

Care Quality for Adult Medicaid Beneficiaries with Type 2 Diabetes Varies by Primary Care Provider Subspecialty³

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Abstract

The Georgia Medicaid primary care case management (PCCM) program, phased in over the 1994-1997 period, has now given way to a capitated managed care model of regional care management organizations (CMOs). Using Georgia Medicaid eligibility and provider claim data for 1996-1998, this study investigated diabetes care quality and whether it varied by primary care provider subspecialty in a longitudinal follow-up of newly diagnosed adults with type 2 diabetes during the early phase of the PCCM program. Results indicated that the quality of diabetes care was suboptimal and varied significantly by PCP subspecialty, with patients seen by generalists least likely to have their HbA_{1c} monitored as recommended during office visits (odds ratio = 0.34, (95% confidence interval 0.16-0.73). No PCP subspecialty consistently performed better or worse on all diabetes care quality indicators investigated. The lessons learned from this investigation are that variations in Medicaid care quality by PCP subspecialty is likely to remain and the new CMO model of care will unlikely demonstrate immediate improvement in diabetes care quality.

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The Georgia Medicaid Program, like other Medicaid Programs throughout the country, continues to make significant administrative, structural, and policy changes to provide better care to its beneficiaries and reduce unnecessary expenditures. The major emphasis of these changes is to ensure that each Medicaid beneficiary has a “primary care home” with an individual provider to deliver primary care services and coordinate specialty referral for other services. Under the Georgia Medicaid primary care case management (PCCM) program, physician participation was open to family practitioners, general practitioners, internists, pediatricians, gynecologists and physician specialists. More than 3500 physicians contracted with the Medicaid Program to serve as primary care case managers to its 1.2 million beneficiaries. PCCM in Georgia, which was phased in over the 1994-1997 period, has now given way to a capitated managed care model of regional care management organizations (CMOs) (Johnston, 2002; Moriarty, 2005). Since Medicaid enrollees are required to choose a primary care provider (PCP) under the new managed care model, the basic structure of a mandatory primary care home remains intact.

As the Medicaid CMO model goes statewide, already reported patient-care problems threaten physician participation in the regional networks, making access to care more difficult for low-income patients (Moriarty, 2006). Among the many problems reported are delayed physician payments, failure to assign patients to the appropriate physician specialty, and errors in assigning patients to their regular PCP (Bozeman, 2006; Hardcastle, 2006; Miller, 2006; Moriarty, 2006). Some historical PCPs are weighing whether to

accept Medicaid patients, except for emergency care, because of contract difficulties with CMOs. If these reports are true and common, the achievable goal of a primary care home for each Medicaid beneficiary is challenged and the negative impact on quality of care is predictable. Also implicit in the angst among physicians is that only a select group of physicians will voluntarily participate in the new program as PCPs and the PCP-patient relationship will be negatively impacted.

We have previously reported on the quality of diabetes care among Georgia Medicaid beneficiaries during the transition period of the PCCM program (Mayberry *et al.*, 2005). One of the implications of our findings was that the PCP-patient relationship improved adherence to diabetes care standards during patient follow-up visits. However, the relative quality of diabetes care for Medicaid beneficiaries by PCP subspecialty is unknown, and we did not specifically explore this issue in previous analyses.

The present study investigates whether care quality varied in a one-year period of care by PCP subspecialty for Medicaid diabetic adults during the early phase of the PCCM program. This study adds to the research literature by exploring the relationship between care quality and PCP subspecialty and provides “lessons learned” from the PCCM program as the state’s Medicaid Program transitions to the new CMO model of care of historical and new PCPs.

RESEARCH DESIGN AND METHODS

The patient characteristics and research design and methods for this study have been previously described (Mayberry *et al.*, 2005). In brief, Georgia Medicaid

eligibility and provider claim data for 1996-1998 were used to evaluate the relationship between PCP subspecialty and the rate of monitoring for glycemia, hyperlipidemia, and early signs of eye and kidney diabetic complications during physician office visits. The study population was black and white adult Medicaid enrollees, 18 years of age and older, with a new physician-reported diagnosis of type 2 diabetes (International Classification of Disease, 9th Revision, Clinical Modification (ICD-9-CM) codes 250.0- 250.9) (Medicode, 1999). Patients diagnosed with diabetes in 1996 and 1997, with no previous claims in the previous ten years for diabetes services, were followed for a 12-month period from initial diagnosis through years 1997 and 1998, respectively, according to Medicaid claim histories. Only beneficiaries with continuous Medicaid eligibility were included as study patients (n=2956). Hispanics (0.68%), Asian Americans (0.65%), and beneficiaries whose ethnicity was unknown (11.8%) were not included in this investigation due to their relatively small numbers.

The PCP was defined as the physician identified on the first diabetes services claim and who provided most, if not all, of the follow-up care for the diabetic patient during office visits for the 12-month period after the initial diagnosis. Claims for which a specific physician subspecialty or specialty for the Medicaid beneficiary was not indicated (9.9%) were not included in these analyses. The larger groups of PCPs (i.e., family medicine and internal medicine) were the PCP subspecialty categories used in analyses.

Most (74.9%) diabetic patients in this study population made more than half (52.4%) of all physician office visits to the same PCP. Physician office visits were defined as unique physician claims for office and other outpatient services, exclusive of hospital and emergency department services, as identified by Current Procedural Terminology (CPT) codes (American Medical Association,

2001). Four processes of care recommended by the American Diabetes Association (ADA) were used as quality indicators for this investigation ("Standards of medical care in diabetes--2006", 2006): biannual HbA_{1c} testing (primary quality indicator), and annual eye exam, lipid profile, and nephropathy test. All quality indicators were identified in Medicaid claim files according to CPT codes.

The annual rate of each recommended clinical laboratory test by PCP subspecialty was initially examined using chi-square statistics (Fleiss, Levin, & Cho Park, 2003). Multivariate logistic regression modeling was used to calculate the likelihood of each monitoring test by PCP subspecialty during the one-year patient care follow-up period, accounting for covariates of testing (i.e., number of physician office visits, age, race, gender, other demographic factors, co-morbid conditions, and diabetic medication use) (Kleinbaum et al, 1998).

RESULTS

The rate of adherence to recommended monitoring for glycemia, hyperlipidemia, and eye and kidney complications among newly diagnosed type 2 diabetes patients in the 12 month patient care follow-up period was low and, with the exception of nephropathy testing, varied significant by PCP subspecialty (Table 1). Only 20.3% of Medicaid patients had at least one HbA_{1c} test during a physician office visit in the one-year period following the initial diagnosis, with 7.7% having the recommended 2 or more HbA_{1c} tests. Initial, unadjusted results (Table 1) indicated that patients of internal medicine physicians had a higher annual rate of 2 or more HbA_{1c} tests (11.5%) as well a higher rate of eye exam 13.1%, lipid test (18.6%), and nephropathy test (18.6%) than other PCP subspecialties. Patients of general medicine physicians were least likely to have the

recommended 2 or more annual HbA_{1c} tests (2.8%).

Results of multiple logistic regression analyses indicated significant variation in HbA_{1c} and other monitoring test rates by PCP subspecialty, after adjusting for patient age, gender, county of residence, number of co-morbidities, hypertension, diabetic medication, and number of physician office visits (Table 2). Adjusted results confirmed that patients seen by general medicine physicians were least likely to have their glycemic status monitored two or more times per year as recommended (odds ratio [OR] = 0.34, 95% confidence interval [CI] 0.16-0.73). With the exception of internal medicine physicians, patients seen by PCP subspecialists were less likely than patients who visited other primary care providers to have been monitored for retinopathy relative to physician specialists. Patients of family physicians were significantly more likely than those who visited other primary providers to have been monitored for hyperlipidemia (OR = 1.49, 95% CI = 1.08-2.06).

CONCLUSIONS

Significant variation in diabetes care quality by PCP subspecialty was observed in this longitudinal investigation of newly diagnosed diabetic patients in the early phase of the Medicaid Program transition from the traditional fee-for-service program to the PCCM. Generalists were least likely to adhere to the cornerstone standard of diabetes care (i.e., two or more annual HbA_{1c} tests). However, no PCP subspecialty, nor physician specialists who provided primary care, consistently performed better or worse on all diabetes care quality indicators investigated in this study when other covariates such as population demographics, co-morbidity, diabetes medication, and frequency of physician office visit were accounted for.

Previous studies have suggested significant variation in diabetes care by provider specialty in other patient

populations, although findings have not been entirely consistent or without debate (Al Khaja *et al.*, 2002; Chin *et al.*, 2000b; Cobin, 2002; Greenfield *et al.*, 1995). Differences in the populations studied, follow-up periods, and methods of data collection make comparison of study results difficult. This study specifically indicates significant variation by PCP subspecialties in a low-income patient population which has a disproportionately higher diabetes burden, severe complications and generally poorer diabetes care quality. The lowest rate of HbA_{1c} monitoring observed for generalists in this study, as has been suggested in other studies (Al Khaja *et al.*, 2002; Levetan *et al.*, 1999), points to the need for CMOs to be more vigilant in monitoring patient care within their provider networks.

The overall quality of diabetes care received by Medicaid recipients was suboptimal during this time period in Georgia and remains suboptimal today in many public and private primary care settings throughout the country (Chin *et al.*, 2000a; Coon & Zulkowski, 2002; Rust & Curtin, 2001). Although this investigation examined diabetes care by PCP subspecialty, the results may be best interpreted as more frequent exposure to one PCP versus another. However, observed variations in diabetes care quality are mostly due to differences in primary care settings, under the direction of PCP team leader (Cobin, 2002; Mayberry *et al.*, 2005). Diabetes care requires a coordinated team of health professionals to effectively manage the disease. A greater knowledge of disease and diabetes care, a more focused practice, and better support systems of diabetes educators and nutritionists as well as the knowledge, skills, and experience of the PCP are important factors to remember in implementing new models of Medicaid managed care that aim to improve care quality. This study of diabetes care in the PCCM program suggests that variations in Medicaid care

quality by PCP subspecialty is likely to remain and that the new CMO model of care will unlikely demonstrate significant improvement in diabetes care quality in its early phase of implementation. Even assuming the reported problems of delayed physician reimbursements and failure to assign patients to the correct providers can be overcome, the benefits of the new, more structured system to better manage chronic disease will likely only be seen once the system has attained at least a few years of maturity.

REFERENCES

- Al Khaja, K. A., Sequeira, R. P., Mathur, V. S., Damanhuri, A. H., & Abdul Wahab, A. W. (2002). Family physicians' and general practitioners' approaches to drug management of diabetic hypertension in primary care. *J Eval Clin Pract*, 8(1), 19-30.
- American Medical Association. (2001). *Current Procedural Terminology: CPT 2002* (4th ed.). Chicago: American Medical Association.
- Bozeman, J. (2006). The Facts about Georgia Medicaid Managed Care. Retrieved October 3, 2006, from [http://www.gmgma.com/Upload/New/s/CMO Report 1st quarter.doc](http://www.gmgma.com/Upload/New/s/CMO%20Report%201st%20quarter.doc)
- Chin, M. H., Auerbach, S. B., Cook, S., Harrison, J. F., Koppert, J., Jin, L., et al. (2000a). Quality of diabetes care in community health centers. *Am J Public Health*, 90(3), 431-434.
- Chin, M. H., Zhang, J. X., & Merrell, K. (2000b). Specialty differences in the care of older patients with diabetes. *Med Care*, 38(2), 131-140.
- Cobin, R. H. (2002). Subspecialist care improves diabetes outcomes. *Diabetes Care*, 25(9), 1654-1656.
- Coon, P., & Zulkowski, K. (2002). Adherence to American Diabetes Association standards of care by rural health care providers. *Diabetes Care*, 25(12), 2224-2229.
- Fleiss, J., Levin, B., Cho Paik, M. (2003). *Statistical Methods for Rates & Proportions* (3rd ed.). New York: Wiley-Interscience.
- Greenfield, S., Rogers, W., Mangotich, M., Carney, M. F., & Tarlov, A. R. (1995). Outcomes of patients with hypertension and non-insulin dependent diabetes mellitus treated by different systems and specialties. Results from the medical outcomes study. *Jama*, 274(18), 1436-1444.
- Hardcastle, W. R. (2006). Letter from the Medical Association of Georgia. Retrieved October 3, 2006, from http://www.mag.org/images/docs/GovernorPerdue_81106.pdf
- Johnston, J. M. (2002). "Managing" Medicaid Managed-Care: a ten-state comparison. *Case Studies in Medicaid Managed-Care* Retrieved October 2, 2006, from <http://www.rockinst.org/publications/federalism/JohnstonKSCHCS%20Report.pdf>
- Kleinbaum, D. G., Kupper L. L, Muller, K. E., Nizam A. (1998). *Applied Regression Analysis and Other Multivariable Methods* (3rd ed.). Pacific Grove, CA: Duxbury Press.
- Levetan, C. S., Passaro, M. D., Jablonski, K. A., & Ratner, R. E. (1999). Effect of physician specialty on outcomes in diabetic ketoacidosis. *Diabetes Care*, 22(11), 1790-1795.
- Mayberry, R. M., Davis, T., Alema-Mensah, E., Samadi, A. R., Finley, R., & Jones, A. (2005). Determinants of glycemic status monitoring in Black and White Medicaid beneficiaries with diabetes mellitus. *J Health Care Poor Underserved*, 16(4 Suppl A), 31-49.
- Medicode. (1999). *Medicode's ICD-9, CPT & RVU coding resource*. Salt Lake City: Ingenix.
- Miller, A. (2006, August 31). State Medicaid patients must join HMOs Friday. *The Atlanta Journal-Constitution*.

- Moriarty, E. (2005, February 14). Measuring Managed Care: Will a million Medicaid recipients be better off? *Atlanta Business Chronicle*.
- Moriarty, E. (2006, August 10). Some doctors facing problems with Medicaid HMOs. *Atlanta Business Chronicle*.
- Rust, G., & Curtin, T. (2001). Diabetes care in community health centers: a reasonable standard of comparison? *Am J Public Health, 91*(2), 318-319.
- Standards of medical care in diabetes--2006. (2006). *Diabetes Care, 29* Suppl 1, S4-42.