Rehabilitative Care Alliance

The Capacity Planning Canvas: A Needs-Based Approach to Capacity Planning for Rehabilitation Services

April 2019

Introduction

Capacity planning in healthcare is critically important to ensuring the quadruple aim of improving the health of the population, providing positive patient experiences, ensuring positive healthcare provider experiences, and reducing the per capita cost of health care. While not enough resources (or poorly coordinated ones) lead to poor health outcomes and negative experiences for patients and staff, too many resources are wasteful and cost opportunities to care for other patients. Yet, regardless of the population being planned for, or the context in which planning is taking place, patients' needs should be at the heart of every capacity planning decision.

The RCA's *Capacity Planning Framework* was developed during the RCA's first mandate to support a standardized approach to capacity planning for rehabilitative services across the province. Implementing a more consistent approach to capacity planning across regions will support equitable access to these services and help regions to address local need now and in the future.

To help LHINs implement the framework, the RCA assisted in defining, gathering and analyzing the required provincial and LHIN-level data. However, as the LHINs began to use the data and apply it to the framework, they requested additional help to support full implementation.

The RCA's focus for 2017–2019 was to develop a simple, standardized approach to help the LHINs apply the RCA's *Capacity Planning Framework* and to develop actionable planning targets for LHINs to use in their regional planning. The RCA's strategy for this simplified approach is built on the Health System Structural Assessment (HSSA) process developed by Dr. Matthew Meyer. The principle underlying HSSA is that if the Future State Design phase of the framework truly reflects patients' needs, then it shouldn't dramatically change from region to region. While the process allows for regional context to be considered, targets for service provision (and the associated capacity required to provide these services) should be fairly similar from region to region.

The final product of the RCA's third mandate is the Capacity Planning Canvas and associated knowledge to action cycle, which will serve as the backbone to this simplified approach. This document offers a step-by-step guide to using the Capacity Planning Canvas.

The Capacity Planning Canvas – Vision

The Capacity Planning Canvas represents an exercise in future state design that asks "what should our rehabilitation system look like?" In doing so, the process relies on research evidence wherever available (including best-practice recommendations and clinical guidelines) and consensus from subject matter experts, patients, and caregivers where evidence is lacking. When complete, the Canvas should provide information that can be used to infer per-patient requirements of local rehabilitative care systems. These data can be combined with local incidence/prevalence information (and adjusted for regional context) to inform a system-level capacity plan for any region. The goal of the Capacity Planning exercise is to provide recommendations similar to the following:

For every 100,000 residents of your LHIN:

- <> will experience a hip fracture
- <> will need inpatient care, <> will need outpatient care, <> will need in home care
- To meet their rehabilitation needs according to best-evidence, you should make available <> hours of PT, <> hours of nursing, <> hours of OT, <> hours of assistant time, <> inpatient rehab bed days, <> outpatient attendances etc.

LHINs where the following factors exist in Higher or Lower levels than the provincial average should plan for INCREASED capacity accordingly:

- Resource-Relevant Factor #1
- Resource-Relevant Factor #2

Capacity Planning Canvas - Knowledge-to-Action Cycle

The following diagram describes the proposed use of the Capacity Planning Canvas to inform ongoing capacity planning cycles. Note that the Needs Assessment stage of the Canvas does not need to be regularly updated, but resource requirements should regularly be re-assessed to align with new research evidence and changes to best-practice recommendations and/or clinical guidelines.

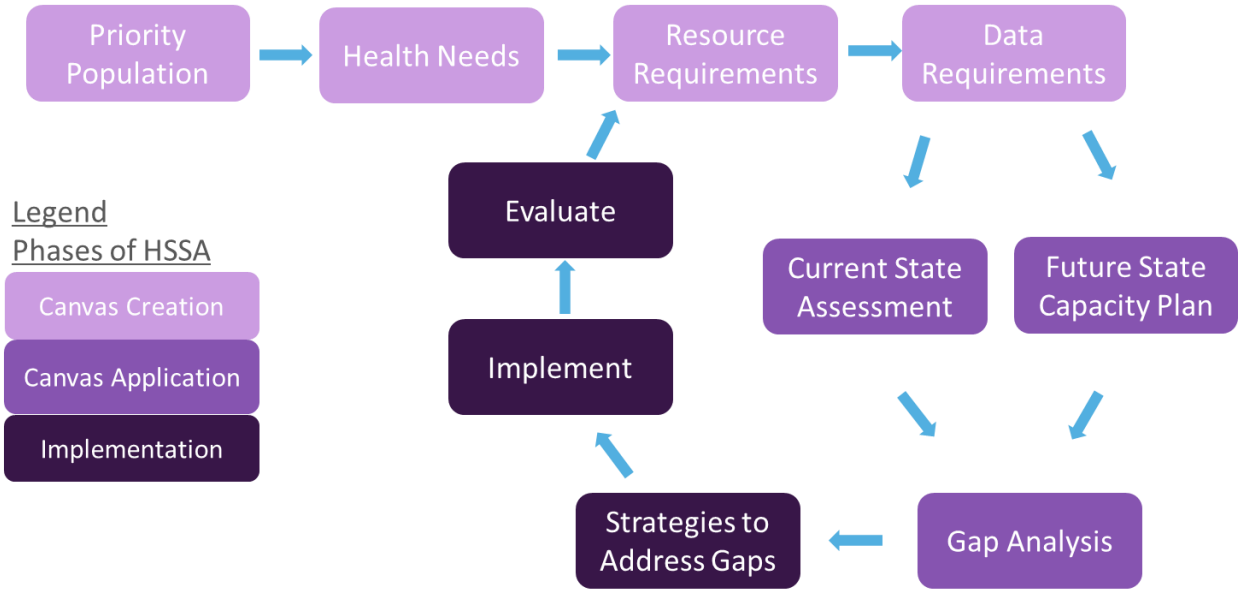


Figure 1: *The HSSA Knowledge to Action Cycle*

The Capacity Planning Canvas – Overview

The Capacity Planning Canvas process includes 2 distinct phases: Canvas Creation and Canvas Application.

Canvas Creation – During this phase, the Canvas is used to outline 1) the population under consideration, 2) the needs of that population, and 3) the resources required to provide best-practice rehabilitative care to that population. Once complete, the Canvas Creation process should only require adjustment or updating as new evidence is published, otherwise the process would not need to be re-done in its entirety.

Canvas Application - During the Canvas Application stage, regional planners use the Canvas to guide Future State Design, while accounting for regional context (such as local incidence/prevalence, population demographics, and geographic considerations). Gap analyses can then be performed to assess differences between the region's current capacity of physical space, technologies, and human resources and the proposed future state.

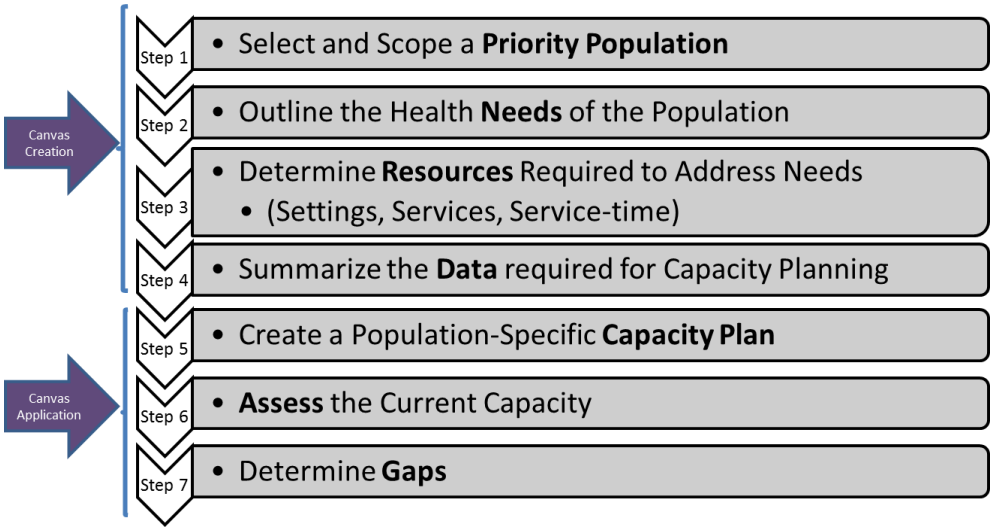


Figure 2*: General Overview of the Capacity Planning Canvas methodology*

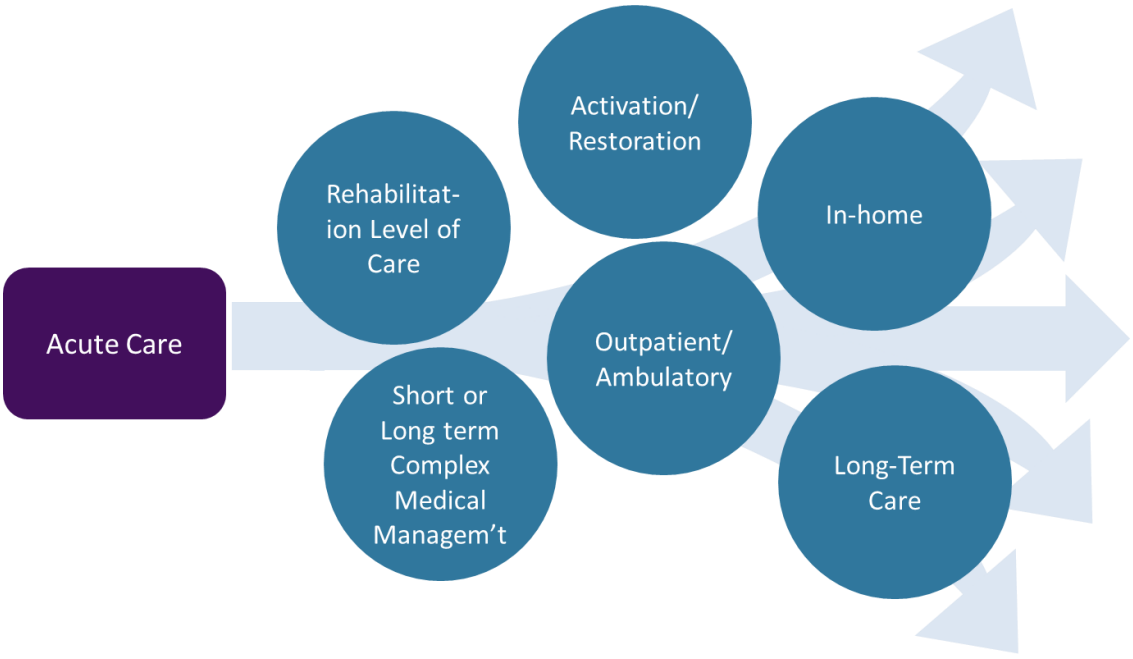
Capacity Planning Canvas - Tools

The Capacity Planning Canvas process is undertaken using 4 sets of tools: the Capacity Planning Canvas, a System Setting Diagram, Capacity Data Tables, and a Capacity Planning Workbook. These tools are used to facilitate the process and, once complete, to serve as the final product.

I. **The Capacity Planning Canvas** – This tool serves as a single-page summary of the results of the Capacity Planning Canvas process. The Canvas contains 3 Primary Sections (Population, Needs, and Resources) and 1 Supplementary Section (Resource-Relevant Factors). Each of the 3 primary sections are completed in order and the supplementary section is populated in parallel.

Population			
Who			
What		Where	
When		Why	
Needs		Resources	
		Setting	Services
Resource-Relevant Factors			

II. **A System Setting Diagram –** The system setting diagram is completed after the group has identified all necessary rehabilitation settings. Its purpose is to provide clarity around the settings where patients are likely to require care. The diagram can be an important tool during group discussions and in the resulting report; it is intended to represent where patients should access services in an evidence-based system, which may or may not align with the current state.



III. **Capacity Data Tables**– These supplementary tables are populated in parallel with the Capacity Planning Canvas. They are used during group discussions to present information in an easy-to-understand manner and to help participants arrive at (and document) consensus

recommendations. They are to be completed **once for each identified rehabilitative care setting.**

Table 1 outlines all of the identified rehabilitation needs of the population and the people/resources required to address the need (both in lead and supporting roles). In each setting, lead and supporting role resources should include staff, beds, and capital investments (e.g., large technologies or expensive equipment) that require significant planning considerations. Supporting resources are dependent on a Lead Resource (i.e., they cannot act alone). Space is also provided for alternate options/treatments that may be considered in the absence of the other resources. These alternatives may include roles to be considered in regions where none of the lead resources are available, or for new and emerging models of care that might be considered in planning a future state. The Core Resource Recommendations section includes a summary of all resources outlined under both the lead and supporting resource columns.

Data Table 1: *Identified patient needs and identified resources*

Patient Need	Leading Role	Supporting Role	Alternate Option(s)
A.			
B.			
C.			
D.			
Core Resources			

Table 2 helps frame the discussion around the expected proportion of patients requiring care in each setting, the resources required (from Table 1's core resources) and the expected proportion of patients who need each resource.

Data Table 2*: Resource Planning Table*

			% in need
Service/ Resource	% in Need	Average Amount of Service Required per Patient in Need (assumptions used)	Comments and References

IV. **Capacity Planning Workbook** – The Workbook is the final product of the Capacity Planning Canvas. The Workbook is an excel spreadsheet that contains all versions of Data Table 2 (Resource Planning Table) for each care setting. The first tab includes instructions for use and an opportunity for regional planners to enter local incidence/prevalence data as appropriate. The Workbook automatically calculates the regional resource requirements within each setting.

Finally, the workbook contains instructions for capturing local resource capacity so that it can be compared to recommended levels. Regions have the opportunity to adjust the assumptions within the sheet to account for their local context (including the Resource-Relevant Factors).

Capacity Planning Workbook Snapshot

Creating the Canvas – Step by Step

Before undertaking the capacity planning canvas creation and application processes it is critical to put together an essential team of people who can support in co-design of the canvas. The Canvas Creation Process requires the input of 4 distinct but equally important groups:

- **Capacity Planning Canvas Project Team –** This is the team that will perform most of the work including facilitating sessions, documentation, research and all Canvas-related reporting. Therefore, a robust team is required with a diverse skill set and enough dedicated time to support the entire process.
- **Health System Planners** – This group will be instrumental in performing population prioritization and should, ideally, include partners able to effect change once the final gap analysis is complete.
- **Subject Matter Experts** – This group should include partners who are well informed on the research evidence relevant for the priority population and partners with expertise working with the population in a rehabilitation setting. It should include both researchers and clinicians.
- **Patients and Caregivers** – This group must include patients and caregivers from the population being planned for. Participants from other patient groups and/or the general public should also be considered to provide balanced perspectives. Patients and caregivers with a diversity of experiences are encouraged.

Step 1 - Population Definition and Scope

Step 1a – Population Selection	Groups Involved	Tools
	Canvas Project Team & Health System Planners	None

In this initial step, the project team and Health System Planners will select a priority population in their region that would benefit from the Capacity Planning Process. Selection of the priority population may arise from a Population Health Needs Assessment but do not require one. Some considerations when making this decision include:

- Populations for whom current capacity is felt to be inappropriate (too few or too many resources) or for which capacity re-organization may be required across sectors
- Populations in which there is an apparent desire/willingness to change
- Populations for which system-level capacity planning has not already been completed and is not being planned by other groups (to avoid duplication of effort)
    - In instances where capacity planning has been performed previously, there may be value in converting the previous plan into a canvas format for ease of presentation

Note: There are no right or wrong choices of population; however, the selection will significantly impact the amount of work required, the precision of the final recommendations, and the potential impact. As a general rule, smaller more well-defined populations will require less work and result in clearer recommendations, but have less system-wide impact.

Step 1b – Population Definition	Groups Involved	Tools
	Canvas Project Team, Health System Planners, Subject Matter Experts	Capacity Planning Canvas

In this step, the group will begin to complete the Capacity Planning Canvas in a facilitated group session (lead by members of the Canvas Project Team). The purpose of the session is to scope out the population to be planned for. The exercise includes discussion of the 5 W's:

- **Who:** Detailed inclusion criteria for who is to be considered during planning (this will have important implications for the data required during planning)
    - Includes identification of population sub-groups with capacity planning importance
- **What:** High-level description of the services to be planned
    - The default for this will be the definition of rehabilitative care from the RCA Definitions Framework.
- **Where:** The region/geography being planned for
- **When:** The period of time under consideration as experienced by members of the population (example 0-12 months post injury)
- **Why:** The patient and/or caregiver outcomes that are expected.

Once complete, the population section will serve as grounding for future sections and can be referred to for questions of scope. This section, once finalized, will also dictate which subject matter experts are required for the following steps.

Step 2 - Identification of Needs

Step 2 is the most important step in the Capacity Planning Process. In this step, the needs of the population under consideration are to be outlined. 'Need' is to be defined according to the World Health Organization definition: "Objectively determined deficiencies in health that require health care, from promotion to palliation"[1]

Step 2a - 'Need' Description	Groups Involved	Tools
	Canvas Project Team & Subject Matter Experts	Capacity Planning Canvas

To begin the 'Need' Description section, Project Team members and Subject Matter Experts (SMEs) will be asked to compile documents with information on patient and caregiver needs. This will include best-practice recommendations and guideline documents where available, but also patient and/or caregiver-reported needs as outlined in peer-reviewed literature or other appropriate sources. From these documents, a draft list of patient/caregiver needs will be created in the 'Need' section of the Canvas by the Project Team. This information will be used to inform a group session (facilitated by the Canvas Project Team) where the SME group will be asked to refine and confirm the list. Refinement may include combining needs felt to be the same (or similar from a resource planning perspective) and the addition of needs not listed.

Note: during this discussion, the group should consider Resource-Relevant Factors (RRFs) and note them in the corresponding section of the Canvas. RRFs are factors that are felt to have a significant impact on the care required by a patient, which would have important implications for resource planning if considered from the perspective of the population. For instance, a factor like age may change the care needs of a patient, which would be worth noting in regions whose population is significantly older or younger than others. Groups are asked to limit this list to variables that:

- *Are likely to vary significantly from region to region*
- *Will have a large impact on resource planning in areas where they vary*
- *Can be accurately measured or estimated*

Step 2a - 'Need' Validation	Groups Involved	Tools
	Canvas Project Team & Patients/Caregivers	Capacity Planning Canvas

In follow-up to step 2a, patients and caregivers will be provided with the draft needs list and the resources used to generate it. A patient and/or caregiver group will participate in a facilitated group discussion and, wherever possible, broader contact with patients and caregivers will be explored

[1] http://www.who.int/healthsystems/hss_glossary/en/index5.html

through electronic communications and surveys. The group will be asked to confirm all of the needs listed and to add any that are felt to be missing. All information gathered during this session should be added to the 'Need' list within the Capacity Planning Canvas.

Note: Validation of the Resource-Relevant Factors identified in the previous step should also be undertaken during this session.

Step 3 - Resource Description and Validation

Step 3a - Settings Description	Groups Involved	Tools
	Canvas Project Team & Subject Matter Experts	Capacity Planning Canvas, System Settings/Flow Diagram

In this step, the SME group will be re-convened into a second facilitated group session. The group will be presented with the validated list of 'Needs' and asked to list the settings where rehabilitative care for this population is (and should be) made available to patients. During this session, the group will be asked to list settings in the Capacity Planning Canvas and construct a draft System Setting Diagram to illustrate the proposed relationship between these settings. The setting discussion should focus on types of settings and not actual settings (e.g., "inpatient rehabilitation hospital" vs. a specific hospital).

The group will be asked to provide definitions/descriptions of each setting including the types of care that are currently available and that may fall within this definition. They may also be asked to consider where one setting may be superior to another in terms of providing more value for the population (i.e., better outcomes and lower cost) if this information is available. The group should also consider the population sub-groups (from step 2) that have planning implications and may construct a separate System Setting Diagram for each.

Step 3b - Settings Validation	Groups Involved	Tools
	Canvas Project Team & Patients/Caregivers	Capacity Planning Canvas, System Settings/Flow Diagram

All information collected in step 3a will be brought to the Patient/Caregiver group for validation during a facilitated group session and/or via electronic correspondence. Emphasis should be placed on settings of care that should be available based on their experiences. Patients and Caregivers should be encouraged to challenge all proposed settings and make suggestions for additional ones based on their experiences.

Step 3c – Services Description	Groups Involved	Tools
	Canvas Project Team & Patients/Caregivers	Capacity Planning Canvas, Data Table #1

This step must be completed ***once for each care setting***. The SME group will begin by reviewing the validated list of patient 'Needs' and identifying those that are applicable within in the setting under consideration. These needs should be captured in Capacity Data Table #1. For each need, the group will discuss which profession(s) are best suited to leading patient care as well as those that should (or may be) included in a supporting role. They will also consider resources that require major capital investment (e.g., beds or equipment). The objective of this step is to delineate resources that should be planned for in order to ensure this specific patient need is addressed. After the exercise has been completed for all needs, the list of services included in the 'lead resource' and 'supporting resource' columns can be considered as a potential 'core team' with others noted as alternative options when professionals from the core team are not available.

Step 3d – Services Validation	Groups Involved	Tools
	Canvas Project Team & Patients/Caregivers	Capacity Planning Canvas, Data Table #1

All information collected in step 3c will be brought to the patient/caregiver group for validation via a facilitated group discussion and/or via electronic means. As in previous validation steps, the patient/caregiver group will be asked to confirm the resources identified and add any based on their experiences.

Step 3e – Patient Care Requirements Description	Groups Involved	Tools
	Canvas Project Team, Subject Matter Experts, Health System Planners	Capacity Planning Canvas, Capacity Data Tables #1, Data Table #2

With the Settings listed and the Core resources identified, this step requires consideration of the ***average amount of each resource required per patient***. Best-practice recommendations and/or clinical guidelines should be consulted wherever available. It is important for the group to be clear that the information required here is relevant for Capacity Planning and ***does not constitute care plan recommendations.*** This is the most labor-intensive step in Canvas Creation and requires the most collaboration.

Prior to the group meeting, Project Team and SME members will seek to identify research evidence and/or existing clinical guidelines that include specific recommendations for service provision. Data Table #1 will be used to inform the Core Team of resources that require planning. Data Table #2 will then be used to document the recommendations. During the discussion, the following questions must be addressed:

1) In each setting, "What proportion of the population is likely to require care in this setting?"
2) For each core resource, the group must then answer the questions:
    a. "What proportion of patients in this setting would require this resource?"
    b. "For those who require this resource, how many hours of direct care time should we plan to make available for the average patient?"

Discussion around the hours of direct care must account for recommendations on the typical frequency and duration of care from this service as well as variation in these care needs. For instance, a population that typically requires 2 one-hour visits per week for 8 weeks would require an average of 16 hrs of total care. However, if the group feels that only half of patients would require this intensity and the other half would have their goals met after 4 weeks, then the average hours of direct care would be 12 (the average of 50% - 2hr/week x 8 weeks = 16hrs and 50% - 2hr/week x 4 weeks = 8hrs).

Wherever possible, this information should be derived from peer-reviewed research into the duration and frequency of care leading to optimal outcomes. However, this research is rarely available. In its absence, consensus on the typical duration and frequency should be sought between SME group members and ***validated by patients and caregivers (step 3f)***. All assumptions leading to the final estimates should be recorded in the final column of Table 2.

Step 3f – Patient Care Requirements Validation	Groups Involved	Tools
	Canvas Project Team & Patients/Caregivers	Capacity Planning Canvas, Capacity Data Tables #1, Data Table #2

As in all previous steps, the information collected in step 3e will be validated by patients and caregivers here via group discussion and/or electronic communication. Patients and caregivers will be asked to critically appraise all recommended service levels. The group will be asked to refer to the alternate options and considerations column at all times. The Canvas Project Team members will also be able to offer insights into research referenced and discussion had with the SME group.

Step 4 - Canvas Completion and Data Requirements

Step 4 – Canvas Completion and Data Requirements	Groups Involved	Tools

	Canvas Project Team, Patients/Caregivers, Subject Matter Experts, Health System Planners	Capacity Planning Canvas, System Flow Diagram, Data Table #1, Data Table #2

In the spirit of co-design, this final step of Canvas Creation involves bringing together all participants into a facilitated session to discuss the final results and system implications. The group will be asked to work through any remaining concerns and provide final approval of all materials. Outstanding concerns that cannot be addressed should be noted in an appendix for reference. Through this process, the group will also help to identify all of the key data required for Capacity Planning based on the final document. Examples of data elements that are likely to be required include:

- Population data
- Population-level incidence or prevalence estimates (including data on identified sub-groups)
- Data on Resource-Relevant Factors (including demographic, geographic, and epidemiologic data)

Once this step is complete, the information should be ready to populate the Capacity Planning Workbook, which will serve as the foundation for the application phase. The workbook will require modification by the Canvas Project Team to reflect the information gather during Canvas creation.

Application of the Canvas – Step by Step

Canvas application can be performed by representatives of any given region interested in understanding the local capacity needs of the priority population, but ideally it will include stakeholders with the authority to influence change. It does not require the input of the Canvas Project Team, but would benefit from their guidance when possible. The Application Phase most heavily relies on use of the Capacity Planning Workbook.

Step 1 - Create Population-Specific Capacity Plan

Step 1 – Population-Specific Capacity Plan	Groups Involved	Tools
	Canvas Project Team, Health System Planners, Data providers/experts	Capacity Planning Workbook, Local Data Sources

All of the information necessary for the creation of a population-specific capacity plan should be contained in the Capacity Planning Workbook. Planners will begin by gathering local information on the

incidence/prevalence of the population being planned for in the given region as specified in 'Data Requirements' step; where possible, future projections should also be gathered. This will allow planners to understand the number of patients for whom capacity must be planned in the near and longer term. It is easiest if planning takes place from an annual perspective (resources required each year) while accounting for long-term rehabilitation needs (again as outlined in the Canvas).

Once this population estimate is calculated (or estimated if not available), the value can be entered into the Worksheet page of the Workbook. The Workbook will automatically calculate the recommended resource requirements as defined in Data Table #2 for each setting. Once complete, these analyses will result in estimates of the total number of resources required in each setting across the region, which can serve as the Future State Design for the region and the target against which current resource availability should be compared.

Step 2 - Assess the Current Capacity

Step 2 – Assess the Current Capacity	Groups Involved	Tools
	Health System Planners, Local data providers/experts	Capacity Planning Workbook, Local Data Sources

Using the settings and resources recommended in the Canvas (and the associated definitions developed in the 'Resource Description' steps), an inventory of all rehabilitation providers that fit within one of the settings of care should be undertaken. If not centrally collected, each of these settings may need to be contacted directly to request the following information:

- Programs in which patients from the population of interest are cared
- Staffing compliments in these programs AND
- The amount of time each staff member spends in direct care of patients from the priority population (this is rarely measured directly, but can be estimated for this exercise)

Step 3 - Determine Gaps

Step 3 – Determine Gaps	Groups Involved	Tools
	Canvas Project Team, Patients/Caregivers, Subject Matter Experts, Health System Planners	Capacity Planning Workbook

In this final step, data from step 2 – assessing the current capacity, should be entered into the Workbook and compared to the capacity planning results included within from step 1 – creation of the

population specific capacity plan. This information can be used to determine gaps between current care and the Future State Design. These gaps can be used to identify areas where resources may be lacking and should be used to inform discussion about prioritization of gaps and opportunities to address them.

Prioritization – Regional planners, care providers, patients and caregivers should work together to discuss which gaps hold the highest priority. Items to consider during this process include the size of the gap, the gap's impact on system-wide patient flow and performance, costs associated with the gap (and with addressing it), as well as alternative options for meeting the needs associated with the gap (e.g,. new technologies or care models).

Using the Knowledge-to-Action Cycle

Once the Capacity Planning Canvas has been created for a given population, the “Population” and “Needs” sections should rarely need to be revisited. The regional gap analysis performed in the Canvas Application stage should be used to design region-specific strategies to address care gaps. Once implemented, these strategies should be evaluated which completes a single capacity planning cycle.

Periodically, the region will be encouraged to return to the capacity plan for this population. At that time, planners, SMEs, and patients (as necessary) should return to the “Resources” section of the Canvas to assess if new care models or options for addressing patient needs have been identified. These new options may include innovative care models, new technologies, new interventions etc. The Workbook will need to be updated accordingly and the cycle can then be repeated to assess regional capacity and gaps.