

# Communication Gaps Persist Between Primary Care and Specialist Physicians

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## ABSTRACT

A survey conducted with data from 2008 found that physicians often do not communicate with each other at the time of referral or after consultation. Communication between physicians might have improved since then, with the dissemination of electronic health records (EHRs), but this is not known. We used 2019 survey data to measure primary care physicians' perceptions of communication at the time of referral and after consultation. We found that large gaps in communication persist. The similarity between these survey results suggests that despite the dissemination of EHRs, physicians still do not consistently communicate with each other about the patients they share.

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## INTRODUCTION

Using 2008 data, O'Malley and Reschovsky found sizeable gaps in communication among physicians caring for mutual patients.<sup>1</sup> Poor communication has been linked to delayed diagnoses, unnecessary testing, and patient and physician dissatisfaction.<sup>2,3</sup> Communication might have improved in the past decade with the proliferation of electronic health records (EHRs), substantial growth in the number and sizes of vertically integrated health systems, and transformation initiatives, such as the Comprehensive Primary Care Plus (CPC+) model, promoting coordinated care.<sup>4</sup> We measured the extent to which primary care physicians (PCPs) report sending clinical information to specialists at the time of referral and report receiving information from specialists after consultation, using data collected in 2019 as part of the CPC+ evaluation. We also aimed to identify characteristics of beneficiaries, physicians, and practice sites that predict the likelihood of communication.

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## METHODS

This was a cross-sectional study of 4,754 PCPs who responded to the CPC+ Physician Survey, which assessed PCPs' experiences in both CPC+ and comparison (non-participating) practices. The survey was fielded August to December 2019 (2.5-3 years after CPC+ began).<sup>5</sup>

We included the following 2 previously validated survey questions<sup>1</sup>:

Question 1: "When you refer a patient to a specialist, how often do you send the specialist notification of the patient's history and reason for the consultation?"

Question 2: "How often do you receive useful information about your referred patients from specialists?"

The response options were "Always or most of the time," "Sometimes," and "Seldom or never." We examined the distribution of responses to each question and used logistic regression to predict the likelihood of responding "Always or most of the time" as a function of characteristics of (1) beneficiaries attributed to the PCPs, (2) the PCPs themselves, and (3) the practice site including its market. We supplemented the survey data with Medicare claims, enrollment, and other data sources.

We analyzed data for CPC+ and comparison practices combined. Because CPC+ has different entrance requirements for each of its 2 tracks, with more advanced care delivery requirements and payment approaches for Track 2, we analyzed practices (and their comparisons) separately by track. In total, we studied 2,289 PCPs in 1,831 CPC+ and comparison practice sites in Track 1 and 2,465

*Conflicts of interest: authors report none.*

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**Table 1. Weighted Number and Percentage of PCPs by Response to Key Survey Questions, by CPC+ Track in 2019**

Response	Question 1	Question 2
Track 1, %		
Always or most of the time	78.0	65.2
Sometimes	17.0	33.3
Seldom or never	4.9	1.5
PCPs, No.	2,244	2,273
Track 2, %		
Always or most of the time	78.4	67.5
Sometimes	16.8	31.5
Seldom or never	4.9	1.1
PCPs, No.	2,418	2,448

CPC+ = Comprehensive Primary Care Plus; PCP = primary care physician; PY 3 = program year 3.

Notes: Source is authors' analysis of CPC+ PY 3 Physician Survey data. Results weighted using track-specific survey weights including nonresponse weights. The number of respondents differed for the 2 survey questions.

Question 1: When you refer a patient to a specialist, how often do you send the specialist notification of the patient's history and reason for the consultation?

Question 2: How often do you receive useful information about your referred patients from specialists?

PCPs in 1,882 CPC+ and comparison practice sites in Track 2. Analyses were performed with Stata, version 16.1 (Stata-Corp LLC) using survey weights, with statistical significance tested at  $P < .05$ .

## RESULTS

A total of 22% of PCPs in each of the tracks reported that they either "Sometimes" or "Seldom or never" send clinical information to the specialist at the time of a referral (Table 1). Similarly, 35% of Track 1 and 33% of Track 2 PCPs reported that they either "Sometimes" or "Seldom or never" receive information back from the specialist after a consultation.

The explanatory variables (60 total) together explained less than 12% of the variation in the likelihood of a PCP reporting communication "Always or most of the time," and there were only a handful of individual statistically significant associations, which were small (Table 2).

## DISCUSSION

Gaps in communication between PCPs and specialists persist. Because physicians participating in the CPC+ survey are a highly motivated subset and are in practices with relatively

**Table 2. Association Between Characteristics of Beneficiaries, Primary Care Physicians, and Primary Practice Sites With the PCP Sending or Receiving Information Always or Most of the Time to Specialists, Using Logistic Regression Models**

Explanatory Variable	Sending Information to Specialist Marginal Effect (P Value)		Receiving Information From Specialist Marginal Effect (P Value)	
	Track 1	Track 2	Track 1	Track 2
<b>Characteristics of beneficiaries attributed to primary care physician</b>				
Percentage of beneficiaries with specific characteristic <sup>a,b</sup>				
Age category, y				
<65	0.005 (.09)	0.005 (.06)	0.003 (.35)	-0.004 (.18)
65-74 (reference)	NA	NA	NA	NA
75-84	0.003 (.09)	0.005 <sup>c</sup> (.01)	-0.001 (.68)	-0.002 (.37)
≥85	0.001 (.8)	0.001 (.58)	0.003 (.25)	-0.001 (.61)
Race category				
White (reference)	NA	NA	NA	NA
Black	0 (.74)	0.002 (.08)	0.003 <sup>c</sup> (<.001)	0 (.83)
All other/unknown	-0.001 (.41)	0.002 (.11)	0.001 (.38)	0 (.88)
Male	0.002 (.1)	0.001 (.22)	0.004 <sup>c</sup> (<.001)	0 (.9)
Original Medicare eligibility categories				
Age (reference)	NA	NA	NA	NA
Disability only	-0.006 <sup>d</sup> (.03)	-0.008 <sup>c</sup> (<.001)	-0.002 (.52)	0.003 (.38)
ESRD only or ESRD with disability	-0.018 (.08)	-0.002 (.84)	-0.004 (.74)	0.008 (.46)
Indicator for dual status	0.003 <sup>d</sup> (.02)	0.001 (.48)	-0.001 (.5)	0.001 (.38)
Reversed Bice-Boxerman Index ≥0.85 <sup>e</sup>	-0.001 (.31)	0 (.93)	0.002 <sup>d</sup> (.03)	0.002 (.06)

continues

AAHC = Accreditation Association for Ambulatory Health Care; ACO = accountable care organization; CMS = Centers for Medicare and Medicaid Services; CPC+ = Comprehensive Primary Care Plus; EHR = electronic health record; ESRD = end-stage renal disease; HCC = hierarchical condition category; MAPCP = multipayer advanced primary care practice; NA = not applicable; NCQA = National Committee for Quality Assurance; NP = nurse practitioner; PA = physician assistant; PCP = primary care physician; TJC = The Joint Commission; URAC = Utilization Review Accreditation Commission.

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(continued)

Explanatory Variable	Sending Information to Specialist Marginal Effect (P Value)		Receiving Information From Specialist Marginal Effect (P Value)	
	Track 1	Track 2	Track 1	Track 2
<b>Characteristics of beneficiaries attributed to primary care physician</b> (continued)				
Average beneficiary risk for subsequent expenditures <sup>a</sup>				
HCC score <sup>f</sup>	-0.184 (.3)	0.027 (.88)	0.203 (.37)	0.246 (.2)
Characteristics of primary care physician				
Age categories, y <sup>g</sup>				
≤50 (reference)	NA	NA	NA	NA
>50	-0.012 (.51)	0.037 (.07)	0.1 <sup>c</sup> (<.001)	0.069 <sup>c</sup> (<.001)
Male <sup>f</sup>	-0.025 (.46)	-0.033 (.34)	-0.064 (.1)	0.031 (.42)
Specialty <sup>g</sup>				
Family medicine (reference)	NA	NA	NA	NA
General practice	-0.054 (.6)	-0.133 (.5)	0.045 (.64)	-0.189 (.15)
Internal medicine	-0.001 (.95)	-0.047 (.05)	-0.057 <sup>d</sup> (.04)	-0.032 (.21)
Time in direct patient care <sup>h</sup>	-0.095 (.27)	-0.04 (.61)	0.053 (.57)	0.043 (.63)
Comprehensiveness measures				
Range of services measure: assesses the comprehensiveness of services that a physician provided to Medicare fee-for-service beneficiaries <sup>h</sup>	0.007 (.53)	0.005 (.61)	0.01 (.43)	-0.007 (.57)
New problem management measure: assesses extent to which a physician manages patients' new symptoms or problems instead of referring them to (or the patients seeking) a specialist <sup>h</sup>	-0.296 (.17)	0.187 (.35)	-0.148 (.55)	0.554 <sup>d</sup> (.02)
Involvement in patient conditions measure: assesses extent to which a physician is involved in the care of the broad range of their patients' health conditions <sup>h</sup>	0.236 <sup>d</sup> (.03)	0.107 (.28)	0.118 (.35)	0.009 (.94)
<b>Characteristics of primary care practice site, including market characteristics</b>				
CPC+ practice site (vs comparison site) <sup>i</sup>	0.036 (.07)	0.013 (.5)	0.026 (.24)	0.005 (.82)
Practice site has ≥1 NP or PA <sup>h</sup>	-0.004 (.87)	-0.016 (.46)	-0.012 (.64)	0.036 (.17)
Number of total practitioners (any specialty) <sup>ij</sup>	-0.002 <sup>d</sup> (.05)	0 (.77)	-0.001 (.56)	-0.002 <sup>d</sup> (.05)
Number of practitioners at practice site with primary care specialty <sup>ij</sup>				
Small (1-2 primary care practitioners) (reference)	NA	NA	NA	NA
Medium (3-5 primary care practitioners)	0.021 (.46)	0.012 (.69)	-0.042 (.19)	-0.026 (.43)
Large (≥6 primary care practitioners)	0.016 (.67)	-0.001 (.99)	-0.014 (.74)	0.002 (.97)

continues

Note: Models estimated using logistic regression, where dependent variable is 1 if survey response is "Always or most of the time" and 0 otherwise.

<sup>a</sup> All beneficiary characteristics come from Medicare fee-for-service claims and enrollment data. They are measured as of the end of 2016 (before CPC+ began).

<sup>b</sup> The following individual HCCs were also included in the regression model but are not reported: HCC 8–Metastatic Cancer/Acute Leukemia; HCC 18–Diabetes with Complications; HCC 21–Malnutrition; HCC 22–Morbid Obesity; HCC 23–Endocrine/Metabolic Disorders; HCC 40 or 47–Rheumatoid Arthritis; HCC 46 or 48–Severe Hematological Disorders; HCC 54 or 55–Drug/Alcohol Psychosis or Dependence; HCC 57 or 58–Schizophrenia or Major Depressive Disorders; HCC 70 or 71–Quadriplegia or Paraplegia; HCC 80 or 82–Coma; HCC 85–Congestive Heart Failure; HCC 86, 87, or 88–Acute Myocardial Infarction; HCC 96–Specified Heart Arrhythmias; HCC 99 or 100–Stroke; HCC 106–Atherosclerosis of the Extremities; HCC 107 or 108–Vascular Disease with Complications; HCC 111–Chronic Obstructive Pulmonary Disease; HCC 157 or 158–Pressure Ulcer of Skin with Necrosis; HCC 173–Amputations; HCC 186–Organ Transplant.

<sup>c</sup> Statistically significant at the .01 level.

<sup>d</sup> Statistically significant at the .05 level.

<sup>e</sup> The reversed Bice-Boxerman Continuity-of-Care Index measures care fragmentation by capturing the number of practitioners providing ambulatory services to a beneficiary and the percentage of care each practitioner provides. Scores ≥0.85 indicate highly fragmented care.

<sup>f</sup> HCC scores are a measure of risk for subsequent expenditures. The Centers for Medicare and Medicaid Services calculates them such that the average for the Medicare fee-for-service population nationally is 1.0. A patient with a risk score of 1.30 is predicted to have expenditures that would be approximately 30% greater than the average, whereas a patient with a risk score of 0.70 is expected to have expenditures that would be approximately 30% less than the average. In our regression model, we also included the percentage of attributed beneficiaries with an assigned HCC score that is derived from CMS' new enrollee model.

<sup>g</sup> Data source: 2017 Medicare Data on Provider Practice and Specialty.

<sup>h</sup> Data source: 2017 Medicare claims data.

<sup>i</sup> Data source: 2016 SK&A.

<sup>j</sup> Data source: 2016 National Plan and Provider Enumeration System.

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(continued)

Explanatory Variable	Sending Information to Specialist Marginal Effect (P Value)		Receiving Information From Specialist Marginal Effect (P Value)	
	Track 1	Track 2	Track 1	Track 2
<b>Characteristics of primary care practice site, including market characteristics</b> (continued)				
Practice site is multispecialty vs primary care only <sup>i</sup>	-0.038 (.21)	-0.032 (.25)	0.07 <sup>d</sup> (.03)	0.016 (.6)
Hospital or health system owns the practice site <sup>i</sup>	-0.029 (.17)	-0.046 <sup>d</sup> (.02)	0.051 <sup>d</sup> (.04)	0.12 <sup>c</sup> (<.001)
Whether practice participated in an a Shared Savings Program ACO <sup>k</sup>				
Did not participate in Shared Savings Program (reference)	NA	NA	NA	NA
Shared Savings Program Track 1	-0.044 <sup>d</sup> (.03)	-0.05 <sup>d</sup> (.02)	-0.015 (.52)	-0.019 (.42)
Shared Savings Program Track 2 or 3	0.001 (.98)	-0.006 (.89)	-0.016 (.76)	-0.062 (.21)
Primary care transformation experience: NCQA, TJC, AAAHC, URAC, or state medical-home recognition status (whether practice is in a medical home) or participated in CPC Classic or MAPCP <sup>l</sup>	0.017 (.42)	0.013 (.57)	0.036 (.13)	0.02 (.42)
Meaningful EHR use <sup>m</sup>				
Did not meet meaningful use criteria (reference)	NA	NA	NA	NA
Met meaningful use criteria 2011-2012	0.008 (.82)	0.027 (.66)	0.06 (.17)	0.065 (.26)
Met meaningful use criteria 2013-2015	0.048 (.25)	0.114 (.07)	0.062 (.21)	-0.008 (.91)
Practice after hours (number of weekdays practice is open after 5 pm and whether practice is open Saturday or Sunday) <sup>i</sup>	0.004 (.45)	-0.004 (.46)	0.004 (.52)	0.008 (.15)
US Census region <sup>i,n</sup>				
Northeast (reference)	NA	NA	NA	NA
Midwest	0.042 (.2)	-0.036 (.22)	0.016 (.63)	0.097 <sup>c</sup> (.01)
South	0.125 <sup>c</sup> (<.001)	0.022 (.6)	-0.094 (.08)	0.07 (.17)
West	0.053 (.18)	0.01 (.79)	0.038 (.37)	0.044 (.32)
Median household income of county <sup>o</sup>	0 (.28)	0 <sup>c</sup> (.01)	0 (.48)	0 (.44)
Practice site in a county Health Professional Shortage Area in 2015-2016 <sup>o</sup>	0.012 (.92)	0.107 (.14)	0.159 <sup>d</sup> (.04)	-0.068 (.46)
Urbanicity of practice site county <sup>o</sup>				
Urban (reference)	NA	NA	NA	NA
Rural	0.071 (.1)	0.092 <sup>d</sup> (.04)	-0.051 (.36)	-0.02 (.71)
Suburban	0.036 (.27)	0.068 <sup>d</sup> (.03)	-0.011 (.76)	0.038 (.26)
Percentage of adults age ≥25 years in the county with a degree from a 4-year college <sup>o</sup>	-0.002 (.3)	0.002 (.38)	0.002 (.51)	-0.002 (.38)
Percentage of county's population in poverty <sup>o</sup>	-0.003 (.56)	-0.005 (.32)	0.003 (.55)	-0.009 (.07)
Number of hospital beds per 1,000 in practice site county <sup>o</sup>				
Quartile 1 (reference)	NA	NA	NA	NA
Quartile 2	-0.009 (.76)	-0.009 (.75)	-0.027 (.37)	-0.003 (.92)
Quartile 3	-0.041 (.2)	-0.002 (.94)	-0.058 (.1)	0.025 (.52)
Quartile 4	-0.056 (.19)	-0.093 <sup>d</sup> (.02)	-0.094 <sup>d</sup> (.04)	0.02 (.67)

continues

<sup>a</sup> All beneficiary characteristics come from Medicare fee-for-service claims and enrollment data. They are measured as of the end of 2016 (before CPC+ began).

<sup>c</sup> Statistically significant at the .01 level.

<sup>d</sup> Statistically significant at the .05 level.

<sup>e</sup> The reversed Bice-Boxerman Continuity-of-Care Index measures care fragmentation by capturing the number of practitioners providing ambulatory services to a beneficiary and the percentage of care each practitioner provides. Scores ≥0.85 indicate highly fragmented care.

<sup>k</sup> Data source: 2016 Master Data Management system 2016.

<sup>l</sup> Data sources: 2016 NCQA, 2016 TJC, 2016 AAAHC, 2016 URAC, state-specific sources 2016; CPC+ data; CMS 2016.

<sup>m</sup> Data source: CMS 2016.

<sup>n</sup> The mapping of 3 states to US Census regions was slightly modified for the selection of a comparison group for the CPC+ evaluation to more closely mirror the CPC+ regions' market characteristics.

<sup>o</sup> Data source: 2016 Area Health Resource File.

<sup>p</sup> Data source: 2015 Medicare Geographic Variation data.

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(continued)

Explanatory Variable	Sending Information to Specialist Marginal Effect (P Value)		Receiving Information From Specialist Marginal Effect (P Value)	
	Track 1	Track 2	Track 1	Track 2
<b>Characteristics of primary care practice site, including market characteristics</b> (continued)				
2015 Medicare Advantage penetration rate in county <sup>a</sup>	0.002 <sup>d</sup> (.05)	0.001 (.35)	0.002 (.07)	0.004 <sup>c</sup> (<.001)
Number of assigned beneficiaries <sup>a</sup>	0 (.09)	0 (.38)	0 (.4)	0 (.49)
Hospital Referral Region Price Index in 2015: measures actual per capita costs on Medicare Parts A and B relative to standardized per capita costs <sup>p</sup>	-0.081 (.68)	-0.032 (.88)	-0.12 (.6)	0.37 (.13)
Ratio of PCPs to total physicians in the county <sup>o</sup>	0.299 (.14)	0.235 (.2)	0.357 (.06)	0.396 <sup>d</sup> (.02)
Number of practitioners per 100,000 residents in the county in 2016 <sup>o</sup>	0 (.15)	0 (.55)	0 <sup>c</sup> (.01)	0 <sup>c</sup> (<.001)
PCPs, No.	2,244	2,418	2,273	2,448
Adjusted R-squared	0.12	0.11	0.06	0.07

Note: Models estimated using logistic regression, where dependent variable is 1 if survey response is "Always or most of the time" and 0 otherwise.

<sup>a</sup> All beneficiary characteristics come from Medicare fee-for-service claims and enrollment data. They are measured as of the end of 2016 (before CPC+ began).

<sup>o</sup> Data source: 2016 Area Health Resource File.

<sup>p</sup> Data source: 2015 Medicare Geographic Variation data.

more sophisticated EHR use,<sup>6</sup> actual communication behaviors nationwide are likely worse than what we found in the present research sample. Because these are physician-level proportions, the number of patients who are potentially affected is large. Further, the presence of any communication between providers does not guarantee that practitioners are sending or receiving the optimal information needed for clinical decision making.

Although our sample is not directly comparable to the national sample of primary care practices examined 11 years ago,<sup>1</sup> the similarity in survey responses suggests that physicians still do not always intentionally engage in communication regarding referrals and consultations despite clinical information being more available. Our findings underscore the need for granular measurements of how communication is changing. It is not enough to assume that putting EHRs in place will improve communication; changes in communication need to be measured. More research is also needed to understand barriers to communication between PCPs and specialists, despite the availability of technology to aid communication and despite incentives to improve care coordination.

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**Key words:** physician communication; primary and specialty care; referral and consultation communication

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