Analysis of American Diabetes Association Recommended Chronic Therapy and Initiation of Inpatient Interventions by a Pharmacist

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Introduction

- Recent studies revealed approximately 26 million people in the United States have diabetes.^{1,2}
- Health care expenditures for patients with diabetes are approximately \$174 billion, roughly 2.3 times that of an individual without diabetes.^{2,3}
- Uncontrolled diabetes can lead to additional comorbidities such as nephropathy, neuropathy, cardiovascular disease, and retinopathy.^{1,2,4,5}
- Due to the complications of diabetes care, health care providers should not focus solely on glycemic control, but expand focus to include prevention of long-term diabetes co-morbidity progression.
- It is estimated that only 7% of diabetic patients are effectively being managed through the use of evidence-based goals for the prevention diabetes co-morbidities.³

Objectives

- To determine the baseline rates of recommended therapies in diabetic patients according to the American Diabetes Association (ADA) guidelines.
- Evaluate the effectiveness of a pharmacist's role in the initiation of inpatient interventions based on ADA guidelines.

Methods

- IRB exemption was granted to conduct a chart review on all adult inpatient diabetics admitted to Sanford USD Medical Center in January 2012.
- Each chart was reviewed to determine baseline rates of ADA recommended preventative therapies, specifically use of aspirin, statins, ACE inhibitors/ARB medications, and select oral hypoglycemic agents.
- Recommendations based on ADA guidelines were communicated to providers via electronic communication using Epic.
- Acceptance rates of recommendations were collected upon discharge.

Patient Demographics

| Baseline Characteristics (N=245) | |
|----------------------------------|-------------|
| Male | 136 (55.5%) |
| Average age | 65.8 years |
| Average weight | 98.6 kg |
| Average serum creatinine | 1.3 mg/dL |
| Average CrCl | 61 mL/min |
| Average length of hospital stay | 6 days |
| Median length of hospital stay | 10 days |

Analysis of Recommendations

ACEI/ARB Recommendations (N=50)

Not Accepted Initiated in the Hospital Provider Recommended 76% in Discharge Note

8%

7%

23%

Not Accepted Initiated in the Hospital Provider Recommende in Discharge Note

Statin Recommendations (N=56)

Aspirin Recommendations (N=25)

- 12%
- Not Accepted
- Initiated in the Hospital
- Provider Recommended 80% in Discharge Note

Baseline Rates Upon Admission

| ADA Recommended preventative therapies (N=245) | | |
|--|-------------|--|
| ACE Inhibitor/ARB | 158 (64.5%) | |
| Statins | 143 (58.4%) | |
| Aspirin | 158 (64.5%) | |

| Presence of Oral Hypoglycemics (N=245) | | |
|--|------------|--|
| Metformin | 90 (36.7%) | |
| Glyburide | 20 (6.9%) | |
| Pioglitazone | 12 (4.9%) | |
| Sitagliptin/saxagliptin | 18 (7.35%) | |

Results



Recommended Accepted *Includes initiated while inpatient and recommendation provided in discharge note



Acceptance Rates for Hospitalists





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Conclusions

- Overall baseline rates of patients receiving ADA recommended therapies were about 60%. These rates were higher than expected.
- A total of 138 interventions were recommended to providers. Only 27 (20%) of the total recommendations were implemented in the hospital, of which were:
 - 8 ACEI/ARB
 - 13 statins
 - 3 aspirin
- 3 glyburide
- 1 metformin based on creatinine
- Lower than anticipated acceptance rates of recommendations based on ADA guidelines. Most common provider feedback for not accepting recommendations was "these recommendations are outpatient concerns."
- Six providers made a total of 11 recommendations to primary care providers in discharge notes.
 - None of the recommendations provided in the discharge notes were initiated in the outpatient setting within 3 months from hospital discharge.
- Providing recommendations in hospital discharge notes for primary care providers to initiate is ineffective and provides evidence that these medications need to be implemented in the inpatient setting prior to discharge.
- Based on this data, there is an opportunity to improve the quality of care based on ADA guidelines in 40% of our patients. Pharmacist review of these patients resulted in 20% acceptance rates of interventions based on ADA guidelines.
- If this type of program would be initiated, long-term provider concerns/barriers would need to be addressed to increase acceptance of recommendations to optimize patient care.

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