9 May 23

Bree Collaborative Diabetes Work Group
Interim report of evidence search and appraisal of five selected topic areas:

Methods
We met for 10 ½ hours over the last month, searched English language citations and have appraised approximately 250 papers to date, first screening titles, then reviewing abstracts in detail to assess relevance of population, study size and duration, methods, and consistency across studies. We read selected papers in detail to clarify ambiguous issues. We used the SORT methodology for evidence appraisal. ADA guidelines (which include evidence appraisal) are taken as an authoritative standard. Our priorities were based on 1) our work group's five key themes and 2) the Impact/Effort Matrix.

Findings

1. Team-based care and empanelment, including care for underserved populations

a. Citation 2. Weeks, et al. ***Non-medical prescribing versus medical prescribing for acute and chronic disease management in primary and secondary care.*** Cochrane Database Syst Rev. 2016

   The meta-analysis included "46 studies (37,337 participants); non-medical prescribing was undertaken by nurses in 26 studies and pharmacists in 20 studies. In 45 studies non-medical prescribing as a component of care was compared with usual care medical prescribing.

   Authors conclude that "non-medical prescribers can deliver comparable outcomes for systolic blood pressure, glycated hemoglobin, low-density lipoprotein, medication adherence, patient satisfaction, and health-related quality of life."

b. Citation 3. Sullivan, et al. ***Effect of Clinical Pharmacist Intervention on Hemoglobin A1C Reduction in Veteran Patients with Type 2 Diabetes in a Rural Setting.***

   The retrospective chart review included 86 veterans managed in a rural setting by a clinical pharmacist. Patients served as their own controls.

   In a rural setting, diabetes care delivered by a pharmacist resulted in significant improvements in diabetes control, BP, and lipids.

c. Citation 4. Leal, et al. ***Improving quality of care in diabetes through a comprehensive pharmacist-based disease management program.***

   In this retrospective study of 199 patients in a federally qualified health center, the population was comprised mostly of indigent, Spanish speaking patients with type 2

diabetes. Patients served as their own controls. A bi-lingual PharmD was the primary care provider for the patient's diabetes, hypertension and hyperlipidemia. Patients were followed for 274 plus or minus 141 days.

In this population of indigent, Spanish speaking patients, care delivered by a pharmacist was associated with significant improvements in diabetes control, lipids, and BP.

d. Citation 5. Houle, et al. ***Effect of a pharmacist-managed hypertension program on health system costs: an evaluation of the Study of Cardiovascular Risk Intervention by Pharmacists-Hypertension (SCRIP-HTN).***

This paper used an economic model based on a Canadian study (Study of Cardiovascular Risk Intervention by Pharmacists-Hypertension). The study randomized 227 patients with diabetes and uncontrolled hypertension to pharmacist-nurse intervention every 6 weeks or a control group. Improvement in BP in the experimental group was used in an economic model to predict 1-year savings related avoiding cardiovascular events.

Authors concluded that use of pharmacist-nurse interventions to avoid predicted cardiovascular events made this model cost effective in the Canadian health care system.

e. Citation 6. Henderson, et al. ***Systematic Review of the Frequency of Registered Dietitian-Nutritionist Intervention in the Primary Care Setting for Diabetes Self-Management Education for Patients with Type II Diabetes.***

This systematic review suggests that compared to usual care, more frequent contact with a registered dietician/nutritionist is associated with improved diabetes control.

Study lacks statistics to quantitatively evaluate the study, is restricted to short term studies, and includes only 7 citations.

f. Citation 7. Maeng, et al. ***Can a patient-centered medical home lead to better patient outcomes? The quality implications of Geisinger's ProvenHealth Navigator.***

The authors examined the claims data from Geisinger Health Plan between 2005 and 2009, comparing patient outcomes in clinics that were or were not designated as medical homes.

Study showed a reduced odds ratio of amputation or end renal disease after conversion of usual care to a patient centered medical home.

g. Citation 8. McManus, et al. ***The Patient-centered Medical Home as an Intervention Strategy for Diabetes Mellitus: A Systematic Review of the Literature.***

The search resulted in 596 articles, of which 24 met all the inclusion criteria. Care management resulted in more screenings and better preventive care. Pharmacy-led

interventions and technology were associated with positive clinical outcomes, decreased utilization, and cost savings. Most studies reported decreased emergency room visits and less inpatient admissions.

Authors concluded that the quality and strength of the outcomes were largely inconclusive about the overall effectiveness of the PCMH due to lack of universal definitions specific to the PCMH.

h. Citation 9. Kinsell, et al. *Impacts of Initial Transformation to a Patient-Centered Medical Home on Diabetes Outcomes in Federally Qualified Health Centers in Florida*

Observational cohort study, done from 2010-2012, of 14136 patients receiving care in a federally qualified health center in Florida according to a patient center medical home model. Odds ratio indicated improvement in diabetes control but not statistically effect on BP or BMI.

Authors conclude that transformation to a medical home model in FQHCs appears to improve the health of vulnerable patients with diabetes.

i. Citation 10. Shippee, et al. *Using Statewide Data on Health Care Quality to Assess the Effect of a Patient-Centered Medical Home (HCH) Initiative on Quality of Care.*

Minnesota's statewide medical home model in Minnesota relies on state-run, adaptive certification and supportive data infrastructure. Measures included optimal quality (meeting all targets) and average quality (number of targets met) for asthma, vascular, and diabetes care; colorectal cancer screening; depression follow-up; and depression remission. Depending on measure and year, the analytic sample included 246,023 - 3,335,994 child and adult patients in 404-651 clinics. Authors produced potential outcomes means and average treatment effects (ATEs).

Authors conclude HCH patients received better quality versus non-HCH patients for most outcomes. For example, the adjusted rate receiving optimal diabetes care was 453.7/1000 adult HCH patients versus 327.2/1000 non-HCH adult patients (ATE = 126.5; P < .001).

j. Citation 11. Kurani, et al. *Association Between Area-Level Socioeconomic Deprivation and Diabetes Care Quality in US Primary Care Practices.*

To examine the association between area deprivation index (ADI) score and rurality, and optimal diabetes care, this cross-sectional study analyzed the electronic health records of 75 Mayo Clinic sites.

The primary outcome was the attainment of all 5 components of the D5 metric of optimal diabetes care: glycemic control (hemoglobin A1c <8.0%), blood pressure (BP) control (systolic BP <140 mm Hg and diastolic BP <90 mm Hg), lipid control (use of statin therapy according to

recommended guidelines), aspirin use (for patients with ischemic vascular disease), and no tobacco use.

This cross-sectional study found that patients living in more deprived and rural areas were significantly less likely to attain high-quality diabetes care compared to those in urban areas.

k. Citation 12. Park, et al. *Neighborhood Influences on Physical Activity Among Low-Income African American Adults with Type 2 Diabetes Mellitus.*

Data collected through 7 focus groups and 13 interviews.

Authors concluded that reduced safety of local neighborhoods detracted from opportunity for regular exercise.

l. Citation 13. Ray, et al. *The impact of a pharmacist-driven, collaborative practice on diabetes management in an urban underserved population: a mixed method assessment.*

Observational study of 99 patients in an underserved, urban community managed by a pharmacist driven collaborative team.

There were significant improvements in patient attainment of A1c <9%, ACE Inhibitor/angiotensin receptor blocker and statin use, and tobacco cessation at follow-up (p< .05).

m. Citation 14. Fan, et al. *Relationship Between Health Literacy and Unintentional and Intentional Medication Nonadherence in Medically Underserved Populations with Type 2 diabetes*

The purpose of this study was to investigate the relationship between health literacy and overall medication nonadherence, unintentional nonadherence, and intentional nonadherence. Cross-sectional study of 208 patients with type 2 diabetes recruited from a primary care clinic. Most patients in the study were low income, publicly insured, and African American, with limited health literacy and a high school/GED education or less.

In multivariable models, limited health literacy was significantly associated with increased unintentional nonadherence but not intentional nonadherence.

n. Citation 15. Taylor, et al. *Bringing Global Health Home: The Case of Global to Local in King County, Washington.*

Descriptive report describing strategies to support management of chronic disease in underserved communities in Western Washington. **This paper may provide some direction to address health disparities in underserved communities in our state.**