Team-Based Approach to Diabetes Care

Eric L. Johnson, M.D.
Associate Professor
University of North Dakota
School of Medicine and Health Sciences
Assistant Medical Director
Altru Diabetes Center
Grand Forks, ND
Thank you American Diabetes Association for Slides presented today
Why Choose a Team-based Approach?

High-functioning patient-centered teams may:

- Work more efficiently and effectively to improve health outcomes
- Optimize health system performance resulting in better care, better health, and more cost-effective care
- Improve provider experience by decreasing care burden

A Team-based Approach

“Collaborative, multidisciplinary teams are best suited to provide care for people with chronic conditions such as diabetes and to facilitate patients’ self management.”

ADA 2018 Recommendations

Promoting Health and Reducing Disparities in Populations

- Treatment plans should align with the Chronic Care Model, emphasizing productive interactions between a prepared proactive practice team and an informed activated patient. A
- When feasible, care systems should support team-based care, community involvement, patient registries, and decision support tools to meet patient needs. B

American Diabetes Association Standards of Medical Care in Diabetes. Promoting health and reducing disparities in populations. *Diabetes Care* 2018;40(Suppl. 1):
<table>
<thead>
<tr>
<th>Recognize:</th>
<th>Register:</th>
<th>Resource:</th>
<th>Relay:</th>
<th>Recall:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consider diabetes risk factors for all of your patients and screen appropriately for diabetes.</td>
<td>Develop a registry for all of your patients with diabetes.</td>
<td>Support self-management through the use of interprofessional teams which could include the primary care provider, diabetes educator, dietitian, nurse, pharmacist and other specialists.</td>
<td>Facilitate information sharing between the person with diabetes and the team for coordinated care and timely management changes.</td>
<td>Develop a system to remind your patients and caregivers of timely review and reassessment.</td>
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Who is on the Diabetes Care Team?

Health care professionals with complementary skills and who share a common goal and approach

• General practitioners
• Podiatrists
• Eye doctors
• Dentists
• Pharmacists
• Endocrinologists
• Nephrologists
• Advanced practice nurses
• Registered nurses
• Licensed practice nurses
• Medical office assistants/care coordinators
• School nurses/community health workers
• Trained peer leaders
• Diabetes educators
• Registered dietitians
• Social workers
• Psychologists
• Others as needed according to patients’ needs, patient load, organizational constraints, resources, clinical setting, geographic location, and professional skills

Chronic Care Model (CCM): 6 Core Elements

- Delivery system design (team-based approach)
- Self-management support
- Decision support (evidence-based care)
- Clinical information systems
- Community resources and policies
- Health systems

6 core elements of the CCM

Think-Pair-Share

• Do you currently work in a team-based environment?
• Who is on your ideal diabetes management team and why?
• Do you have plans to expand your diabetes management team in the next year, and if so, to include what team members?
• Do you currently use technology (e.g., telehealth etc.) to expand your team?
Challenges to implementing an interdisciplinary team approach

- Traditional hierarchal structure of many institutions may act as a barrier to effective IDT care
- Financial resource constraints to establish an IDT
- Inadequate access to appropriate specialties,
- Poor communication within the team and with patients
- Organizational factors, such as individual work schedules, can prevent regular communication among team members

Think-Pair-Share

• What challenges, if any, have you experienced in implementing a team-based approach?
• Do you have any insights on how to overcome any of the challenges on the previous slide?
Populations where a team-based approach is specifically recommended

- Pregnant women with preexisting diabetes
  - High-risk obstetrician, endocrinologist, dietitian, nurse, and social worker, as needed
  - Insulin management in pregnancy is complex

- Youth with type 1 and type 2 diabetes
  - Diabetes educators, dietitians, and psychosocial support

- Patients with diabetes distress
  - Diabetes educators and behavioral health management specialists

- Patients being treated for obesity management
  - Specialists in metabolic surgery, nutrition therapy, and mental health professionals

- Hospitalized patients
  - Appropriately trained specialists or specialty teams may reduce length of stay, improve glycemic control, and improve outcomes

A shared medical appointment, or group visit

- Multiple patients are seen as a group for follow-up care or management of chronic conditions.

SMA model has been used in

- Adults with chronic medical conditions (including diabetes)
- Women receiving prenatal care
- Patients requiring urgent care visits
- Patients needing routine health care maintenance

Appointment structure

5–0 minutes

- Physical Exam
- Review chart/data
- Review medication
- Set visit goals

Patient

15–20 minutes

- Group room
- Patient alone with provider
- Nurse through separate room
- Patient-activated
- Set visit goals

Parent

45–60 minutes

- Group room
- Patient alone with provider
- Review chart/data
- Patient plans detailed
- Include in discussion

Provider

20–30 minutes

- Individual patient, parent, provider
- Review goals, plan, answer questions

American Diabetes Association.


Using SMAs in type 1 diabetes adolescent transition population

- 92% felt more supported
- 92% felt more comfortable asking questions
- 92% better understood information compared to during regular visits
- 92% would recommend Team Clinic to others
- 92% wanted to attend another Team Clinic.

75% of providers reported that the quality of care was higher in the SMA compared to traditional clinic appointments.

Parent Survey
- 96% felt more supported
- 82% felt more comfortable asking questions
- 82% better understood information compared to during regular visits
- 88% would recommend Team Clinic to others
- 84% wanted to attend another Team Clinic.

Think-Pair-Share

• Do you have any experience with SMAs?
• If you have had experience with a SMA, what were the advantages and disadvantages that you observed?
EMPOWER-D: Using technology as a resource in a multidisciplinary team

<table>
<thead>
<tr>
<th>Technological interventions included:</th>
<th>Results:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wirelessly uploaded home glucometer readings with graphical feedback</td>
<td>Significantly reduced A1C at 6 months (−1.32% INT vs −0.66% UC; p&lt;0.001)</td>
</tr>
<tr>
<td>Comprehensive patient-specific diabetes summary status report</td>
<td>Significantly reduced LDL-C at 12 months (−6.1 mg/dl INT vs 0.0 mg/dl UC, p=0.001)</td>
</tr>
<tr>
<td>Nutrition and exercise logs</td>
<td>Significantly more patients in the INT group improved diabetes control (&gt;0.5% reduction in A1C) than UC</td>
</tr>
<tr>
<td>Insulin record</td>
<td>• at 6 months 70.3 (95% CI 63.6 to 76.9) vs 53.4 (95% CI 46.3 to 60.6); p=0.002</td>
</tr>
<tr>
<td>Online messaging with the patient's health team</td>
<td>• At 12 months 69.9 (95% CI 63.2 to 76.5) vs 55.4 (95% CI 48.4 to 62.5); p=0.006</td>
</tr>
<tr>
<td>Nurse care manager and dietitian providing advice and medication management</td>
<td></td>
</tr>
<tr>
<td>Personalized text and video educational ‘nuggets’ dispensed electronically by the care team</td>
<td></td>
</tr>
</tbody>
</table>

Think-Pair-Share

• What forms of technology do you use in your practice as part of your diabetic care model?
• Is there any form of technology that you intend to implement in your practice in the next 12 months?

• In our diabetes center, we do a lot of distance and traditional insulin pump/continuous glucose monitor data management
Interventions

- **CASM**
  - A 40-min, previously validated, Web-based diabetes self-management improvement program

- **CAPS**
  - A 60-min in-person intervention that included CASM plus PST (an eight-step process to identify and define DD, establish realistic goals, generate ways to meet these goals, weigh the pros and cons of each, choose and evaluate solutions, create a DD action plan, evaluate outcome, and engage in pleasant activities)

- **Leap Ahead**
  - A minimal intervention in comparison with the other two conditions, received a 20-min, computer-delivered health risk appraisal (e.g., seat belt and sunscreen use) along with diabetes information regarding healthy living, diet, and physical activity preceding each of the eight calls

Effect on psychosocial functioning

- Collaborative care interventions and a team approach demonstrated efficacy in significant and clinically meaningful reductions across intervention groups in
  - Diabetes Distress Scale (DDS),
  - Emotional Burden (EB)
  - Regimen Distress (RD) DDS subscales

- Diabetes Distress-specific interventions (CAPS) may be necessary for patients with initially high levels of Regimen Distress

Care System Change
• Successful practices prioritize providing a high quality of care. Changes that have been shown to increase quality of care include:
  – Basing care on evidence-based guidelines
  – Expanding the role of teams to implement more intensive disease management strategies
  – Redesigning the care process
  – Implementing electronic health record tools
  – Empowering and educating patients
Elements of patient centered medical home (PCMH) that support better diabetes care and outcomes

- Diabetes Self-Management Education
- **Team-Based Care**
- Care Coordination & Case Management
- Specialty Care Team Members
- Pharmacists Services
- Behavioral Health
- Electronic Health Records

## Key PCMH Components in highlighted PCMH demonstration projects

<table>
<thead>
<tr>
<th>Demonstration</th>
<th>Results</th>
<th>Key PCMH Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geisinger Health System (Pennsylvania)</td>
<td>• 18% reduction in inpatient stays and 36% reduction in readmissions</td>
<td>• Advanced EHR with patient and physician tracking and communication</td>
</tr>
<tr>
<td></td>
<td>• Reduced ESRD</td>
<td>• Personal Health Navigator: care coordination and follow-up</td>
</tr>
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<td></td>
<td>• Advanced EHR with patient and physician tracking and communication</td>
<td>• Evidence-based care plans with</td>
</tr>
<tr>
<td></td>
<td>• Personal Health Navigator: care coordination and follow-up</td>
<td>• Nurse Care Coordinator services</td>
</tr>
<tr>
<td>HealthPartners (Minnesota)</td>
<td>• Cost savings and reduced hospitalizations and ER visits</td>
<td>• Enhanced communication mechanisms between providers and patients</td>
</tr>
<tr>
<td></td>
<td>• Improved diabetes and cardiovascular measures</td>
<td>• Electronic registry management</td>
</tr>
<tr>
<td></td>
<td>• Improved patient satisfaction</td>
<td>• Family-centered care plans</td>
</tr>
<tr>
<td></td>
<td>• Enhanced communication mechanisms between providers and patients</td>
<td>• Care coordination</td>
</tr>
<tr>
<td>Pennsylvania Chronic Care Initiative (Southern Pennsylvania)</td>
<td>• Improvement in diabetes and cardiovascular risk factors</td>
<td></td>
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<tr>
<td></td>
<td>• Increased preventive measures and appointments including screening, self-management, eye and foot exams, vaccination rates, smoking cessation, and preventive medication use</td>
<td>• Care managers and practice coaches for coordination</td>
</tr>
<tr>
<td></td>
<td>• Increased preventive measures and appointments including screening, self-management, eye and foot exams, vaccination rates, smoking cessation, and preventive medication use</td>
<td>• Quality reporting</td>
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<td></td>
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<td>• Electronic registry management</td>
</tr>
<tr>
<td></td>
<td>• Increased preventive measures and appointments including screening, self-management, eye and foot exams, vaccination rates, smoking cessation, and preventive medication use</td>
<td>• Team-based structure with strong leadership and staff learning collaborative</td>
</tr>
<tr>
<td>Group Health Cooperative (Seattle, WA)</td>
<td>• Improved quality measures</td>
<td>• Team model with higher proportions of non-physician staff</td>
</tr>
<tr>
<td></td>
<td>• Reduction in hospitalizations and ER visits</td>
<td>• Longer appointment times</td>
</tr>
<tr>
<td></td>
<td>• Cost-savings</td>
<td>• Online patient portals</td>
</tr>
<tr>
<td></td>
<td>• Improved patient and provider satisfaction</td>
<td>• Enhanced communication and follow-up</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Increased patient access to physicians</td>
</tr>
</tbody>
</table>

Ranking of Quality Improvement Strategies for lowering HbA1c based on meta-analysis *

<table>
<thead>
<tr>
<th>Rank</th>
<th>Intervention</th>
<th>Number of trials</th>
<th>Mean difference in HbA1c (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Promotion of self-management</td>
<td>60</td>
<td>−0.57 (−0.83 to −0.31)</td>
</tr>
<tr>
<td>2</td>
<td>Team changes</td>
<td>47</td>
<td>−0.57 (−0.71 to −0.42)</td>
</tr>
<tr>
<td>3</td>
<td>Case management</td>
<td>57</td>
<td>−0.50 (−0.65 to −0.36)</td>
</tr>
<tr>
<td>4</td>
<td>Patient education</td>
<td>52</td>
<td>−0.48 (−0.61 to −0.34)</td>
</tr>
<tr>
<td>5</td>
<td>Facilitated relay of clinical data</td>
<td>32</td>
<td>−0.46 (−0.60 to −0.33)</td>
</tr>
<tr>
<td>6</td>
<td>Electronic patient registry</td>
<td>27</td>
<td>−0.42 (−0.61 to −0.24)</td>
</tr>
<tr>
<td>7</td>
<td>Patient reminders</td>
<td>21</td>
<td>−0.39 (−0.65 to −0.12)</td>
</tr>
<tr>
<td>8</td>
<td>Audit and feedback</td>
<td>8</td>
<td>−0.26 (−0.44 to −0.08)</td>
</tr>
<tr>
<td>9</td>
<td>Clinician education</td>
<td>15</td>
<td>−0.19 (−0.35 to −0.03)</td>
</tr>
<tr>
<td>10</td>
<td>Clinician reminders</td>
<td>18</td>
<td>−0.16 (−0.31 to −0.02)</td>
</tr>
<tr>
<td>All</td>
<td></td>
<td>120</td>
<td>−0.37 (−0.45 to −0.28)</td>
</tr>
</tbody>
</table>

*Effects were greater with baseline HbA1c>8.0% and less in HbA1c≤8.0%

Quality Improvement Strategies Resulted in Statistically Significant Improvements Compared to Usual Care

Systematic review and meta-analysis found statistically significant improvements in:

- Glycated haemoglobin (mean difference 0.37%, 95% CI 0.28 to 0.45; 120 trials)
- Low-density lipoprotein cholesterol (0.10mmol/L, 95% CI 0.05 to 0.14; 47 trials)
- Systolic blood pressure (3.13mmHg, 95% CI 2.19 to 4.06, 65 trials)
- Diastolic blood pressure (1.5mmHg, 95% CI 0.95 to 2.15; 61 trials)
- Likelihood of patients receiving aspirin and anti-hypertensive drugs
- Rate of screening for
  - Retinopathy
  - Renal function
  - Foot abnormalities

RAMP-DM (risk-assessment-and-management-programme)
Reduced Diabetic Microvascular Complications

Microvascular Complications
- adjusted hazard ratio [HR]: 0.73; 95% CI: 0.66-0.81; P<0.001

ESRD
- adjusted HR 0.40 (95% CI: 0.24-0.69; P<0.001)

STDR or Blindness
- adjusted HR 0.55 (95% CI: 0.39-0.78; P=0.001)

Lower-limb Ulcers or Amputation
- adjusted HR 0.49 (95% CI: 0.30-0.80; P=0.005)

Interdisciplinary team established
Intensified multifactorial intervention lowered risk of all-cause mortality and CV mortality

Cumulative incidence of the risk of death from any cause

20% absolute risk reduction for death from any cause among patients with type 2 diabetes and microalbuminuria who received intensive therapy

Cumulative incidence of cardiovascular events

13% absolute risk reduction for death from cardiovascular causes among patients with type 2 diabetes and microalbuminuria who received intensive therapy

Team-based diabetes care improves HQoL

Overall, 68% of patients experienced improved HRQoL. 64% of patients had improved HRQoL, 29% had no change, and 7% had deteriorated HRQoL.

Think-Pair-Share

• Following this presentation, are there any changes that you would make to your practice?
Mr. J is a 70-year-old retired school administrator with a 6-year history of type 2 diabetes. Prior to diagnosis, he had fasting blood glucose records indicating values of 116–124 mg/dl, clearly in the prediabetes range. At time of initial diagnosis, he was advised to lose weight (“at least 15 lb.”), but did not receive further education or consultation with a dietitian. Referred by his family physician to the diabetes specialty clinic, Mr. J. presents with recent weight gain, suboptimal diabetes control, and foot pain in his initial visit with the nurse practitioner (NP). He was appropriately started on metformin 1000mg BID. Other medications: atorvastatin (Lipitor), 10 mg daily, for hypercholesterolemia. He does not test his blood glucose levels at home despite access to a blood glucose meter and his wife’s encouragement to do use it regularly.
Case Study: Mr. J

- A physical examination reveals the following:
  - Weight: 207 lb; height: 5’8”; body mass index (BMI): 32.0 kg/m²
  - Blood pressure: lying, right arm 160/94 mmHg; sitting, right arm 148/95 mmHg
  - Pulse: 89 bpm; respirations 22 per minute
  - Eyes: corrective lenses, pupils equal and reactive to light and accommodation, Fundi-clear, no arteriovenous nicking, no retinopathy
  - Thyroid: nonpalpable
  - Lungs: clear to auscultation
  - Heart: Rate and rhythm regular,
  - Vascular assessment: no carotid bruits; femoral, popliteal, and dorsalis pedis pulses 2+ bilaterally
  - Neurological assessment: diminished vibratory sense to the forefoot, absent ankle reflexes, monofilament (5.07 Semmes-Weinstein) felt only above the ankle
Case Study: Mr. J

- Results of laboratory tests are as follows:
  - Fasting capillary glucose: 176 mg/dl
  - Creatinine: 1.0 mg/dl (normal range: 0.5–1.4 mg/dl)
  - GFR 75 (normal range >60)
  - Lipid panel
    - Total cholesterol: 157 mg/dl (normal: <200 mg/dl)
    - HDL cholesterol: 48 mg/dl (normal: ≥40 mg/dl)
    - LDL cholesterol (calculated): 87 mg/dl (normal: <100 mg/dl)
    - Triglycerides: 168 mg/dl (normal: <150 mg/dl)
    - Cholesterol-to-HDL ratio: 3.2 (normal: <5.0)
  - Hepatic panel normal
  - A1C: 8.5% (normal: 4–6%)
  - Urine albumin: 48 mg (normal: <30 mg)
Think-Pair-Share

• What is your assessment of Mr. J?

• Suboptimal control
• Hypertension
• Obesity
• Neuropathy
• CVD risk
Case Study: Mr. J

• Assessment
  – Self-care management/lifestyle deficits
  – • Limited exercise
  – • High carbohydrate intake
  – • No SMBG program
  – Poor understanding of diabetes
• Assuming that you are part of a multidisciplinary team, what would your next step be in the treatment of Mr. J?
Case Study: Mr. J

Contact with a dietitian

The NP contacted the registered dietitian (RD) by telephone and referred the patient for a medical nutrition therapy assessment with a focus on weight loss and improved diabetes control.

Mr. J’s appointment was scheduled for the following week. The RD requested that during the intervening week, the patient keep a food journal recording his food intake at meals and snacks as well as estimate portion sizes.

Next steps

Select the most pressing health care issues with the patient and prioritize his medical care to address them.

Mr. J stated that his need to lose weight was his main reason for seeking diabetes specialty care. He agreed that his elevated glucose levels and hypertension also needed to be addressed and his provider commented that getting his weight under control would also help manage his hypertension.
Think-Pair-Share

• Assuming that you are part of a multidisciplinary team, what would your next step be in the treatment of Mr. J?
Case Study: Mr. J

**Increase activity level**

The NP discussed Mr. J’s current exercise regimen with him and his wife. Mr. J realized that his exercise schedule was very sporadic, with poor weather a frequent reason for not exercising.

His wife suggested that they could walk together 4 times/week, moving their walk to a nearby mall if the weather was inclement. She also suggested looking into a weekly bowling league as this was an activity they had enjoyed previously.

**Improve glucose control without contributing to weight gain.**

Metformin (Glucophage), which reduces hepatic glucose production and improves insulin resistance, is not associated with hypoglycemia and can lower A1C results by 1%. Although GI side effects can occur, they are usually self-limiting and can be further reduced by slow titration to dose efficacy.

The NP also discussed with the patient a titration schedule that increased the dosage to 1,000 mg twice a day over a 4-week period. She wrote out this plan, including a date and time for telephone contact and medication evaluation, and gave it to the patient.
Think-Pair-Share

• Assuming that you are part of a multidisciplinary team, what would your next step be in the treatment of Mr. J?
Case Study: Mr. J

**Improve Mr and Mrs. J’s Diabetes Knowledge**

- As the NP discusses his situation with Mr. J and his wife, it becomes apparent that they have some major gaps in their understanding of diabetes. Mrs. J comments that she is surprised that his blood glucose is high as “they never have dessert.”
- The NP goes over several diabetes education programs offered by her institution, including an online program as well as a group class.
- The NP shows Mr. J and his wife how to use a glucose meter that features a simple two-step procedure. Mr. J agreed to use the meter twice a day, at breakfast and dinner.
- The NP discusses the importance of foot care with Mr. and Mrs. J and demonstrates to Mr. J his inability to feel the light touch of the monofilament. She explained that the loss of protective sensation from peripheral neuropathy means that he will need to be more vigilant in checking his feet for any skin lesions caused by poorly fitting footwear.

**Enroll Mr. and Mrs. J in a Diabetes education program**

- This diabetes specialty clinic has a group education program directed at seniors. Given that Mr. J is not very technologically savvy, he elects to enroll in the senior’s education program with the encouragement of his wife. Mrs. J is enthusiastic about the prospect of meeting new people; Mr. J is less enthusiastic.

**Follow up**

- The NP assures Mr. J that she will share the plan of care they had developed with his primary care physician, collaborating with him and discussing the findings of any diagnostic tests and procedures.
- She explains that she will also work in partnership with the RD to reinforce medical nutrition therapies and improve his glucose control.
- She accompanies Mr. J to the administration desk to ensure that he books a follow-up appointment.
Case Study: Mr. J

**Follow up Plan**

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American Diabetes Association

• Standards of Care 2018

• [http://care.diabetesjournals.org/content/41/Supplement_1](http://care.diabetesjournals.org/content/41/Supplement_1)

• Abridged Standards of Care 2018

• [http://clinical.diabetesjournals.org/content/36/1/14](http://clinical.diabetesjournals.org/content/36/1/14)
Practice Transformation for Physicians and Health Care Teams

• Offers tools and materials for health care professionals and administrators undergoing practice redesign associated with health care reform.

• Details methods of team-based care that have been shown to improve quality, increase patient satisfaction, and reduce cost.

• Provides tools to develop a collaborative team approach that promotes communication, diminishes cultural barriers, and supports a common understanding of a patient’s needs.

To view this resource, please visit www.ndep.nih.gov/PracticeTransformation
Thank you!