Institute for Population Health Policy
The University of Texas–Pan American

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Physicians' Use of Information Technology

Which Physicians Have Access to Electronic Prescribing and Which Ones End Up Using It?

The availability of clinical information technology (IT) in physician practices has been growing steadily in recent years despite substantial adoption costs. Electronic prescription systems in particular can make a difference in improving health care safety and quality and, ultimately, in reducing health disparities.

More than 1.5 million preventable adverse drug events take place every year in the US and these medical errors can be harmful and expensive to patients, providers, and insurers. The use of e-prescription is more prevalent in larger than in smaller practice settings and in primary care than in medical or surgical specialties.

One recent study by José A. Pagán, William R. Pratt, and Sun Jun, forthcoming in 2009 in the journal Health Policy, used nationally representative survey data on physicians involved in direct patient care to identify which groups of physicians had access to e-prescribing IT and which groups were using IT more or less intensively. Their study used data from the 2004–2005 (Fourth Round) Community Tracking Study (CTS) Physician Survey.

Electronic prescription systems hold the promise of not only reducing cost but also of increasing health care quality by reducing medical errors and minimizing adverse drug events. Access to e-prescribing IT is growing rapidly, but only about three-fifths of the prescriptions written by US physicians in direct patient care are actually prepared electronically.

The physician data was analyzed using Exhaustive CHAID, a statistical technique which can be used to identify physician subgroups (nodes) without making any strict assumptions about how different factors (i.e., physician characteristics, specialty, and practice setting) are related to the availability and use of e-prescription IT in the practice setting.

The authors found large differences across subgroups of physicians in both the availability and the intensity of use of e-prescription IT. Only about one of every four physicians practiced medicine in a setting where IT was available to write prescriptions. Physicians practicing in a group/staff model HMO setting had the highest access to e-prescription IT while physicians in solo/two physician practices had the lowest access to this technology. E-prescription IT availability was also high for medical school/other practice setting physicians with between 19 and 26 years of work experience. Availability of e-prescription IT was particularly low for solo/two practice physicians with less than 12 years of experience, and either in surgical specialties, psychiatry, obstetrics/gynecology, or medical specialties. Access was also low for solo/two practice physicians with between 12 and 16 years

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of experience and for those with more than 22 years of experience.

There are a number of plausible explanations for these results. Vertical integration and the existence of economies of scale likely contribute to the greater access to e-prescription in an HMO environment versus a solo/two physician practice. In an HMO setting investment costs can be spread over many physicians and cost savings are gained in both physician and pharmacist efficiency. Additionally, vertically integrated environments should be less encumbered by interoperability. Even if smaller practices wanted to utilize e-prescribing, downstream pharmacies may not have this technology available. The type of care provided by the physician might also be a contributing factor to these differences in access to e-prescription IT.

This study has several limitations. The tree analyses on availability and use of e-prescription IT by physicians included several variables that could be useful to develop targeted policy interventions (e.g., physician specialty, practice setting, years of experience, gender, ethnicity/race) but there are certainly other variables that could be important but were not available in the 2004–2005 CTS Physician Survey (e.g., socioeconomic and demographic characteristics of the patients). Still, despite these limitations the findings suggest that there is substantial heterogeneity in e-prescription IT availability and use across different subgroups of physicians and, thus, subgroup-specific policies could be beneficial to increase e-prescription IT adoption and use by physicians.

The results from this study have practical implications for not only trying to understand why certain subgroups of physicians are more or less likely to have e-prescription IT available in their practice but also to assess why some subgroups use this technology more intensively than others once it is available in their practice. Segmentation analysis could be particularly useful for the development of targeted interventions to speed up the adoption of e-prescription IT for those subgroups of physicians that use the technology less intensively, as well as to help identify barriers that delay the availability and use of e-prescription systems.

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