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Mapping Clinical Contents onto Longitudinal Depictions of Cross-Continuum Service Events in Island Health: Clinical Context Coding Scheme

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Introduction

All bits of clinical information acquire meaning against a backdrop of longitudinal engagement with a potentially large constellation of services. Full cross-continuum transactional data will be refractory to analysis unless the full continuum of service locations can be rendered in a form that is transparent with regard to target populations.

Conclusion/Implications

The CCCS produces views of patients that are more complete and/or quite different from those created with the “usual datasets” (e.g., Acute Care + ER). Applying the scheme to diverse populations (e.g. addictions; stroke patients) illustrates the scheme’s viability – and the consequences/costs of NOT bring the full continuum into focus.

Objectives and Approach

The work entailed two streams of activity: (1) building a six-dimensional framework (Clinical Context Coding Scheme - CCCS) that is layered directly onto the full array of secondary and tertiary service locations to render transparent the clinical function of the services; and (2) developing tools that work from that framework to reduce very large numbers of granular service entities down to a smaller number of clinically-functionally homogeneous entities. This solution serves both to supply the data in an analyzable form, and to address problems of small cell sizes and associated challenges around risk for re-identification of high-dimensional longitudinal data sets.

Results

The CCCS consists of an extensible array of meta-data categories (currently six) that are layered onto each of the 1700 service locations extracted from the location build in Island Health’s deployment of the Cerner EHR. This scheme was linked to the large body of longitudinal encounter data in Island Health. Service encounters, classified and aggregated using this CCCS scheme, were used to perform the following functions: (a) supply a base longitudinal encounter layer onto which other data sets could be superimposed (linked); (b) generate within-person-over-time visualizations of individual patients that reflects full secondary and tertiary cross-continuum service utilization; (c) generate cohort definitions reflecting patterns of service utilization, and (d) generate aggregate level reports that summarize full cross-continuum service utilization for cohorts.