Representatives from each the health plans represented above are working together on a Performance Improvement Project (PIP) to improve the management of blood pressure in patients with diabetes. We invite practitioners and clinic staff to review the materials and suggestions provided in this toolkit and consider implementing some of them in your clinic(s). If you have any questions concerning the materials or how to use them, please call a representative listed in Addendum E.

**Project Overview:** Current research emphasizes the importance of blood pressure management in patients with diabetes. Studies have shown that many patients receiving treatment for hypertension do not know their most recent blood pressure reading or their blood pressure goal. To respond to these challenges, this project focuses on two predominant themes:

1. **Increasing patient self management and medication adherence**
2. **Increasing management of hypertension to goal**

Project success will be measured by an increase in the proportion of patients with diabetes who have blood pressure in control as measured by the Healthcare Effectiveness Data and Information Set (HEDIS) Comprehensive Diabetes Care Blood Pressure measure in adults ages 18 through 75 years. A goal of blood pressure below 130/80 mmHg is consistent with the 2009 Institute for Clinical Systems Improvement (ICSI) Diagnosis and Treatment of Diabetes Mellitus in Adults, Type 2 guideline and the American Diabetes Association (ADA) Standards of Medical Care for Diabetes (2009).

However, based on results reported from the Action to Control Cardiovascular Risk in Diabetes (ACCORD) study group\(^1\) the guidelines are expected to change to reflect new systolic and diastolic parameters for optimal control of high blood pressure in patients with diabetes. In consideration of this expected change (and acknowledging that even when a guideline is widely accepted, the goal for an individual patient may vary depending on a variety of factors), interventions directed at patients in this project will encourage them to talk with their practitioners about what their optimal blood pressure goal should be and do everything they can to reach their goal.

The success measure for the PIP will be adjusted to reflect new blood pressure parameters when those have been established.

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CONTENTS**

Section 1  Tools and Strategies  
pages 3-8  
- Quality Improvement Process – An Overview  
- Sample Project Intervention Template  
- Suggested Tools and Strategies to Improve Blood Pressure Management in the Clinic Setting

Section 2  Practitioner Training Series Guide  
pages 9-11  
- Taped Series of 30-minute PowerPoint Presentations with Expert Speakers available online:  
  - Updates on medical management of hypertension by Patrick O’Connor, MD  
  - Promoting hypertension self-management by Karen Margolis, MD  
  - Physician-pharmacist team approach to treating hypertension in the diabetic patient by Ruth Seabaugh, PharmD, BCPS, and Amanda Brummel, Pharm.,  
  - Hypertension management in special needs populations, by Michael Trangle, MD

Section 3  Addendums  
pages 12-22  
A  Guidelines and Organizations  
B  Resources for Patients  
C  Quality Improvement Resources on the Internet  
D  Quality Improvement Tools – A Reference Guide  
E  Health Plan Collaborative Members – Contact List

** The five health plans implementing this project have made every reasonable effort to include only accurate and reliable reference sites and materials but are not responsible for accuracy, content or information found in those sites or materials
Quality Improvement Process - An Overview
Improving Blood Pressure Management in Patients with Diabetes

The following Quality Improvement Process Overview serves as the foundation for understanding the framework and commitment to performing a quality improvement (QI) Project on improving blood pressure (BP) management for patients with diabetes.

**Quality**
Quality services are services that are provided in a safe, effective, recipient-centered, timely, equitable, and recovery-oriented fashion.

**Quality Improvement Principles**
QI is a systematic approach to assessing services and improving them on a priority basis. The approach to QI is based on the following principles:

- **Customer Focus.** High quality organizations focus on their internal and external customers and on meeting or exceeding needs and expectations.
- **Employee Empowerment.** Effective programs involve people at all levels of the organization in improving quality.
- **Leadership Involvement.** Strong leadership, direction and support of QI activities by the clinic’s leadership is key to performance improvement. This involvement of organizational leadership assures that QI initiatives are consistent with provider mission and/or strategic plan.
- **Data Informed Practice.** Successful QI processes create feedback loops, using data to inform practice and measure results. Fact-based decisions are likely to be correct decisions.
- **Continuous Improvement.** Processes must be continually reviewed and improved. Small incremental changes do make an impact, and providers can almost always find an opportunity to make things better.

**Continuous Quality Improvement Activities**
QI activities emerge from a systematic and organized framework for improvement. This framework, adopted by the clinic leadership, is understood, accepted and utilized throughout the organization. Quality Improvement involves two primary activities:

- **Measuring and assessing** the performance of clinic services through the collection and analysis of data.
- **Taking action** where indicated, to improve work and care processes including the design of new services, and/or the improvement of existing services.
**PDSA**

- **Plan:** The first step involves identifying preliminary opportunities for improvement. At this point the focus is to analyze data to identify concerns and to determine anticipated outcomes. Ideas for improving processes are identified. This step requires the most time and effort. Affected staff or people served are identified, data compiled, and solutions proposed.

- **Do:** This step involves using the proposed solution, and if it proves successful, as determined through measuring and assessing, implementing the solution usually on a trial basis as a new part of the process.

- **Study/Check:** At this stage, data is again collected to compare the results of the new process with those of the previous one.

- **Act:** This stage involves making the changes a routine part of the targeted activity. It also means “acting” to involve others (other staff, program components or consumers) - those who will be affected by the changes, those whose cooperation is needed to implement the changes on a larger scale, and those who may benefit from what has been learned. Finally, it means documenting and reporting findings and follow-up.

There are several excellent resources and tools for conducting quality improvement projects from the Institute for Healthcare Improvement (IHI) and other healthcare organization and resources. The following document is one such type of template that can be used to identify improvement topic, interventions, and goals using the PDSA process.

Please refer to the Appendices C and D for direct links to documents website that provide additional information, PDSA formats, improvement guides, and resources for healthcare quality projects.
**Intervention Template** – This is an example template that can be used to design interventions and measurements using the PDSA improvement process.

<table>
<thead>
<tr>
<th>Topic:</th>
<th>Intervention options</th>
<th>Supporting evidence/rationale for interventions</th>
<th>Tips and Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
<td></td>
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</tr>
</tbody>
</table>

**PSDA Implementation Guide**

**Plan:**
- Identify a champion and a team representing relevant areas of patient care. Define roles.
- Define current practice/process
- Collect data to describe current practice/process
- Assess current practice/process. What are the drivers (that support the change) and barriers (that get in the way) of making this change?
- How will change be measured? (See suggestions for measure of success, below.)
- Collect baseline data, using the agreed upon measure

**Do:**
- What change is to be implemented?
- How will the intervention be implemented and who will be responsible?
- When (how often) will data be collected to assess change?

**Study:**
- Re-measure
- Analyze data: Is the change being adopted?

**Act:**
- How can I incorporate the new way of doing things into my regular practice?
- How will this new practice spread across all staff?
- Does staff need to acquire new knowledge or skills to implement the new practice?
- How will this change impact other clinic practices/processes?

**Measure of success:**
Ultimate measure of success is a change in Minnesota Community Measurement score. Clinic measure would involve auditing of medical records (all or a sample). Would have to define desired behavior – under what conditions the clinician should change medication or dose to improve blood pressure control. Once that is done, the clinic would establish a baseline rate (by physician?), then would re-measure quarterly for three quarters while implementing one or more of the interventions described above.

**Data collection process:**
1. For denominator, identify patients on antihypertensive meds. (Decide whether or not to narrow down the project to patients with diabetes.) Identify any exclusions. Also for denominator, identify patients “not meeting goal.” (Decide how to define that. Will you measure all patients who meet the criteria or a sample? If a sample, how large?)
2. For numerator, identify those in denominator who had an adjustment to their medication ordered within (time?).
### Example (Using Template on Previous Page)

**Topic:** Encourage Diabetes Patient Self-Management

<table>
<thead>
<tr>
<th>Intervention options</th>
<th>Supporting evidence/rationale for intervention</th>
<th>Tips and Tools</th>
</tr>
</thead>
</table>
*Please note: The diabetes educator would need to add another module on the importance of blood pressure monitoring to the curriculum if adopted by clinic. |
| Conduct discussions with patients about Diabetes Patient Self Management, with emphasis on hypertension, and follow up with nurse phone calls every three months/four times a year (or a set determined frequency over a set time frame) to determine improvement | • Tang, T. S., Funnell, M. M., and Anderson, R. M. (2006). Group Education Strategies for Diabetes Self Management. *Diabetes Spectrum*, 19(2), 99-105. (Online: [http://spectrum.diabetesjournals.org/content/19/2/99.full](http://spectrum.diabetesjournals.org/content/19/2/99.full)) | • National Diabetes Education Initiative Brochure called “Opening the Door to Diabetes Self Management” [http://www.ndei.org/v2/Files/PatientHandoutLegalSize_form_withBold.pdf](http://www.ndei.org/v2/Files/PatientHandoutLegalSize_form_withBold.pdf)  
2. Conduct discussions with patients about the importance of daily blood pressure monitoring; help them obtain their blood pressure monitor through health plan DME; and follow up every three months/four times a year (or a set determined frequency over a set time frame) to determine improvement.


- American Heart Association Blood Pressure Tracker Form: http://www.heart.org/idc/groups/heart-public/@wcm/@hcm/documents/downloadable/ucm_305157.pdf

- American Heart Association Diabetes and High Blood Pressure Form: http://www.americanheart.org/presenter.jhtml?identifier=3044765

3. Conduct discussions with patients about the importance of diet in improving blood pressure; review DASH (Dietary Approaches to Stop Hypertension) approach; give them a food journal; and monitor success by follow up every three months/four times a year (or a set determined frequency over a set time frame) to determine improvement.


- American Diabetes Association “My Food Advisor” Meal Planning and Tips Website: http://tracker.diabetes.org/myfoodadvisor.html

- DASH diet website: http://dashdiet.org/


<table>
<thead>
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<tbody>
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</table>
### Study:
- Re-measure
- Analyze data: Is the change being adopted?

### Act:
- How can I incorporate the new way of doing things into my regular practice?
- How will this new practice spread across all staff?
- Does staff need to acquire new knowledge or skills to implement the new practice?
- How will this change impact other clinic practices/processes?

### Measure of success:
- Measurement is a critical part of testing and implementing changes; measures tell a team whether the changes they are making actually lead to improvement. For this project, the ultimate measure of success is an improvement in Minnesota Community Measurement score.
- Tips for Effective Measures, from the Institute for Healthcare Improvement:
  [http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/Measures/tipsforestablishingmeasures.htm](http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/Measures/tipsforestablishingmeasures.htm)
- Plot data over time.
- Seek usefulness, not perfection.
- Use sampling.
- Integrate measurement into the daily routine.
- Use qualitative and quantitative data.

### Data collection process:
Simple data collection planning is a process to ensure that the data you collect for performance improvement are useful and reliable, without being unnecessarily costly and time-consuming to obtain. Simple data collection planning has a variety of benefits:
- It helps to ensure that the data gathered contain real information, useful to the improvement effort.
- It prevents errors that commonly occur in the data collection process.
- It saves time and money that otherwise might be spent on repeated or failed attempts to collect useful data.
- Directions for simple data collection, from the Institute for Healthcare Improvement:

#### Example data collection process:
1. For denominator, identify patients involved in one of the diabetes self management education programs. Identify any exclusion.
2. Also for denominator, identify patients “not meeting goal.” (Decide how to define that. For example, should you use 130/80 or another goal?) Should you use most recent blood pressure reading or an assessment of blood pressure readings over time? Will you measure all patients who meet the criteria or a sample? If a sample, how large?
3. For numerator, identify those in denominator that completed diabetes self management education program within designated period of time.
Suggested Tools and Strategies to Improve Blood Pressure Management in the Clinic Setting

Here are some guidelines and strategies that have been recommended by experts in the field including the American Heart Association, Minnesota Department of Health, Institute for Clinical Systems Improvement, Minnesota Community Measurement high performing clinics, and others.

Clinical Environment and System Changes:
- To assure accurate BP readings:
  - Use correct cuff size - if cuff is too small the reading may be higher than that patient’s actual BP
  - Create relaxed atmosphere in clinic and strive to relax the patient - if possible, play soft music
  - Wait 5 minutes after rooming the patient before checking BP (no talking during 5 minute ‘rest’)
  - Record exact reading - do not round up or down to numbers that end in ‘0’
  - Whenever BP is high on first reading, the CMA/nurse who roomed patient should recheck and discuss with patient
  - Use Automated Blood Pressure equipment whenever possible to reduce human error
- Provide prompts or flag for practitioner whenever BP is elevated – leave sticky note, leave cuff on patient arm, note elevated BP in reason for visit
- Use EMR to display BP over time – graph and share with the patient
- Establish clinic hours for BP checks without appointments
- Develop clinic protocol for a dedicated phone line patients can use to call in their BP readings to a nurse
- Conduct annual staff competency evaluations to assure accurate BP monitoring techniques
- Conduct regular audits of records with feedback to practitioners

Patient Education Tools and Reminders:
- Display posters in exam rooms that remind patients to ask their practitioner what their BP goal should be
- Provide educational brochures and/or self-monitoring BP tracking tools on which the blood pressure goal can be recorded by the practitioner
- Provide a list of available resources for patients (see ADDENDUM B)

Promote Self-management to Patients:
- Include educational discussion with patient about importance of regular BP checks and management of BP to goal
- Evaluate patient’s adherence to medications and treatment instructions at each visit
• Write a prescription for a home BP cuff for appropriate patients
• Recommend going to a community site for weekly (or some other frequency) readings: for example, Senior Center, Fire Station, Parish Nurse
PRACTITIONER TRAINING SERIES GUIDE

An online series including current information and education was created to help clinics improve the management of blood pressure in patients with diabetes. The intended audience for the series of taped PowerPoint presentations is primary care physicians, physician assistants, and advance practice nurses who manage medications and care of patients in the clinic setting; however all clinic staff would benefit from the information provided. The training modules can be viewed in any order. Each is approximately 30 minutes in length. Access these presentations on the Stratis Health website at http://www.stratishealth.org/providers/healthplanpips.html located under Blood Pressure Control for Members with Diabetes PIP. See Provider Training Series.

MODULE 1: Updates on management of hypertension for patients with diabetes

- Relevant guidelines
- Importance of blood pressure control in patients with diabetes
- Strategies to avoid therapeutic inertia
- Blood pressure medications

Objectives:
1. Identify at least two strategies to improve practitioner knowledge and implementation of evidence-based clinical guidelines for management of blood pressure in patients with diabetes.
2. List two recommendations for medication adjustments to improve management of hypertension.

Speaker:
Patrick O’Connor, MD, Senior Investigator for HealthPartners Research Foundation and a practicing family physician has devoted his research career to finding ways to improve diabetes. He is currently the Principal Investigator of a number of research projects, including a web-based intervention to physicians treating hypertension, a randomized trial designed to decrease clinical inertia regarding patients with uncontrolled hypertension, and an analysis of patterns of blood pressure and weight in children and adolescents over a multiyear period.

MODULE 2: Promoting self-management of hypertension

- Strategies to facilitate self-monitoring
Strategies to encourage shared decision making (patients should check with health plan for covered benefits)

Objectives:
1. Name two office practice tools or techniques that would support accurate blood pressure measures.
2. List two strategies that could activate patients to monitor their blood pressure and participate in decisions concerning their care for hypertension.

Speaker:
Dr. Karen Margolis, Senior Clinical Investigator at HealthPartners Research Foundation, whose research interests include hypertension, diabetes and post-menopausal women's health has held leadership positions in trials testing interventions to reduce cardiovascular complications of hypertension, diabetes, and aging, including ALLHAT, ACCORD, and the Women’s Health Initiative (WHI).

MODULE 3: Physician-Pharmacist Team Approach to Treating Hypertension in the Diabetic Patient

- Medication Therapy Management (MTM) – Fairview Project
- Drug therapy problems
- Medication compliance

Objectives:
1. Provide overview of MTM
2. Describe the team approach for the MTM program used by the Fairview project
3. Describe two drug therapy problems that were addressed by participation in MTM
4. Identify at least two barriers to medication compliance

Speakers:
Ruth Seabaugh, PharmD, BCPS is the consultant pharmacist at Fairview Physician Associates. As the consultant pharmacist, she works on quality improvement and medication related initiatives. Seabaugh’s current projects include cost-effective prescribing, medication safety, and drug therapy in chronic disease states. Seabaugh is a graduate of the College of Pharmacy at the University of Minnesota and has completed a specialty residency in Ambulatory Care at the Saint Louis College of Pharmacy. Seabaugh has been board certified as a pharmacotherapy specialist for over 8 years.

Amanda Brummel, PharmD, Fairview Health Services. Brummel has been working in Medication Therapy Management (MTM) for the past 10 years. She has been the clinical supervisor for the MTM department, the MTM Operations Manager, and in 2009 became the MTM Program Manager. In this position Amanda is responsible for program oversight and development for
the MTM department. Brummel is also an adjunct faculty member at the University of Minnesota.

**MODULE 4: Hypertension management in special needs populations**

- The Minnesota 10 X 10 Project
- Mental Health America (MHA) survey of psychiatrists and adults with schizophrenia on general health conditions
- A “Lifespan Tool” for patients with severe mental illness

**Objectives:**
1. Understand and discuss which patients are considered seriously mentally ill.
2. Understand the causes of decreased life expectancy for this group and be prepared to take actions to increase the life span for this group.

**Speaker:**
Dr. Mike Trangle, HealthPartners Associate Medical Director, Behavioral Health Division. Dr. Trangle has worked at HealthPartners for the past 10 years, where he is the Associate Medical Director responsible for the delivery of behavioral health care at Regions Hospital and within the HealthPartners Medical Group.
ADDENDUM A
Guidelines and Organizations

Guidelines:

1. Institute for Clinical Systems Improvement (2009). Diagnosis and Management of Type 2 Diabetes Mellitus in Adults:
   http://www.icsi.org/guidelines_and_more/gl_os_prot/other_health_care_conditions/diabetes_mellitus__type_2/diabetes_mellitus__type_2__management_of___6.html
2. American Diabetes Association. Executive Summary: Standards of Medical Care in Diabetes –2010:
   http://care.diabetesjournals.org/content/33/Supplement_1/S4.full.pdf+html
4. Minnesota Diabetes Program, Minnesota Department of Health:
   http://www.health.state.mn.us/diabetes
5. Healthy People 2020: U.S. Department of Health and Human Services:
6. Hypertension Guidelines Quick Reference Card, National Heart Lung and Blood Institute:
7. Hypertension Guidelines JNC7 Application for Palm OS or PocketPC, National Heart Lung and Blood Institute:
   http://hp2010.nhlbihin.net/jnc7/jnc7pda.htm

Helpful Organizational Sites:

1. American Diabetes Association (ADA) www.ada.org/
2. American Heart Association (AHA) www.aha.org/
5. Institute for Clinical Systems Improvement (ICSI) www.icsi.org
6. Center for Disease Control www.cdc.gov/
7. Minnesota D5 www.thed5.org/
ADDENDUM B
Resources for Patients

Patient Education Materials:

1. **Understanding Hypertension**, Institute for Clinical Systems Improvement (ICSI):

2. **Talk with Your Health Care Provider About High Blood Pressure**, Agency for Healthcare Research and Quality:

3. **High Blood Pressure: Lower It and Live Longer** (48 pages), Hypertension Education Foundation, Inc:
   http://www.hypertensionfoundation.org/PDinfo/HBP_booklet.pdf

4. **High Blood Pressure and Diabetes: Control Them and Live Longer** (48 pages), Hypertension Education Foundation, Inc:
   http://www.hypertensionfoundation.org/PDinfo/HBPnD_booklet.pdf

5. **Be Good to Your Heart: Tips for Everyday Diabetes Self-Care**, American Association of Diabetes Educators:

6. **Your Guide to Lowering Your Blood Pressure with DASH** (64 pages), National Heart Lung and Blood Institute:

7. **The DS – The Five Goals for Living Well**: www.thed5.org


9. **My Blood Pressure Wallet Card**:

10. **Understanding Hypertension brochure**:
    http://www.icsi.org/cardiovascular_8490/understanding_hypertension_.html

11. **American Heart Association Printable Patient Information Sheets**:
    - What is High Blood Pressure?
      http://americanheart.org/prensenter.jhtml?identifier=3004828
    - How Do I Manage My Medicines?
      http://americanheart.org/prensenter.jhtml?identifier=3009478
    - High Blood Pressure brochure:
      http://americanheart.org/prensenter.jhtml?identifier=3007649
    - Printable Blood Pressure Tracker:
      http://americanheart.org/prensenter.jhtml?identifier=3002529

Patient Education -- Videos, Podcasts, and Interactive Programs:

1. **Your guide to lowering high blood pressure** – patient interactive website, National Heart Lung and Blood Institute (NHLBI):

3. A Cup of Health with CDC – Living a Less Salty Life podcast, Center for Disease Control: [http://www2c.cdc.gov/podcasts/player.asp?f=11112](http://www2c.cdc.gov/podcasts/player.asp?f=11112)


Available in Multiple Languages:


ADDENDUM C
Quality Improvement Resources on the Internet

Organizational Changes:

- Assign Day-to-Day Leadership for Continued Clinical Improvement:
- Integrate Models into the "Fabric" of the Organization:
  http://www.ihi.org/IHI/Topics/ChronicConditions/Diabetes/Changes/IndividualChanges/IntegrateImprovementandCareModelsintotheFabricoftheOrganization.htm
- Make Improving Chronic Care a Part of the Organization's Vision:

Self-Management – Changes to Improvement:

- Use Self-Management Tools that are Based on Evidence of Effectiveness:
- Set Up and Document Self-Management Goals Collaboratively with Patients:
- Follow Up and Monitor Self-Management Goals:
- Train Providers and Other Key Staff on How to Help Patients with Self-Management Goals:
- Self-Management Support: Patient Planning Worksheet
  http://www.ihi.org/IHI/Topics/ChronicConditions/Diabetes/Tools/PatientPlanningWorksheet.htm

Quality Improvement Resources:

- Improvement Methods:
  http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/
- Model for Improvement:
  http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/HowToImprove/
• Measures:  
  http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/Measures/

• Tools:  
  http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/Tools/

• Change Concepts:  
  http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/Changes/

• Spreading Changes:  
  http://www.ihi.org/IHI/Topics/Improvement/SpreadingChanges/

• Leading System Improvement:  
  http://www.ihi.org/IHI/Topics/LeadingSystemImprovement/

• Improvement Tracker and Projects:  
  http://www.ihi.org/IHI/Topics/LeadingSystemImprovement/

• Healthcare Improvement Skills Center – 6 online learning modules:  
  http://www.improvementskills.org/

• Office Practices:  
  http://www.ihi.org/IHI/Topics/OfficePractices/

• Testing Changes – Using the Plan-Do-Study-Act (PDSA) Cycle:  
  http://www.ihi.org/IHI/Topics/ChronicConditions/Diabetes/HowToImprove/testingchanges.htm

• Plan-Do-Study-Act (PDSA) Worksheet (IHI tool) attached and available for download here:  
  http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/Tools/Plan-Do-Study-Act%20(PDSA)%20Worksheet

• Data Collection Planning (IHI tool):  
  http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/Tools/Simple+Data+Collection+Planning.htm
ADDENDUM D
Quality Improvement Tools – A Reference Guide

Following are some of the tools available to assist in the Quality Improvement process.

a. **Flow Charting:** Use of a diagram in which graphic symbols depict the nature and flow of the steps in a process. This tool is particularly useful in the early stages of a project to help the team understand how the process currently works. The “as-is” flow chart may be compared to how the process is intended to work. At the end of the project, the team may want to then re-plot the modified process to show how the redefined process should occur. The benefits of a flow chart are that it:

1) Is a pictorial representation that promotes understanding of the process
2) Is a potential training tool for employees
3) Clearly shows where problem areas and processes for improvement are.

*Flow charting allows the team to identify the actual flow-of-event sequence in a process.*

b. **Brainstorming:** A tool used by teams to bring out the ideas of each individual and present them in an orderly fashion to the rest of the team. Essential to brainstorming is to provide an environment free of criticism. Team members generate issues and agree to “defer judgment” on the relative value of each idea. Brainstorming is used when one wants to generate a large number of ideas about issues to tackle, possible causes, approaches to use, or actions to take. The advantages of brainstorming are that it:

1) Encourages creativity
2) Rapidly produces a large number of ideas
3) Equalizes involvement by all team members
4) Fosters a sense of ownership in the final decision as all members actively participate
5) Provides input to other tools: “brain stormed” ideas can be put into an affinity diagram or they can be reduced by multi-voting.

c. **Decision-making Tools:** While not all decisions are made by teams, two tools can be helpful when teams need to make decisions.
1) Multi-voting is a group decision-making technique used to reduce a long list of items to a manageable number by means of a structured series of votes. The result is a short list identifying what is important to the team. Multi-voting is used to reduce a long list of ideas and assign priorities quickly with a high degree of team agreement.

2) Nominal Group technique-used to identify and rank issues.

**Affinity Diagram:** The Affinity Diagram is often used to group ideas generated by brainstorming. It is a tool that gathers large amounts of language data (ideas, issues, opinions) and organizes them into groupings based on their natural relationship. It can be helpful to have group members put their ideas on recipe cards or post-it notes. The affinity process is a good way to get people who work on a creative level to address difficult, confusing, unknown or disorganized issues. The affinity process is formalized in a graphic representation called an affinity diagram.

This process is useful to:
1) Sift through large volumes of data.
2) Encourage new patterns of thinking.

As a rule of thumb, if fewer than 15 items of information have been identified the affinity process is not needed.

e. **Cause and Effect Diagram (also called a fishbone or Ishakawa diagram):** This is a tool that helps identify, sort, and display. It is a graphic representation of the relationship between a given outcome and all the factors that influence the outcome. This tool helps to identify the basic root causes of a problem. The structure of the diagram helps team members think in a very systematic way. The benefits of a cause-and-effect diagram are that it:

1) Helps the team to determine the root causes of a problem or quality characteristic using a structured approach
2) Encourages group participation and utilizes group knowledge of the process
3) Uses an orderly, easy-to-read format to diagram cause-and-effect relationships
4) Indicates possible causes of variation in a process
5) Increases knowledge of the process
6) Identifies areas where data should be collected for additional study.

Cause and effect diagrams allow the team to identify and graphically display all possible causes related to a process, procedure or system failure.
f. **Histogram:** This is a vertical bar chart that depicts the distribution of a data set at a single point in time. A histogram facilitates the display of a large set of measurements presented in a table, showing where the majority of values fall in a measurement scale and the amount of variation. The histogram is used in the following situations:
   1) To graphically represent a large data set by adding specification limits one can compare
   2) To process results and readily determine if a current process was able to produce positive results that assist with decision-making.

g. **Pareto Chart:** Named after the Pareto Principle, which indicates that 80% of the trouble comes from 20% of the problems. It is a series of bars on a graph, arranged in descending order of frequency. The height of each bar reflects the frequency of an item. Pareto charts are useful throughout the performance improvement process - helping to identify which problems need further study, which causes to address first, and which are the “biggest problems.” Benefits and advantages include:
   1) Helps focus on most important factors and build consensus
   2) Allows for allocation of limited resources.

![Pareto Chart Image]

h. **Run Chart:** Most basic tool to show how a process performs over time. Data points are plotted in temporal order on a line graph. Run charts are most effectively used to assess and achieve process stability by graphically depicting signals of variation. A run chart can help to determine whether or not a process is stable, consistent and predictable. Simple statistics such as median and range may also be displayed.

i. The run chart is most helpful in:
   1) Understanding variation in process performance
   2) Monitoring process performance over time to detect signals of change
   3) Depicting how a process performed over time, including variation.

![Run Chart Image]

Allows the team to see changes in performance over time. The diagram can include a trend line to identify possible changes in performance.
**j. Control Chart:** A control chart is a statistical tool used to distinguish between variation in a process resulting from common causes and variation resulting from special causes. It is noted that there is variation in every process, some the result of causes not normally present in the process (special cause variation). Common cause variation is variation that results simply from the numerous, ever-present differences in the process. Control charts can help to maintain stability in a process by depicting when a process may be affected by special causes. The consistency of a process is usually characterized by showing if data fall within control limits based on plus or minus specific standard deviations from the center line.

Control charts are used to:

1) Monitor process variation over time
2) Help to differentiate between special and common cause variation
3) Assess the effectiveness of change on a process
4) Illustrate how a process performed during a specific period

Using upper control limits (UCLs) and lower control limits (LCLs) that are statistically computed, the team can identify statistically significant changes in performance. This information can be used to identify opportunities to improve performance or measure the effectiveness of a change in a process, procedure, or system.

**j. Root Cause Analysis:** A root cause analysis is a systematic process for identifying the most basic factors/causes that underlie variation in performance.

**k. Bench Marking:** A benchmark is a point of reference by which something can be measured, compared, or judged. It can be an industry standard against which a program indicator is monitored and found to be above, below or comparable to the benchmark.
ADDENDUM E

IMPROVING BLOOD PRESSURE MANAGEMENT FOR PATIENTS WITH DIABETES

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