Differences in maintenance vs. acute care between a rural and urban Mississippi Medicare Advantage population with diabetes — A cross-sectional analysis

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Overview

- Background
- Methods
- Results
- Conclusions

Background

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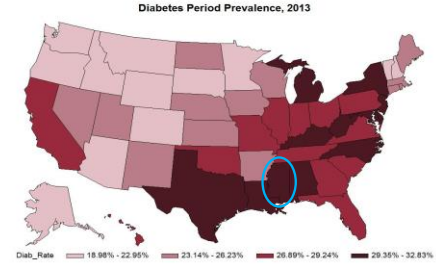
Background

- Diabetes is a major health problem in the United States
  - 9.3% prevalence (29.1 million people, all ages) in 2012[1]
  - Prevalence is higher than average in some groups:
    - Mississippi: 11.7% prevalence of diabetes in 2012[2]
    - Persons covered by Medicare: 28% prevalence of diabetes in 2013[3]
- Type 2 diabetes accounts for 90%-95% of all diagnosed diabetes[4]
- Poor diabetes management → increased risk of long-term complications

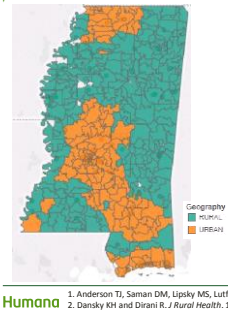
1. CDC. *National Diabetes Statistics Report*. 2014. Availabe at: http://www.cdc.gov/diabetes. 2. CDC. *Diabetes Report Card*. 2014. Available at: http://www.cdc.gov/diabetes/library/reports/reportcard.html. Accessed October 5, 2015. 3. Chronic Conditions Data Warehouse. *Medicare Chronic Condition Charts. Diabetes 2013*. Available at: https://www.ccwdata.org/web/guest/medicare-charts/medicare-chronic-condition-charts. Accessed October 5, 2015. 4. CDC. *Diabetes Report Card*. 2014. Available at: http://www.cdc.gov/diabetes/library/reports/reportcard.html. Accessed October 5, 2015.

Prevalence of diabetes by state for Medicare beneficiaries[1]



1. Chronic Conditions Data Warehouse. *Medicare Chronic Condition Charts. Diabetes 2013*. Available at: https://www.ccwdata.org/web/guest/medicare-charts/medicare-chronic-condition-charts. Accessed October 5, 2015.

Rural vs. urban populations



Research shows disparities in diabetes management, rural vs. urban[1,2]:

- Poorer access to and quality of clinical care
- Fewer physician office visits

Much of Mississippi is rural*

Do rural residents of Mississippi who have diabetes experience healthcare disparities?

*According to Rural-Urban Commuting Area (RUCA) Codes

1. Anderson TJ, Saman DM, Lipsky MS, Lutfiyya MN. *BMC Health Services Research*. 2015(15):441.
2. Dansky KH and Dirani R. *J Rural Health*. 1998 Spring;14(2):129-37.

Study Objective

- To describe receipt of diabetes care screenings and health care resource utilization (HCRU) among rural and urban residents of Mississippi across the continuum of diabetes severity.

Methods

Study Design

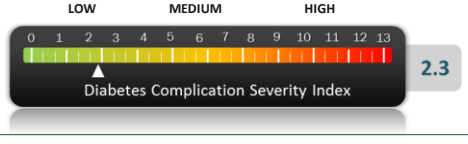
- Cross-sectional study using administrative data from Humana Inc.
  - Medical and pharmacy claims
  - Enrollment data
- Population
  - Medicare Advantage enrollees during 2013
  - Mississippi residents
  - Diagnosed with Type II diabetes

Outcomes and Analysis

- Outcome measures
  - Receipt of diabetes care screenings, compared using Chi-squared tests for categorical variables:
    - Annual check for proteinuria
    - Annual testing of low density lipoprotein (LDL)
    - Annual test of hemoglobin A1c (A1c)
  - Healthcare utilization, compared using Wilcoxon-Mann-Whitney tests for nonparametric data:
    - All-cause physician office visits
    - Emergency room (ER) visits
- Explanatory measures
  - RUCA code to account for geographic location
  - Diabetes Complication Severity Index (DCSI)

Diabetes Complication Severity Index (DCSI)

- Validated tool to measure disease severity according to number and severity of diabetes complications
  - Strongly associated with utilization[1,2]
    - 29% increased risk of hospitalization with each 1-point increase in DCSI
  - Categorized as low, medium, or high



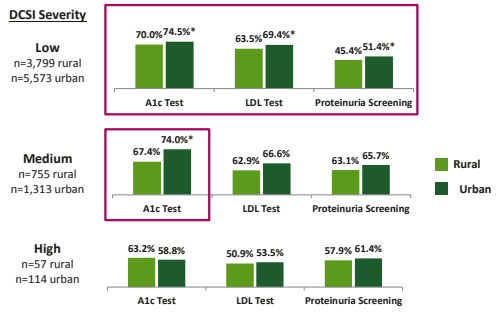
1. Young BA, Lin E, Von Korff M, et al. *Am J Manag Care*. 2008;14(1):15-23.
2. Wu CX, Tan WS, Toh MP, Heng BH. *J Diabetes Complications*. 2012; 26(2):107-12.

Results

Sample characteristics

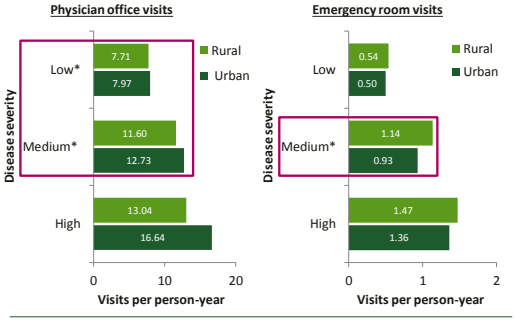
	Low Severity n=9,372			Medium Severity n=2,068			High Severity n=171		
	Rural n=3,799	Urban n=5,573	p value	Rural n=755	Urban n=1,313	p value	Rural n=57	Urban n=114	p value
Age, n (%)									
<65 years	1,112 (29.3)	1,213 (21.8)	<0.001	187 (24.8)	239 (18.2)	<0.001	14 (24.6)	29 (25.4)	0.901
≥65 years	2,687 (70.7)	4,360 (78.2)		568 (75.2)	1,074 (81.8)		43 (75.4)	85 (74.6)	
Female gender, n (%)	2,000 (52.6)	3,079 (55.2)	0.013	326 (43.2)	612 (46.6)	0.131	24 (42.1)	53 (46.5)	0.587
Dual Medicaid eligibility, n (%)	677 (17.8)	897 (16.1)	0.028	164 (21.7)	259 (19.7)	0.279	15 (26.3)	26 (22.8)	0.612
Disabled, n (%)	1,857 (48.9)	2,117 (38.0)	<0.001	384 (50.9)	567 (43.2)	<0.001	34 (59.6)	63 (55.3)	0.585

Receipt of diabetes care screenings



*p<0.05

Healthcare utilization



*p<0.05

Conclusions

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Conclusions

- Our study showed that rural residents covered by Medicare:
  - Were less likely to receive diabetes care screenings
  - Experienced fewer physician office visits and more ER visits
- Variations by diabetes severity:
  - Greater utilization with higher severity[1]
- Possible explanations for rural-urban disparities
  - Variable distance from facilities
  - Characteristics associated with rural residents, such as younger age and greater disability

1. Murphy CC, Faulkenberry EH, Rumpel JD, Wheeler FC. *Diabetes Care*. 1985 Jan-Feb;8(1):48-51.

Future Directions

- Improving the engagement of rural residents diagnosed with diabetes may:
  - Encourage preventive care and slow disease progression
  - Avoid unnecessary utilization of emergency services
- Future research topics:
  - Reasons for rural-urban disparities
  - Variation in rural-urban disparities across severity levels

Limitations

- No adjustments for differences in individual characteristics
- Small high severity subgroup
- May not be generalizable to non-Medicare populations or states other than Mississippi
- Subject to limitations related to claims data (e.g., coding errors, missing data, fixed variables)

Thank you!

For related questions or further discussion please contact:

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