DATA MINING IN PROGRAM INTEGRITY AND FRAUD CONTROL PHARMACEUTICAL REG AND COMPLIANCE CONGRESS 2008

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- GOOD IDEAS FROM MANY SOURCES
- ADOPTION IS COMPLIMENT, NOT PLAGIARISM
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DATA MINING-WHAT IS IT?

- "**Data mining** is the process of <u>sorting</u> through large amounts of data and picking out relevant information. " Wikipedia
- Data mining for health care program integrity combines claims data, encounter data, demographic enrollment data, external database data (e.g., Vital Statistics, licensing, provider-internal data) with training, experience and intuition of auditors, investigators, health professionals, compliance professionals, and (rarely) attorneys
- Finding things you weren't looking for
- Goal-every professional a data miner

MEDICAID

- 2007 spending:$315 billion in US (state and federal)
- 2007 spending: $46 billion in New York (Kaiser Family Foundation)
- New York Medicaid spending growth has slowed recently, remains our safety net program for 4.5 million
- Majority of adult Medicaid enrollees in New York work; 1/3 of New York City residents (2.8 million) are enrolled in Medicaid (United Hospital Fund)
- $4 billion direct prescription drug payer, even after Part D
- Significant prescription use in snfs and hospitals bundled into institutional rates

THE STATES FACE A FISCAL CRISIS

- NEXT YEAR-$12.5 Billion budget deficit-10% of current spending, in New York.
- Medicaid is 25% of state budgets
- Must cut at least $2 of Medicaid spending to save $1
- Medicaid enrollees increase in a recession
- Growing public concern-are these $ being properly and wisely spent
- Elected officials-how can we cover the deficit without voting to reduce benefits?

MEDICAID PROGRAM INTEGRITY-A QUALITY AND DATA PROBLEM

- MEDICAID IMPROPER PAYMENT RATE-18% (PRELIMINARY PERM REPORT, 2007-17 state review) (NEW YORK WAS NOT REVIEWED)
- MEDICAID RATE PROBABLY OVERSTATED, BUT. . .
- CREDIT CARD LOSS RATE FROM IMPROPER PAYMENTS- .07%
- USING DATA TOOLS AND SYSTEMS TO REDUCE IMPROPER PAYMENTS AND UNNECESSARY OR HARMFUL SERVICES
- USING DATA TOOLS TO FOCUS ENFORCEMENT

FISCAL CRISIS ADDS URGENCY

- INCREASED AUDITS OF PROCESSES
- NO PAYMENT FOR NEVER EVENTS
- WHAT IS THE OUTCOME WE ARE PAYING FOR?
- WHAT TREATMENTS AND ORGANIZATIONS ARE EFFECTIVE?
- WHAT TREATMENTS AND ORGANIZATIONS ARE EFFICIENT?

SUCCESSFUL PROGRAM INTEGRITY-ENCOURAGE THE LEADERS, REPORT DATA ON THE LAGGARDS

- Between 1990 and 2005, the proportion of residents physically restrained in nursing homes dropped from 40% to 4%.
- Cystic fibrosis survival rates/Iraq battlefield survival discussed by Dr. Atul Gawande in Better.
- Quality in hospitals (as measured by avoidable deaths) has consistently improved in the best institutions over past five years
  - Focus on specific issues-central line infections, pneumonia vaccine, antibiotics at surgery, medication errors, bedsores
  - Focus on never events and never payments
  - Focus on discharge and readmission with same diagnosis
  - Report cards and comparisons

MEDICAID-GOVERNMENT LAGGARDS IN PROGRAM INTEGRITY AND DATA

- 2003-GAO REPORT " GAO added Medicaid to its list of high-risk programs, owing to the program's size, growth, diversity, and fiscal management weaknesses." See,GAO, Major Management Challenges and Program Risks: Department of Health and Human Services, GAO-03-101 (Washington, D.C.: January 2003). " We noted that insufficient federal and state oversight put the Medicaid program at significant risk for improper payments. "

2006 DEFICIT REDUCTION ACT

- CMS-SIGNIFICANT MEDICAID FUNDS AND STAFF
- STATES-SUPPORT AND OVERSIGHT
- CONTRACTORS-FOR AUDITS, EVALUATION, INVESTIGATIONS
- DATA MINING GROUP AT CMS-ALGORITHM DEVELOPMENT
- MOVE FOCUS FROM LAW ENFORCEMENT (OIG) TO PROGRAM AGENCY

PROGRAM INTEGRITY MEANS A FOCUS ON EFFECTIVE COMPLIANCE PROGRAMS

- NY-mandatory "effective" compliance programs
- Failure to have effective compliance program is basis for exclusion
- "effective" compliance program requires disclosure to state of overpayments received, when identified
- "effective" compliance program requires risk assessment, audit and data analysis,remedial measures
- "effective" compliance program requires response to issues raised through hotlines, employee issues

Program Integrity and Data Mining Systems

- Data mining is a developing area – processing speed doubles every two years, software and analytic approaches move at same speed.

- Existing state data systems, at best, reflect reliable, tested systems and the state-of-the-art at the time of procurement. Existing New York systems procured five years ago, began operating three years ago.

- Significant opportunities for post-payment recoveries

PHARMA PROVIDES STRONG DATA MINING OPPORTUNITIES

- STANDARDIZED PRODUCTS/CODES
- STANDARDIZED INDICATIONS (FDA AND COMPENDIA)
- HIGHLY AUTOMATED REAL-TIME BILLING AND PAYMENT
- THREE PARTICIPANTS IN EVERY PRESCRIPTION TRANSACTION- PHYSICIAN, PHARMACIST, PATIENT

EARLY DATA MINING PHARMA OPPORTUNITIES

- Prescriptions for deceased enrollees
- Returns to stock not reported
- Use of incorrect physician identifier "to get claim paid"
- False billing of usual and customary charge
- Prescribing to patients whose demographics and diagnoses far from approved use
- Unbelievable persistence rates

DATA MINING TECHNIQUES

- Claims analysis-5 years, $200 billion in claims in data warehouse
- Patient demographic feed and match-age, sex, marital status, addresses, licensing, ssns
- Electronic diagnostic and treatment feeds-ICD-9s, DRGs, key words-claims, managed care encounters, authorizations
- Meta-analyses of previous studies for given disease conditions. Dr. Charles Bennett, Northwestern compiled and examined data from 51 prior studies in more than 13,000 patients –found 10% higher death rates for cancer patients using epo
- Geographic analysis for sales, patients, providers, relationships
- Modality analysis-which physicians use injectibles? Which physicians are early adopters? Which physicians use lab and physiological diagnostic tests?
- Who should suggest, fund, review data mining?

DATA MINING TECHNIQUES

- PROVIDER ANALYSIS-IBM FAMS CLAIMS SURGES AND OUTLIERS (this provider behaves differently from similar providers)
- PROVIDER ANALYSIS-"FAIR ISAAC" type RISK SCORING (use proprietary models with multiple tools)
- REGRESSION ANALYSIS AND ALGORITHM BUILDING-(If it happened this way the last time, we predict it will happen this way again)
- FUZZY LOGIC-NOT BINARY (yes/no) BUT "SOMEWHAT" (190 lbs. is "somewhat" heavy, "somewhat" normal for adult male, total cholesterol of 220 is "somewhat" high)
- NEURAL NETWORKS-SYSTEM THAT "LEARNS" THROUGH PATTERN RECOGNITION AND NONLINEAR SYSTEM IDENTIFICATION AND CONTROL. ("BLINK" by Malcolm Gladwell, elected officials and risk tolerance)

Data Mining Approaches
Data Matches/Demographics

- Men having babies
- Fillings in crowns
- Deceased enrollees
- Drugs used for patients with primary diagnoses of anxiety or depression

Data Mining for Patients

- Unanticipated deaths in hospital, snf and prescription history
- Off-label use and better outcomes
- Experimental use and consent-by facility, by ordering physician
- Third party liability for treating adverse events
- Capturing adverse events

Data Mining Quality Tools
Providers Not Meeting Minimum Standards

- Never events
- Unreported adverse events
- Unreported adverse outcomes/unanticipated deaths
- Ranking/rating facilities-audit focus
- Condition of participation failures (structure)
- Drug outcomes in populations and in facilities

DATA MINING FOR RELATIONSHIPS AND DISCLOSURE

- FIVE KINDS OF REPORTING

- IRS FORM 990 (2008 version) and reporting questions Does the organization have a written conflict of interest policy? *If "Yes":*, how many transactions did the organization review under this policy and related procedures during the year?" *If "Yes":* Are officers, directors or trustees, and key employees required to disclose annually interests that could giver rise to conflicts? Does the organization regularly and consistently monitor and enforce compliance with the policy?
- Company websites (voluntary or required by CIA)
- State law required disclosures
- patient consent disclosures
- IRB disclosures

PUBLIC INFORMATION AND REPORTING

- Using data mining for CMS review, MFCU work, public information

- State legislatures, budget offices, meeting budget shortfalls

- What happens if . . .

- HIPAA compliance

THE FUTURE OF MEDICAID INVESTIGATION THROUGH DATA MINING

- TEST WITNESS ALLEGATIONS
- PROJECT WITNESS ALLEGATIONS IN TARGET
- USE WITNESS' SUPPORTED ALLEGATIONS AGAINST SIMILAR ENTITIES WHERE DATA SUPPORTS
- PERSUADE DECISION MAKERS AND DEFENSE OF MERITS
- DEVELOP EVIDENTIARY SUPPORT FOR LITIGATION

THE FUTURE OF MEDICAID PROGRAM INTEGRITY THROUGH DATA MINING

- IDENTIFY AND COMMUNICATE BEST OUTCOMES FROM DATA MINING
- IDENTIFY AND COMMUNICATE COMPLIANCE DATA ANALYSIS PROCESSES WHICH WILL IDENTIFY PROBLEM AT SOURCE
- IDENTIFY AND COMMUNICATE ISSUES IDENTIFIED THROUGH DATA MINING
- TRAIN AND EQUIP EMPLOYEES AND ORGANIZATIONS IN DATA ANALYSIS TECHNIQUES