

outlined above. For the casual data browser, HTML output is ideal. For printing, PDF is preferred. And for the additional analysis, Excel is a popular option. With ODS, we can meet all of these needs. **Methods:** Because ODS permits opening multiple output destinations simultaneously, a single procedure can be used to generate data in HTML, PDF, and Excel at once. The presentation will demonstrate the following: o- basic ODS syntax for HTML, PDF, and Excel output o- custom HTML table of contents o- using the ExcelXP tagset for multi-tab spreadsheets o- a custom macro for managing multiple ODS destinations simultaneously o- simple PROC Template code for easy customization o- techniques for consistent output from multiple platforms. **Results:** The techniques outlined here have been well-received in a variety of business reporting environments. **Conclusions:** The SAS ODS provides a wide array of reporting options. Don't limit yourself to just one type of output.

**Keywords:** SAS Output Delivery System, Reporting options, Output Delivery System destinations

doi:10.3121/cmr.2010.943.c-c1-04

PS3-04:

### **Cultivating an Environment and Attitudes Where Data Quality Improvement of the Virtual Data Warehouse Can Occur**

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**Background and Aims:** The Virtual Data Warehouse (VDW) at the Institute for Health Research (IHR) at Kaiser Permanente Colorado (KPCO) is the data source of choice for the IHR analytic team. This research ready data source is important for efficient use of analytic team resources. Our aims are to 1) describe the attitudes, methods and processes that lead to high data quality in the VDW at KPCO, and 2) provide examples of improvement successes. **Methods:** The methods used to pursue VDW improvement include the following: 1) we gathered support from all local interested parties and provided avenues for all interested parties to participate in setting VDW file improvement priorities along with the allocation of available resources to support the process; 2) we worked to develop relationships with experts in data content areas throughout KPCO's clinical delivery system and those overseeing legacy source data systems; 3) we stayed informed of issues concerning the VDW by participating at the national level in committees concerned with VDW development; 4) we encouraged programmer networking at both the local and national levels; 5) we created an environment that encouraged detailed file documentation; 6) we encouraged two way communications between those using data files and those creating data files. **Results:** We found that nurturing a collaborative team spirit encouraged 1) the identification of key individuals best suited to improve specific files, 2) realistic estimates of time necessary to complete the improvement tasks, and 3) the freeing of time for those key individuals to perform these tasks. Engaging content experts outside of the IHR allowed for better understanding of legacy data files and allowed for lead time to respond to data system changes. Engaging programmer networks allowed for the development and sharing of best practices. Enhanced VDW file documentation lessened the chance of misinterpretation or misuse of data. Enhanced communication between those creating the VDW files and those using the files assure continued improvement. **Conclusions:** Good communication among many different parties and a supportive team spirit from local interested parties are necessary to facilitate the building and maintenance of a high quality research data structure.

**Keywords:** Virtual Data Warehouse, High quality research data, Quality data best practices

doi:10.3121/cmr.2010.943.ps3-04

## **Genetics**

PS1-08:

### **Genetic Service Providers Identify Barriers Related to Referral, Counseling and Testing for Familial Cancer**

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**Background and Aims:** Little of what we know about the use of family history and genetic risk assessment services has been gathered from those engaged in counseling. To fill this gap, we conducted a survey to understand the processes of identifying and referring high-risk patients for genetic counseling and testing for familial cancer from the perspective of genetic service providers. **Methods:** Genetics professionals (genetic counselors and physician geneticists) from eight CRN sites were surveyed. The survey, administered via Survey Monkey, included questions regarding sources of referrals, steps to get an appointment, use of electronic medical records, perceived barriers to referral, strategies employed to improve identification and referral of high-risk patients, and ways to increase awareness among providers of the value of obtaining family history of cancer. Analyses involved computing frequencies of categorical responses and means of continuous responses (performed in SAS v9.1). **Results:** Of the 40 invited, twenty-eight individuals responded to the survey (70%). Referrals were predominantly from providers (89% on average) versus self-referrals (10% on average). Barriers that may prevent patients who are referred for counseling services from being seen included the following: genetic risk evaluation was not a priority for patients (72%, 18 of 25 responding to this item), concerns about insurance (52%, 13 of 25), distance to appointments (48%, 12 of 25), lack of patient and/or provider knowledge (36%, 9 of 25), discouragement by family members (28%, 7 of 25), and fear (20%, 5 of 25). Attending meetings was the most frequently (57%, 16 of 28) reported strategy to increase awareness among and referrals from providers. Provider education was mentioned most frequently (70%, 14 of 20 responding to this item) to improve understanding of the value of family history documentation and increasing referrals. **Conclusions:** Our survey identified several areas in the identification and referral process for cancer genetic services where opportunities for improvement exist including increasing awareness of the importance of genetic risk assessment among general practitioners, creating a simple standard for collecting genetic information and referring patients, and promoting the value of family history and the importance of determining genetic susceptibility, when appropriate, among patients and providers.

**Keywords:** Genetic risk assessments, Genetic counseling, Testing for familial cancer

doi:10.3121/cmr.2010.943.ps1-08

PS1-09:

### **Public Opinion of Family History and Genetic Testing for Common Diseases: Results from Focus Groups with Kaiser Permanente Colorado Members**

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**Background and Aims:** With the advent of personalized medicine, consumers are routinely exposed to information about new gene discoveries, family history, and direct-to-consumer (DTC) advertising of genetic tests. Since 2008, the BRACAnalysis<sup>®</sup> test for breast cancer risk has been steadily advertised directly to consumers in different markets across the US, and at least 3 companies now offer DTC genetic screening for \$300 - \$1000, with more companies entering this burgeoning market. The specific aims of this project are to: 1) determine how individuals understand the issue of family history and DTC genetic tests, and 2) to determine how individual perspectives about issue salience and issue frames differ by population group.