

## Debunking Myths About Health Insurance Claims Data for Public Health Research and Practice

Health insurance claims data—created for administrative, financial, and reimbursement purposes—are an important source of information and yield insights into a multitude of complex health system and public health problems. Typically, researchers use claims data to explore issues relevant to the costs and effects of health care delivery. These data are viewed as a best fit for answering questions about health care utilization in an eligible user population, not the broader public.

Claims data typically include person-level demographics, medications, inpatient utilization, diagnoses, procedure codes, equipment and supplies, other services, and costs. This rich information set can help us answer research questions about policies and interventions that affect determinants of health and outcomes relevant to public health practitioners. However, public health researchers may not fully embrace claims data's potential to answer these questions—in part because common myths exist about the relevance and quality of the data. Therefore, we address three prevailing myths regarding claims data to raise awareness about their use in creating reliable evidence that supports public health practice.

### MYTH 1: RELEVANT OUTCOMES ARE NOT MEASURED

The first myth is that claims data do not measure outcomes relevant to public health researchers. An important criterion for improving public health is the ability to analyze the effect of an intervention, program, or policy on the determinants of health outcomes or the outcomes themselves. Relevant public health outcomes include mortality, morbidity, prevalence of disease, and health care costs. Claims data can answer research questions that assess theorized changes affecting medical care utilization, costs, mortality, and morbidity. Additionally, they can be used for epidemiological research identifying chronic diseases such as hypertension.<sup>1</sup> Claims data can span multiple years, thus helping researchers create a robust longitudinal database. This offers the researcher versatility to examine the consequences of policy changes, such as the effects of Medicaid expansion on unauthorized immigrant women receiving prenatal care.<sup>2</sup> Thus, the utility of claims data allows the study of relevant questions related to identifying a chronic disease or analyzing the effect of a change on the determinants of health and health outcomes.

### MYTH 2: UNRELIABLE EVIDENCE

The second myth is that the nature of claims data makes their evidence unreliable. To generate reliable evidence, the researcher must carefully design a study to address claims data's inherent limitations. Claims data contain standardized billing codes that physicians, pharmacies, hospitals, and other health providers submit for payment. In some cases, claims data do not adequately capture the patient's actual diagnosis and treatment because of code precision, clerical error, and omission of comorbidity codes. "Upcoding" refers to fraudulent assignment of a billing code that is more expensive than the service performed. When analyzing claims data, upcoding potentially makes the population being studied seem sicker than they actually are. Additionally, claims are criticized for lacking critical social determinants of health.

To overcome these limitations, researchers need to apply a

few principles to design a valid claims-based study. First, they should define the determinants of health, outcomes, and other measures of interest on the basis of an appropriate theory. Then, they should carefully assess whether these measures exist in claims data and how they are measured. Often, limitations such as the lack of social determinants or issues with coding precision can be managed by merging claims data with other sources from the US Census Bureau or the electronic medical record. Next, researchers need to carefully decide and explain how the sample is identified. This allows increased transparency in understanding the population the sample generalizes to. Selection of appropriate statistical methods also can ensure that other issues that limit the findings' validity, such as confounding, are properly addressed. Two studies that apply sound design principles assess the effect of the Affordable Care Act (ACA) on access to health care and medication use among low-income populations.<sup>3,4</sup> Once findings are generated, their careful interpretation in the context of any remaining limitations that could not be addressed through study design is required to promote

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This editorial was accepted July 23, 2019.  
doi: 10.2105/AJPH.2019.305317

accurate use of evidence in public health practice.

### MYTH 3: LACKS INSIGHT INTO PRACTICE

The third myth is that evidence from claims data cannot provide insight into public health practice. Researchers can use administrative data to produce evidence that provides meaningful insights into public health practice. These data offer advantages for researchers when randomized controlled trials are not feasible or pose ethical concerns. The aforementioned studies relied on the use of claims data partly because of these concerns.<sup>2-4</sup> To transform public health, practitioners need to be able to use the evidence that researchers generate to anticipate the impact of policy changes so they can respond appropriately.<sup>5</sup>

One example in which evidence from claims data was able to translate into practitioners' understanding implications for changing policy involves a provision of the ACA regarding concurrent care for children enrolled in Medicaid and their families (section 2302).<sup>6</sup> Concurrent care enables curative and palliative care therapies to be administered simultaneously. Before the ACA, children with chronic, complex conditions had to choose between continuing curative therapies and receiving hospice care services.<sup>6</sup> Researchers were able to use claims data to demonstrate that the California Medicaid system could provide comprehensive care for children at end of life but also that hospice and home health services were often underutilized.<sup>7</sup>

Such evidence profiling children with chronic, complex

conditions facilitates practitioners' understanding of the destabilizing effects that repealing the ACA would have. Destabilization would be caused by the elimination of concurrent care for children and their families at the end of life. More specifically, it enabled clinicians, caregivers, and practitioners to anticipate and prepare for children needing hospice services but not being able to access them because of the repeal of the ACA.<sup>6</sup> Having an ability to anticipate the effects of policy changes allows appropriate responses that in some cases may include advocacy.

### CONCLUSIONS

Claims data have the potential to help researchers measure relevant outcomes, produce reliable evidence, and lend meaningful insight into public health practice. Therefore, these data are an important source to consider in designing research studies, especially in situations in which prospective designs may be infeasible. Using claims data to address a relevant public health research question and create evidence through the application of appropriate, rigorous, and transparent analysis can be particularly rewarding. Only by going through this process can public health researchers overcome some common misconceptions and use claims data to their full potential to support public health practice. **AJPH**

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M. Cozad and L. C. Lindley made the primary contributions to the editorial. All authors contributed.

### ACKNOWLEDGMENTS

This publication was made possible by the National Institute of Nursing Research (grant R01NR017848).

The authors thank Ronnie Horner, professor, Health Services Policy and Management Department, Arnold School of Public Health, University of South Carolina, for his helpful insights.

**Note.** The contents of this editorial are solely the responsibility of the authors and do not necessarily represent the official views of the National Institute of Nursing Research or National Institutes of Health.

### CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

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