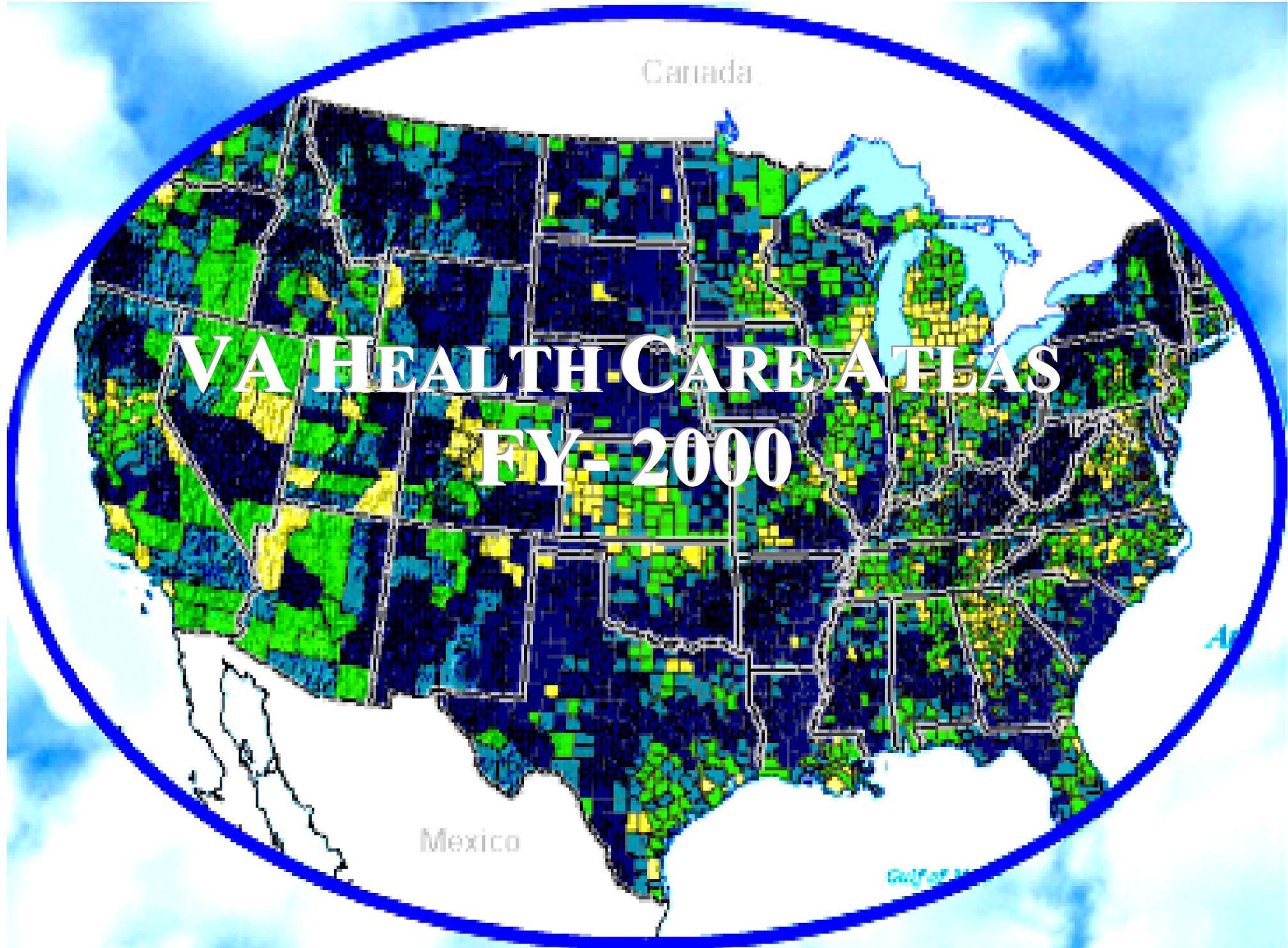


Canada

VA HEALTH CARE ATLAS FY-2000

Mexico

Gulf of Mexico



Introduction

In 1998, the VA Office of Research and Development, Health Services Research and Development Service (HSR&D) implemented the Quality Enhancement Research Initiative (QUERI). The overall goal of the QUERI program is to facilitate systematic, continuous implementation of research findings and evidence-based recommendations into routine clinical practice within the Veterans Health Administration.

HSR&D Service has formed partnerships with other Offices, Services, and organizations both within and outside of the Veterans Health Administration. One of the closest relationships has been with the VHA Office of Quality and Performance (OQP). An area of shared interest is guideline development and implementation to improve patient outcomes. Additionally, the VHA Office of Information has worked closely with the Coordinating Center to extract data elements needed by QUERI investigators. Outside of the VA, the National Cancer Institute partnered with VA to establish a QUERI Center in Colorectal Cancer.

There are currently eight QUERI coordinating centers nationally that are comprised of multidisciplinary clinicians and health services researchers who investigate, and attempt to translate, state-of-the-science findings on specific conditions known to improve patient outcomes into clinical practice. The conditions under investigation in the QUERI centers are those that either have high prevalence in the general veteran population or high volume/high cost within the VA health care system. The specific diseases/conditions/disorders are:

- HIV/AIDS
- Chronic Heart Failure
- Colorectal Cancer
- Diabetes
- Ischemic Heart Disease

- Mental Health
- Spinal Cord Injury
- Substance Use Disorders

There is also a current HSR&D solicitation for a Stroke QUERI. Each QUERI has two coordinators, one a research expert, the other a clinician. Additionally, the QUERI Centers are directed by a Steering Committee that consists of national experts in the field of study.

What is the QUERI Process?

The QUERI process is generally conceived of as having six hierarchical steps:

1. Identifying high-risk/high-volume diseases or problems;
2. Identifying best practices;
3. Defining existing practice patterns and outcomes across VA and current variation from best practices;
4. Identifying and implementing interventions to promote best practices;
5. Documenting that best practices have improved patient outcomes; and
6. Documenting that outcomes are associated with improved health-related quality of life (HRQoL).

For More Information

To learn more about the QUERI and/or to obtain a description of current national activities, visit the QUERI Web site at: www.hsrd.research.va.gov/research/queri.

Disease Classification Method

To identify our QUERI cohorts, we followed the methodology used by Yu and colleagues at the Health Economic Resource Center. To classify chronic diseases, they identified patients using ICD-9 diagnoses recorded in the inpatient PTF and outpatient event files in fiscal year 1999. Both files contain up to 10 ICD-9 diagnostic codes per discharge record or outpatient clinic encounter record. They also reviewed the classification methods from the Kaiser Permanente (KP) study (Ray et al., 2000) and the Clinical Classifications Software (CCS) developed by the Agency for Healthcare Research and Quality (AHRQ, 2000). CCS, a classification system developed by a panel of physicians, allocates ICD-9 codes into broad medical conditions. They also reviewed other published studies (Peterson et al., 1994), noting when these classifications differed from the KP and CCS methods.

When selecting the classification strategy, Yu et al (2003) examined the number of patients that would be included if they used the KP or CCS classifications. In general, CCS has more inclusive criteria than KP and published VA studies. For most of the conditions in their study, using CCS increased the number of patients by approximately 1 % or less. In these cases, they chose to be conservative and to follow the KP system along with the published VA literature. For the medical conditions where CCS had more than a 1 % discrepancy from the other method, physicians reviewed these codes.

We used all the diagnostic codes in the inpatient and outpatient files to identify patients with each condition. For some conditions, one or two diagnostic codes was sufficient to classify a patient. For others, a number of diagnoses were required.

After completing the crosswalk, all QUERI Centers received and commented on our algorithms for defining their patient population. Our next iteration incorporated their revisions where possible. In some Centers, the defined population included not only those patients who had the condition/disease, but also those “at risk” (e.g., colorectal cancer). For the purposes of the Atlas, we only focused on patients who had a diagnostic code, not those veterans potentially at risk.

References

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ICD-9 Codes for QUERI Cohorts

The table below provides the ICD-9 codes used to identify the QUERI patient cohorts in the VA Medical SAS Datasets:

VA Health Care Atlas Patient Cohort Definitions	
Disease	Final Codes
CHF	39891, 40201, 40211, 40291, 40401, 40403, 40411, 40413, 40491, 40493, 428
Diabetes	250-2509, 3620-3621, 3572, 36641
IHD	410, 411, 412, 414
HIV/AIDS	042, V08
Colorectal Cancer	153, 154
SCI	8060-8069, 9520-9524, 9528, 9529, 3441, 9072, 3440
Substance Abuse	291, 292, 303, 304, 305
Psychiatric Disorders	290, 294-302, 306-319

Patient Cohort Disease Prevalence

The FY-2000 Atlas cohort was identified from the following administrative patient-care databases available at the Austin Automation Center, extracted during February and March 2003:

- FY-2000 Inpatient files (MDPPRD.MDP.SAS.PM00, MDPPRD.MDP.SAS.CENSUS.PM00)
- FY-2000 Observation files (MDPPRD.MDP.SAS.PMO00, MDPPRD.MDP.SAS.CENSUS.PMO00)
- FY-2000 Extended Care files (MDPPRD.MDP.SAS.XM00, MDPPRD.MDP.SAS.CENSUS.XM00)
- FY-2000 Non-VA Care file (MDPPRD.MDP.SAS.NM00)
- FY-2000 Outpatient Encounters file (MDPPRD.MDP.SAS.SE00)

All patients who had a means test classification other than “non-veteran” on the last episode of care (outpatient visit or inpatient admission) in the VA health care system in FY-2000 were included in the cohort.

Demographic characteristics of the cohort were determined as follows. Means test status and marital status were based on the values recorded on the last episode of care in FY-2000. Gender was determined from the most frequently coded value over all FY-2000 episodes of care. In the case of ties gender was set to unknown (n=138). Age as of 10/1/99 was determined from the earliest date of birth recorded on all FY-2000 episodes of care. Unusually low (age < 17) or high (age > 120) ages were set to unknown (n=120).

For each of the disease cohorts, the overall cohort was divided into two mutually exclusive groups: users having at least one instance of a qualifying diagnosis coded during FY-2000, and all other users.

Network-level values represent users who received health care in that network. Users who received care in multiple networks are counted in each one. The national-level values represent unique users across

all networks. Table 1 for each disease cohort displays this information.

Obtaining Utilization by Patient Cohort

FY-2000 utilization data were obtained from the following administrative patient-care databases available at the Austin Automation Center, extracted during February and March 2003:

- FY-2000 Inpatient files (MDPPRD.MDP.SAS.PM00, MDPPRD.MDP.SAS.CENSUS.PM00)
- FY-2000 Outpatient Encounters file (MDPPRD.MDP.SAS.SE00)

Bed-days of care (BDOC) were derived from the inpatient files. The number of BDOC for an inpatient stay was defined as the number of days between admission and discharge. If the admission date was prior to 1-Oct-1999 or the discharge date was after 9-30-2000, the time period used to compute the BDOC was truncated to count only days of care during FY-2000. A single day stay (admission and discharge on the same day) was defined as one BDOC.

Discharges were derived from the MDPPRD.MDP.SAS.PM00 file only. A discharge from one facility within a network followed by an admission to another facility within the network was considered to be a transfer and was not counted as a discharge. Outpatient visits were derived from the outpatient encounters file and represent visit days (which may encompass multiple encounters).

The subset of patients in the disease cohorts was further divided into two mutually exclusive groups: users who had at least one primary diagnosis of the disease in FY-2000 (*primary diagnosis group*), and users who only had the disease recorded as a secondary diagnosis (*secondary diagnosis group*). The primary diagnosis group represents patients being actively treated for the disease during FY-2000, while the secondary diagnosis group most likely represents

patients who do not require treatment specifically for that disease, but have a history of the disease or are being treated for complications related to the disease.

Table 2 for each disease cohort compares utilization for all conditions by all patients in each network to utilization for all conditions by patients with the primary diagnosis.

Table 3 compares utilization for all conditions by all patients in each network to utilization for all conditions by patients who only had a secondary diagnosis of the disease.

Table 4 compares utilization for all conditions by all patients in each network to utilization for inpatient stays or outpatient visits for which the primary diagnosis (DXLSF) was one of the qualifying diagnoses for the cohort. This table therefore compares overall utilization in the network to utilization specifically directed at treating the disease.

Table 5 is a hybrid of tables 2 and 4, comparing utilization for all conditions by patients having a primary diagnosis of the disease with utilization specifically directed at treating the disease.

Cost Determination

VA healthcare costs for each person were summarized in four categories: Acute hospitalizations, other inpatient care, outpatient care, and outpatient pharmacy. Costs for inpatient and outpatient care were obtained from the Average Cost Database developed by the VA Health Economic Resource Center (HERC) (<http://www.herc.research.med.va.gov>) and the outpatient pharmacy costs were obtained from the Decision Support System (DSS) National Data Extracts (NDEs).

The HERC average cost database classified VA inpatient care into two major categories: 1) acute medical-surgical short stay hospitalizations, and 2) all other inpatient care including nursing home, residential rehabilitation programs, domiciliary and other VA inpatient programs. Costs for acute hospitalizations were estimated based on the patterns of relative resource use in Medicare participating hospitals. Except nursing home, costs of all other inpatient care were estimated by averaging per diem cost. Nursing home costs were adjusted for case-mix (Wagner et al. 2003).

HERC costs for VA outpatient care were estimated based on the Common Procedure Terminology (CPT) codes recorded by the VA. Medicare prices were used as the relative weight for estimating cost of each CPT. For services that were not paid by Medicare, average market prices were adopted (Phibbs et al. 2003). Outpatient pharmacy costs, including direct and indirect costs of pharmacy clinics, were actual costs reported by the local DSS team (Yu and Barnett 2002).

Annual personal costs include all costs occurred within the fiscal year. For stays that were either admitted before the fiscal year or did not discharge at the end of the current fiscal year, costs were proportionally estimated based on the number of days in the current fiscal year. For persons who used healthcare services in multiple VISNs, their costs for each VISN were calculated separately. There were 641 person-VISN cases from the Atlas cohort that were not found in the HERC 2000 cost file due to two primary reasons. First, the Atlas cohort included veterans who obtained services from non-VA providers. If these people never used the VA facilities in the current fiscal year, the HERC database would not have their names. We found 447 people in this category. The remaining 194 missing people (SSN-VISNs) had records in other VISNs. This problem may be attributed to the fact that the Atlas cohort was based on more recent utilization database and the HERC cost was based on the

utilization file frozen in October of 2000. Because both HERC and DSS cost databases allocated all VA costs to identified healthcare utilizations, missing these people or workload does not affect the total costs and should not have any significant impact on total cost in each category reported here. Cost data are presented in Table 6 and Table 7 for each patient cohort.

Because the cost data sources are not exactly the same as those we used to identify our cohort, the total numbers of patients in cost tables are slightly different from other tables. Overall, our cohort includes 425 more people than does the cost dataset. Therefore, the total numbers of people in our cost tables are fewer than that in other tables. However, the outpatient pharmacy costs were obtained from the VA Decision Support System (DSS) national data extracts; the DSS outpatient pharmacy file contains more information on prescription drugs than our data cohort datasets. Therefore, our cost data contained more information on utilization of prescription drugs than our cohort datasets, which leads to larger numbers of people in our cost tables than that in other tables for some VISNs. For example, a patient obtains health care in VISN 1, but also gets medications from VISN 8. Because our data source does not have complete information on outpatient prescription drugs, we do not have a record of medication for this patient in VISN 8 whereas the DSS cost database contains this record. Thus, this patient is counted in both VISN 1 and VISN 8 in cost tables, but only in VISN 1 in other tables.

References

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Geographic Mapping

Six maps are shown for each of the Atlas patient cohorts. Map 1 displays the total number of patients by county. Patients who had any diagnostic code for the condition under study are presented (i.e., primary diagnosis or any secondary diagnostic code for the disease/condition/disorder).

Map 2 depicts the percent of total patients who had a diagnostic code of the patient cohort by county. Both primary and secondary codes are included in these calculations.

Map 3 graphically illustrates the percentage of total visits that are associated with a particular disease/condition/disorder. Map 4 presents similar data for inpatient discharges; that is, the percentage of total discharges that are associated with a particular disease/condition/disorder.

Map 5 shows the average number of disease-specific outpatients visits generated by the each QUERI patient cohort. The average number was derived by dividing the number of disease-specific visits by the total number of patients in the disease cohort.

Map 6 displays the disease-specific discharge rate per 1,000 patients in each cohort. That is, the number of discharges with a diagnostic code belonging to one of the QUERI conditions was divided by the total number of patients with that condition, then multiplied to give a per 1,000 rate.

Three color schemes are used in depicting the cohorts: the red panel is used for high volume cohorts (Diabetes, Ischemic Heart Disease, Psychiatric Disorders, and Substance Abuse); a brown series is used for medium volume cohorts (Chronic Heart Failure), and shades of green are used for low volume cohorts (HIV/AIDS, Colorectal Cancer, and Spinal Cord Injury). It should be noted when viewing the maps that the scales are the same within color scheme but differ across colors. Where scales are comparable across cohorts (Map 5 and Map 6), the color scheme in earlier chapters is utilized.

