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The validation of a disease registry system ☆

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The Centers for Medicare and Medicaid Services (CMS) is encouraging the use of reporting programs to satisfactorily report data on quality measures. In turn, they are offering incentive payments to practices with eligible professionals for compliance. Beginning in 2015, CMS will also apply downward adjustments to payments for those professionals who do not satisfactorily report data on quality measures. A retrospective cohort study from Doctors Hospital Family Practice Center was utilized to evaluate the reliability of the American Osteopathic Association Clinical Assessment Program (AOA-CAP) data registry when compared with data available from Electronic Health Record for process improvement in the care of diabetic patients. There were no statistically significant differences between 2 methods of measuring performance across 3 measures available for comparison, therefore demonstrating the AOA-CAP is a reliable indicator of practice performance against evidence-based guidelines to improve patient outcomes and quality of care. The AOA-CAP offers another method for Physician Quality and Reporting System to submit information to CMS. By embracing compliance, the ultimate goal and utilization of information obtained is patient care quality improvement in the ambulatory center and subsequently permitting the participants to receive incentive payments and avoid payment adjustments.

The Centers for Medicare and Medicaid Services (CMS) plans a decrease in the fee schedule for reimbursement by 1.5% to eligible professionals and group practices that do not adhere to guidelines to satisfactorily participate in data submission on Physician Quality Reporting System quality measures. Therefore to avoid the 2015 payment reduction, eligible individuals and practices must utilize the Physician Quality and Reporting System (PQRS) quality measures during the 2013 reporting period.[1] There are different methods of reporting information on individual quality measures or group measures via Medicare Part B Claims, qualified PQR registry, qualified Electronic Health Record (EHR), or qualified PQR data submission vendor. In this study, a qualified registry (American Osteopathic Association Clinical Assessment Program [AOA-CAP] for PQRS) was compared with data available from an Electronic Health Record with the purpose of using the information acquired for quality improvement, patient engagement, clinical informatics, team-based care, and reduced healthcare costs.[2] Identification of opportunities to advance patient care management and treatment response through practice inventory leads to ways of improving healthcare and implementing change.

The thought behind recognizing patient populations at risk, using tools to engage patients through motivational interviewing, shared decision making, and access to resources in addition to ensuring providers are consistently practicing to scope, is prevention of hospitalizations and emergency department visits therefore reducing downstream healthcare costs while improving the delivery of healthcare.[2] This is the goal of Patient Centered Medical Home by

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providing comprehensive primary care, facilitating partnerships between individual patients and personal physicians and when appropriate patient families. It is by incorporating these principles of personal physician, physician-directed medical practice, whole person orientation, and coordinated care that the hallmarks of quality, safety, and enhanced access would achieve goals of improving patient experience, lessen staff burnout, improve quality of care, and reduce healthcare costs.[2,3]

Quality improvement is a continuous process, and there are multiple models available to assist in achieving healthcare progression. The Donabedian model gives 3 dimensions for care quality: the structure representing the attributes of settings where care is delivered, the process of determining if good medical practices are followed, and outcome being the effect of care on health status. The Institute of Medicine's 6 domains identify specific areas of improvement focusing on safety, effectiveness, patient centeredness, timeliness, efficiency, and equitability. The Duke models incorporate 5 prospective models that may be combined and used together. Those models are the FADE: Focus, Analyze, Develop, and Execute; the PDSA: Plan, Do, Study, and Act; the Six Sigma DMAIC: Define, Measure, Analyze, Improve, and Control; the CQI: Continuous Quality Improvement; and the TMQ: Total Quality Management. Lastly, the root cause analysis, which is a retrospective approach to error analysis through data collection and analysis.[4]

Without integrating prospective or retrospective models or both into clinical practice, ambulatory care centers are likely to overlook areas of improvement. Therefore, they fail to meet quality improvement initiatives and perhaps become a liability to the healthcare community.

Methods and results

The retrospective cohort study used data from the AOA-CAP for PQRS 2011, a CMS qualified, web-based registry with Health Insurance Portability and Accountability Act compliance.[5] The registry was developed to provide osteopathic internal medicine and family practice residency programs with measures to improve the quality of patient care and a training tool to support the core competencies of practice-based learning and systems-based practice.[6] Patient level data collected through the registry are analyzed using measures recommended by the National Quality Forum and Physicians Consortium for Performance Improvement.[7,8] Residencies collect and submit information on diabetes mellitus through standardized data and case definitions as part of the residency accreditation requirements. Accreditation is based on reporting and not performance.[9]

A sample of 30 Doctors Hospital Family Practice Center Medicare fee-for-service charts submitted through the AOA-CAP for PQRS registry was compared with all Doctors Hospital Family Practice Center EHR Medicare patients with greater than or equal to 2 visits during 2011 to assess reliability of practice performance against evidence-based guidelines to improve patient outcomes and quality of care. Three quality measures were compared, which were blood pressure control (systolic blood pressure less than 140 and diastolic less than 80), poor glucose control (hemoglobin A1c greater than 9%), and low-density lipoprotein control (less than 100 mg/dL), resulting in no statistically significant differences between 2 available reporting systems for measuring performance across 3 measured variables (Table 1).

Discussion

Several recognized barriers to improvement of care have been publicized including but not limited to uncertainty regarding decision making in individual cases, as patients enrolled in trials often do not match the population of the patient receiving care, and regarding the establishment of guidelines for determining the appropriateness of care.[10] Despite efforts to improve clinical decision making, lack of data still exists.[10] Additional barriers to consider are the variable interpretations of data, discrepancies within published guidelines, underuse and overuse of medical technology and drug therapy, and the fact that medical knowledge is constantly evolving. Also, there are gaps in improving quality of care and reducing inequities largely owing to failure of healthcare organizations to incorporate known improvement measures into the process of care.[11]

Strengths of this study include ease of access to medical records for review, voluntary data entry, and despite multiple providers at various levels of training, outcomes are consistent and not statistically different between small and large samples. Weaknesses of this study include accuracy of blood pressures recorded, potential limitations of data entry owing to various levels of experience with

Table 1 Three quality measures across 2 available reporting systems

Doctors Hospital Family Practice Center	Blood pressure control (systolic < 140 and diastolic < 80)	Poor glucose control (HgbA1c > 9%)	LDL < 100 mg/dL
EHR, all Medicare patients seen during 2011 ($N = 77$), % (CI)	66.40% (74.63-58.17)	13.41% (19.29-7.53)	62.42% (70.85-53.99)
AOA-CAP PQRI sample ($N = 30$), % (CI)	73.00% (77.70-68.30)	16.00% (19.92-12.08)	60.00% (65.29-54.71)
P value for comparison	0.43	0.62	0.81

CI = confidence interval; LDL = low-density lipoprotein.

EHR, and any technological challenges or disruptions that could have affected data entry. In addition, there is concern over collecting adequate data on racial and ethical disparities owing to inadequate sample sizes, missing data, and lack of information on contributing factors.[12]

In conclusion, the AOA-CAP for PQRS is a consistent representation of overall practice population performance against evidence-based guidelines to improve patient outcomes and quality of care as there were no statistically significant differences between 2 methods of measuring performance across 3 measures available. Furthermore, the AOA-CAP for PQRS registry service is a reliable indicator and method of obtaining payment incentives and avoiding upcoming penalties for eligible providers who do not comply with CMS PQRS quality measures data submission.

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