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Understanding Population Health Management Practices Among Family Medicine Residency Programs

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ABSTRACT

Background and Objectives: Population health management is a systematic approach to ensuring that all members of a given population receive appropriate preventative, chronic, and transitional care. It emphasizes addressing health inequities and the social determinants that influence health and related outcomes in communities served by family physicians. This study examines the current practices of family medicine residency programs in teaching population health management and the use of clinical data registries for their primary clinic sites.

Methods: Data were collected through a survey conducted by the Council of Academic Family Medicine Educational Research Alliance (CERA) from September 26 to October 30, 2023. The survey targeted program directors of Accreditation Council for Graduate Medical Education accredited family medicine residency programs, with a final response rate of 37.90% (271/715).

Results: We found significant variability in the clinical data registries and population-based reports provided to residents. Of the residency programs, 29.52% provided both resident-specific and practice-level panel data, while 12.92% did not provide regular data reports. Clinical quality and patient satisfaction were the most common elements in reports. Programs varied in the frequency and dedicated time for population health management, with many programs citing resource constraints.

Conclusions: The findings highlight the need for standardized education and clinical systems to integrate population health into resident training. Ensuring consistent, accurate, and actionable data can enhance the quality and value of care and prepare residents for future practice in value-based care environments.

INTRODUCTION

Population health management refers to a systematic approach to ensuring that all members of a given population receive appropriate preventative, chronic, and transitional care.[1] In addition, emphasis is placed on skills that allow providers to identify and address health inequities among subgroups. These skills include addressing barriers to optimal health, social determinants, and other variables that influence the overall health and well-being of populations.[2] In family medicine graduate education, prioritization of new models of primary care delivery is increasing to ensure that the future family medicine workforce is skilled in population management as an element of high-value care.[3] As a component of a high-functioning teaching clinic, population health management is a crucial tool for the care of communities served by teaching clinics. In 2018, the Association of American Medical Colleges sponsored "Population Health Management in Primary Care Residency Training Programs," a meeting to describe best practices in primary care residency teaching programs with an emphasis on how residents are trained to manage populations. Presenters at the meeting outlined the foundational elements for effective teaching models of population health and emphasized the needs for data infrastructure, team-based care, and the ability to address health inequities or barriers within communities.[2] To improve the outcomes of care for populations, family medicine residency practices need to use clinical data registries and performance reports to monitor and facilitate the achievement of patient-oriented outcomes of care for their patient populations.[4]

The collection and reporting of data used to improve decision-making and reporting through scorecards can incentivize process change and improve clinical and financial per-

formance.[5] Providing actionable data focusing on continuity, practice patterns, and quality metrics at the level of the individual provider and practice is a recommended best practice to achieve a comprehensive model of care delivery.

Updated Accreditation Council for Graduate Medical Education (ACGME) Review Committee for Family Medicine program requirements state, "Residents and faculty members must receive data on quality metrics and benchmarks related to their patient populations." Specifically, these "reports should include clinical quality, health inequities, patient safety, patient satisfaction, continuity with patient panel and referral, diagnostic utilization rates, and financial performance." We found limited knowledge regarding whether resident physicians regularly receive panel reports that meet these characteristics or have time dedicated for adequate panel management. The process of acquiring and using population health reports can be labor-intensive and require additional commitment in an already busy clinical and learning environment. Previously identified barriers to teaching population health management have included challenges with creating patient registries from their electronic medical record, balancing competing educational demands, and facing resource constraints.[6] We also found limited knowledge regarding the accuracy of these reports and whether programs can provide specific details of panels to assess any disparities or practice patterns that would influence their future practice patterns. The aim of this study was to examine current residency program practices for population health and data reporting. This information obtained through our study will allow the discipline to assess whether current practices associated with residency programs are sufficient to meet the demands of a high-functioning clinic and prepare the resident to deliver high-quality, value-based care.

METHODS

Study questions were part of a larger omnibus survey conducted by the Council of Academic Family Medicine Educational Research Alliance (CERA). The methodology of the CERA program directors survey has previously been described in detail.[7] The CERA steering committee evaluated our questions for consistency with the overall subproject aim, readability, and existing evidence of reliability and validity. Pretesting was done on family medicine educators who were not part of the target population. Following pretesting, questions were modified for flow, timing, and readability. The project was approved by the American Academy of Family Physicians Institutional Review Board in September 2023. Data were collected from September 26 to October 30, 2023. A total of four weekly reminders were sent to nonrespondents to encourage completion of the survey.

The sampling frame for the survey was all ACGME-accredited US family medicine residency program directors as identified by the Association of Family Medicine Residency Directors. Email invitations to participate were delivered with the survey using the online program SurveyMonkey. At the time of the survey, the number of program directors was 754. Seven programs had no email address listed and three email addresses were undeliverable, leaving 744 invitations delivered. The survey contained a qualifying question to remove programs that had not had three resident classes. Twenty-nine program directors indicated that they did not meet the criteria, and these responses were removed from the sample, reducing the sample size to 715. Of the 715 eligible participants, 278 responses were received, of which 7 participants answered only the initial question and were removed as no response, leaving 271 of 715 total respondents.

The overall response rate for the survey was 37.90% (271/715). Demographic data are a portion of recurring CERA surveys. Our research team developed specific questions included on the 2023 survey related to population health practices for family medicine residency programs. Continuous variables were reported as mean ± standard deviation or median (interquartile range) and were tested using Student's t test or Wilcoxon rank sum. Discrete variables were reported as n (%) and tested using χ^2 test or Fisher exact test for small sample sizes (n<5). *P* values of less than .05 were considered statistically significant. All analyses were carried out using R statistical software version 4.0.2 (R Foundation for Statistical Computing).

RESULTS

ists the demographics of the programs and program directorssurveyed. Overall, we found variability among which clinical data registries or population-based reports residents receive. Of the respondents, 80 (29.52%) program directors shared that residents receive resident-specific panel data and the collective panel of the primary teaching clinic. In addition, 116 (42.8%) program directors cited that residents received panel data for patients they were assigned as the primary care provider. Thirty-five (12.92%) reported that residents did not receive regular data reports or access to clinical data registries.

We also found variability in which elements were included in regular reports received by residents (Table 2). The most common elements were clinical quality (71.96%) and patient satisfaction (54.98%). The remaining elements were less common, including financial performance (35.42%), patient safety (22.14%), referral and diagnostic utilization rates (18.08%), and health equity (14.76%). Ninety-four (34.69%) program directors responded that these reports can be easily filtered by subgroups based on age, gender, race/ethnicity, or geography to further assess for disparities. Moreover, 176 (64.94%) program directors reported that their health system and/or third-party payers required providers to address issues related to population health. About one-half (140 [51.66%]) of program directors who responded felt that the reports prepared their residents for independent practice. We identified variability in the frequency of time dedicated to population health management. The most common response was that this training occurred at random times throughout the academic year (103 [38.01%]), followed by training during protected time during specific rotations (76 [28.04%]). Most program directors (182 [67.16%]) responded that they had the resources and expertise to make improvements in areas of need identified in the

generated clinic reports.

Results were compared between university-affiliated programs and programs that were community-based, nonaffiliated, military, or other (Table 3), as well as between programs that were required to address issues related to population health and those that were not (Table 4). Programs that did not have a university affiliation were more likely to respond that their residents did not receive regular data reports or access to clinical data registries for their residents (22.97% vs 9.57%, respectively, *P*=.024). Residency programs in health systems that did not require population health management were more likely not to have time dedicated for residents to review and manage panels (23.25% vs 8.52%, *P*=.008).

DISCUSSION

Recent updates to ACGME requirements emphasize the need for data on quality metrics and benchmarks related to patient populations that residency programs serve. Data reports can be stratified for risk scores based on zip codes or prediction of rehospitalization by integrating socioeconomic and clinical data.[8–10] Increasingly, clinical success in meeting population health metrics and financial reimbursement are being tied to one another. Hospitals serving disadvantaged neighborhoods often receive lower quality ratings, which can affect reimbursement and resource allocation.[11] As family physicians, population health encompasses many aspects of care, with the goal of improving the health of the whole community.[12] Teaching residents to use data registries to identify and address health inequities can allow for target interventions in underserved populations within those communities they serve.

Our findings suggest that time dedicated to population health varies widely across residency programs and that resident physicians may lack consistent, actionable data, clinical resources, or operational support to appropriately address panel needs. While most residency programs provide clinical data to their residents, the elements of those reports are highly variable (Table 2). Additionally, residents may have inconsistent times dedicated to population health management of their clinical panel. Most programs reported being required by their health system or third-party payers to address population health issues. However, the data provided is not always easily filtered to identify disparities within patient panels. Program directors are also mixed in their thoughts regarding whether the reports prepare residents for their independent practice.

When controlling for university-based and university-affiliated programs, we found significant differences that may influence programs' practices regarding population health. Programs that did not have a university base/affiliation were less likely to have regular data reports or access to clinical data registries for their residents (Table 3). Programs that did not have requirements to address population health tended to have less time dedicated for population health management for their residents and were less likely to have robust data reports (Table 4). These findings may impact the management of patient panels and the training of future physicians in interpreting and adjusting practice patterns based on population health metrics. Because training practices significantly impact a resident's future practice, dedicating time and curriculum for population health is important.[13,14]

Resident physician panels typically have had lower performance in common quality metrics when compared to faculty[15] and community physicians.[16] To provide more effective and equitable care, consistent and accurate data that reflect the patient panel of physicians are an important component of population health management. As health care systems transition to more value-based contracts and emphasize quality initiatives, the ability to train resident physicians in best practices is important for the communities they serve in residency, as well as the communities they will care for in their future practice. Using resources such as standardized panel reports that include socioeconomic data, interprofessional support to manage patient panels, and development of competencies in risk stratification and care management could be among the strategies considered in building standardized curricula for residency programs.[17,18]

While this study did not assess whether residency practices were meeting payer or health system supported quality and efficiency goals, it did highlight the range of practices being used for population health management. Additional limitations of the CERA survey included the limit of 10 close-ended questions, which restricted the types of questions asked. The response rate (37.9%) was lower than prior years (42.5% in 2021).[19] Also, as a cross-sectional design, this study assessed only a single point in time and did not assess any specific quality measures that health care systems may prioritize.

CONCLUSIONS

Based on these patterns, graduate medical educators and health care leadership within academic health care systems should seek to create systems and tools for resident and staff physicians that optimize practices around management. These could include faculty and program development efforts to provide comprehensive training in population health management. Other projects could consider focusing on creating standardized education and clinical systems that integrate population health into resident education through consistent, accurate, and actionable panel metrics. Over time, we hope that resident clinics will continue to improve in their strategies for population health, with the overarching goal of improved health for the communities they serve.

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TABLE 1. Program Director Demographics (N=271)

Type of program	n (%)
University-based	43 (15.87)
Community-based, university-affiliated	153 (56.46)
Community-based, nonaffiliated	64 (23.62)
Military	5 (1.85)
Other (please specify)	6 (2.21)
In what state is your residency program located?	
New England (NH, MA, ME, VT, RI, or CT)	7 (2.58)
Middle Atlantic (NY, PA, or NJ)	38 (14.02)
South Atlantic (PR, FL, GA, SC, NC, VA, DC, WV, DE, or MD)	44 (16.24)
East South Central (KY, TN, MS, or AL)	11 (4.06)
East North Central (WI, MI, OH, IN, or IL)	55 (20.3)
West South Central (OK, AR, LA, or TX)	26 (9.59)
West North Central (ND, MN, SD, IA, NE, KS, or MO)	32 (11.81)
Mountain (MT, ID, WY, NV, UT, AZ, CO, or NM)	28 (10.33)
Pacific (WA, OR, CA, AK, or HI)	30 (11.07)
What is the approximate size of the community in which your program is located?	
Less than 30,000	27 (9.96)
30,000 to 74,999	50 (18.45)
75,000 to 149,000	51 (18.82)
150,000 to 499,999	65 (23.99)
500,000 to 1 million	33 (12.18)
More than 1 million	44 (16.24)
How many residents (total complement) were in your program as of July 2022?	
<19	106 (39.11)
19–31	121 (44.65)
>31	43 (15.87)
What is your medical degree?	
MD	213 (78.6)
DO	58 (21.4)
How many years have you been in your current program director role?	
Mean ± SD	4.8 ± 4.8
Median (IQR)	4 (1, 7)
How many total years have you served as a program director?	
Mean ± SD	5.7 ± 5.6
Median (IQR)	4 (2, 8)
Gender	
Male	145 (53.51)
Female	121 (44.65)
Choose not to disclose	4 (1.48)
Race	
American Indian/Alaska Native/Indigenous	1 (0.37)
Asian	25 (9.23)
Black/African American	12 (4.43)
Hispanic/Latino/of Spanish origin	16 (5.9)
Middle Eastern/North African	6 (2.21)
Native Hawaiian/other Pacific Islander	0
White	199 (73.43)
Choose not to disclose, unknown	11 (4.06)
I self-identify as underrepresented in medicine.	37 (13.65)

TABLE 2. **Survey Questions and Response Rates (N=271)**

	n (%)
Description of clinical data registries or population-based reports that residents receive	
Panel data on patients the resident is assigned as the primary care provider	116 (42.8)
Panel data on patients who are patients of the primary teaching clinic, but not resident-specific data	31 (11.44)
Panel data for the specific resident and the collective panel of the primary teaching clinic	80 (29.52)
Residents do not receive regular data reports or access to clinical data registries.	35 (12.92)
No response	9 (3.32)
Elements included in regular reports that residents receive	
Clinical quality	195 (71.96)
Health equity	40 (14.76)
Patient satisfaction	149 (54.98)
Patient safety	60 (22.14)
Referral and diagnostic utilization rates	49 (18.08)
Financial performance	96 (35.42)
No regular data reports	38 (14.02)
The data presented can be easily filtered by subgroups based on age, gender, race/ethnicity, or geography to assess for disparities. (Agree or Strongly Agree)	94 (34.69)
Our current practice is required by our health system and/or third-party payers to address issues related to population health. (Agree or Strongly Agree)	176 (64.94)
As program director, I feel the required reports prepare our residents for independent practice. (Agree or Strongly Agree)	140 (51.66)
Frequency of time dedicated exclusively to population health management within your residency program	
Protected time on at least a monthly basis	48 (17.71)
Protected time during specific rotations	76 (28.04)
Random times throughout the academic year	103 (38.01)
No protected time for population health management	35 (12.92)
Our program and faculty have the resources and expertise to make improvements in areas of need as identified in the clinic reports generated. (Yes responses)	182 (67.16)

TABLE 3. Comparison of Population H ealth Practices for University-Based/Affiliated Residency Programs

	Program type		
	University-based and community-based university affiliated, n (%)	Other (community-based-nonaffiliated, military, or other), n (%)	*P* value
Clinical data registries or population-based reports that residents receive	**188**	**74**	
Panel data on patients the resident is assigned as the primary care provider	86 (45.74)	30 (40.54)	.724
Panel data on patients who are patients of the primary teaching clinic, but not resident-specific data	21 (11.17)	10 (13.51)	.797
Panel data for the specific resident and the collective panel of the primary teaching clinic	63 (33.51)	17 (22.97)	.274
Residents do not receive regular data reports or access to clinical data registries.	18 (9.57)	17 (22.97)	.024
Elements included in regular reports that residents receive	**196**	**75**	
Clinical quality	148 (78.72)	47 (63.51)	.051
Health equity	33 (17.55)	7 (9.46)	.172
Patient satisfaction	110 (58.51)	39 (52.7)	.636
Patient safety	44 (23.4)	16 (21.62)	.973
Referral and diagnostic utilization rates	41 (21.81)	8 (10.81)	.075
Financial performance	74 (39.36)	22 (29.73)	.248
No regular data reports	21 (11.17)	17 (22.97)	.019

TABLE 4. Comparison of Population Health Practices for Programs Required by Health Care System to Address Population Health Metrics

	Practice required to address population health,* n (%)	Practice not required to address population health,** n (%)	*P* value
Frequency of time dedicated exclusively to population health management within your residency program	**176**	**86**	
Protected time on at least a monthly basis	41 (23.30)	7 (8.14)	.018
Protected time during specific rotations	51 (28.98)	25 (29.07)	1.000
Random times throughout the academic year	69 (39.20)	34 (39.53)	1.000
No protected time for population health management	15 (8.52)	20 (23.25)	.008
Elements included in regular reports that residents receive	**176**	**95**	
Clinical quality	140 (79.55)	55 (57.89)	<.001
Health equity	33 (18.75)	7 (7.37)	.019
Patient satisfaction	105 (59.66)	44 (46.32)	.048
Patient safety	47 (26.7)	13 (13.68)	.021
Referral and diagnostic utilization rates	38 (21.59)	11 (11.58)	.060
Financial performance	62 (35.23)	34 (35.79)	1.000
No regular data reports	17 (9.66)	21 (22.11)	.008

*Responses of Strongly Agree/Agree
**Responses of Neutral/Disagree/Strongly Disagree