Leveraging Electronic Health Records to Enhance Systems of Care for Chronic Disease Prevention and Control

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3.1 Increasing Implementation of Quality Improvement Processes in Health Systems

I. Problem

Chronic disease in West Virginia (WV) continues to pose a serious public health challenge. Hypertension and diabetes are on the rise according to the 2013 WV Behavioral Risk Factor Surveillance System Report, with 41% of adult West Virginians having been diagnosed with high blood pressure and another 13% of adults with diabetes. Due to the increasing prevalence of these chronic diseases, among others, the need for careful documentation and record-keeping has never been more relevant for tracking and treating these illnesses. Electronic health records (EHR) are essential tools in improving the quality of care and health outcomes. EHR data supplies primary care providers with vital information to enhance patient care, satisfaction, and improve population health. When 1305 was implemented in WV in July 2013, there were **significant barriers to implementing and sustaining the quality improvement processes in the state's health systems**. First, not all of the health systems had appropriate certification for the information technology systems in place for EHRs. Second, health care partners often struggled to obtain accurate reports from their EHRs due to systemic issues in data collection, data quality, and application of routinely collected data. These barriers resulted in challenges with reporting quality metrics and measuring improvements in patient outcomes. It was clear that WV primary care institutions needed a consistent and comprehensive systematic approach to using EHR data to support enhanced chronic disease prevention and control. [1, 2, 3]

II. Intervention

The West Virginia Bureau for Public Health, Division of Health Promotion and Chronic Disease (HPCD) recognized the problem and the need for systematically leveraging EHR data to enhance the systems of care for chronic disease prevention and control. HPCD acted to address this problem by engaging the WVU Office of Health Services Research (OHSR) to **increase implementation of quality improvement processes in health systems**. The two partners worked together to identify and engage **13 health systems in four distinct state regions between 2013 and 2018** with the goal of enhancing the use of related EHR data to priority chronic disease metrics. In order to ensure geographic diversity, the two partners engaged 13 health systems in four distinct state intervention regions to complete the following activities:

- **Partnered** with health systems to systematize documentation procedures to improve reliability and validity (i.e., free texting, use of the incorrect field or form, and incorrectly mapped data);

- **Provided guidance and support** in utilizing EHR data to identify high-risk patients and in the use of clinical decision supports for patient management and population health;[1-3]
- **Conducted workforce development** by increasing skills in using EHR data for patient and population health through ongoing in-person and web-based trainings focused on problem-solving data issues.

III. Health Impact

WV's state, university, and primary care partnership resulted in improved systems of chronic disease care in all 13 health systems. By Year 4 end, all 13 health care systems had EHRs appropriate for treating patients with high blood pressure. This has resulted in:

- An increase in the proportion of adults with high blood pressure in adherence regimens (3.1.07) from 52.2% in Year 3 (baseline) to 78.5% in Year 5 in those same 13 health care systems.
- A reduction in the proportion of patients with diabetes with HbA1c >9 reduced from 26.1% to 25.3% during the same period in these systems.

Both illustrate the value of EHR data use for improving follow-up care.

Further, analyzing the most recent data in a subset of four specific clinics, OHSR identified 2,310 patients with potentially undiagnosed hypertension out of a total patient population of 51,520. Of the 51,520 patients, 15,057 have already been diagnosed with hypertension. This analysis provides an opportunity for these four clinics to reach those specific patients with additional follow up and counseling for hypertension. Applying this systematic analysis of EHR across all 13 health care systems has the potential to provide an improved level of quality care for those with diagnosed and undiagnosed hypertension.

Improvements in the use of EHR data resulted in a notable increase in identifying the number of patients with potentially undiagnosed hypertension. Taken together, all of these findings demonstrate the positive impact of how a systematic, consistent, and comprehensive approach using EHRs in health systems supports enhanced chronic disease prevention and control.

Select References
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