



BUILDING  
QUALITY  
IMPROVEMENT  
CAPACITY

CHANGE PACKAGE

OCTOBER 2019



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We are grateful for the active participation of patients and families in the Quality Improvement Collaborative. The content of this document reflects a group effort.

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# INTRODUCTION

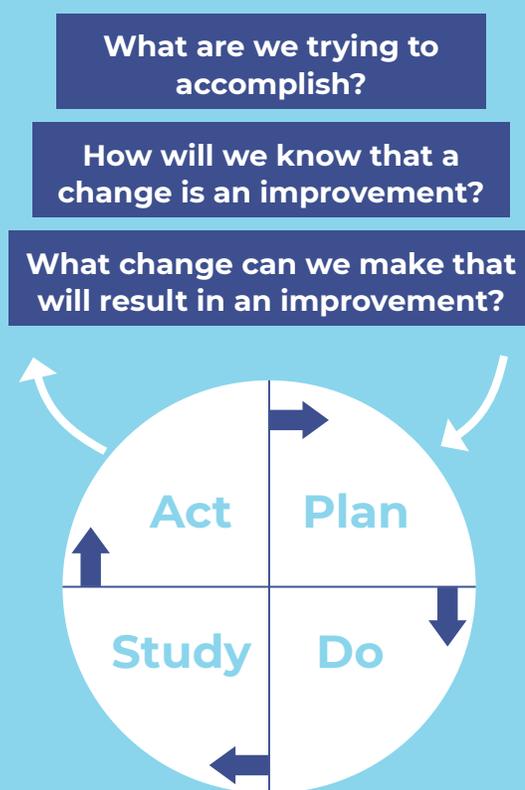
A change package is a document that describes the improvement methodology for a clinical or operational process.

The change package is intended to be a pragmatic guide of best practices, testable ideas, tools, and strategies that can be adapted to a new setting, thereby accelerating implementation. The Building QI Capacity change package represents shared learning from ten clinical sites participating in the TID Exchange Quality Improvement Collaborative (TIDX-QI).

The TID Exchange QI Collaborative model is an adaptation of the Institute for Healthcare Improvement's (IHI) Breakthrough Series Model.<sup>1</sup> This change package was developed by the TID Exchange QI team, faculty and team members. It includes test ideas employed by the different participating sites and is shaped by their experiences building internal quality improvement capacity.

These change ideas can be tested quickly using the Institute of Healthcare Improvement Model of Improvement.<sup>1</sup>

**FIGURE 1** Institute for Healthcare Improvement Model of Improvement



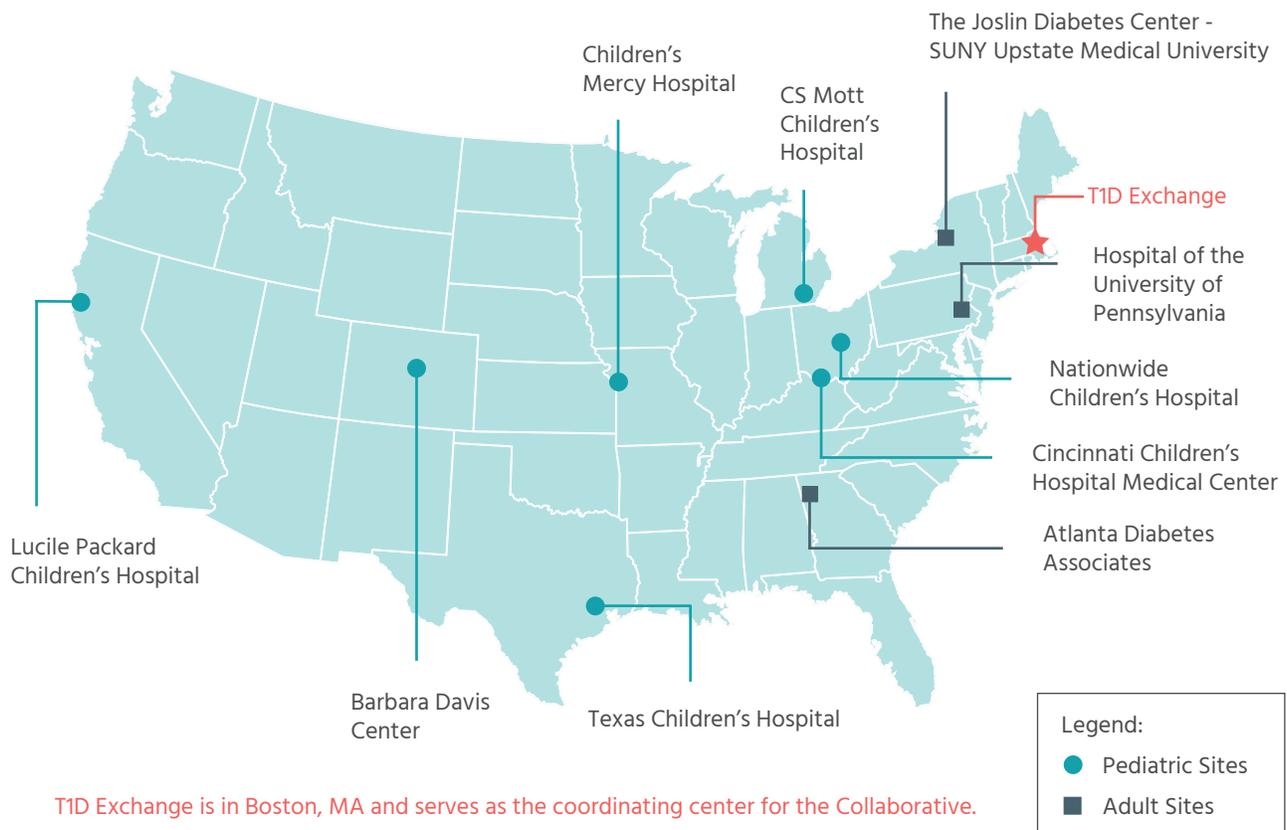
# BACKGROUND

T1D Exchange is a Boston-based nonprofit with a mission to improve the outcomes of people living with type 1 diabetes (T1D) through facilitating better care and accelerating new therapies. The Exchange was created in 2009 and has generated extensive capability to accelerate research, drug, and device development, including a network of 80+ adult and pediatric practices, 26,000+ patients, a data coordinating center, a patient-consented registry, and an online network of patients interested in participating in research. The Exchange has created the largest registry of patients with T1D in the US and has collected information about health outcomes for this population since enrollment began in 2010.

T1D Exchange facilitated a Quality Improvement Collaborative with ten clinical sites (Appendix – Collaborative Clinic Profiles) to increase the capacity of quality improvement in their type 1 diabetes site in the first phase of the Collaborative. There were seven pediatric and three adult sites from different geographical locations in the United States (see below).

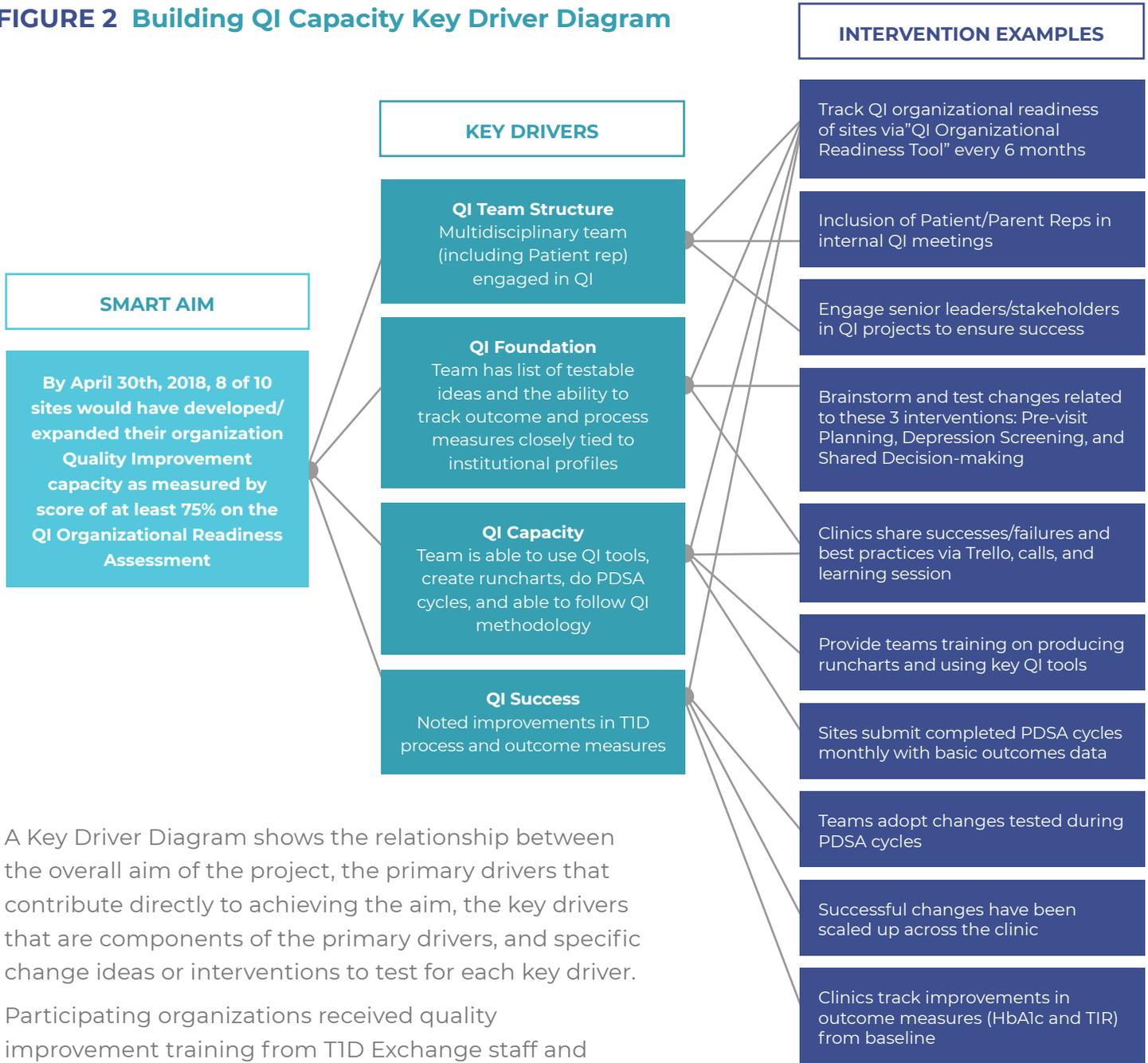
This change package reflects the experience of the Collaborative in building QI capacity by testing change ideas in the following interventions: improving depression screening, increasing shared decision making and promoting pre-visit planning. This document reflects the collaborative experience from March 2016 to April 2018.

## T1D Exchange Quality Improvement Collaborative



# KEY DRIVER DIAGRAM

**FIGURE 2 Building QI Capacity Key Driver Diagram**



A Key Driver Diagram shows the relationship between the overall aim of the project, the primary drivers that contribute directly to achieving the aim, the key drivers that are components of the primary drivers, and specific change ideas or interventions to test for each key driver.

Participating organizations received quality improvement training from T1D Exchange staff and Institute for Healthcare Improvement (IHI) faculty; the teams engaged in monthly calls, completed a QI Organizational Readiness survey, received feedback from collaborative faculty leaders, and shared resources using an online learning platform.

# RESULTS

The T1D Exchange's QI Team adapted a QI Organizational Readiness Assessment scale derived from similar tools to measure the QI capacity at each of the participating institutions.<sup>2,3,4</sup>

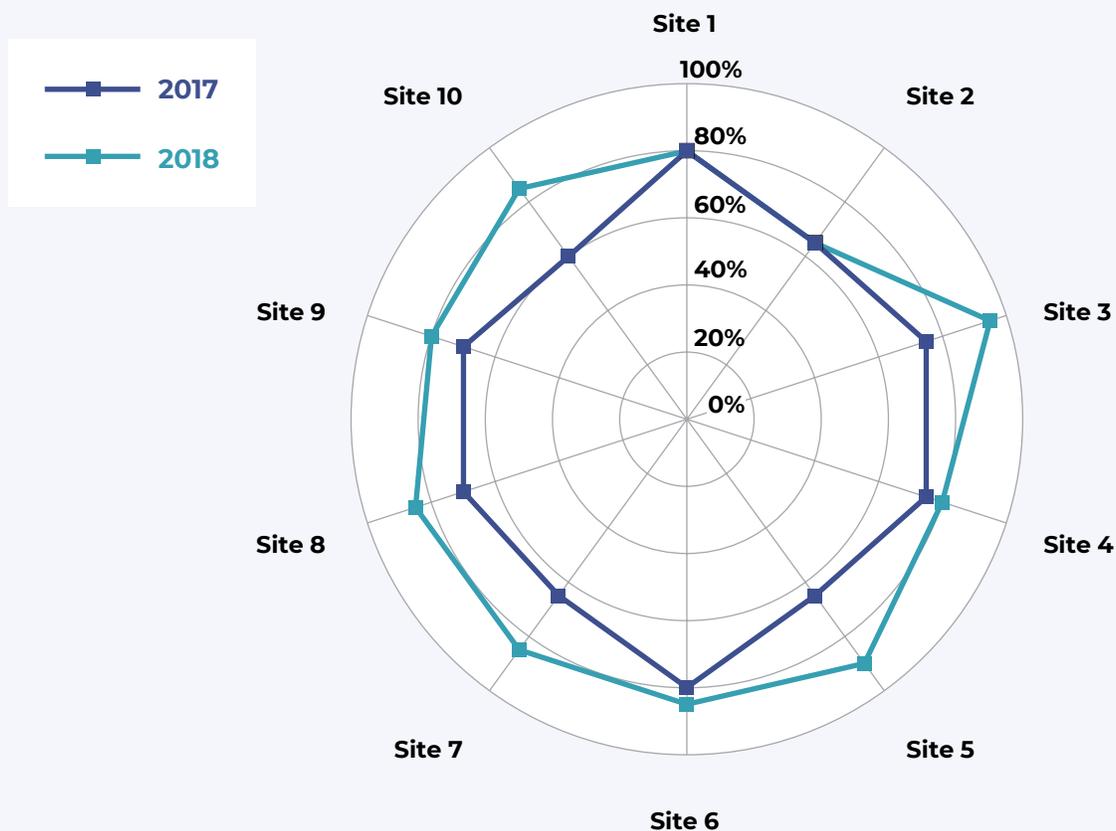
Through a series of monthly coaching calls, learning sessions, and completed numerous rapid improvement cycles (Plan-Do-Study-Act cycles) on depression screening, pre-visit planning and shared decision-making, all teams built their internal QI capacity (as measured using the Quality Improvement Organizational Readiness Assessment – Appendix A).

Eight of ten sites achieved a QI Organization Readiness score goal of at least 75% (≥15 out of 20). A score of 75% demonstrated a QI-savvy site that has built a foundation for transformational change.

Seven of the ten participating sites improved their average depression screening from 10% at baseline to 70% in less than 18 months (see T1D Exchange Depression Screening Package)

**FIGURE 3 QI Organizational Readiness Assessment**

**Scores on the QI Organizational Readiness Assessment (max score: 20)**



# INTERVENTIONS AND EXPERIENCE

## FOCUS AREA ONE: QI TEAM STRUCTURE<sup>11,12,13</sup>

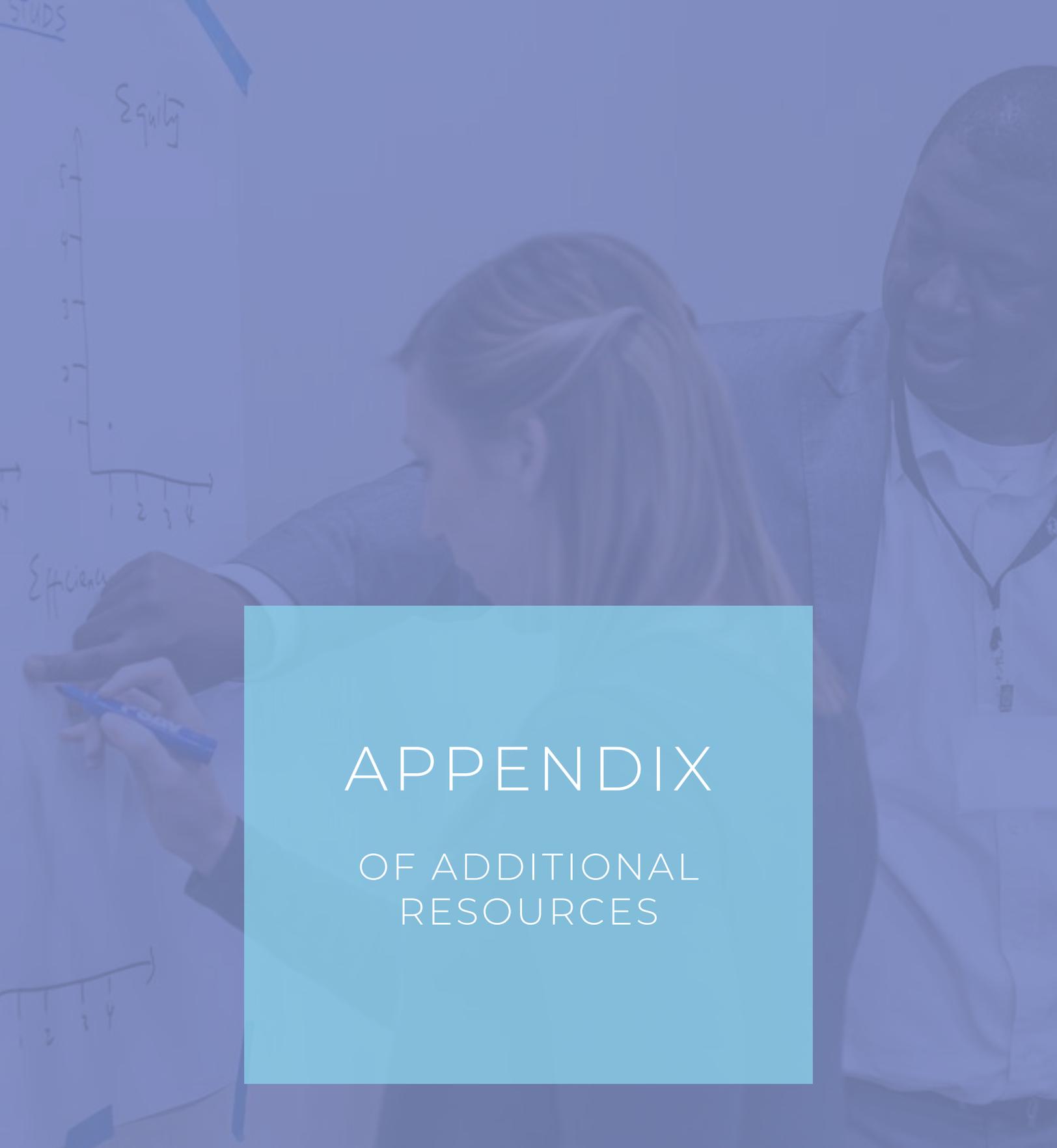
INTERVENTION	TESTABLE IDEA	COLLABORATIVE EXPERIENCE
<b>Select and Engage the Right Team</b>	<p>Identify significant roles in the process and invite them to join the team.</p> <p>Use a structured meeting agenda and follow-up template.</p>	<p>Majority of the sites had at least a Provider Champion, QI/Data Analyst, and Patient/Parent Representative and met at least monthly throughout the Collaborative period.</p> <p>Each site had a standing meeting at least once a month to discuss their specific improvement agenda.</p>
<b>Engage Patients/Parents</b>	<p>Work with patients to develop improvement materials.</p> <p>Use the patient survey or advisory groups to understand patient experience.</p>	<p>All sites tested at least one of these change ideas.</p> <p>Three sites of the ten sites developed formal Patient/Parent Advisory Councils, while other sites piloted the different approaches within the 18 months of testing.</p>
<b>Engage Program Leaders/Identify QI Champions</b>	<p>Invite senior leadership to join the improvement team meeting/brainstorming session.</p> <p>Seek and share alignment between project and organizational priorities.</p> <p>Share patient/parent stories during staff gatherings and senior leadership meetings.</p>	<p>Eight of the ten sites tested at least one of these change ideas and were able to align the project to their organizational priorities.</p>

## FOCUS AREA TWO: QI FOUNDATION

INTERVENTION	TESTABLE IDEA	COLLABORATIVE EXPERIENCE
<b>Train Staff</b>	<p>Change staff on improvement topics such as process mapping, using a fishbone diagram to identify contributing factors, prioritizing improvement ideas, etc.</p> <p>Use QI competency evaluation tools like Quality Improvement Knowledge Application Tool (QIKAT-R)<sup>14</sup>, the Assessment of Quality Improvement Knowledge and Skills (AQIKS) instrument<sup>15</sup>, and the Mayo Evaluation of Reflection on Improvement Tool (MERIT)<sup>16</sup> to measure team’s QI knowledge and skills.</p>	<p>All sites participated in the IHI Improvement Coach training program.</p> <p>All sites were able to map their current processes in at least one of the interventions (depression screening, shared decision making, and pre-visit planning).</p>
<b>Cross-Train Staff</b>	<p>Cross-train staff on specific process flows/protocols.</p> <p>Train front desk staff to help patients complete pre-visit form in the waiting room.</p> <p>Train front desk/Medical Assistant to help people complete depression screening forms in the waiting room.</p>	<p>Three sites developed training for their staff to increase familiarity with families’ psychosocial needs. One team cross-trained social workers to do depression screenings that only a psychologist was doing previously.</p>
<b>Use a Coordinator</b>	<p>Assign a dedicated staff member to help with data collection and reporting.</p>	<p>All sites in the Collaborative had at least one person responsible for coordinating activities.</p>
<b>Choose and Track the Right Outcomes</b>	<p>Select and measure validated clinical indicators to determine the impact of changes.</p> <p>Build run charts for critical interventions.</p>	<p>All sites regularly submitted process measures and PDSA cycle results. Sites tested improvement in depression screening, pre-visit planning, and shared decision making.</p>

## FOCUS AREA THREE: TEST AND SPREAD TESTABLE (CHANGE) IDEAS

CHANGE CONCEPT	TEST (CHANGE) IDEA	COLLABORATIVE EXPERIENCE
<b>Use Automation</b>	<p>Incorporate pre-visit planning tool into the electronic medical system.</p> <p>Use alerts to remind physicians to order specific labs.</p> <p>Create a registry for pre-visit management.</p>	<p>Some sites participating in the depression screening cohort tested automated PHQ-2/4/9 forms in their electronic medical record. Sites also must test out the changes at different times of day to understand the impact of the new change.</p> <p>Example: Incorporate depression screening tool into the electronic medical record.</p>
<b>Improve Efficiencies</b>	<p>Test a telehealth model to reach patients living geographically far from clinical centers.</p> <p>Shorten intake form (removed similar questions and fields that were not pertinent to the clinic).</p> <p>Hold morning huddle to improve communication and reduce redundancy.</p>	<p>All sites tested different change ideas targeted at improving efficiency in department operations.</p>
<b>Scale Successful Ideas</b>	<p>Standardize processes across the organization.</p>	<p>Three sites participating in the Depression Screening intervention group sustained their results (exceeded aims) 6 months after achieving them.</p>



# APPENDIX

## OF ADDITIONAL RESOURCES

## 1. QI TEAM STRUCTURE

COMPONENT	YES	NO	DO NOT KNOW
<p><b>1.1 The Department Senior leader(s) is engaged in the T1D improvement project</b>  <u>Example of a “yes” response:</u>                      The Department Senior Leader (or division chief) attend <b>at least one meeting per month</b> and expresses interest in achieving network goals/aims.</p>			
<p><b>1.2 The Physician Champion/Leader is engaged and participates in the T1D improvement project</b>  <u>Example of a “yes” response:</u>                      The Physician Champion/Leader attends <b>at least two calls a month</b> (can be a Collaborative or Intervention call).</p>			
<p><b>1.3 The IT department is available and willing to implement technical changes</b>  <u>Example of a “yes” response:</u>                      The clinic team has approached (i.e., have had meetings internally or calls with T1D Exchange’s CTO) their IT team regarding upcoming data pulls for the QI IT portal.</p>			
<p><b>1.4 T1D patient(s)/parent(s) are engaged in the improvement project</b>  <u>Example of a “yes” response:</u>                      A T1D patient/parent (beyond clinic members with T1D) attends internal clinical meetings at least on a monthly basis and actively contributes ideas to improvement projects.</p>			
<p><b>1.5 The QI core team members have relevant representation (job roles) and meet frequently</b>  <u>Example of a “yes” response:</u>                      The core QI team includes clinical champion, QI specialist, coordinator (i.e., research coordinator, RN, or CDE), and a patient/parent representative.</p>			
<p><b>TOTAL</b></p>			

## 2. QI FOUNDATION

COMPONENT	YES	NO	DO NOT KNOW
<p><b>2.1 Improving T1D clinical outcomes is aligned with your organizational priorities</b>  <u>Example of a “yes” response:</u>                      Your organization has metrics tied to clinical results, and it’s possible to match our work with your organization’s priorities.</p>			
<p><b>2.2 Our team has a pool of potential test ideas to improve T1D outcomes and process interventions</b>  <u>Example of a “yes” response:</u>                      Your team has brainstormed potential test ideas/change concepts to test for one of your interventions.</p>			
<p><b>2.3 We collect T1D patient-reported outcomes (PROs) or patient-reported experiences (PREs)</b>  <u>Example of a “yes” response:</u>                      Collection tools include an intake form, a survey, or a question asked during the visit.</p>			
<p><b>2.4 Your team has a system to facilitate the collection and capture of PROs and PREs mentioned above in 2.3</b>  <u>Example of a “yes” response:</u>                      Your team has a mechanism to collect PROs (can be manually on paper) and has approached your IT team already to build PROs into the EMR.</p>			
<p><b>2.5 The team monitors quality T1D process and outcome measures</b>  <u>Example of a “yes” response:</u>                      Your organization can track process measures related to the interventions and at least one outcome measure.</p>			
<p><b>TOTAL</b></p>			

### 3. QI CAPACITY

COMPONENT	YES	NO	DO NOT KNOW
<p><b>3.1 The team is proficient in completing PDSA cycles aligned with improving T1D process or outcome measures</b>  <u>Example of a “yes” response:</u>                      Your group meets at least twice a month and can document a PDSA cycle from start to finish.</p>			
<p><b>3.2 The team is adept at updating run charts</b>  <u>Example of a “yes” response:</u>                      At a minimum, your organization can develop a run chart on Excel and annotate it appropriately.</p>			
<p><b>3.3 At least one of our team members is proficient in the QI model of improvement</b>  <u>Example of a “yes” response:</u>                      At least one of your team members has completed a QI project using the Plan - Do - Study - Act (PDSA) Model of improvement framework.</p>			
<p><b>3.4 The team can map current processes, analyze contributing factors, causes and use essential QI tools</b>  <u>Example of a “yes” response:</u>                      Your team has created flow charts and fishbone diagrams to understand contributing factors.</p>			
<p><b>3.5 The team is comfortable scaling up successful improvement ideas</b>  <u>Example of a “yes” response:</u>                      Your team has documented rationales for scaling up improvement projects. Can point to a run chart or PDSA worksheet to justify scale-ups.</p>			
<p><b>TOTAL</b></p>			

## 4. QI SUCCESS

COMPONENT	YES	NO	DO NOT KNOW
<p><b>4.1 The team shares T1D data/results with key stakeholders to improve quality</b>  <u>Example of a “yes” response:</u>                      Your team is comfortable showing clinical outcomes to key stakeholders to be held accountable and acknowledge ongoing efforts for improvement.</p>			
<p><b>4.2 The team has demonstrated successes in at least one intervention (Pre-visit planning, depression screening, etc.)</b>  <u>Example of a “yes” response:</u>                      “Success” means “adopting” a change tested during a PDSA cycle related to one of the interventions.</p>			
<p><b>4.3 The team has substantial improvement (at least 10%) in T1D clinical outcome measures (HbA1c, Time in Range)</b>  <u>Example of a “yes” response:</u>                      Your team can compare its mean clinical HbA1cs to its baseline and see an overall 10% improvement.</p>			
<p><b>4.4 The team is collectively improving their QI proficiency</b>  <u>Example of a “yes” response:</u>                      Additional team members have attended QI training in recent months or started using other QI tools.</p>			
<p><b>4.5 Successful changes have been scaled up</b>  <u>Example of a “yes” response:</u>                      At least one successful result related to a T1D Exchange intervention resulted in a scale-up.</p>			
<b>TOTAL</b>			

## Score calculation for each domain:

Please calculate the points for each focus area and put them in the domain boxes listed below. Your team will earn one point for every “yes” response. “No” or “Do not know” responses equal zero points.

Focus Area	Total Points
QI Team Structure	
QI Foundation	
QI Capacity	
QI Success	
<b>Total Points</b>	

## Interpretation of total points:

- 0–5:** Your team is relatively new to Quality Improvement and is just getting started. Many processes are not in place yet. Consistent measuring is critical, but your team isn’t there.
- 6–10:** You may have a select few who are trained in QI, but not many beyond that. QI culture hasn’t spread to most of the institution yet.
- 11–14:** Your team is well on its way to being QI-savvy! You may not have all the pieces in place, but there’s a foundation to build on, and you have stakeholder buy-in. Keep perfecting your processes to create an ideal environment to test changes.
- 15–20:** Your site has excellent QI culture! You’re beginning to see progress on run charts and can scale up the improvements. Keep doing what you’re doing so that you’re well on your way to see improvements in outcome measures too.

A process map is a QI tool that enables you to create a visual picture of how a process currently works or should work. It is useful to recognize team roles, test assumptions, educate teams about process, identify pain points and isolate effects of changes.

### LEVELS OF MAP

#### **Macro – high-level map (30,000 feet view)**

- Examples include block diagram, the top-down flow diagram
- Shows high-level flow and answers major questions

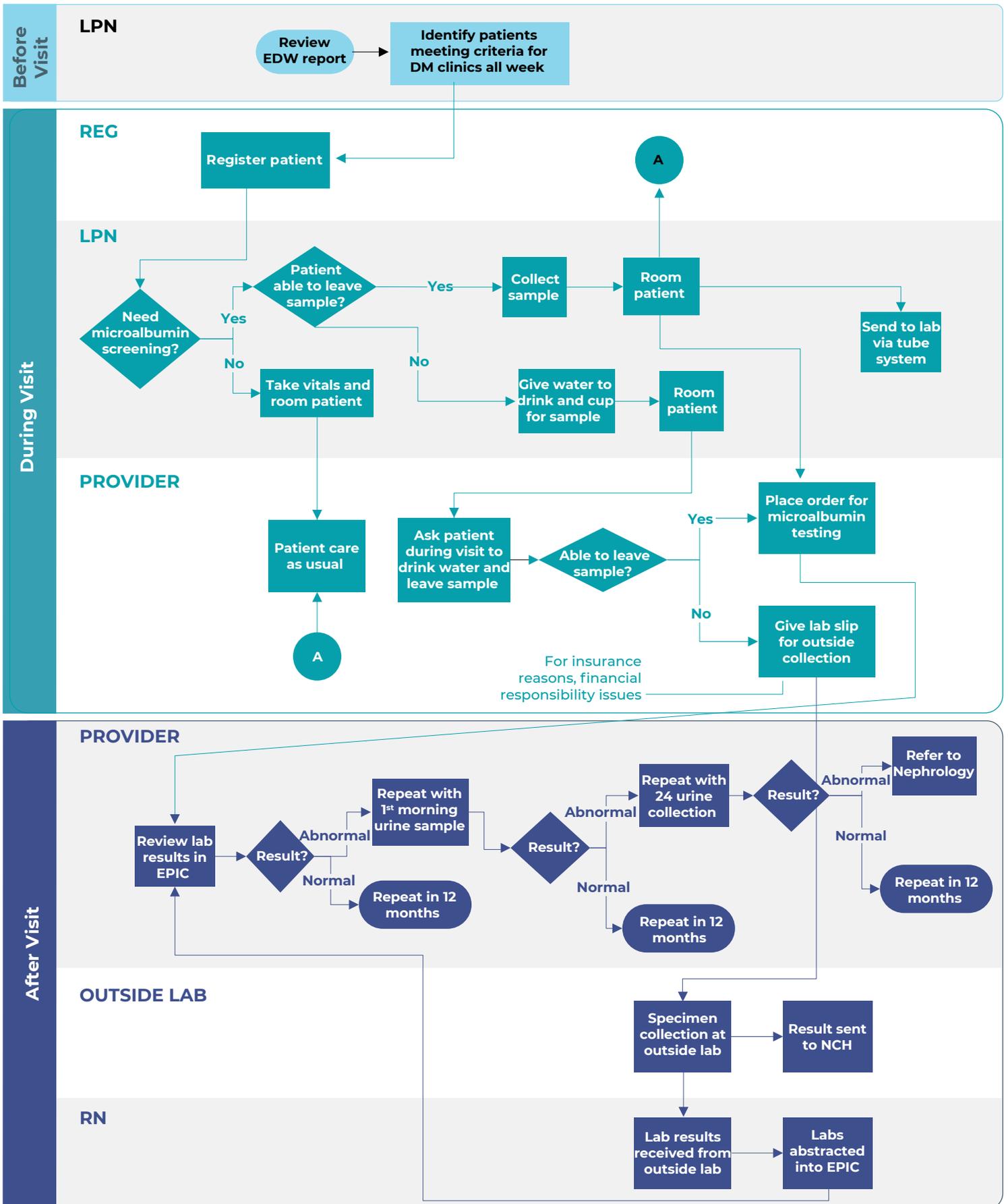
#### **Micro – detailed process map (10,000 feet view)**

- Examples include deployment chart/swim lanes, traditional flow charts
- Shows steps, inputs, outputs, and the sequence (more complex)

#### **Instructions on how to create a traditional flow chart**

1. Assemble the right team
2. Determine the scope of the process to be mapped
3. Brainstorm significant steps and decision points in the process
4. Identify the correct sequence
5. Use the right shape/symbol (rectangle for a task, oval for start, diamond for decision points)
6. Include time as appropriate
7. Validate the map and identify variations
8. Identify bottlenecks and pain points
9. Label the map

EXAMPLE 1 Nationwide Children's Hospital Microalbumin Screening Process Map



# COLLABORATIVE CLINIC PROFILE

CLINIC	MULTIDISCIPLINARY TEAM MEMBERS	VOLUME & MEDICAID	CONTACT NAMES
<b>MICHIGAN</b> <i>Pediatric</i>	<ul style="list-style-type: none"> <li>• 11 Attending Physicians</li> <li>• 2 Endocrinology Fellows</li> <li>• 6 Certified Diabetes Educators</li> <li>• 3 Social Workers</li> <li>• 1 Psychologist</li> </ul>	100–150 newly diagnosed patients seen annually 1,400 established T1D patients receiving ongoing care 3 locations  <b>Estimated 56% Medicaid</b>	<b>Site PI</b> <b>Joyce Lee, MD</b> <i>joyclee@med.umich.edu</i>  <b>Site Coordinator</b> <b>Ashley Garrity, MPH</b> <i>ashleygna@med.umich.edu</i>
<b>CINCINNATI CHILDREN'S</b> <i>Pediatric</i>	<ul style="list-style-type: none"> <li>• 15 Attending Physicians</li> <li>• 10 Endocrinology Fellows</li> <li>• 9 Advanced Practice Providers</li> <li>• 12 Certified Diabetes Educators</li> <li>• 6 Social Workers</li> <li>• 1 Psychologist</li> </ul>	200–250 newly diagnosed patients seen annually 2,000 established T1D patients receiving ongoing care 2 locations  <b>Estimated 40% Medicaid</b>	<b>Site PI</b> <b>Sarah Corathers, MD</b> <i>sarah.corathers@cchmc.org</i>  <b>Site Coordinator</b> <b>Mary Jolly, RN</b> <i>mary.jolly@cchmc.org</i>
<b>NATIONWIDE CHILDREN'S</b> <i>Pediatric</i>	<ul style="list-style-type: none"> <li>• 10 Attending Physicians</li> <li>• 4 Endocrinology Fellows</li> <li>• 4 Advance Practice Providers</li> <li>• 9 Certified Diabetes Educators</li> <li>• 5 Social Workers</li> <li>• 1 Psychologist</li> </ul>	300–325 newly diagnosed patients annually 1,350 established T1D patients receiving ongoing care  <b>Estimated 53% Medicaid</b>	<b>Site PI</b> <b>Manmohan Kamboj, MD</b> <i>Manmohan.Kamboj@nationwidechildrens.org</i>  <b>Site Coordinator</b> <b>Don Buckingham, MBOE, CPHQ</b> <i>Don.Buckingham@nationwidechildrens.org</i>
<b>BARBARA DAVIS CENTER</b> <i>Pediatric</i>	<ul style="list-style-type: none"> <li>• 11 Attending Physicians</li> <li>• 6 Endocrinology Fellows</li> <li>• 7 Advanced Practice Providers</li> <li>• 10 Certified Diabetes Educators</li> <li>• 3 Social Workers</li> <li>• 1 Psychologist</li> </ul>	400 newly diagnosed patients annually 3,550 established T1D patients receiving ongoing care  <b>Estimated 33% Medicaid</b>	<b>Site PI</b> <b>Todd Alonso, MD</b> <i>guy.alonso@cuanschutz.edu</i>  <b>Site Coordinator</b> <b>Sarah Thomas</b> <i>sarah.3.thomas@cuanschutz.edu</i>

## COLLABORATIVE CLINIC PROFILE continued

CLINIC	MULTIDISCIPLINARY TEAM MEMBERS	VOLUME & MEDICAID	CONTACT NAMES
<b>SUNY UPSTATE</b> <i>Pediatric and Adult</i>	<ul style="list-style-type: none"> <li>• 11 Adult Attending Physicians</li> <li>• 3 Pediatric Attending Physicians</li> <li>• 1 Adult/Pediatric Attending Physician</li> <li>• 7 Adult Endocrinology Fellows</li> <li>• 6 Adult Advanced Practice Providers</li> <li>• 5 Pediatric Advanced Practice Providers</li> <li>• 1 Social Worker</li> <li>• 6 Adult Nurse Educators</li> <li>• 5 Pediatric Nurse Educators</li> <li>• 5 Dietitians</li> <li>• 1 Podiatrist</li> </ul>	<p>3,500 Established T1D adult patients</p> <p>1,650 Established T1D pediatric patients</p> <p><b>Estimated 20% Medicaid (adult) and 46% Medicaid (Pediatric)</b></p>	<p><b>Site PI</b>  <b>Ruth Weinstock, MD, PhD</b>  <i>weinstor@upstate.edu</i></p> <p><b>Site Coordinators</b>  <b>Katie McDaniel Lambert</b> <i>McDanieK@upstate.edu</i></p> <p><b>Margie Greenfield</b>  <i>greenfma@upstate.edu</i></p>
<b>CHILDREN'S MERCY</b> <i>Pediatric</i>	<ul style="list-style-type: none"> <li>• 23 Attending Physicians</li> <li>• 3 Endocrinology Fellows</li> <li>• 2 Advanced Practice Providers</li> <li>• 14 Certified Diabetes Educators</li> <li>• 2 Social Workers</li> <li>• 1 Psychologist</li> </ul>	<p>250–300 newly diagnosed patients seen annually</p> <p>2,130 established T1D patients receiving ongoing care</p> <p><b>Estimated 40% Medicaid</b></p>	<p><b>Site Co-PIs</b>  <b>Mark Clements MD, PhD</b>  <i>maclements@cmh.edu</i></p> <p><b>Ryan McDonough, DO</b>  <i>rjmcdonough@cmh.edu</i></p> <p><b>Site Coordinator</b>  <b>Dara Watkins MA, CCRP</b>  <i>djwatkins@cmh.edu</i></p>
<b>TEXAS CHILDREN'S HOSPITAL</b>	<ul style="list-style-type: none"> <li>• 27 Attending physicians</li> <li>• 12 Endocrinology Fellows</li> <li>• 4 Advanced Practice Providers</li> <li>• 8 CDE/RNs</li> <li>• 15 CDE/RDs</li> <li>• 6 Social workers</li> <li>• 1.25 Psychologists</li> </ul>	<p>300–350 newly diagnosed patients annually</p> <p>2,500 established T1D patients receiving ongoing care</p> <p>6 locations</p> <p><b>Estimated 32% Medicaid</b></p>	<p><b>Site PI</b>  <b>Daniel DeSalvo, MD</b>  <i>desalvo@bcm.edu</i></p> <p><b>Site Coordinator</b>  <b>Curtis Yee, Practice Administrator</b>  <i>cxyee@texaschildrens.org</i></p>

## COLLABORATIVE CLINIC PROFILE continued

CLINIC	MULTIDISCIPLINARY TEAM MEMBERS	VOLUME & MEDICAID	CONTACT NAMES
<b>UPENN</b>	<ul style="list-style-type: none"> <li>• 7 Attending physicians</li> <li>• 7 Endocrinology fellows</li> <li>• 1 CDE</li> </ul>	<p><b>Estimated 50% Medicaid</b></p>	<p><b>Site PI</b>  <b>Ilona Lorincz, MD, MSHP</b>  <i>Ilona.Lorincz@pennmedicine.upenn.edu</i></p> <p><b>Site Coordinator</b>  <b>Kathryn Gallagher</b>  <i>kathryn.gallagher2@uphs.upenn.edu</i></p>
<b>STANFORD</b>	<ul style="list-style-type: none"> <li>• 3.5 Attending physicians</li> <li>• 5 Endocrinology fellows</li> <li>• 5.5 CDEs</li> <li>• 1 Social workers</li> <li>• 1.5 Psychologist</li> </ul>	<p>81 newly diagnosed patients seen annually</p> <p>1,081 established T1D patients receiving ongoing care</p> <p><b>Estimated 31% Medicaid</b></p>	<p><b>Site PI</b>  <b>Priya Prahalad, MD, PhD</b>  <i>prahalad@stanford.edu</i></p> <p><b>Site Coordinator</b>  <b>Jeannine Leverenz</b>  <i>JLeverenz@stanfordchildrens.org</i></p>

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