

Challenges of EHR “Meaningful Use” in Rural Health Centers

Courtney Brightharp, DHSc, MPH; Kristian Myers, MPH, CHES; Jennifer Mandelbaum, PhD, MPH

ABSTRACT

The Centers for Disease Control and Prevention (CDC) continues to promote the utilization of electronic health records (EHRs) to support population health management and reduce disparities. However, access to EHRs with capabilities to disaggregate data or generate digital dashboards is not always readily available in rural areas. With funding from CDC’s DP-18-1815, the Division of Diabetes and Heart Disease Management (Division) at the South Carolina Department of Health and Environmental Control designed a quality improvement initiative to reduce health disparities for people with hypertension and high blood cholesterol in rural areas. With support from a nonprofit partner, the Division used qualitative evaluation methods to evaluate the extent to which practices were able to disaggregate data and report quality measures.

KEY WORDS: electronic health records, public health promotion and practice, rural health

Background

With the advent of the Health Information Technology for Economic and Clinical Health (HITECH) Act, the ability to use health information technology (HIT) to compile data on groups is now possible.¹ HIT, for example electronic health records (EHRs), can support the medical community in expanding the focus of health care to specific populations. EHRs can also be useful in creating opportunities to identify and define disparities within and among groups. Meaningful use of EHRs is a national initiative that began in 2011 as a result of the HITECH Act. HITECH was designed to

ensure certified EHRs were utilized nationally to improve the collection, exchange, and reporting of specific clinical data and quality measures. Once compiled, clinical data and quality measures can be used to better identify disparities and create opportunities to implement quality improvement projects.² The culmination of data and quality improvement has the potential to advance population health.³

Many disparities exist in the ability of HIT to be implemented equitably across both urban and rural areas. The potential expectations associated with HIT must be balanced with the readiness and capacity of providers to adopt these innovations and the associated population health mindset.⁴ Research by Skillman et al,⁵ showed limited staff capacity presents a workforce-related barrier to meaningful use of EHRs. This study found most rural practices did not plan to hire new employees with adequate skills to support meaningful use of the EHR and planned to rely on existing staff to manage these responsibilities.⁵ Rural areas were highly dependent on regional extension centers to help them implement EHRs and achieve meaningful use.⁶ Furthermore, nearly two out of three rural primary care practices surveyed, indicated their staff needed more training but access and availability of resources were limited in these underserved areas.⁵ Although there is evidence that federal programs were effective in accelerating the adoption of EHRs in rural areas, this does not translate to sites ability to use the EHR to support quality improvement.⁷

Author Affiliations: Division of Diabetes and Heart Disease Management, South Carolina Department of Health and Environmental Control, Columbia, South Carolina (Dr Brightharp and Mrs Myers); and Department of Community Health, Tufts University, Medford, Massachusetts (Dr Mandelbaum).

Funding for this work was supported by CDC-DP18-1815.

The authors declare no conflicts of interest.

Supplemental digital content is available for this article. Direct URL citations appear in the printed text and are provided in the HTML and PDF versions of this article on the journal’s Web site (<http://www.JPHMP.com>).

This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

Correspondence: Courtney Brightharp, DHSc, MPH, Division of Diabetes and Heart Disease Management, South Carolina Department of Health and Environmental Control, 2100 Bull Street, Columbia, SC 29201 (brightcl@dhec.sc.gov).

Copyright © 2024 The Authors. Published by Wolters Kluwer Health, Inc.

DOI: 10.1097/PHH.0000000000001941

The Centers for Disease Control and Prevention (CDC) continues to promote the utilization of EHRs to support population health management and reduce disparities. The Division of Diabetes and Heart Disease Management (Division) at the South Carolina (SC) Department of Health and Environmental Control received funding from CDC’s DP-18-1815 to promote the adoption of evidence-based quality measurement at the provider level. This funding was used to support quality improvement activities designed to help reduce health disparities for people with hypertension and high blood cholesterol in rural areas. The evaluation of this quality improvement initiative examined the extent to which meaningful use of EHRs occurs in rural SC. The findings from this evaluation will support the CDC in creating opportunities to implement similar initiatives in areas with limited resources.

Methodology

The quality improvement initiative focused on partnering with a statewide nonprofit organization dedicated to the preservation of rural health in SC (later referred to as nonprofit partner). The Division relied on subject matter expertise provided by the nonprofit partner to determine which Rural Health Centers (RHCs) were deemed capable and ready to implement this initiative. Recruited sites were instructed to use EHRs to collect and disaggregate patient data then use existing data to complete a set of tables that explored socio-demographic variables across chronic conditions. Once RHCs completed this step, sites were asked to make a data-informed decision to select a priority population (ie, a population with the greatest burden). Sites were then asked to monitor differences in hypertension and high blood cholesterol quality measures (ie, NQF18 and CMS349v2) among the priority population and compare the findings to their overall patient population.

To examine the extent to which practices were able to disaggregate data and monitor quality measures, the Division relied on qualitative evaluation methods: meeting minutes, site-level reports, and interviews. Meetings were held monthly to garner feedback from the nonprofit partner to identify successes and address challenges with the quality improvement initiative. Data tables within the reports were examined for completeness to determine if participants were able to disaggregate data. To meet the minimum requirements of this quality improvement initiative, sites were required to complete two tasks. First, sites had to disaggregate at least one sociodemographic table (ie, age, race, or gender), and use that information to identify a priority population. Secondly, sites were required to report quality measures biannually

for the identified priority and general populations. To complete the reports, technical assistance was provided by the nonprofit partner to extract data from EHRs. Informal interviews between the Division, the nonprofit partner, and participating sites were held to explore barriers and facilitators associated with disaggregating data and reporting quality measures.

Results

Over the course of the cooperative agreement, 12 sites were recruited to participate in the quality improvement initiative. Practice size varied with an average of seven providers per site. The patient population ranged from 75 to 7600, averaging 3600 patients per site. Based on reports submitted by the nonprofit partner, race and gender were the most common variables used. Nine RHCs successfully used the data tables to disaggregate data and identify a priority population. For the general population, nine RHCs reported quality measures for patients with hypertension and seven out of the nine RHCs reported quality measures for patients who were prescribed a statin.

Evaluation findings indicate that technical assistance provided by the nonprofit partner facilitated the implementation of data disaggregation. The nonprofit partner’s experience with Patient Centered Medical Home certification requirements helped sites to align reporting efforts. Despite available technical assistance, none of the sites were consistently able to utilize their EHRs to report quality measures for their respective priority populations. In most instances, the sites lacked the staff capacity to perform disaggregation tasks independently and did not have a modernized EHR. Recruited sites lacked the financial resources needed to address capacity limitations. RHCs’ limited budgets hindered their ability to hire a population health data manager or purchase an upgraded EHR that could automate the disaggregation of data. Sites transitioning to a new EHR system during the quality improvement initiative prioritized time needed to get familiarized with a new system.

Discussion

According to a recent survey, in rural America, many patients seek and receive health care from RHCs.⁷ The outcomes of this quality improvement initiative provided insights on how rurality and practice size can impact the meaningful use of EHRs for chronic disease management. Research suggests that if the uptake of EHR use in urban areas outpaces the use in rural areas, existing geographic health disparities will worsen.⁶

Identifying a priority population who is disproportionately impacted by a condition is a recognized best practice for addressing health disparities.⁸ Findings

indicated that RHCs were able to disaggregate patient data to identify a priority population. However, some practices found it to be less advantageous to identify a priority population because it is more difficult to detect variations between groups due to smaller sample sizes. The meaningful use of the EHR to disaggregate quality measures and report by the priority population was observed to be even more rare due to data collection policies and EHR limitations. The identification of a priority population was an expectation met by most of the RHCs participating in the quality improvement initiative, but this deliverable was not met without challenges.

This study affirmed that rurality and practice size challenges are the result of workforce and economic barriers. As previously described by Skillman et al,⁵ limited staff capacity did indeed create a workforce-related barrier to meaningful use of EHRs. Noted challenges included not having trained staff or access to affordable vendors for EHR technical support, many sites had to rely on the nonprofit partner to implement the quality improvement initiative. Although many RHCs met the basic requirement of having a certified EHR, limited budgets often hindered the procurement of EHR add-ons to support quality improvement. This gap had an adverse effect on the use of the EHR for data disaggregation to identify health disparities for chronic disease management.

There were noteworthy limitations of this study. The small sample size limits the generalizability of these findings. Interpretation of these results is best suited for rural areas located in the southeastern parts of the United States and for sites with a small patient population. Data collected for this study were limited in scope. Qualitative data were compiled and subjective based on document review. Opportunities for future research will include the use of validated instrumentation to assess the extent to which EHRs are being meaningfully used and the adoption of more rigorous evaluation methods. This study offers a preliminary view into the barriers and challenges associated with adopting evidence-based

Implications for Policy & Practice

- In rural areas that serve some of the most vulnerable populations, more support is needed for using data disaggregation to identify priority populations and report disaggregated quality measures.
- The meaningful use of EHRs to address population health in rural areas remains in question due to limited staff capacity and budgetary constraints.
- Continued state and federal investments for health information technology resources in rural areas is necessary to support the improvement of population health and the reduction of health disparities.

methods for reducing disparities in chronic disease management through the meaningful use of EHRs.

References

1. United States House of Representatives. H.R.1 – 111th congress (2009-2010): American Recovery and Reinvestment Act of 2009. 2009. <https://www.congress.gov/bill/111th-congress/house-bill/1>. Accessed February 7, 2024.
2. Meaningful use: electronic health record (EHR) incentive programs. American Medical Association Web site. <https://www.ama-assn.org/practice-management/medicare-medicaid/meaningful-use-electronic-health-record-ehr-incentive>. Published n.d. Accessed November 16, 2023.
3. Lion CK, Faro EZ, Coker TR. All quality improvement is health equity work: designing improvement to reduce disparities. *Pediatrics*. 2022;149(Suppl 3):e2020045948E.
4. Blumenthal D & Tavenner M. The “meaningful use” regulation for electronic health records. *New Engl J Med*. 2010;363(6):501–504.
5. Skillman SM, Andrilla CH, Patterson DG, Fenton SH, & Ostergard SJ.. Health information technology workforce needs of rural primary care practices. *J Rural Health*. 2015;31(1):58–66.
6. Casey MS, Moscovice I, McCullough J.. Rural primary care practices and meaningful use of electronic health records: the role of regional extension centers. *J Rural Health*. 2014;30(3):244–251.
7. Tanenbaum JE, Votruba M, Einstadter D, Love TE, Cebul RD. Adoption of health system innovations: evidence of urban-rural disparities from the Ohio primary care marketplace. *J Gen Intern Med*. 2021;36(6):1584–1590.
8. Kauh TJ, Read JG, Scheitler AJ. The critical role of racial/ethnic data disaggregation for health equity. *Popul Res Policy Rev*. 2021;40(1):1–7.