Diabetes Prevention Program
Debby Fischer, RN, Fran Zichal, Mary Walters, CNO

1. Getting Started

Over 38% of the Clayton County residents are overweight and 23% are obese, exceeding the national and state averages. In addition the diabetes rate is 8.3%, higher than the 7.8% rate for Iowa. Programs or diabetes in Clayton County focus on managing diabetes through a Certified Diabetes Educator, medical providers and Central Community Hospital, Elkader, wanted to go a step further and prevent diabetes through an evidence-based program, Diabetes Prevention Program (DPP), from the University of Pittsburgh. DPP classrooms are offered in Elkader since 2006. A key statistic is that the percentage of "increase in activity" has gone down every year from 33% to 31%. This is the opposite of the expected trend.

2. Assemble the Team

The CCH team consisted of Debby Fischer, RN, who teaches the DPP classes, Mary Walters, CMO, RN, who provides back-up should Debby be unable to teach the class and Fran Zichal, CEO, RN, who provides support and direction to the grant process. All are interested in improving the physical activity for DPP participants. All three are interested in learning about the quality improvement tools that can be used for DPP and any other department facing a problem or challenge.

3. Examine the Current Approach

The current DPP approach includes the following:

- Conduct a screening to identify "pre-diabetics" (blood sugar >100 and <126).
- Send invitations to those meeting the criteria to attend a 16-week class.
- Provide, education, support, handouts and tools to increase activity and improve diet.
- Send support letters for 16 weeks after the class encouraging the participants to continue lifestyle changes.
- Offer post class blood sugar screening.
- Study the data and report to staff, medical staff and community.

4. Identify Potential Solutions

It is particularly hard to motivate people to exercise. The team identified seven possible solutions summarized below. Create a letter to the participants explaining the role of exercise in the class. They were encouraged to wear athletic shoes and appropriate for exercising at the classes.

- Lack of opportunities involves two main themes: participants are unaware of exercise programs they can have right in their home without purchasing a treadmill (example would be Leslie Sansone walking video). Participants are reluctant to start an exercise program on their own. Many participants are unaware of the strong correlations between sedentary lifestyle and diabetes or it is not enough of a motivation to exercise.

5. Develop an Improvement Theory

Our improvement theory was if the new strategies are successful, more at risk adults will increase their activity by at least 30%.

6. Test the Theory

AIM: By the end of 32 weeks, 100% of the DPP participants will increase their physical activity by 30% and/or be physically active for at least 150 minutes/week.

The following changes were incorporated into the 2010 class to improve physical activity outcomes.

- A letter was sent to all participants explaining the role of exercise in the class. They were encouraged to wear athletic shoes and appropriate for exercising at the classes.
- All participants were given a form to track their activity each day of the week for 16 weeks.
- An educational video (by Leslie Sansone) was used in the class to introduce exercises. A copy of the video was set home with each participant to be used by them and their family.
- The instructor offered to have the class walk together as a group prior to or after class.
- Each participant was given tools to help with exercise: pedometer, hik- ing pole, exercise ball, exercise mat and dumbbell set.
- One prior class participant was invited to share her experiences with the class, particularly with accomplishing the physical activity goal.
- Each participant received free membership to the local Fitness Center for three months.

7. Use Data to Study Results of the Test

Baseline Information DPP 2006-2010

<table>
<thead>
<tr>
<th>Measure</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
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<tbody>
<tr>
<td>Fasting Sugar</td>
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<td>105</td>
<td>107</td>
<td>105</td>
<td>104</td>
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<tr>
<td>Pre-Diabetic</td>
<td>212</td>
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<td>208</td>
<td>206</td>
<td>204</td>
</tr>
<tr>
<td>DPP Partic-</td>
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<td>16 (23%)</td>
<td>15 (23%)</td>
<td>20 (24%)</td>
<td>17 (30%)</td>
</tr>
<tr>
<td>ipants</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Age of Start</td>
<td>58</td>
<td>59</td>
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</tr>
<tr>
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<tr>
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<td>9.9%</td>
<td>12.9%</td>
<td>9.9%</td>
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<tr>
<td>Insulin Level</td>
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<td>7.5</td>
<td>7.6</td>
<td>7.6</td>
<td>7.54</td>
</tr>
</tbody>
</table>

8. Standardize the Improvement or Develop a New Theory

The most common forms of exercise include: walking, using the exercise video from the class, doing housework and gardening. All participants used at least one tool for exercise. At least three of the participants used each of the tools to give increase physical activity.

The following components will be a standardized part of the class:

- A letter explaining the exercise component of the class.
- A tracking form for each participant to record weekly exercise for 16 weeks.
- An exercise video will be used in the class and given to each partici- pant for use at home.
- A walk prior to or after class will be offered.
- A variety of exercise tools will be distributed.
- A personal story from a former student will be included in the cur- riculum.

The post evaluation revealed that some of the family members enjoyed the information and exercise video. Including the family should be encouraged.

9. Establish Future Plans

There is interest to offer a county-wide class including Guttenberg Munici- pal Hospital and Clayton County Visiting Nurses’ Association. The team has been formed including all stakeholders to develop a plan for a county- wide DPP program. It will be expanded into a “Lifestyle Balance” class to address a wide variety of diseases and conditions. The plan is to have CCH (Debby Fischer) teach the class over the class on the Iowan Communications Network. She taught four facilities during the last DPP class to help with this expanded program. Access to this system is available in all schools. Northeast Iowa Community College is promoting the program and offers a discount to use the Iowan. The team has started offering this class with 12 participants. Scholarships are offered to those unable to pay the registration fee. This class will be studied using PDSA before it is of- fered again.

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Findings: If we could remove barriers to exercising, then more people would participate in the program. Barriers that the team identified included barriers related to lack of opportunities, lack of motivation and education, lack of time and lack of resources.

- Lack of opportunities involves two main themes: participants are unaware of exercise programs they can have right in their home without purchasing a treadmill (example would be Leslie Sansone walking video). Participants are unaware of an exercise program on their own. Many participants are unaware of the strong correlations between sedentary lifestyle and diabetes or it is not enough of a motivation to exercise.

- Lack of time involves two main themes: many of us have very busy sched- ules and exercise is not a priority.

- Lack of resources involves three main themes: participants may have tried to exercise in the past and were frustrated with it. They may not be aware of the opportunities in surrounding towns. Many of the barriers are linked to a lack of personal finances to afford the limited resources available to them. The team felt that the QI project should focus on ways to address barriers in a creative, motivating action plan.

The team created a fishbone diagram to identify causes of decreasing phys- ical activity. This diagram helped the team identify potential solutions.

Results of the exercise reports:

- The range of exercise minutes when class started was 0-240 minutes/week and the ending range of exercise minutes was 90-420 minutes/week.
- 87% achieved 30% increase in physical activity.
- 87% achieved 150 minutes of exercise/week.

Results of the blood sugar/HgA1c:

- 16% decrease in blood sugar
- 4% decrease in HgA1c

The improvement theory was supported as results indicate an improvement in exercise equal to or above the AIM for all participants. All partici- pants increased their activity on average by 40%, 10% higher than AIM.