Revising the Advanced Access Model Pillars: A Multi-Method Study

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Keywords:	Family medicine, general practice, primary care, Health services research
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Abstract:	Background The Advanced Access (AA) model was developed 20 years ago by Murray et al. and has been implemented in several countries. We aim to revise the pillars and sub-pillars of the AA model based on its contemporary practice by professionals in primary healthcare as well as their operationalization. Methods This multi-method sequential study was informed by a literature review and involved forty-five experts in a panel of provincial and local decision makers, primary healthcare clinic members (family physicians, nurses, and administrative staff), patients and researchers from across the province of Quebec, Canada. Throughout the consultation process, participants were asked to develop a common vision of the pillars and sub-pillars that make up the AA model and to react to suggested definitions or content. Results The revised AA model is defined by 5 pillars, of which 2 were updated from the original model (“Appointment system” and “Interprofessional practice”), 1 was merged with a revised pillar (“Develop contingency

	plans" with "Planning of needs and supply"), and 1 underwent major transformations ("Backlog reduction" to "Continuous adjustment"). A new pillar concerning communication emerged from the consultation process. Subsequent steps for operationalizing definitions of sub-pillars confirmed the nature of the revised AA pillars and stabilized their content. Interpretation The overall consultation process resulted in a revised contemporary AA model that obtained strong consensus among participating experts. The revised model will be used to develop a reflective tool for primary healthcare professionals to evaluate their AA practice.

CREDES

Recommendations for the Conducting and REporting of DElphi Studies (CREDES).

Special note: We used the CREDES as the guideline for our study as it is the closest reporting guideline to our multi-method consultation process. We used an e-Delphi as one method of our multi-method study design.

Rationale for the choice of the Delphi technique	
1.Justification. Page 5	This study uses a multi-method consultation process highly based on a modified Delphi technique. This method was selected because of its rigour along with its flexibility which was well suited for the revision of the AA model in a contemporary context involving an expert consultation and for the building of consensus, based on an iterative process.
Planning and design	
2. Planning and process.	We did not use the Delphi technique *per se* as it usually involves multiple survey phases which is not the case in our study. However, we used different consultation processes within our experts to enhance direct exchanges while ensuring that everyone could express themselves freely at each stage, through the use of facilitation techniques, mimicking the Delphi process. As stated in the protocol article: "A literature review and analysis of selected articles will be used to identify conceptual constructs, followed by an iterative consensus achievement process among key experts including a face-to-face meeting and an online survey tool"
3. Definition of consensus. Page 6	Consensus and non-consensus criteria were established for the management of phase 3.
Study conduct	
4. Informational input. In BMJ Open protocol paper	As stated in the protocol article, "the team will oversee the development and ongoing processes of the study, as well as major decisions regarding the selection of AA experts to invite to the face-to-face meeting and to the e-Delphi consultation"
5. Prevention of bias. Page 12	Conflict of interest: None declared
6. *Interpretation and processing of results.* Page 11	The overall consultation process involved multiple methods that provided experts the opportunity to express their voice in various ways and at different times throughout the iterative process.
7. *External validation.*	As stated previously and in the protocol, the management was overseen by our research team throughout the consultation process
Reporting The complete protocol of the study is available in the November 2021 issue of BMJ Open provided in the appendix.	
8. *Purpose and rationale.*	This method was selected because of its flexibility and high level of rigour applied over the iterative process which was well suited for the development of a consensus over the revision of the AA model in a contemporary context involving an expert consultation.
9. *Expert panel.*	Page 6. In November 2019, we identified a variety of key stakeholders suggested to be AA leaders in the province. Provincial and local decision makers, family physicians, nurse practitioners and clinical nurses, continuous quality improvement officers, administrative and front desk staff as well as patients were invited by email to join the research team as part of an expert panel. As mentioned in the protocol, strategies to maximize the retention rate including personalized reminders from principal investigators were used. Page 7: The participation rate was high throughout the consultation process, and a high degree of consensus was obtained. Forty-five experts participated in at least one consultation phase, and 17 experts participated in all of them.
10. *Description of the methods.*	Page 5. In phase 1, we searched for terms such as "advanced access," "open access," "same-day scheduling," "timely access" and "AA implementation" in MEDLINE, PubMed, CINAHL and Google Scholar to scan for scientific peer-reviewed studies published between 2005 and 2019. Grey literature, such as reports or implementation guides, was also identified. An inductive approach was used by the research team to analyze the literature and identify concepts that emerged from PHC practice-based use of AA over the years (eg need for regular adjustment,

	integration of new appointments and consultation modalities, continuity, communication and satisfaction).
11. *Procedure.*	A summary of the method is shown in figure 1
12. *Definition and attainment of consensus.*	Page 6. Consensus on the relevance of a sub-pillar was considered obtained when 75% or more of the responses were in the high agreement zone (6 to 9), with a median in the high zone and an interquartile range of 0 or 1. Sub-pillars that did not meet these levels of consensus were kept for further reflection or clarification in the last phase.
13. *Results.*	Figure 2 shows the evolution of the model through expert consultation
14. *Discussion of limitations.* Page 11	There were limitations to this study. The entire consultation process took place in a very supportive organizational and political context for AA, which may limit the generalizability of our findings. Indeed, the experts consulted are early promotors or adopters of AA and are convinced of the benefits of an AA practice. AA practice is also actively promoted by Quebec's Ministry of Health and Social Services as a model for improving access not only to family physicians but to all professionals in PHC clinics. However, we are confident that the model applies to other PHC contexts, as it is based on general concepts central to PHC practice.
15. *Adequacy of conclusions.* Page 11	The overall consultation process involved multiple methods that provided experts the opportunity to express their voice in various ways and at different times throughout the iterative process. The confirmation of various aspects of the model by patients and the addition of important elements specific to the patient experience also represents an important addition to the original AA model.
16. *Publication and dissemination.* Page 11	This study led to a revised AA model based on consensus among several AA experts. This new model and the development of operational definitions expand the original model to professionals other than physicians and nurses working in PHC. The final consensus definitions are measurable and represent levers for actionable changes that can lead to a more optimal AA practice. This model is an essential step in supporting both individual and collective reflection on the practice of AA and will guide the development of a reflective tool to support professionals working in PHC. This redesign of the AA model integrating a contemporary perspective of PHC offers opportunities to support PHC professionals who have either already implemented AA or are willing to do so and to ensure its sustainability.

Revising the Advanced Access Model Pillars: A Multi-Method Study

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COMPETING INTERESTS

None to declare

ABSTRACT

Background

The Advanced Access (AA) model was developed 20 years ago by Murray et al. and has been implemented in several countries. We aim to revise the pillars and sub-pillars of the AA model based on its contemporary practice by professionals in primary healthcare as well as their operationalization.

Methods

This multi-method sequential study was informed by a literature review and involved forty-five experts in a panel of provincial and local decision makers, primary healthcare clinic members (family physicians, nurses, and administrative staff), patients and researchers from across the province of Quebec, Canada. Throughout the consultation process, participants were asked to develop a common vision of the pillars and sub-pillars that make up the AA model and to react to suggested definitions or content.

Results

The revised AA model is defined by 5 pillars, of which 2 were updated from the original model ("Appointment system" and "Interprofessional practice"), 1 was merged with a revised pillar ("Develop contingency plans" with "Planning of needs and supply"), and 1 underwent major transformations ("Backlog reduction" to "Continuous adjustment"). A new pillar concerning communication emerged from the consultation process. Subsequent steps for operationalizing definitions of sub-pillars confirmed the nature of the revised AA pillars and stabilized their content.

Interpretation

The overall consultation process resulted in a revised contemporary AA model that obtained strong consensus among participating experts. The revised model will be used to develop a reflective tool for primary healthcare professionals to evaluate their AA practice.

Keywords: Advanced Access model, Consensus, Primary healthcare

INTRODUCTION

Timely access is a cornerstone of strong primary healthcare (PHC) and a key component of a Patient-Centered Medical Home (PCMH) for ensuring population health.(1) Numerous innovations have been implemented to improve timely access.(2) One of the most recommended innovations implemented around the world to improve timely access is the Advanced Access (AA) model, also called open access.(2,3) Originally developed in the United States in the early 2000s, AA is defined by Murray et al. as having 5 pillars: 1) balance supply and demand; 2) reduce the backlog of previously scheduled appointments; 3) review the appointment system; 4) integrate inter-professional practice; and 5) develop contingency plans.(4,5) Several scientific papers on the foundations of AA have been published over the past 20 years, and the benefits of AA have been reported in many countries, including the United States, United Kingdom and Canada.(5–7)

Over the last two decades, PHC practice has evolved to increase interdisciplinarity in clinical teams. Thus, the need to rely on a model that incorporates new practices and new professionals has necessitated the development of an updated AA model. Furthermore, AA was originally developed in a context that prioritized implementing a new way of doing, with less emphasis on the ongoing practice and sustainability of the model.(8,9) However, changes in PHC practice require revisions to the AA model to adapt it to the contemporary context.

This study redefines the pillars and sub-pillars of the AA model by integrating an interdisciplinary

team-based focus, while considering the integration of PHC professionals, such as nurse practitioners and clinical nurses, social workers, and other allied professionals, in PHC practices. The general objective of this study was to revise and operationalize the pillars and sub-pillars of the AA model.

METHODS

This study was based on a sequential multi-method consultation process informed by a literature review and consultation with AA experts and involved 4 phases: 1) a literature review; 2) a deliberative face-to-face meeting; 3) an electronic survey; and 4) two final virtual validation meetings (Figure 1). (10)

Insert figure 1 here

In phase 1, we searched for terms such as "advanced access," "open access," "same-day scheduling," "timely access" and "AA implementation" in MEDLINE, PubMed, CINAHL and Google Scholar to scan for scientific peer-reviewed studies published between 2005 and 2019. Grey literature, such as reports or implementation guides, was also identified. An inductive approach was used by the research team to analyze the literature and identify concepts that emerged from PHC practice-based use of AA over the years (eg need for regular adjustment, integration of new appointments and consultation modalities, continuity, communication and satisfaction). These concepts were integrated into the delineation of the pillars and sub-pillars as defined across models of AA developed over time.

In November 2019, we identified a variety of key stakeholders suggested to be AA leaders in the province. Provincial and local decision makers, family physicians, nurse practitioners and clinical nurses, continuous quality improvement officers, administrative and front desk staff as well as

patients were invited by email to join the research team as part of an expert panel. Of the 45 AA experts invited, 33 experts representing all categories of stakeholders participated in the deliberative face-to-face meeting (phase 2). We purposely selected the World Café method to allow each participant to question the current relevance of all AA pillars in contemporary PHC practice and to suggest new pillars.(11,12) In groups of 5 or 6, experts were invited to brainstorm on each of suggested pillars that emerged in phase 1. Participants were asked to first brainstorm individually then, in a deliberative session within their sub-group, to identify disruptive or missing elements, suggest changes to the nature of the pillars and propose changes to the operational definitions. Building on the results of the World Café, a "carrousel" technique was used with AA experts to brainstorm components that are essential to the definition of each pillar within PHC practice. The results of this meeting, based on observations and summaries of the research team members present, were analyzed using an inductive approach(13) to reach consensus on a conceptual model of AA, including a preliminary name and definition for each identified pillar.

In phase 3, sub-pillar names and operational definitions were submitted via an e-survey consultation(14–16) to 27 invited AA experts.(17) Seven experts were involved in the development of the e-survey and, therefore, were excluded from this phase. Participants were asked to 1) indicate sub-pillar structure and hierarchy (on a scale of 1 to 9); 2) comment on the definition, if applicable, or provide their own definition; and 3) propose any sub-pillars they felt were missing, along with a definition. Consensus on the relevance of a sub-pillar was considered obtained when 75% or more of the responses were in the high agreement zone (6 to 9), with a median in the high zone and an interquartile range of 0 or 1. Sub-pillars that did not meet these levels of consensus were kept for further reflection or clarification in the last phase.

In phase 4, final meetings took place involving 29 experts in February 2021 and 4 patient-partners

in March 2021, which allowed for finalization of the operational definitions of the pillars and sub-pillars and consolidation of the revised AA model. Both meetings were held virtually and allowed everyone to participate through an open discussion.

This study was approved by the Scientific Research Committee and ethics provided by the Research Ethics Board of the Centre Intégré de Santé et de Services Sociaux de la Montérégie-Centre (CISSS MC) (2020-441, CP 980475).

RESULTS

The participation rate was high throughout the consultation process, and a high degree of consensus was obtained. Forty-five experts participated in at least one consultation phase, and 17 experts participated in all of them. Although the expert panel was heterogeneous in its composition, representing different roles in PHC, no polarization by expert role or group was observed. More specifically, 56% of the sub-pillars were evaluated as highly relevant by all experts in phase 3, illustrating a high level of consensus among the experts consulted. As the sub-pillar "Preparing for the appointment - efficiency" showed an interquartile range of 2, this sub-pillar received special attention in the subsequent e-survey consultation and in meetings with the expert panel and patients. Refocusing its operational definition and eliminating the element of efficiency was satisfactory for all and led to consensus on its relevance.

Figure 2 shows how the pillars and sub-pillars of the AA model evolved from the original model through the 4 consultation phases. Modifications that emerged from consultations in phases 2, 3 and 4 added clarification to pillars and sub-pillars, allowing for the refinement of operational definitions as well as the revised overall AA model.

Insert Figure 2 here

Figure 3 presents indicators used for the evaluation of consensus of the 25 AA experts who participated in the e-survey (phase 3) on the relevance of each sub-pillar on a scale of 1 to 9.

Insert Figure 3 here

Table 1 presents the final consensual AA model pillars and their operational definitions. The overall consensus process resulted in a revised AA model with 5 pillars and 17 sub-pillars, with each sub-pillar representing a key individual element of the operational definition of AA. In the revised model, 4 pillars underwent minor to major changes ("Comprehensive planning for needs, supply and recurring variations," "Regular adjustment of supply to demand," "Process of appointment booking and scheduling" and "Integration and optimization of collaborative practice") and one was merged with an existing pillar (now called "Comprehensive planning for needs, supply and recurring variations"). A new pillar emerged from the consultation and was added to the model ("Communication about AA and its functionalities").

Insert Table 1 here

Of the 5 pillars of the suggested AA model, patients suggested significant changes to pillars 4 and 5. Interprofessional collaboration and mental health were identified as important themes. Bidirectional and open communication between the clinic and the patient was also perceived as essential to allow patients to engage in their care. In addition, close monitoring of the interplay between accessibility and continuity of care was deemed crucial in the revised AA model. For example, participating patients mentioned that they prefer to wait longer, when appropriate, to be able to meet their own healthcare provider.

INTERPRETATION

Over the last decade, the AA model has been endorsed by several medical associations across Canada, including the College of Family Physicians of Canada.(18) Many providers that have implemented AA in their organizations and practices expressed the need to better understand the AA model as adapted in their practice. This study aimed to revise the AA model developed 20 years ago by identifying key contemporary pillars to guide PHC providers, practices and organizations in the continuous improvement of their practice. Here, we propose a significantly modified AA model developed through a rigorous consultation process. The AA experts involved agreed that the initial pillars 1 ("Balance supply and demand") and 2 ("Develop contingency plans") represented elements of overall planning as defined in "Comprehensive planning for needs, supply and recurring variations." Thus, these initial pillars were merged to create a new pillar redesigned with the overall objective of achieving and maintaining a balance between available appointments and demand for consultations. Considering a long-term vision for AA, the initial pillar "Backlog reduction" evolved into "Regular adjustment of supply to demand," which includes maintaining a balance between patient demand and the service supply of the clinic or professional, a concept that was poorly addressed in the original model. Indeed, maintaining balance is key to an AA practice.[19-21] This expanded version of the pillar still aims to reduce backlogs but now includes the maintenance of gains and the prevention of the return of backlogs. A new pillar, "Communication about AA and its functionalities," emerged as a major principle central to the implementation, and moreover to the sustainability, of AA. Finally, the growing trend towards offering multiple appointment modalities was perceived as necessary by the experts, especially in the COVID-19 pandemic context.

The involvement of AA experts from different backgrounds and health professions ensured that the model reflected the current context of PHC practice and was not restricted to a family physician perspective. Considerations such as the importance of involving not only PHC

professionals but also managers, decision makers and patients helped to redefine the pillar "Integration and optimization of collaborative practice," making it more inclusive and extending AA practice to all clinic professionals, an important contribution of this study. Additional attention is now given to the importance of the satisfaction of professionals as well as patients with AA, which is in line with 2 of the goals of the Quadruple Aim.(22)

Patient partners were key stakeholders involved in the consultation process. They emphasized the importance of specific key elements to the patient access experience, such as the overall access journey and the desired balance between accessibility and continuity. Indeed, accessibility starts when the patient needs to contact the clinic for an appointment. Getting an appointment in a timely manner means being able to contact the clinic easily and efficiently in a way that is convenient for the patient. This was brought forward by all types of participating experts but particularly by patients, for whom this step may represent a significant barrier to accessing the clinic's services.

Continuity was deemed to be as important as accessibility by patients, depending on the urgency of their need. Although continuity is not an intuitive element of an access model, several scholars interested in AA(19,23) have underlined its importance in patient management as well as in limiting demand for appointments and contributing to better overall quality of care.(19) Indeed, a patient who meets with his or her usual professional, with whom a relationship of trust has developed over time, is less likely to make another confirmation appointment.(23) Thus, at the end of our consultation process, this concept was an integral aspect of referring patients to the appropriate professional. Patients emphasized that it is very important to ensure relational continuity and that they would prefer to wait for an appointment with a known professional, especially those dealing with complex needs.(24) By increasing timely access to patients' own providers, AA improves relational continuity as a consequence of increased availability of the

professional while avoiding the need to consult another professional or visit another setting to access care in a timely manner. (25)

There were limitations to this study. The entire consultation process took place in a very supportive organizational and political context for AA, which may limit the generalizability of our findings. Indeed, the experts consulted are early promotors or adopters of AA and are convinced of the benefits of an AA practice. AA practice is also actively promoted by Quebec's Ministry of Health and Social Services as a model for improving access not only to family physicians but to all professionals in PHC clinics. However, we are confident that the model applies to other PHC contexts, as it is based on general concepts central to PHC practice.

The overall consultation process involved multiple methods that provided experts the opportunity to express their voice in various ways and at different times throughout the iterative process. The confirmation of various aspects of the model by patients and the addition of important elements specific to the patient experience also represents an important addition to the original AA model.

This study led to a revised AA model based on consensus among several AA experts. This new model and the development of operational definitions expand the original model to professionals other than physicians and nurses working in PHC. The final consensus definitions are measurable and represent levers for actionable changes that can lead to a more optimal AA practice. This model is an essential step in supporting both individual and collective reflection on the practice of AA and will guide the development of a reflective tool to support professionals working in PHC. This redesign of the AA model integrating a contemporary perspective of PHC offers opportunities to support PHC professionals who have either already implemented AA or are willing to do so and to ensure its sustainability.

Conflicts of interest

None declared.

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Figures

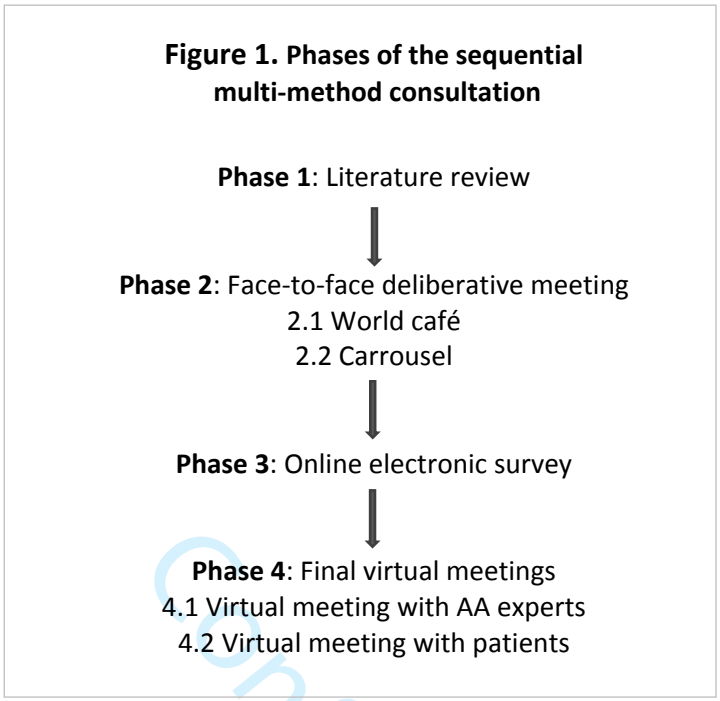
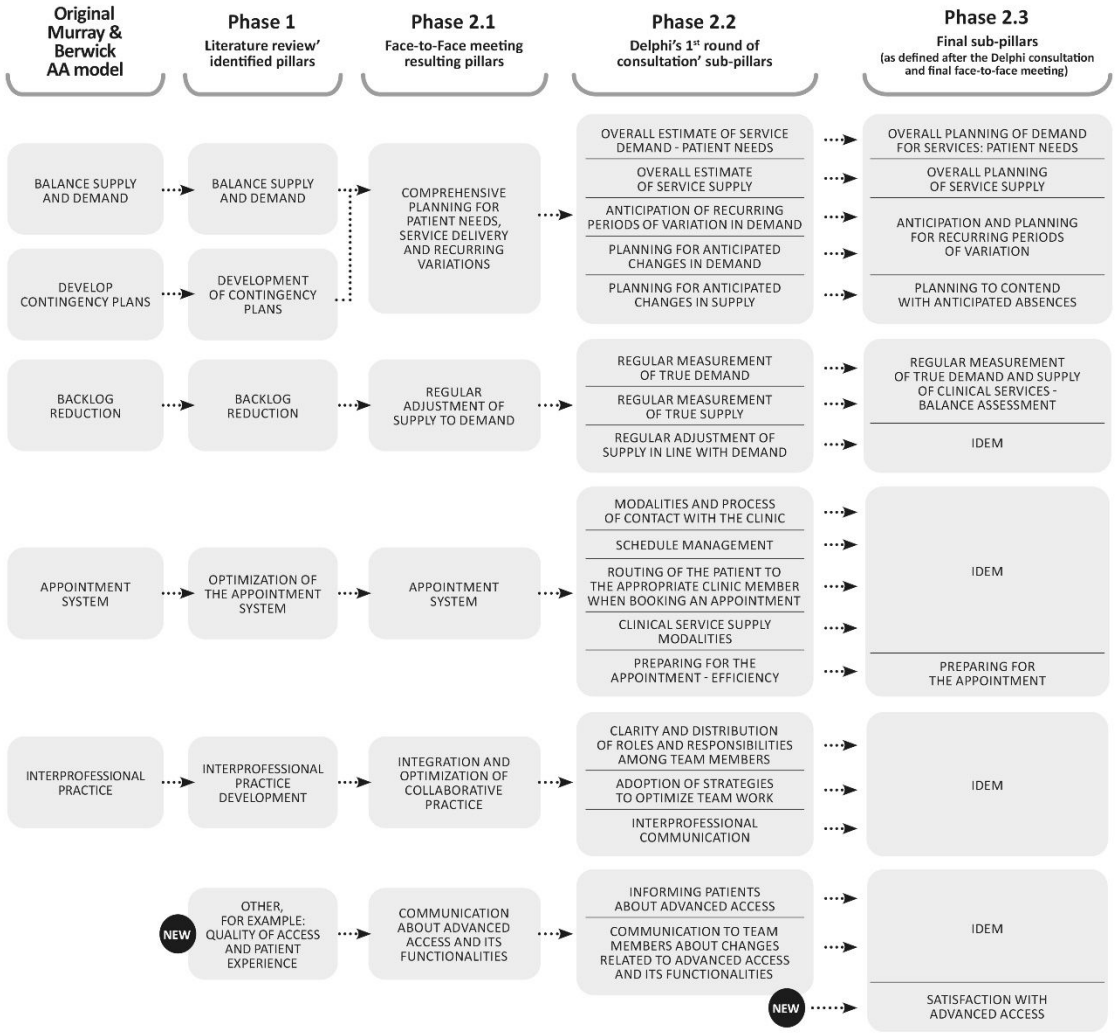
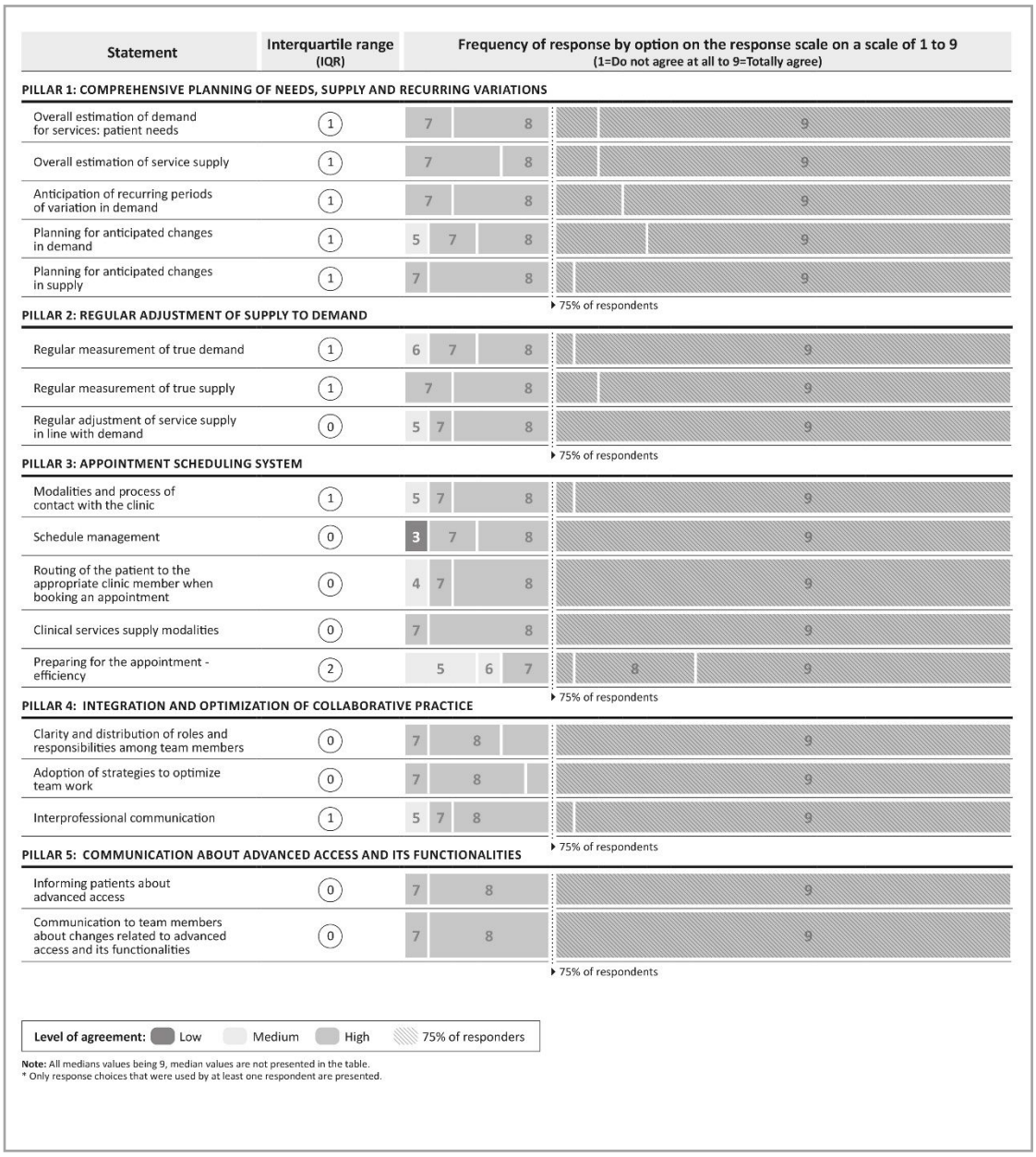


Figure 2. Evolution of the AA model through expert consultation – Pillars and sub-pillars



*Each arrow represents the modification performed between phases or sub-phases. Converging arrows indicate that a concept was combined with a pre-existing pillar, and "new" indicates the introduction of a new element at one of the consultation phases.

Figure 3. Indicators of consensus on the relevance of sub-pillars through the online survey



Table

Table 1. Final five pillars of AA and their operational definitions

	Name	Definition
	Comprehensive planning for needs, supply and recurring variations	Comprehensive planning for the needs and characteristics of registered patients by the clinical team members to provide the number of appointments required. This considers recurring seasonal variations in demand and supply.
	Regular adjustment of supply to demand	Regular adjustment of service provision by clinical team members to match and maintain a balance with patients' needs.
	Processes of appointment booking and scheduling	The appointment scheduling system must facilitate patient contact with their clinic and provide timely availability of clinical team members according to their patients' needs.
	Integration and optimization of collaborative practice	The integration and optimization of a collaborative practice to provide timely health care and services to patients based on their needs and the roles, responsibilities and skills of team members.
	Communication about advanced access and its functionalities	Information about the principles and functionalities of AA is provided to patients and members of the clinical team and updated when organizational changes occur. This communication incorporates satisfaction of patients and of all clinic members regarding AA.

BMJ Open

Development of a self-reported reflective tool on advanced access to support primary healthcare providers: study protocol of a mixed-method research design using an e-Delphi survey

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ABSTRACT

Introduction Timely access is one of the cornerstones of strong primary healthcare (PHC). New models to increase timely access have emerged across the world, including advanced access (AA). Recently in Quebec, Canada, the AA model has spread widely across the province. The model has largely been implemented by PHC professionals with important variations; however, a tool to assess their practice improvement within AA is lacking. The general objective of this study is to develop a self-reported online reflective tool that will guide PHC professionals' reflection on their individual AA practice and formulation of recommendations for improvement. Specific objectives are: (1) operationalisation of the pillars and subpillars of AA; (2) development of a self-reported questionnaire; and (3) evaluation of the psychometrics.

Methods and analysis The pillars composing Murray's model of AA will first be reviewed in collaboration with PHC professional and stakeholders, patients and researchers in a face-to-face meeting, with the goal to establish consensus on the pillars and subpillars of AA. Leading from these definitions, items will be identified for evaluation through an e-Delphi consultation. Three rounds are planned in 2020–2021 with a group of 20–25 experts. A repository of recommendations on how to improve one's AA practice will be populated based on the literature and enriched by our experts throughout the consultation. Median and measures of dispersions will be used to evaluate agreement. The resulting tool will then be evaluated by PHC professionals for psychometrics in 2021–2022.

Ethics and dissemination The Centre Intégré de Santé et de Services Sociaux de la Montérégie-Centre Scientific Research Committee approved the protocol, and the Research Ethics Board provided ethics approval (2020-441, CP 980475). Dissemination plan is a mix of community diffusion through and for our partners and to the scientific community including peer-reviewed publications and conference presentations.

Strengths and limitations of this study

- Provides a revisited and operationalisation of the pillars and subpillars of the advanced access (AA) model developed 25 years ago.
- Provides a rigorously developed up-to-date tool on AA based on the literature and on the experiences of various primary healthcare stakeholders in response to their expressed needs.
- Involves the participation of multiple stakeholders with different roles and attached to diverse organisation originating from multiple environments including urban, rural and remote regions.
- The Delphi method allows the experts to express their thoughts independently, while encouraging pragmatism, honesty and creativity.
- The developed tool may not be transferable without cultural adaptation to other settings where the principles of AA are implemented.

INTRODUCTION

Advanced access model

Timely access is widely recognised as a cornerstone of effective primary healthcare (PHC). The advanced access (AA) model, developed to increase timely access, has been promoted and adopted in primary care settings in various countries. It is the most commonly used organisational model to reduce wait times for primary care appointments.[1] Timely access is one of the guiding principles of the patient-centred medical home (PCMH).[2] The pillars of AA complement the PCMH model (timely access, comprehensiveness, continuity, interprofessional collaboration) and emphasise organisational components. AA

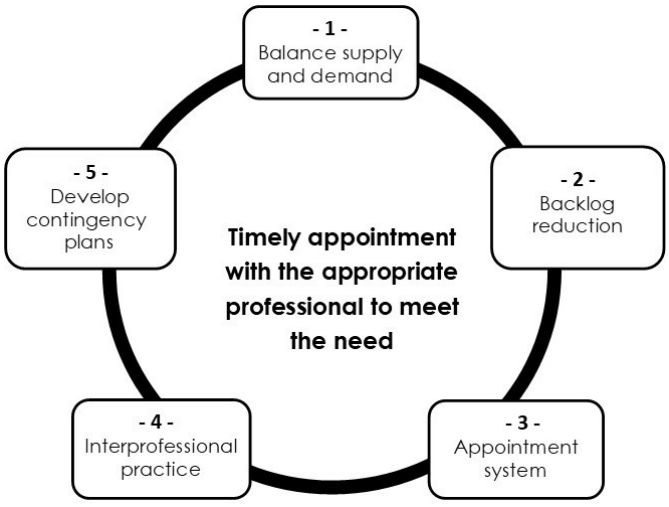

Figure 1 The five pillars of advanced access. The figure shows the advanced access model with the original five pillars and guiding principles. This is used as a starting point for this proposal.

has been defined according to five pillars[3 4]: (1) balance supply and demand; (2) reduce the backlog of previously scheduled appointments; (3) review the appointment system; (4) integrate interprofessional practice; and (5) develop contingency plans (see figure 1). The AA model was developed in the USA in 2001 and implemented in North America and Europe, with many studies in the USA, the UK and Canada and its effectiveness demonstrated in various healthcare systems.[5–9] Benefits of AA include reduced wait times,[5 6 9–11] fewer missed appointments[5 10] and improved professional and[8 12] patient satisfaction,[5] and provider productivity.[9]

The AA model aligns with the organisational guiding principles for a high-quality high-performance primary care organisation as put forward by the College of Family Physicians of Canada.[13 14] That said, even if the concept of AA was developed more than 20 years ago by Murray *et al* remains current, it needs to be adapted to the contemporary context.[15] This study contributes to refine AA based on more interdisciplinary-based team and the need to improve PHC practice with a quality improvement approach.

Evolution of AA and state of research in the province of Quebec

In Quebec, AA was first introduced in 2012, and since then it has been widely promoted by the Quebec College of Family Physicians, as well as by the Ministry of Health and Social Services.[16 17] Family physicians are strongly encouraged to implement an AA model based on the five pillars proposed by Murray *et al*.[3] Over the past 6 years, the majority of PHC family physicians in Quebec have introduced AA in their organisations at varying levels of implementation.[4 18]

An expressed need for a reflective tool

Several guides have been developed in Canada,[18–20] the USA[21–23] and Europe[24] to assist PHC professionals and/or organisations to plan and implement AA. These guides offer recommendations to plan supply, reduce demand and organise appointment management in order to achieve and maintain a balance between supply and demand, thus enabling timely responses to patient requests. The guides generally present principles of AA, along with how to implement initial changes and some measurement tools. They also offer strategies to support the introduction of AA, but lack information and guidance to improve and sustain AA or to troubleshoot issues over time.

There is no tool even to evaluate the status of AA in a professional's practice, let alone to guide its continuous improvement and sustainability. Inspired by the principles of the Model for Improvement,[25] such a tool could be used to align metrics across multiple PHC providers, while operationalising the complex process of providing access to care in a daily practice. One could use the developed tool to reflect on one's practice and plan for modifications to improve patient access. This project was therefore developed in response to a clearly expressed ministerial desire to meet the needs of PHC professionals to be supported in the clinical integration and improvement of AA in PHC settings. This study will provide an online reflective tool that will be used as requested by PHC professionals seeking to improve their AA practice.

Self-reported tools are useful reflective strategies to support quality improvement as they are easily accessible and available when needed, regardless of location. These tools also provide an effective way to promote self-reflection and identification of strengths and areas in need.[26] Some tools available online, provide diagnosis, document or assess a level of practice or alignment with goals such as those of the tool developed by the College of Family Physicians in Canada to assess the PCMH[27] or the Universal Health Coverage Primary Health Care Self-Assessment Tool.[28] Online tools may also offer a reflective perspective to provide actionable advice,[27] or immediate results and guidance.[29]

There is a need to develop a self-reported online reflective tool to support AA implementation and improvement by PHC providers. To achieve this objective, it is important to ensure that there is consensus on the underlying model. Differences in definition or interpretation of the pillars of AA could lead to operationalisation difficulties, that can and should be avoided.

Objectives

The main objective of this study is to develop a self-reported reflective tool to support PHC providers to improve their AA practice.

The specific objectives are to:

1. Operationalise the pillars and subpillars of the AA model.
2. Develop a self-reported questionnaire on their practice in AA.
   i. Develop a questionnaire to assess the level of implementation of the AA model.

ii. Identify key recommendations to improve AA.

3. Evaluate the psychometrics of the tool.

The main deliverable of our study will be a self-reported reflective tool on AA that will be combined with a repository of recommendations to improve AA, available on an electronic platform easily accessible to PHC providers and teams. This includes physicians, nurses and nurse practitioners, social workers, pharmacists, nutritionists, psychologists and so on. Users will receive, in one place, an evaluation of their AA practice and personalised recommendations to support improvement.

METHODS

Study design overview

A modified Delphi methodology will be used, to develop a reflective tool and identity strategies to improve AA. A literature review and analysis of selected articles will be used to identify conceptual constructs, followed by an iterative consensus achievement process among key experts including a face-to-face meeting and an online survey tool (e-Delphi).[30] Using an iterative process, a Delphi consultation is an effective technique designed to obtain the most reliable consensus within a group of experts regardless of their geographical spread.[31–33] A group of experts from the province of Québec will include diverse providers such as family physicians, nurse practitioners, nurses, front-desk and administrative staff and policy-makers. Grounding the initial Delphi round in concepts derived from literature and based on initial experts' input during the face-to-face meeting will both be efficient, and will stimulate participation in the following steps of the tool development.

The process entails three sequential phases, with phase 1 being qualitative, while phases 2 and 3 being including quantitation. Table 1 briefly presents all three phases with their specific objectives. Phase 1 consists of a face-to-face meeting. This pre e-Delphi consultation aims to establish common bases in the operationalisation of a revised AA model (objective 1). Phase 2 will consist of a three-round consultation to identify the content of the self-reported reflective tool. Phase 3 will follow to assess the developed reflective tool and its applicability to different PHC professionals and in different PHC environments.

The self-reported reflective tool aims to evaluate the processes associated with each AA pillar while allowing its users to grasp their strengths and weaknesses with respect to their level of implementation.

Study management

The research team includes researchers with AA and methodological expertise, and PHC professionals including family physicians and nurses. The team will oversee the development and ongoing processes of the study, as well as major decisions regarding the selection of AA experts to invite to the face-to-face meeting (Phase 1) and to the e-Delphi consultation (Phase 2). They will also be involved in piloting material and instruments ahead of consultations.

Table 1 The AA reflective tool development in brief

Phase 1 Pre-Delphi consultation Establishing common bases ► Operationalise the AA model	► Research team identifies AA pillars and definitions from the literature ► Identification and recruitment of AA experts ► Consensus building on pillars and brainstorming about subpillars of AA through a facilitated face-to-face meeting
Phase 2 e-Delphi consultation Creation of the AA reflective tool (list of essential items to be assessed in the reflective tool by PHC practitioners/clinicians)	First round of consultation ► Panel expert agreements scores (from 1 to 9) on subpillars and definitions ► Suggestions/comments for modification or addition to subpillars Second round of consultation ► Global and individual feedback report from round 1 ► (Level of consensus achieved, global and individual expert panel scores) ► Panel expert agreement scores (from 1 to 9) on new propositions and modification emerging from round 1 ► Panel expert agreement scores (from 1 to 5) on the importance of each subpillar and the list of items to measure their level of implementation ► Panel expert agreement (yes/no) on suggested response scales ► Suggestions/comments for modification or addition of items Third round of consultation ► Global and individual feedback report from round 2 ► (Level of consensus achieved, global and individual expert panel scores) ► Consensus building on items by pillar and subpillar ► Suggestions for practical recommendations by item to provide to clinicians to improve their AA practice
Phase 3 Piloting, adjustment and development of a repository of recommendations To assess the tool and its applicability in different PHC environments	► Questionnaire completion by PHC clinicians in different PHC settings ► Psychometric properties analyses ► Focus groups to receive feedback and improvement tips ► Final adjustments ► Development of a repository of recommendations with actionable guidance

AA, advanced access; PHC, primary healthcare.

The expert panel

To maximise the acceptability and usefulness of the reflective tool in Quebec's contemporary context, the research team will establish an AA expert panel comprised of provincial and local decision-makers, family physicians, practitioner and clinical nurses, continuous quality improvement officers, front-desk and administrative staff, as well as patients and researchers working in the field of AA. We will seek to bring together experts with diverse expertise based on their role in their own organisation as well as at the local, regional or provincial level. Purposive and snowball sampling techniques will be used to identify eligible participants. Forty potential participants will first be approached and invited by the principal investigators by email to join the expert panel and to be part of the pre-Delphi meeting with the hope of recruiting and maintaining a sample of 20–25 experts across all three e-Delphi rounds. This is above the target of 10–18 individuals, to ensure the development of productive group dynamics and to maximise chances of reaching consensus among experts.[30] Participants will be considered for the panel if they are working in PHC or belong to an organisation working closely with PHC professionals, and have an extensive experience with AA (5+ years) as a practitioner or manager. Practitioners and managers who were involved in the development of the training sessions provided by the Quebec College of Family Physicians will also be invited.[34] Strategies to maximise the retention rate include personalised reminders from one of the principal investigators, with the goal of not losing more than 30% of the participants over the three expected rounds.[30]

Phase 1: operationalisation of the AA model

Building a consensus around the AA model will first entail agreeing on the pillars and subpillars that are essential to integrate in an AA practice in PHC. The starting point will be the conceptual framework of the five guiding principles of AA developed by Murray and Berwick in 2003[3]: (1) balance supply and demand; (2) reduce the backlog of previously scheduled appointments; (3) review the appointment system; (4) integrate interprofessional practice; and (5) Develop contingency plans (see figure 1).

Phase 1 will consist of a literature review to conceptualise a revised AA model. Search terms such as 'advanced access,' 'open-access,' 'same-day scheduling,' 'timely access' and 'AA implementation' will be used. The literature review will include scientific studies and grey literature reports at local, national and international levels. This scan will allow us to delineate the pillars and subpillars as defined in models of AA in the contemporary literature, as well as constructs that need to be measured within each subpillar.

Following revision by the research team, the revised AA model will be submitted to the AA expert panel in a face-to-face meeting for discussions to build consensus while refining the pillars and definitions. This in-person meeting will be highly interactive and use facilitation techniques for group consultations, to encourage everyone's participation. The meeting will be organised in two steps. First, a variation of a 'World Café' will be used to initiate and lead a collective reflection around the AA pillars and definition identified by the research team. A World Café is a simple yet powerful method to enable meaningful conversations driven by participants and the topics that are relevant and important to them,[35 36] to lay the groundwork for common understandings. Building on the results of the World Café, a 'carousel brainstorming' technique will be used with AA experts to brainstorm on important components to be included in each pillar. A Carousel Activity is a communicative and interactive opportunity for participants to get up and move around a room in a circular fashion, stopping intermittingly to comment, discuss or respond in writing to probing headings/questions/topics/themes posted by a facilitator.[37] This technique allows for small group discussion, followed by whole-group collective reflection.[38] Facilitation techniques ensure that everyone is able to participate equally and is able to express his/her viewpoint freely, while ignoring hierarchical concerns.[39] The results of this meeting will be analysed by the research team to come to a consensus on the conceptual model of AA including the name, number of pillars and definition of each identified pillar. This will serve as groundwork for the e-Delphi consultation.

Phase 2: creation of the AA reflective tool through e-Delphi consultation

Phase 2 will be conducted on an online survey tool (Survey Monkey platform). After each round, a personalised report will be sent to each AA expert providing an overall view of responses as well as their own, in an anonymised format. A list of processes to operationalise the various pillars and subpillars developed during phase 1 will be reviewed and adapted by the research team before submission to the expert panel. The mandate of the panel will be to set the importance of the suggested processes for each of the subpillars and to achieve a consensus on a final list of processes, considered to be very important or essential for assessment of an AA practice. Experts will also be surveyed regarding the adequacy of suggested response scales for each item of the reflective AA tool.

Round 1

An individualised link to a personalised questionnaire will be sent to each AA expert. The first round of consultation will propose subpillars that have emerged from phase 1. For each of the proposed subpillars, AA experts will be asked to rate their level of agreement (on a scale of 1–9) regarding the relevance of this subpillar to the concept of AA. The median as well as measures of dispersion will be used as indicators of the level of consensus. There is no commonly defined rule to determine achievement of consensus, so a pre-hoc decision was made to consider 75% agreement to be consensus. Based on applied methods to determine consensus in a Delphi,[40 41] we define the following three zones: a median between 7 and 9 indicates high relevance, a median between 1 and 3 indicates low relevance and a middle zone relevance of a median between 4 and 6 where the relevance is uncertain. These

subpillars will be retained for a second round of consultation. A 9-point evaluation scale was chosen for this phase to allow participants to express their perception of relevance of a subpillar using a wide range of possibilities. Experts will also be asked to provide their definition, to comment on the subpillar, to indicate if this subpillar is associated with the appropriate pillar and to add any subpillars they think are missing along with suggested definitions.

Round 2 and 3 surveys

A feedback report from the previous round will accompany each new round of questionnaires, including the level of consensus achieved along with global and individual relevance scores for each item. In rounds 2 and 3 (and further if needed), the importance of the suggested items will be rated using 5-point Likert scale. The specification of each element of the response scale (1=Not important at all, 2=Little important, 3=Somewhat important, 4=Very important and 5=Essential) is intended to simplify the respondents' burden of response while adding clarity to the responses obtained. Consensus will be attained if 75% of respondents rate an item 'Very important' or 'Essential.' More specifically, consensus will be reached with a median rating of 4 or more, with an IQR of less than 1. If an item is rated below 4 by more than 25% of respondents, this be interpreted to be non-consensus. AA experts will be given the opportunity to modify their initial response in light of the answers provided from the group, so as to facilitate the group evolution towards consensus.[33 42] They will also be asked to score new propositions and modifications emerging from the previous round. The process will continue with further rounds until a consensus on the importance of each item is reached or not.[33 42] The e-Delphi rounds will cease when an acceptable degree of consensus is reached.[43 44] Particular attention will be given following each round to assess whether consensus has been reached over a particular round, or rather evolved throughout the process, and whether the group's opinion has changed over the rounds.[45] Phase 2 will result in the creation of the online reflective tool based on the list of items for which consensus was achieved, to rigorously assess the processes required in an AA practice.

Phase 3: assessment and applicability of the newly developed AA reflective tool and development of a Repository of recommendations

A subgroup of 5–10 AA experts who participated in phases 1 and/or 2 will be consulted to formulate and prioritise recommendations for an optimal AA practice.

AA reflective tool refinement

Survey completion sessions will be organised with PHC professionals and staff from five different PHC clinics, who will not have been involved in the previous phases of the study. These survey completion sessions will include feedback discussions on the completion of the tool, and will be led by the research team. Following cognitive testing techniques,[46] these sessions are intended to identify items that are not clear or need to be reformulated, as well as any difficulties encountered during completion of the questionnaire. Following this piloting and development period, the AA reflective tool will be considered to be final, and ready to be evaluated by a larger number of potential users.

Development of a repository of recommendations

A repository of recommendations aligned with the different components of the revised AA model will be created, in relation to the result obtained after the completion of the tool. This repository of recommendations will be made available through the electronic platform, on completion of the evaluation using the AA reflective tool. Recommendations will be personalised according to the professional 'portrait' based on their score on each pillar, providing them with actionable avenues. Such an approach was inspired by the primary care quality improvement tool of the College of Family Physicians of Canada.[27]

The repository of recommendations will be inspired by systematic collation of best practices, by reviewing the literature related to each of the components of AA (eg, improving interprofessional collaboration, optimisation of telephone reception, managing escalation of emergencies) and using feedback generated by the expert panel on the final e-Delphi round. Implementation guides as well as locally developed help tools will serve as sources of recommendations for the repository and will be expanded with experiences of AA experts and their close collaborators. The repository will be expanded and refined during the third round of the e-Delphi and during the survey completion sessions. If discussion of recommendations cannot be addressed in the third round of the e-Delphi, we will bring the discussion to experts in an additional face-to-face or virtual meeting.'

Assessing the psychometric properties of the reflective tool

The final step of development of the tool will consist of the evaluation of some of its psychometric properties. To do so, we plan to recruit a minimum of 150–200 PHC professionals in at least 10 PHC clinics that have not been involved in the development of the tool.[47] The family physicians, nurses and other professionals working in those PHC clinics will be asked to complete the newly developed tool and comment on its content. Following qualitative feedback, the first analysis will be at the item level: after excluding items with more than 4% missing values, we will do an item discrimination analysis to learn how well an item can discriminate between high and low AA performers. Items with a lack of variation in responses—that is, that are either too easy to or too difficult to attain—will be reviewed for content and adequacy of the response scale. Other properties tested will be the tool's reliability (repeatability and intra-reliability and inter-reliability in different contexts or between different types of healthcare professionals), and validity (construct validity with a confirmatory factor analysis). Finally,

internal consistency will be analysed for each pillar and subpillar.

Patient and public involvement

At least two patients will be invited to the face-to-face meeting in phase 1 as well as the e-Delphi survey. We also intend to consult the patient partners' group related to our research infrastructure at the end of the tool development to discuss issues that may have arisen and could require a patient point of view. This group is composed of five patient partners involved in different research project on AA.

Ethics and dissemination

Ethics and consent for participation will be sought at each phase of the study. Participation in a meeting or completion of an electronic survey will be considered to be consent for participation and use of anonymised data; as in focus groups or individual interviews, a written consent will be sought.

The results of dissemination plan includes communications through the PHC community including our partner organisations, and to the scientific community via the peer-reviewed literature and conferences. We will attempt to reach many PHC professionals to let them know of our findings through professional organisations and by organising a symposium that will bring together our expert participants as well as colleagues from their organisations or from other organisations and PHC clinics. As so, elements and lessons learnt from this study will be shared through multiple community media resources, including presentations and webinars, newsletters and a symposium on AA initiated by the research team.

DISCUSSION

Scientific articles on the foundations of AA have been published over the past 20 years. During this time interdisciplinary collaborative practice has evolved within PHC family practices, with several healthcare professionals now being part of the PHC team. This study will help to redefine the foundations of the AA model by integrating an interdisciplinary team-based focus, while considering changes that have been put in place in PHC practices. The inclusion of various PHC stakeholders in the tool development process will allow the tool and its content to reflect realities experienced in the field. Participation of AA champions in the overall development process of the AA reflective tool will benefit the community's acceptance of the tool.

This study will provide a rigorously developed up-to-date AA reflective tool based on the literature and on the experiences of various PHC stakeholders, while providing a response to their expressed needs for a reflective tool. The newly developed reflective tool will be helpful as the Ministry of Health and Social Services and professional medical organisations are currently promoting AA in PHC settings and other professional associations across Canada. Timely access is a key pillar of PCMH, a well-known model to guide the development of PHC around the world. The reflective tool on AA developed in this study will be available for use and adaptation in different countries.

The repository of recommendations developed in parallel with the tool will provide the AA tool users with advice in relation with their own AA evaluation, and provide pragmatic and personalised recommendations to improve their AA practice. This will all be conveniently available online.

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41 Dionne CE, Tremblay-Boudreault V. Chapitre 7 - L'APPROCHE DELPHI, Application dans la conception d'un outil clinique en réadaptation au travail en santé mentale. In: *Méthodes qualitatives, quantitatives et mixtes*. 2e édition. Québec, Qc, Canada: Presses de l'Université du Québec, 2020. ISBN: 978-2-7605-5139-8. https://www.puq.ca/catalogue/livres/methodes-qualitatives-quantitatives-mixtes-edition-3773.html
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