Background & Purpose

- The emergency department (ED) is not an optimal setting for long-term disease management of chronic conditions, such as diabetes[1-3].
- Among persons with diabetes, certain populations are more likely to use the ED: younger, African American, less educated, and female; as well as those living in urban areas with a higher proportion of African Americans, less educated, and poorer residents[4-6].
- Patient- and community-level characteristics associated with social class and area deprivation may potentially lead to a greater dependence on the ED.
- Identifying determinants of ED utilization among individuals with diabetes, both patient- and community-level characteristics, is critical to target vulnerable populations and geographic areas. Using a state-wide, all-payer database, we explored both patient and community-level characteristics associated with frequent ED use among working age adults with diabetes.

Methods

Data

- ED discharge data was obtained from the South Carolina Revenue and Fiscal Affairs Office for every adult (18 to 64 years) with a primary or secondary diagnosis of diabetes (ICD-9 code of 250.xx).
- Rural and urban ZIP Codes were designated based on the 2006 Rural-Urban Community Codes [7].

Analysis

- Unique identifier was used to extract individual patient records by selecting the first ED visit that occurred within a twelve month period from January 1, 2013 to December 31, 2013 for each patient.
- Total number of diabetes-related ED visits for each patient was calculated and dichotomized as non-frequent ED user (one or two ED visits) or frequent ED user (three or more ED visits).

- Statistical analysis and merging of data was conducted in SAS 9.4.
- Maps were generated using ArcMap10.2.

Results

Location

- Residents of Large Rural ZIP codes were more likely to be frequent ED users than those residing in Urban areas (20.9% versus 19.9%).
- Residents of Small Rural areas were less likely to be frequent ED users (18.5%).
- Significant hot spots (clustering of high density of frequent ED users) were more commonly observed in Large Rural and Urban areas (see figures 3 and 4).

Demographic Characteristics

- Frequent ED users were more likely to be African American (21.9% versus 17.6% for Whites).
- Frequent ED users were more likely to be Medicaid enrollees (29.1%) and Medicare beneficiaries (23.9%) versus private insurance (10.7%) or uninsured (21.0%).

Discussi

- Individuals with diabetes should receive diabetes self-management education and ongoing support to encourage the maintenance of disease self-management over time [8].
- Significant Zip Code hotspots for frequent ED use may be areas to target for providing these diabetes-related services.
- The vulnerability of the subgroups demonstrating frequent ED use indicates that certain patient-level characteristics associated with low social class may potentially lead to a greater dependence on the ED for routine care.
- The American Diabetes Association recommends that providers consider social context (i.e. financial barriers, access to health care, food insecurity, etc.) when developing treatment plans so that treatments can be tailored specifically to meet patient needs and therefore, improve patient outcomes [8].

References

1. Steiner, C., Barrett, M., & Hunter, K. (2010). Identifying determinants of ED utilization among individuals with diabetes, Patient- and community-level characteristics associated with social class and area deprivation may potentially lead to a greater dependence on the ED. Among persons with diabetes, certain populations are more likely to use the ED: younger, African American, less educated, and female; as well as those living in urban areas with a higher proportion of African Americans, less educated, and poorer residents[4-6].
5. Barrett, M., Hunter, K., & Steiner, C. (2010). Patient- and community-level characteristics associated with social class and area deprivation may potentially lead to a greater dependence on the ED. The emergency department (ED) is not an optimal setting for long-term disease management of chronic conditions, such as diabetes[1-3].
7. Steiner, C., Barrett, M., & Hunter, K. (2010). Identifying determinants of ED utilization among individuals with diabetes, Patient- and community-level characteristics associated with social class and area deprivation may potentially lead to a greater dependence on the ED. Among persons with diabetes, certain populations are more likely to use the ED: younger, African American, less educated, and female; as well as those living in urban areas with a higher proportion of African Americans, less educated, and poorer residents[4-6].

Figure 1. Spatial Distribution of Frequent ED Users with Diabetes as a Percent of the Total Number of ED Users with Diabetes in South Carolina, 2013
Figure 2. Location of Significant Hot and Cold Spots for the Density of Frequent ED Users with Diabetes per 100 Total ED Patients with Diabetes in South Carolina, 2013
Figure 3. Location of Significant Hot and Cold Spots in Urban Areas
Figure 4. Location of Significant Hot and Cold Spots in Large and Small Rural Areas

Blog: http://scrhrc.blogspot.com