Effective Health Care

Diabetes Medications for Pre-diabetes
Nomination Summary Document

Results of Topic Selection Process & Next Steps

- The topic, *Comparative Effectiveness of Type 2 Diabetes Pharmacological Therapy in Pre-diabetes,* was found to be addressed by a number of reports and evidence-based guidelines, and other publications, including the following:
  - Norris S, Kansagara D, Bougatsos C, and et al., Screening for type 2 diabetes mellitus: Update of 2003 systematic evidence review for the US Preventive Services Task Force. Evidence synthesis no. 61. Agency for Healthcare Research and Quality, 2008.
  - Department of Veterans Affairs DoD. VA/DoD clinical practice guideline for the management of diabetes mellitus. Department of Veteran Affairs, Department of Defense 2010:1-146.
  - American Diabetes Association. *Standards of medical care in diabetes—2014*. Diabetes Care Jan 2014; 37 Suppl 1:S14-80.

- Given that existing reports, guidelines, and yearly publications cover this nomination, no further activity will be undertaken on this topic.

Topic Description

Nominator(s): Individual

Nomination Summary: The nominator is interested in the correlation of blood glucose levels (BGL) and/or HbA1c with the comparative effectiveness of existing type 2 diabetes mellitus (T2DM) therapies in pre-diabetic patients.

Staff-Generated PICO
Population(s): People with pre-diabetes defined as:
Impaired fasting glucose (IFG): Fasting plasma glucose (FPG) 100 mg/dL (5.6 mmol/L) to 125 mg/dL, (6.9 mmol/L)
OR
Impaired glucose tolerance (IGT): 2-h plasma glucose in the 75-g OGTT,140 mg/dL (7.8 mmol/L) to 199 mg/dL (11.0 mmol/L)
OR
Glycosylated hemoglobin: HbA1c 5.7–6.4%
Intervention(s): Pharmacological therapy used for treatment of T2DM
Comparator(s): No therapy, usual care, placebo, delayed therapy (until diabetes diagnosis)
Outcome(s): Improvement in T2DM measures, including BGL and HbA1c levels; time to diabetes onset; diabetes complications including chronic kidney disease (CKD), vision

impairment, coronary artery disease, stroke, or peripheral vascular disease

Key Questions from Nominator: How do the baseline levels of BGL and/or HbA1 correlate with the effectiveness of existing diabetes II therapies?

Considerations

- The topic meets EHC Program appropriateness and importance criteria. (For more information, see http://effectivehealthcare.ahrq.gov/index.cfm/submit-a-suggestion-for-research/how-are-research-topics-chosen/.)
- About a third of the adult US population has pre-diabetes. In 2010, at least 50% of the Medicare-eligible population of US residents 65 years or older had pre-diabetes.
- For those with pre-diabetes, the benefits of pharmacological treatments that decrease levels of BGL and HbA1care unclear. Understanding the impact of diabetes pharmacological therapy on future outcomes in people with varying baseline BGL and HbA1c may help patients and clinicians to make more informed decisions regarding treatment methods for pre-diabetes.
- The topic was also found to be addressed by a 2011 AHRQ report entitled, *Screening for type 2 diabetes mellitus: update of 2003 systematic evidence review for the US Preventive Services Task Force*. Relevant key questions from this report include:
    - Update Key Question 3. Does beginning treatment for IFG and/or IGT in adults early as a result of screening provide an incremental benefit in final health outcomes compared with initiating treatment after clinical diagnosis of type 2 diabetes?
    - Update Key Question 5. What adverse effects result from treating an adult with type 2 diabetes, IFG, or IGT detected by screening?
- The topic was also found to be addressed by the following guidelines:
    - The Department of Veterans Affairs/Department of Defense (VA/DoD) guideline on diabetes mellitus. It included an evidence review covering January 2002 to June 2009 on the use of pharmacological therapy to prevent progression to diabetes in patients with pre-diabetes. The guideline examined outcomes associated with use of alpha-glucosidase inhibitors, metformin, thiazolidinediones, and in hypertensive patients, angiotensin converting enzyme inhibitors and angiotensin receptor blockers.
    - The American Diabetes Association (ADA) published its yearly update of Standards of Medical Care in Diabetes in 2014. It examined metformin therapy as well as other pharmacological therapies.