

need for clinic staff to enter data into the EMR and to administer the questionnaire orally when the information is needed immediately, we have been evaluating administration using Interactive Voice Response (IVR) and online questionnaire administration. **Methods:** KP members were invited to participate in the IVR or the online pilot. Some IVR participants were asked to complete the Health Assessment prior to a scheduled Wellness Visit and others were invited to test the IVR system at a research facility. Those at the facility were observed and all participants were interviewed immediately after completing it. For the online pilot, members were emailed the survey link and asked to complete the Health Assessment. Once the Health Assessment was submitted, members were interviewed about their experience. **Results:** The majority (80%) of IVR participants reported that it took an acceptable amount of time to complete the Health Assessment. Two-thirds used a handheld telephone but still 75% reported it was “very easy” to respond to the survey. Nearly all could hear the questions clearly and understand the questions and response options. About 50% of members asked were willing to complete the Health Assessment online. All online participants found it easy to access and complete the Health Assessment using a link emailed to them. **Conclusions:** Both IVR and online surveys are viable options for administering a health assessment to senior members. Over half of the test respondents would prefer IVR over other modalities. Members who are comfortable with and have access to a computer in their home often prefer the online modality. Although high-tech modalities are feasible and preferable to a segment of the senior population, other modalities need to be available.

Keywords: Health Risk Assessment; Interactive Voice Response; Medicare
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Virtual Data Warehouse

A4-1:

Evaluation of the Utilization-Based Population Denominators in the HMORN Context

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Background/Aims: Defining a population denominator is a major challenge in practice-based research. Because health plan membership is unknown, population denominators must be determined by alternate methods, e.g., healthcare utilization. Such an approach may introduce bias since the resulting population may only represent a small portion of individuals who are affiliated with a healthcare organization. Moreover, healthcare utilization is often confounded by demographic and socio-economic factors, potentially compounding bias in the population estimates. **Methods:** The majority of HMORN member organizations have health plans, whose enrollment information is captured in the Virtual Data Warehouse (VDW) Enrollment file. The health plan enrollment provides a well-defined population denominator. In order to participate in multi-site research, HMORN member organizations without health plans, such as Essentia Health (EH), need to determine an enrollment proxy. The purpose of this pilot study was to evaluate a utilization-based enrollment proxy algorithm. Four HMORN sites with Epic electronic medical records (three sites with and one site without standard VDW enrollment files) participated in the study. The utilization-based algorithm was applied in two steps: 1) creating the base table from Clarity (Epic) database; and 2) creating the utilization-based enrollment proxy using predetermined selection rules. **Results:** EH implementation of the enrollment proxy for years 2002-2012 contained 390,000 “enrollment” periods for 378,000 unique patients. The EH algorithm was applied to the data from the three sites with health plans; the resulting enrollment proxy files were compared to the standard enrollment files. Patient demographic data (age, sex) and place of residence categorized by rural-urban commuting area (RUCA) codes (urban, large rural, small/isolated rural), as well as race and socio-economic measures (Census file), were used to characterize the deviations between two population denominators. **Conclusions:** The results of this study will inform HMORN researchers about the comparability of the patient populations between standard health plan enrollment and the utilization-based proxy. This study will also evaluate patient characteristics

likely to affect utilization, and therefore, accuracy of the utilization-based proxy as a population denominator. It may also be useful for further development of the algorithm.

Keywords: Virtual Data Warehouse; Enrollment Proxy;
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A4-2:

Complex VDW Queries - So Easy, a PI Can Do It

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Background/Aims: GHRI has created a SAS program that takes all of its input from a configuration file. The configuration file is nothing more than a text file, formatted to easily convey the datasets, variables, and criteria necessary for data extraction. **Methods:** There are numerous benefits of this approach: (1) complex logic can be encapsulated in a single file; (2) extensive comments in the configuration file are allowed; (3) the program is “safe” for multi-site requests; (4) after review, the program does not need to be redistributed, only the configuration file needs to be distributed and reviewed for each request, and it cannot execute without the program that supports it; (5) summary-level datasets with sophisticated criteria can be created; and (6) current summary-level efforts prevent person-level analysis.

Results: Here is how the program works: The configuration file consists of different sections. The first section tells the program which VDW datasets are to be used. Other sections create criteria for selection and analysis. For example, here are two criteria for diabetes identification.

```
# outpatient criteria
criteria_name=outpatient /
criteria_where=enctype not in (“IP”,“ER”) and (dx
in(‘357.2’,‘366.41’,‘362.01’,‘362.02’,‘362.03’,‘362.04’,‘362.05’,‘362.06’,
‘362.07’,‘648.83’) or
substr(dx,1,3) eq ‘250’) /
criteria_keys=dx dx_date /
criteria_data=dx dx_date /
criteria_sort=a /
# lab a1c criteria
criteria_name=lab_a1c /
criteria_where=test_type eq “HGBA1C” and input(result_c, 8.) gt 6.5 /
criteria_keys=test_type result_c lab_date /
criteria_data=test_type result_c lab_date /
criteria_sort=a /
```

Conclusions: Multiple criteria blocks can be assembled to create flags for each person in a cohort. The resulting summary-level dataset can then be used to make determinations based on the absence or presence of particular flags. The criteria blocks use simple boolean expressions and concentrate the “intelligence” of the analysis in one location.

Keywords: VDW; SAS

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A4-3:

Clarity Translation of Chemotherapy Infusion Data

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Background/Aims: The aim is to educate programmers on how to pull chemotherapy infusion data from Clarity. The data are complex, and it can be take a while to learn the Clarity Data model, which can be difficult to understand. At Kaiser Permanente Northern California (KPNC), we developed a smaller model and an easy-to-understand workflow of the data. We would like to share our learnings, including how to link treatment plans, orders, dispensing, and administration together; and our knowledge of how to find completed treatment plans, days and cycles. **Methods:** To demonstrate the method for pulling data, we will show a data diagram with linkages to the different Beacon Clarity tables and a sample SQL explaining some of the filters/business logic and why the linkage must be done a certain way. **Results:** We hope users will find the information from KPNC’s experience useful, and that by the end of the presentation, users will gain a better understanding of how to pull chemotherapy infusion data from Clarity. We