ICT Usage in Cancer Care Delivery in Canada; Where Are We?
Montgomery Keough
What is known so far?
Information and communications technology (ICT) is the use of computer-based systems to help gather, process, and present information between individuals or groups. Videoconferencing, video-telephones, Electronic Health Records* (EHR) and Electronic Medical Records* (EMR), and Picture Archiving and Communications Systems (PACS) are examples of ICT.

In health care, ICT permits the exchange of health information and helps provide services across geographic, time, and social boundaries. This results in enhanced delivery of care and education across the country, particularly in the area of cancer care.

People living in rural areas of the country have unique challenges in accessing cancer care that is mainly delivered in urban centres. Thus, they often rely on multi-disciplinary teams or outreach clinics to manage and treat their illness, especially where specialty care is needed. ICT has the ability to provide access to services for these people. It also has the ability to offer the type of consultation and support that is required by healthcare providers who provide treatment at a distance.

What is the issue?
In Canada, we do not fully know how ICTs are used in cancer care. A good understanding would help define the current state of technology across the country, the potential use of the technology, and the facilitators of and barriers to the use of ICT.

The aim of this project was to assess ICT use in cancer care delivery in Canada as well as to evaluate the best practices and lessons learned from those who have adopted ICT.

How did we do our study?
Two methods of data collection were used—survey and key informant interviews. Surveys were mailed to physicians and administrators working in cancer care. Of the 141 eligible surveys, 45 (32%) were returned.

Key informant interviews were conducted with 10 individuals, one representative from each province in Canada.

*EHR—an electronic health record (commonly known as EHR) is a secure and private lifetime record of an individual’s health and care history, available electronically to authorized health care providers.

*EMR—a software system that securely maintains electronic health information for patients at a clinic or practice. The EMR incorporates the electronic chart that is used by the physician to store, retrieve, and process information related to patient care. The EMR may include other administrative aspects such as billing and scheduling. A networked EMR may provide access to a patient’s broader EHR.
What did we find?

Description of the organizations that deliver cancer care services

Regional Differences

All provinces are using ICT in some way, ranging from the simple use of telephones and computers to more advanced teleoncology and electronic record programs. Many provinces are using technology to break down geographic and time barriers. But the uptake of ICT in healthcare has been slow.

The use of ICT in terms of clinical or educational usage varies across Canada as well. Some provinces such as Newfoundland and Labrador have established Teleoncology programs whereas other provinces such as Quebec use ICT primarily for educational purposes. Table 1 provides a provincial overview.

| Report mainly to academic health center | 36% |
| Have formal governing guidelines | 43% |
| Less than 25 active sites | 64% |
| Receive provincial funding | 82% |

Most of the provinces have begun to use EHR. No province has a full, province-wide EHR. However, many individual institutions, cancer programs or regions have implemented some sort of EHR or are planning for future implementation.

Extent of ICT Use in the Delivery of Cancer Care in Canada

Almost all respondents (93.3%) said that they use ICT to provide care:
- case conferences (86.0%),
- treatment planning (72.1%),
- diagnosis (71.1%),
- consultations (67.4%) and
- patient follow-up (62.8%).

PACS and videoconferencing are used most often.

Some of the Factors that Led to the Adoption of ICT

Presence of a Local Champion

Having someone who was perceived as a local champion using the technology themselves in their cancer care practice and promoting its use among their colleagues is seen by many as very beneficial in the adoption of ICT.
**Improving Quality of Care**
Many believed that ICT can lead to an improvement in the overall level of quality of care, especially for patients who have difficulty travelling.

**Complexity of Treatment**
Because cancer treatment has become so complex, many reported that ICT technology can be used to improve the integration of information systems involved in the delivery of care.

**Geography**
The need to provide the same quality of care to patients wherever they are located can be addressed by using technology to bring health care workers and specialists to rural and remote areas through audio and video conferencing.

**Lack of Current Service**
ICT can bring the oncologist to the community. It can also support other local health providers remotely by connecting them with specialists who can guide them in their delivery of cancer care.

**Challenges to the Use of ICT in Cancer Care**

**Resistance to Change by Health Professionals**
Some physicians indicated they had no need for advanced technology. They believed their current way of delivering care is working fine for them. Others perceived ICT as an additional burden—needing to learn a new system when they are already overworked and have little time to do what they have to do. This resistance to innovation is not new in health care.

**Funding and Resource Issues**
Funding is seen as an issue in terms of the ability to support the development of any new ICT system or program or to sustain systems that have already been established. Human resources to support the development and operation is also deemed critical. Furthermore, moving from a research-funded project to an on-going institutional support is often seen as a challenge.

**Lack of Leadership**
A lack of leadership is considered a major challenge to ICT use in cancer care. Leadership needs to come from the highest level of administration to support and promote ICT usage.

**Potential for Expanding the Use of Existing and Emerging ICT**
Other industries which use ICT (such as banks) may highlight potential uses of ICT in healthcare. A number of initiatives that have the potential to expand ICT were mentioned. They are clustered around five themes:
- Information Systems
- Institutional Environment
- Clinical Applications
- Research
- Education
Some of the Best Practices and Lessons Learned

**Technical**
Technical support needs to be provided in terms of engaging experts in the operation of the ICT system and providing support to users of the system.

**Training**
Training is an essential component and needs to be provided to everyone in a flexible manner that addresses the specific requirements of healthcare workers (e.g. ensuring it can be accessed at different times).

**Leadership**
There needs to be strong leadership at all levels from practitioners to administrators, as encouraging physicians to adopt the technology is a big challenge and requires a great deal of support.

**Confidentiality**
Institutions need to be aware of rules and regulations governing information sharing. Internal regulations concerning privacy and confidentiality between providers and institutions may prevent sharing of information.

**What are key findings?**
- A large majority are using ICT in some form, and have been for 5 years.
- ICT systems are used mainly for educational and clinical purposes.
- Telephone use for medical consults is still widely used.
- The most common factors contributing to the uptake of technology include funding, ease of access, and user friendliness.
- The most common factors contributing to sustainability include funding, integration into health care program and incentives to participate.
- Having technical support in place is needed to deliver a successful service.
- The most common factors which lead to adoption of ICT include the presence of a local champion and the actual availability of the service (i.e. the fact that it is there).
- The primary challenge to implementation of ICT is the overall level of resistance to change.

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