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A Needs-based Planning Framework for Telemedicine Services

A Practical Guide

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Health-e-Regions
Using telehealth to deliver specialist care

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THE AIM OF THE FRAMEWORK

This Needs-based Planning Framework for Telemedicine Services[1] aims to provide direction and guidance to assess the health services needed in a community prior to the implementation of a telemedicine service.

JUSTIFICATION FOR NEEDS ASSESSMENT

Why do we need to conduct a needs assessment before implementing telemedicine services?

- The first step for planning a successful implementation is evaluating needs[2].
- Health needs assessment is an evidence-based method of planning for health services to ensure a health service uses its resources to improve or maintain in an efficient manner the public health[3,4].
- Gathering the required information and the allocation of resources distributed to reduce inequalities has evolved into a valid method of tailoring health services[3,4].
- Telemedicine should be driven by the needs of patients and clinicians rather than technology[5].
- Each community has its own unique requirements that should be addressed accordingly[5].
- The outcome of the needs assessment study can provide information that can be used to identify the requirements, investigate the available options and identify whether telemedicine might play a role in improving access to healthcare services.

This Framework consists of two phases, each containing three components:

PHASE ONE - DATA COLLECTION

Phase one is measured quantitatively and qualitatively. Analysis of data from each component will provide an understanding of the current status of healthcare services and the needs of the target population. After the comprehensive process of identifying needs (phase one), a list of needed healthcare services will be produced.

This list will likely present different, potentially conflicting needs. This is expected, since the collection of data in the first phase is intended to capture quantitative and qualitative data that reflects subjective and objective measures of needs that represent the community as a whole[6].

PHASE TWO - PRIORITY SETTING ANALYSIS

The needs identified in phase one should be weighed against each other and prioritised, since resources are limited and the goal of needs assessment is not just to identify the needs but to identify the prioritised services, which when offered will benefit most people in the studied community and improve their health. Healthcare needs assessments that do not provide adequate attention to implementation are merely an example of an academic exercise[4,6]. During this phase, the identified needs from phase one will be prioritised.

WHEN TO USE THIS FRAMEWORK

This guide will be a useful tool to help as a first step in the successful planning of a telemedicine service. The information in this guide has been compiled to help you assess the need for services in a community and the role telemedicine may play in providing these services.

The Guide can be used by a telemedicine centre providing services, a government planning to incorporate telemedicine services into their healthcare delivery system, or a small town assessing its own needs to seek telemedicine services. Any organisation (large or small) wanting to assess a community needs for telemedicine services will find this guide helpful.

Ideally, the needed services in a community should be assessed from different perspectives to produce a more comprehensive understanding of the community needs. However, the use of this Guide may be scaled up or down based on the timeframe, budget, available human resources (personnel), availability of data and the government policies and priorities.

To produce a comprehensive view of a community's needs, all the different needs represented in the framework components must be assessed. In case it is not possible to collect or access representative data for a single component (i.e. there wasn't an adequate sample size), the application can be completed based on the available data, but the limitation of the information (as a result of the reduced sample) should be acknowledged. You will need to interpret your data based on the relative comprehensiveness of what you have collected.

While using this Guide you need to remember that this is the first step in planning for telemedicine services implementation. After completing this step you can proceed with the next six steps: developing a care services plan, developing a business plan, planning technology, training personnel, testing care and technology plans and evaluating outcomes to ensure a successful implementation of the program (not covered in this Guide)[2].

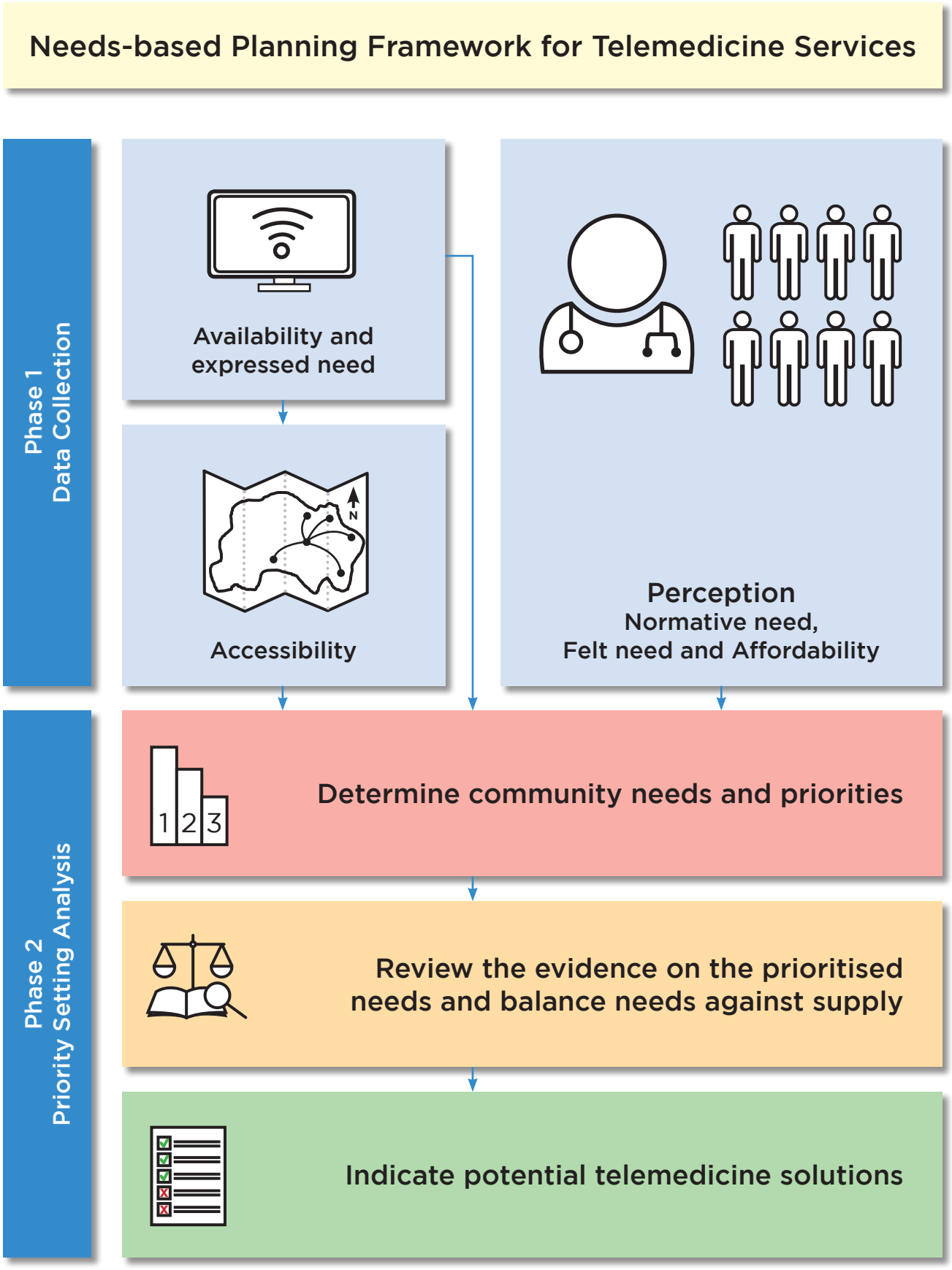
We would also like to highlight that the sources of data given in this Guide are examples that might be available to you. We encourage you to explore all sources of data available in your healthcare system.

THE GUIDE STRUCTURE – AND HOW TO USE IT

Phase 1 Data Collection	
Component 1	Availability and expressed needs
Component 2	Accessibility
Component 3	Perception
Phase 2 Priority Setting Analysis	
Component 4	Determine community needs and priorities
Component 5	Review the evidence on the prioritised needs and balance needs against supply
Component 6	Indicate potential telemedicine solutions

- The Guide will explain the purpose of each component, and walk you through a series of guided questions to help you complete it.
- Each part is intended to be undertaken in the order listed, except for Component 3 which could commence at the same time as Component 1.
- This Guide provides helpful tips, with space for you to make notes about your own work.

Diagrammatic representation of the framework



PHASE ONE: DATA COLLECTION

1 Availability and expressed needs

It is important to begin the planning process by assessing:

- The available specialist health services.
- The services that patients needed, but had to travel outside of their local health service to access.

Source of data

- Routinely collected data
- Within hospitals or the health department, data collected for administrative purposes.
- Volume of physician encounters (outpatients) measured by physician office visits.

Examples

A. International Classification of Diseases ICD- 9 or ICD-10 codes for people who live in a specific area; using the postcode of that area can provide a clear picture of the needed services.

B. Outpatient data can be sourced by looking at the referral data. For example, the top ten specialist patients were referred from a specific postcode for a specific period.

Availability

As a baseline it is vital to collect data about the available health services.

It is important to understand
- What to change from (current position).
- What to change to (preferred position).

Expressed Needs

Indicated by people's use of services.

Helpful Tips

- The health departments of most countries keep valuable data that can be used to assess the availability and expressed needs (e.g. outpatient referral data) and they should be approached during the initial stages of the assessment before seeking other sources.
- In the Australian context, there are other sources of data that can be used in addition, or as alternatives, to the previously given examples, such as: Pharmaceutical Benefits Schedule, Medicare and capturing the referral data from the private health sector.
- Some difficulties in acquiring data can be expected. Each source of data will present its own challenges. Remember that you will not be able to capture and assess all services provided to the community, but if possible collecting information from varied sources such as public and private healthcare service providers will present you with a more comprehensive understanding of the needed services than using only one source. That said, accessing only the data from the health department may be sufficient for continuing your assessment depending on your end goal.
- Although these data are usually readily collected, poor documentation, the absence of common disease definitions, and a lack of consistent classification systems, can lead to difficulties in interpreting data on the utilisation of health services.
- Capturing and studying the 'Did not Attend' patient referrals may also reflect which patient needs are not being met. Characteristics of the people who did not attend can be identified and other potentially relevant factors (e.g. the weather at that particular time) may shed light on those from the community who are not receiving proper care, and at what time points this occurs.

1 Availability and expressed needs

Processing and presenting the data

1) Generally the data required is going to include the following items for the postcode(s) of the community you are studying:

   a. The hospitals to which the patients were referred (including the hospital in their community).
   b. The specialties to which the patients were referred to.
   c. Appointment dates.

2) After acquiring the data, data cleansing will be required; for example, making sure specialties from different hospitals are coded the same way or spelt the same way.

3) Arrange the data by specialty/ reason for referral.

4) Separate referrals for hospital/s inside the community from referrals for hospitals outside the community.

The results may be presented in a table showing:

• Specialty referrals according to hospital name

Specialty	Hospital 1	Hospital 2	Hospital 3...	Total
Orthopaedics	Number of referrals (n)	n	n	n
Oncology	n	n	n	n
Obstetrics	n	n	n	n
Specialty name	n	n	n	n

• Hospitals, number of referrals per year

Where the patients were referred to	Year			Total
	20##	20##	20##	
Hospital Name 1	n	n	n	n
Hospital Name 2	n	n	n	n
Hospital Name 3	n	n	n	n

YOUR NOTES FOR 1. Availability and expressed needs

2 Accessibility

Accessibility
The location of supply and the location of the users, which accounts for the users' travel time, distance and transportation resources and cost.

Spatial accessibility (SA)
A measure used to identify areas with insufficient health services; it refers to the ease with which residents of a certain area can reach healthcare facilities and services[7,8].

Geographic information systems (GIS)
A tool used to conduct spatial accessibility studies to analyse population and health data, while focusing on the geographical dimensions of access[9-11].

Source of data

Key datasets for a geographic model are[9]:

- The road network, if assessing distance by car/bus/train.
- Specialist health service locations.
- Location information of the studied population.
- Retrospective data (data from Component 1) used as a proxy for the health services accessed by the studied population.

A common approach to defining spatial accessibility is based on[12]:

- o The spatial distribution of both consumers and health service providers
- o Travel distance
- o Travel time

Examples

A. Population data can be derived from existing global datasets or from country-specific census data.
B. Health facilities location data can be obtained from numerous sources, including the Health Department, or from field-based health facility surveys.

Cost of travel
An estimation of the cost of travel can be calculated using:

- The output data from Component 1 (Availability and expressed need) using frequency of travel and destination of travel.
- Component 2 (Accessibility) using distance and travelling time.
- Reimbursement information from governmental programs such as the 'Patient Travel Subsidy Scheme' Queensland, Australia, can be used to identify the transportation used by patients. This will only provide an estimation of the cost, since not all patients who travel claim the expenses.

2 Accessibility

Processing and presenting the data

The results can then be presented in a table showing:

- The most referred-to hospitals with the distance, time and frequency:

Hospitals the patients were referred to	Distance (round trip) (km)	Time (Round Trip) (min)	Frequency (Number of referrals from availability and expressed need data)
Hospital 1			
Hospital 2			
Hospital 3			

- The most referred-to hospitals, frequency, cost of travel and estimated cost of travel per year:

Hospitals the patients were referred to	Frequency (Number of times from the availability and expressed need data)	Cost per trip (Round trip) (AUD$)	Estimated cost of travel per year (number of times * cost per trip) (AUD$)
Hospital 1			
Hospital 2			
Hospital 3			

Helpful Tips

- The estimated cost of travel refers to transportation costs only and does not include accommodation, lost wages, meals, etc.
- The usual means of travel (transport mode) can be a car, train, plane, etc., depending on the distance.
- For comparison purposes, aerial distance (straight line) can be calculated to remove the bias associated with using different means of transportation bus/plane/car.
- Car, public transportation or aircraft transport costs can be obtained from relevant service providers.
- Working on GIS software can require some expertise; this can be done by independent learning or outsourcing the work to a specialist.
- There are free GIS software packages available; also, using Google maps to generate the information can work as an alternative to estimate time and distance for round trips.

YOUR NOTES FOR 2. Accessibility

3 Perception

This component of the framework can be divided into two sections:

1) Clinicians' and administrative staff's perception.
2) Population perception and affordability.

Input from clinicians, administrative staff and the public is vital to gaining a comprehensive view on community needs.

This includes the collection of qualitative and quantitative data that can be obtained through:

1) Interviews
- Allows for a detailed exploration of individual perceptions.
- In-depth information can be produced by in-person interviews (face-to-face).
- Telephone or videoconferencing interviews are a more economical option when there is a need for the investigator to travel[14].

2) Focus groups
- To understand different groups' perspectives about the topic.
- To discover factors that influence their behaviours or opinions[14,16].

3) Questionnaire survey
- A rapid way of collecting data.
- Relatively inexpensive to conduct.
- If performed well, it can provide a representative sample of the population[17,18].

Normative need: is the experts' opinion on what is needed in a particular area.

Felt need: describes what people say they want[13].

Affordability: is the users' perception of value in relation to its cost and the population's financial ability to use the healthcare services provided by the system.

Unmet need: is when "someone perceives themselves as in need of some form of health intervention but do not receive health services because of access barriers beyond their control"[15].

! Helpful Tips

When choosing the data collection methods, think about:
- The target population size
- The budget
- Time frame

For example:
- To gain the population perception, a representative sample size of the population should be calculated. Since this may constitute a large number of participants, surveying a sample of the population might be a more feasible method.

- It is important to try to capture subjective unmet needs[15] in this part of the assessment. Rarely will this type of need be documented in the system. For example, asking the community questions such as: for referrals by specialties, whether patients did or did not travel to receive treatment; reasons travel was not undertaken.

- Adding a few questions that assess the perception of telemedicine from the population's, clinicians' and administrative perspectives can be informative.

3 Perception

Processing and presenting the data

Examples of questions to be asked of clinicians:

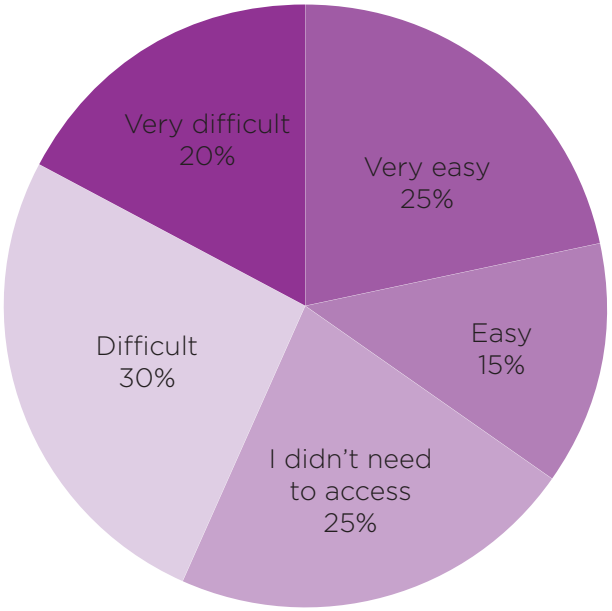
1. What healthcare specialties have your patients needed, and had to travel to receive care for?
2. What are the three most frequent specialties?
3. What services would you like to see offered in your community that don't currently exist?
4. Which of these specialties do you think is a priority?

Examples of questions to be asked of the sampled population

1. Below is a list of specialist services. Considering your own needs, which services would you personally like to see offered at your local hospital? From the list below, please choose the three most important specialties to you. (Add a list.)
2. Have you been referred to see a specialist outside of town due to the location of the specialist?
3. What types of specialist (that was unavailable in your town) have you consulted and in which city and hospital have you accessed care? (Add a table with space for city, hospital name, and specialty.)
4. Have you ever experienced a delay in accessing specialist care in the public health system, due to the need to travel outside of your town?
5. Approximately how long did you have to wait for an appointment?
6. Have you ever been referred by your General Practitioner (GP) to a specialist outside your town, and chosen to delay traveling out of town to receive that care?
7. Did you delay or not see a specialist due to a financial reason?

Example of how to present the population survey data

If you were referred to a specialist, how would you describe your ability to access specialist services?



Example of how to present the clinician interview data

What services would you like to see offered in your community that don't currently exist?

Service	No. (%)
Example 1	8 (32%)
Example 2	6 (24%)
Example 3	5 (20%)
Example 4	4 (16%)
Example 5	2 (8%)

YOUR NOTES FOR 3. Perception

PHASE TWO: PRIORITY SETTING ANALYSIS

4 Determine community needs and priorities

A list of needs will be derived from the data collection phase (Components 1-3). These needs should then be prioritised based on:

- o The frequency of the referral, e.g. the top five reasons for referral (Component 1).
- o The cost and distance of travel (Component 2).
- o The ranking provided by the community and clinicians (Component 3).
- o The organisational ranking (Not Component Specific - ranking specific to the organisation own goals and priorities).

- This list will likely present different, potentially conflicting needs.
- This is expected, since the collection of data in the first phase is intended to capture a comprehensive view of community needs from different perspectives[6].
- These methods can be combined to produce a shorter list of relevant needs that can then be further studied in the next stage.

! Helpful Tips

- Remember that telemedicine services may not always be implemented as a complete replacement of face-to-face services (e.g. traveling to see a specialist, specialist outreach services)[19]. Sometimes a blended solution may be used depending on the specialty.

- To ensure that patients from the community receive the best clinical care, the allocation to either telemedicine or face-to-face should be done purposely, to ascertain that the most appropriate method is used[19].

- Although looking at the specialty with the most referrals can indicate the most needed speciality in the community (economy of scale), dismissing specialties with smaller numbers of referrals as not suitable for telemedicine does not always follow.

  - o With infrastructure in place to address the most frequently referred specialty, identifying some specialties that occur very infrequently but for which there is no additional equipment or training required (e.g. existing technicians can host the telemedicine session) can easily be added at no extra cost.

  - o On the other hand, some specialties needing specific equipment and training requirements where the numbers are small may prove too costly to justify inclusion as a telemedicine option, and it is therefore more cost-effective to have the patients travel to their appointment.

4 Determine community needs and priorities

Processing and presenting the data

- The identified top-ranking specialties from each needs assessment will be listed.

Availability and expressed needs	Accessibility	Perception	Organisational Priority

Rank	Score	Referral ranking	Cost of travel/ distance ranking	Community ranking	Clinicians' ranking	Organisation-al ranking
1	5	Speciality A	Speciality A	Speciality B	Speciality F	Speciality D
2	4	Speciality B	Speciality B	Speciality G	Speciality A	Speciality F
3	3	Speciality C	Speciality D	Speciality H	Speciality G	Speciality H
4	2	Speciality D	Speciality C	Speciality I	Speciality I	Speciality B
5	1	Speciality E	Speciality F	Speciality F	Speciality B	Speciality J

- The specialties from each needs assessment will be ranked based on the outcome of the assessment (e.g. the top five most nominated needed specialties by the community will be ranked from 1 to 5).
- Each speciality in the rank column is assigned a score based on their position
  - (i.e. 5 for first position; 4 for second position, etc.).
- Additionally, the number of times each speciality was mentioned via different assessments will be identified under the frequency of ranking column, and a total score will be obtained by summing up all the scores per speciality.

Rank	Score	Referral ranking	Cost of travel/ distance ranking	Community ranking	Clinicians' ranking	Organisational ranking
1	5	***Speciality A (5)***	***Speciality A (5)***	Speciality B	Speciality F	Speciality D
2	4	Speciality B	Speciality B	Speciality G	***Speciality A (4)***	Speciality F
3	3	Speciality C	Speciality D	Speciality H	Speciality G	Speciality H
4	2	Speciality D	Speciality C	Speciality I	Speciality I	Speciality B
5	1	Speciality E	Speciality F	Speciality F	Speciality B	Speciality J

Specialities	Frequency of ranking	Total score
Specialty A	3	(5+5+4=)14

Scoring process

- In this example, all the scores carried equal weights, but it is possible to apply weighted scores.
- For example, if an assessment method encountered a significant limitation in accessing data affecting the reliability of the results, it may receive a lower weight.
- As a result of this scoring process a shorter list of relevant needs will be produced that can then be further studied in the next stage.

Specialities	Frequency of ranking	Total score
Speciality B	5	16
Speciality A	3	14
Speciality F	4	11
Speciality D	3	10
Speciality G	2	7
Speciality H	2	6

YOUR NOTES FOR 4. Determine community needs and priorities

5 Review the evidence on the prioritised needs and balance needs against supply

A) Review the evidence
After prioritising the identified needs:

- It is important to firstly determine whether telemedicine is a suitable, reliable intervention for the identified needs of the community. Since not every speciality can be delivered through telemedicine.
- If, however a service is already offered by the organisation through telemedicine, there will be no need to repeat the process of reviewing the evidence; thus moving directly to the next step, 'balance needs against supply'.
- This can be done through:
    - o Searching and analysing the literature; and;
    - o Seeking advice from experts in the field, to address the limited scientific evidence that may exist for specific telemedicine applications.

If telemedicine was shown (through publication and/or practical experience) to be a valid method of delivering the previously identified needed healthcare service. The next step would be to balance the needs against the known limitations of supply.

! Helpful Tips

One way to search the literature is by using a PubMed search:

- Search 1:
  Searching using (Telemedicine) MeSH term and combining it with Telemedicine (Title / Abstract).

- Search 2:
  Then search using the MeSH term for the specialty you want (medical, services) and combine it with specialty (Title/Abstract).

- Finally combine the two searches with AND:
  ((“specialty name Service, Hospital”[MeSH]) OR “Medical specialty name “[MeSH])) OR specialty name [Title/Abstract])) AND ((“Telemedicine”[MeSH]) OR Telemedicine[Title/Abstract]).

- Then filter further by searching for the following types of articles: Clinical Trial, Review, and Systematic Reviews.

- Now study the papers to see if telemedicine has been evaluated and shown to work as a reliable method of delivering care in that specific specialty.

5 Review the evidence on the prioritised needs and balance needs against supply component

B) Balance needs against supply

- In this step, the identified needed specialities are assessed briefly against the assessment criteria to identify whether there is potential for providing the service.
- This step helps filter specialities further before moving ahead with the subsequent planning steps.

The criteria for the assessment of this step are:

1. Clinical suitability	This is identified either from the first step of this component (Review the evidence) or in this step, based on whether the provider has experience with offering this speciality through telemedicine.
2. Practical requirements	This concerns an assessment of the availability of equipment, space, connections, etc., on both the provider and the receiver's sides. This relates to the technical requirements.
3. Clinicians' willingness	This focuses on the clinicians' willingness to support the telemedicine service from the provider's end. The community's clinicians overall attitude toward the use of telemedicine has been assessed in Component 3 (Perception).
4. Effect on process change	This assesses the change in the process of delivering care and the organisation's capacity to manage change.
5. Funding	This concerns whether the budget for offering the service is available.

! Helpful Tips

- Remember that studying the practical requirements, clinicians' willingness, effect on process change and funding at this stage is not an in-depth final study; the aim in this step of planning is to provide an indication of the most suitable specialities. Those identified should be studied further in the next steps of planning (e.g. developing a care services plan, developing a business plan, planning technology, etc.).

- To gain a rough estimate of the funding needed for each specialty, information about infrastructure and training requirements is found in specialty-specific economic papers, and from experts. This information will help identify what is required for the introduction of a telemedicine service relevant to each specialty, because the cost will vary greatly depending on the service being provided.

- A key challenge will be identifying the right assessor to complete the assessment criteria. The assessor needs to be aware of different aspects: the availability of funding to support the speciality identified as needed, the availability of practical requirements at both ends (in terms of equipment, space, etc.), the clinicians' willingness to provide the service and the extent of modification needed for the process. This knowledge can be retained by one person or a team.

5 Review the evidence on the prioritised needs and balance needs against supply

Processing and presenting the data

1) After conducting the literature search for each specialty, presenting the information in a table with the number of studies for each specialty, the level of evidence and the expert recommendation can make it easier to decide if telemedicine is a suitable solution for each identified need.

Table 1: Review the evidence

Identified need	Telemedicine evidence			Suitable for implementation
	Studies	Evidence level*	Expert recommendation	
Specialty B	(Smith, 2016; Xu, 2010)	level I, level II	Suitable	Yes
Specialty A	(Bird,2015; May, 2012)	level I, level II	Suitable	Yes
Specialty F	(Martin-Khan, 2018)	level I	Suitable	Yes
Specialty D	(AlJalahma, 2015)	level I	Suitable	Yes
Specialty G	(Armfield, 2014)	level I	Suitable	Potential
Specialty H	(AlDossary, 2016)	level IV	Not Suitable	No

*-NHMRC level of evidence https://www.nhmrc.gov.au

2) Then the needed specialities can be assessed by completing Table 2, using the responses indicated in Table 3.

Table 2: Balance need against supply

Specialities	Clinically suitability for implementation	Practical requirements		Clinicians' willingness	Effect on process change	Funding
		Specialist site	Community site			
Specialty B	Yes	Potential	Yes	Yes	Medium	Yes
Specialty A	Yes	Yes	Yes	Potential	Medium	Yes
Specialty F	Yes	Yes	Potential	Yes	High	Yes
Specialty D	Yes	Yes	Yes	Potential	Low	Yes
Specialty G	Potential	Yes	Potential	Potential	High	Yes

5 Review the evidence on the prioritised needs and balance needs against supply

Processing and presenting the data

Table 3: The assessment criteria responses

1. Clinical suitability responses	
Yes	There is adequate evidence.
Potential	There is some evidence with mixed findings demonstrating potential.
No	There is limited or no evidence.
2. Practical requirements responses	
Yes	The practical requirements are available.
Potential	There is potential for making arrangements for these requirements; alternatively, these requirements are partially available.
No	The practical requirements are not available now or in the near future.
3. Clinicians' willingness responses	
Yes	The clinicians are willing to provide consultation through telemedicine.
Potential	The clinicians are potentially willing to use telemedicine.
No	The clinicians are unwilling to use or resisting the use of telemedicine.
4. Effect on process change responses	
Low	A few changes are needed in the process of care delivery.
Medium	Changes are required, and more work is needed.
High	Several changes are required.
5. Funding responses	
Yes	There is a budget.
Potential	There is a possibility of arranging or acquiring funding for this service.
No	There is not enough funding for this speciality.

3) Finally, each answer should be assigned a score based on the assessment outcome in Table 4. The total score is then calculated, and the specialities are re-ranked in Table 5.

Table 4: Scoring process for the balance need against the supply step

Outcome assessment	Score
Yes/Low	2
Potential/Medium	1
No/High	0

Table 5: Scoring for the balance needs against supply

Specialities	Clinically suitability for implementation	Practical requirements		Clinicians' willing-ness	Effect on process change	Fund-ing	Total
		Specialist site	Community site				
Specialty D	2	2	2	1	2	2	11
Specialty A	2	2	2	1	1	2	10
Specialty B	2	1	2	2	1	2	10
Specialty F	2	2	1	2	0	2	9
Specialty G	1	2	1	1	0	2	7

YOUR NOTES FOR 5. Review the evidence on the prioritised needs and balance need against supply

6 Indicate potential telemedicine solutions

The final step in this framework comprises reporting the decisions and responding to the following six questions:

- Based on the findings of the previous component, should the planning proceed in relation to a service where a need has been identified?
- What were the ranking and score of the service?
- What telemedicine modality will this service require? Further, will specialised extra equipment be required?
- Specify the reasons which influence your decision?
- If the service was found to be unsuitable for delivery via telemedicine, are there any other recommended modes of delivery?
- Should the decision to exclude the service be revisited and, if so, when?

Since this is the final component in this needs assessment framework, a clear summary of the decisions and responses to these questions should be reported.

If the healthcare services needed in the community cannot be offered through telemedicine:

A decision of not proceeding will be made by the telemedicine service provider.

Other means of delivering the service might be more suitable such as:

- A visiting doctor.
- Providing the studied community with a specialist based on the needs.
- Referral to a hospital.

This is the last component of the framework. The reporting at this stage should provide a summary of the findings. If telemedicine was found to be appropriate, and affordable means of delivering the healthcare service to the community, the service provider can then proceed with the recommended specialties, to be carried forward for further planning in steps 2-6[2]. (This Guide deals exclusively with step 1, Needs Assessment).

6 Indicate potential telemedicine solutions

Processing and presenting the data

The outcome of the Needs-based Planning Framework for Telemedicine Services:

Specialities	**Ranking** score	Proceed with planning	**Telemedicine suggested format/** Special equipment	Reasons					Other means of delivering the service	**Revisit/** when
				Clinically suitable	Practical requirement	Clinicians' willingness	Process change	Funding		
Specialty D	**1** 11/12	Yes	**Video-conferencing** Store and forward	Yes	Yes	P*	Low	Yes	-	-
Specialty A	**2** 10/12	Yes	**Video-conferencing Store and forward** Local access to X-ray	Yes	Yes	P	M^	Yes	-	-
Specialty B	**2** 10/12	Yes	**Video-conferencing** Specific equipment	Yes	P	P	M	Yes	-	-
Specialty F	**3** 9/12	Yes	**Video-conferencing** ECG machine Digital Stethoscope	Yes	Yes	P	High	Yes	-	-
Specialty G	**4** 7/12	No	Video-conferencing Specific equipment	P	P	P	High	Yes	Referral to the hospital	**Yes** - When more evidence is available. - When the high effect on the care process is manageable.

*P=Potential, M^=Medium

YOUR NOTES FOR 6. Indicate potential telemedicine solutions

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