



# A Team-based Model of Primary Care Delivery and Physician-patient Interaction

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## ABSTRACT

**BACKGROUND:** Interprofessional team-based models of primary care delivery may improve efficiency and increase patient-centered time with the physician. The purpose of our study is to evaluate the effect of a new team-based primary care delivery model implemented in our health system on physician-patient face-to-face time and patient experience of the visit compared with usual care.

**METHODS:** We conducted time-motion analyses of ambulatory visits with 20 primary care physicians across 8 practice sites in our health system from June through August 2014. Ten physicians practicing in the team-based model and 10 physicians practicing usual care at the same practice sites were included. The time that the physician was in the room and the duration of physician-patient face-to-face interaction were measured. After each visit, patients answered questions regarding satisfaction with their visit.

**RESULTS:** A total of 98 patient visits were observed (44 in the team-based model and 54 in usual care). Total time that the physician and patient spent together at the visit did not differ significantly between the models. However, total duration of face-to-face interaction and proportion of the visit spent in face-to-face interaction were significantly greater in the team-based model. Patient satisfaction did not differ between the 2 models.

**CONCLUSIONS:** A team-based model of primary care delivery increased physician-patient face-to-face time during the office visit, but did not affect patient satisfaction.

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**Authorship:** ADM-H had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. ADM-H, Center for Value Based Care Research, Cleveland Clinic, and BH, Department of Quantitative Health Sciences, Cleveland Clinic, conducted and are responsible for the data analysis. ADM-H, BH, and MBR made substantial contributions to the conception and design of the project, interpretation of data for the work, drafting and critically revising the work for intellectual content, have approved the final version, and agree to be accountable for all aspects of the work. AR and CY made substantial contributions to the interpretation of data for the work, drafting and critically revising the work for intellectual content, have approved the final version, and agree to be accountable for all aspects of the work.

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As primary care delivery becomes more complex, interprofessional team-based models of care are being developed.<sup>1</sup> Allowing team members to perform tasks reflecting their full scope of practice may improve efficiency and increase patient-centered time with the physician. Physicians perform many tasks during the office visit that compete with face-to-face interaction with patients<sup>2</sup> and relationship-building activities. One proposed primary care practice innovation is for medical assistants to participate actively in the outpatient encounter. This includes acting as scribes,<sup>3</sup> which may increase physicians' face-to-face interaction with patients and decrease visit duration. Patient perception of time spent with their physician has been associated with patient satisfaction,<sup>4</sup> but it is unknown how face-to-face time influences patient experience of the visit. We recently implemented a

new model of primary care delivery in which each physician works collaboratively with 2 medical assistants, who perform previsit planning, scribing during the visit, and postvisit education. The purpose of our study is to evaluate the effect of this new team-based model on physician-patient face-to-face time and patient experience of the visit compared with usual care.

## METHODS

We conducted time-motion analyses of 20 primary care physicians in both Family Medicine and Internal Medicine departments across 8 practice sites in our health system from June through August 2014. The protocol was approved by the Institutional Review Board at Cleveland Clinic. Ten physicians practicing in the new team-based model and 10 physicians practicing usual care at the same practice sites were included. A medical student observed each physician for one half-day clinic session. After obtaining permission from the physician and patient at the time of the encounter, the medical student observed the interaction between the physician and patient. In order to minimize disruption of patient flow, the student aimed to observe 4-5 patient encounters per clinic session. The time that the physician was in the examination room and the duration of physician-patient face-to-face interaction were measured. A "Notes" section on the data collection instrument was available for the students to record any observed findings. After each visit, the observer asked the patient 5 questions, including those from standard patient satisfaction instruments<sup>5,6</sup> assessing perception of time spent with their physician<sup>5</sup> and satisfaction with their visit.<sup>6</sup> The questions are as follows: 1) Please estimate the amount of time (in minutes) you spent with your provider during this office visit; 2) Please rate the amount of time the care provider spent with you; 3) Rating of the care provider's efforts to include you in decisions about your treatment; 4) Rating of

information the care provider gave you about medications (if any); and 5) Rating of instructions the care provider gave you about follow-up care (if any). Questions 2-5 used a 5-point Likert scale with options of very poor, poor, fair, good, and very good. Data were managed using REDCap.<sup>7</sup> Statistical analysis was performed using the 2-sample t-test, with means and SDs calculated for the team-care and usual care samples.

## CLINICAL SIGNIFICANCE

- Interprofessional team-based models of primary care delivery may improve efficiency and increase patient-centered time with the physician.
- Compared with usual care, a team-based model of primary care delivery increased physician-patient face-to-face time during the office visit.
- Patient satisfaction did not differ between the 2 models.
- Total time that the physician and patient spent together at the visit did not differ significantly between the models; thus, efficiency was not increased.

## RESULTS

A total of 98 patient visits were observed—44 in the team-based model and 54 in usual care, including follow-up visits, new patient visits, and acute care visits. The results of the time motion analyses are shown in [Table 1](#).

Total time that the physician and patient spent together at the visit did not differ significantly between the models (mean 14.3 minutes [SD 6.5] in the team-based model vs 15.2 minutes [SD 6.1] in the usual-care model,  $P = .49$ ). However, total duration of face-to-face interaction (10.1 minutes [SD 5.6] in the team-based model vs 7.8 minutes [SD 4.0] in the usual-care model), and proportion of the visit spent in face-to-face interaction were significantly greater in the team-based model (0.7 [SD 0.2] in the team-based model vs 0.5 [0.2] in the usual-care model,  $P < .001$ ). Notes suggested that the physician often left the examination room to retrieve documents from the printer, or when the patient required testing during the visit. Visits often involved counseling. In the team-care model, physicians often dictated findings to the medical assistant and then completed the visit note. In the usual-care model, physicians sometimes completed notes after the visit.

Patient perception of time spent with their physician did not differ between the 2 models. Patient satisfaction with time spent during the encounter, regarding being included in decisions about treatment, as well as with information given about medications and follow-up care, showed no difference based upon model of care delivery ([Table 2](#)).

**Table 1** Provider-patient Time Spent in Encounter: Team-based Model vs Usual Care

| Time Measured                                           | Team-based Model |                   | Usual-care Model |                   | P-Value |
|---------------------------------------------------------|------------------|-------------------|------------------|-------------------|---------|
|                                                         | n                | Minutes Mean (SD) | n                | Minutes Mean (SD) |         |
| Total encounter time                                    | 44               | 14.3 (6.5)        | 54               | 15.2 (6.1)        | .49     |
| Provider-patient face-to-face time                      | 44               | 10.1 (5.6)        | 54               | 7.8 (4.0)         | .03     |
| Proportion of face-to-face time of total encounter time | 44               | 0.7 (0.2)         | 54               | 0.5 (0.2)         | <.001   |
| Patients' estimated time spent with provider            | 44               | 16.1 (9.8)        | 53               | 16.6 (8.4)        | .79     |

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