

Executive Summary

Increased uses of prescription drugs reflect medical advances but also place new challenges of containing costs and improving medication safety to health care providers, purchasers, payers, quality improvement organizations, health educators, public health programs, and policymakers. However, none of the affected organizations alone can effectively address the new challenges. Statewide collaborative responses and actions are necessary.

The Utah Health Data Committee (HDC), a Governor appointed statutory committee, has a mandate to “direct a statewide effort to collect, analyze, and distribute health care data to facilitate the promotion and accessibility of quality and cost-effective health care and also to facilitate interaction among those with concern for health care issues.” (Utah Code §26-33a-104) After two years of public discussions and needs assessment, the HDC proposed the launch of a new statewide initiative to collect and report pharmacy data. The purpose of this initiative is to create a statewide pharmacy database and use the data for public health surveillance of outpatient morbidity, improvements in appropriate uses of prescription drugs, medication safety and other prescription drug-related research projects. The HDC has created and directed the 18-member Utah Pharmacy Data Advisory Committee (UPDAC) to guide the Office of Health Care Statistics (OHCS) in the development of the Utah Pharmacy Data Plan.

The Utah Pharmacy Data Plan, Version I, has been developed according to the requirements of the Health Data Authority Act. The Plan identifies the key issues related to prescription drug utilization and problems amenable to improvement through better information on and analysis of pharmacy data. The UPDAC conducted an inventory of available pharmacy data sources in the State of Utah and concluded that no population-based prescription data is available for public use. The need of statewide pharmacy data collection is justifiable (See Section II).

The Utah Pharmacy Data Plan will be implemented incrementally. Phase I will be a pilot project to collect and analyze the prescription claims data from voluntarily participating health plans in Utah. The UPDAC selected ten prescription data indicators for public reporting to support public health surveillance, quality improvement and intervention. Specific analytical methods and report templates have been developed and are presented in Section III. The ten indicators are:

1. Asthma - Asthma Medication Prescription Rates & Appropriate Asthma Medication Use
2. Antibiotics - Effective Use of Antibiotics
3. Antidepressants - Appropriate Use of Antidepressants for Adolescents
4. Depression During Pregnancy - Appropriate Use of Medications for Treatment of Depression, OCD and Anxiety Disorders During Pregnancy
5. Diabetes - Appropriate Use of Diabetes Medication
6. Generic - Effective Use of Generic Drugs
7. Hypercholesterolemia - Appropriate Use of Hypercholesterolemia Medication
8. Hypertension - Appropriate Use of Hypertension Medication
9. Pain Management - Effective Use of Pain Medications
10. Polypharmacy - Use of Atypical Antipsychotics

Implementation issues are discussed in Section IV, including confidentiality, database standards, participating agreements, database management, and coordination of financial resources. The Plan proposes the establishment of a health plan pharmacy database oversight committee to monitor the activities related to health plans' pharmacy data.

If Phase I objectives are successfully completed, the UPDAC will plan for Phase II, the enhancement of pharmacy data collection and utilization. The Health Data Committee is committed to make the data useful for statewide intervention and improvement.

The Utah Pharmacy Data Plan is the result of collaboration among many individuals and organizations in the state. Each of the participating organizations made, and will continue to make, contributions to this collaborative endeavor. Improvement of the health of Utahns is the ultimate goal of the Utah Pharmacy Data Initiative.

Acknowledgement

The Utah Pharmacy Data Plan was commissioned by the Utah Health Data Committee and produced by the Office of Health Care Statistics Utah Department of Health (UDOH) under the direction of the Utah Pharmacy Data Advisory Committee. The Health Data Committee approved this plan on April 6, 2004.

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SECTION I

INTRODUCTION

The Committee shall develop and adopt by rule, following public hearing and comment, a health data plan that identify the key health care issues, questions, and problems amenable to resolution or improvement through better data, more extensive or careful analysis, or improved dissemination of health data.

Utah Code Title 26 Chapter 33a, Utah Health Data Authority
Act 26-33a-104(2)

Section I. Introduction

Health care purchasers, providers, payers, public health programs, and federal and state health officials have devoted considerable attention to medication safety and the rising cost of prescription drugs in the nation and states. Many policy and research questions relating to prescription drugs and non-acute morbidity status of a population cannot be answered without a pharmacy database.

Utah Health Data Committee (HDC), a Utah Governor appointed statutory committee, has proposed the launch of a new statewide initiative to collect and report pharmacy data. The purpose of this initiative is to create a statewide pharmacy database and use the data for public health surveillance of outpatient morbidity, improvements in appropriate uses of prescription drugs, medication safety, and other prescription drug-related research projects.

The Utah Pharmacy Data Advisory Committee (UPDAC), created by the HDC, has guided the Office of Health Care Statistics in the development of the Utah Pharmacy Data Plan from October 2003 to April 2004. This Pharmacy Data Plan documents the HDC's feasibility study and available pharmacy data sources. The UPDAC selected ten prescription data indicators for public reporting to support public health surveillance and quality improvement. Specific analytical methods and report table templates were developed and are reported in this Data Plan.

The Utah Pharmacy Data Plan includes implementation issues, such as confidentiality, database standards, health plan participation agreement, database management, and coordination of financial resources. The Plan proposes to establish a health plan pharmacy database oversight committee to monitor these implementation issues among the activities related to health plans' pharmacy data.

The Utah Pharmacy Data Plan will be implemented incrementally. The Phase I will be a pilot project that will collect and analyze the prescription claims data from voluntarily participating health plans in Utah. The data collected from the voluntary participating health plans may only cover 50% to 70% insured population in Utah. Data from all licensed pharmacies in Utah will provide an alternative source for the statewide pharmacy database. The UPDAC will assess and evaluate the feasibility to collect prescription claims data directly from all pharmacies in Utah based on Phase I successes. The data from all pharmacies in Utah may cover up to 90% of prescription drugs used by Utah residents.

The UPDAC strongly encourages public health programs, health plans, quality improvement organizations, and health service researchers to use the statewide pharmacy data for intervention when the data are available. The committee hopes that the reports derived from the proposed databases can be used for community-based patient and provider education, intervention needs assessment, and evaluation of quality improvement projects. Improvement of the health of Utahns is the ultimate goal of the Utah Pharmacy Data Plan.

SECTION II

FEASIBILITY STUDY AND EVALUATION OF AVAILABLE PHARMACY DATA SOURCES

The health data plan shall “document existing health data activities in the state to collect, organized, or make available types of data pertinent to the needs identified.”

Utah Code Title 26 Chapter 33a, Utah Health Data Authority
Act 26-33a-104(2)(ii)

Section II. Available Pharmacy Data Sources

The Utah Health Data Committee (HDC) has developed relatively advanced health care databases in the past decade compared to other states. These databases include hospital inpatient discharge records, ambulatory surgery records and emergency department (ED) encounter data. In the absence of encounter data from clinics, the information from the three databases presents an incomplete picture of the patterns of morbidity among the population of the state. Many diseases do not require hospitalization until an advanced stage of acuity. The pharmacy claims data will allow an understanding of utilization patterns of certain drugs, which in turn can be used as a surrogate measure of presence of certain illnesses that are not being captured through the hospital discharge or ED encounter data. Therefore, collection of statewide pharmacy data becomes a logical next step to expand public health surveillance to the outpatient setting. The partners of the Utah pharmacy data initiative have conducted several feasibility studies or pilot projects to explore possible strategies and pharmacy data sources to develop a statewide pharmacy database. This section describes each of these pharmacy data sources.

A. The Health Data Committee's (HDC) Feasibility Study in 2001

Directed by the HDC, the Utah Office of Health Care Statistics (OHCS) conducted a feasibility study on collecting electronic pharmacy data directly from all licensed pharmacies in Utah in 2001. The study found that there were 485 registered pharmacies in Utah with an estimated 20 to 25 million prescription-claim records annually. The data had to be collected through electronic clearinghouses, which would cost approximately ten cents per transaction, resulting in an estimated cost of over \$2 million annually to the Utah Department of Health. Approximately 10-12% of prescription bills are paid in cash. Since no third-party payment is involved in cash transactions, electronic records for those transactions do not exist. The Utah Pharmaceutical Association also reported that the pharmacies had a narrow margin of profit and they could not afford to bear any additional financial burden in creating electronic databases or submitting data manually (HDC Staff, 2001).

Before the study group knew that the Utah Division of Occupational & Professional Licensing had established a Controlled Substance Database connecting to all licensed pharmacies in the state, the study group concluded erroneously that pharmacies' computers are not equipped with any functions other than handling the prescriptions.

Based on the information received in 2001, the committee determined that collection of claims data directly from pharmacies was not feasible. Yet pharmacy data would be a valuable addition to the Utah health care databases. The HDC instructed its staff to review the existing pilot projects, explore the possibility of collecting the pharmacy data from other sources and further justify the usefulness of pharmacy data collection for public health and health policies.

B. The University of Utah and *HealthInsight's* Antibiotics Projects

The CDC-funded Intermountain Project on Antimicrobial Resistance and Therapy (IMPART) and Utah Alliance Working for Antibiotic Resistance Education (AWARE), a statewide coalition, have explored and used various pharmacy data to (a) monitor antimicrobial resistance among isolates from clinical microbiology laboratories in Utah and Idaho, (b) promote appropriate antimicrobial prescribing for acute respiratory tract infections (ARI) in the outpatient setting and (c) track improvements in communities due to

interventions. The *HealthInsight* project staff has accumulated valuable expertise on advantages and disadvantages of different pharmacy data sources (See table on the Evaluation of Available Pharmacy Data Sources).

Evaluation of Available Pharmacy Data Sources

Source/Description	Advantages	Disadvantages
<p><u>1. Data from retail pharmacies:</u> This was feasible on a very small scale for pharmacies in our pilot communities.</p>	<p>Good community-wide data possible if all pharmacies participate. This level of data is important when correlating prescribing to antibiotic resistance levels or other sensitive and expensive outcomes data.</p>	<p>Hard to obtain data from all pharmacies. Time intensive to obtain and enter data available only in hard copy form. HIPAA regulations make this strategy even more prohibitive.</p>
<p><u>2. Retail pharmacy data through wholesalers (NDC, IMS, etc.):</u> These data are samples from retail pharmacies that are projected to the universe of pharmacies and are used by pharmacy companies to measure their sales force.</p>	<p>Community wide data. Available in a variety of preprogrammed and custom electronic formats.</p>	<p>Very costly (even with government research discounts). Concerns over the projection methods used were uncovered when compared with other data sources. Fewer pharmacies may participate</p>
<p><u>3. Utah Medicaid data:</u> These data have been made available for the pilot projects, the IMPART CDC grant and Utah AWARE. Antibiotic prescribing data is linked to claims data for ARIs.</p>	<p>Using the claims data we can tie actual use to a model of percent antibiotics appropriately used for each diagnosis group. From that we build the gap analyses and then show the percent reduction in the gap over time. These data can be tied to demographic data to examine the extent and trends in the problem in different age populations. These data will also be used to translate antibiotic reduction into dollars saved over time using dollar estimates by specific drug for precise estimates.</p>	<p>Medicaid had to dedicate scarce programmer resources to provide the data. There is some evidence of lack of generalization of results (see biases mention in the <u>Commercial and private insurers aggregate data section</u> below). The IMPART staff is working with all major health plans, both public and private, in Idaho and Utah to obtain similar claims, pharmacy and demographic data. Many health plans have limited programmer time or data systems capability and concerns about appropriate safeguards when sharing patient level data, even when identifiers are removed.</p>

Section II. Available Pharmacy Data Sources

Source/Description	Advantages	Disadvantages
<p><u>4. Commercial and private insurers aggregate data:</u> These data were obtained for Utah AWARE to help track the effectiveness of their publicity campaign and help insurers identify their savings (and justify their financial support of AWARE). As a QIO, <i>HealthInsight</i> acted as a neutral party to collect and aggregate these data. Data for all of the plans together as well as their own plan is sent to each health plan’s medical director.</p>	<p>Good participation from almost all health plans in Utah. Most identified this as an important area of focus.</p>	<p>Some difference in how each plan extracted their data adds noise to the data. <i>HealthInsight</i> volunteered staff time to request and process the data. For some insurers this was not a priority topic. Compared to Medicaid data, the health plans data show lower levels of prescribing/1000 enrollees. This bias is likely due to the age of the clients, but client age distribution for each plan was not available to perform age adjustments.</p>
<p><u>5. Medical record review:</u> Data abstracted from medical records in outpatient clinics in the 12 communities in the CDC IMPART study. The data for ARIs will be from a random sample of charts dating 2000 through 2003. Data will include: patient demographics, past history, current history, symptoms, exam findings, test and lab results, diagnosis and treatment. About 35 charts per primary care provider will be abstracted from clinics recruited in the 12 communities (estimate ~5000 charts total).</p>	<p>Prescribing is accurately tied to the diagnosis and it is possible to capture prescription medication distributed through sampling.</p>	<p>Extremely expensive. Studies have shown discrepancy between medication information in chart and what’s actually filled. Samples often not recorded. Chart documentation varies among providers and is often quite poor. Variation in charting and billing systems require random selection method to be adapted to each clinic.</p>
<p><u>6. Palm and paper algorithm data (example of data generated by the intervention):</u> The IMPART and pilot study used respiratory tract algorithms to lead the provider through diagnosis and treatment when patients presented with any type of ARI. Each provider was asked to complete at least 200 cases either using a paper form or the same algorithm on a PDA.</p>	<p>These data are case level but without patient identifiers and could be useful in measuring the weight providers give to various factors in evaluation of their patients. The Palm data are readily available in electronic format.</p>	<p>These self-reported data were considerably skewed in the pilot project. (At least one provider mentioned that they might have been more likely to use the algorithm with patients when they intended to comply with the recommendations.) The Palm algorithms were designed to maximize the efficiency of use and as such did not capture all of the data (e.g. when the required number of symptoms was reached it automatically forwarded so that all symptoms present were not captured). Even in using the paper version of the algorithm providers often skipped sections.</p>

Among the above six data sources, the IMPART project reported to the HDC that the Medicaid pharmacy claims and diagnosis data are most useful data sources and suggested the expansion of the pilot project's Medicaid data collection, analysis and intervention to all private and public insurers in Utah.

C. Available National Pharmacy Database for Utah Researchers

University of Utah, Department of Pharmacy Practice and Pharmacotherapy Outcomes Research Center (UU PORC), has various national databases, e.g., data from Pharmacy Benefit Managers (PBM, Rx America, Merck Medco, WellPoint) and purchased national databases from Pharmetrics, Procure Science and MedStat. These databases contain cumulated data gathered from managed care plans around the country and include pharmacy data linked to diagnosis, physician visit and comorbidity. These databases do not include any Medicaid data, information on commercial fee-for-service clients, or no data specific to Utah.

The UU PORC also has access to Utah Medicaid pharmacy data, University of Utah Health Network electronic medical records (EMR) data and the Intermountain Health Care (IHC) Clinical Workstation data. Although these data sources cover a considerable portion of prescribed medications in Utah, they still are not sufficiently complete for a statewide estimate of prescription uses. The UU PORC has conducted pharmacotherapy outcomes studies on those data and suggested that a statewide coordinated pharmacy data collection from all major insurers would benefit all insurers and the public in Utah.

D. Utah Department of Insurance Diabetes Mandate Study

Utah Senate Bill 108 established mandatory requirements for diabetes treatment and management among managed care organizations. The Department of Insurance (DOI) conducted a study to evaluate the impact of these mandates (Utah Department of Insurance, 2003). The DOI was only able to obtain aggregated pharmacy claims data from major health insurers for the study.

E. ADHD Study Using Utah Controlled Substance Database

In 2003, the UDOH conducted a study on prescription of stimulant medication for Attention-Deficit Hyperactivity Disorder (ADHD) in 2003. Previously some critics identified Utah as "a heavy user of prescription stimulants for children." (Greg Lavine, 2003). UDOH analyzed the Utah Division of Occupational and Professional Licensing Controlled Substance Data for the calendar year 2002 for children, zero to eighteen years of age. Prescriptions for methylphenidate, amphetamine, and dextro-amphetamine were included in this study. The study found that the overall annual prescription rate was 2.96%, but the rate differed widely by gender and age group. Males were prescribed medication more often than females. Prescription of medication increased with age until about age 10 and declined thereafter (Utah Department of Health, 2003). Another recent national study reported that Utah had the rates of prescription claims for ADHD medication that were comparable to the national average (Cox ER, et al. 2003). However due to different data sources and methods, the results from the two studies are not comparable. After the ADHD medication study, the Utah Division of Community and

Section II. Available Pharmacy Data Sources

Family Health Services became interested in creating a statewide pharmacy claims database with a set of standardized indicators.

F. Pharmacy Data Focus Group Discussions

The Office of Health Care Statistics conducted three focus group discussions to solicit input from subject experts and potential stakeholders/partners for the pharmacy database project in 2003. The participants of the focus groups were health services or pharmacotherapy outcome researchers, health plan medical directors, public health and Medicaid program directors, and policy makers in the Utah Department of Health (UDOH). The participants in those group discussions supported the concept of developing a statewide pharmacy database and expressed different levels of concern about implementation.

G. Other Literature and Other States' Practice

In other states, researchers have used health insurance electronic pharmacy records for conducting syndrome surveillance (Lazarus et al. 2002) or assessing infection risk from coronary artery bypass surgery (Platt et al 2002). Overhage, Tierney, and McDonald (1995) reported their efforts to include HMO data in their implementation of the Indianapolis Network for Patient Care and Research.

The Kansas Department of Health and Environment developed the Kansas Health Insurance Information System including prescription drug data¹. Similarly, the State of Maine mandates every insurance company and third party administrator that covers Maine residents is required by law to submit paid claims data for those residents. The data include such information as diagnoses, the services provided, providers, the amount paid by the plan, and the amount of out of pocket expense for the member. Medical, dental, and prescription drug data must be submitted for claims from all settings (hospitals, doctors' offices, outpatient clinics, etc.) in which a covered Maine resident has been treated. The Maine Health Care Claims Data Bank expects to receive 400-plus files a month totaling 30 million to 50 million claims a year.² Both states have used the data to evaluate insurance mandates. State public health programs have not used the data for surveillance yet.

Based on preliminary findings from the pilot projects and input from health policy makers, public health programs, health plan medical directors and researchers, the Health Data Committee has accepted the proposal for establishing a technical advisory committee and developing a Utah Pharmacy Data Plan on July 8, 2003. The Utah Pharmacy Data Advisory Committee (UPDAC) was established in October 2003. The UPDAC reviewed the above assessments of available data sources and directed the staff to collect information on following two new initiatives and one existing statewide program in Utah.

¹ For more information on the Kansas prescription data collection go to <http://www.kdhe.state.ks.us/hci/>

² For more information on the Maine prescription data collection go to www.mhdpc.org or <http://www.mhic.org/>

H. New e-Prescribing System

The Utah Pharmaceutical Association introduced the representatives from a company called CarduRx to the UPDAC. CarduRx represents new efforts to use information technology to improve medication safety. CarduRx will be a real-time Internet-and-palm based system linking physicians, pharmacies, and a central pharmacy data repository. Currently CarduRx is in the beta-testing stage of its development.

I. Utah Community Clinical Network Initiative

Recently, the Utah Health Information Network, *HealthInsight*, University of Utah Department of Medical Informatics, Utah Department of Health and other partners has jointly initiated to develop the Utah Community Clinical Network (UClin). The UClin will include a pharmacy component and intends to establish electronic link among clinics and pharmacies. The UClin began its planning effort in January 2004.

J. Utah Controlled Substance Database

The Utah Department of Commerce Division of Occupational & Professional Licensing (DOPL) manages a Controlled Substance (CS) Database under the authority of the Utah controlled Substance Act (Utah Code §58-37) and R156-37 Utah Controlled Substances Act Rules. The CS Database Program collects all Schedule II-V prescription records from approximately 475 pharmacies in Utah. The pharmacies report the prescription records monthly, in the American Society for Automation in Pharmacy Version 2 reporting format, by modem, floppy/CD disk, encrypted e-mail, paper or FTP site transfer. The CS Database staff reply to approximately 150-175 inquiries per day from providers and pharmacies.

Healthcare provider representatives in the Health Data Committee and the UPDAC praised the CS Database Program's services to the provider community in Utah. Although the database only contains about 10% of annual total prescription drug records filled in the State of Utah, the infrastructure of the database, its communication connections with pharmacies, and program management expertise will provide a valuable basis for the Utah Department of Health to develop a statewide prescription drug database.

Having reviewed the above ten types of data sources or studies, the UPDAC concluded that no population-based prescription data is available for public uses in Utah. The need of developing a statewide pharmacy database is justifiable.

SECTION III

Data Uses and Reporting Designs For Public Health Surveillance And Quality Improvement

The health data plan shall “explain the intended uses of and expected benefits to be derived from the data, ... including the contemplated tabulation formats and analysis methods; the benefits described must demonstrably related to one or more of the following: promoting quality health care, managing health care costs, or improving access to health care services.”

Utah Code Title 26 Chapter 33a, Utah Health Data Authority
Act 26-33a-104(2)(vi)

The purpose of the Utah Pharmacy Data Initiative is to create a statewide pharmacy database and use the data for public health surveillance of outpatient morbidity, improvements of appropriate uses of prescription drugs and medication safety, and other prescription drug-related research projects. The Health Data Committee will develop standard annual reports on the state- and community-level information from this database. The annual report will track the trends and variation among communities/areas for specific indicators. The HDC will not publicly report any health-plan level information.

The Utah Pharmacy Data Advisory Committee, with the consultations from numerous experts and organizations, decided to report on ten selected prescription drug indicators and selected utilization trends in the Phase I.

SUMMARY OF SELECTED INDICATORS

The Utah Pharmacy Data Advisory Committee has selected the following indicators to be reported from the health plans' pharmacy claims database:

1. Asthma - Asthma Medication Prescription Rates and Appropriate Asthma Medication Use
2. Antibiotics - Effective Use of Antibiotics
3. Antidepressant - Appropriate Use of Antidepressants for Adolescents
4. Depression in Pregnancy - Appropriate Use of Medications for Treatment of Depression, OCD and Anxiety Disorders During Pregnancy
5. Diabetes - Appropriate Use of Diabetes Medication
6. Generic - Effective Use of Generic Drugs
7. Hypercholesterolemia - Appropriate Use of Hypercholesterolemia Medication
8. Hypertension - Appropriate Use of Hypertension Medication
9. Pain Management - Effective Use of Pain Medications
10. Polypharmacy - Use of Atypical Antipsychotics

Brief Description of Indicators

1) Asthma - Asthma Medication Prescription Rates and Appropriate Asthma Medication Use:

This indicator will focus on the use of long-term asthma control medications, compliance in use of long-term control medications (using refill patterns as a proxy), and the use of quick-relief medications. Information could be used for provider education and health plan quality improvement projects. One of the Healthy People 2010 objectives is to increase the proportions of persons with asthma who receive appropriate asthma care according to national guidelines, particularly for those persons who receive medication regimes that prevent the need for more than one canister of short-acting (reliever) medication per month. A pharmacy database also can be used to estimate the prevalence of asthma, track the ratio of the two drugs as indicator of care, and develop interventions to reduce emergency department (E.D.) visits and hospitalizations. The Utah Asthma Control Program proposed this indicator.

2) Antibiotics – Effective Use of Antibiotics:

Antibiotic use (and overuse) is an area of public health concern due to the rise in antibiotic resistant bacteria. Diagnosis data would be helpful for this indicator but pharmacy data alone will provide valuable baseline data. Respiratory diseases and the antibiotics typically used for them would be a focus. Trend data in terms of overall antibiotic use, as well as trends within and between antibiotic classes, would be useful as markers of increases in appropriate antibiotic usage. The information will support the improvements in effective care and reduction of care cost, and lessen antibiotic resistant threat for Utahns. HealthInsight proposed this indicator.

3) Antidepressants – Appropriate Use of Antidepressants:

The indicator will provide information on the prevalence of antidepressant prescriptions issued to children/adolescents in Utah along with trends in prescribing patterns. The Utah Violence and Injury Prevention Program (VIIPP) proposed this indicator. VIIPP in conjunction with the University of Utah Department of Psychiatry has been conducting a Youth Suicide Study for a number of years and is very interested in anti-depressant use of youth. The program will use the information to obtain a baseline of antidepressant use and monitor over- or under-uses of antidepressants and educate providers.

4) Depression During Pregnancy - Appropriate Use of Medications for Treatment of Depression, OCD and Anxiety Disorders During Pregnancy:

The indicator will aim to provide information on the prevalence of prescriptions for antidepressants, OCD meds, and anxiolytic medications issued to pregnant women in Utah along with trends in prescribing patterns. One difficulty is that pharmacy data alone cannot determine whether a woman is pregnant. One possible solution is to use women's use of prenatal vitamins as a proxy. Tracking depression in pregnancy will enable the program to compare the estimated number of women reporting depression with those receiving appropriate treatment. This will provide a baseline from which to educate providers and the public to appropriate use of depression medication during pregnancy. The Utah Reproductive Health Program proposed this indicator.

5) Diabetes - Appropriate Use of Diabetes Medication:

The treatment of diabetes indicator would help to improve quality of care for those with type 1 and type 2 diabetes by identifying patients who tend to be non-compliant and helping identify areas for quality improvement. The Utah Diabetes Control Program proposed this indicator.

6) Generic - Effective Use of Generic Drugs:

Use of generic drugs, and the potential accompanying cost savings, is the focus of this indicator. Prescriptions for targeted therapy classes will be tracked and split into brand

name and generics. An estimate of potential cost savings can be calculated based on price differential between brand name and generic. The UPDAC health plan representatives proposed this indicator.

7) Hypercholesterolemia - Appropriate Use of Hypercholesterolemia Medication:

Understanding a given disease and under-treatment of it presupposes knowing the percentage of the population with this disease. While diagnosis is not available in the pharmacy data, there are existing data on prevalence for hyper-cholesterolemia. Monitoring drug therapy and using data to impact systems of care to improve therapies can result in increasing provider awareness of practice for this condition, a greater focus of attention on treatment of these conditions, influence on provider practice, improved control of hyper-cholesterolemia, prevention of complications of congestive heart failure and acute myocardial infarction, ultimately impacting quality of life and decreasing premature mortality and morbidity. The Utah Heart Disease and Stroke Prevention Program proposed this indicator.

8) Hypertension - Appropriate Use of Hypertension Medication:

While diagnosis of hypertension is also not available in the pharmacy data, there are existing data on prevalence for this common condition. Monitoring drug therapy and using data to impact systems of care to improve therapies can result in increasing provider awareness of practice for these conditions, influence focus of attention on treatment of these conditions, influence provider practice, result in improved control of hypertension, prevent complications of congestive heart failure and acute myocardial infarction, ultimately impacting quality of life and decreasing premature mortality and morbidity. The Utah Heart Disease and Stroke Prevention Program proposed this indicator.

9) Pain Management - Effective Use of Pain Medications:

The aim of this indicator would be to generate information that can help reduce misuse and cost and identify variation in treatment modality. The information on this indicator can be used for public and provider education. The Utah Medicaid Program proposed this indicator.

10) Polypharmacy - Use of Atypical Antipsychotics

The goal of this indicator is to improve quality of care and patient safety, reduce overuse and cost, and reduce drug-drug interactions. The most commonly prescribed combinations of contraindicated drugs can be identified and analyzed (in addition to known combinations with drug-drug interactions). The information on this indicator can be used for public and provider education. The Utah Medicaid Program proposed this indicator.

**B. TABLE TEMPLATES
FOR
REPORTING INDICATORS**

1. Asthma Medication Prescription Rates and Appropriate Asthma Medication Use

Description of the Indicator:

This indicator will focus on the use of long-term asthma control medications, compliance in use of long-term control medications (using refill patterns as a proxy), and the use of quick-relief medications. One of the Healthy People 2010 objectives is to increase the proportions of persons with asthma who receive appropriate asthma care according to national guidelines, particularly those persons who receive medication regimes that prevent the need for more than one canister of short-acting (reliever) medication per month.

Uses of the Information:

The Utah Asthma Control Program proposed this indicator. The program has facilitated and partnered with the Utah Asthma Task Force to develop a statewide strategic plan to address asthma in Utah. The asthma medication information and report will be presented to the Task Force. The information can be used for health plan quality improvement projects and provider education; for primary and preventive care providers to track the ratio of the two drugs as indicator of care, and develop interventions to reduce emergency department (ED) visits and hospitalizations, and for state and local public health programs to estimate the prevalence and severity of asthma in the population and monitor the trends.

For more information on asthma intervention in Utah, please contact

Utah Asthma Program.

<http://health.utah.gov/asthma>

Utah Asthma Task Force Membership:

<http://health.utah.gov/asthma/partners.htm>

Utah's Asthma Plan

<http://health.utah.gov/asthma/asthmaplanweb.pdf>

1. Asthma (continued)

TABLE 1a. Use of long-term-control medications for asthma patients

Prescription drug classes included in this table are:

Inhaled corticosteroids
 Cromolyn sodium and nedocromil (Class B)
 Methylxanthines (Class C)
 Leukotriene modifiers (Class D)
 Long acting beta2-agonists (Class E)

New prescriptions will be included when they are available (e.g. Zolair)

	# of Patients on corticosteroids	# of Patients on corticosteroids and Classes B-E	# of Patients on Classes B-D only	# of Patients on Class E only	Total # of Patients	Asthma therapy prevalence per 1,000 Patients	Comparable Norm
Age							
0-4							
5-9							
10-17							
18-34							
35-64							
65+							
Gender							
Male							
Female							
Geographic Area							
Urban							
Rural							

Note: This table is for statewide public reporting. The information can be reported by geographic area. If participating health plans are interested, the Office of Health Care Statistics can produce internal reports for each plan.

1. Asthma Medication (continued)

TABLE 1b. Compliance of use of asthma medication

For each of the patient types below, the percentage is equal to:

Number of patients who received appropriate number of prescriptions over 12-month period

divided by

Number of patients receiving any long-term-control prescriptions over 12-month period (figure from Table 1a)

	Compliance % of Patients on corticosteroids	Compliance % of Patients on corticosteroids and Classes B-E	Compliance % of Patients on Classes B-D only	Compliance % of Patients on Class E only	Total Compliance % of Patients	Comparable Norm
Age						
0-4						
5-9						
10-17						
18-34						
35-64						
65+						
Gender						
Male						
Female						
Geographic Area						
Urban						
Rural						

Note: This table is for statewide public reporting. The information can be reported by geographic area. If participating health plans are interested, the Office of Health Care Statistics can produce internal reports for each plan.

1. Asthma Medication (continued)

TABLE 1c. Use of rescue/quick-relief medications among asthma patients

Prescription drugs classes included in this table are:

Short acting beta2-agonists

Anticholinergics

Systemic corticosteroids

New prescriptions will be included when they are available.

For each of the patient types below, the rate is equal to:

Number of quick-relief medication prescriptions received by all patients over 12-month period

divided by

Number of patients receiving any long-term-control prescriptions over 12-month period (figure from Table 1a)

This yields the average number of quick-relief meds per patient per year for each patient type.

	Rate for Patients on corticosteroids	Rate for Patients on corticosteroids and Classes B-E	Rate for Patients on Classes B-D only	Rate for Patients on Class E only	Rate for All Patients	Comparable Norm
Age						
0-4						
5-9						
10-17						
18-34						
35-64						
65+						
Gender						
Male						
Female						
Geographic Area						
Urban						
Rural						

Note: This table is for statewide public reporting. The information can be reported by geographic area. If participating health plans are interested, the Office of Health Care Statistics can produce internal reports for each plan.

2. Antibiotics – Effective Use of Antibiotics

Description of the Indicator:

Antibiotic use (and overuse) is an area of public health concern due to the rise in antibiotic resistant bacteria. Diagnosis data would be helpful for this indicator but pharmacy data alone will provide valuable baseline data. Respiratory diseases and the antibiotics typically used for them would be a focus. Trend data in terms of overall antibiotic use, as well as trends within and between antibiotic classes, would be useful as a marker of increases in appropriate antibiotic usage.

Uses of the Information:

HealthInsight proposed this indicator. *HealthInsight* is a partner of the Intermountain Project on Antimicrobial Resistance and Therapy (IMPART) and the Utah Alliance Working for Antibiotic Resistance Education (AWARE). The IMPART and AWARE, a statewide coalition, have explored and used various pharmacy data to (a) monitor antimicrobial resistance among isolates from clinical microbiology laboratories in rural Utah and Idaho, (b) promote appropriate antimicrobial prescribing for acute respiratory tract infections (ARI) in the rural outpatient setting, and (c) track improvements in communities due to interventions. The proposed indicator will provide statewide information for the AWARE coalition to support their improvement efforts in effective care, reduction of care cost and lessen antibiotic resistant threat for Utahans.

The Utah Alliance Working for Antibiotic Resistance Education (AWARE) Web Site:

<http://utahaware.com/>

2. Antibiotics (continued)

TABLE 2. Effective use of antibiotics

Prescription drug classes included in this table are:

penicillin, amoxicillin	augmentin (all combinations)
other penicillins	first generation cephalosporins
second generation cephalosporins	third generation cephalosporins
fourth generation cephalosporins	older macrolides (e.g. erythromycin variations)
newer macrolides (e.g. azithromycin, clarithromycin)	older quinolones (e.g. ciprofloxacin, ofloxacin, norfloxacin)
Lincosamides, other	newer quinolones (e.g. levofloxacin, gatifloxacin, moxifloxacin)

New prescriptions will be included when they are available.

Ratios of narrow-spectrum to broad-spectrum antibiotics: various ratios within and across classes are possible (see IMPART analysis when it's complete for suggestions as they'll compare measures, with and without diagnosis data, to identify useful market ratios.)

	# of Class B Prescriptions	# of Class A Prescriptions	# of Class C Prescriptions	Etc.	To be determined "appropriate" ratio	Total # of Prescriptions	Antibiotic therapy prevalence per 1,000 Patients	Comparable Norm (to be determined goal of ratio between certain columns)
Age								
0-12 months								
1-5								
6-18								
19-64								
65+								
Gender								
Male								
Female								
Geographic Area								
Urban								
Rural								

Note: This table is for statewide public reporting. The information can be reported by geographic area. If participating health plans are interested, the Office of Health Care Statistics can produce internal reports for each plan.

3. Antidepressants – Appropriate Use of Antidepressants for Adolescents

Why it is important?

Depression among adolescents and its treatment is an area of medicine that has received increasing attention of late. A January 2003 article in *Archives of Pediatrics and Adolescent Medicine* reported that the number of psychotropic medication prescribed to children and adolescents more than doubled from 1987 to 1996 (Zito et al. 2003). Of the 900,000 youths examined, antidepressants ranked second in terms of type of psychotropic medication prescribed. The authors concluded that “Youth psychotropic treatment utilization during the 1990s nearly reached adult utilization rates”. This pattern holds true even for younger children; the number of two to four year olds on psychiatric medication increased 50% between 1991 and 1995 (Zito et al. 2000). In addition, this study found that “decreases occurred in the relative proportions of previously dominant psychotherapeutic agents in the stimulant and antidepressant classes, while increases occurred for newer, less established agents”.

Antidepressant use is of particular interest in Utah as a study released by Express Scripts reported that Utah had the highest rate of antidepressant use in the U.S., even after adjustment for age and gender (Motheral 2001). Sixteen percent of the Utah population was reported to be receiving antidepressant medication.

Many antidepressants that have undergone rigorous clinical trials for adults have not been studied as thoroughly in children. As such, most antidepressants for children are prescribed “off-label” – while the medication has received FDA approval for treatment of a specific disease in adults, it has not received official approval for treatment of the same disease in children. In June 2001 the FDA announced that Paxil® should not be prescribed for children under 18 years of age due to an increased risk of suicide/self-harm. In August of 2003, drug manufacturers wrote in a letter to doctors that Effexor® should not be prescribed for children for the same reason.

Definition of the Indicator:

This indicator will examine antidepressant prescriptions dispensed for different age groups. The denominators for the utilization rates are the aggregated membership information reported by participating health plans. The analysis will emphasize on children/adolescents’ uses in comparison with the adult utilization patterns and inappropriate uses (e.g. Paxil® or Effexor® prescribed for children under 18 years of age). The indicator will provide information on the prevalence of antidepressant prescriptions issued to children/adolescents in Utah along with trends in prescribing patterns.

Uses of the Report:

The Utah Violence and Injury Prevention Program (VIIP) and Adolescent and School Health Program (CASH) proposed this indicator. VIIP in conjunction with the University of Utah Department of Psychiatry has been conducting a Youth Suicide Study for a number of years and is very interested in anti-depressant use of youth. The program will use the information to obtain a baseline of antidepressant use and monitor over- or under-uses of antidepressants and educate providers. If Utah was found to have an unusually high utilization rate or misuse rates of antidepressant medications among adolescents, the public programs will use this information in dialogues with community organizations (e.g. the Utah Pediatric Partnership to Improve Healthcare Quality) to determine the type and extent of needed intervention to address the use of the medication and the mental health problems among the adolescent population that necessitated the prescriptions.

Program Information Web Site:

Child, Adolescent and School Health Program (CASH) Web Site: <http://www.health.utah.gov/cash/>

The Utah Violence and Injury Prevention Program Web Site: <http://health.utah.gov/cfhs/he/vipp/>

3. Antidepressants (continued)

Table 3a: Distribution of uses of antidepressants in patients under age 18, Utah: 2002

Prescription drugs included in this table are:

amitriptyline (Elavil ®)	nefazodone (Serzone ®)
bupropion (Wellbutrin ®)	paroxetine (Paxil ®)
citalopram (Celexa ®)	sertraline (Zoloft ®)
fluoxetine (Prozac ®)	trazodone (Desyrel ®)
fluvoxamine (Luvox ®)	venlafaxine (Effexor ®)
mirtazapine (Remeron ®)	

New prescriptions will be included when they are available.

	No. of Prescriptions	Utilization Rate Per 1,000	Comparable Norm
Age			
0-12			
13-17			
18-24			
25-44			
45-64			
65+			
Gender			
Male			
Female			
Diagnosis			
Have the targeted disease			
Don't have targeted disease			
Geographic Area			
Urban			
Rural			

Note: This table is for statewide public reporting. The information can be reported by geographic area. If participating health plans are interested, the Office of Health Care Statistics can produce internal reports for each plan.

3. Antidepressants (continued)

Table 3b: Distribution of uses of antidepressants in patients under age 18, Utah: 2002

Prescription drugs included in this table are:

paroxetine (Paxil ®)
venlafaxine (Effexor ®)

New prescriptions will be included when they are available.

	No. of Prescriptions	Utilization Rate Per 1,000	Comparable Norm
Age			
0-4			
5-9			
10-12			
13-15			
16-17			
18+			
Gender			
Male			
Female			
Diagnosis			
Have the targeted disease			
Don't have targeted disease			
Geographic Area			
Urban			
Rural			

Note: This table is for statewide public reporting. The information can be reported by geographic area. If participating health plans are interested, the Office of Health Care Statistics can produce internal reports for each plan

4. Depression During Pregnancy – Appropriate Use of Medications for Treatment of Depression, OCD and Anxiety Disorders During Pregnancy

Description of the Indicator:

The indicator will aim to provide information on the prevalence of prescriptions for antidepressants, OCD medications, and anxiolytic medications issued to pregnant women in Utah along with trends in prescribing patterns. One difficulty is that pharmacy data alone cannot determine whether a woman is pregnant. One possible solution is to use women's use of prenatal vitamins as a proxy. Tracking depression in pregnancy will enable the program to compare the estimated number of women reporting depression via the Pregnancy Risk Assessment Monitoring Survey (PRAMS) with those receiving appropriate treatment.

Patients included in this indicator are females that received at least one prescription for prenatal vitamins. There are obviously limitations in using this approach. According to a March of Dimes survey, 31% of non-pregnant women nationwide reported taking prenatal vitamins in 2002. Also, not all pregnant women are likely to take prenatal vitamins. This figure, along with number of live births per year in Utah, will be used to adjust the denominator in lieu of pharmacy data that can be linked to discharge data.

Uses of the Information:

The Utah Reproductive Health Program proposed this indicator. Their PRAMS study showed that 24% of Utah women who had a live birth in 2000 reported being moderately or very depressed in the postpartum period. This new indicator will expand depression monitoring to pregnant women. Data will be analyzed and reported in aggregate form and will not be published by individual health plan. The first-year data will provide a baseline for the program to assess potential problems of depression among pregnant women in Utah. The intent is to track trends over time and to identify geographic areas of the state that appear to have pockets of need in order to target public and provider educational interventions to appropriate use of depression medication for pregnant women.

The Reproductive Health Program conducts educational intervention through Internet and mailings. The educational intervention-information developed from the Depression in Pregnancy Indicator analysis can be published in the program's pregnancy educational materials and mailed to more than 700 obstetricians, family practitioners, and certified nurse midwives in Utah, and posted on

The Utah Reproductive Health Program web site: <http://www.health.utah.gov/rhp/>

Pregnancy Education home page: <http://www.health.utah.gov/rhp/pregnancy/preged/index.htm>

4. Depression During Pregnancy (continued)

TABLE 4. Use of medications for treatment of depression, OCD and anxiety disorders during pregnancy

Prescription drug classes included in this table are:

SRI's (Class A)

TCA's (Class B)

MAO inhibitors (Class C)

Newer antidepressants (bupropion (Wellbutrin®), nefazodone (Serzone®), trazodone (Desyrel®), venlafaxine (Effexor®), and mirtazapine (Remeron®) (Class D)

Benzodiazepines (Class E)

New prescriptions will be included when they are available.

	# of Class A Patients	# of Class B Patients	# of Class C Patients	# of Class D Patients	# of Class E Patients	Total # of Patients	Treatment Prevalence per 1,000 Patients	Comparable Norm
Age								
10-18								
18-34								
35-44								
45-54								
Gender								
Female								
Geographic Area								
Urban								
Rural								

Note: This table is for statewide public reporting. The information can be reported by geographic area. If participating health plans are interested, the Office of Health Care Statistics can produce internal reports for each plan.

5. Diabetes - Appropriate Use of Diabetes Medication

Description of the Indicator:

The treatment of diabetes indicator would provide information on the types of medications being prescribed and filled by people with diabetes. New medications become available frequently and this will assist us in tracking adoption of these medications.

Uses of the Information:

The Utah Diabetes Prevention and Control Program proposed this indicator. The Program recently completed the Diabetes Practice Recommendations, including algorithms for treatment of Utahns with Type 1 and Type 2 diabetes. These data can be used to determine whether recommended medication use changes over time as the Practice Recommendations become accepted and used. The Program will then be able to determine whether more training on the Practice Recommendation is needed, or will consider additional research into medication management barriers. If diagnosis data become available, the Program would also like to track co-morbidity medication use.

The Utah Diabetes Prevention and Control Program web site:

www.health.utah.gov/diabetes

5. Diabetes (continued)

TABLE 5a. Use of medications for control of diabetes

Prescription drug classes included in this table are:

Insulins (Class A)

Sulfonylureas (Class B)

Biguanides (metformin) (Class C)

Other agents (including alpha-glucosidase inhibitors, meglitinides, thiazolidinediones, and combination agents) (Class D)

New prescriptions will be included when they are available.)

	# of Class A Patients	# of Class B Patients	# of Class C Patients	# of Class D Patients	Total # of Patients	Diabetes therapy prevalence per 1,000 Patients	Comparable Norm
Age							
0-18							
18-34							
34-45							
45-54							
55-64							
65-84							
85+							
Gender							
Male							
Female							
Geographic Area							
Urban							
Rural							

Note: This table is for statewide public reporting. The information can be reported by geographic area. If participating health plans are interested, the Office of Health Care Statistics can produce internal reports for each plan.

5. Diabetes (continued)

TABLE 5b. Compliance of diabetes medication use

For each of the patient types below, the percentage is equal to:

Number of patients who received appropriate number of prescriptions over 12 month period

divided by

Number of patients receiving any prescriptions over 12 month period (figure from Table 1a)

	Compliance % of Class A Patients	Compliance % of Class B Patients	Compliance % of Class C Patients	Compliance % of Class D Patients	Total Compliance % of Patients	Comparable Norm
Age						
0-18						
18-34						
34-45						
45-54						
55-64						
65-84						
85+						
Gender						
Male						
Female						
Geographic Area						
Urban						
Rural						

Note: This table is for statewide public reporting. The information can be reported by geographic area. If participating health plans are interested, the Office of Health Care Statistics can produce internal reports for each plan...

6. Generic - Effective Use of Generic Drugs:

Description of Indicator:

Use of generic drugs and the potential accompanying cost savings are the focuses of this indicator. Prescriptions for targeted therapy classes will be tracked and split into brand name and generics. An estimate of potential cost savings can be calculated based on price differential between brand name and generic.

Uses of the Information:

The UPDAC health plan representatives proposed this indicator. Potential cost savings that can be had through use of generic drugs are well documented. However, utilization of generic drugs where they are available remains inconsistent and sporadic among patients, providers, and geographic areas.

The percentage of generic drug type prescribed for a number of selected medications will be determined, along with the cost difference between brand name and generic drug and the potential statewide cost savings possible by switching to generics. Learning about trends - at the statewide level, by geographic area, and by patient age - will identify attractive targets for intervention and education by health plans, Utah Medicaid and Children's Health Insurance Programs.

For more information go to FDA Consumer Education Web Page:

What You Should Know About Buying and Using Drug Products
<http://www.fda.gov/cder/consumerinfo/DPAdefault.htm>

