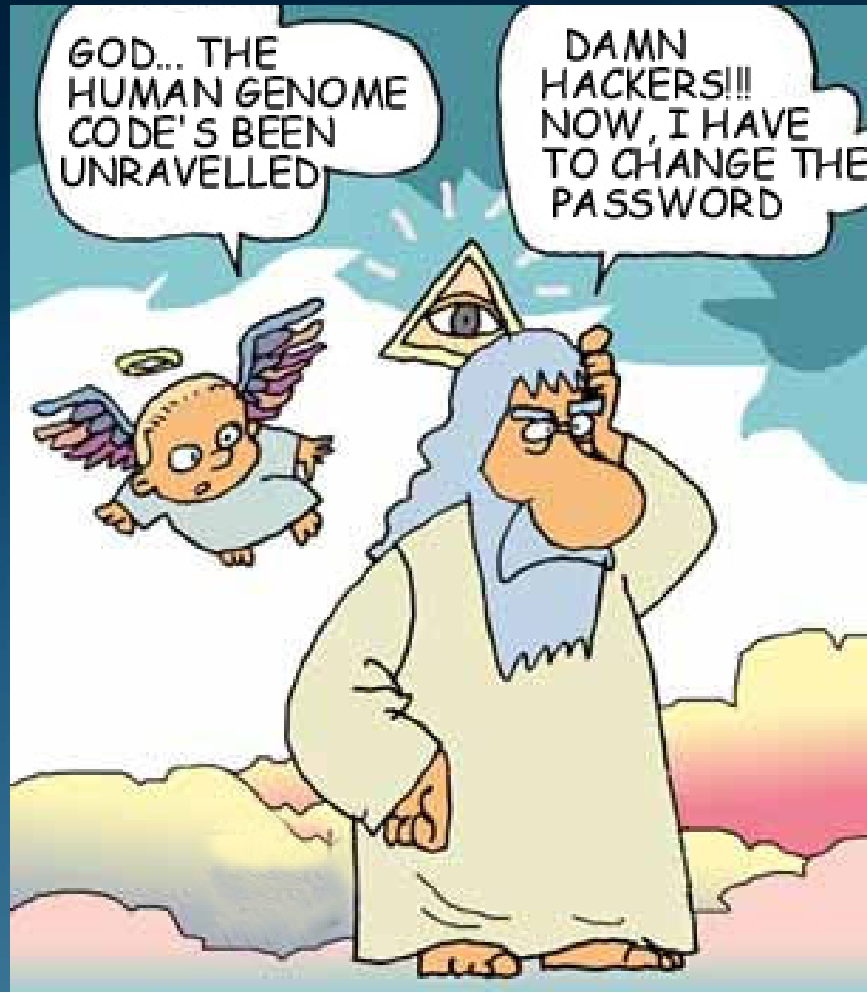


Genetic Technology: Practical Issues for Health Plans

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June 8, 2009





Disruptive Technology

- Definition – innovation that improves a product or service in ways that the market does not expect.
- Examples
 - Muskets
 - Plastic
 - Mobile phones

Genetics and Medicine

“If it were not for the great variability among individuals, medicine might as well be a science and not an art.”

- Sir William Osler

Health Plans Seem Conservative

**“People don't resist change.
They resist being changed!”**

Peter M. Senge

Health Plan Performance

Selected Results for Large For-Profit Health Plans

(in millions)

	Revenue		Net Income		Net Income / Revenue	
	2007	2008	2007	2008	2007	2008
Aetna	\$27,600	\$30,951	\$1,831	\$1,384	6.6%	4.5%
CIGNA	\$17,623	\$19,101	\$1,115	\$292	6.3%	1.5%
Humana	\$25,290	\$28,946	\$834	\$647	3.3%	2.2%
United Health	\$75,431	\$81,186	\$4,654	\$2,977	6.2%	3.7%
WellPoint	\$60,156	\$61,579	\$3,345	\$2,491	5.6%	4.0%
Total	\$206,100	\$221,763	\$11,779	\$7,791	5.7%	3.5%

Other Healthcare Performance

Selected Results for Healthcare Providers & Medical Technology Manufacturers (in millions)

	Revenue		Net Income		Net Income / Revenue	
	2007	2008	2007	2008	2007	2008
HCA	\$26,858	\$28,374	\$874	\$673	3.3%	2.4%
Tenet Healthcare	\$8,167	\$8,663	(\$89)	\$25	-1.1%	0.3%
Baxter	\$11,232	\$12,348	\$1,707	\$2,014	15.2%	16.3%
Guidant	\$8,357	\$8,050	(\$495)	(\$2,036)	-5.9%	-25.3%
Medtronic	\$12,299	\$13,515	\$2,802	\$2,231	22.8%	16.5%
Merck	\$24,198	\$23,850	\$3,275	\$7,808	13.5%	32.7%
Stryker	\$6,001	\$6,718	\$987	\$1,148	16.4%	17.1%
Total	\$97,112	\$101,518	\$9,061	\$11,863	9.3%	11.7%

Other Industry Performance

Selected Results for Other Companies

(in millions)

	Revenue		Net Income		Net Income / Revenue	
	2007	2008	2007	2008	2007	2008
Anheuser-Busch	\$14,430	\$16,102	\$4,294	\$3,617	29.8%	22.5%
Coca-Cola	\$20,936	\$21,807	\$1,470	(\$6,299)	7.0%	-28.9%
Microsoft	\$51,122	\$60,420	\$14,065	\$17,681	27.5%	29.3%
Sears	\$50,703	\$46,770	\$826	\$53	1.6%	0.1%
Starbucks	\$9,412	\$10,383	\$673	\$316	7.2%	3.0%
Wells Fargo	\$39,390	\$41,897	\$8,057	\$2,655	20.5%	6.3%
Total	\$185,993	\$197,379	\$29,385	\$18,023	15.8%	9.1%

Potential Benefits of Genetics in Medicine

- Targeting populations for treatment
- Targeting treatments for patients (pharmacogenomics)



Potential Benefits of Genetic Testing

- Acute care
- Preventive Care
- Lifestyle Choices



Potential Pitfalls in Implementation

- Coverage policy
- Procedure code
- Reimbursement



Utilization/Reimbursement by Specific Codes

<u>HCPCS</u>	<u>Procedure</u>	<u>Count*</u>	<u>Avg \$/Claim</u>
S3820	Complete BRCA1 and BRCA2 gene sequence analysis	1,422	\$2,652.79
S3830	Complete MLH1 and MLH2 gene sequence analysis HNPCC	93	\$1,787.58
S3835	Complete gene sequence analysis for cystic fibrosis genetic testing	436	\$247.28
S3847	Genetic testing for Tay-Sachs disease	61	\$256.12

*Out of roughly 13 million covered lives, 2006

Utilization/Reimbursement by General Codes

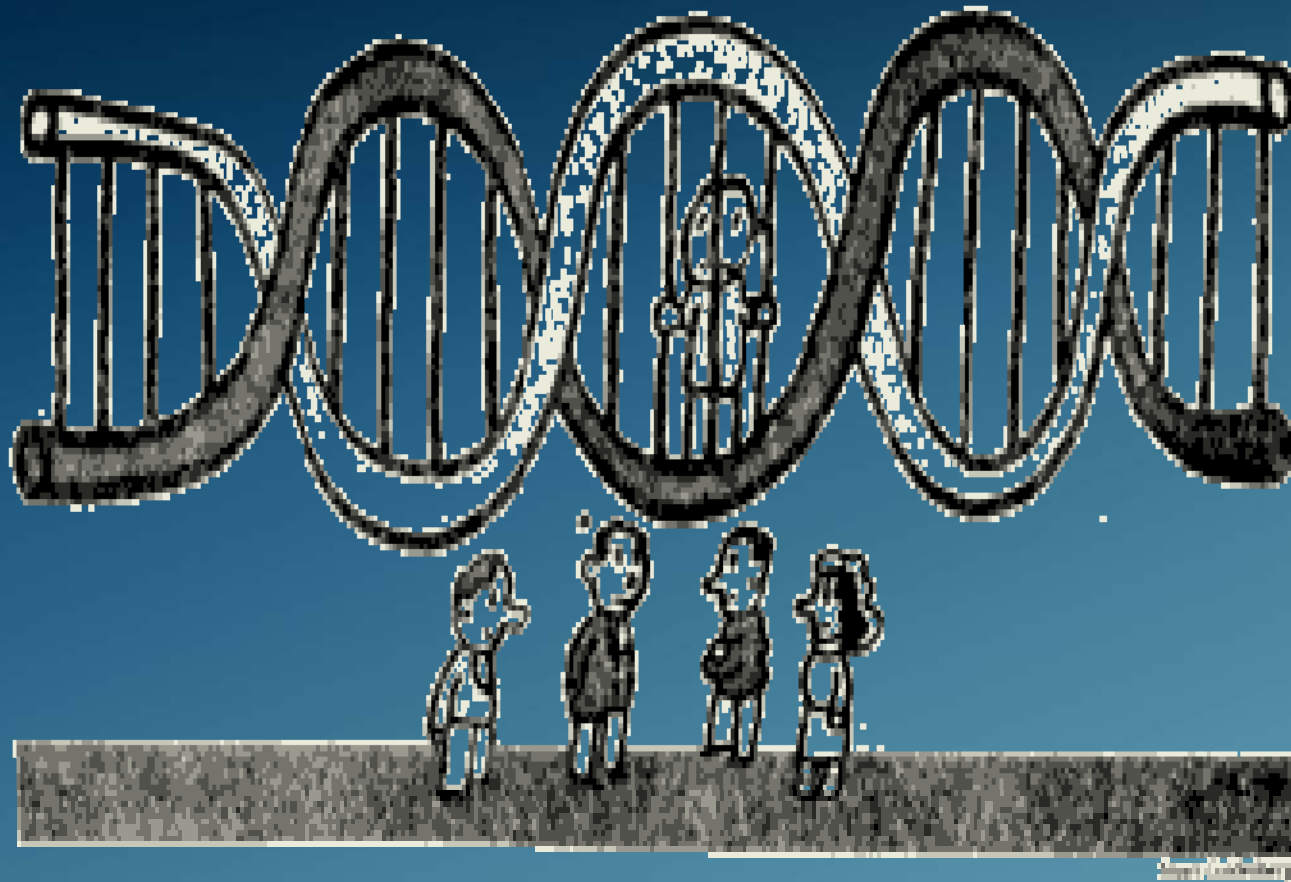
<u>CPT-4</u>	<u>Procedure</u>	<u>Count*</u>	<u>Avg \$/Claim</u>
83891	Isolation or extraction of highly purified nucleic acid	47,803	\$19.63
83892	Enzymatic digestion	23,855	\$29.57
83894	Separation by gel electrophoresis	16,563	\$34.74
83896	Nucleic acid probe	31,925	\$95.00

*Out of roughly 13 million covered lives, 2006

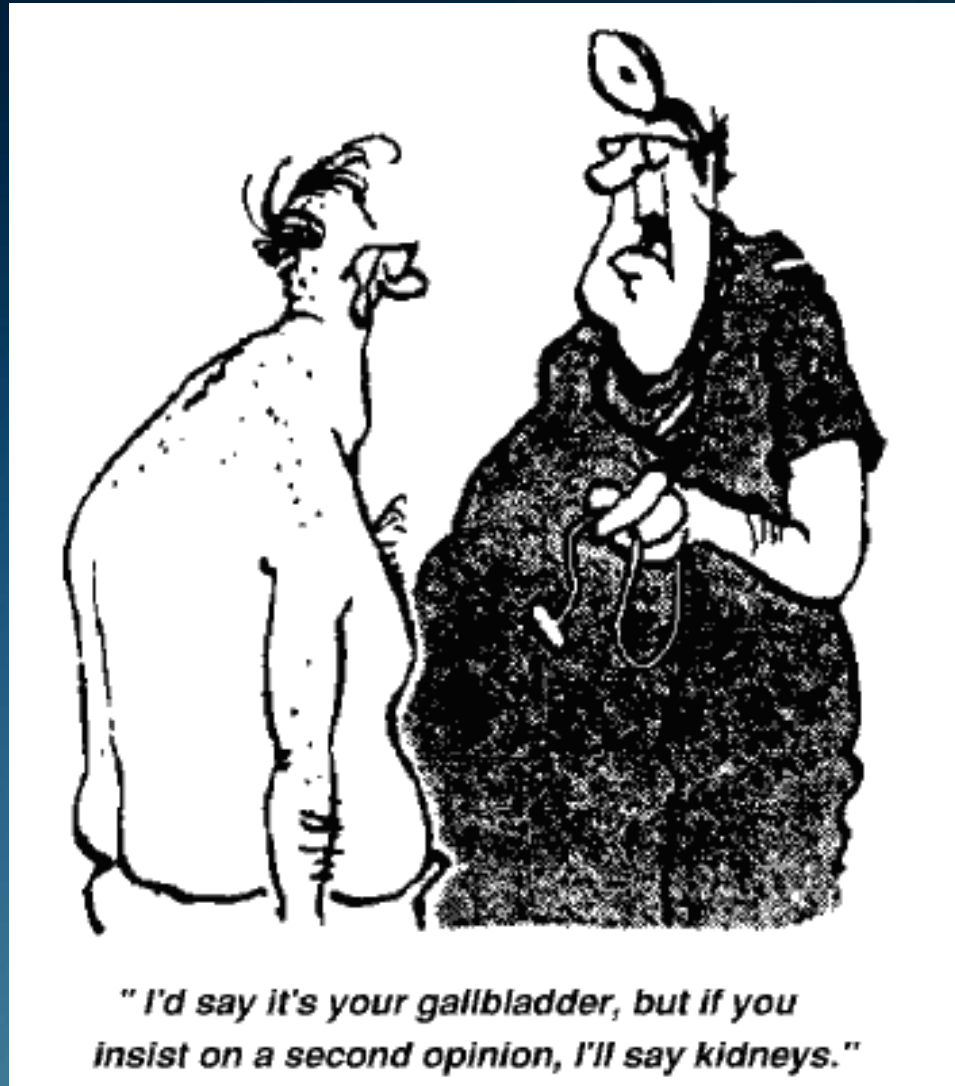
Health Plan Lapse Rates



Genetic Information Nondiscrimination Act (GINA)



Physician Unfamiliarity



Scientific Discovery to Clinical Utility



Questions

- What should the evidence look like?
- What is the likely timeline for the wide dissemination of genetic technology in medicine?
- How does healthcare reform impact the field?

