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Predictive and Convergent Validity of Claims-based Measures of Adherence to Medications

Manel Pladevall, MS¹; Jennifer Elston Lafata, PhD¹; Keoki Williams MD, MPH¹;
Deneil Kolk, MPH, MSW¹, Mingqun Wang, MS¹; Roger Austin, MS, RPh¹

¹Henry Ford Health System, Detroit, MI

Background: Although poor medication adherence (MA) contributes to inadequate type 2 diabetes (DM2) and LDL-cholesterol control, ways to feasibly measure MA for clinical practice have yet to be fully realized. Previously we showed pharmacy claims-based measures of MA to be associated with clinical outcomes in DM2 patients. The aim of this study was to estimate the convergent and predictive validity for both claims-based and self-reported measures among DM2 patients.

Methods: 2,973 patients with DM2 were identified and met the following criteria during the 2003-2005 period: At least 2 separate fills for a medication in each drug class per year (i.e., at least 2 fills for each an oral antidiabetic agent and a lipid-lowering drug); 18 years or older in 2001; at least 1 laboratory test for HbA1c, and total Cholesterol or LDL-cholesterol; and continuous enrollment in the health plan. A continuous measure of medication gaps (nonadherence) was constructed using claims data. In 2005, patients participated in a mixed-mode (mail and telephone) survey to gather self-reported MA, as well as several behavioral mediator measures not available electronically. Spearman correlation coefficients were used to estimate predictive and convergent validity. Multivariable regression methods will be used to estimate the association between both types of MA measures and outcomes.

Results: 2,038 patients completed the survey (69% response rate). Results showed that self-report and claims-based MA has both predictive and convergent validity. The Spearman correlation coefficients between claims based MA data and self-report, were stronger for lipid-lowering (-0.37) than for oral antidiabetic drugs (-0.27); however, both were statistically significant ($P < 0.0001$). Correlations with outcomes were stronger for claims-based MA than for self-report. The correlations between LDL-cholesterol levels with both claims and self reported MA for lipid lowering drugs were 0.29 and -0.24. The correlations between HbA1c with both claims and self-reported MA to oral antidiabetic were 0.18 and -0.13. All correlations were statistically significant ($P < 0.001$).

Conclusions: Claims-based measures of MA show both predictive and convergent validity. More research is needed on methods to introduce MA into clinical practice to improve health outcomes. Linking MA data with other existing clinical information systems, (e.g., E-prescribing) hold great potential.