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Where Do Patients Go? How Patients Choose Between Care Settings for Minor Illnesses and Injuries

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"As … managed care models emphasizing cost efficiencies have evolved, so have alternative care settings."

SUMMARY: Having a bad cold with high fever, chills, and headache on the weekend. Waking up in the middle of the night with stomach cramps, nausea, and diarrhea. These are examples of medical conditions that in the past might have sent patients to the emergency room if they felt they could not wait until their doctor was able to see them during normal office hours. That was then. Today, patients have alternatives: Urgent care centers, retail clinics, virtual physicians who diagnose over the internet, nurse advice lines, and—in some major cities—physicians who make house calls. But what care settings are patients likely to choose? To answer this question, we surveyed more than 5,000 employees at the University of California, Irvine campus, a diverse population representing all socioeconomic strata. Based on an analysis of their responses, we created a publicly available simulation model (*https://www.medicine.uci.edu/iteqc/wheredopatientsgo*) that allows users to understand what care settings are most likely to be chosen by different populations when faced with different clinical situations. The model can inform policymakers and researchers in their efforts to understand the complex relationships between out-of-pocket costs, wait time, severity of the medical condition, and population characteristics that influence the choice of care setting. The general findings of the study are that patients are more likely to choose less costly care settings and settings with less wait time, but that cost is usually more important than wait time. Both those choices depend on the severity of the injury or the disease. Travel time does not affect choice.

Patients seeking care for minor illnesses (such as colds, eye infections, or skin rashes) or for minor injuries (such as sprains or cuts) have traditionally sought care at their physician's office or a hospital emergency room (ER). As the health care market has become more competitive and managed care models emphasizing cost efficiencies have evolved, so have alternative care settings. These alternatives tend to be much more accessible to patients in terms of both geography and hours of operation. They often are also less expensive and are therefore more attractive to patients.

The most established of these alternatives are urgent care centers and retail clinics. Urgent care centers—based in hospitals, stand-alone clinics, and sometimes physicians' offices —offer evening and weekend hours and are thus available to patients at times when most physicians are not. These centers also accept walk-ins—that is, patients who do not have a long-standing relationship with the physician. There are an estimated 7,400 to 8,100 urgent care centers nationally,[1,2] and the number continues to grow. The current growth rate is estimated at 300 to 600 new centers per year, and growth is expected to continue at the same rate.[1] In addition to

physician care, the centers may offer services such as lab testing, X-rays, and other "low-end" diagnostics.

Retail clinics also usually provide evening and weekend service. These tend to be located in geographically accessible locations such as supermarkets, pharmacies, retail malls, and large box stores. Unlike urgent care centers, retail clinics do not all have a physician on site. They are often staffed by a nurse practitioner or a pharmacist, depending on the services they offer. The number of retail clinics is estimated at around 2,000,[3] with visits estimated at 6 million per year.[4] The most well-known retail clinics are the estimated 1,100 CVS Health MinuteClinics.[5]

"In addition to ... brick-and-mortar settings, patients can seek care from several virtual settings."

In addition to these brick-and-mortar settings, patients can seek care from several virtual settings. Nurse advice lines—through which a nurse can be reached by phone, mostly for triage purposes—have been available for many years. Originally started for pediatric care,[6] these lines now target adult patients and are included in many insurance packages.

Two more recent options include "virtual physician visits," in which patients contact physicians over the internet using their computer, tablet, or smartphone,[7] and home visits by physicians that are arranged via the internet. Virtual visits can be conducted from any location where there is an internet connection, thus offering extreme geographic flexibility. Extended hours are also offered, adding to the attractiveness of this care setting. Further, information technology today includes the use of high-resolution cameras that make it possible for physicians to diagnose and treat a large number of ailments, such as skin conditions requiring visual inspection of the patient's skin.

The leading company in this space is Teladoc.[8] In 2017, the company had more than 23 million members, each of whom made an average of 1.5 virtual visits per year. Its revenues in that year exceeded $233 million, representing an 89% growth in revenue and a 54% growth in visits compared with 2016.[9]

Another care setting option that has recently been developed revives the old practice of offering physician home visits.[10,11] Heal, the first company to offer this service, has a consumer-facing application that for $99 lets patients schedule a family doctor or pediatrician home visit within 20 to 60 minutes from the time they place the order, between the hours of 8 a.m. and 8 p.m.[12] The company was started in Los Angeles in 2015 and has since expanded to 16 other large metropolitan areas.

How do patients choose between care-setting options?

Not much is known about how patients choose care settings. Very few studies have addressed this question, and these studies have tended to examine partial choices—namely, one of the new alternative settings for care, such as a retail clinic, compared to the traditional physician's office.[13] These studies were also limited to small convenience samples[14] or were conducted in other countries[15,16] and may therefore not be applicable to patients in the U.S.

This scant literature does not offer much information for policymakers. Even though several studies suggest that costs at these settings might be lower than at physicians' offices and ERs,[17,18] it is not clear whether patients are inclined to choose them when they need care.[19] Studies suggest that the market penetration of these care settings is slow and that it is concentrated among younger[20] and, in some cases, high-income patients.[21]

Should policies be implemented to encourage faster adoption of these alternative settings for care?

The answer to this question depends on the cost and quality of the newer care settings relative to the traditional physician's office and the ER. However, the extant literature

does not provide an unequivocal answer. Some studies find that costs are lower and quality is better in urgent care centers, retail clinics, and virtual physician visits, but only some of the time, for some segments of the populations, and some diagnoses.[22] Yet, many insurers are acting on the assumption that beneficiaries should be encouraged to seek care in these settings and are adopting benefits designed to incentivize such self-referrals.[23,24]

Can policy influence the choice of care setting?

To determine how policy can effectively influence the choice of care setting, we need to first identify the policy levers that are likely to change self-referral patterns when patients seek care for minor illnesses and injuries, and then quantify the change required in these levers to bring about the desired outcomes.

Economic theory suggests three such policy levers:

1. **The patient's out-of-pocket costs.** For patients who are uninsured or who have not yet met their insurance deductible for the year, the market price equals the out-of-pocket cost. For all others, the out-of-pocket cost is a significantly lower fraction of the market price, typically ranging from 20% to 50%.
2. **The wait time for an appointment until the patient can be seen and receive care.** For example, for an illness or injury that occurs on the weekend, when physicians' offices are closed, the traditional options are either to wait until Monday or go to the ER. All new alternatives offer care on evenings and/or weekends, which may be more attractive to patients.
3. **Travel time to the care setting.** Just as wait time might be a barrier to choosing a care setting, having to travel a long distance—or to have a long travel time because of heavy traffic—could deter patients from choosing a particular care setting. Thus, patients choosing between alternative care settings would be expected to choose the one closest to their residence or the one easiest to get to, all else being equal.

To quantify the strength of these levers, one typically would calculate "elasticities," namely, the response that a change in each one of these levers creates in self-referral behavior. For example, we might ask how many patients in a given population with a set of prespecified characteristics (such as age, gender, and other socioeconomic characteristics) will decide to self-refer to urgent care centers and retail clinics instead of a physician's office if the out-of pocket costs at the physician's office were to increase by 20%.

Predicting where patients will go.

We conducted a large survey, with more than 5,000 respondents, to understand what drives patients' care-setting choice. The study specifics are described in the next section. Based on the findings, we developed a publicly available simulation model that predicts how any given population with specific sociodemographic and economic characteristics will choose to seek care when faced with several different injuries or diseases and varying out-of-pocket costs or wait times. This simulation offers users the opportunity to gain insight into how a population defined by them will behave under different price and wait time scenarios.

"We conducted a large survey to understand what drives patients' care-setting choice."

The simulation allows for the prediction of care-seeking patterns for the following assumptions/scenarios:

- Choice of populations
- Ten different clinical scenarios
- Eight care settings
- Three different price levels for out-of-pocket costs
- Three different wait-time levels

Exhibit 1

Descriptive Statistics

	Respondents		UCI Population (N=19,449)	
	N	%	N	%
Gender (N=5,201)				
Female	3,439	66.1	11,378	58.5
Male	1,743	33.5	8,071	41.5
Other	19	0.4	NA	NA
Age (N=5,202)				
18-24	828	15.9	4,880	25.1
25-39	1,906	36.6	6,699	34.4
40-64	2,236	43.0	7,197	37.0
65 +	232	4.5	673	3.5
Race/Ethnicity (N=4,884)				
White	2,030	41.6	7,189	37.0
Asian/ Pacific Islander	1,472	30.1	6,064	31.2
Hispanic	976	20.0	4,343	22.3
African American or Black	108	2.2	622	3.2
Other	298	6.1	1,231	6.3
Education (N=5,200)				
Graduate/professional degree (MBA, MS, MD, PhD, etc.)	1,934	37.2		
College degree (BA, BS)	1,660	31.9		
Associate's degree / Post-high school training / Some college but no degree	1,249	24.0		
High school degree / High school equivalency / Did not complete high school	357	6.9		
Percent of Federal Poverty Level (N=4,363)				
400% +	2,554	58.5		
300-399%	718	16.5		
150-299%	632	14.5		
0-149%	459	10.5		
Speak English At Home (N=4,958)				
Yes	4,484	90.4		
No	474	9.6		
Marital Status (N=5,197)				
Married or live with partner	3,096	59.6		
Divorced, separated, or widowed	509	9.8		
Never married	1,592	30.6		
Rating of General Health (N=5,199)				
Excellent or Very Good	3,465	66.6		
Good	1,457	28.0		
Fair or Poor	277	5.3		
Has a Personal Doctor (N=5,121)	4,435	86.6		
Aware of Provider Type (N=5,200)				
Urgent Care	5,032	96.8		
Retail Clinics or Minute Clinics	2,306	44.4		
Virtual physician visit or Teladoc or visit with physician by smartphone or video chat	3,295	63.4		
Nurse Advice Line	3,695	71.1		
Physician visit at your home	2,843	54.7		
Received Medical Care from Provider Type in Past 12 Months				
Emergency Room (N=5,084)	580	11.4		
Physician's Office (N=5,107)	4,277	83.8		
Urgent Care (N=5,090)	1,336	26.3		
Retail Clinic (N=5,083)	508	10.0		
Virtual Physician Visit (N=5,075)	155	3.1		
Physician Home Visit (N=5,075)	11	0.2		
Called a Nurse Advice Line in the Past 12 Months (N=5,082)	686	13.5		

All comparisons between the analysis sample and the UCI population are statistically significant at the 0.001 level except for the Asian and other categories of race, which are 0.097 and 0.565, respectively.

NOTE: Because of rounding, some total may not equal 100%.

The simulations will provide users with graphs depicting how many people would choose each care setting under the conditions the user selects. This will allow users to download and print their data. It will also allow users to change the assumptions of their scenario, thus giving a sense of which levers are more important than others.

The site has limitations:

- The simulations are approximate and are not intended as an actual planning tool.
- Simulations reflect the findings from our study and are therefore subject to the same limitations as the study. In particular, they reflect health care–seeking behaviors and perceptions of individuals living in Southern California in late 2016. To the degree that individuals in other parts of the country have different behaviors in seeking health care or that perceptions have changed since the end of 2016 (when the survey that underlies the simulations was conducted), the estimates provided by these simulations may be less accurate.

Study Findings

We found that the most important policy lever is out-of-pocket costs. The less costly a care setting is, the more likely patients were to seek care in that setting. This finding, however, was modified by the medical condition for which the patient sought care. Wait time also affected patients' choice: The longer the wait time, the less likely patients were to choose that care setting. This finding was also tempered by the severity of the medical condition, with patients willing to pay more and less willing to face a long wait time as the perceived severity of the condition increased.

On the other hand, we did not find that travel time mattered to patients at all. This finding might be due to the fact that all our survey repondents were urban, and travel times did not vary substantially (up to 30 minutes). It is possible that in rural areas where travel time tends to be longer and to vary more, patients would include travel time when making decisions on care settings.

"We found that the most important policy lever is out-of-pocket costs. Wait time also affected patients' choice."

Summary and Conclusions

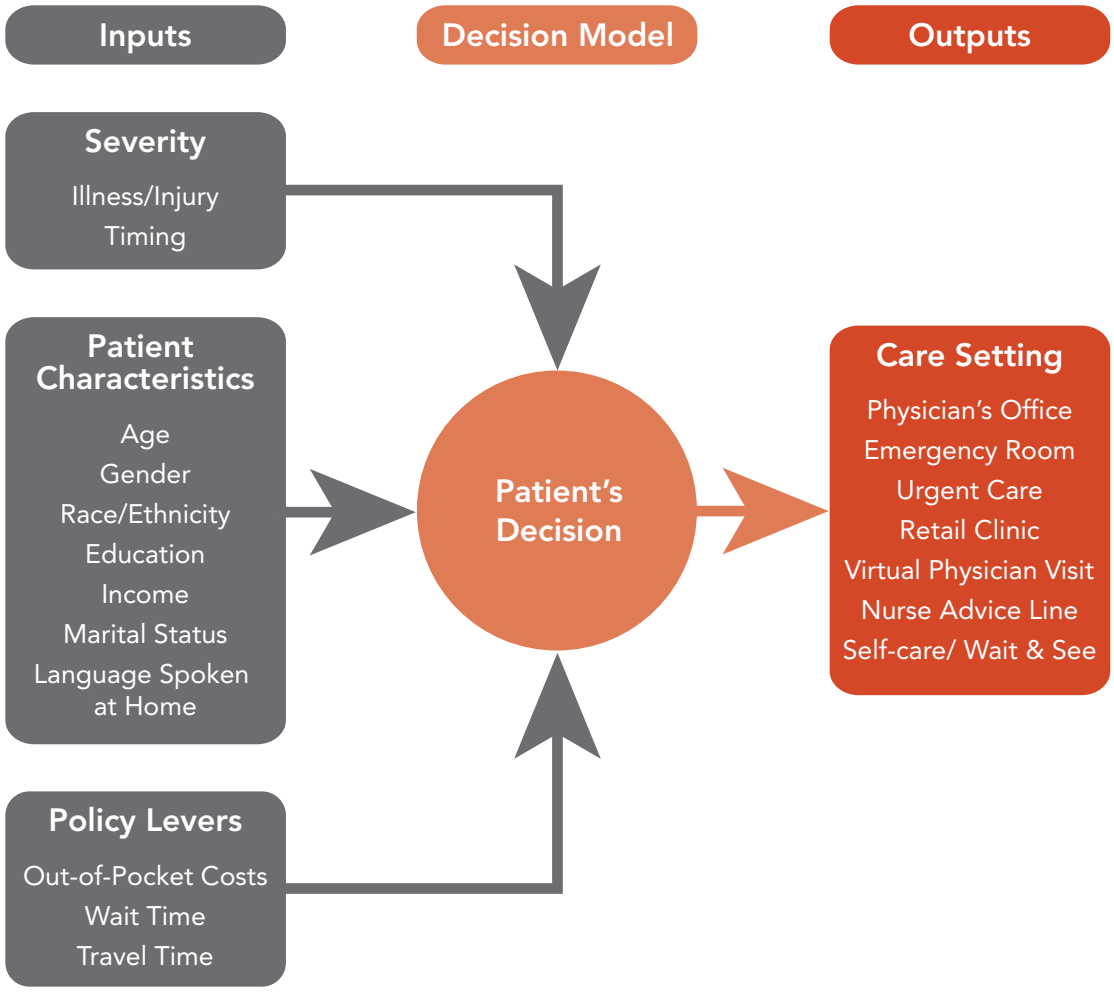
The self-referral patterns of patients experiencing minor injuries or illnesses have changed in response to the availability of new care settings that offer increased convenience in terms of geography and time. Insurers, interested in keeping costs down, have encouraged these trends by adjusting benefits and copayment structures to make these alternatives financially attractive compared to the traditional physician's office. Yet patients are slow to respond, and many continue to make the traditional choice of going to a doctor's office or an ER. The trends away from the traditional choices may increase in the future, if and when patients become more comfortable with alternative settings for care and the services these provide. Insurers may be able to accelerate these trends by further changing benefit structures to make these care settings even more financially attractive to patients.

Methodology

During the fall of 2016, we conducted a survey of all employees at the University of California, Irvine, a large campus with more than 20,000 employees. The university encompasses many schools, including those dedicated to arts and sciences, medicine, law, education, engineering, and nursing, as well as large programs in public health and pharmacy. It has its own police force, housing services, hospitality services, retail shops, transportation, janitorial and groundskeeping divisions, building maintenance and engineering, child care services, retail shops, and other entities. It employs individuals from all walks of life, from highly paid physicians and lawyers to lower-income workers, some of whom may not speak English. It can be viewed as a "mini city" that has a population as diverse as the population of Southern California, where the university is located.

While the university's population is not representative of the nation as a whole, our findings have been weighted to account for distributional differences between our survey respondents and the U.S. population. Weighting was done for differences in age by gender, race/ethnicity, education, income, household size, and regions of the country, using the Random Iterative Method.

Exhibit 2 **Where Do Patients Go?**



"The trends away from the traditional choices (going to a doctor's office or the ER) may increase in the future, if and when patients become more comfortable."

Of the 21,037 employees (including student employees and retirees) who were invited to participate in the survey, 5,451 (26%) responded. Of those, 4,855 had complete data included in the analyses presented.

All respondents were given a series of 10 scenarios. Each scenario depicted a clinical situation describing the onset of an illness (such as a cold or eye redness), a chronic condition that required monitoring, stomachache with diarrhea, the need for a flu immunization, allergies, the need for a physical examination, or an injury (such as a bad a cut that might require stiches, a bad fall with a suspected broken bone, or a burned hand). We also included chest pain, which we expected all respondents to recognize as a symptom that would necessitate treatment in the ER.

In addition to a description of the clinical condition, all scenarios included information about the time of day and the day of the week (i.e., working hours versus evening or weekend), out-of-pocket costs, wait time, and travel time.

Respondents were asked to choose the care setting they preferred for each scenario. They were also asked about their socioeconomic status and the language they spoke at home. A description of the sample studied appears in Exhibit 1.

The data were then analyzed statistically. For each scenario, we estimated models that predicted simultaneously the likelihood that a patient would choose any of the eight care settings, given out-of-pocket costs, wait time, and travel time. For example, for the scenario that described having a bad stomachache with severe diarrhea in the middle of the night, we estimated a model that predicted how likely it was for a patient to go to the physician's office, the ER, an urgent care center,

or a retail clinic; to call a virtual physician on a smartphone or a nurse on the advice phone line; to request a house call by a physician; or to just wait and see whether the condition would resolve on its own. By estimating these models simultaneously, we mimicked the actual choice that patients make when they consider all the choices they have at the same time and trade them off, one against the other, based on the characteristics of each care setting and of cost and time.

The models we estimated also took into account the characteristics of the patient: age, gender, education, income, race/ethnicity, marital status, and whether or not English was spoken at home. We did not include insurance status. This was not necessary, as we explicitly told the respondents what assumptions to make about their out-of-pocket costs.

Exhibit 2 depicts the underlying model and the assumptions we made. The model assumes that the self-referral decisions made by patients are dependent on three types of inputs: the specific illness or injury and its timing, the patient characteristics, and the policy levers. These are combined in the decision model, which we estimated statistically from the survey data, to give the outputs that are the probabilities of self-referrals to each care setting. (The specific models and further description of the methods can be found in the manuscript "Patients' Preferences Over Care Settings for Minor Illnesses and Injuries."[22])

We hope to get your feedback on the website.

We invite you to visit our website (*https://www.medicine.uci.edu/iteqc/wheredopatientsgo*), where we have included a short survey asking for your opinions about the simulation and its usefulness. We would greatly appreciate your feedback, which will help us in developing future projects and ensuring that they are more relevant and useful for policymakers. We would also appreciate direct feedback to *dmukamel@uci.edu*.

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Endnotes

1 Urgent Care Association of America. 2017. Industry FAQs. *http://www.ucaoa.org/?page=IndustryFAQs*. Accessed June 29, 2017.

2 Weinick RM, Bristol SJ, DesRoches CM. 2009.Urgent Care Centers in the U.S.: Findings From a National Survey. *BMC Health Services Research*.9:79.

3 Ashwood JS, Gaynor M, Setodji CM, Reid RO, Weber E, Mehrotra A. 2016. Retail Clinic Visits for Low-Acuity Conditions Increase Utilization and Spending. *Health Affairs (Project Hope)* 35(3):449-455.

4 Mehrotra A, Lave JR. 2012. Visits to Retail Cinics Grew Fourfold from 2007 to 2009, Although Their Share of Overall Outpatient Visits Remains Low. *Health Affairs (Project Hope)* 31(9):2123-2129.

5 Sarasohn-Kahn J. July 25, 2016. Retail Clinics Continue to Shape Local Healthcare Markets. *http://www.healthcareitnews.com/blog/retail-clinics-continue-shape-local-healthcare-markets*. Accessed June 29, 2017.

6 Marklund B, Strom M, Mansson J, Borgquist L, Baigi A, Fridlund B. 2007. Computer-Supported Telephone Nurse Triage: An Evaluation of Medical Quality and Costs. *Journal of Nursing Management* 15(2):180-187.

7 Uscher-Pines L, Mehrotra A. 2014. Analysis of Teladoc Use Seems to Indicate Expanded Access to Care for Patients Without Prior Connection to a Provider. *Health Affairs (Project Hope)* 33(2):258-264.

8 Teladoc Health. About Our Company - Teladoc 2017. *http://s21.q4cdn.com/672268105/files/doc_financials/2017/2017-TDOC-Annual-Report.pdf*. Accessed August 15, 2019.

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9 Teladoc Health 2018. Teladoc Announces Full-Year and Fourth-Quarter 2017 Results. *http://ir.teladoc.com/news-and-events/investor-news/press-release-details/2018/Teladoc-Announces-Full-Year-and-Fourth-Quarter-2017-Results/default.aspx*. Accessed March 20, 2018.

10 Kavilanz P. 2017. These Doctors Do House Calls —For Just $99. *http://money.cnn.com/2015/03/03/smallbusiness/startup-doctors-heal/index.html*. Accessed June 30, 2017.

11 Heal Inc. 2017. See a Doctor Now—In the Comfort of Your Home. On-Demand House Calls, Every Day From 8 a.m.to 8 p.m. *https://heal.com/*. Accessed June 30, 2017.

12 Jolly J. An Uber for Doctor Housecalls. *New York Times*. May 5, 2015. *https://well.blogs.nytimes.com/2015/05/05/an-uber-for-doctor-housecalls/*. Accessed June 29, 2017.

13 Ahmed A, Fincham JE. 2010. Physician Office vs. Retail Clinic: Patient Preferences in Care Seeking for Minor Illnesses. *Annals of Family Medicine* 8(2):117-123.

14 Wang MC, Ryan G, McGlynn EA, Mehrotra A. 2010. Why Do Patients Seek Care at Retail Clinics, and What Alternatives Did They Consider? *American Journal of Medical Quality: The Official Journal of the American College of Medical Quality* 25(2):128-134.

15 Edwards L, Thomas C, Gregory A, et al. 2014. Are People With Chronic Diseases Interested in Using Telehealth? A Cross-Sectional Postal Survey. *Journal of Medical Internet Research* 16(5):e123.

16 Russo L, Campagna I, Ferretti B, et al. 2017. What Drives Attitude Towards Telemedicine Among Families of Pediatric Patients? A Survey. *BMC Pediatrics* 17(1):21.

17 Gordon AS, Adamson WC, DeVries AR. 2017. Virtual Visits for Acute, Nonurgent Care: A Claims Analysis of Episode-Level Utilization. *Journal of Medical Internet Research* 19(2):e35.

18 Weinick RM, Burns RM, Mehrotra A. 2010. Many Emergency Department Visits Could Be Managed at Urgent Care Centers and Retail Clinics. *Health Affairs (Project Hope)* 29(9):1630-1636.

19 Mehrotra A, Wang MC, Lave JR, Adams JL, McGlynn EA. 2008. Retail Clinics, Primary Care Physicians, and Emergency Departments: A Comparison of Patients' Visits. *Health Affairs (Project Hope)* 27(5):1272-1282.

20 Mehrotra A, Paone S, Martich GD, Albert SM, Shevchik GJ. 2013. Characteristics of Patients Who Seek Care via eVisits Instead of Office Visits. *Telemedicine Journal and e-Health* 19(7):515-519.

21 Ashwood JS, Reid RO, Setodji CM, Weber E, Gaynor M, Mehrotra A. 2011. Trends in Retail Clinic Use Among the Commercially Insured. *American Journal of Managed Care* 17(11):e443-448.

22 Mukamel DB, Ladd H, Amin A, Sorkin DH. 2019. Patient Preferences Over Care Settings for Minor Illnesses and Injuries. *Health Services Research*. Apr 29 [Epub ahead of print].

23 Chou S-CA, Schuur JD. Beware This Insurer's Sneak Attack on Emergency Care Coverage. March 9, 2018. *https://www.statnews.com/2018/03/09/anthem-insurance-emergency-care/*. Accessed July 18, 2018.

24 Japsen B. 2015. UnitedHealth Widens Telehealth Coverage to Millions of Americans. *https://www.forbes.com/sites/brucejapsen/2015/05/05/unitedhealth-widens-telehealth-coverage-to-millions-of-americans/#6e32303b1cb7*. Accessed July 18, 2018.