PRACTICE CASE STUDY

DIAGNOSTIC ASSESSMENT PROGRAMS

THEMES

- **Swift Diagnosis**
- **Seamlessness** (Multidisciplinary Teams, Patient Navigation)
- **Centralized Entry for all Diagnostic Services**

" *Swiftness meant I didn't have time to mull and worry if [the cancer] was getting worse.* **"**

- Male, 91, colorectal cancer survivor

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The interval from suspicion to diagnosis is a complex and essential phase of cancer care. It is characterized by the need for many tests and consultations and often provokes considerable anxiety among patients. In Ontario, Diagnostic Assessment Programs (DAPs) were implemented between 2008-2019. Both at the provincial and regional levels, DAPs were patient-centered, providing a single point of accessing the healthcare system for patients with a suspicion of cancer. This was achieved by concentrating and coordinating the cancer diagnostic processes to reduce the time to diagnosis and improve outcomes.

These programs sought to improve the patient experience through shorter wait times and improved coordination of care (Cancer Care Ontario, 2009). They achieved this objective by coordinating diagnostic tests and appointments, engaging multidisciplinary expertise, enhancing the availability of resources for patients and referring physicians, and providing psychosocial support.

HOW IT WORKS

Once referred to a DAP, patients have access to a multidisciplinary care team, formed by professionals collaborating across disciplines, such as diagnostic imaging, pathology, medical oncology, and research. Multidisciplinary teams engage, educate and assist patients and their families in overcoming navigational barriers to health care. An oncology nurse navigator becomes the patient's main support and point of contact throughout the diagnostic process.

Based on interviews with two key informants, the following sections reveal a more nuanced understanding of the functioning of DAPs in Ontario.

STRENGTHS

A **single point of contact**. Patients had a singular entity to interact with, which saved them the trouble of figuring out who to contact for specific needs. This centralized approach streamlined communication.

A clear understanding of procedures throughout the diagnosis phase. DAPs helped clarify the diagnostic process, providing patients with a sequence of next steps, reducing uncertainty and reassuring them that the system remembered them.

Ability to pull in resources. DAPs had the flexibility to draw on various resources as needed to support individual patients with their unique needs.

System consistency/replicability of the DAPs. Unlike the current system that largely relies on personal relationships between providers, DAPs could consistently provide care even when individual care providers changed. Their focus was on ensuring the steps of the process were maintained and executed promptly, irrespective of the specific healthcare professionals involved.

Reduced burnout. By creating a structured, reproducible process, DAPs helped to alleviate burnout among healthcare providers. They helped prevent things from 'falling through the cracks' and ensured that patients received consistent care.

Standardization. While there may be some who do not favour the standardization brought by DAPs, "the majority found the consistency and predictability advantageous." Standardization led to better outcomes and more efficient processes but had several shortcomings, reflected in the next section.

Overall, DAPs aimed to provide a systematic, reproducible, and streamlined care process that helped patients and healthcare providers.

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CHALLENGES

Standardization concerns. While standardization brought advantages, it also led to some challenges. For example, certain regions had a DAP clinic once a month or every three weeks due to the availability of providers. In contrast, other areas had greater frequency, which meant different timelines for different DAPs for following up with patients.

Resource constraints. Significant resources, including time and personnel, were required to implement and maintain DAPs. There was a need for sufficient staff with enough expertise to ensure a timely and efficient process. Sustainable funding that anticipated program expansion was vital for the ongoing support of DAPs.

Geography. Geographic limitations and disparities in care presented ongoing issues. DAPs also had to accommodate patients across varied geographic locations, including both densely populated urban centers and sparsely populated rural areas. Designing a universal approach to suit all these groups took time, mainly when trying to provide equal access to expert care. Organizational issues across the province included a need for more coordination to avoid duplication of efforts and competition among different organizations.

Pre-DAP processes. The activities before a patient were referred to the DAP system needed significant attention, but the DAPs have less influence in this area. Optimizing these pre-DAP processes is challenging but essential for earlier diagnoses.

Non-specific symptoms. Patients with non-specific symptoms posed a challenge because DAPs had to identify suitable patients for referrals and appointments without overwhelming the system or causing unnecessary tests for patients. Machine learning models and artificial intelligence are being considered to help address this issue.

SOLUTIONS

The creation of new models of care focused on the following three aspects:

1. Improved survival rates by better access to testing and faster access to treatment;
2. Providing patients and their families additional (human) resources to better navigate the system beyond and above its limitations;
3. Highly functional multidisciplinary teams that are well coordinated to respond to the immediate needs of patients effectively.

In the previous DAP setup, each region was provided with a dedicated nurse navigator or physician assistant who addressed clinical concerns and identified the need for additional services. This reliable resource ensured patients received consistent, personalized support throughout their diagnostic journey. In future, it may be necessary to implement stratified or tiered navigation where patients are assigned navigation resources based on their specific needs rather than a "one size fits all" approach. This approach could ensure that each patient gets the level of support they require, thereby improving the efficiency of care.

WHAT WAS ACHIEVED

DAPs improved the efficiency and effectiveness of cancer diagnoses and the quality and experience of care for patients with suspected cancer. The DAP programs offered streamlined access to integrated, team-based cancer investigation and diagnosis, resulting in earlier treatment, better access to care, and potentially improving the survival of patients through earlier-stage diagnosis.

A nurse navigator as part of the multidisciplinary team improved times to early referral, diagnosis, staging and treatment (Mullin et al., 2020).

DAP patients with lung cancer received more investigations and had better overall survival than non-DAP patients, despite comparable wait times for diagnosis (Habbous et al., 2021).

One initiative aimed at improving the diagnostic phase was to scale up the navigation process that already existed for breast cancer screening and make it accessible to women with symptomatic breast abnormalities across the province. All mammography machines in the province adhere to the same quality assurance standards and offer this standard of care to women undergoing screening as well as those displaying symptoms. Although the project did not entirely succeed, progress was made, as it served as a starting point for improving diagnostic processes, such as looking at lung screening programs and partnering them with Diagnostic Assessment Programs (DAPs).

An integrated, digital solution to sharing information and communicating with providers and patients significantly improved cancer patients' experiences and reduced healthcare costs (see DAP-EPS case study for more details).

LESSONS LEARNED

Streamlining the process post-diagnosis and pre-treatment would bring significant improvements to patient outcomes. The post-diagnosis stage, which involves pathology, treatment planning and additional consultations or investigations, must be addressed. It can contribute significantly to treatment delays and increase patient anxiety. Therefore, it was important for diagnostic assessment programs to consider this phase and take it up to the point of the first treatment.

To improve DAPs, there should be a strategy for collecting and analyzing patient information with consistent criteria and processes across regions to compare and measure indicators effectively. A province-wide data collection process would allow the measurement of cost-effectiveness and help avoid duplicate tests or unnecessary diagnostic procedures. This is an essential step in ensuring system sustainability.

To address the disparities across different regions, it's crucial to provide access to navigational support for all patients, ensuring optimal levels of care regardless of location. This approach to improving the effectiveness of DAPS might focus on exploring alternatives to the nurse navigation model and distributing resources more effectively, including through tiered navigation models.

Designing system-based solutions throughout the navigation process to customize the patient's journey is important. Maintaining an enhanced focus on how seamless care and navigation occurred should not necessarily have been dependent on an individual nurse or other healthcare providers. Aspects of DAP navigation could be improved by exploring different approaches such as using electronic information sharing tools to make navigation more stratified and adaptable. This could involve piggybacking on existing programs to help guide patients through their diagnostic journeys in a more standardized and coordinated manner. Further, customization could be achieved by creating new positions for clerical navigators to assist with administrative tasks, such as scheduling, reducing the burden on clinical nurse navigators.

LESSONS LEARNED CONTINUED

Better patient outcomes and a seamless experience could have been achieved by providing a complete picture of the diagnostic phase, thus making a more substantial business case for DAPs.

If DAPs only run as "boutique programs," only a specific subset of providers and patients will know about them, leading to care inequities. By implementing DAPS more broadly and consistently, more patients will benefit from streamlined care, improving patient outcomes and experiences, as well as provider effectiveness and system sustainability.

EXAMPLE: Lung Diagnostic Assessment Program (LDAP)

- A Standard Triage Process (STP) was used with patients with suspected lung cancer referred to LDAP, including routine, interdisciplinary triage, standardized pathways with pre-ordered staging tests where appropriate, and a Small Nodule Clinic (SNC).
- The time until treatment was 8.5 days shorter for LDAP patients as compared to non-LDAP patients.
- Among early-stage lung cancers, LDAP patients were more likely to receive brain imaging (74% for LDAP and 67% for non-LDAP).
- After adjustment for clinical and demographic factors, LDAP patients had better overall survival than non-LDAP patients.
- Lung cancer patients diagnosed through a DAP were more likely to receive testing and consultation with specialists during the diagnostic and pretreatment intervals and, subsequently, to receive treatment. Although DAPs reduced the time from diagnosis until treatment, this duration still exceeds recommended targets and the frequency of duplicate imaging was higher than expected. To optimize health care utilization and outcomes, further work is required to assess apparent inefficiencies such as repeated chest CT scans, abdominal CT scans despite PET-CT, and brain imaging for stage I patients (Habbous, *et al.,* p. 90).

Sources:
1. Cancer Care Ontario (2009). Diagnostic Assessment Programs. An Environmental Scan.
2. Habbous S, Khan Y, Langer DL, Kaan M, Green B, Forster K, Darling G, Holloway CMB. (2021). The effect of diagnostic assessment programs on the diagnosis and treatment of patients with lung cancer in Ontario, Canada. Ann Thorac Med.16(1),81-101. doi: 10.4103/atm.ATM_283_20.
3. Mullin MLL, Tran A, Golemiec B, Stone CJL, Noseworthy C, O'Callaghan N, Parker CM, Digby GC. Improving Timeliness of Lung Cancer Diagnosis and Staging Investigations Through Implementation of Standardized Triage Pathways. JCO Oncol Pract. 2020 Oct;16(10):e1202-e1208. doi: 10.1200/JOP.19.00807. Epub 2020 Jul 8. PMID: 32639927; PMCID: PMC7564135.
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