**HEALTH CLAIMS DATA FOR THE WORKPLACE HEALTH
Sample Calculations**

The workplace health assessment may find it helpful to review data regarding the health care utilization of employees. This information can be used to facilitate the design of a health promotion program to best address the health promotion needs of employees. As part of this process, the following types of aggregate data are examined:

- Utilization of preventive services (e.g., annual physical exams, Colorectal cancer (CRC) screening, mammography, etc) and

- Health utilization and costs (including clinical indicators of quality of care as well as injury claims).

Indicators and data elements of interest are shown in the tables that follow. Each of these tables illustrated a potential request for the number and the percent of covered beneficiaries who received health care and the total costs of health care for each condition. It may be helpful to consider four types of requests.

- Table 1 reflects data on the **use of preventive benefits** (or services), such as annual physical exams, screening tests, immunization, and counseling.

- Table 2 summarizes suggested data areas applicable to **disease diagnosis prevalence** and health care costs.

  o This table displays information by several major categories of disease (e.g., cardiovascular disease [CVD] and CVD risk factors), which summarizes services or treatments provided for major individual diseases, such as heart disease, diabetes, diabetes complications, hypertension, and hyperlipidemia. Because these conditions are relatively common, it may also be helpful to request data on each of these individual conditions as well.

  o Information requested on arthritis, chronic obstructive pulmonary disease (COPD) and allied conditions, bronchitis, asthma, emphysema is also useful as is information about services and treatments for cancer, depression, other mental health conditions, hearing loss, influenza and pneumonia, injuries, oral health, and reproductive health.

- Table 3 shows requested information about the **use of health benefits by setting** (e.g., emergency department, outpatient care, inpatient hospitilization) for each type of services across all health conditions.

- Table 4 displays information about **medication by type of health condition**.

The first column of these tables shows broad classes of information for analysis (e.g., Utilization of Preventive Benefits) which are indicated as row headings in bold. Column 2 consists of selected indicators and data elements applicable to the contents of Column 1 while Column 3 shows the strata (or subgroups) that will be used in analysis. These

strata include the beneficiary population characteristics for analysis, such as the age group, gender, and beneficiary status (e.g., employee, adult family member, dependent child, and retiree). Strata should be partitioned further by business unit/organizational unit in order to allow comparison of beneficiary population characteristics between individual units and the company as a whole.

Sample table shells for the output generated for this request are presented in Appendix D.2.

Appendix D.3 includes a list of ICD-9-CM codes.  The bolded category headings represent the basic units of analysis for calculating both the treated prevalence and the health care costs.

**Table 1:  Potential Data on Health Care Utilization: Utilization of Preventive Benefits**
  (See Table 1 on Appendix D.2)

| Indicator | Data Elements | Strata |
|---|---|---|
| **Utilization of Preventive Benefits (Percent of use)** | | |
| Use of preventive health services health benefits [for each insurance plan; and then aggregated] | Number and % of employees receiving benefit and total costs (covered and out of pocket) for**:** Physical exam (annual, including blood pressure) Colorectal cancer (CRC) screening Mammography Pap smear Screening for diabetes:     Fasting lipid profile     2 Hba1c's in last year     Microalbuminuria screening     Dilated eye exam     Comprehensive eye exam     Comprehensive foot screen Immunizations (influenza,   pneumonia) Smoking cessation (counseling: individual, group,     telephone with or without NRT) Counseling for obesity Counseling for diabetes Depression screening Other Chronic Disease Management programs Hearing screening Oral exam (biannual, annual, including x-rays) Vision test Annual glasses frames and lenses | Within worksite and unit by: All insured: Age Gender Age x Gender Employees only: Age Gender Age x Gender Spouses: Age Gender Age x Gender Dependents: Age Gender Retirees: Age Gender Age x Gender |

**Table 2: Potential Data on Health Care Utilization: Diagnosis Prevalence and Health Care Costs**

| Indicator | Data Elements | Strata |
|---|---|---|
| **Diagnosis Prevalence and Health Care Costs** | | |
| Health Costs and Prevalence of Diagnoses [for each insurance plan; and then aggregated] | Number and % of covered beneficiaries & total and per person costs for: <br> CVD & Risk Factors (total): <br>    Heart disease <br>    Cerebrovascular disease <br>    Diabetes <br>    Diabetes complications <br>    Hypertension <br>    Hyperlipidemia <br> Arthritis & Muscoloskeletal <br> COPD & Allied Conditions <br>    Asthma <br>    Bronchitis & chronic bronchitis <br>    Emphysema <br> Cancer: <br>    Breast cancer <br>    Colon cancer <br>    Lung cancer <br>    Prostate cancer <br>    Skin cancer <br> Total Chronic Disease <br> Depression <br> Other mental health conditions <br> Hearing loss <br> Influenza <br> Pneumonia <br> Injury <br> Oral Health <br> Reproductive health/Pregnancy | Within worksite and business unit by: <br><br> All insured: <br> Age <br> Gender <br> Age x Gender <br><br> Employees only: <br> Age <br> Gender <br> Age x Gender <br><br> Spouses: <br> Age <br> Gender <br> Age x Gender <br><br> Retirees: <br> Age <br> Gender <br> Age x Gender <br><br> Aggregate by number of chronic conditions |

**Table 3: Potential Data on Health Care Utilization: Use of Health Services, Place**

| Indicator | Data Elements | Strata |
|---|---|---|
| **Utilization of Health Services: Place of Service** | | |
| Use of health benefits [for each insurance plan; and then aggregated] | Number and % of covered beneficiaries receiving and total and per person costs for: <br> 1. Inpatient <br>     Inpatient hospitalizations: <br>         Rehabilitation hospitalization <br>         Psychiatric hospitalization <br>         Acute hospitalization <br>         Skilled nursing facility <br>     Inpatient hospitalization days: <br>         Rehabilitation days <br>         Psychiatric days <br>         Acute days <br>         Skilled nursing facility <br> 2. Physician & outpatient visits <br> 3. Pharmacy <br> 4. Emergency room visits <br> 5. Home Health <br> 6. Physical therapy <br>     Occupational therapy visits <br> 7. Other <br>     Nursing home custodial days <br>     Substance abuse rehabilitation | Within worksite and business unit by: <br><br> All insured: <br> Age <br> Gender <br> Age x Gender <br><br> Employees only: <br> Age <br> Gender <br> Age x Gender <br><br> Spouses: <br> Age <br> Gender <br> Age x Gender <br><br> Dependents: <br> Age <br> Gender <br><br> Retirees: <br> Age <br> Gender <br> Age x Gender <br><br> By persons with number of chronic conditions |

**Table 4: Potential Data on Health Care Utilization: Medication Use**

| Indicator | Data Elements | Strata |
|---|---|---|
| **Medication Use** | | |
| Medication Use [for each insurance plan; and then aggregated] | Number of covered beneficiaries receiving selected medication classes, and total and per person costs for classes of medications:<br>Anti-hypertensives<br>Ace-inhibitors<br>Beta-blockers<br>Others<br>Cholesterol lowering (statins)<br>Diabetes:<br>    Insulin<br>     Others diabetes meds<br>    Diabetic supplies<br>Antidepressants<br>Anti-Anxiety<br>Psychotic and Bipolar Disorders<br>Cancer drugs (chemotherapy)<br>Tobacco Cessation (prescribed)<br>Weight Loss (prescribed)<br>Rheumatoid and Osteoarthritis<br>Antibiotics<br>Asthma/COPD<br>Sleep Aids<br>Contraceptives | Within worksite and business unit by:<br><br>All insured:<br>Age<br>Gender<br>Age x Gender<br><br>Employees only:<br>Age<br>Gender<br>Age x Gender<br><br>Spouses:<br>Age<br>Gender<br>Age x Gender<br><br>Retirees:<br>Age<br>Gender<br>Age x Gender |

## Indicators of Quality of Care

Indicators of quality of care can influence how the information within a health promotion program is presented and tailored. Potential indicators are shown in Table 5. It is possible that the health plans have this or similar information already. Hence, it will be useful to ask:

- What quality of care information (like HEDIS data) is reported concerning health plan quality/performance?

- Do health insurers conduct any outreach activities to enrollees on health promotion, disease prevention and disease management? If yes: How often and by what method (mailings, e-mail, information line, etc.)?

**Table 5:  Potential Data on Quality of Care**

| Indicator | Data Elements | Strata |
|---|---|---|
| **Quality of Care Indicators** | | |
| Quality of care: (for all adults by gender and age) Screening<br><br>[for each insurance plan; and aggregated] | Percent of adults age 50+ with appropriate colorectal cancer (CRC) screening<br><br>Percent women age 40+ with a mammogram in previous 2 years<br><br>Percent of women over 21 years who have had a PAP smear | Within worksite and business unit by:<br><br>All insured:<br>Age<br>Gender<br>Age x Gender<br><br>Employees only:<br>Age<br>Gender<br>Age x Gender<br><br>Spouses:<br>Age<br>Gender<br>Age x Gender<br><br>Retirees:<br>Age<br>Gender<br>Age x Gender |
| Quality of care (for patients diagnosed with CVD CVD control)<br><br>[for each insurance plan; and aggregated] | Percentage of CVD patients with hypertension and appropriate blood pressure control<br><br>Percentage of CVD patients treated with:<br>    Beta blocker<br>    Aspirin or other antithrombotic agent<br>    ACE inhibitor<br>    Cholesterol lowering drug | |
| Quality of Care<br><br>  Diabetes<br><br>[for each insurance plan; and aggregated] | Percent of people with diabetes:<br><br>-- receiving eye exam<br>-- receiving foot exam<br>-- receiving medication or insulin<br><br>% of patients using:<br>    2 HbA1c test in last year<br>    2 BP measurements in last yr<br>    ACE inhibitors<br>    ARB medication<br>    Aspirin or antithrombotic agent | |

**Formulas for Calculating the Output:**

**HEALTH CLAIMS:**

**Utilization of Preventive Benefits (Percent of use and costs)**

1.  Utilization of Preventive Services

    Numerator:  # of people with a code for a specified service
    Denominator:  # of people covered by the health plan


**Diagnosis Prevalence and Health Costs**

1.  Diagnosis Prevalence

    Numerator:  # of people with a diagnosis (see list of ICD-9 codes)
    Denominator:  # of people covered by the health plan

    *Note: The denominator must include all people covered by the health plan and not just those who have a health claim (e.g., are in the health claims database).*

2.  Odd Ratios and 95% Confidence Intervals for Disease Prevalence with Each Stratification

    Run a logistic regression where:
    Diagnosis (yes/no dummy variable) is the dependent variable
    Stratification category (e.g., male/female) is the independent variable

    *Note: The sample should include all people covered by the health plan, which will be equal to the denominator above.*

3.  Health Care Costs
    a.  Total Cost:
        Sum of all expenditures for all people with the diagnosis

    b.  Per Capita Cost:
        Total Cost / # of people with the diagnosis

4.  Number of Hospitalizations

    a.  Total: Total number of hospitalizations for all people with the diagnosis

    b.  Average:  Total number of hospitalizations / # of people with the diagnosis

5.  Number of Outpatient or Physician Visits

    a.  Total: Total number of outpatient or physician visits for all people with the diagnosis

    b.  Average: Total number of outpatient or physician visits / # of people with the diagnosis

6.  Number of Claims

    a.  Total: Total number of claims for all people with the diagnosis

    b.  Average: Total number of claims / # of people with the diagnosis

**PRESCRIPTION MEDICATION:**

1.  Drug Utilization Among Those with a Condition

    Numerator:    # of people with filling a Rx in the specified drug class
    Denominator:  # of people with the diagnosis

    *Note: This may or may not require merging of the Rx data with the health claims data.*
    *Questions to consider:*
    *1.  Is every person in the Rx database also in the health claims database?*
    *2.   Is it possible that a person fills a prescription but does not have a diagnosis?*
    *If the answer to either of these questions is yes, then merging of the individual-level data from the health claims and Rx datasets is required to produce an accurate estimate.*

2.  Odd Ratios and 95% Confidence Intervals for Drug Utilization Within Stratification Categories
    Run a logistic regression where:
    Drug utilization (yes/no dummy variable) is the dependent variable
    Stratification category (e.g., male/female) is the independent variable

    *Note: The sample should include people from the denominator above (those with the diagnosis).*

3.  Rx Costs within Each Drug Class
    a.  Total Cost:
          Sum of all payments for drugs in the specified drug class

    b.  Per Capita Cost:
          Total Cost / # of people who filled a Rx in the specified drug class