



Best Practices in Hypertension

Best Practices in Hypertension Care

Mercy Clinics Inc.
Des Moines, IA



MEDICAL GROUP PROFILE

- **Multispecialty medical group**
- **Twenty-nine clinics across the greater Des Moines area**, including 14 family practice, five pediatric, three internal medicine, two neurology, two rheumatology, one surgery, one otolaryngology, and one geriatrics.
- **The Mercy Clinics, Inc. (MCI) employs 130 physicians** who are paid using a home-grown virtual private practice (VPP) system that tracks all revenue and expenses to the physician level and pays them the difference. Reimbursement is 100% fee-for-service.
- **Payer mix is 30% Wellmark, 24% Medicare, 6% Medicaid and approximately 40% other commercial insurers.**
- **MCI is owned by Mercy Hospital Medical Center (MHMC) in Des Moines, IA. MHMC is owned by Catholic Health Initiatives of Denver, CO.**
- **During 2006's fiscal year, there were 759,225 patient visits.**

FUNDING/BUDGET

MCI obtained approximately \$150,000 in grant funding to help offset its quality improvement efforts to improve the management of hypertension. It is estimated that these grants covered about 50% of the total program cost; however, the realized financial gains that are discussed later under the Intervention section have clearly illustrated the project will pay for itself over time.

- 1 SECAT (STEPS Electronic Collection and Analysis tool) grant funding received from Iowa Foundation for Medical

Care. The software and some IT support were free; no dollars were attached to this. Mercy estimates that it would have cost approximately \$25,000 to purchase and install a similar product.

- 2 \$5,000 Pfizer Health Literacy Initiative Visiting Lecturer grant
- 3 \$20,000 Health Research and Educational Trust (HERT)/Robert Wood Johnson Foundation Pilot collaborative on Self-Management Support (SMS)
- 4 MCI also received two grants from the Wellmark Foundation. The first, for \$60,000, was to facilitate data entry into the diabetes registry for the first year. The second, for \$65,000, was to support part of the salary of the first four full-time Health Coaches for the first year.

EXECUTIVE SUMMARY

MCI physician leadership made quality improvement a strategic priority. MCI has a highly engaged Quality Committee primarily made up of physicians. These physicians recognized that the current care delivery system was poorly designed to care for patients with chronic diseases, such as hypertension. MCI developed a plan to proactively ensure that all recommended care is being delivered and goals are being met.

In June 2002, the Quality Committee initiated a hypertension quality improvement initiative. A review of the literature revealed many excellent reasons to address hypertension. It is extremely prevalent and is the most common diagnosis used in the family practice setting. Multiple recent studies have shown a strong, continuous, graded increase in cardiovascular events associated with elevated blood pressure (BP). The same studies also revealed that the association is stronger for systolic BP than for

diastolic BP. National data indicate that only 27% of patients diagnosed with hypertension are controlled.

MCI quality staff conducted an audit of first- and second-quarter 2002 data from patients with hypertension, and found 46% of the patients had their hypertension under control as defined by HEDIS criteria of less than 140/90 mmHg.

MCI's data compared favorably to national data; however, the committee agreed there was room for improvement and the goal should be to strive for the next tier of excellence. The Quality Committee set forth an initial goal of having 70% of patients controlled to less than 140/90 mmHg. This goal was established with Wellmark, given it was to be used as the measure to calculate pay for performance (P4P) incentives for a new pilot program. MCI felt this goal was higher than previously published benchmarks, but was still doable.

PROJECT PLAN/TIMELINE

The plan was to improve chronic disease care by implementing all aspects of the Wagner Chronic Care Model. MCI wanted to start small and slowly expand, looking for the easiest opportunities to improve along the way. MCI began with diabetes and then expanded to hypertension. MCI used the “learn by doing” rapid Plan–Do–Study–Act (PDSA) cycle approach. In retrospect, MCI can show the following timeline:

Timeline

1998 - 2002	First HgA1c database (All clinics)
Oct 2002	Begin IHI IMPACT (2 clinics)
Oct 2003	HERT SMS pilot (2 clinics)
Jan 2004	Begin disease registry (3 clinics)
Sep 2004	Begin RRBP P4P (4 clinics)
Jun 2005	Full-time health coaches (4 clinics)
Jan 2006	Expand disease registry to all clinics

The specific projects and outcomes along the timeline are as follows:

1 First HgA1c Database:

- The database included all the HgA1c results from all of the MCI clinics.
- Adopted diabetes guideline.
- Saw a steady decline in average HgA1c values.
- Obtained Diabetes Physician Recognition Program (DPRP) status for the entire clinic system.

2 Began Institute for Healthcare Improvement (IHI)

IMPACT (a membership network of organizations committed to building a better future for health care and founded on the simple belief that it is exponentially easier to improve together than alone).

- Introduced to the Institute of Medicines (IOM) Six Dimensions of Quality.
- Introduced to Wagner's Chronic Care Model.
- Started a disease registry – paper at first and then electronic.
- Learned to call back patients overdue for an appointment.
- Developed the office visit form.
- Introduced standing orders for diabetes.
- Hired part-time (10 hrs. per week) Chronic Care Coordinators (CCC), who are now titled Health Coaches.
- Developed the lab result reporting protocol.

3 Health Research and Educational Trust/Robert Wood Johnson Foundation – Self-Management Support Pilot Collaborative:

- Adopted 5As approach and developed forms.
- Introduced group visits for diabetes.
- Developed low-literacy handouts.

4 Began disease registry in three clinics:

- Entered four data points on all patients with diabetes.
- Created performance reports at doctor and clinic levels.
- Created list of patients overdue for visits.

5 Began Recognizing and Rewarding Best Practices (RRBP) in four clinics:

- Expanded the disease registry to four clinics, entering all patients.
- Started a hypertension disease registry.
- Started monthly meetings of the RRBP Leadership Committee consisting of Medical Directors of participating clinics.
- Started every-two-week meetings of the RRBP Implementation Committee, consisting of office managers and key staff of participating clinics.

6 Hired full-time Health Coaches in four clinics:

- Job description written and position posted.
- Training program for Health Coaches developed.
- Fifth clinic brought in to use the disease registry for all patients.

7 Expanded disease registry to additional nine clinics.

8 The Future

Three more clinics committed to using the registry and are in the process of training. This will bring registry use to 14 of the 17 (11 family practice and three internal medicine) primary care clinics. The only clinics that are not using the registry were recently purchased and MCI is focusing efforts on integrating other systems.

Fourteen clinics are participating in the RRBp pilot. The project year will finish on Sept. 30, 2006. MCI is negotiating the details for 2007. Wellmark is going to take the P4P statewide but MCI will have to go backwards to join their standard product; they appear willing to set separate terms for MCI.

MCI is expanding to other chronic conditions and already has large parts of the asthma and immunizations programs ready to go. However, MCI is holding back to avoid losing focus on the core goals. MCI has just received another grant from the Wellmark Foundation. The grant is for \$76,000 to be used to screen all of MCI's diabetes patients for depression and to set up a registry to follow patients with diabetes. MCI has outgrown its current registry and cannot add more diseases (depression will be tracked in Excel for now) until a new one is implemented. MCI is planning to pilot iRegistry from the Iowa Foundation for Medical Care (IFMC).

INTERVENTION

Developing Practice Guidelines

The first step for MCI was the development of a hypertension practice guideline. The recommendations were based upon the Sixth Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, published in 1997 by the National Institutes of Health (JNC 6). The practice guideline emphasized:

- **Standardizing BP measurement.**
- **Setting a clear goal with patients.**
- **Lifestyle modifications.**
- **Adding pharmacologic therapy when needed.**

- **Evaluating for co-existing risk factors such as diabetes and hyperlipidemia.**

The Quality Committee approved the original practice guideline in August 2002. The guideline was updated in August 2004 to reflect JNC 7 recommendations (see Appendix 1).

Once the practice guideline was completed, a local cardiologist provided academic detailing to many of the MCI family practice and internal medicine clinics, emphasizing the main points of the new MCI practice guideline. In addition, a nurse educator from his clinic attended each session and engaged clinical staff in an in-service on standardized BP measurement. This served as an excellent reminder to the staff of the importance of accurate BP measurement. Many providers commented that in retrospect, the academic detailing influenced behavior change in caring for patients with hypertension.

An audit of fourth-quarter 2002 data did reveal a slight decrease in BP, both controlled to <140/90 and \leq 140/90. However, academic detailing and full guideline dissemination had not yet been completed at the time of this audit.

In early 2004, an audit of fourth-quarter 2003 data revealed improvement in both criteria categories. Within one year, BP control to <140/90 went from 38% to 47%. Also within that same time frame, BP control to \leq 140/90 went from 50% to 60%. It was during this same timeframe that Quality Committee members were learning more about metabolic syndrome and the Framingham Cardiovascular Disease (CVD) risk calculator (see Appendix 2). Additional data points were audited at this time to determine Framingham CVD risk scores for patients with hypertension. Overall, 40% of patients with hypertension audited were noted to have a greater than 10% risk of a future cardiovascular event within the next 10 years. The sample size, however, was reduced due to a lack of lipid data required to calculate the risk. More than 20% of the charts did not have this information available. By May 2004, the Quality Committee developed a Metabolic Syndrome practice guideline to complement the hypertension guideline (see Appendix 3).

In January 2004, the MCI system applied for and received grant funding to implement SECAT. SECAT is a Microsoft Access-based registry tool for tracking preventive services and diabetes indicators. SECAT was developed by The Iowa Foundation for Medical Care and The Illinois Foundation for Quality Health Care.

Beginning in January 2004 MCI manually entered data for all diabetes patients in four clinics. MCI initially chose to focus on

only four data points: HgA1c, lipids, BP, and microalbumin. The quality committee felt improvement of these four items was under the control of physicians and had the best evidence base that it would lead to better patient outcomes. In September 2004, the four clinics began participating in a pay-for-performance pilot, which included not only diabetes quality parameters, but also hypertension quality parameters. MCI continued with the same thought process as it expanded from diabetes to include hypertension. The four data points selected for hypertension were: BP, lipids, glucose, and microalbumin.

Identifying Target Populations and Tracking Information

In January 2004, the SECAT database was implemented in four clinics:

- 1 **Campus** – a family practice clinic with five doctors and one mid-level;
- 2 **Capital** – an internal medicine clinic with four doctors;
- 3 **South** – a family practice clinic with six doctors and two mid-levels; and
- 4 **West** – a family practice clinic with seven doctors and one mid-level.

The target hypertension patient population was 100% of the adult (>18 years) patients in the clinics with hypertension and Wellmark as their insurance carrier. Wellmark is an insurance carrier with which MCI is participating in a pay-for-performance pilot. As of July 31, 2006 MCI had 4,583 Wellmark members with hypertension in the database.

A CCC was identified in each clinic to spend 10 hours a week working on the database. Initially, the focus was on manually entering 12 months of retrospective data based upon the patient list provided by the insurance carrier. MCI chose to begin in this way to allow the database to be useful immediately. Patients with an overdue visit or who had not met goals were immediately identified.

After the initial data entry, SECAT was then continuously updated as patients were seen in the office. See Appendix 4 for the minimum data elements required to populate SECAT.

In September 2004, each office assembled an internal quality improvement team composed of a physician, office manager, office supervisor, nurse, CMA, receptionist, and medical records staff to design its own process for collecting the data and manual-

ly entering it into the database. Team leaders, people who did the day-to-day work and two or three people from each clinic (manager or supervisor and a nurse or CMA) met with Quality Improvement staff every two weeks. Initially, barriers to office redesign were articulated using a fishbone diagram technique (see Appendix 5). Ultimately, the team created a standardized data entry process (see Appendix 6). At the same time, team members were able to share successes, failures, and best practices achieved at the individual clinics. The data-entry process is triggered whenever a patient with hypertension comes to the office or is scheduled for a visit. The CCC attempts to review charts prior to the office visit. If the patient's primary insurance is with Wellmark, a hypertension adherence flowsheet (see Appendix 7) is placed on the chart and any needed testing is highlighted according to the standing orders (see Appendix 8) developed by the team. The flowsheet is filled out during the patient's visit and then forwarded to the CCC for data entry into the SECAT hypertension database. An updated flowsheet is then placed in the chart before the next visit. The charts of all patients in the database are prominently marked for easy identification during patient visits.

To ensure that no hypertension visits are missed, lists of patients overdue for a BP are generated out of the clinic's information system (see Appendix 9) and used to update the data if needed or to call the patient in if they are overdue for a visit. Whenever the charts are pulled they are reviewed using the hypertension adherence flowsheet (see Appendix 7) to ensure that all of the standards are being met and any missed labs are ordered.

The disease registry was set up on the hospital's network, thus allowing for a single database for all of the clinics to utilize. Monthly performance reports were generated containing population-based processes (i.e., was a BP done?) and outcomes (i.e., was the systolic BP <140). These are reported at both the clinic and physician level and are distributed unblinded throughout the organization (see Appendix 10a, 10b). This approach worked well to lower BP values and increase microalbumin testing.

SECAT is also used to create:

- 1 **Lists of patients overdue for visits;**
- 2 **Lists of patients not meeting outcomes goals;**
- 3 **Individual patient flowsheets;** and
- 4 **Physician performance reports.**

Decision Support

Decision support was provided with a copy of the new Hypertension Guideline and the new Hypertension Standing Orders. An academic detailing approach, where a cardiologist brought breakfast or lunch to a clinic and discussed the guideline and hypertension issues, was used to introduce the Hypertension Guideline to physicians. Nursing staff were included in the academic detailing and had a separate in-service on how to correctly take a blood pressure reading.

Delivery System Design

The redesign team recognized the care of patients with hypertension requires a great deal of management – not just by the physician, but by other healthcare professionals on the team as well. Traditionally, there was no added reimbursement for the additional management required for hypertensive patients. The collection and monitoring of important patient data necessary for excellent hypertension care were done by the physician or frequently not done at all. The redesign team addressed this by:

- 1 **Placing an up-to-date SECAT patient flowsheet on each chart before the provider sees the patient.** This way, all of the needed patient data is available at a glance on one page.
- 2 **CCCs were identified and funded for 10 hours a week in each of the pilot clinics.** The CCC duties included:
 - **Overseeing the database** to ensure that all data were entered and flowsheets were on the charts;
 - **Conducting pre-visit chart reviews** to identify and fill out paperwork for any needed labs or referrals; and
 - **Calling patients** identified in the registry as overdue for care or not meeting goals, and arranging follow-up.

MCI has found that nearly 90% of proactively contacted patients responded with a follow-up appointment. In June 2005, funding was increased for CCCs to create full-time positions in four clinics. By August of 2006, without any additional grant funding, MCI now has full-time CCCs (now called Health Coaches) in eight clinics. Two of those clinics have two full-time coaches.

Self-Management Support

Self-Management Support is the key to improved patient outcomes. MCI participated in the Health Research and Educational

Trust/Robert Wood Johnson Foundation Pilot collaborative on SMS. As a result, the following projects have been implemented:

1 Adopted the 5As approach to behavior change.

- The 5As are:
- **Assess** the patient's need and willingness to change.
 - **Advise** about the benefits of change.
 - **Agree** on a goal.
 - **Assist** with identifying barriers and developing a plan.
 - **Arrange** for a phone call follow-up between visits.

MCI was able to negotiate payment for this service with Wellmark and developed a form (see Appendix 11) to guide staff through the process and to document the encounter. Nurses, CMAAs, and CCCs have all been trained to deliver this service.

2 Funds from a Pfizer Health Literacy Initiative Visiting Lecturer grant were utilized to educate staff and physicians about the impact of health literacy on patient self-management.

Low literacy (eighth-grade level or less) handouts (see Appendix 12a, 12b, 12c) were developed for educating patients about their hypertension goals. MCI traditionally uses the spell check function in Microsoft Word to check the reading level.

3 MCI physicians agreed to fund a full-time Education Coordinator position responsible for:

- **identifying patient educational needs;**
- **developing patient education programs;** and
- **developing, standardizing, and coordinating patient handouts.**

This position was filled in August 2005.

4 Medication adherence is a behavior MCI targeted for SMS.

Studies report that nearly 50% of people with chronic disease do not take their medication as directed. MCI confirmed this in its clinics by using the Morisky Scale (see Appendix 13) to measure medication adherence, finding only 43.5% of patients had highly adherent behavior. Group visits have had a significant impact, increasing highly adherent behavior to 60% (See Appendix 14). MCI also looked at adherence using insurance claims data and found that in the last year 35% of patients with hypertension filled enough prescriptions for 300 days or more of medication. The Quality Committee developed the practice guideline specific to medication adherence in hypertension and also created the 5As documentation tool specific to medication adherence to address this issue. MCI is planning to look at this

data quarterly to identify poorly adherent patients for 5As interventions. In addition, MCI has increased physician and staff awareness of the issue and are training staff to ask patients not meeting BP goals about their medication compliance.

Health Care Organization

MCI has negotiated a pay-for-performance project called Recognizing and Rewarding Best Practices (RRBP) with Wellmark (its largest insurer, covering about 30% of patients). This one-year pilot program, which started in September 2004, was designed to pay physicians up to \$15,000 each for meeting aggressive quality and pharmacy targets (see Appendix 15). All providers met all the goals and received the maximum payout. The total paid was \$354,000. RRBP has served to energize and focus of physicians and staff. (See Appendix 16 for run charts of all hypertension targets).

MCI is currently working with several other local organizations to develop a Medicare Health Care Quality Demonstration Program (MMA Section 646) that, if successful, will provide further incentives for physicians to improve the care for patients with chronic diseases.

MCI is discussing the pay-for-performance concepts with other insurers, employers, and state agencies with the hope of expanding the incentives to improve preventive and chronic disease care.

Community Resources and Policies

Partnering with outside organizations has been critical to MCI's success in improving chronic disease care. These organizations include:

- 1 **CMS QIO** provided the disease registry database, SECAT, at no charge.
- 2 **Pharmaceutical companies**, particularly Pfizer, provided financial and technical expertise.
- 3 **Institute for Healthcare Improvement.** MCI participated with IMPACT in the Improving Care in Office Practices and Outpatient Setting domain.
- 4 **Local and state medical organizations.** Iowa Medical Society, Iowa Healthcare Collaborative, and Iowa Foundation for Medical Care lent credibility to the project.

5 **Local insurance payer.** Wellmark BC/BS provided educational support for the SMS initiatives.

6 **Health Research and Educational Trust.** MCI participated in the pilot collaborative on SMS.

LEADERSHIP

MCI was fortunate to have significant leadership support from its parent corporation, Mercy Hospital Medical Center, and its Board of Directors. Catholic Initiatives and MHMC each paid 50% of the cost for MCI's participation in the IHI IMPACT project, which jump-started the chronic disease improvement efforts. MCI's local Board of Directors supported the project by funding administrative quality improvement staff. MCI has a half-time physician position and full-time nurse position devoted to quality improvement. The Quality Committee, made up of physicians from throughout the system, meets monthly to give advice on and oversee all quality improvement efforts.

The Medical Directors of the MCI pilot clinics made the toughest decisions. They committed significant clinical resources and the energy to make many process changes, without knowing the ultimate return. It was only after MCI was well into the project that they were able to show a positive financial return and negotiate pay-for-performance packages. Without the vision and support of the early adopters, who shepherded this project at their clinics because it was the right thing to do for their patients, MCI could not have achieved its successes.

FINANCIAL CASE FOR CHRONIC DISEASE CARE

Since all of the expenses for the improvement efforts were paid for by MCI's physicians via a reduction in salary, it was very important to make the case for a positive financial return.

Receiving outside funding sources such as grants and pay-for-performance packages was important, but MCI felt it needed to design a sustainable plan that generated a positive financial return under the current reimbursement system. MCI analyzed several of the services it provided and found that these efforts have shown a positive return including:

- 1 **Higher billing of EM services for diabetes visits:** Because of the preliminary work done by CCCs and the efficiency of the diabetes office visit form, physicians were able to bill for a higher level of service without increasing the time spent on

each visit. In the first quarter of 2003, MCI did a study of two physicians as it introduced the diabetes office visit form and found that their 99214 EM charges for diabetes visits went from 40% to 80% of the visits. This netted an extra \$10.92 per average diabetes office visit or, based on six visits per week, about an extra \$3,400 per physician per year.

- 2 **Increased total number of diabetes visits:** Using the registry to call in patients overdue for a visit is expected to increase the total number of visits, but this has not yet been quantified. It is also anticipated that, as word about the diabetes program gets out through the Diabetes Physician Recognition Program and special mention in insurance provider manuals, MCI will attract a greater number of diabetes patients.
- 3 **Increased lab revenue:** Microalbumin testing went from 100 tests per quarter to 1,300 tests. With a profit of \$8.00 per test this yielded an extra \$38,400 per year. MCI did not measure other lab tests but believes it is reasonable to assume they also are increasing in number, although not nearly as much as microalbumin testing. MCI is now up to over 3,000 tests per quarter, yielding at least \$100,000 profit at CMS payment rates.
- 4 **Group visits:** MCI calculated that group visits yield charges of \$1,070 per 90 minutes of physician time, making them more profitable per hour than most other primary care services. MCI is currently providing group visits for patients with diabetes in three clinics, with plans to expand to hypertension patients and to additional clinics.
- 5 **Office process redesign:** As part of the office flow redesign, MCI looked at the process of returning lab results to patients. Initially MCI had no process and relied on the patient to call in for results. This was very inefficient. Therefore, a new process of calling all lab results to the patients the next morning, before the patient could call the office, was designed (see Appendix 17). The new process was developed in the South Clinic where it reduced incoming calls requesting lab results from 442 to 124 a week. This freed up staff time to work on other interventions as well as increasing patient, staff, and physician satisfaction. This process took nearly a year to perfect and has been extended to all MCI clinic sites. This project reduced phone calls for lab results by 40 calls per provider per week. At a very conservative estimate of \$3.00 per call saved, this yielded \$6,240 per provider per year.
- 6 **Pay-for-Quality:** MCI's Recognizing and Rewarding Best Practices program had the potential to yield \$15,000 per

participating physician. Initial payouts – calculated in September 2005 totaled \$354,000.

- 7 **Grants:** Because MCI was working on process changes that have rarely been done in a private practice, fee-for-service setting, it was able to attract grant funding in excess of \$130,000 to support new programs. This funding is now in excess of \$200,000.
- 8 **Improved patient outcomes:** MCI believes its data demonstrates superior outcomes when compared to those of other similar private practices. The physicians are very proud of this, and it is a significant motivating factor for them.

IOM SIX DIMENSIONS OF QUALITY

Once the four Health Coaches are oriented to their new job, MCI will gradually expand its outcome measurements to more comprehensively reflect the IOM Six Dimensions of Quality. Planned measurements are as follows:

- 1 **Equity** – Comparison of BP monitoring rates within the last 12 months for Medicare vs. non-Medicare patients. MCI is able to track age but not sex or race in the SECAT database.
- 2 **Timeliness** – 3rd next available appointment per provider. MCI tracks this sporadically now and would like to do it at regular intervals (see Appendix 18).
- 3 **Effective** – Percentage of patients meeting outcomes goals. This is already reflected in MCI's performance reports and run charts.
- 4 **Patient-centeredness** – Increase the frequency of patient satisfaction surveys from two times a year to quarterly (see Appendix 19).
- 5 **Efficiency** – Office cycle times (time from patient check-in to patient check-out) per provider. This measurement was chosen because waiting time was the lowest score on MCI's satisfaction surveys. At the South Clinic, check-in and check-out times are entered into the billing system, and they have the ability to generate weekly reports. This has also recently been started at the Campus Clinic.
- 6 **Safety** – Number of lab callbacks per month not completed in a timely manner. All of our lab results are now logged with the time the results were reported to the patient. A review of this log can easily create a report.

KEYS TO SUCCESS

- **Allocation of paid staff to the project.** Moving a project like this forward effectively and efficiently is not something someone does on the side. It requires full-time paid staff to keep the focus of the organization on the project.
- **Obtaining grant funding.** Implementing a chronic care model requires up-front expenditures, but a return is in the future and uncertain. Physicians are understandably reluctant to be the first to commit their funds to such a project. MCI found that by obtaining grant funding to cover 50% of the first year's start-up costs, it was able to persuade doctors to commit to the project.
- **Obtaining free information technology.** MCI was able to get the SECAT software free from the CMS QIO, as well as IT support from Mercy Hospital Medical Center. This reduced the risk to physicians and made it easier to get their support.
- **Not overextending its focus.** In the beginning MCI limited the number of clinics, the number of data points in the registry, and the number of diseases in the projects. By not overextending, MCI was able to find success on a small scale and then disseminate proven interventions.

GREATEST CHALLENGES

- **Achieving physician buy-in and willingness to take financial risk for the project.** MCI accomplished this by having a clear vision of the desired future, obtaining financial support from grants, and finding early successes such as the reduction of HgA1c with the first database.
- **Process and flow redesign.** MCI initially thought that the biggest obstacle was going to be financial, but soon found that office processes and flows are so ingrained that even with very adequate financial rewards it could not easily change them. MCI arranged a payment of \$54 for delivering a 5As intervention, which could be done by a medical assistant in less than 10 minutes, but the CMAs did not do them simply because they did not have the time. To overcome this, MCI began hiring full-time CCCs to be available for these interventions.

LESSONS LEARNED

- **A disease registry and a chronic disease model can have a positive financial impact even without grants and**

pay-for-performance incentives.

- **Clinical measurement and feedback to providers lead to improvement as shown in MCI's HgA1c, SBP and microalbumin data.**
- **Data open the doors to involvement with other groups. Organizations are more willing to partner with you if you have the data to show the impact of your interventions.**
- **Patients will respond if contacted proactively. MCI found that nearly 90% of its patients will schedule an appointment when mailed a reminder or called.**

ADVICE TO OTHERS

Commit to a goal and allocate the resources to achieve that goal then Start, Start, Start instead of Plan, Plan, Plan.

FOR ADDITIONAL INFORMATION

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Appendix 1

MERCY CLINIC HYPERTENSION PRACTICE GUIDELINE

Over 50 million Americans have hypertension. It is the most commonly used diagnosis in family practice. Multiple studies have shown a strong, continuous, graded increase in cardiovascular events with increased blood pressure (BP), and that the association for **systolic BP** is stronger than for diastolic BP. Mercy Clinic Inc. (MCI) emphasizes the use of **thiazide diuretics**, which JNC 7 finds are “unsurpassed in preventing the cardiovascular complications of hypertension.” According to national data (NHANES 1999-2000), only 34% of patients diagnosed with hypertension are controlled. The MCI goal is 70% controlled. To achieve this, MCI endorses the following recommendations:

1. Blood pressure should be **measured** in a standardized fashion:
 - Patients should be seated with arms bared and appropriate size cuff used.
 - Systolic BP is defined as the first appearance of sound.
 - Diastolic BP is defined as the disappearance of sound.
 - Any elevated BP should be followed up.
 - Diagnose hypertension if the BP result is >139/89 on three separate occasions.
 - a) If BP is elevated the provider should re-check and document the results.
2. Set a clear **goal** of therapy for each patient:
 - Control BP to below **140/90** for uncomplicated hypertension.
 - Set lower goals for patients with target organ damage or cardiovascular disease.
 - Control BP to below 130/80 for patients with diabetes or chronic kidney disease.
 - **Medication compliance** should be explored for patients not meeting their goal.
3. **Lifestyle modifications** should be encouraged in all patients.
 - Quit smoking, lose weight (if needed), restrict sodium intake, limit alcohol, DASH diet, take up aerobic exercise.
4. Add **pharmacologic therapy** if BP remains above goal with lifestyle modification.
 - **Thiazide diuretics** (alone or in combination) are recommended as initial therapy for most patients.
 - Most patients will require two or more medications to control BP.
 - Favor once-daily, generic medicines when possible.
5. Evaluate for **coexisting risk factors**, which are found in 80% of patients with hypertension.
 - Diabetes, lipids, obesity, Left Ventricular Hypertrophy (LVH), microalbuminuria, smoking
6. People with **systolic BP of 120-139** or **diastolic BP of 80-89** have pre-hypertension. There is a high probability that they will develop hypertension and they should be treated with lifestyle modification to prevent cardiovascular disease.

Reference: The Seventh Report of the Joint National Committee of Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. NIH publication, May 2003. Variation from this guideline is always acceptable if in the opinion of the attending physician individual circumstances require it.

Appendix 2

FRAMINGHAM CARDIOVASCULAR DISEASE RISK CALCULATOR

The calculator can be found on numerous websites. Below is a snapshot from the American Heart Association website, which can be accessed by visiting: www.americanheart.org

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RISK ASSESSMENT

The following risk assessment tool uses information from the [Framingham Heart Study](#). This tool is designed for adults who do not have heart disease or diabetes.

To find your risk score, enter your information in the calculator below.

Click on any link below for each category's definition and instructions.

Gender: Male Female

[Age:](#) Years (between 20 and 99)

[Total Cholesterol:](#) mg/dL (between 130 and 320)

[HDL Cholesterol:](#) mg/dL (between 20 and 100)

[Systolic Blood Pressure:](#) mm Hg (between 90 and 200)

[Are you currently on any medication to treat high blood pressure?:](#) Yes No

[Current Smoker:](#) Yes No

[CALCULATE YOUR 10-YEAR RISK](#) [BACK](#)

Appendix 3

MERCY CLINIC METABOLIC SYNDROME PRACTICE GUIDELINE

Metabolic Syndrome may occur in as many as 25% of American adults or 50 million people. People with Metabolic Syndrome are four times more likely to die of a heart attack and six times more likely to develop diabetes. Mercy Clinic, Inc. (MCI) is committed to identifying and treating Metabolic Syndrome before the development of diabetes or cardiovascular disease.

1. MCI endorses the ATP III **definition** of Metabolic Syndrome. BMI has been substituted for waist circumference because it is easier to measure in the clinic setting.

ATP III Clinical Identification of the Metabolic Syndrome (modified for BMI) The presence of three or more risk factors indicates Metabolic Syndrome

Risk Factor		Defining Level
Abdominal Obesity*		BMI \geq 30
Triglycerides	\geq	\geq 150
HDL Cholesterol		Men \leq 40, Women \leq 50
Blood Pressure	\geq	\geq 130/85
Fasting Glucose	\geq	\geq 110

*BMI substituted for waist circumference > 40 in. in men or > 35 in. in women

2. **BMI** (Body Mass Index) should be recorded yearly on all patients age six to 60.
3. All patients with a BMI \geq 30 should have a **lipid profile, glucose test, and blood pressure reading** documented with in the last 24 months.
4. **Education** should be given to all patients with Metabolic Syndrome.
5. **Treatment options:**
 - **Lifestyle Modification**
 - a) Diet
 - b) Exercise
 - c) Weight loss
 - d) Smoking cessation (if applicable)
 - **Treat metabolic risk factors** according to current treatment guidelines.
 - a) Hyperlipidemia
 - b) Hypertension
 - c) Diabetes

Appendix 4

MERCY CLINIC SECAT HYPERTENSION DATABASE MINIMUM DATA ELEMENTS

The SECAT hypertension database is set up to capture the data elements listed in the table below along with six optional fields. The six optional fields are utilized by individual clinics at their discretion.

The minimum data elements collected on all patients are:

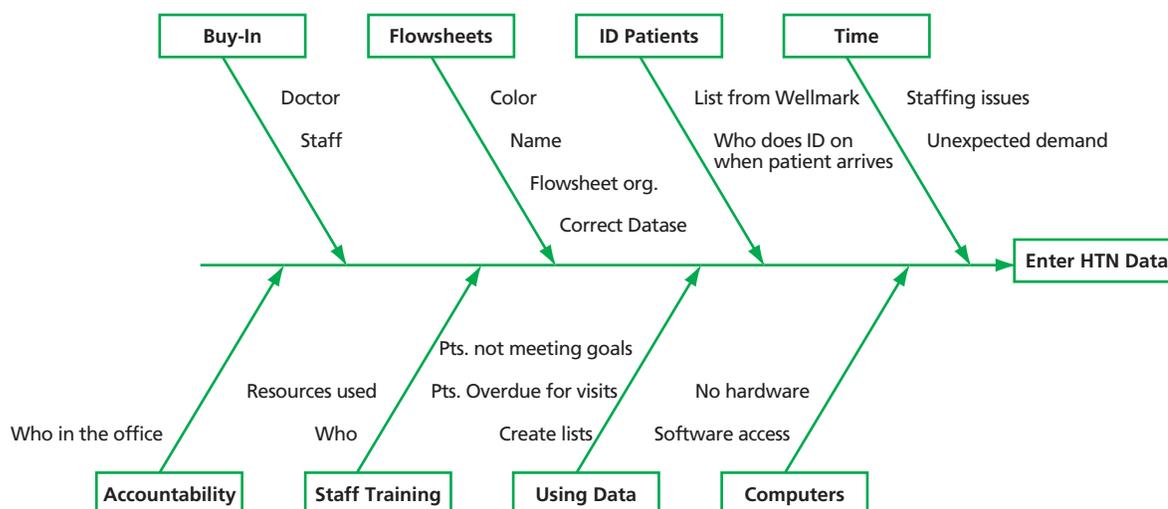
Field Name	Date Elements	Source
Patient Last Name	The first three fields combine to become the unique patient identifier	
Patient First Name		
Patient Birthdate		
Clinic ID	ID # assigned by registry	Clinic
	Clinic name	Clinic
Provider Last Name	Last name	Chart
Provider First Name	First name	Chart
Provider Unique Physician Identification Number (UPIN)	UPIN	Registry
Systolic Blood Pressure (SBP) Date	Date	Lab Report
Systolic Blood Pressure (SBP) Result	Value	Lab Result
Diastolic Blood Pressure (DBP) Date	Date	Lab Report
Diastolic Blood Pressure (DBP) Result	Value	Lab Report
Total Cholesterol Date	Date	Lab Report
Total Cholesterol Result	Value	Lab Result
Triglycerides Date	Date	Lab Report
Triglyceride Result	Value	Lab Result
High-Density Lipoproteins (HDL) Cholesterol Date	Date	Lab Report
High-Density Lipoproteins (HDL) Cholesterol Result	Value	Lab Result
Low-Density Lipoproteins (LDL) Cholesterol Date	Date	Lab Report
Low-Density Lipoproteins (LDL) Cholesterol Value	Value	Lab Result
Microalbumin Date	Date	Lab Report
Microalbumin Value	Value	Lab Result
Glucose Date	Date	Chart

Some of the indicators being tracked in the 'optional fields' by some clinics are:

Self-Management Support	Date, Category	Chart
Weight	Value	Chart
Medication Adherence	Date, Yes/No	Chart
Tobacco Counseling	Date, Yes/No	Chart

Appendix 5

MERCY CLINIC FISHBONE DIAGRAM OF DATA ENTRY



What is a Fishbone diagram?

Dr. Kaoru Ishikawa, a Japanese quality control statistician, invented the fishbone diagram. Therefore, it may be referred to as the Ishikawa diagram. The fishbone diagram is an analysis tool that provides a systematic way of looking at effects and the causes that create or contribute to those effects. Because of the function of the fishbone diagram, it may be referred to as a cause-and-effect diagram. The design of the diagram looks much like the skeleton of a fish. Therefore, it is often referred to as the fishbone diagram.

Whatever name you choose, remember that the value of the fishbone diagram is to assist teams in categorizing the many potential causes of problems or issues in an orderly way and in identifying root causes.

When should a fishbone diagram be used?

Does the team...

- Need to study a problem/issue to determine the root cause?
- Want to study all the possible reasons why a process is beginning to have difficulties, problems, or breakdowns?
- Need to identify areas for data collection?
- Want to study why a process is not performing properly or producing the desired results?

How is a fishbone diagram constructed?

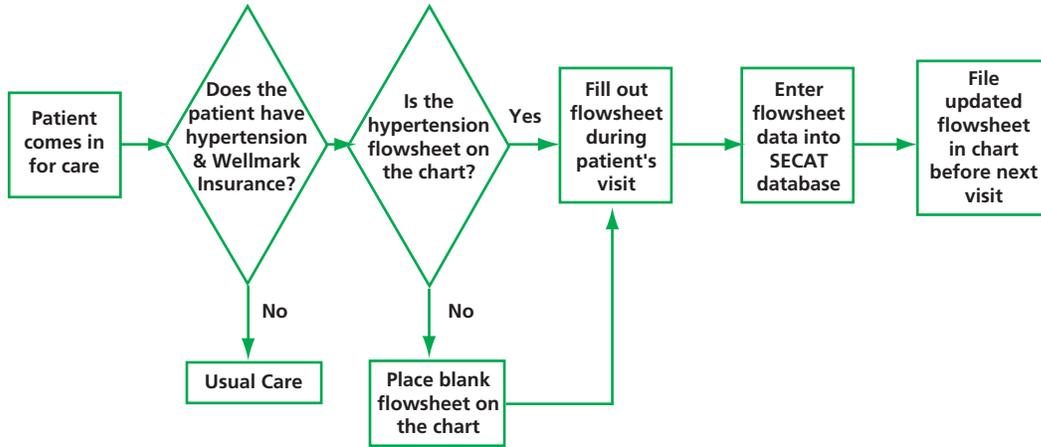
Basic Steps:

- Draw the fishbone diagram....
- List the problem/issue to be studied in the "head of the fish".
- Label each ""bone" of the "fish". The major categories typically utilized are:
 - 1) The 4 M's: Methods, Machines, Materials, Manpower
 - 2) The 4 P's: Place, Procedure, People, Policies
 - 3) The 4 S's: Surroundings, Suppliers, Systems, Skills

NOTE: You may use one of the four categories suggested, combine them in any fashion or make up your own. The categories are to help you organize your ideas.
- Use an idea-generating technique (e.g., brainstorming) to identify the factors within each category that may be affecting the problem/issue and/or effect being studied. The team should ask... "What are the machine issues affecting/causing..."
- Repeat this procedure with each factor under the category to produce sub-factors. Continue asking, "Why is this happening?" and put additional segments each factor and subsequently under each sub-factor.
- Continue until you no longer get useful information as you ask, "Why is that happening?"
- Analyze the results of the fishbone after team members agree that an adequate amount of detail has been provided under each major category. Do this by looking for those items that appear in more than one category. These become the "most likely causes."
- For those items identified as the "most likely causes," the team should reach consensus on listing those items in priority order with the first item being "the most probable" cause.

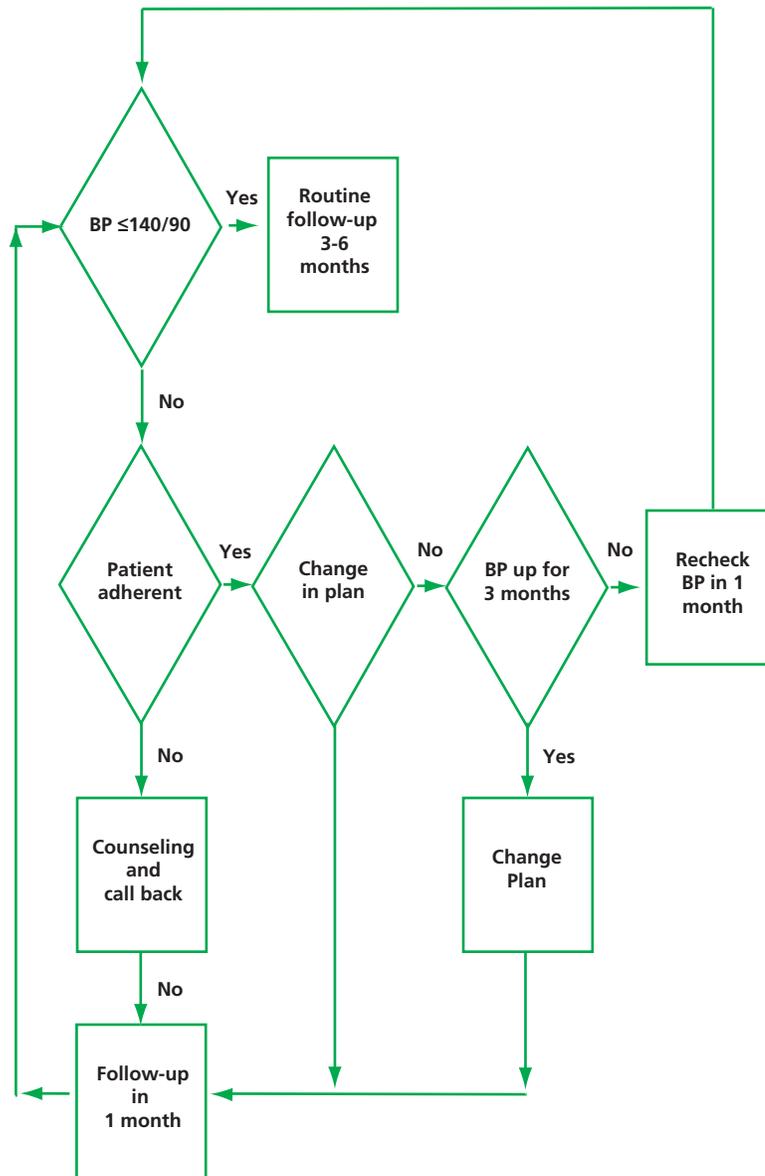
Appendix 6

MERCY CLINIC HYPERTENSION DATA ENTRY PROCESS FLOW CHART



Appendix 7

MERCY CLINIC HYPERTENSION ADHERENCE FLOWSHEET DEVELOPED FOR PATIENTS WITH WELLMARK AS THEIR PRIMARY INSURER



Appendix 8

MERCY CLINIC HYPERTENSION STANDING ORDERS

TEST	INTERVAL	CONDITIONS
Office Visit	6 months	If BP controlled to $\leq 140/90$
	1 month	If BP $> 140/90$
Lipid Profile	1 year	
Basic Metabolic Profile	1 year	
Urine Alb/Creat. Ratio	1 year	Patients with no Hx of Abn UACR
	6 months	If UACR was ever > 30

Complete these labs on all my patients with hypertension whenever the Standing Orders are due.

Signature

Date

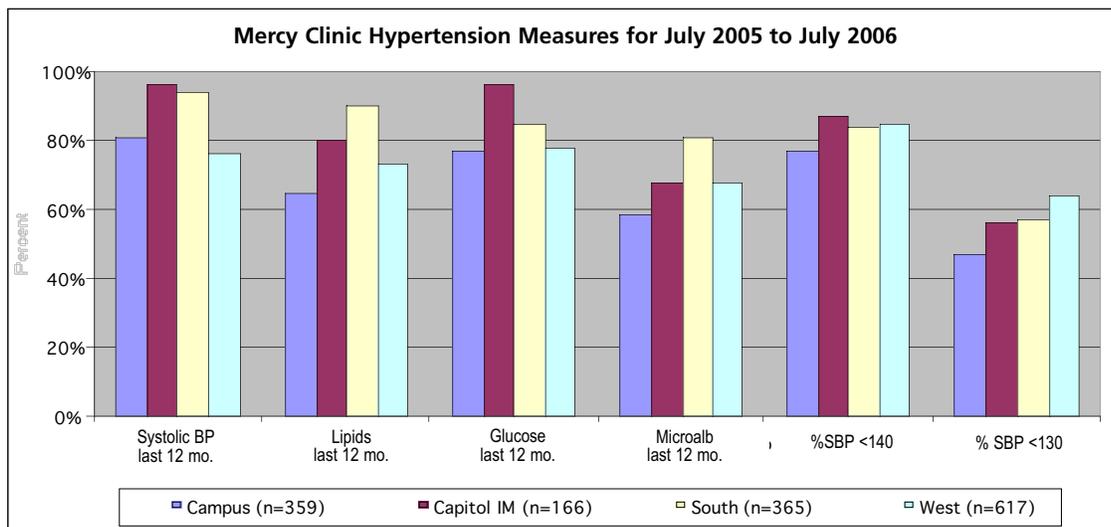
Appendix 9

MERCY CLINIC SAMPLE REPORT OF PATIENTS OVERDUE FOR TESTS USED TO UPDATE THE DATA OR TO CALL THE PATIENT IN.

Mercy North				
Care Opportunities				
6/20/05-6/20/06				
Has Result	Test	Last Visit	Last Name	First Name
No	Microalb	5/30/2006		KATHERINE
No	Microalb	5/4/2006		GLEN
No	Microalb	2/24/2006		WILLIAM
No	BP	2/24/2006		WILLIAM
No	Microalb	1/10/2006		GEORGE
No	LDL	1/10/2006		GEORGE
No	BP	1/10/2006		GEORGE
No	Microalb	2/17/2006		DANIEL
No	LDL	2/17/2006		DANIEL
No	Microalb	2/20/2006		MARY
No	LDL	2/20/2006		MARY
No	Microalb	4/4/2006		JIMMY
No	LDL	4/4/2006		JIMMY
No	Microalb	4/1/2006		CHRISTINE
No	Microalb	9/8/2006		TIMOTHY
No	BP	9/8/2006		TIMOTHY
No	Microalb	5/22/2006		LEONARD
No	LDL	5/22/2006		LEONARD
No	Microalb	2/24/2006		SURENDRA
No	LDL	2/24/2006		SURENDRA

Appendix 10a

MERCY CLINIC INDIVIDUAL CLINIC LEVEL PERFORMANCE REPORT



Appendix 10b

MERCY CLINIC, CLINIC BY PROVIDER PERFORMANCE REPORT

SECAT Provider Performance Reports

Campus Clinic

HTN Data: 7/1/05-6/30/06

Provider	Provider 1	Provider 2	Provider 3	Provider 4	Clinic	Goal
Total Patients	64	76	84	94	359	
SBP last 12 mo.	97%	75%	81%	69%	81%	85%
Lipids last 12 mo.	70%	59%	75%	62%	65%	85%
Glucose last 12 mo.	86%	63%	76%	67%	71%	85%
Microalb last 12 mo.	70%	54%	56%	63%	59%	70%
% SBP < 140	76%	77%	70%	83%	77%	70%
% SBP < 130	45%	42%	44%	53%	47%	

SECAT Provider Performance Reports

Capitol IM Clinic

HTN Data: 7/1/05-6/30/06

Provider	Provider 1	Provider 2	Provider 3	Provider 4	Clinic	Goal
Total Patients	33	54	21	57	166	
SBP last 12 mo.	94%	96%	95%	96%	96%	85%
Lipids last 12 mo.	82%	69%	71%	91%	80%	85%
Glucose last 12 mo.	94%	96%	95%	96%	96%	85%
Microalb last 12 mo.	70%	65%	48%	77%	68%	70%
% SBP < 140	80%	86%	90%	91%	87%	70%
% SBP < 130	35%	65%	60%	58%	56%	

SECAT Provider Performance Reports

West Clinic

HTN Data: 7/1/05-6/30/06

Provider	Provider 1	Provider 2	Provider 3	Provider 4	Provider 5	Provider 6	Provider 7	Provider 8	Clinic	Goal
Total Patients	100	69	90	130	68	68	59	33	617	
SBP last 12 mo.	94%	90%	88%	55%	46%	81%	81%	70%	76%	85%
Lipids last 12 mo.	80%	74%	73%	67%	54%	76%	76%	88%	73%	85%
Glucose last 12 mo.	88%	78%	79%	72%	57%	81%	83%	79%	78%	85%
Microalb last 12 mo.	85%	59%	71%	58%	47%	71%	81%	70%	68%	70%
% SBP < 140	86%	79%	75%	93%	74%	92%	92%	96%	85%	70%
% SBP < 130	66%	63%	51%	72%	48%	67%	77%	70%	64%	

SECAT Provider Performance Reports

South Clinic

HTN Data: July 1, 2005-June 30, 2006

Provider	Provider 1	Provider 2	Provider 3	Provider 4	Provider 5	Provider 6	Provider 7	Provider 8	Provider 9	Clinic	Goal
Total Patients	48	66	43	63	51	0	48	15	20	365	
SBP last 12 mo.	96%	95%	95%	98%	92%		100%	100%	95%	94%	85%
Lipids last 12 mo.	88%	94%	95%	95%	90%		85%	100%	95%	90%	85%
Glucose last 12 mo.	90%	86%	86%	84%	86%		85%	100%	85%	85%	85%
Microalb last 12 mo.	83%	82%	74%	89%	80%		85%	87%	85%	81%	70%
% SBP < 140	74%	68%	90%	93%	87%	0%	88%	80%	100%	84%	70%
% SBP < 130	52%	43%	51%	61%	68%	0%	65%	41%	68%	57%	

Appendix 11

MERCY CLINIC 5AS ENCOUNTER FORM – SELF-MANAGEMENT EDUCATION

Assess patient's knowledge, beliefs, behaviors, and clinical data.
Does patient have the desire to change behavior? Yes No

Advise about health risks and benefits of change – consider health literacy.
Topics Discussed: Diet Exercise Smoking Other

Agree on a goal based on patient priorities.

*Patient Goal: _____

Assist to develop a personal action plan.

1. Specific behavior changes
2. Identified barriers (i.e., depression)
3. Options to address barriers
4. Follow-up plan – *When:* _____ *How:* Phone *Other* _____

Educator Signature: _____

Arrange to contact the patient between visits.

* Follow-up Contact: Completed on – Date: _____

1. Results of behavior changes
2. Barriers encountered
3. Options to address barriers

Follow-up plan – *When:* _____ *How:* Phone *Other* _____

Follow-up Signature: _____

*Required to bill insurance company (Individual visit – S9445)

Appendix 12a

MERCY CLINIC DIABETES EDUCATION – BLOOD SUGAR GOALS

Diabetes Education --- Blood Sugar Goals

Keep your blood sugar under control to prevent damage to many parts of the body, such as the heart, blood vessels, eyes, and kidneys

For most people, good blood sugar levels are

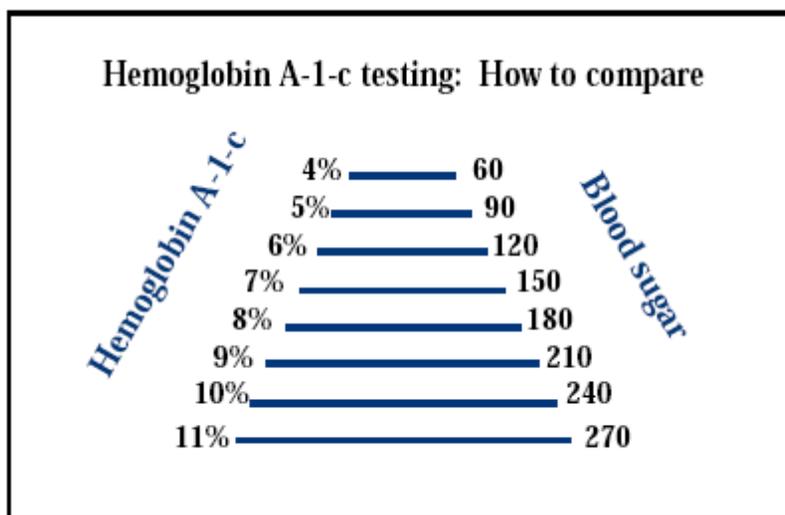
What should my blood sugar numbers be ?

On waking (before breakfast)	80 to 120
Before meals	80 to 120
2 hours after meals	180 or less
At bedtime	100 to 140

How can I find out what my average blood sugar is?

The **hemoglobin A-1-c** (HE-moh-glow-bin A-1-c) blood test shows the average amount of sugar in your blood during the past three months. Have this test done at least twice a year.

A test result of more than 7% is too high. At more than 7% you need a change in your diabetes plan. Your doctor can help you decide what part of your plan to change. You may need to change your meal plan, your diabetes medicines, or your exercise plan.



Mark your hemoglobin A-1-c on this

Keep your hemoglobin A-1-c below 7%

Appendix 12b

MERCY CLINIC DIABETES EDUCATION – HIGH BLOOD PRESSURE

**Name Removed
Diabetes Education**

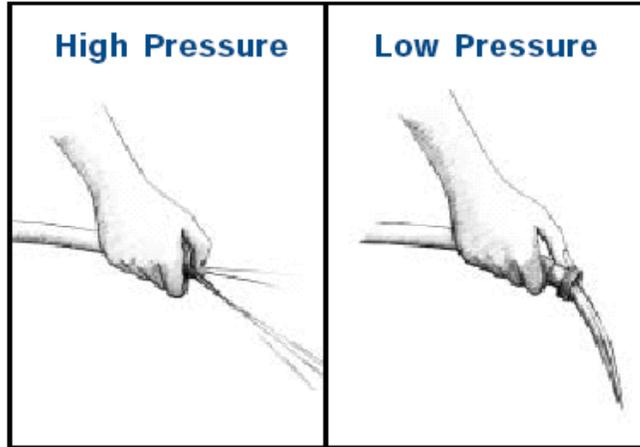
--- High Blood Pressure

Diabetes and high blood pressure often go hand-in-hand. If you have heart, eye, or kidney problems from diabetes, high blood pressure can make them worse.

You will see your blood pressure written with two numbers separated by a slash.

For example: 120/70

Keep your first number below 130 and your second number below 85.



High Pressure can damage your heart, eyes, kidneys, and brain.



Keep your blood pressure below 130/85

To lower my blood pressure I will:

- Lose weight
- Eat more fruits and vegetables
- Eat less salt and high-sodium foods such as:
 - canned soups
 - luncheon meats
 - salty snack foods
 - fast foods
- Drink less alcohol
- Walk for one-half hour on most days

You may need to take blood pressure medicine. An ACE inhibitor is the best type because it can slow down kidney damage by keeping the kidneys from losing too much protein. Take your medicine every day unless your doctor tells you to stop.



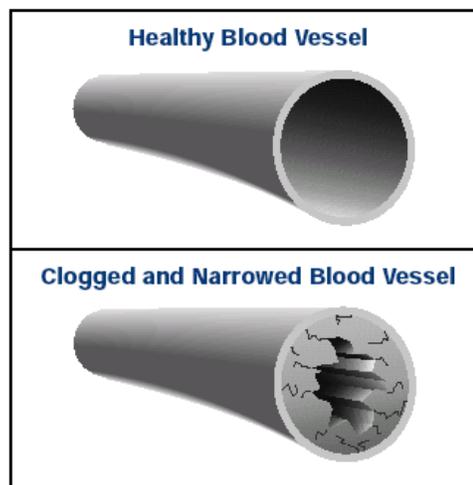
Appendix 12c

MERCY CLINIC DIABETES EDUCATION – CHOLESTEROL

Too much cholesterol can clog your blood vessels. This can cause heart attacks and strokes. You should check your cholesterol at least once a year.

A Cholesterol blood test has four parts:

- | | <u>Your number should be</u> |
|---|------------------------------|
| 1. <u>Total Cholesterol</u> : | Less than 200 |
| 2. <u>LDL Cholesterol</u> :
(Bad cholesterol) | Less than 100 |
| 3. <u>Triglycerides</u> :
(like bacon grease) | Less than 200 |
| 4. <u>HDL Cholesterol</u> :
(Good cholesterol) | More than 45 |



**For healthy blood vessels
Keep your LDL less than 100**

My LDL is:



To lower my Cholesterol I will:

1. Lose weight
2. Walk for 20 minutes on most days
3. Eat a low-fat diet
4. Eat more fruits and vegetables
5. Avoid fried foods, desserts, and oils
6. Read labels and don't eat foods with more than 20 grams of fat per serving
7. Take medicine if I can't get my LDL to less than 100

Medicines to lower cholesterol:

1. Statin drugs (Lipitor, Zocor, Pravachol, Lescol) are used to lower cholesterol
2. Take these in the evening at supper or bedtime
3. These can make your muscles ache
4. Do cholesterol blood tests every four months if you take these medicines



Appendix 13

MORISKY SCALE USED TO MEASURE MEDICATION ADHERENCE

The Morisky Scale is a validated scale designed to estimate the risk of medication non-adherence. It has been cited in more than 70 articles since its publication in 1986. It's used for many different diseases such as hypertension, hyperlipidemia, asthma, and HIV. Scores are based on patient responses to four Yes or No questions.

Morisky Scale Questions

1. Do you ever forget to take your medicine?
2. Are you careless at times about taking your medicine?
3. When you feel better do you sometimes stop taking your medicine?
4. Sometimes if you feel worse when you take the medicine, do you stop taking it?

Scoring the Morisky Scale

Yes = 0 and No = 1

- Zero is the lowest level of medication adherence
- 4 is the highest level of medication adherence
- Patients scoring 0 or 1 would benefit most from pharmacist intervention
- Goal: screen for those in which your pharmacist time should be spent on enhancing adherence

Source: Morisky DE, Green LW, Levine DW. Concurrent and predictive validity of a self-reported measure of medication adherence. *Medical Care* 1986; 24: 67-74.

Appendix 14

MERCY CLINIC GROUP VISITS' IMPACT ON MEDICATION ADHERENCE

Highly adherent medication-taking behavior was found in:

- 40.6% of random patients
- 60.4% of group visit patients

	First Family Practice Survey	Group Visit
Survey Total N	160	46
High adherence	65	29
Proportion	0.406	0.604
90% confidence level	0.341-0.474	0.475-0.723

Appendix 15

MERCY CLINIC RECOGNIZING AND REWARDING BEST PRACTICES (RRBP) QUALITY AND PHARMACY TARGETS

Diabetes Quality Parameters

	Process Goal *	Outcome Goal*
Diabetes overall**	80%	70%
Proportion with HgA1c < 8.0 or 1% improvement over the last year (i.e. 8.6 to 7.6)	85%	70%
Proportion with LDL ≤130	85%	70%
Proportion with BP ≤140/90	85%	70%
Nephrology screening or evidence of disease	70%	
Documentation of diabetes education or patient refusal	Establish Baseline	
Hypertension Quality overall**	80%	70%
Proportion with BP ≤140/90	85%	70%
Lipids checked in last 30 months	85%	
Glucose checked in last 30 months	85%	
Proportion with microalbumin documented in the last year	70%	
Patient education documented	Establish Baseline	
Quality Incentive Payment	\$5,000	\$2,500

	Process Goal *	Incentive Payment
Pharmacy Targets***		
Per member per month cost: % < Insurer Average	4.00%	\$5,000
Per member per month cost: % < Insurer Average	6.00%	\$2,500

* If a parameter is not within goal, evidence of action to achieve the goal will meet criteria.

** Overall goal is the average of all the goals in the disease suite.

*** This is a group goal paid to all or none.

Definitions:

Process Goals are whether or not a test was done within the last year (unless otherwise stated) and can be determined by billing data.

Outcome Goals reflect clinical measurement described in the lefthand column.