural; orthopédie; orthopédistes

INTRODUCTION

The provision of medical services to remote communities in Newfoundland and Labrador is challenging and orthopaedic needs are increasing. [1-3] Wait times, prohibitive costs (such as travel, childcare and time) and travel issues all contribute to obstruction of care to patients. Labrador is only accessible by boat or plane and is over 1000 km from St. John's, where a full complement of orthopaedic care is offered. One solution adopted by many surgical specialties in Newfoundland and Labrador are outreach clinics where surgical specialists travel to remote communities to provide service. [4-7] Such clinics are considered a crucial policy choice to increase the accessibility of specialist services and their integration with rural medical care. Orthopaedic surgeons from St John's have been providing clinical care in Labrador since 2013. Similar orthopaedic visiting consultant clinics have been successfully employed elsewhere and our aim is to show the successful implementation of our program and the benefits. [8,9]

Our Orthopaedic Outreach Programme uses visiting consultant orthopaedic surgeons who run clinics providing on-site musculoskeletal care for individuals in two Labrador communities; Labrador City, population 7400 and Goose Bay, population 8000. These services include new patient consultations, follow-up visits and post-operative checks. We aim to show that these Outreach clinics allow for the provision of orthopaedic care to be delivered at the same quality and level as an urban setting, at a fraction of the cost. This paper details The Orthopaedic Outreach Programme and documents specific services provided and the benefits, both personal and financial, for the patients, surgeons and trainees. Although the programme was first started in 2013, the last 5 years were chosen for ease of data collection.

Newfoundland and Labrador is the most eastern province in Canada, with a population of 521,542 (2019) spread over a large geographical area of 405,212 km^2 [Figure 1]. The province itself is unique in that it is composed of the insular region of Newfoundland and the continental region of Labrador to the northwest. Healthcare in Newfoundland and Labrador is delivered through 4 Regional Health Authorities which deliver health services to meet the needs of the population within their respective geographic areas. Labrador-Grenfell Health covers Labrador and all communities north of Bartlett's Harbour on the Northern Peninsula. The catchment area for Labrador-Grenfell includes approximately 37,000 people. The indigenous groups in this area include the Innu, Inuit and Southern Inuit. The population in Labrador has a marked

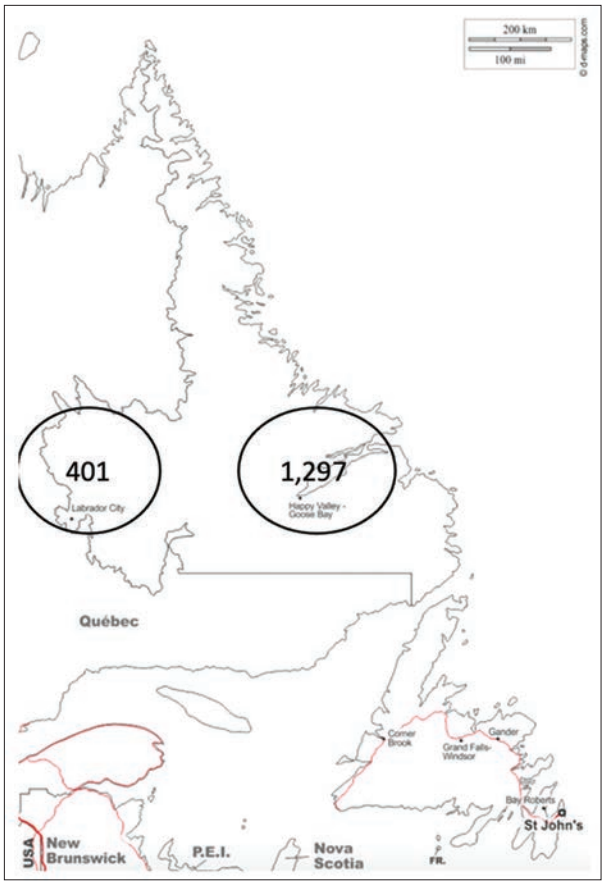

Figure 1: Area of service and Orthopaedic Outreach encounters in Newfoundland and Labrador from 1 January, 2015, to 31 December, 2019.

disparity in health outcomes compared to national averages and has contributing factors in addition to their remoteness. These include high rates of smoking, prenatal substance abuse, high rates of obesity, high rates of suicide and lower levels of education. [10,11]

Programme description

Orthopaedic surgeons visit the two remote Orthopaedic Outreach clinics (the Labrador Health Centre, Happy Valley-Goose Bay and the Labrador West Health Centre, Labrador City) multiple times a year to deliver the full complement of non-operative care. Patients are referred to the orthopaedic outreach clinic pathway in one of two ways. First, in-hospital patients with recent discharges for emergent or elective procedures at the tertiary care centre in St. John's, Newfoundland, may be referred for orthopaedic follow-up at the time of surgery and identified as vulnerable to challenges with post-operative visits. These challenges include long waits in the St. John's clinic, consultation when family members might not be present, and the coordination and cost of transportation to and from said clinic. Second, primary care providers in Labrador may send referrals for musculoskeletal concerns and fracture assessments to the orthopaedic central intake centre in St. John's, where patients from remote catchment areas in Labrador are identified as candidates for consultation to one of the two outreach clinics. The only screening criteria is that the patient must be older than 16 years of age, as travelling paediatric orthopaedic services are not available.

A team of orthopaedic surgeons supports the overall programme with subspecialty training in trauma, arthroplasty, musculoskeletal oncology, foot and ankle, upper extremity, hand and wrist, spine, and sports injury. In addition to the orthopaedic surgeon, resources dedicated to the outreach clinics at the time of this report comprise local staff, including license-practical nurses and administrative office workers. No additional resources are needed beyond what is found locally. New patients scheduled for the Orthopaedic Outreach clinics undergo radiographic imaging at each of the two community hospitals, based on predetermined protocols, before their visit. Rural hospitals have province-wide Picture Archiving and Communication System (PACS) access.

Patients often attend the clinics with a partner or close family member, providing an opportunity for a collateral history and comfort for the patient. This may be of particular importance if there is a language barrier. Personal costs to visit the two clinics, including flights, hotel stay and time off work, are significantly reduced for the patient's escort, although these were not estimated in our review.

If operative intervention is recommended, all pre-operative activities are completed in the community setting. Referrals are made by the visiting orthopaedic surgeon to the appropriate subspecialist should this be required before booking for surgery. Patients then have a single trip to St. John's and visit for their surgery which would include the preadmission clinic appointment, surgical procedure and immediate recovery period.

Minor orthopaedic procedures (such as injections, bracing assessments, casting and

diabetic foot care) are also completed through the same outreach effort. Furthermore, on occasion, surgeons have been asked to assist with acute emergencies as they present to the emergency departments in the two communities. These procedures help to augment the skills of highly trained rural primary care and emergency physicians.

When appropriate and feasible, follow-up for post-operative orthopaedic patients from Labrador is completed in their home health centres. The primary care physicians are supported through telephone and virtually by the orthopaedic surgeons. When follow-up times correspond to the Orthopaedic Outreach clinics, follow-up may be provided directly by the visiting surgeon in Goose Bay or Labrador City.

The programme is administered using the existing clinic space and resources already functioning in the community centres. In addition to flight costs for the surgeon and trainee, an Electronic Medical Record (EMR) system and access to PACS are necessary for the success of the Orthopaedic Outreach clinic. No additional costs beyond the flight and accommodation costs for the surgeon are required to run the programme.

METHODS

A review of the attendance at the outreach clinics was undertaken for 1st January 2015, through 31st December 2019. The review of the programme included a determination of the number of new patient visits and rechecks as well as procedures completed and patient demographics. A determination was also made whether the visit was the initial encounter with Orthopaedic Outreach or if there were prior encounters for the same patient.

Clinic attendance and relevant clinical characteristics were extracted from the EMRs by manual review. Analyses and descriptive statistics were accomplished by exporting to a simple Excel spreadsheet (Microsoft Inc, Redmond, Washington). Travel costs were calculated by averaging roundtrip costs of flights between Labrador and St John's throughout the year. In addition, hotel costs were averaged by looking at budget hotels and averaging the nightly cost of a hotel stay throughout the year in St John's.

RESULTS

The Orthopaedic Outreach programme treated 1698 patients, 1297 at Happy Valley, Goose Bay and 401 in Labrador City, between 1st January 2015 and 31st December 2019 [Figure 1]. This included 1,251 (74%) first-time referrals for musculoskeletal issues and 447 patients (26%) for re-checks. A new referral was defined as the initial visit to the Orthopaedic Outreach Programme and was not necessarily the patient's first encounter with an orthopaedic surgeon.

Over the 5 years, 1698 clinic encounters occurred at the two outreach clinics with an average of 170 encounters per annum at each site. We estimate cost-of-care (or, conversely, potential savings) per encounter as shown in Table 1. Cost of flying surgeons into Labrador and their hotel costs were not directly determined but would be about $2000 a year.

The actual care provided in an outreach clinic is cost-neutral compared to that provided in person at a standard clinic at the tertiary care centre in St. John's. However, additional hidden costs not accounted for, including transport and accommodation, are estimated at $403,920 for 2019 [Table 1]. This translates into $336,600 in transportation savings and 67,320 in accommodation savings, less an amount for the costs to bring a surgeon to Labrador. Estimates of transportation savings alone would comprise 83% of the total savings of $403,920 [Table 1].

DISCUSSION

A model of rural clinical orthopaedic surgery has been successfully implemented in our health care setting. The preliminary results presented provide evidence of both the feasibility of this mode of service delivery and cost-savings in providing outreach care to patients living in remote communities.

Clinical specialist outreach is a more effective and cost-efficient way of providing orthopaedic services to patients with musculoskeletal conditions who require referral to a central urban hospital. The ability to provide specialist outreach clinics must include a team-based approach. The time away from a consultants' home institution and absence from the call schedule does require a certain understanding that requires flexibility

Table 1: Estimated costs of transportation and accommodation (or potential savings) for patients and/or providers (provincial government) travelling to St. John's for follow-up care

Year	New patient (LHC/LWH/ total)	Follow up	Transportation ($)	Hotel ($)	Cost/savings ($)
2015	122/0/122	36/0/36	142,200	28,440	170,640
2016	236/0/236	64/0/64	270,000	54,000	324,000
2017	179/101/280	133/6/139	377,100	75,420	452,520
2018	179/151/330	109/8/117	402,300	80,460	482,760
2019	152/131/283	87/4/91	336,600	67,320	403,920
Cumulative	1251	447	1,528,200	305,640	1,833,840

LHC Happy Valley-Goose Bay (25 bed hospital), LWH Labrador City (28 bed hospital). LHC: Labrador Health Centre, LWH: Labrador West Health Centre

and a partnership amongst an orthopaedic group. This ensures continuing care and deliverance of service at the home institution. An additional benefit for surgical trainees that may accompany consultants is exposure to both community-based orthopaedics and a patient population that is facing challenges unique to their particular rural community. Other cost benefits include the reduced time off to attend a clinic by the patients or family members accompanying them. These were not taken into consideration for this review.

CONCLUSION

The development of this programme has had personal and financial benefits for our Regional Health Authority and the People of Labrador. Programmes such as this help to ensure equal access to health care, especially for the local Indigenous populations. Taking down barriers will only serve to strengthen our healthcare system. Our programme and those like it represent a modern low-cost option for subspeciality care.

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REFERENCES

1. Agarwal-Harding KJ, von Keudell A, Zirkle LG, Meara JG, Dyer GS. Understanding and addressing the global need for orthopaedic trauma care. J Bone Joint Surg Am 2016;98:1844-53.
2. Kurtz S, Lau E, Halpern M, Ong K. Trend shows growing orthopedic surgery case load. Will surgeons be able to keep up? Mater Manag Health Care 2006;15:61-2.
3. Shipton D, Badley EM, Mahomed NN. Critical shortage of orthopaedic services in Ontario, Canada. J Bone Joint Surg Am 2003;85:1710-5.
4. Powell J. Systematic review of outreach clinics in primary care in the UK. J Health Serv Res Policy 2002;7:177-83.
5. Abdelhamid AS, Mooney J, Walker AA, Barton G, MacGregor AJ, Scott DG, *et al*. An evaluation of rheumatology practitioner outreach clinics: A qualitative study. BMC Health Serv Res 2012;12:119.
6. Lawrence A. Orthodontic outreach clinics-No marked advantages or disadvantages. Evid Based Dent 2004;5:13.
7. Bernstein M. Surgical outreach clinics in Canada: One neurosurgeon's experience. Can J Surg 2004;47:25-8.
8. Gruca TS, Pyo TH, Nelson GC. Improving rural access to orthopaedic care through visiting consultant clinics. J Bone Joint Surg Am 2016;98:768-74.
9. Hyndman JC. Outreach multi-beneficial. Can J Surg 2004;47:150.
10. Johnston Research Inc. 10-Year First Nations and Inuit Home and Community Care Strategy Literature Review Final Submission. Ottawa, ON: Health Canada; 2011.
11. Health Canada. Statistical Profile on the Health of First Nations: Determinants of Health 1999-2003 (Report No. Health Canada Pub.: 3555). Ottawa, ON: Health Canada; 2009.