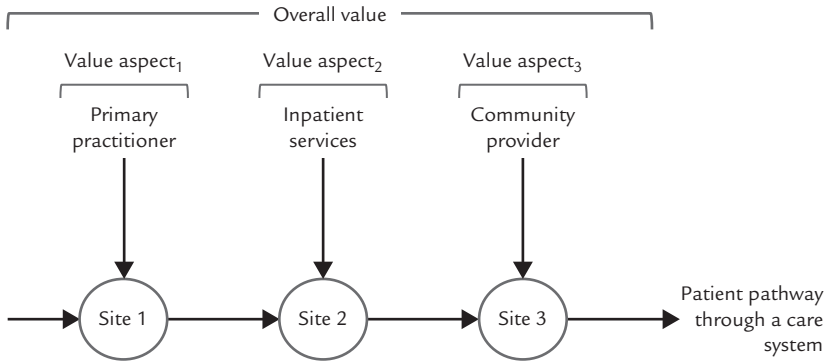


**Table 2.1.** The purpose of purpose

<b>Issue</b>	<b>Goal</b>	<b>Example</b>
<b>Disagreement</b>	<b>Promote alignment and unify action</b>	<ul style="list-style-type: none"><li>• Align individuals and the organization with the patients they serve.</li><li>• Align individuals with the organization (i.e., promote staff engagement).</li><li>• Align the organization with individuals (i.e., attract and retain desired staff).</li><li>• Align within a team (i.e., create shared goals and unity of action).</li><li>• Align multiple teams (i.e., promote coordination and integration).</li><li>• Align clinicians and management.</li></ul>
<b>Uncertainty</b>	<b>Provide a decision rule</b>	<ul style="list-style-type: none"><li>• Guide action in the absence of a clear clinical rule or organizational policy.</li><li>• Aid in making trade-offs in allocation of scarce resources (prioritization of action).</li></ul>
<b>Noise</b>	<b>Create focus</b>	<ul style="list-style-type: none"><li>• Retain focus in the face of noise.</li><li>• Inform the choice of metrics, the design of the measurement strategy, and the configuration of internal operational controls.</li></ul>

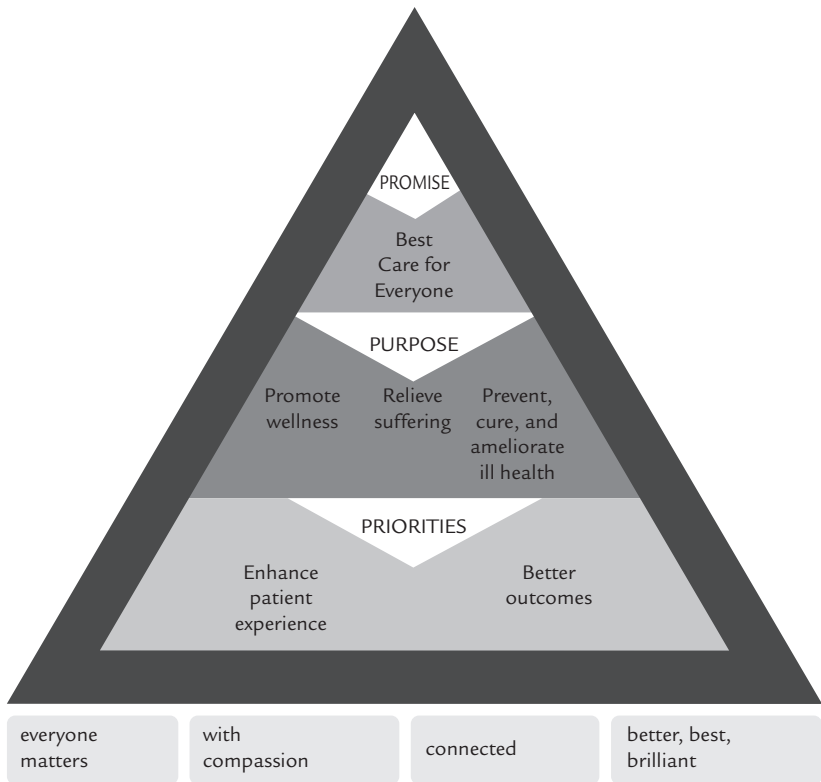
**Figure 2.1.** The distribution of value



**Table 2.2.** Comparing two ways of framing purpose

<b>Triple aim</b>		<b>Waitemata purpose</b>	
<b>Improving the individual experience of care</b>	<ul style="list-style-type: none"><li>• IOM six aims of care: safe, effective, patient-centered, timely, efficient, and equitable</li></ul>	<b>Relieve suffering</b>	<ul style="list-style-type: none"><li>• Compassionate care</li><li>• Error-free care</li><li>• Timely care</li><li>• Effective communication</li><li>• Pain management</li></ul>
<b>Improving the health of populations</b>	<ul style="list-style-type: none"><li>• Public health aims: improving nutrition, poverty reduction, violence reduction, etc.</li></ul>	<b>Promote wellness</b>	<ul style="list-style-type: none"><li>• Primary and secondary prevention</li></ul>
<b>Reducing the per-capita costs of care for populations</b>	<ul style="list-style-type: none"><li>• Per capita spend</li><li>• Percent GDP on health care</li><li>• Growth rate</li></ul>	<b>Prevent, cure, and ameliorate ill health</b>	<ul style="list-style-type: none"><li>• Effective care</li><li>• Appropriate care</li><li>• Rapid access</li><li>• Smooth transitions</li></ul>

**Figure 2.2.** Waitemata DHB purpose and actions



**Table 3.1.** Summary of production systems for low-volume products

<b>Craft shop</b>	<b>Job shop</b>	<b>Batch model</b>
<b>Basic structure</b>		
A single operator makes the entire product, undertaking all of the necessary tasks	Products made one-at-a-time, each fabrication stage may be undertaken by a different worker	Products made in groups
<b>Example</b>		
Artist, potter, gun maker	Custom printing wedding invitations	Heavy equipment manufacture
<b>Healthcare example</b>		
Dentistry (dentist takes x-rays, gives anesthetic, and treats)	Most acute medicine	Some psychiatry (e.g., group visits), antenatal groups
<b>Flow</b>		
No flow: product stays with the worker, who may move from machine to machine	Wandering flow: product moves from one workstation to the next, different products may flow in differing sequences	Wandering flow: products move from one workstation to the next, waiting at each stage for the previous to be completed
<b>Resources</b>		
Highly skilled individual	General purpose machinery, widely skilled workers	Machinery and workers more specialized
<b>Advantages</b>		
Products unique or highly customized to customer's exact needs	Unique products Can respond to emergency demand	Lower costs because it can accommodate higher product volume while retaining some flexibility in product type and schedule
Flexible to changes in customer's requirements		
<b>Disadvantages</b>		
High costs of production	High costs of production	Scheduling is hard and it may not be known where any one product is at any one time
Quality dependent on operator	Lots of machine down time; machines need recalibrating for each new product type	

**Table 3.2.** Summary of flow production systems for high-volume products

	<b>Assembly line</b>
<b>Basic structure</b>	Products made on a production line by assembling interchangeable parts in a standard sequence
<b>Example</b>	Car assembly
<b>Healthcare example</b>	Some elective surgery
<b>Flow</b>	Connected linear sequence
<b>Resources</b>	Highly specialized machinery and workers
<b>Advantages</b>	Very low unit cost because of high volumes
<b>Disadvantages</b>	Large initial capital outlay

**Figure 3.1.** Product-process matrix

	One of a kind	Multiple products, low volume	Fewer products, higher volume	Commodities
Job shop	Commercial printer			No companies
Batch		Heavy equipment		
Assembly line			Automobile assembly	
Continuous flow	No companies			Sugar refinery

**Table 3.3.** Stages of process knowledge

<b>Stage</b>	<b>Name</b>	<b>Description</b>
1	<b>Ignorance</b>	Phenomenon not recognized or the variable's effects seem random
2	<b>Awareness</b>	Variable known to be influential but can be neither measured nor controlled
3	<b>Measure</b>	Variable can be measured but not controlled
4	<b>Control of the mean</b>	Control of the variable possible but not precise, control of variance around the mean not possible
5	<b>Process capability</b>	Variable can be controlled across its whole range
6	<b>Process characterization</b>	Know how small changes in the variable will affect the result
7	<b>Know why</b>	Fully characterized scientific model of causes and effects, including secondary variables
8	<b>Complete knowledge</b>	Knowledge of all interactions such that problems can be prevented by feed forward control



**Table 3.4.** Three types of care

<b>Repetitive care</b>	<b>Menu-based care</b>	<b>Exploratory care</b>
<b>Cause-effect relationships</b>		
Predictable outcomes	Probable outcomes	Unpredictable outcomes
<ul style="list-style-type: none"><li>• Well understood or tight cause-effect relationships</li></ul>	<ul style="list-style-type: none"><li>• Outcomes predictable within a probability range</li></ul>	<ul style="list-style-type: none"><li>• Poorly understood or loose cause-effect relationships</li></ul>
<b>Stage of knowledge</b>		
High	Medium	Low
<b>Decisions and tasks of care</b>		
Dichotomous decisions (if-then statements)	Defined choice set (validated decision criteria)	Untested heuristics (personal experience)
Standardized, repetitive tasks	Uniform tasks	Customized tasks
<b>Example</b>		
Diabetes care path	Breast cancer	Orphan diseases
Knee replacement	Long-term conditions	Multiple interacting chronic conditions
Central line insertion		Novel diseases (e.g., Covid-19)

**Table 3.5.** Management approach to the three types of care

<b>Repetitive care</b>	<b>Menu-based care</b>	<b>Exploratory care</b>
<b>Clinical care</b>		
Execution of prespecified tests and treatments	Structured search through a well-characterized set of options, choice based on patient's values and preferences	Experimental, emergent, and customized search process
<b>Focus of quality</b>		
How closely the care delivered meets specifications	How closely the care delivered meets the patient's preferences	How effectively the care creates the desired outcome
<b>Key measure</b>		
Process	Satisfaction	Outcome
<b>Managerial goal</b>		
Minimize unwarranted variation	Promote warranted variation	Achieve best possible outcome
<b>System of production</b>		
Assembly line	Job shop	Craft and job shop

**Table 3.6.** The product-process matrix applied to secondary healthcare

	<b>Repetitive care</b>	<b>Menu-based care</b>	<b>Exploratory care</b>
<b>Focused care center</b>	Elective surgical center		
<b>Condition-specific service/practice unit</b>		Breast center Spine center	
<b>Subspecialist service</b>			Academic medical center

**Table 4.1.** Short-term operating system control

Lever of control	Interventions that can be made quickly
<i>Care process</i> <b>What</b> care to deliver and <b>how</b> to do it <ul style="list-style-type: none"><li>Sequence of tasks and decisions, decision rules, and transfer criteria</li></ul>	<ul style="list-style-type: none"><li>Simplify processes by removing unnecessary and ineffective steps.</li><li>Implement standard processes (design steps, structure, and flow) or standard order sets for key tests and medicines.</li><li>Specify clinical decision rules/transfer criteria (develop criteria for admission, discharge, transfer, executing common tasks).</li><li>Streamline documentation and reduce duplication.</li></ul>
<i>Staffing model</i> <b>Who</b> does what <ul style="list-style-type: none"><li>Allocation of task and decision responsibilities and authority, training, oversight, and support</li></ul>	<ul style="list-style-type: none"><li>Reassign tasks or decision rights to alternative staff as appropriate.</li><li>Create training to support new role definitions.</li><li>Create clear role definition for each staff member.</li><li>Merge on-call rosters over multiple care sites.</li></ul>
<i>Infrastructure</i> <b>What</b> resources and supports needed <ul style="list-style-type: none"><li>Equipment choice and site configuration</li></ul>	<ul style="list-style-type: none"><li>Provide care in an alternative site (including care moved from hospital to community setting).</li><li>Implement technologies and resources to support patients' self-management.</li><li>Use standard equipment sets or medication lists.</li></ul>
<i>Behavior influence mechanisms</i> <b>How</b> to behave <ul style="list-style-type: none"><li>Metrics and measurement reporting systems</li></ul>	<ul style="list-style-type: none"><li>Identify preferred staff behaviors (including a behavioral compact).</li><li>Define patient-focused measurable goals for teams and individuals.</li><li>Define standard measures to track care quality and efficiency.</li><li>Set unit-level targets and benchmarks.</li><li>Institute regular progress reports and feedback sessions.</li></ul>

**Table 4.2.** Medium-term operating system control

Lever of control	Interventions with a longer time horizon
<p><b>Care process</b>  <b>What</b> care to deliver and <b>how</b> to do it</p> <ul style="list-style-type: none"> <li>• Sequence of tasks and decisions, decision rules, and transfer criteria</li> </ul>	<ul style="list-style-type: none"> <li>• Define referral pathways (work with referrers to define how patients come to the unit and simplify patient entry).</li> <li>• Work with downstream caregivers and organizations to smooth discharge and transfer of care.</li> </ul>
<p><b>Staffing model</b>  <b>Who</b> does what</p> <ul style="list-style-type: none"> <li>• Allocation of task and decision responsibilities and authority, training, oversight, and support</li> </ul>	<ul style="list-style-type: none"> <li>• Create team skill mix (professional makeup).</li> <li>• Create new roles for nurse specialist/ other alternative providers.</li> <li>• Recruit professionals and personalities to match the new way of working.</li> <li>• Design and deliver internal training programs to support the new way of working.</li> </ul>
<p><b>Infrastructure</b>  <b>What</b> resources and supports needed</p> <ul style="list-style-type: none"> <li>• Equipment choice and site configuration</li> </ul>	<ul style="list-style-type: none"> <li>• Reconfigure internal layout of the clinic, ward, office, or unit.</li> <li>• Plan location of the service or unit within the existing plant/buildings.</li> <li>• Develop new services within the region.</li> <li>• Use communication technology to support virtual visits and specialist opinion delivered at a distance.</li> </ul>
<p><b>Behavior influence mechanisms</b>  <b>How</b> to behave</p> <ul style="list-style-type: none"> <li>• Metrics and measurement reporting systems</li> </ul>	<ul style="list-style-type: none"> <li>• Collect longer-term outcome measures such as general and disease-specific outcome and experience measures (PROMs<sup>a</sup> and PREMs<sup>b</sup>).</li> <li>• Institute rewards and recognition for preferred behaviors and better performance.</li> <li>• Refine job descriptions and staff assessments to ensure they are well matched to the new way of working.</li> </ul>

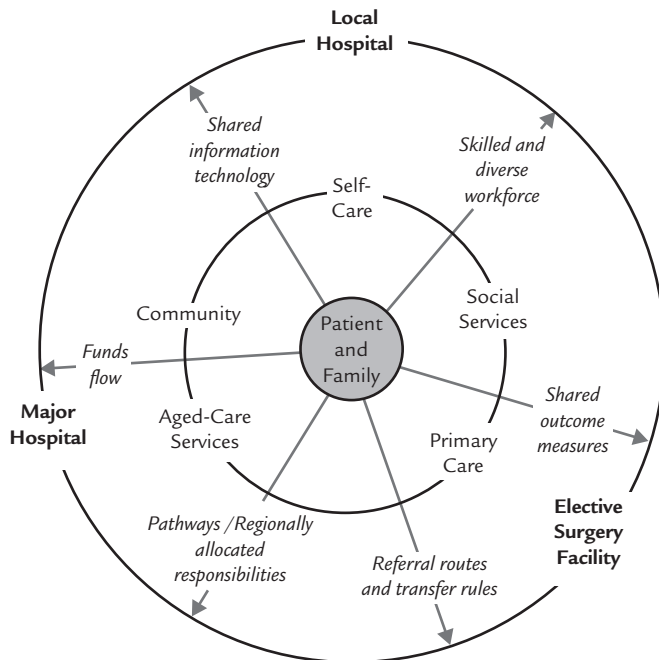
<sup>a</sup>Patient-reported outcome measure.

<sup>b</sup>Patient-reported experience measure.

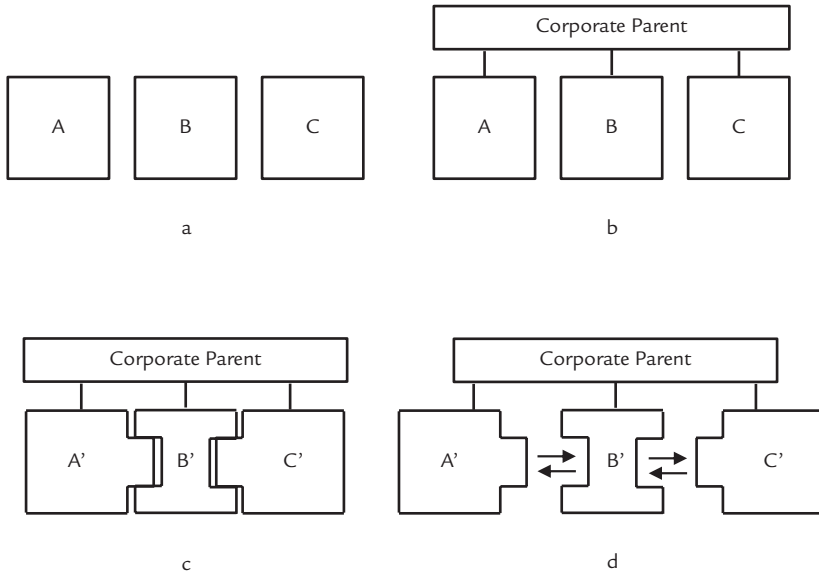
**Table 4.3.** Five tests of internal alignment

<b>Alignment of . . .</b>	<b>Self-assessment questions</b>
<b>Care process to subpopulation</b>	Is the population appropriately subsegmented and cohorted? Does the new process deliver appropriate care to each subpopulation?
<b>Staff to task and decision</b>	Are the right people delivering the right components of care? Are decisions assigned to staff with appropriate training, skill, and experience? Are staff overtrained for the work they are asked to do?
<b>Technology to process</b>	Does the technology provide staff with the data, information, and tools they need to deliver the specified care at the time they need it? Does it support patients' and families' participation in their own care?
<b>Physical configuration to process and population</b>	Will care be provided in a location patients value? Is the physical site configured to support our staff in the work they do and our patients in their recovery?
<b>Incentives and influences to preferred behaviors</b>	Will the planned financial and nonfinancial incentives, internal culture, values, and boundary conditions reinforce the staff behavior we want? Do formal job descriptions accurately reflect the work staff are expected to do?

**Figure 5.1.** The structure of a network for population health

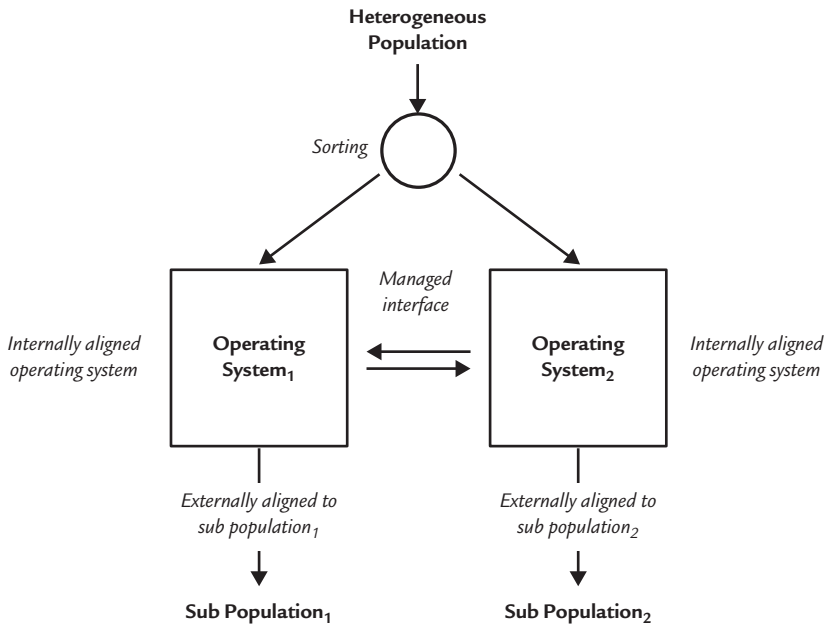


**Figure 5.2.** Joining organizations into a network

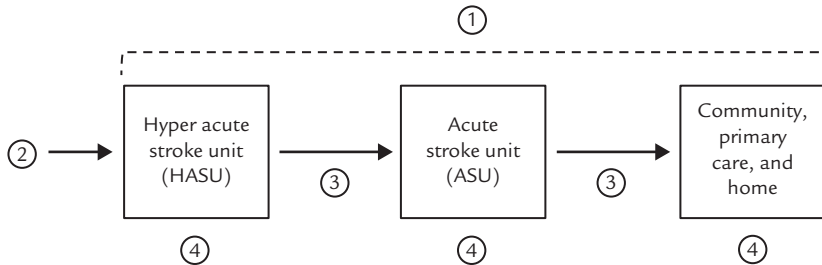




**Figure 5.3.** Multi-operating system model



**Figure 5.4.** Components of a stroke network (numbering relates to the issues discussed below)



**Table 6.1.** Technical versus adaptive change

	<b>Technical change</b>	<b>Adaptive change</b>
<b>Nature of problem</b>	Known, well characterized	Unknown, poorly understood
<b>Nature of solution</b>	Defined, previously used	Ill defined, uncertain
<b>Source of solution</b>	Expert or authority	People doing the work and encountering the problem
<b>Change process</b>	Blueprint-guided implementation	Discovery, learning, experimentation
<b>Key focus of change</b>	Processes and structures Often within the organization	Beliefs, mental models Often across organizational boundaries

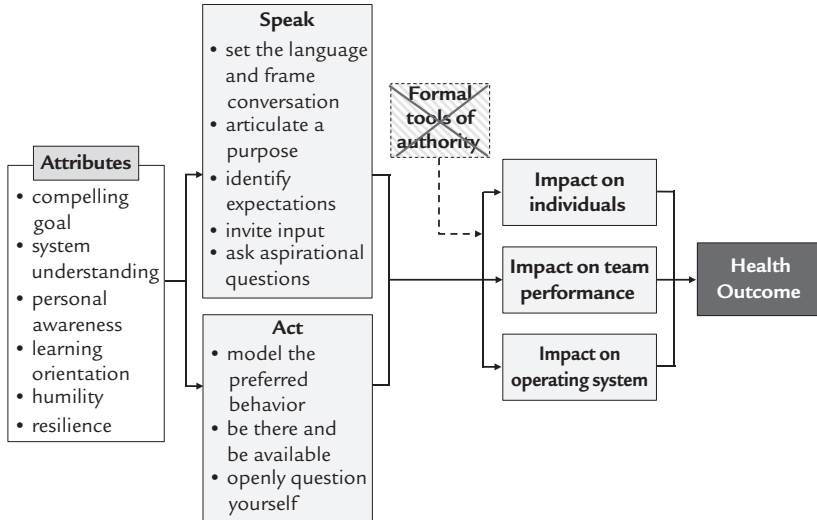
**Table 6.2.** Organizing to execute versus organizing to learn

	<b>Organizing to execute</b>	<b>Organizing to learn</b>
<b>Goal</b>	Faithful execution of prespecified “best practice”	Figure out what is best for the patient
<b>Nature of quality</b>	Minimal variation and fidelity to original design	Best outcome for the patient
<b>Nature of failure</b>	Deviation from specification	Not meeting the patient’s needs and values
<b>Primary measures</b>	Rate of process conformance	Outcome (including clinical and experiential outcomes)
<b>Timing of learning</b>	Before doing	While doing
<b>Key focus of change</b>	Processes	Beliefs, mental models, roles
<b>Clinician’s role</b>	Do the specified task well (as an individual)	Work collaboratively to identify and execute the right tasks

**Table 6.3.** Dangerous leadership lessons

<b>Dangerous leadership lessons implied in a medical training</b>	<b>The reality of leading adaptive change among clinicians</b>
<ul style="list-style-type: none"><li>• You are the highest-status person in the room.</li><li>• Your job is to have superior experience and knowledge and know the right answer or best process for getting to the right answer.</li><li>• Leadership is giving clear instructions and holding others to account.</li><li>• Do not ask for help beyond the restricted specialist opinion of a physician colleague.</li><li>• The problem must be solved now.</li><li>• All our colleagues agree on our goals.</li></ul>	<ul style="list-style-type: none"><li>• Change in complex systems requires teams of equals, each an expert in their field.</li><li>• Adaptive change is an experimental process to learn how to achieve better results.</li><li>• Leaders create an environment and establish a process that allows others to do their best work.</li><li>• In a complex system you can never have the right answer, you always need help.</li><li>• Developing effective approaches/ models requires a set of experiments run over time.</li><li>• Diverse teams work to develop shared goals.</li></ul>

**Figure 6.1.** Leadership in a clinical environment



**Table 6.4.** Words to work by

<b>Old term</b>	<b>New term</b>
Error	Accident or failure
Root cause	Multi-causal
Judgment	Learning
Blame	Accountable
Investigation	Examination or study
Isolated event	System

**Table 6.5.** Examples of Waitemata District Health Board preferred and unwanted behaviors

Value	Standard	Behavioral expectations		
		Love to see	Expect to see	Don't want to see
<i>Everyone matters</i>	Listen and understand	Motivates others by making time to listen to their views and feelings	Is interested in what others say	Talks over people, doesn't let them ask questions or express views
<i>With compassion</i>	Compassion for your suffering	Is thoughtful about other people and takes time to "put themselves in other people's shoes"	Checks in to see people are OK Notifies pain, and does everything they can to reduce it	Is dismissive of other people's concerns, feelings or pain



**Table 7.1.** Behavior change techniques and the behaviors they target

Intervention	Example	Influence on behavior
<b>Capability</b>		
• Having the physical and mental ability to engage in the behavior		
<b>Education</b>		
• Increasing knowledge and understanding	Providing information about a disease or a diagnostic or therapeutic action	Knowledge
<b>Training</b>		
• Developing skills through practice and feedback	Simulation training	Skills
<b>Environmental restructuring</b>		
• Shaping physical or social environment to promote or constrain the behavior	Computerized reminders and default options	Memory, attention, and decision-making
	Engineered forcing functions such as unique connectors that prevent an oxygen pipe being attached to a nitrous oxide outlet	
<b>Opportunity</b>		
• Being in a physical or social environment that makes possible or supports the behavior		
<b>Modeling</b>		
• Showing examples of the behavior for people to imitate	Local champions demonstrating the behavior	Social influence
<b>Enablement</b>		
• Providing other support to improve people’s ability to change	Educating patients what to expect/demand of their caregivers	Memory, attention, decision-making

(continued)

**Table 7.1.** *(continued)*

<b>Intervention</b>	<b>Example</b>	<b>Influence on behavior</b>
<b><i>Motivation</i></b>		
<ul style="list-style-type: none"><li>Being more motivated to undertake the target behavior than other potential behaviors</li></ul>		
<b>Persuasion</b>		
<ul style="list-style-type: none"><li>Changing the way people feel about a behavior (positively or negatively)</li></ul>	Written or visual messaging about a preferred behavior	Emotions
<b>Incentivization</b>		
<ul style="list-style-type: none"><li>Increasing the probability of a behavior by creating an expectation of a reward</li></ul>	Financial incentives, prizes, or public recognition (“worker of the month”)	Beliefs about consequences
<b>Coercion</b>		
<ul style="list-style-type: none"><li>Decreasing the probability of a behavior by creating an expectation of punishment or a cost</li></ul>	Charging a “processing” fee for written instead of electronic prescriptions	Beliefs about consequences
<b>Restriction</b>		
<ul style="list-style-type: none"><li>Constraining behavior by setting rules</li></ul>	Limiting the available formulary Defining scope of practice	Behavioral regulation

**Table 7.2.** Models of pay-for-performance

<b>Category</b>	<b>Example</b>
<b>Additional payment or nonpayment for specified process or outcome</b>	<ul style="list-style-type: none"><li>• Incremental payments for meeting specified targets such as screening rates or intermediate outcomes (e.g., HBA<sub>1</sub>C level in a population of patients with diabetes)</li><li>• Nonpayment for “never events” or specified types of readmissions</li></ul>
<b>Additional payment for organizational structure</b>	<ul style="list-style-type: none"><li>• Increased fees for practices maintaining patient registries or implementing electronic health records</li></ul>
<b>Financial risk</b>	<ul style="list-style-type: none"><li>• Capitation</li><li>• Global case rates/episode of care payments</li></ul>
<b>Shared saving</b>	<ul style="list-style-type: none"><li>• “Gainsharing” (sharing of savings between payer and provider)</li></ul>

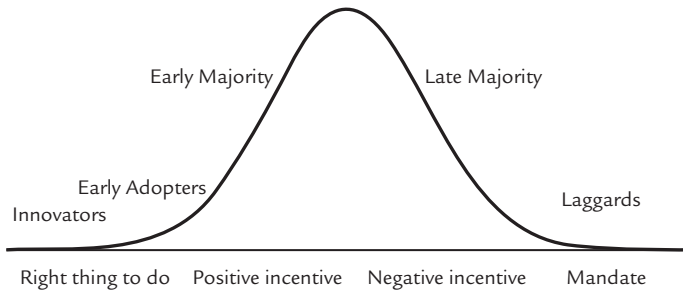
**Table 7.3.** Characteristics of successful pay-for-performance programs

<b>Category</b>	<b>Program characteristic</b>
<b>Focus</b>	<ul style="list-style-type: none"><li>• Incentives aimed at chronic diseases performed better than acute.</li><li>• Programs with incentives focused on individual or team level performed better than those focused at the organizational level.</li></ul>
<b>Measures</b>	<ul style="list-style-type: none"><li>• Process and intermediate outcome measures are associated with higher improvement rates than outcome measures.</li><li>• Programs with clinical outcomes (rather than patient experience) are associated with positive results.</li></ul>
<b>Rewards</b>	<ul style="list-style-type: none"><li>• Programs are more successful when all participants can achieve a gain rather than when structured as a zero sum game with winners and losers.</li><li>• Programs do better when there are new funds made available than when existing funds are reallocated.</li></ul>

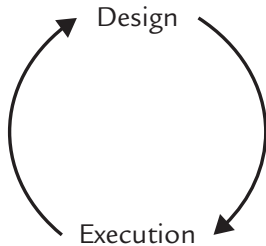
**Table 7.4.** Categories of innovation adopters, and the size of each subpopulation based on a normal distribution

<b>Category</b>	<b>Percentage</b>	<b>Description</b>
<b>Innovators</b>	2.5	Sufficient tolerance for risk that they are willing to adopt a technology or new practice that may ultimately fail and have sufficient resources to be able to withstand a loss
<b>Early adopters</b>	13.5	Have social status as “opinion leaders” and adopt innovations that will contribute to their success in their chosen field
<b>Early majority</b>	34	Adopt an innovation once it is proven
<b>Late majority</b>	34	Risk averse and tend to be skeptical about an innovation, adopt in response to peer pressure and emerging norms of practice
<b>Laggards</b>	16	Tend to be “traditional” and may only adopt if forced

**Figure 7.1.** Innovation adoption curve, and proposed incentive structure



**Figure 8.1.** Interplay between design and execution



**Table 8.1.** Examples of improvement system tools to support the execution of a design

<b>Component</b>	<b>CQI<sup>a</sup>/TQM<sup>b</sup></b>	<b>TPS<sup>c</sup></b>	<b>Other</b>
<i><b>Specify a standard</b></i>	Flow diagram	Value-stream map Standard work	Evidence-based medicine Protocols and pathways Clinical decision criteria
<i><b>Detect (and amplify) deviation from the standard</b></i>	Statistical process control (run chart, control chart, and run rules)	Kanban card Visual controls Andon cord	Sentinel event reporting Variance reports (outcomes, PREMs <sup>d</sup> , PROMs <sup>e</sup> ) Targets Culture of speaking up/blame-free reporting SBAR <sup>f</sup>
<i><b>Analyze/make meaning of the deviation</b></i>	Pareto chart Fishbone diagram Driver diagram	5-whys	Morbidity and mortality meetings/critical incident review Root cause analysis
<i><b>Take corrective steps/implement countermeasures</b></i>	“Future state” process design	Supervisor support of local problem-solving	Protocol override Rapid response/medical emergency team PDSA <sup>g</sup> /rapid cycle testing

<sup>a</sup>Continuous quality improvement.

<sup>b</sup>Total quality management.

<sup>c</sup>Toyota Production System.

<sup>d</sup>Patient-reported experience measure.

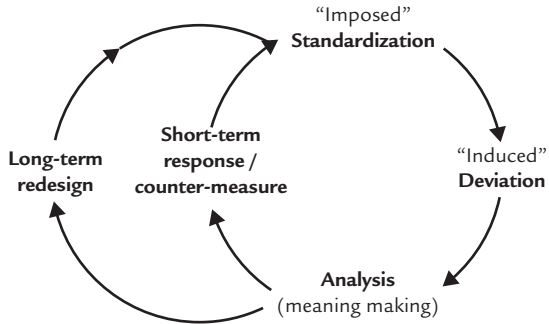
<sup>e</sup>Patient-reported outcome measure.

<sup>f</sup>Situation, background, assessment, recommendation.

<sup>g</sup>Plan, do, study, act.



**Figure 8.2.** The “double-loop” learning model of improvement



**Table 8.2.** The phases and tools of a structured approach to innovation design

<b>Design process phase</b>	<b>Description</b>	<b>Examples of tools</b>
<b>Understanding needs</b>	Data collection to identify unmet needs, what customers really value, or gaps in the performance of current systems or technologies	Interview / focus groups Empathic interviewing Empathic design / field observation Patient-centered co-design Customer shadowing Mystery shopper
<b>Creating options</b>	Group processes and team characteristics that encourage divergent thinking to create a wide range of options (volume over quality)	Deep dive at IDEO Brainstorming Team diversity Encouraging “wild” ideas
<b>Selecting options</b>	Group process for convergent thinking to develop a narrow range of high-quality options	Multivoting Clustering and mapping
<b>Testing</b>	Decreasing uncertainty through rapid testing of multiple prototypes and learning from failures	Rapid cycle prototyping In silica testing Simulation

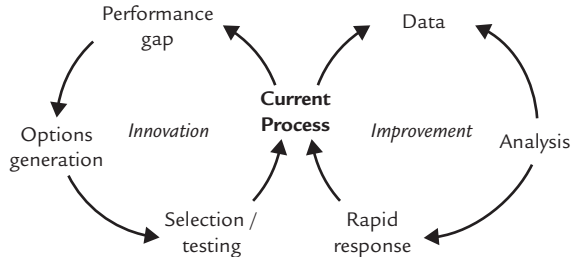
**Table 8.3.** Possible types of failure in healthcare delivery

<b>Failure</b>	<b>Characteristics</b>
<b>Negligence</b>	Individual professionals operate outside their training and competence or knowingly disregard accepted practice.
<b>Mistake</b>	Individual professional makes an error in the context of a system that fails to provide adequate resources and support.
<b>Failure to meet specification</b>	Process varies outside defined parameters.
<b>Complex system failure</b>	Unpredictable interactions in an interactively complex system result in unexpected outcomes.
<b>Experimental failure</b>	Well-intentioned, well-designed experiment testing a defined hypothesis does not deliver the hoped-for outcome.

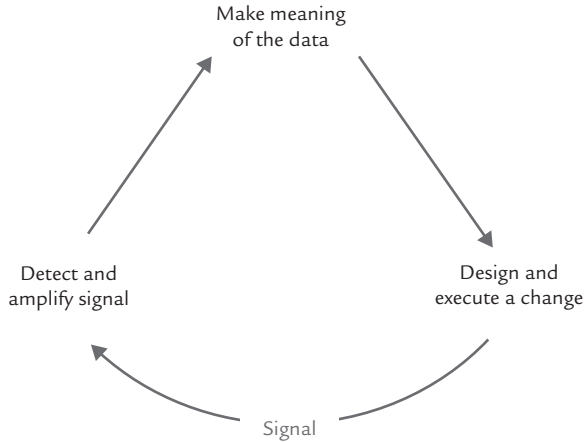
**Table 8.4.** Rogers's characteristics of innovations

<b>Characteristic of innovation</b>	<b>Description</b>
<b>Relative advantage</b>	Degree to which an innovation is perceived to be better than the idea it supersedes (measured in economic, social prestige, or convenience terms)
<b>Compatibility</b>	Degree to which an innovation is perceived to be consistent with existing values, past experiences, and needs of potential adopters
<b>Complexity</b>	Degree to which an innovation is perceived to be difficult to understand or use
<b>Trialability</b>	Degree to which the innovation can be experimented with on a limited basis
<b>Observability</b>	Degree to which the results of an innovation are visible to others
<b>Potential for reinvention</b>	Degree to which an innovation can be modified by a user and even used for alternative, initially unintended, purposes

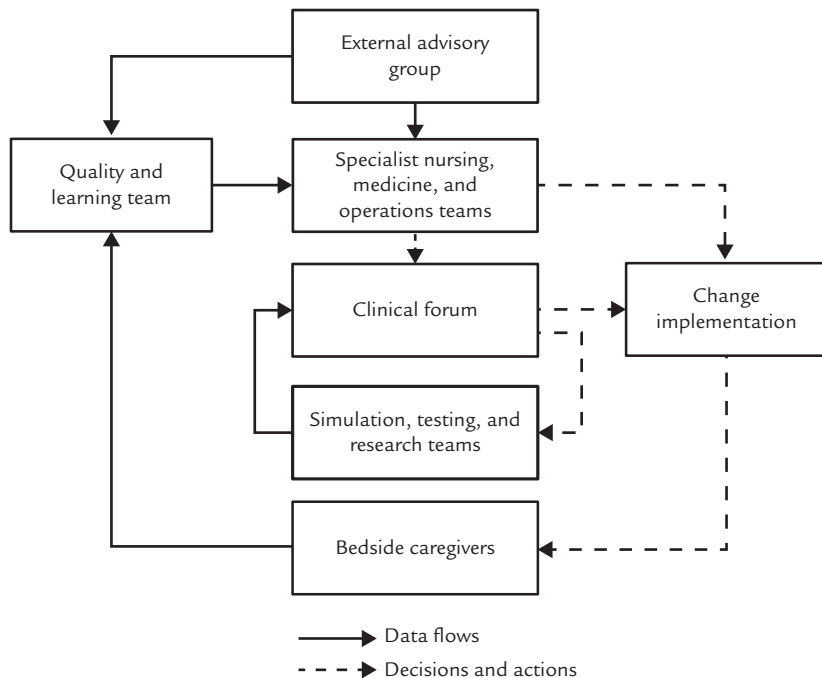
**Figure 8.3.** Relationship between improvement and innovation in new models of care



**Figure 9.1.** Anatomy of a learning system



**Figure 9.2.** The NHS Nightingale London learning system: structures, data flows, and actions

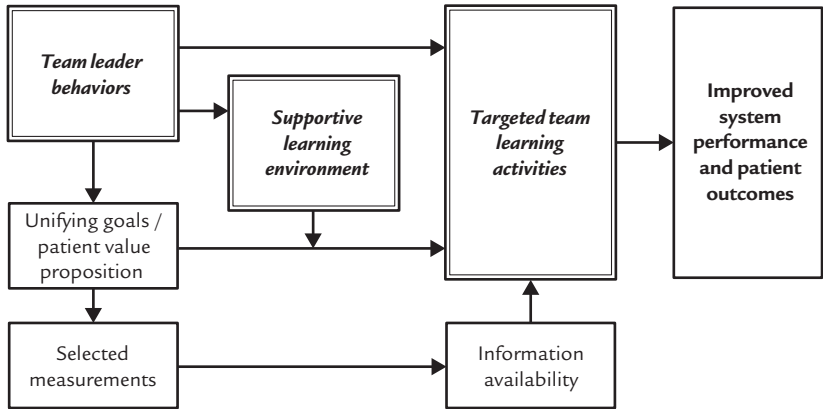


**Table 9.1.** Three pillars of a learning organization

<b>Supportive learning environment</b>	<b>Concrete learning processes and practices</b>	<b>Leadership that reinforces learning</b>
A culture that supports speaking up (“psychological safety”)	Experimentation and short cycle tests of change	Inviting input and encouraging different points of view
Time allowed for reflection, analysis, and redesign	Horizon scanning and external visits to understand what other services are doing	Asking questions that challenge the prevailing orthodoxy
Tolerance (and encouragement of) different points of view	Frequent comparison to others and to best in class	Active listening Leaders openly acknowledge their own limitations
Openness to new ideas and to trying new ways of working	Feedback loops and data sharing	Leaders create time and resources for identifying problems, reflection, and improvement
Tolerance of experimental failure	Deliberate seeking of dissenting views	
	Forums for sharing information with each other	
	Use of pilot projects and simulations to try out new ideas	
	Education and training	



**Figure 9.3.** A causal model of organizational learning



**Table 9.2.** Clashing norms of clinical practice and innovation

<b>Norms of routine clinical care</b>	<b>Norms of innovation and improvement</b>
Reduce variance	Seek deviance
Maintain options	Standardize
Implement best practice	Research routine care
Manage the patient	Manage the system
Avoid risk	Experiment
Individual accountability	Team interdependence

**Table 9.3.** Leadership actions for learning

Task	Goal	Challenges to address	Learning leader actions
<b>Frame the problem</b>	Clarity about the nature of the undertaking: learning not execution	<ul style="list-style-type: none"> <li>• Presumption of certainty: healthcare delivery viewed as a production industry</li> <li>• Tendency to jump to a solution before fully characterizing the problem</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the problem as one of learning rather than implementation of a known model.</li> <li>• Publicly acknowledge your own uncertainty.</li> <li>• Articulate a simple goal.</li> </ul>
<b>Establish structures</b>	A team well matched to the nature of the problem to be solved	<ul style="list-style-type: none"> <li>• Clinical and operational problems often treated separately, staff often working in uni-professional teams</li> <li>• Authority often based on seniority, status, and hierarchy, not suitability to problem</li> </ul>	<ul style="list-style-type: none"> <li>• Convene a multidisciplinary team of content experts with diverse skills: clinical, operational, and patient representation.</li> <li>• Choose team members based on capability not seniority.</li> <li>• Delegate authority and clearly articulate your expectations.</li> <li>• Focus the search on areas of known high uncertainty.</li> </ul>

**Establish routines**

Learning routines and data flows seamlessly embedded in day-to-day activity

- Fragmented data streams and limited feedback loops
- Reluctance to experiment in real time and in routine care setting
- Encourage teams to “try it and see.”
- Insist measurement and reporting are integrated into every experiment and change.
- Shorten the feedback loop: create regular meetings to share data and insights, plan next steps, and report on progress.

**Support the learning process**

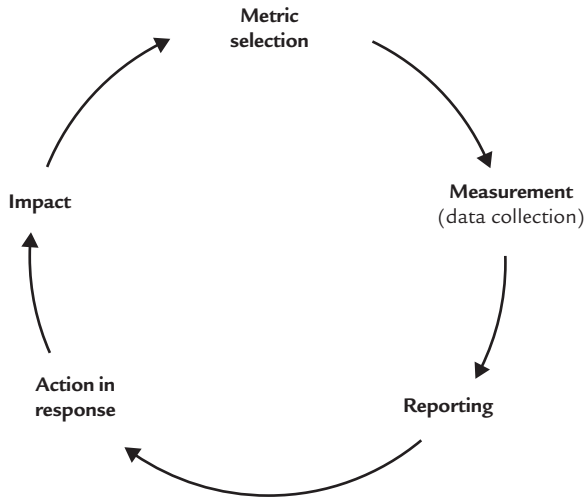
Culture and individual behaviors supporting team-level learning

- Senior leaders are often distant, and approval processes Byzantine
  - Staff can be reluctant to express counter-normative views
  - Experimentation is reserved for clinical research
  - Be available: spend time with the team in their environment, go looking for trouble.
  - Make decisions quickly (including saying “no”), explaining your rationale.
  - Ask, don’t tell: invite input from even the most reticent team members and treat even the most outlandish ideas as worthy of evaluation.
  - Invite team to create small-scale local working examples to practice the method.
-

**Table 10.1.** Requirements for clinician-led frontline change

<b>Supporting frontline change</b>	<b>Exercising central control</b>
<ul style="list-style-type: none"><li>• Unit or pathway level multiprofessional teams</li><li>• Structured and repeatable redesign method</li><li>• Widely available team-based operational redesign and change leadership training program</li><li>• Defined role for clinical change leaders</li><li>• Ongoing mentorship post-training</li></ul>	<ul style="list-style-type: none"><li>• Institution or division level oversight body</li><li>• Tracking metrics and reporting systems</li><li>• Project management support</li><li>• Data and analytics support</li><li>• Access to advice from corporate services</li></ul>

**Figure 10.1.** Elements of a measurement system



**Table 10.2.** Classes of cost in healthcare delivery

<b>Cost</b>	<b>Effect of reduction in use</b>	<b>Example</b>
<b>Variable</b>	The item is not consumed, does not need to be replaced, and is available for later use.	Supplies, medications
<b>Semi-variable</b>	The item is not consumed, but the ability to repurpose the item is limited by time. Costs of providing the service may be reduced with sufficient reduction in volume.	Direct hourly nursing, respiratory therapists, physical therapists
<b>Semi-fixed</b>	The item is not consumed, but the obligation to continue to pay for the item does not change.	Equipment, operating-room time, physician salaries, ancillary services
<b>Fixed</b>	Resource consumption is not altered in the short run but may be altered in the next operating cycle.	Billing, organizational overhead, finances