International Journal of Integrated Care

Lewanczuk, R 2018 The critical importance of going beyond administrative data for health systems planning and integration. *International Journal of Integrated Care*, 18(S2): A3, pp. 1-8, DOI: dx.doi.org/10.5334/ijic.s2003

CONFERENCE ABSTRACT

The critical importance of going beyond administrative data for health systems planning and integration

18th International Conference on Integrated Care, Utrecht, 23-25 May 2018

Richard Lewanczuk

Alberta Health Services, Canada

Introduction: Modern health care systems strive to be data driven, meaning they maximize the use of administrative data for evaluation and planning. However, the use of traditional administrative data has not had a major impact on health care costs nor clinical outcomes. Alberta, Canada is a province of 4.1 million persons with a single, public health care system. This system, where all clinical and utilization variables are captured within an entire population, afforded us the opportunity to assess whether the application of administrative data could lead to enhanced integration, reduced system costs and better care.

Methods: We used the databases of the provincial government and its healthcare delivery arm (Alberta Health Services), to determine whether administrative data would provide sufficient information to drive integration across the health care system, thereby reducing costs and improving care. Administrative data available included all encounters with the health care system such as physician visits, hospitalizations, emergency room visits, diagnostic testing, and all other clinical costs except for pharmaceuticals. Both parametric statistics and machine learning techniques were used to assess the data and to attempt predictive modelling from the same. Subsequently, mixed-methods techniques were used to determine the validity of statistical assessments and models.

Results: Administrative data identified the frail elderly and medically complex elderly as the major demographics driving healthcare costs. Further analysis suggested disease-related drivers of cost such as hypertension and diabetes on an outpatient basis, and heart failure and chronic obstructive pulmonary disease on an acute care basis. However, predictive modelling techniques were disappointing, even when machine learning was used. Moreover, groups identified as high cost or high system utilizers in any given time period turned out to have a 75% chance of being low cost/low users on a go-forward basis. When we explored root causes for health care utilization and costs, both by interviews and by adding in social data, we found that social factors were huge determinants and predictors of health care costs and utilization. For example, loneliness scores in a large sample of seniors correlated with future health care utilization and costs at an R2 value of 0.98. By contrast, the best machine learning models gave no more than a 0.6 correlation coefficient between administrative variables and subsequent costs/utilization. Finally, interviews with both patients and health care professionals confirmed that root causes of health care costs could be attributed to both an

inadequacy of community social supports as well as to a lack of attachment and continuity with a primary care provider. Individual costs varied by five-fold in communities with strong social supports versus those without.

Conclusion: The exclusive use of administrative data would have lead our healthcare system down a misleading path of allocating resources to better management and integration of chronic diseases between primary, acute and specialty care. Instead, by adding social variables as well as patient/provider narratives to our planning, a completely different emphasis resulted: strengthening primary care and enhancing social supports in the community.

Keywords: costs; social supports; administrative data; predictive modelling