
Volume 11 - Issue 2, 2011 - Cover Story: A Primer on Radiation Protection: Patient & Personnel Safety in Focus

Family Doctors as Gatekeepers to Medical Imaging

In recent years, Canadian governments have invested significantly to improve access to MRI and CT scans. As a result, both the number of scanners and number of exams performed in Canada have increased exponentially. The Health Council of Canada's recent report *Decisions, Decisions: Family Doctors as Gatekeepers to Prescription Drugs and Diagnostic Imaging in Canada* found that between 1990 and 2009, CT scanners in Canada more than doubled from 198 to 465. In that same period, MRI scanners increased more than tenfold from 19 to 266. Distribution of the scanners varies across the country. Ontario, Canada's most populous province, has the most CT scanners at 155, whereas the nation's territories have only two CT scanners altogether (one in Yukon and one in the Northwest Territories, zero in Nunavut).

Across Canada, the number of scans has also seen an increase. Compared to 2003, there has been a 58 percent increase in CT exams and a 100 percent increase in MRI exams. This translates into 121 CT scans and 41 MRI scans for every 1,000 Canadians in 2009. By comparison, in terms of access and use of MRI and CT scanners, Canada ranks lower than other 10 other OECD countries. For example, in 2009, Canada performed 121 CT scans per 1,000 population and the OECD average was 139 CT scans per 1,000 population; Canada performed 41 MRI scans per 1,000 population, whereas the OECD average was 49 MRI scans (see fig. 1, p. 40). Although there has been an increase in diagnostic imaging equipment and examinations, the number of radiologists essentially remained the same between 1992 and 2006.

Family physicians are the first point of contact with the healthcare system for many Canadians. As a result, their decisions, such as which drug to prescribe or diagnostic test to order, affect not only treatment and health outcomes, but how the health system as a whole is used.

The Role of the Family Physician

While the investment and resulting increase in scanners and examinations were intended to address the issue of access, there were implications for, and related concerns about, appropriate use of CT and MRI scans in Canada. Concerns were related to the fact that specialists have traditionally ordered the vast majority of MRI and CT scans, and given the access to these tests, the role of the family physician in this area was changing.

Compounded by factors such as the aging Canadian population, more people being diagnosed with chronic health conditions, and with the move away from hospital-based care toward community-based care, family physicians are faced with increasing demands on their time and skills. They are doing more than ever before – including the ordering of more advanced diagnostic imaging services – and as such act as gatekeepers for these types of health services. Today, physicians are ordering more high-cost examinations (CT and MRI) than they have in the past. According to the Canadian Association of Radiologists (CAR 2010), the operating costs for diagnostic imaging in Canada now exceeds an estimated 2.2 billion Canadian dollars annually.

Overuse of Diagnostic Imaging

Research points to overuse of diagnostic imaging in Canada (Health Council of Canada 2010). For example, as many as 30 percent of CT scans and other imaging procedures are inappropriate or contribute no useful information. Further, less than two percent of CT scans for headaches found abnormalities (Health Council of Canada 2010). Moreover, about five percent of imaging workload consists of duplicated tests because the original has been lost or is not available (Health Council of Canada 2010).

By simply reducing the number of unnecessary tests by 10 percent, Canada could realise cost savings of 220 million Canadian dollars in healthcare expenditures (CAR 2010). It could also lead to a reduction in wait times for such procedures and improve patient safety in some areas by decreasing the number of patients being exposed to unnecessary radiation (CT scans only).

Tools for Decision-Making

For family doctors, their patients' health and safety are the primary focus of healthcare decision-making. These decisions affect the use of and spending on healthcare services including diagnostic imaging. A number of tools exist to help physicians with their choices. Clinical practice guidelines are a useful resource available to assist family physicians. They inform providers about appropriate care and help reduce inappropriate variations in care. In 2005, the CAR published *Diagnostic Imaging Referral Guidelines: A Guide for Physicians*. They are currently working on an updated version slated for release in early 2011.

Electronic health information systems like electronic medical records and electronic health records will facilitate the use of health technology such as evidence-based clinical practice guidelines. Canada is working towards developing a comprehensive electronic medical and health record system. The use of electronic decision-support systems is rare among Canada's family physicians. Some results from 2009 indicate that 56 percent of family doctors used electronic billing and 43 percent used computers to schedule appointments. However, only 13 percent per cent issued prompts about potential drug interactions or reminders for recommended patient care (Health Council of Canada 2010).

Technology Heralds the Future

Jurisdictions in Canada are investing in technology that facilitates the sharing of diagnostic images among radiologists, family physicians, and specialists. For example, the Picture Archiving and Communications System (PACS) connects all hospitals in a province, giving patients and providers easy access to the benefits of diagnostic imaging. PACS allows healthcare providers to view CT and MRI scan images (among others) no matter where they are, giving providers more timely information. PACS has an estimated 90 percent user rate among Canadian radiologists. Doctors using PACS found they saved 30 - 90 minutes a week along with a reduced number of patient transfers between facilities (Health Council of Canada 2010).

Conclusions

To assist family physicians with their decision-making and improve appropriate use of diagnostic imaging, Canada must make significant improvements in support systems to deliver more effective and efficient care. But before we make investments in new diagnostic imaging and other technologies, it is imperative to assess our current services and apply rigorous health technology assessment to ensure the most cost-effective and safe care. Without taking time to evaluate our current use of diagnostic services and the many factors that influence it, we will continue to perpetuate the cycle of inappropriate use and at times overuse – causing patient safety concerns as well as incurring unnecessary costs to our healthcare system.

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