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findings brief

key findings

- Significant variation in quality was found among companies providing virtual visits for management of common acute illnesses.
- Variation in the performance of the telemedicine companies differed by condition. Specifically, variation across websites was significantly greater for viral pharyngitis and acute rhinosinusitis than for streptococcal pharyngitis, low back pain, ankle pain, and recurrent urinary tract infection.
- Mode of communication (videoconference, telephone, or webchat) had no statistically significant effect on completeness of history and physical examination or adherence to key management decision guidelines. However, videoconference and telephone consultations were statistically superior to webchat for making the correct diagnosis.

Robert Wood Johnson Foundation

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Variation in Quality of Care among Virtual Urgent Care Providers

Overview

With the rise of technology in the 21st century, patients have been increasingly turning to telemedicine in response to their need for timely and easily accessible care. Commercial virtual visits, new methods by which patients can request live consultations with physicians over the Internet, have become increasingly popular, with one company noting a user base approaching 6 million. However, the relatively new telemedicine companies, which are designed to bridge the gap—physical and otherwise—between providers and patients must be held accountable for the quality of care they provide.

In a HCFO-sponsored investigation, R. Adams Dudley, M.D., M.B.A., University of California, San Francisco (UCSF) and colleagues performed an audit study to assess the quality of care provided by the eight direct-to-consumer virtual care websites with the highest web traffic. The researchers quantified the variation in performance among these companies with the goal of guiding the development of a regulatory framework or industry standards governing the commercial virtual visit business.[1]

Methods

The researchers hired actors and current medical students to serve as standardized patients and to contact the websites reporting the symptoms of six clinical conditions. A panel of board-certified physicians designed the clinical case vignettes (low back pain, recurrent female urinary tract infections (UTI), acute rhinosinusitis, viral pharyngitis, streptococcal pharyngitis, and ankle pain) and identified key management decisions that could be assessed for concordance with guidelines, such as testing or prescribing medicine, for each case.

The standardized patients were trained to present with one of the six tested cases but not to suggest any diagnosis, tests, or treatments. For over a year, standardized patients participated in virtual visits and recorded the details of each encounter following the consultation.

The researchers studied three primary outcomes for each virtual visit: performance of a complete history and physical examination, the correct diagnosis, and adherence to the appropriate guidelines in key management

decisions. Evaluation of the completeness of the history and physical examination focused on components important for the diagnosis and/or treatment choice. Identification of the correct diagnosis and adherence to the relevant key management decision guidelines were each coded as binary variables. Variation in performance among companies was evaluated by using three pairs of conditions based on the mean percentage of adherence to key management decision guidelines. The researchers then used mixed-effects models to account for clustering by condition, website, and physician.

Results

Among 599 virtual visits conducted, the researchers found that 69.6 percent of physicians performed a complete history and physical examination. Furthermore, 76.5 percent of physicians ascertained the correct diagnosis, 14.8 percent presented an incorrect diagnosis, and 8.7 percent did not provide a diagnosis. The completeness of histories and physical examinations and the rate at which physicians determined the correct diagnosis both varied by condition as well. There was variation among the websites, with the proportions of commercial virtual visits with complete histories and physical examinations and correct diagnoses ranging from 51.7 to 82.4 percent and 65.4 to 93.8 percent, respectively.

Furthermore, in the 599 visits, adherence to key management decision guidelines occurred in 54.3 percent of visits. Guideline-recommended procedures varied considerably by condition. In addition, across the websites, adherence to key management decision guidelines ranged from 34.4 to 66.1 percent.

Researchers found that variation in the performance of the telemedicine companies differed by condition. For the conditions with the highest adjusted rate of adherence to guidelines (low back pain and streptococcal pharyngitis) and the lowest rate of adherence to guidelines (ankle pain and recurrent UTI), there was no statistically significant variation in performance between websites. However, for the other two cases (viral pharyngitis and acute rhinosinusitis), researchers found statistically significant variation in performance among companies, ranging from 12.8 to 82.1 percent.

Moreover, researchers found that 13.9 percent of physicians made a referral to a local brick-and-mortar provider for additional care. On the whole, the mode of communication (videoconference, telephone, or webchat) had no statistically significant effect on completeness of history and physical examination or adherence to key management decision guidelines. However, videoconference and telephone consultations were statistically superior to webchat for making the correct diagnosis.

Limitations

The researchers acknowledge several important limitations to their study. First, they cannot assert whether commercial virtual visits are superior to or inferior to in-person consultations. Second, some companies that ceased operations were excluded from the study. Third, the relative market shares of each company involved in the study are not known. Finally, with only eight commercial virtual visit websites and six conditions, sample size could be a potential limitation.

Discussion and Policy Implications

The researchers' assessment of performance measures to gauge quality of care among online virtual visit providers demonstrated statistically significant and substantial variation in adherence to key management decision guidelines among virtual visit companies as well as variation by condition. "We found that the care you get varies across companies and by condition," said lead author Adam J. Schoenfeld, M.D., resident physician in the Department of Medicine at UCSF. "The study shows that these virtual visits may work well for some conditions, but not as well for others. There is an opportunity to improve and the findings give clues about how to do so."

For instance, the study demonstrated that the rates of incorrectly ordering tests when testing is not recommended may be lower in virtual care than in in-person settings, but the overall rates of ordering recommended tests are also lower. "One of the more surprising findings of the study was the universally low rate of testing when it was needed," said senior author R. Adams Dudley, M.D., M.B.A., director of UCSF's Center for Healthcare Value. "With face-to-face medicine, we worry about too much testing and overprescribing. With commercial virtual visits, we still saw overprescribing of antibiotics, but there was much less testing, even when it should have been done. We don't know why, but it may reflect the challenges of ordering or following up on tests performed near where the patient lives but far from where the doctor is or concern about the costs to the patient of additional testing."

With regard to guideline adherence and completeness of history and physical examination, there was no statistically significant difference by mode of communication, suggesting that virtual visits need not be solely limited to videoconferencing.

In terms of prescribing patterns, the rate of antibiotic prescribing during virtual visits was similar to that in traditional settings. However, significant variation did exist among websites, suggesting opportunities for improvement.

In fact, variation among companies' performance raises the question of whether collaboration among the companies (analogous to quality improvement collaboratives involving several, often competing brick-and-mortar providers) may reduce performance differences. Further research is needed to determine if performance leaders have implemented standards that increase guideline adherence and if these protocols may be transformed into industry standards to improve the delivery of care through commercial virtual visit websites.

Conclusion

In this first evaluation of the variation in quality of care among commercial virtual visit companies, the patterns of observed variation reinforce the conclusion that there are opportunities to improve the care administered through this novel mode of patient-physician interaction. The means of improvement have yet to be determined—whether through regulation or industry-wide standards or collaboration among these virtual providers.

For More Information

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Endnotes

1. For complete findings, see Schoenfeld A.J., J.M. Davies, B.J. Marafino et al. "Variation in Quality of Urgent Health Care Provided during Commercial Virtual Visits," *JAMA Internal Medicine*, Vol. 176, No. 5, 2016, pp. 635-42.