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After-Hours Access To Primary Care Practices Linked With Lower Emergency Department Use And Less Unmet Medical Need

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ABSTRACT One goal of the Affordable Care Act is to improve patients' access to primary care and the coordination of that care. An important ingredient in achieving that goal is ensuring that patients have access to their primary care practice outside of regular business hours. This analysis of the 2010 Health Tracking Household Survey found that among people with a usual source of primary care, 40.2 percent reported that their practice offered extended hours, such as at night or on weekends. The analysis also found that one in five people who attempted after-hours contact with their primary care provider reported it was "very difficult" or "somewhat difficult" to reach a clinician. Those who reported less difficulty contacting a clinician after hours had significantly fewer emergency department visits (30.4 percent compared to 37.7 percent) and lower rates of unmet medical need (6.1 percent compared to 13.7 percent) than people who experienced more difficulty. The findings provide a valuable baseline on after-hours access, especially as patient-centered medical homes and accountable care organizations expand. Increasing support to primary care practices to offer or coordinate after-hours care may help reduce rates of emergency department use and unmet medical need.

National health reform's increased emphasis on primary care underscores the importance of giving patients continuous access to a primary care physician or health care team. A key component of continuous access twenty-four hours a day, seven days a week, is after-hours care for medical problems that arise between the hours of 5:00 p.m. and 8:00 a.m. and on weekends and holidays, and that would be most appropriately managed or triaged by a patient's primary care provider. Such care can be delivered by phone, in person, by e-mail, or through some combination of these means of communication, depending on the patient's needs.

To date, few nationally representative data have been published describing the US population with access to after-hours care through their usual primary care provider. International comparisons suggest that the US health care system performs poorly in providing one component of such care: in-person visits after hours for patients without their having to go to the emergency department. Only 29 percent of US primary care physicians offered after-hours care, a far smaller proportion than in other Western industrialized nations. For example, the figures are 95 percent in the United Kingdom and 94 percent in the Netherlands.[1]

When medical problems arise after hours, care delivered by a patient's usual primary care clinician or practice via telephone or e-mail or in person decreases the risk of fragmentation of

care. Such after-hours care avoids the introduction of an additional provider, such as a provider in an emergency department, who does not know the patient or who lacks access to the patient's medical record.[2,3] Particularly for adults with chronic health conditions or children with special health care needs, after-hours care coordinated by one's usual primary care provider helps to ensure that the patient's after-hours needs are assessed and managed by a primary care provider with knowledge of that patient's medical history and access to his or her medical record.

In addition to the potential impact on the quality of health care services, after-hours care coordinated with one's primary care provider may also help to reduce health care costs for the system as a whole. The high—and rising—rates of emergency department use for nonurgent, after-hours care contributes to inefficient use of resources and higher spending, since emergency department visits cost more than primary care visits.[4–6]

Health problems developing outside of normal business hours are a leading source of emergency department visits. Almost 65 percent of all emergency department visits, regardless of severity, occur between 5:00 p.m. and 8:00 a.m. or on weekends.[5,7] Many acute complaints seen in the emergency department are also commonly managed by primary care providers, including stomach and abdominal pain, fever, cough, and headache—which together comprise more than 15 percent of emergency department visit volume.

Among people with a usual primary care provider, those who also used the emergency department were more likely to report that their primary care provider's office was "not open when they could go."[8] Offering after-hours access to select primary care services, including telephone access and expanded clinic hours, could potentially eliminate many costly emergency department visits while improving continuity of care.[3–8]

Robert Lowe and coauthors reported that patients of community health centers with more than twelve evening hours per week used the emergency department 20 percent less than patients of community health centers without evening hours.[2] Primary care practices that provide a way for patients to contact the practice after hours reported in a qualitative study[9] that their patients are more satisfied and experience fewer emergency department visits and hospitalizations than patients in practices that do not provide after-hours care. But empirical national data on whether access to after-hours care is associated with lower rates of emergency department use, hospitalization, and unmet need for health care are lacking.

Using the 2010 Health Tracking Household Survey of the Center for Studying Health System Change,[10] this article describes the demand for and availability of after-hours care among people with a usual source of primary care. It describes the proportion and characteristics of people who tried to contact a clinician at their usual primary care practice after hours and the characteristics of their primary care practices. It then examines whether ease of obtaining after-hours care via one's usual primary care provider is associated with several important outcomes—hospitalizations, emergency department visits, and patients' reports of unmet medical need—after controlling for patient health status and a range of other patient and practice characteristics.

Study Data And Methods

This article presents findings from the 2010 Health Tracking Household Survey of the Center for Studying Health System Change, formerly known as the Community Tracking Study Household Survey, a random-digit-dialing telephone survey of US households.[10] This survey, which has completed its sixth round, captures a nationally representative sample of the civilian, noninstitutionalized population.

Because of declines in the percentage of households with landline phones, the 2010 survey also included a cell phone sample. The response rates, based on a conservative definition from the American Association for Public Opinion Research, were 45 percent for the landline sample and 29 percent for the cell phone sample.[11] These rates were comparable to other national household and cell phone survey response rates.[10] Although cell phone response rates are typically lower than those of landline surveys and drive down the overall response rate, including a cell phone group provides much better sample coverage than relying a landline sample only.

Population weights adjusted for the probability of selection and differences in nonresponse based on age, sex, race or ethnicity, education, and income. These weights adjusted also for the increased probability of selection in cases of households using both landline and cell phones. Standard errors accounted for the complex sample design. All survey items were previously validated or underwent cognitive testing.[10]

This analysis first examined the 9,577 respondents with a usual source of care who answered the questions on after-hours care. It then examined the subgroup of respondents who actually tried to contact their usual provider after hours in the previous twelve months ($n = 1,470$). All questions on access to after-hours care, as well as

the outcome variables, referred to the same previous twelve months. Among those with a usual source of care, 90 percent of respondents said that a primary care physician, rather than another type of physician specialist or a nurse, provided their usual care.

OUTCOME VARIABLES Respondents were asked about emergency department use and overnight hospitalizations in the previous twelve months. Emergency department visits and hospitalizations associated with the delivery of a baby or obstetric care were excluded from the analyses. In the analyses, emergency department use and hospitalizations were categorized as "none" versus "one or more." Estimates of unmet medical need were based on yes-or-no answers to the following question: "During the past twelve months, was there any time when you didn't get the medical care you needed?"

KEY INDEPENDENT VARIABLES OF INTEREST Respondents who reported having a usual source of primary care were asked three questions, which were previously validated in the Medical Expenditure Panel Survey,[12] on the availability of after-hours care at that site and their experience with that care. The first question was, "Does this place have office hours at night or on the weekends?" Response options were yes or no.

The second question was, "In the past twelve months, have you tried to contact this place after their regular hours for a medical need?" Response options again were yes or no. This question was asked of all respondents with a usual source of care, regardless of how they responded to the previous question.

The third question was, "How difficult is it to contact a doctor or other health provider at this place after their regular hours?" Response options were "very difficult," "somewhat difficult," "not too difficult," and "not at all difficult." This third question was the independent variable of primary interest because it captured not just potential but realized or attained access among those who tried to seek care.[13]

Electronic access, such as via e-mail or a web-based portal, to one's regular doctor's practice is an additional vehicle to increase after-hours access. Consistent with other estimates,[14] too few respondents had electronic access to their regular doctor, so it could not be included as a covariate in the analyses.

For these 2010 data, there were no significant differences in access to or use of after-hours care, emergency department visits, or hospitalizations according to the availability of electronic access to one's usual physician. Since the wording of the survey item on trying to contact one's usual primary care practice after hours does not specify mode of contact, those contacting the practice via phone, e-mail, electronic patient portal, or in person would all be captured in the responses.

CONTROLLING VARIABLES Age, sex, race or ethnicity, insurance status, self-reported health status,[15] and type of usual source of care were included in the analyses as controlling variables. I also adjusted for the wait time to get a daytime appointment, which captured whether or not the respondent's usual practice offered same-day access.[16]

In qualitative work, practices with same-day access have reported lower demand for after-hours care.[9] I also assessed respondents' reports of care coordination at their usual primary care practices, using a measure of coordination from the Ambulatory Care Experiences Survey.[17] The rationale for adjusting for coordination of care was that respondents whose care was better managed should theoretically have fewer after-hours needs, particularly for chronic conditions.

STATISTICAL ANALYSIS Both unadjusted and adjusted results are presented with sample frequencies and population-based weighted estimates. Seventeen respondents with missing data on key independent variables (the after-hours care questions) or dependent variables were omitted from the analysis.

Associations were measured in bivariate analyses using chi-square tests. A separate regression model was created for each of the three outcome measures.

Regressions modeling use of the emergency department, hospitalizations, and unmet medical need in the past twelve months were limited to the 1,470 respondents who had a usual provider and who had tried to access that provider for after-hours care in the past twelve months, to ensure that these respondents had actually tested their provider's after-hours accessibility. These final, most parsimonious regressions adjusted for age; urban, rural, or suburban location; insurance type; and self-reported health status. A second set of identical models were run with the addition of a covariate assessing the coordination of care by one's usual primary care practice.

None of the following variables was significant in any of the regression models: race or ethnicity, wait time for a regular daytime appointment, and type of usual source of care.

To assess for potential bias—specifically, systematic differences between those who lacked access to after-hours care at their usual source of care and those who simply did not try to contact a clinician after hours at their usual source of care—I reran the analyses to include all 9,577 respondents. This sensitivity analysis and other methodological details are described in the

online Appendix.[18]

Because the availability of regular extended office hours was one potential avenue for the provision of after-hours care, I wanted to know whether this was associated with greater ability to access a clinician at one's usual practice for an after-hours medical need. Thus, I also describe the characteristics of the population with access to such extended-hours visits.

I then conducted a separate logistic regression to model the ease of contacting a clinician through any means—including phone, e-mail, and so forth—for after-hours needs among those who tried to do so, in light of both patient and practice characteristics, and whether the practice offered regularly scheduled extended office hours.

All models were estimated using SUDAAN software, version 10.0.1, to adjust the standard errors for the effects of clustering within households and for the complex sample design.

LIMITATIONS This study's limitations include the use of cross-sectional data, so the temporal sequence of events cannot be determined. All measures were self-reported by patients, which may have introduced some recall bias, but my efforts to control for a range of factors helped address this issue.

Although I controlled for self-reported health status using a validated measure, it is likely that this did not fully adjust for health status. It is possible that those with poorer health status may both require more after-hours care and be more likely to choose a primary care practice that offers more accessible after-hours care. Limiting my analyses on outcomes to respondents who actually tried to contact a clinician after hours in the previous twelve months probably decreased the potential for such bias because the focus was on the respondents who believed they had a medical need requiring attention after hours.

In addition, the household survey lacked certain measures of practice characteristics that a household respondent would not be able to provide, such as what percentage of a practice's patient panel had complex chronic conditions or what percentage of the panel was uninsured. Such practice-level characteristics could have influenced both a patient's experience with access to after-hours care as well as his or her likelihood of experiencing one of the measured outcomes, in a manner that I was unable to capture.

Finally, the response rate of this survey, although seemingly low compared to those of older national household surveys, was consistent with other recent population-based national random-digit-dialing telephone surveys,[19] which in general have had declining response rates over the past ten years. Lower response rates increase concerns about survey bias. However, methodological studies on earlier survey rounds with higher response rates strongly suggest that the lower response rate has not increased the bias of this survey's estimates, especially after adjustments to population weights that account for nonresponse bias.[10,20]

Study Results

Among respondents with a usual source of care, 1,470 (16.9 percent of the weighted estimate) tried to contact their practice after hours in the previous twelve months (Exhibit 1). These did not have to be in-person visits; any attempt to contact the practice after hours was included in this estimate. Of those who had attempted to contact their usual primary care practice for after-hours care in the previous twelve months, 20.8 percent reported it was "very difficult" or "somewhat difficult" to contact a health care provider at their usual place. In contrast, 79.2 percent reported it was "not too difficult" or "not at all difficult."

Children, through a parent or proxy respondent, had the highest rates of trying to contact their practice after hours. Adults of all age groups were significantly more likely than children's respondents to report difficulty contacting a provider from their regular doctor's office after hours. People reporting "poor" health status were significantly more likely to report difficulty reaching a clinician after hours. Respondents without insurance or those with coverage through Medicaid or the Children's Health Insurance Program reported significantly more difficulty contacting a person after hours at their regular site of primary care (Exhibit 2).

In unadjusted analyses, respondents experiencing more difficulty contacting a clinician at their regular primary care practice were significantly more likely to experience a hospitalization, an emergency department visit, or unmet medical need in the prior twelve months.

Among people with a usual primary care practice, 40.2 percent reported that their practice offered extended office hours, such as at night or on weekends. Reporting that a usual source of care had extended office hours was most common for children and urban dwellers. People who said that their usual source of care was a health maintenance organization and those reporting the ability to get a same-day appointment at their practice were significantly more likely than others to report that their practices offered extended hours (data not shown).

A multivariate regression modeled the extent of difficulty in contacting a clinician at one's usual practice after hours as the outcome. The following patient and practice characteristics were associated with less difficulty contacting a clinician: having a child age seventeen years or younger; having good, very good, or excellent health; having private insurance, rather than public insurance only or being uninsured; and being in a practice that offered after-hours visits.

In adjusted analyses of respondents who tried to contact a clinician after hours at their primary care practice in the past twelve months, those who found it "somewhat difficult" or "very difficult" were significantly more likely to have experienced a hospitalization or emergency department visit or to report unmet medical need in the prior twelve months, compared to those who described their after-hours access experience as "not at all difficult" or "not too difficult." These logistic regressions adjusted for age, location, insurance coverage and type, and self-assessed health status.

Once the measure of coordination of care by one's usual primary care practice was added to the models, the association between accessibility of after-hours care and hospitalizations was no longer significant. However, more accessible after-hours care was still associated with lower rates of emergency department visits and less unmet medical need (Exhibit 3).

Discussion

This is the first study to use a nationally representative sample to describe the US population's access to after-hours care via people's usual primary care practice and to examine whether such access is associated with emergency department use, hospitalization, and unmet medical need. The results provide a valuable baseline on after-hours access as the nation moves toward evaluation of patient-centered medical homes[21] and the design of accountable care organizations.[22] These care models aim to improve access to and coordination of care for patients while constraining cost growth through, for example, decreasing potentially preventable emergency department visits.

Prior work has widely documented the numerous benefits of connecting people who lack a usual source of care to a primary care provider, including lower rates of emergency department use for nonurgent care.[2,3,23] In addition, researchers have assessed the impact of after-hours care within a specific practice or clinic.[2,3] This study took the next step of assessing the accessibility of after-hours care through one's regular primary care provider and investigating

EXHIBIT 1

Patients' Characteristics And Access To After-Hours Care Through Their Primary Care Provider, 2010

Patient characteristics	Number of respondents	Percent of respondents who tried to contact usual source of primary care after hours (n = 9,577)[a]	Percent of respondents who reported difficulty contacting usual source of primary care after hours (n = 1,470)[b]
All respondents	9,577[c]	16.9	20.8[d]
AGE (YEARS)			
65+ (ref)	2,114	9.4	12.0**
41–64	3,837	14.0***	29.8
18–40	1,958	16.0***	28.2
0–17	1,668	23.7***	21.8
SEX			
Female (ref)	5,397	16.9	23.4
Male	4,180	16.8	17.5**
EDUCATION[e]			
<12 years (ref)	630	14.5	35.8
High school diploma	2,659	11.1	27.8
Some college	1,786	14.1	23.4
College degree	2,834	15.3	27.9
RACE OR ETHNICITY			
White (ref)	7,202	16.2	16.4
African American	1,056	16.6	23.5
Hispanic	751	16.8	34.7**
Asian/Pacific Islander	248	24.2	28.1
Other	320	25.5**	36.5**
LOCATION			
Urban (ref)	6,768	17.9	20.0
Suburban	1,584	14.4**	19.8
Rural	1,182	13.2**	25.9
SELF-REPORTED HEALTH STATUS			
Poor (ref)	454	21.2	52.1
Fair	1,176	15.8	29.2**
Good	2,340	15.7	26.4***
Very good	3,088	15.4**	14.7***
Excellent	2,519	18.8	15.6***
INSURANCE TYPE (RESPONDENTS UNDER AGE 65)			
Private (ref)	5,485	18.6	16.2
Uninsured or self-pay	567	13.2	41.6***
Medicaid/CHIP	958	18.0	30.6***
Other	453	22.1	17.3
INSURANCE TYPE (RESPONDENTS AGE 65 AND OLDER)			
Medicare with private Medi-Gap (ref)	1,650	8.8	24.7
Medicare only	287	8.7	13.7
Medicare and Medicaid	175	16.1	13.8

SOURCE Center for Studying Health System Change, Health Tracking Household Survey (Note 10 in text). **NOTES** All percentages are weighted to be nationally representative. Significance is compared to the reference group (ref). CHIP is Children's Health Insurance Program. [a]For a medical need in the past twelve months. [b]Among respondents who attempted to contact a clinician at their regular primary care source after hours in past twelve months, those who reported that it was "very difficult" or "somewhat difficult" to make that contact. [c]The denominator for columns 1 and 2, which describe the sample, is 9,577—that is, the number of respondents who had a usual source of care or a regular doctor. [d]The denominator is the 1,470 respondents who tried to access their usual primary care source after hours in the past twelve months. [e]Asked only of adults. **$p < 0.05$ ***$p < 0.01$

EXHIBIT 2

Primary Care Practice Characteristics And Patient Outcomes, By Access To After-Hours Care, 2010

Characteristic or outcome	Number of respondents	Percent of respondents who tried to contact usual source of primary care after hours (n = 9,577)[a]	Percent of respondents who reported difficulty contacting usual source of primary care after hours (n = 1,470)[b]
All respondents	9,577[c]	16.9	20.8[d]
PRACTICE CHARACTERISTICS			
Type of practice			
Doctor's office (ref)	7,384	17.4	18.6
HMO	217	33.5**	11.1
Hospital outpatient clinic	571	15.0	30.4
CHC or community clinic	934	11.5**	45.4***
Other	459	13.7	12.3
Days waited for daytime appointment			
0 (ref)	1,534	22.8	11.7
1	1,361	22.7	9.4
2–3	1,398	16.7**	25.3**
>3	3,190	16.2**	31.6***
Coordination of care			
Lowest quartile (ref)	1,613	18.6	35.2
2nd quartile	2,570	16.6	18.5***
3rd quartile	571	26.5**	28.0
Top quartile (best coordination)	1,290	17.3	12.6***
OUTCOMES, IN PAST 12 MONTHS			
Hospitalization			
None (ref)	8,537	16.6	19.5
1 or more	1,040	21.6***	31.0***
Emergency department visit			
None (ref)	7,244	14.5	17.6
1 or more	2,333	24.8***	26.0***
Unmet medical need			
No (ref)	8,991	16.6	17.7
Yes	575	24.1***	51.8***

SOURCE Center for Studying Health System Change, Health Tracking Household Survey (Note 10 in text). **NOTES** Significance is compared to the reference group (ref). HMO is health maintenance organization. CHC is community health center. [a]Weighted percentage; for a medical need in past twelve months. [b]Weighted percentage; among respondents who attempted to contact a clinician at their regular primary care source after hours in past twelve months, those who reported that it was "very difficult" or "somewhat difficult" to make that contact. [c]The denominator for columns 1 and 2, which describe the sample, is 9,577—that is, the number of respondents who had a usual source of care or a regular doctor. [d]The denominator is the 1,470 respondents who tried to access their usual primary care source after hours in the past twelve months. **$p < 0.05$ ***$p < 0.01$

whether better after-hours access was associated with important clinical outcomes.

Among respondents who tried to contact their regular primary care provider after hours for a medical need, those with greater ease of access had significantly lower rates of emergency department use and unmet medical need, even after the overall coordination of their primary care was controlled for. By adjusting for a host of patient and practice factors, this study attempted to identify the added value of after-hours access to a clinician from one's usual practice.

This study found that 40.2 percent of people in the United States report that their regular primary care practice offers extended office hours. Among respondents with a usual source of care, those who tried to contact a clinician at that practice after hours in the previous twelve months were more likely to be able to do so if that practice offered extended office hours.

Similarly, practices that offered same-day appointments were more likely to also offer extended office hours. This probably reflects not just the benefit of having extended hours but also a stronger emphasis on being accessible to patients. A related point is that much inappropriate emergency department use occurs during normal business hours. Thus, an overall approach to shifting sites of care for nonurgent problems during the daytime (as well as after hours) from the emergency department to more accessible primary care is clearly indicated.[6]

To increase the availability of after-hours care, and to foster its coordination with primary care, feasible models for after-hours care need to be identified and examined. The topic of after-hours care has received much more attention in Europe than in the United States.[24–27] A recent qualitative US study identified potentially promising models for after-hours care coordinated with a person's regular primary care practice and found that practices attempting to offer better-coordinated after-hours care find it most efficient to do so in tandem with efforts to improve the overall accessibility of daytime primary care.[9]

The payment rates and types of services reimbursed under the current fee-for-service system create barriers to after-hours care that is coordinated with a patient's regular doctor or primary care team—providers who know that patient well or at a minimum have access to that patient's medical record.

Providers are insufficiently compensated for working evenings and weekends. Compounding this problem is the fact that Medicaid offers lower reimbursement rates than other payers, which contributes to Medicaid enrollees' poorer access to primary care in general.[28] When primary care providers deliver more accessible care after hours and avoid potentially unnecessary emergency department visits, decreasing overall costs to the system, the current fee-for-service system does not reward them. It is hoped that future payment reform under patient-centered medical homes and bundled payments may begin to address these issues.

Continuity of after-hours care with one's daytime primary care provider has the potential to decrease fragmentation of care and reduce emergency department use and rates of unmet medical need. However, few people would suggest that a primary care physician needs to be on call twenty-four hours a day, seven days a week. Clearly, call sharing and interoperable electronic health records make it more feasible for providers within and across practices to share after-hours coverage and access to a patient's information when that patient seeks care, and to communicate back to the patient's usual primary care provider about after-hours care delivered, as is being done in Europe.[24–27]

Improving the quality of care and reducing costs by making after-hours care both more available and better coordinated with one's usual primary care provider will require continued efforts to ensure that financing is modified to align payment incentives between primary care and emergency department or urgent care providers. Structures such as systematic notification systems and tools such as shared electronic health records also may help ensure that care for nonurgent problems that arise after hours can be addressed efficiently and safely, in a way that is coordinated with a patient's usual primary care provider.

EXHIBIT 3

Relationship Between Difficulty Contacting A Clinician After Hours And Patient Outcomes, 2010

	Patient outcome (%)		
Difficulty contacting usual source of primary care after hours	**Hospitalization[a]**	**Emergency department visit[a]**	**Unmet medical need[b]**
Very or somewhat difficult	13.3	37.7**	13.7***
Not at all or not too difficult	9.6	30.4	6.1

SOURCE Center for Studying Health System Change, Health Tracking Household Survey (Note 10 in text). **NOTES** All measures refer to use or access in the past twelve months. $N = 1,470$—the number of respondents who tried to contact clinician at their usual source of primary care after hours. Hospital admissions and emergency department visits exclude obstetric care of any kind. Adjusted estimates are from three separate logistic regression models, one for each dependent variable: hospitalization, emergency department use, and unmet medical need. All estimates were adjusted for age, health status, location (urban, suburban, or rural), insurance type and status, wait time for daytime office visits, and the overall coordination of care by one's usual primary care provider. For the full output from each of the three logistic regressions, see the online Appendix (Note 18 in text). [a]≥1 versus 0. [b]Yes versus no. **$p < 0.05$ ***$p < 0.01$

Conclusion

Among people who tried to contact their regular primary care provider after hours for a medical need, those with greater ease of access had significantly lower rates of emergency department use and unmet medical need, even after the overall coordination of their primary care was controlled for. Increased support for primary care practices to provide or arrange for accessible after-hours care (by phone, by e-mail, or in person) has the potential to reduce rates of emergency department use and unmet medical need. ■

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18 To access the Appendix, click on the Appendix link in the box to the right of the article online.

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In this month's *Health Affairs*, Ann O'Malley, a senior fellow at the Center for Studying Health System Change, reports on her study of the effects on features of health care use when patients have access to their primary care practice outside of regular business hours. Analyzing responses to the 2010 Health Tracking Household Survey, and controlling for health status and other characteristics, she found that people who had relatively less difficulty contacting a clinician after hours compared to others also had significantly fewer emergency department visits and lower rates of unmet medical need. O'Malley observes that increasing support to primary care practices to offer or coordinate after-hours care, as is currently being done under some patient-centered medical home demonstrations, would thus be a beneficial step.

In her work at the Center for Studying Health System Change—an independent, nonpartisan research center in Washington, D.C.—O'Malley conducts both quantitative and qualitative research on health care delivery in the United States, with a focus on primary care and coordination of care. She was part of the team that presented design options to the Centers for Medicare and Medicaid Services on the patient-centered medical home. She also examines clinicians' use of health information technology and how it may be adapted to improve the coordination of care for patients.

O'Malley has analyzed the Center for Studying Health System Change's nationally representative household survey to assess the US population's experiences with health care, including its coordination of care. She has also examined the center's nationally representative physician survey that includes physicians' experiences in coordinating care for patients, and she is involved in efforts to examine how to make primary care and patient-centered medical homes function effectively.

O'Malley received a master's degree in public health from the Johns Hopkins University and a medical degree from the University of Rochester. She completed an internship in pediatrics, a residency in preventive medicine, and then a National Research Service Award Fellowship in primary care research. She is a fellow of the American College of Preventive Medicine.