

Gaming Approach Towards Healthcare Prevention of Fraud, Waste and Abuse

Andrew S. LoebI, PhD
Songua Xu, PhD
Xiaohui Cui, PhD
Computational Sciences and Engineering
Oak Ridge National Laboratory
loebIas@ornl.gov
National Center for Computational Sciences (NCCS)

September 10, 2010



Oak Ridge National Laboratory Overview

- **Founded in 1943 – The Manhattan Project**
- **Home of the world's fastest and 3rd fastest computers -- petascale**
- **A government agency with NO organizational “conflict of interest”**
- **World-class research and development in computer and computational sciences**

Oak Ridge National Laboratory Overview (cont.)

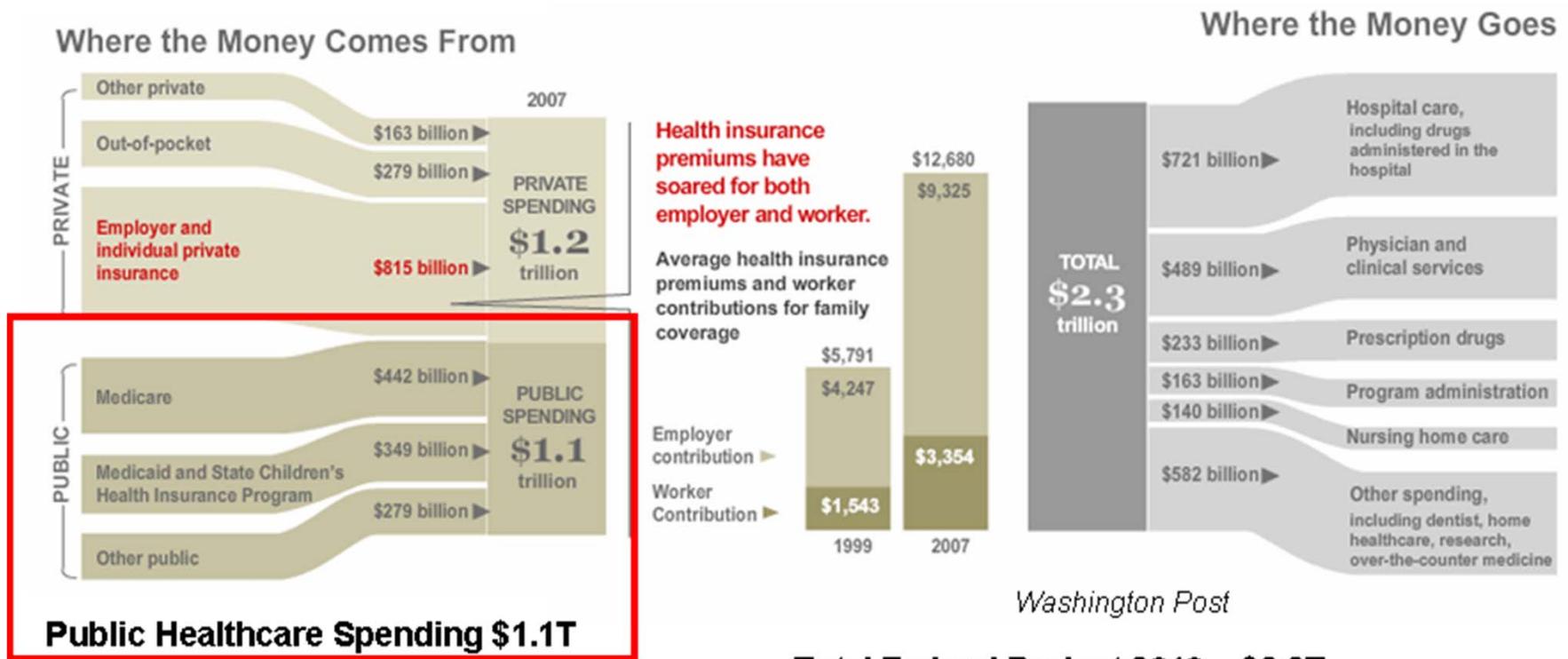
- **ORNL has a long history of data analysis, data mining, modeling, simulation and visualization experience**
- **Leading edge research regarding many of the world's most complicated challenges**—signal detection, carbon sequestration, computational chemistry, superconductivity, nano-materials design, groundwater M&S, global change, heavy element cosmology, bio-physical M&S, molecular M&S, combustion M&S
- **Petascale computing speed is measured at one quadrillion (one million billion) operations per second!**
- **Research projects that were once considered impractical to computationally complete are now possible**

Scope of U.S. Public Health Care

- **Public Health Care consists of 61 separate and disparate programs and include:**
 - Medicare, Medicaid, TRICARE, Veterans Administration, Health Services, Military Health System, Indian Health Services, each of the 50 States, etc.
- **Each program maintains fragmented “Islands of Information”**
- **Medicare alone processes over 1.2 Billion claims per year which translates into 9,579 claims per minute!**
{business day activities}

Federal Private and Public Healthcare Drivers

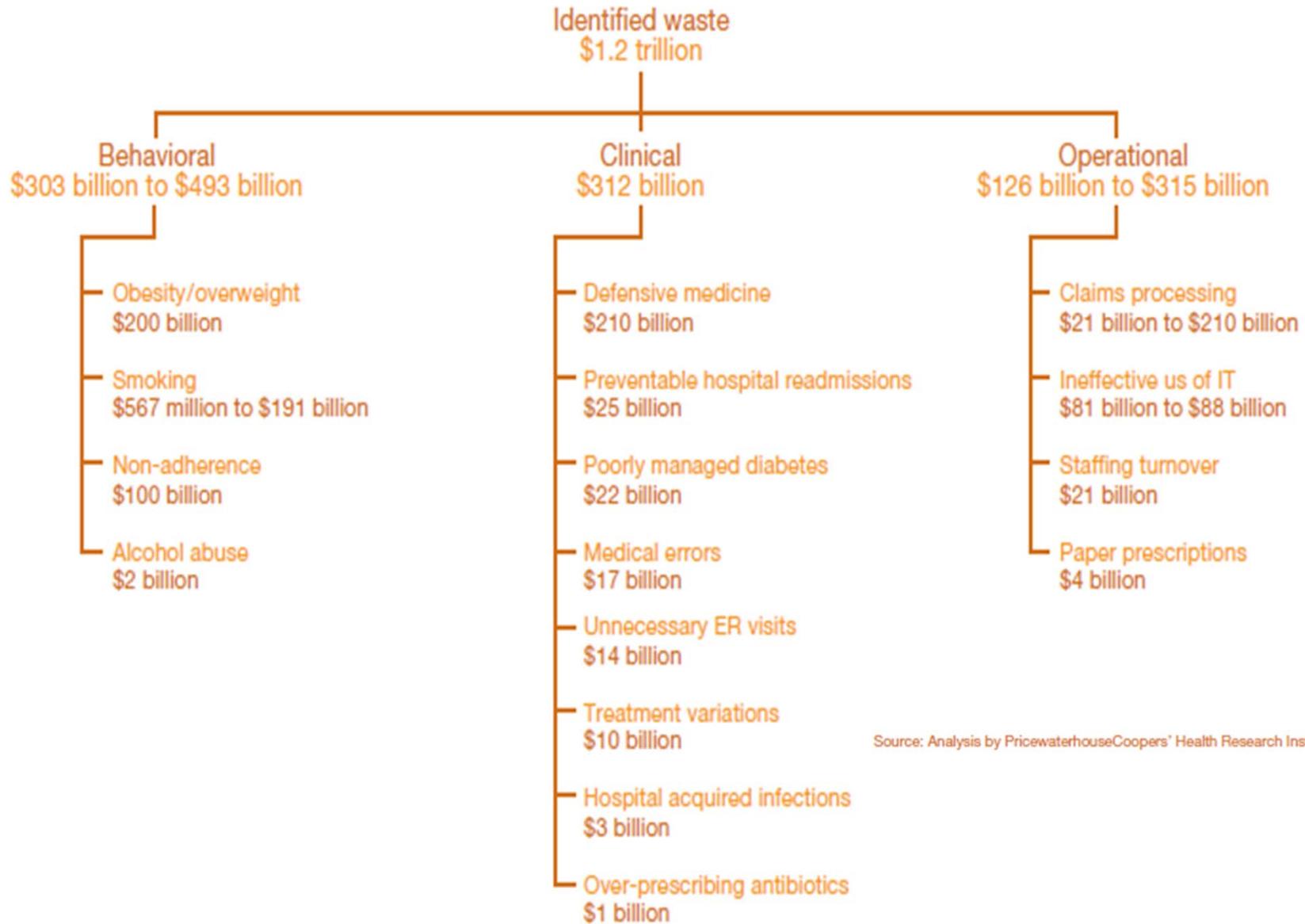
Budget Driven: Public Healthcare \$1.1 Trillion (2007 \$)



Understanding U.S. Health Care is a Challenge

- **Fraud, Waste and Abuse detection is “retrospective” not “preventative”**
- **Federal Pay and Chase model...once its paid it is often too late**
- **2007 FBI report estimated fraud, alone, at 3 – 10% of the total health care budget**
- **PriceWaterHouseCoopers Institute of Health Research estimates that fraud, waste and abuse could exceed one half the entire health care budget; Tompson Reuters the same.**

PriceWaterHouseCooper Institute of Health Research



Source: Analysis by PricewaterhouseCoopers' Health Research Institute

Benefits of Using High Performance Computing

- **Petascale technology allows for massive amounts of data to be analyzed in “real time”**
- **Fraud, waste and abuse can be identified immediately upon receipt of claims if data is properly warehoused**
- **Invalid payments now reliably made every day can be stopped reducing obvious cost and processing workload**
- **Predictive analysis can be used to model what is known about waste, fraud and abuse and this can form a knowledge base of filters to head off fraud in the future, dynamically**

Benefits of Petascale-Speed Computing (cont.)

- **The Federal Government, for the first time ever, will be able to establish a useable, comprehensive, reliable, valid, and secure repository of public health care costs**
- **Congress and the Executive Branch will have a resource for empirical information to measure policy effects on cost and quality, simulate alternatives and effect improvements in the U.S. healthcare system**
- **Decision makers will know, not merely have opinions regarding, what is working and what is not**
- **Consequences of any policy can be simulated to develop solutions that can be scored, measured, monitored, targeted, implemented, tracked, and re-targeted in a short period of time**

There are Some Challenges to Addressing this Problem

- **Federal Executive Branch Perspectives**
 - History of Public HealthCare dates from 1930's
 - Federal Funding
 - Past Statements on Fraud, Waste and Abuse
 - Reaction Paradigm
 - Lack Technical Understanding
 - Private Sector Subcontracting
- **State Programs** (same list above)
- **'Free Money'**
- **Legislative Branch Perspectives**

Everyone is Aware of the Need to Act

- **Awareness Is not Enough**
- **Understanding Blocked by Befuddlement**
- **Where You Sit is Where You Stand**
 - Justice Department
 - Medical Community
 - Health and Human Services Department
- **Federal Policy is Opinionated**
- **No One Knows Ground Truth**
- **HealthCare Quality and Effectiveness Issues not Understood**

How to 'Game' the Public HealthCare System has Become Pervasive, Lucrative, Barely Recognized, and Largely Ignored

- **Gaming-the-System can be Codified**
- **Many Roles can be Created**
- **Methods of Fraud and Methods Fighting Fraud can be Dynamically Related**
- **Approaches to Fraud Perpetration and Fraud Dynamics can be Hidden or Operate in Open Sight**

Understanding Is Critical--Modeling and Abstraction of Behaviors is Important

- **Reduce Confusion**
- **Disclose WFA Methods**
- **Proactive Measures to be Undertaken**
- **Private HealthCare Insurance Implications**
- **The Position Decision Makers & Interest Groups**
- **How to Think Like a Perpetrator**
- **Roles Undertaken by Participants**
- **Strategies of Stakeholders**
- **Introduction of Technology**

Capture Multi-Dimensionality

How Real Can Defrauding Federal Government Feel ?

- **How Many Fraudulent Schemes Can be Tried**
- **How Much Money Can be Collected**
- **What are Methods to Go Undetected**
- **Dynamics of Detection**
- **Dynamics of Fraud, Waste, Abuse**
- **Roles: Provider, Auditor, Government Administrator, Law Enforcement, Perpetrator, etc**

Some Gaming Resources

- **Serious game** http://en.wikipedia.org/wiki/Serious_game
- **Serious games**
http://www.digitalarti.com/files/Digitalarti_Mag_No_0_high_res.pdf
- pages 24,25.
- **Social Games Developer – Fight, Monetize and extend**
<http://playgen.com/social-games-developer-monetize-social-web/>
- **Serious Games Source** <http://www.seriousgamesource.com/>
- **Principles of Serious Games** <http://playgen.com/principles-of-serious-games/>
- **Influence through Cyberspace** <http://playgen.com/influence-through-cyberspace/>

The U.S. Public HealthCare Programs are well Documented and Open

- **Claims Data and Data Base Documentation Readily Available**
- **Policy is Decomposed to Rules and Requirements and are Available**
- **Many Instances of WFA have been Reported and Reside in the Public Record and the Web**
- **Books are Easily Available Discussing How to Take Advantage of the System**
- **Instructions for Filing Claims and Common Mistakes are also Readily Available**

Federal Public HealthCare Data

- Three current processes for obtaining available Medicare and Medicaid data from CMS.

<http://www.resdac.umn.edu/>

<http://www.cms.hhs.gov/NonIdentifiableDataFiles/>

<http://www.cms.hhs.gov/home/rsds.asp>

- Medicaid Data Elements

<http://www.resdac.umn.edu/tools/MedicaidFAQ-A.asp>

- 101 Medicaid data elements listed
General Information, Data Dictionaries, Data Element Lists, Data Anomalies, Validation Table Measures and SAS Loads [[PDF Zipped, 1,562 KB](#)]

- Medicare Data Elements in Medicare Program Integrity Manual

<http://www.cms.hhs.gov/Manuals/IOM/itemdetail.asp?filterType=none&filterByDID=-99&sortByDID=1&sortOrder=ascending&itemID=CMS019033>

- Exhibit 34 - Argus Field Descriptions and Formats - (Rev.)

[Exhibits \[PDF, 792 KB\]](#)

List of data elements begins on page 132

Some Recent Instances

- **September 1, 2010: Medicare and Medicaid payment systems are gamed by hospitals, medical equipment companies, organized crime that steal physician identities to collect fraudulent billings; \$2.5 Billion recovered from Southern California perpetrators.**
- **September 1, 2010: Saint John's Health Center, a 268-bed hospital in Santa Monica, paid \$5.25 million to settle claims it had inflated charges to Medicare for care.**
- **August 16, 2010: mismanagement led to the financial meltdown of Jackson Health System (JHS) in Miami; Miami-Dade County Grand Jury report**
- **August 12, 2010: Chicago-area cardiologist sentenced to five years in federal prison for stealing \$13 million from Medicare and >30 other public and private healthcare programs**
- **July 27, 2010: Michael Stanzione's Insurance kept him in a hospital for three years, home full-time nursing care not reimbursed by insurance**
- **July 17, 2010: Knoxville TN, 36 arrested in Medicare scams totaling \$251M**
- **June 28, 2010: WellCare Health Plans Tampa, Fla., to pay \$137M to settle False Claims**
- **May 11, 2010: Implementing an automated compliance and audit tool in 2003, New York has saved an estimated \$1 billion**

Other 'Resources'

- <http://www.fiercemobilehealthcare.com/slideshows/15-fierce-free-healthcare-apps-google-android>
- **Get a SSN with a name and to get someone's name who is deceased. You can go to a registry site like these:**
 - <http://ssdi.rootsweb.ancestry.com/>
 - http://www.archives.com/GA.aspx?_act=deathRecords&klp=GA95001&cam=477&gclid=CL-l-sKEjKACFZh2godP1sOeQ
 - http://www.govssnrecords.org/?gclid=COGKjtSEjKACFU4K2godVH_qk_w

Some Book Resources

Title	Price
<p>▶ Advanced Computational Intelligence Paradigms in Healthcare - 3 (Studies in Computational Intelligence) (No. 3) by Margarita Sordo (Author), et al.</p>	\$149.00
<p>▶ The Elements of Statistical Learning by Robert Tibshirani, et al.</p>	
<p>▶ Data Mining and Predictive Analysis: Intelligence Gathering and Crime Analysis by Colleen McCue</p>	\$46.60
<p>▶ Data Mining for Intelligence, Fraud & Criminal Detection: Advanced Analytics & Information Sharing Technologies by Christopher R. Westphal</p>	\$47.21
<p>▶ Redefining Health Care: Creating Value-Based Competition on Results by Michael E. Porter</p>	\$21.66
<p>▶ Understanding Health Policy, Fifth Edition (LANGE Clinical Medicine) by Thomas Bodenheimer</p>	\$33.03
<p>▶ Medicaid Politics and Policy by David G. Smith</p>	
<p>▶ Business Intelligence: The Savvy Manager's Guide (The Savvy Manager's Guides) by David Loshin</p>	\$28.56

Questions?

Songhua Xu, PhD

Computational Sciences and Engineering
Division (CSED)

P.O. Box 2008

Oak Ridge TN 37831-6173

Office phone: 865-574-9087

Email: xus1@ornl.gov

Xiaohui Cui, PhD

Computational Sciences and Engineering
Division (CSED)

P.O. Box 2008

Oak Ridge TN 37831-6085

Office phone: 865-576-9654

Email: cuix@ornl.gov

Andrew S. Loebel, PhD

Computational Sciences and Engineering
Division (CSED)

P.O. Box 2008

Oak Ridge TN 37831-6173

Office phone: 865-574-5966

On-line Fax: 865-241-4064

Cellular Phone: 865-207-9052

Email: loebblas@ornl.gov