Rapid EVIDENCE Reports

Reducing Wait Times for Outpatient Services

in Newfoundland and Labrador

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Rapid EVIDENCE Reports

Contents

3 About This Report
- 3| About NLCAHR
- 3| About Rapid Evidence Reports
- 4| Researchers and Consultants

4 Background

5 Scope and Nature of the Scientific Literature

6 Wait List Auditing

8 Scheduling Systems

11 Appointment Reminders

13 Potentially Relevant Contextual Issues

15 Summary of Key Points

17 Articles Included in the Review

This Rapid Evidence Report was prepared by the Newfoundland & Labrador Centre for Applied Health Research (NLCAHR), Memorial University. It was developed through the analysis, interpretation and synthesis of scientific research and/or health technology assessments conducted by other parties. It also incorporates selected information provided by expert consultants in the subject area. This document may not fully reflect all the scientific evidence available at the time this report was prepared. Other relevant scientific findings may have been reported since completion of this synthesis report.

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About This Report

About NLCAHR

The Newfoundland and Labrador Centre for Applied Health Research, established in 1999, contributes to the effectiveness of health and community services in Newfoundland and Labrador and to the physical, social, and psychological wellbeing of its population. NLCAHR accomplishes this mandate by building capacity in applied health research, supporting high-quality research, and fostering the effective use of research evidence by decision makers and policy makers in the provincial healthcare system.

About Rapid Evidence Reports

NLCAHR designed *Rapid Evidence Reports* to provide support for evidence-based decision making in the Newfoundland and Labrador healthcare system on an expedited basis as compared to the lengthier *'Evidence in Context'* reports issued through the Contextualized Health Research Synthesis Program. Through these expedited reports, NLCAHR provides a succinct review of recent research evidence on a high-priority research topic selected by decision makers in the province.

Rapid Evidence Reports include:

- A clear statement of the issue and the background to the issue/problem;
- A description of the scope and nature of the pertinent English-language scientific literature from the past five years;
- A summary of the principal features of the available evidence – points of consensus, points of disagreement, areas of uncertainty or silence on some or all of the following issues: effectiveness of interventions, potential benefits and harms, risks, costs, and cost-effectiveness; and
- A brief analysis of the types of issues that might affect the applicability of the evidence to the local context.

It is important to note that, unlike our other decision-support product, the *'Evidence in Context'* report, a *Rapid Evidence Report* is **not** a comprehensive and systematic synthesis of the literature on the topic. The rapid report provides neither critical appraisal of included articles nor a full analysis of the contextual issues involved in applying evidence to the Newfoundland and Labrador healthcare setting. Rather, a *Rapid Evidence Report* provides decision makers with a summary of the scope and nature of the recent scientific literature on the topic in question, an initial assessment of the strengths and gaps in this literature, and a review of the key points of agreement and disagreement among researchers.

Researchers and Consultants

For this report, researchers from the Newfoundland and Labrador Centre for Applied Health Research were Dr. David Speed, Research Officer, Contextualized Health Research Synthesis Program (CHRSP) and Dr. Stephen Bornstein, Director of NLCAHR. Our researchers benefitted from the advice and expertise of special consultant Dr. Luciana Ballini, editor of the Cochrane Effective Practice and Organization of Care Group (EPOC) and responsible for the EPOC Italian Satellite, targeted at the use of systematic reviews to identify research gaps and inform health services research agendas. Dr. Ballini is a member of the Normalization Process Theory group (based at Southampton University), the Italian Cochrane Network, the Prognostic Studies Method Group, and the Qualitative Research Method Group of the Cochrane Collaboration. She is on the Editorial Board of Implementation Science and acts as peer reviewer for several scientific journals.

Dr. Ballini currently works at the Regional Agency for Health and Social Care (ASSR) which supports regional and local health authorities in northern Italy by providing scientific and technical advice to the regional health authorities on health policy. As coordinator of the Health Technology Assessment production unit, she has expertise in evidence-based medicine methodology, including critical appraisal and synthesis of biomedical research, systematic review and meta-analysis, quality assessment of studies and grading of evidence, identification and prioritization of research gaps. With her team, she has worked at developing methods and tools for context analysis and consideration of organizational and social consequences of new technologies' adoption.

Background

Extended delays in accessing health care services, known as "wait times" or "wait listing," may compromise patient health outcomes through delays in diagnosis, treatment or follow-up. They indicate health system inefficiencies that reduce cost-effectiveness. As a result, reducing patient wait times is considered a priority across Canada's health systems (1,2,3,4).

The research literature on this topic does not include an agreed-upon definition of the term "wait time." Differences in operational definitions of the term relate to selecting the point in the healthcare journey at which a patient is properly considered to be "waiting" for a service (5, 6). For purposes of clarity, this report will define "wait time" as *the time between a health appointment being scheduled and the first instance that the appointment could be attended.*

Our health system partners in the Contextualized Health Research Synthesis Program (CHRSP) asked us to review the evidence for interventions that show potential to reduce wait times for outpatient services. The request for his study was submitted by Central Health and endorsed by consensus among the partners from across the province. However, because of the paucity of systematic review literature on the topic, producing a full

'Evidence in Context' report was deemed impossible. Consequently, CHRSP researchers elected to use the *'Rapid Evidence Report'* format instead.

Having reviewed the evidence base and consulted with provincial healthcare stakeholders, we reformulated the research question as:

> ***"What is the evidence for the effectiveness of enhanced techniques for scheduling appointments and managing wait lists in reducing wait times for outpatient services?"***

The research question was reframed based on the existing literature on wait times. Generally, studies and systematic reviews that address wait times do so only indirectly. The main focus of this literature is to discuss overall improvements in efficiency and to consider reduction of wait times as one component of these efforts. (1, 7); the current RER focused on studies that examine the reduction of wait times across a variety of outpatient services.

Scope and Nature of the Scientific Literature

For this project, we searched PubMed, Google Scholar, CINAHL, as well as all the periodical indexes made available by Memorial University [in the Health Sciences and Health Administration categories (e.g., Business Source Complete, Health Business Elite)] and grey literature research repositories indexed in Grey Matters (e.g., Health Technology Assessments, Health Statistics). We searched for studies on reductions in wait times for any outpatient service and included publications in English only from 2010 onward. Initially, we used broad inclusion criteria that tried to encompass as many studies as possible. However, after reviewing the literature, we identified several studies that would not be relevant for economic, political, or geographical reasons.[1]

We ended up with 12 publications (6 systematic reviews and 6 primary research studies) that were directly relevant to the research question. These studies examined reductions in wait times either as a direct, or, more typically, as an indirect consequence of an intervention (e.g., by reducing the "did not attend" (DNA) rates, or by eliminating patients who are unnecessarily on a wait list). Regardless of the approach favoured, researchers

1. CHRSP and Central Health stakeholders agreed that interventions should: a) not financially incentivize Allied Health Workers; b) be able to be implemented unilaterally by a Regional Health Authority (RHA); c) not require outsourcing; d) not rely on mathematical models with assumptions regarding underlying patient flow; e) not redefine the responsibilities of Allied Health Workers; f) not simply reorder patients in order to selectively reduce wait times (e.g., 8).

often viewed reductions in wait times through a lens of improving efficiency. The research tended to address three intervention types:

- **Wait list audits:** interventions addressing this topic tended to focus on reducing the total number of persons waiting for an outpatient service. This approach involved eliminating persons from a wait list through some mechanism;
- **Scheduling systems:** this group of interventions often focused on changes to "traditional booking" systems to allow outpatient clinics to have greater flexibility in scheduling. These interventions often did not book slots in advance, but instead focused on providing patients with same-day service; and
- **Appointment reminders:** a large proportion of the literature focused on reminding patients of upcoming appointments. The reminders improved efficiency as patients were more likely to use appointment slots, rather than simply not attend the appointment.

Several publications provided information across multiple categories of healthcare services and clinical settings. All the systematic reviews examined acknowledged the lack of high-quality evidence related to reducing wait times for outpatient services.

Wait List Auditing

Three peer-reviewed primary studies addressed reduction of wait times through auditing the total number of persons on a wait list. These interventions focused on whether or not persons on a wait list actually needed the scheduled outpatient service. By removing persons from the list, the overall length of the wait list is reduced; this consequently reduces wait times. The studies addressing this topic were:

- Morris et al., 2011 (9);
- Corrigan et al., 2011 (10);
- Schoch & Adair 2012 (11).

Morris et al. (9) examined the impact of a telephone audit on wait times for people on a wait list for orthopedic outpatient services. This research involved a telephone survey of orthopedic patients on their requirement for further outpatient services. Patients in the telephone audit group reported significantly reduced wait times when compared to historical control group receiving usual care (no telephone audit). For this study, potential outpatients were contacted by telephone and were asked if they still required an appointment for orthopedic services. In total, 16.4% of the telephone audit group were eliminated from the wait list because they indicated that they no longer required orthopedic outpatient services. With the removal of those persons from the wait list, it was possible to schedule the remaining appointments within a shorter timeframe.

Morris et al. (9) also noted that the "did not attend" (DNA) rate for the telephone audit group was roughly 14% — substantially lower than the 23% DNA rate in the historical comparator. Reducing the DNA rate is cited as a key factor in improved management of patient scheduling — persons failing to attend appointments still "use" the outpatient clinic time slot. Moreover, a person who misses an appointment usually requires rescheduling services for a replacement appointment, effectively doubling one person's demand on that outpatient health care service.

Corrigan et al. (10) studied the use of a short-messaging service (SMS), i.e., text messages, in a population of general outpatients. The researchers sent text messages to surgical patients who were on a wait list for an outpatient service follow-up. The text message asked patients to report whether they were experiencing any post-operative difficulties. If outpatients responded that they were not experiencing difficulties, the hospital discharged them back to the care of their general practitioner. Outpatients who indicated the presence of a problem were scheduled for an appointment at the hospital's outpatient clinic. Outpatients who failed to respond were sent a letter advising them to attend the next available outpatient clinic. While the number of outpatient visits was reduced by 13.6%, the resulting impact of the intervention on wait times was not reported (10).[2]

Finally, Schoch and Adair (11) audited the wait list for orthopedic outpatients at a hospital location and found that 24% of patients reported that they no longer needed to be on the wait list. The patients who asked to be removed from the list provided reasons that often (and ironically) implicated the long wait time in the decision: either their condition(s) had naturally resolved in the time elapsed before the scheduled visit or the patients had sought care elsewhere (11). The researchers noted that the wait list audit served to uncover the "true" number of patients requiring orthopedic outpatient services (11). It is important to note, however, that while Schoch and Adair's findings align with other research on this topic, the orthopedic outpatient clinic under study also employed other interventions at the same time as—or just prior to— introducing the wait list audit. Consequently, the additional interventions may be partly or completely responsible for the observed effect.

Summary: Wait List Audit Interventions

Generally, the findings in the literature suggest that audits reduce wait times by reducing the total number of patients on a wait list. In addition, because persons with benign or non-severe conditions are less likely to attend their appointments, pruning them from the list also shortens overall wait times by increasing the efficiency of resources used (12).

[2] CHRSP contacted the relevant author for Corrigan et al., but received no reply.

Scheduling Systems

Six peer-reviewed publications addressed reductions in wait times through the use of novel scheduling systems. Each of these studies examined the effectiveness of direct access on reducing patient wait times.[3] Direct access describes scheduling approaches that allow patients to engage in same-day booking, or occasionally immediate booking (14). Traditional models typically have a prospective approach to booking (e.g., "We have an opening next Wednesday at 2:00pm") that tries to fill appointment slots well in advance. With direct access, there are a restricted number of slots for prospective booking, but many open same-day slots are filled on a "first come, first serve" basis (14). The claim behind direct access is that allowing people to schedule their appointments promptly increases scheduling efficiency. It is important to note that direct access encompasses a range of patient-centered approaches, and that several variants (e.g., open access, advanced access, direct booking) are included within this section.

Of these six publications, three were systematic reviews:

- Ballini, Negro, Maltoni, Vignatelli, Flodgren, Simera, Holmes, & Grilli, 2015 (15),
- Rose, Ross, & Horwitz, 2011 (16),
- Stubbs, Geraci, Stephenson, Jones, & Sanders, 2012 (17),

and the other three were primary research studies:

- Schoch & Adair, 2012 (11),
- Rouppe van der Voort, van Merode, & Berden, 2010 (13),
- Tuli, Thompson, Ryan, Srinivas, Fillips, Young, & Tuli, 2010 (14).

Ballini et al. (15) conducted a systematic review that included several primary studies examining direct access approaches to achieve reductions in wait times for a range of different health services. The review, whose first author was also the scientific consultant for this report, synthesized the findings of four studies that looked at the effect of direct access on reducing wait times. The results were mixed, indicating either positive or neutral effects of direct access on wait times:

- One Randomized Control Trial (RCT) involving wait times for laparoscopic sterilization found that the mean wait time for persons (N = 232) using direct access was 108 days compared to 127 days in the control group (p = .003);

[3] Advanced access, direct access, open access, etc. are often used to convey similar ideas regarding a patient-focused booking approach, but do not have universally-accepted definitions. The current paper describes all of these related interventions as "direct access."

- A second RCT (N = 959) found that direct access reduced wait times for treating lower urinary tract syndromes (ratio of means = 0.7, 95 % CI [0.5, 0.9], but not when the patients' issue was microscopic haematuria;
- An included study on direct access for pediatric health clinic appointments (N = 7594), reported an immediate reduction of wait times (25.2 days, SE = 3.83, p < .001), with a progressive decrease of 3.03 days/month thereafter (SE = 0.92, p = .005);
- Finally, a fourth study showed no difference between direct access and non-direct access in wait times for persons waiting for an appointment after a diagnosis of cellular abnormalities of the cervix or for a colonoscopy appointment (step change = 14.26%, SE = 19.83, p = 0.5; slope change = 6.29, SE = 12.26, p = .62) (15).

In a review of 11 articles addressing 8 studies, Rose et al. (16) describe the impact of advanced access on patient wait times. Their review reports uniformly significant decreases in wait times for all studies that reported data on advanced access. The following findings were also noted:

- Five of 11 studies showed a significant decrease in patient non-attendance rates;
- Ten of 11 studies showed some improvement in wait times (although the differences were not always statistically significant) (16).

Limiting the findings to studies with control groups, only two out of four studies reported significant improvements for the DNA rate, while the other two reported non-significant differences (16). The review concludes that, in spite of deficiencies in the existing primary studies on the topic, advanced access shows promise in reducing wait times and in reducing high DNA rates (although organizations with low DNA rates presumably may not benefit from advanced access) (16).

In a review of five studies, one of which was also included in the review by Rose et al. (16), Stubbs et al. (17) examined the impact of advanced access on reducing the DNA rate (N = 17 334 appointments). Results indicated that advanced access was associated with a 16.1% reduction in the DNA rate (17). However, if one excludes same-day access or immediate access, the DNA rate was reduced by only 6.1% (N = 8 560). In other words, the strongest gains from advanced access were constrained to the immediate short-term.

Schoch and Adair (11) examined the effects of a direct access intervention on orthopedic outpatients. Their study reports a 75.3% reduction in the DNA rate for the orthopedic outpatient clinic and a 56.1% drop in the DNA rate for new patients scheduled to attend the surgeon's clinic. Additionally, the authors reported an 87% reduction in overall wait times from 23 months in January 2005 to three months or less by December 2010 (11). While the study credits these drops to the direct access approach, it is important to note that, again,

this outpatient clinic introduced several other interventions simultaneously (or sequentially). As a result of this flaw in the study design, the effect of direct access is unclear, even though the results do *suggest* improved efficiency.

Tuli et al. (14) examined the effects of advanced access on a pediatric residency clinic through a prospective quasi-randomized controlled study. Advanced access improves efficiency by using aspects of queuing theory to increase the number of outpatients the clinic serves on a daily basis. The study reports that healthcare providers in the advanced access group consistently saw a greater number of patients per hour (5.6 versus 4.6) and reported shorter wait times between follow-up visits. However, advanced access had little impact on the DNA rate (22.75% versus 20.25%) (14).

Rouppe van der Voort et al. (13) conducted a systems-perspective assessment of observational studies carried out in 18 clinics that used an advanced access model. Their investigation of advanced access concluded that it produced a better "match" between supply and demand. The study notes that of the 18 clinics

- 14 showed significant reductions in wait times;
- Two showed unclear reductions in wait times; and
- Two showed no significant reductions in wait times (13).

The authors concluded that using advanced access resulted in a 55% overall reduction in wait times (from 47 to 21 days). The study also noted that long wait times may not be the product of too much demand or of insufficient capacity but rather of a poor match between the two factors (13). It is important to note that, within this study, there was not a uniform protocol for how to implement advanced access. Consequently, there may have been significant variability in the methodology, which makes unqualified conclusions impossible.

Summary: Scheduling System Interventions

Three systematic reviews (15, 16, 17) noted the poor quality of primary literature addressing direct access. However, the authors of all three systematic reviews acknowledge that direct access seems to show some promise in reducing wait times and/or in reducing DNA rates. The conclusions from these systematic reviews align with the primary literature on the topic: two studies (11, 14) reported reductions in overall wait times, and one (11) reported significant drops in the DNA rate. The findings for patient-focused booking make sense: having outpatients choose their own appointment times would conceivably result in fewer scheduling conflicts and missed appointments. Grey literature findings also suggest that a "Choose and Book" system can reduce the DNA rate by 15.8% (18). Overall, a system that allows for greater patient involvement in booking healthcare appointments may reduce wait times for services.

Appointment Reminders

For this category of interventions, we identified four peer-reviewed publications that address reducing waiting times by improving efficiency in scheduling management. All four were systematic reviews addressing the impact of appointment reminders:

- Atherton, Sawmynaden, Meyer, & Car, 2012 (19);
- Gurol-Urganci, de Jongh, Vodopivec-Jamsek, Atun, & Car, 2013 (20);
- Hasvold & Wootton, 2011 (21);
- Stubbs et al., 2012 (17).

Appointment reminders, as the name suggests, are interventions designed to prompt clients about a previously-scheduled outpatient appointment. The chief goal of appointment reminders is to reduce the DNA rate. By reducing the overall DNA rate, health services can improve efficiency in allocating resources. By encouraging attendance at outpatient appointments, it is possible to accommodate more persons within a specific period. Moreover, persons who cannot make an appointment may be prompted to cancel and thus "free up" an appointment slot. The systematic reviews included in this report addressed three approaches to reminders: email, postal and telephone or SMS (i.e., texting) reminders. Generally speaking, the systematic reviews noted a dearth of high-quality literature on the topic of appointment reminders.

Email Reminders

In a single systematic review, Atherton et al. (19) could not identify any studies that examined the use of email for reminders in the context of healthcare appointments. The review concluded that further research is required and that no recommendations could be made. Apart from the Atherton review, which merely mentions the lack of evidence for or against email reminders, we did not locate any literature whatsoever that addressed email reminders as a way of increasing efficiency in scheduling healthcare appointments. In short, the evidence for this intervention is lacking.

Postal Reminders

Stubbs et al. (17) found seven studies that evaluated letter (or postcard) reminders. Overall, there was a 7.6% reduction in the DNA rate between the intervention and the control groups. Of the seven studies, four showed statistically significant reductions and three showed no significant reductions or reductions whose significance was uncertain. While the review recognized that reductions in wait times did occur with letter reminders, the authors indicated that telephone reminders and SMS reminders appeared to be more effective (17).

Telephone & SMS (Texting) Reminders

Three systematic reviews (17, 20, 21) examined both telephone reminders and SMS reminders simultaneously. Of the 33 studies identified by Hasvold & Wootton (21), only one reported no benefit to sending a reminder. Overall, the median DNA rate was 23.1% for the control group, and 12.5% for the intervention group. In terms of reminder delivery, Hasvold and Wootton (21) indicated that having an automated system for reminders was not as effective as having a person call or text to remind patients (29% compared to 39%).

Gurol-Urganci et al. (20), in an update of a 2012 Cochrane Review, found eight randomized control trials that assessed the effectiveness of SMS for reducing DNA rates. Generally, when compared to no reminders, using SMS reminders resulted in a 14% lower DNA rate (RR = 1.14, 95% CI [1.03%, 1.26%]) (20). There did not appear to be any difference in efficacy between telephone reminders and SMS reminders (RR = 0.99, 95% CI [.95, 1.02]) (8). The review also examined SMS used in conjunction with postal reminders and found that, in combination, SMS and postal reminders were more effective than postal reminders alone (RR = 1.10, 95% CI [1.02, 1.19] (20).

Stubbs et al. (17) examined 25 studies addressing the impact of telephone reminders on DNA rates:

- In 15 studies, reductions in the DNA rate were statistically significant (weighted average reduction of 9.4%);
- In four studies, reductions in the DNA rate were non-significant;
- In four studies, the significance of the reduction was not clear;
- One study showed no change in the DNA rate; and
- One study showed a higher DNA rate for the telephone intervention group (17).

The review also examined 12 studies addressing SMS reminders and found an 8.6% reduction in DNA rates (17). While all studies showed reductions in the DNA rate with SMS reminders, 75% were statistically significant (17). Stubbs et al. (17) also noted that reminders were more effective for new patients than they were for follow-up appointments.

Summary: Appointment Reminders

There is insufficient evidence to comment on email as a method for reminding patients to keep appointments. Three systematic reviews noted a lack of high-quality evidence addressing telephone and SMS reminders and concluded that further research was needed. Several of the systematic reviews assessed SMS and telephone reminders in tandem; as a result, it is difficult to parse the unique effects of either intervention. With that caveat, it is important to note that all three systematic reviews [Hasvold and Wootton (21), Stubbs et al.

(17), and Gurol-Urganci et al. (20) agreed that SMS and telephone reminders both showed potential promise in reducing overall DNA rates.

Potentially Relevant Contextual Issues

While the aforementioned interventions show general promise in reducing wait times for outpatient services, it is important to consider the findings within the specific context of Newfoundland and Labrador. The following is an overview of contextual factors that may have an impact on the feasibility and effectiveness of the interventions noted in the research literature.

Contextual Factors Affecting Wait List Audits

Wait list management focused on two interventions: condition-based triage and wait list audits with no evidence to suggest that condition-based triage would reduce overall wait times. Wait list audits, on the other hand, were seen to show promise in reducing overall wait times due to the greater utilization of scheduled appointment slots.

Wait list auditing requires health system human resources to contact patients on a wait list to ascertain whether each patient still requires a scheduled outpatient service. Regional Health Authorities would need to assess the cost-effectiveness of this use of human resources.

The research uncovered two approaches to wait list management that can essentially be characterized as a "retention model" or an "elimination model." These two models differ in regards to their specific defaults. The default assumption of the retention model is that everyone on a wait list requires an outpatient service. In contrast, the default assumption of the elimination model is that no one on a wait list requires an outpatient service. While these approaches might appear similar, it is important for decision makers to consider the impact of choosing one over the other.

The "Retention Model": In a retention model, patients were asked to confirm a negative—they were asked to confirm that an outpatient service would no longer be needed (9, 10,11). Patients who confirmed that they no longer needed the outpatient appointment were removed from the wait list. In terms of the overall effect on wait list length, this method proved less effective than the elimination model for reducing the number of patients on a wait list. This is because the system default is retention— as such, persons who cannot be contacted cannot be eliminated from the wait list. The benefit of this approach is that *only* persons who choose to be eliminated from a wait list are actually eliminated.

The "Elimination Model": In some studies, patients had to confirm the scheduled appointment or they would be eliminated from the wait list (22). Perhaps not surprisingly, this approach reduced wait lists more dramatically than the retention model because the

system default is elimination—patients who failed to confirm their appointments were removed from the wait list regardless of whether or not they were actually reached. The inherent risk with this approach is the inappropriate removal of patients in need of services. Persons who could not be reached, could not effectively respond, or simply forgot to communicate their needs, were all eliminated from the wait list under the elimination model.

All of the systematic review literature used the "retention" model and CHRSP researchers would argue that this is a better approach for Newfoundland and Labrador. Operating under an "elimination" model will disproportionately affect:

- Persons who have inconstant telephone service (affecting persons in remote areas where service is non-uniform);
- Persons who frequently relocate;
- Persons who are infrequently home (affecting persons who are seasonally employed or who commute long distances to work);
- Persons who lack the financial or material resources to respond (disproportionately affecting low income people and the elderly).

Contextual Factors Affecting Scheduling Systems

The effectiveness of a patient focused-booking (direct access) scheduling system is supported by research evidence to varying degrees. While there was consensus in the literature that this method will reduce wait times, the magnitude of improvement was not always consistent. However, all evidence did concur that direct access has several advantages over traditional scheduling methods.

What was unclear from the reviewed evidence was whether specialized software would be required to implement direct access effectively and how much such information technology would cost. If direct access interventions are software-dependent, decision makers would be well-advised to analyze costs vs. benefits, and to determine whether direct access programs could be easily integrated into the existing hardware/software systems used by the Regional Health Authorities in Newfoundland and Labrador. There are unclear costs to training staff to use direct access software and, as Tuli et al. note, some health system staff might be reluctant to adapt to new approaches (14).

Advanced access, the scheduling system designed to accommodate fluctuations in service supply and demand, has unclear impact on DNA rates but appears to be effective for reducing wait lists. Moreover, because studies addressing advanced access scheduling tended to remain at a high level of generalization about actual methods and techniques (14), there may be costs or delays associated with a switch from traditional booking to this method.

Contextual Factors Affecting the Use of Reminders

Promoting efficiency in resource management focused exclusively on reminders to achieve a reduced DNA rate. Sending reminders, whether by letter, telephone calls, or SMS produced lower DNA rates than control conditions with no reminders. Reductions in the DNA rate for outpatient services were said to be associated with reduced wait times although the impact on wait times was seldom measured. The bulk of the literature focused on telephone reminders and SMS reminders in order to improve attendance.

Interventions centering on telephone reminders and SMS reminders do not have substantive contextual issues apart from the non-uniform cellular infrastructure within Newfoundland and Labrador which could potentially reduce the overall effectiveness of the intervention. For example, persons in areas with inconstant cellular service may not benefit from reminders or may receive reminders only after some delay. Moreover, while home phone numbers may remain relatively stable, contact information based on cellular telephone numbers may not always be up-to-date.

However, none of these potential concerns should discourage the use of telephone/SMS reminders. An inability to remind a subset of the population by using this method should not be interpreted as meaning that the intervention would not be effective for the broader population.

Summary of Key Points

The following is a summary of the key points included in this evidence review and the considerations that decision makers need to make prior to implementing interventions to reduce outpatient wait times in Newfoundland and Labrador.

- The literature suggests that long wait times for outpatient services result from a "mismatch" between supply and demand; consequently, a focus on improving overall health system efficiency so that supply and demand can be more effectively matched is a key focus of the research literature on wait times.

- Wait list audits show promise in reducing the total number of persons waiting for an outpatient service; the methodology used for wait list audits should seek to eliminate from wait lists only those who request to be eliminated and to retain any patients that cannot be reached.

- Patient-Focused Booking is supported by the literature as an effective method for reducing "did not attend" (DNA) rates and patient wait times, although decision makers will need to assess the potential implementation costs and human resources issues associated with implementing new scheduling systems.

- The evidence indicates that sending reminders to patients to attend outpatient services is an effective way to reduce DNA rates. Telephone calls and text messaging reminders shows the greatest promise among the options outlined in the literature.

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