

Examples of Academic/Public Health Use of Prescriber-Identified Prescription Data

Healthcare information organizations are important sources of data for researchers and policy analysts worldwide. Here are some examples of recent studies that have used prescriber-level data:

- Asthma in Low Income Areas. A study in New York used prescriber-level information to examine physician-prescribing patterns in underserved urban areas to determine patterns of under-treatment of patients with asthma. There was substantial evidence that asthma controller medications were underutilized, which reflected issues in both physician education and public perceptions. Feedback on the study findings was provided to physicians to engage them in implementing appropriate public health solutions.
- Regional Impact of Bioterrorist Threats on Prescribing. Wisconsin researchers at the Marshfield Clinic Research Foundation used IMS prescriber-level information to determine if the public demand for fluoroquinolones, such as Cipro, after post-9/11 bioterrorist threats would spread to communities not directly affected by anthrax scares in New York, New Jersey, Connecticut, Pennsylvania, Virginia, Maryland and Florida.
- Educational Approach to Community Antibiotic Utilization. A community education program called "*Do Bugs Need Drugs?*" was instituted by the University of Alberta, the Capital Health Region, Dynacare Kasper Medical Laboratories, and others to address inappropriate antibiotic use for respiratory tract infections—causing antimicrobial resistance in children. Using prescriber-identifiable information, the organizations were able to demonstrate that an educational campaign directed at physicians and pharmacists, and then to school children and the public were effective in decreasing the overall number of antibiotic prescriptions for infections not requiring drug therapy.
- Use of Antidepressants in Adolescents. The Center for Pediatric Pharmacy Research in London completed a nine-country study with prescription data to examine the prescribing trends of psychotropic medications such as antidepressants, stimulants, antipsychotics, benzodiazepines and other anxiolytics among children. Studies in the U.S. had shown that the use of psychotropic medications in children was rapidly increasing and a similar trend was being reported in Europe. The study indicated that there was improved diagnosis and use of these medications among children, but also suggested that while abundant research had been conducted on adults, little had been done with children—suggesting a cautious approach to use of these drugs.
- Community Intervention to Reduce Overuse of Antibiotics. A research team at the Marshfield Clinic Research Foundation relied on prescriber-level data to complete a pediatric study on the judicious use of antibiotics. The objective of the study was to assess the impact of parent and clinician education on antibiotic prescribing and carriage of penicillin-nonsusceptible *Streptococcus pneumoniae* in children. The study resulted in a multifaceted education program that led to community-wide reductions in antibiotic prescribing.

Detailed Case Studies

Case Study No. 1:

Asthma in Low Income Areas

The issue

Asthma is a common disease among children and adults in urban areas such as New York City. People with asthma experience chronic lung inflammation and episodes of airway tightening that cause wheezing, coughing and shortness of breath. Asthma is the leading cause of missed school among children, and is the most common cause of hospitalization in children 14 years and younger.

How The Information Helped

Although asthma afflicts individuals in many parts of the country, it is particularly prevalent in urban settings. Prescriber-identifiable information was used as part of the New York City Asthma Project to identify prescribing patterns in various boroughs of the City. The project's goal was to determine if asthma medications were being under prescribed, particularly in low income areas of New York City, and whether or not asthma education within the community and among physicians could improve the health and well being of those suffering with asthma.

Outcomes & Benefits

Physician-prescribing patterns in underserved, low income areas of the City were examined to determine patterns of treatment among patients with asthma. There was substantial evidence that asthma medications were being underutilized, which reflected issues in both physician education and public perceptions. Feedback about the study results was provided to physicians serving various neighborhoods within New York City to engage them in implementing appropriate solutions. The program is ongoing.

Case Study No. 2:

Regional Impact of Bioterrorist Threats on Prescribing

The Issue

Media reports had suggested increased public demand for anthrax prophylaxis after the intentional anthrax cases in 2001, but the magnitude of anthrax-related prescribing in unaffected regions was not assessed. An ABC News/Washington Post poll found that 65% of respondents were worried about receiving letters contaminated with anthrax bacteria, and 54% were worried about an anthrax attack on themselves, friends or relatives. Did this fear increase the public demand for and the dispensing of fluoroquinolones, such as Cipro, to patients in areas where no anthrax cases or exposure occurred?

How The Information Helped

Researchers sent an anonymous survey to physicians in Wisconsin and Minnesota requesting information on anthrax-related requests from patients for fluoroquinolones. Those noting that they prescribed or distributed anthrax-related medications were asked to specify the number and types of people who received drugs, and the specific drugs that were used. Both prescription drug sales and prescriber-identifiable information were used as independent measures of fluoroquinolone use for the states of Wisconsin and Minnesota.

Outcome & Benefits

The results of the study confirmed that public demand for anthrax-related antimicrobial agents was substantial in Wisconsin and Minnesota, with one fourth of the primary care physicians receiving requests for these drugs. Despite strong requests, relatively few drugs were dispensed for anthrax prophylaxis, demonstrating that most physicians in these states managed public and patient expectations without dispensing unnecessarily. However, social factors clearly have an influence on prescribing decisions and effective public and physician communication is *essential* to promoting rational prescribing behavior if similar situations arise in the future.

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Case Study No. 3:

Educational Approach to Community Antibiotic Utilization

The Issue

Inappropriate antibiotic use for respiratory tract infections has contributed to the current global crisis of antimicrobial resistance. The University of Alberta, the Capital Health Region, Dynacare Kasper Medical Laboratories, Abbott Laboratories, the Alberta Lung Association and the Clinical Practice Guidelines program of the Alberta Medical Association, joined together to determine whether or not an educational approach to community antibiotic utilization would be successful in improving oral antibiotic use.

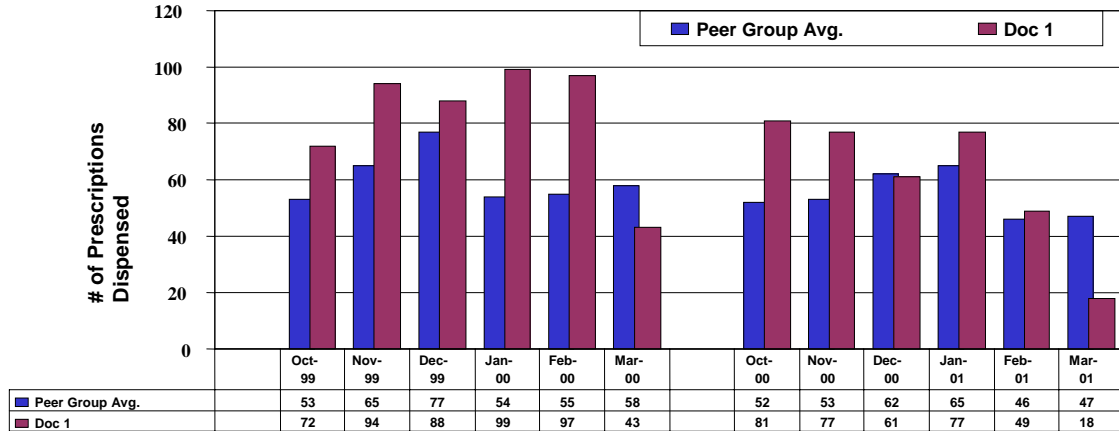
How The Information Helped

The objective of the program, entitled *"Do Bugs Need Drugs?"*, was to demonstrate that an educational campaign directed at physicians, pharmacists, school children and the public would be effective in: decreasing the overall number of prescriptions for an antibiotic; increasing the relative use of first-line agents; and increasing awareness and knowledge of three key program messages: 1) the importance of hand washing; 2) the differences between bacteria, viruses and the effect of antibiotics; and 3) bacterial resistance and the need to use antibiotics wisely. Prescriber-identifiable information was used by the organizations to identify prescribing patterns among physicians who used antibiotics to treat children with respiratory tract infections and to measure what impact targeted community and professional education had among patients and physicians.

Outcomes & Benefits

The study demonstrated the effectiveness of a community educational campaign, aimed at physicians, pharmacists and the public, in addressing the serious problem of antimicrobial resistance. With increased knowledge and awareness, patients were willing to do without unnecessary antibiotic prescriptions, and professional guidelines for appropriate antibiotic selection were followed more closely. This helped address the Canadian mandate to decrease antibiotic use in respiratory tract infections. Access to IMS prescriber-identifiable data was part of the solution to the long-term health risk posed by antimicrobial resistance – ultimately saving lives in Canada. The program has had such success that Dr. Blondel-Hill is launching a similar initiative in British Columbia.

Total Antibiotic Prescriptions Dispensed: Month 6



The prescription rate for oral antibiotics to treat respiratory tract infections (otitis media, bronchitis, pneumonia, pharyngitis and sinusitis) was 12% lower than the corresponding period the previous year, and decreased more in the study community than in the control communities. The use of first-line agents to treat respiratory tract infections was significantly higher than the corresponding national statistics, and all groups showed increased levels of awareness and knowledge of the problem of antibiotic resistance and the importance of hand washing.

Project Team Leader: Dr. Edith Blondel-Hill

Case Study No. 4:

Use of Antidepressants in Adolescents

The Issue

The Center for Pediatric Pharmacy Research in London completed a nine-country study to examine the prescribing trends of psychotropic medications such as antidepressants, stimulants, antipsychotics, benzodiazepines and other anxiolytics among children. Studies in the U.S. had shown that the use of psychotropic medications was rapidly increasing and a similar trend was being reported in Europe. However, there was little information on the prescribing trends in other countries and it was unknown whether this was a global trend or a trend in English speaking countries.

How The Information Helped

Prescribing insights were used to examine prescribing trends in nine countries (U.K., France, Germany, Spain, Argentina, Brazil, Mexico, Canada and U.S.) between the years 2000 and 2002. Trends in seven countries rose significantly from year 2000 to 2002, with the UK having the highest increase (68%).

Outcome & Benefits

The results of this study showed that the increase in psychotropic prescribing in children was not confined to the U.S. but was also evident in other non-English speaking countries. The increase probably indicates the improved recognition of pediatric psychopathology, but could also suggest that these drugs are replacing non-drug treatments. The study mirrored the dramatic increase in antidepressant prescriptions that occurred between 1992 and 2001. The correlation between the two increases indicates the strong possibility that the rationale behind the choice of which drugs to prescribe is based on the evidence completed in adult trials and not on evidence garnered through research in children—proving the need for more well-designed clinical trials to investigate the safety and efficacy of these medications in children.

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Case Study No. 5:

Community Intervention to Reduce Overuse of Antibiotics

The Issue

Respiratory tract and invasive infections caused by *Streptococcus pneumoniae* are a major source of morbidity among children and older adults in the U.S. During the past decade or so, the prevalence of antibiotic-resistant pneumococci has increased dramatically, due in large part to children under age 15 receiving antibiotics for conditions not requiring drug therapy—building up their resistance to certain medications.

How The Information Helped

A controlled intervention trial was conducted in Northern Wisconsin to determine if a multi-faceted educational program for physicians and parents would lead to community-wide reductions in antibiotic prescribing. Educational materials and small-group presentations were conducted with parents and physicians through clinics, child care facilities and community organizations. Prescription drug sales data and prescriber-identifiable prescribing information were used for baseline purposes and to measure the impact of this community intervention on antibiotic prescribing behaviors related to children.

Outcome & Benefits

The results of the study demonstrated that community-based educational intervention programs in the U.S. can reduce unnecessary antibiotic prescribing for children, but it did not demonstrate a reduction among children who attended child care.

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