



University of Iowa Health Care

***Presentation to
The Board of Regents, State of Iowa***

***February 5-6, 2014
University of Northern Iowa
Cedar Falls***

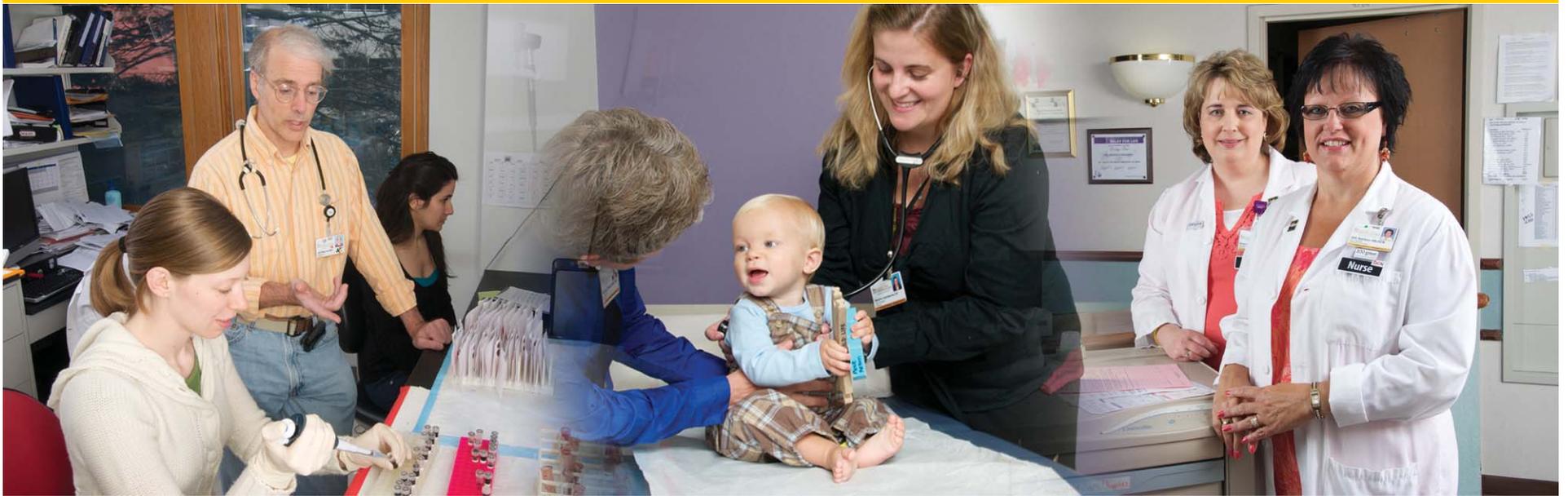
Agenda

- Opening Remarks (Jean Robillard)
- Operational and Financial Performance (Ken Kates & Ken Fisher)
- Proposed Amendments to the Bylaws of the UIHC and its Clinical Staff (Bill Hesson)
- Iowa Institute of Human Genetics (Richard Smith)



Opening Remarks

Jean Robillard, MD
Vice President for Medical Affairs



Proposed Amendments to the Bylaws of the UIHC and its Clinical Staff

Bill Hesson
Associate Vice President for Legal Affairs & Legal Counsel, UIHC



Operating and Financial Performance Update

Ken Kates, Associate Vice President and Chief Executive Officer
UI Hospitals & Clinics

Ken Fisher, Associate Vice President for Finance
and Chief Financial Officer

Volume Indicators

Fiscal Year to Date December 2013



Operating Review (YTD)	Actual	Budget	Prior Year *	Variance to Budget	% Variance to Budget	Variance to Prior Year	% Variance to Prior Year
Discharges	15,748	15,960	15,454	(212)	-1.3% ○	294	1.9% ○
Patient Days	99,243	97,872	97,397	1,371	1.4% ○	1,846	1.9% ○
Length of Stay	6.27	6.20	6.37	0.07	1.2% ○	(0.10)	-1.5% ○
Average Daily Census	539.36	531.91	529.33	7.45	1.4% ○	10.03	1.9% ○
Total Surgeries	14,850	14,673	14,183	177	1.2% ○	667	4.7% ●
- Inpatient	5,943	5,947	5,742	(4)	-0.1% ○	201	3.5% ●
- Outpatient	8,907	8,725	8,441	182	2.1% ○	466	5.5% ●
ED Visits	30,476	31,339	30,689	(863)	-2.8% ●	(213)	-0.7% ○
Total Clinic Visits	410,591	402,919	382,784	7,672	1.9% ○	27,807	7.3% ●

* from ongoing operations

● Greater than 2.5% Favorable	○ Neutral	● Greater than 2.5% Unfavorable
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Discharges by Type

Fiscal Year to Date December 2013

Operating Review (YTD)	Actual	Budget	Prior Year	Variance to Budget	% Variance to Budget	Variance to Prior Year	% Variance to Prior Year
Adult Medical	4,872	5,468	5,317	(596)	-10.9% ●	(445)	-8.4% ●
Adult Surgical	7,905	7,316	7,063	589	8.1% ●	842	11.9% ●
Adult Psych	706	756	737	(50)	-6.6% ●	(31)	-4.2% ●
<i>Subtotal – Adult</i>	<i>13,483</i>	<i>13,540</i>	<i>13,117</i>	<i>(57)</i>	<i>-0.4%</i> ○	<i>366</i>	<i>2.8%</i> ●
Pediatric Medical & Surgical	1,588	1,706	1,644	(118)	-6.9% ●	(56)	-3.4% ●
Pediatric Critical Care	402	436	424	(34)	-7.8% ●	(22)	-5.2% ●
Pediatric Psych	275	278	269	(3)	-1.1% ○	6	2.2% ○
<i>Subtotal – Pediatrics w/o newborn</i>	<i>2,265</i>	<i>2,420</i>	<i>2,337</i>	<i>(155)</i>	<i>-6.4%</i> ●	<i>(72)</i>	<i>-3.1%</i> ●
Newborn	747	744	730	3	0.4% ○	17	2.3% ○
TOTAL w/o Newborn	15,748	15,960	15,454	(212)	-1.3% ○	294	1.9% ○

●	○	●
Greater than 2.5% Favorable	Neutral	Greater than 2.5% Unfavorable

Discharge Days by Type

Fiscal Year to Date December 2013

Operating Review (YTD)	Actual	Budget	Prior Year	Variance to Budget	% Variance to Budget	Variance to Prior Year	% Variance to Prior Year
Adult Medical	26,316	29,753	29,631	(3,437)	-11.6% ●	(3,315)	-11.2% ●
Adult Surgical	40,528	35,463	35,241	5,065	14.3% ●	5,287	15.0% ●
Adult Psych	10,175	10,487	10,429	(312)	-3.0% ●	(254)	-2.4% ○
<i>Subtotal – Adult</i>	<i>77,019</i>	<i>75,703</i>	<i>75,301</i>	<i>1,316</i>	<i>1.7%</i> ○	<i>1,718</i>	<i>2.3%</i> ○
Pediatric Medical & Surgical	8,523	9,047	9,005	(524)	-5.8% ●	(482)	-5.4% ●
Pediatric Critical Care	10,758	11,827	11,766	(1,069)	-9.0% ●	(1,008)	-8.6% ●
Pediatric Psych	2,418	2,305	2,298	113	4.9% ●	120	5.2% ●
<i>Subtotal – Pediatrics w/o newborn</i>	<i>21,699</i>	<i>23,179</i>	<i>23,069</i>	<i>(1,480)</i>	<i>-6.4%</i> ●	<i>(1,370)</i>	<i>-6.0%</i> ●
Newborn	1,651	1,634	1,605	17	1.0% ○	46	2.9% ●
TOTAL w/o Newborn	98,718	98,882	98,370	(164)	-0.2% ○	348	0.4% ○

●	○	●
Greater than 2.5% Favorable	Neutral	Greater than 2.5% Unfavorable

Average Length of Stay by Type

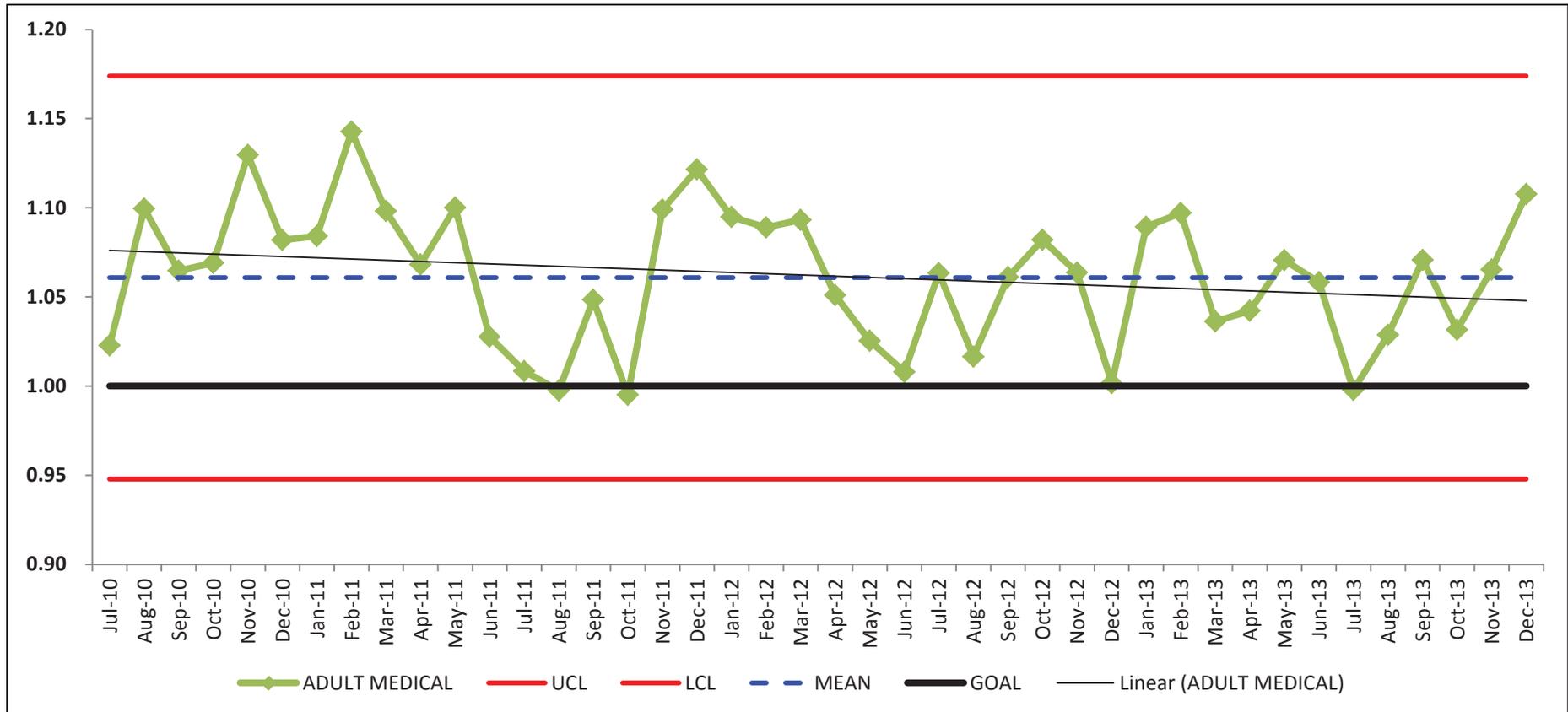
Fiscal Year to Date December 2013

Operating Review (YTD)	Actual	Budget	Prior Year	Variance to Budget	% Variance to Budget	Variance to Prior Year	% Variance to Prior Year
Adult Medical	5.40	5.44	5.57	(0.04)	-0.7% ○	(0.17)	-3.1% ●
Adult Surgical	5.13	4.85	4.99	0.28	5.8% ●	0.14	2.8% ●
Adult Psych	14.41	13.87	14.15	0.54	3.9% ●	0.26	1.9% ○
Subtotal – Adult	5.71	5.59	5.74	0.12	2.2% ○	(0.03)	-0.5% ○
Pediatric Medical & Surgical	5.37	5.30	5.48	0.06	1.2% ○	(0.11)	-2.0% ○
Pediatric Critical Care	26.76	27.13	27.75	(0.36)	-1.4% ○	(0.99)	-3.6% ●
Pediatric Psych	8.79	8.29	8.54	0.50	6.1% ●	0.25	2.9% ●
Subtotal – Pediatrics w/o newborn	9.58	9.58	9.87	0.00	0.0% ○	(0.29)	-2.9% ●
Newborn	2.21	2.20	2.20	0.01	0.6% ○	0.01	0.5% ○
TOTAL w/o Newborn	6.27	6.20	6.37	0.07	1.2% ○	(0.10)	-1.5% ○

●	○	●
Greater than 2.5% Favorable	Neutral	Greater than 2.5% Unfavorable

Length of Stay Index – Adult Medical(*)

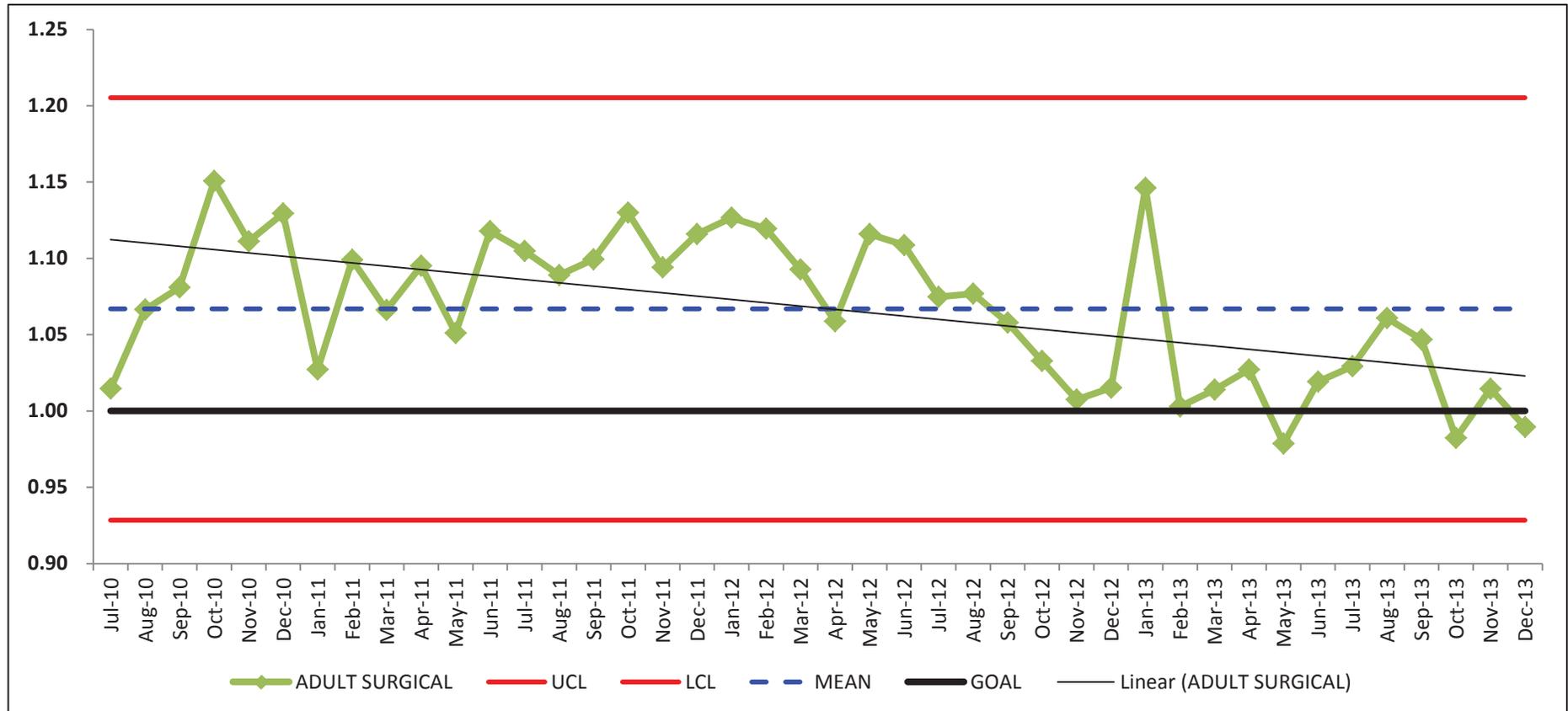
July 2010 through December 2013



(*) excludes outliers

Length of Stay Index – Adult Surgical(*)

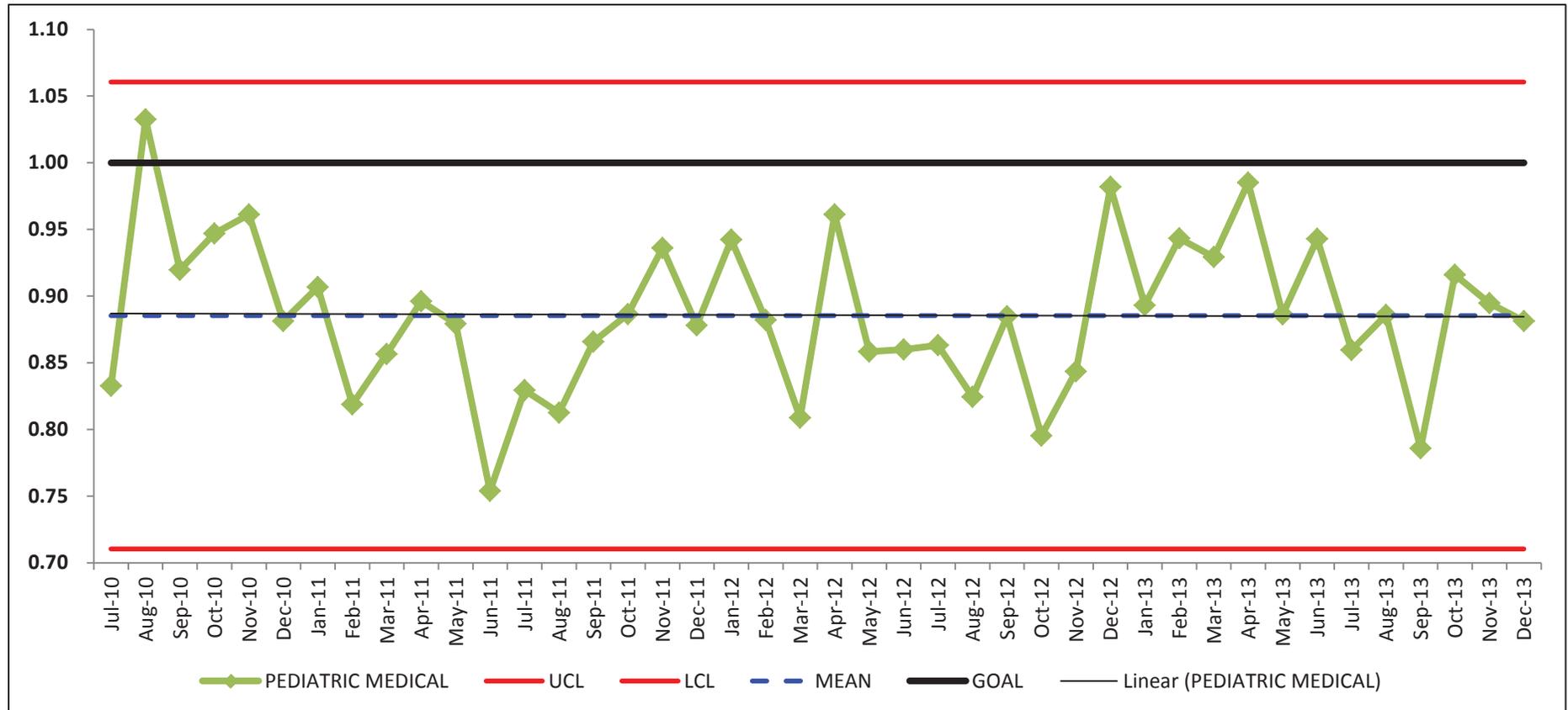
July 2010 through December 2013



(*) excludes outliers

Length of Stay Index – Pediatric Medical^(*)

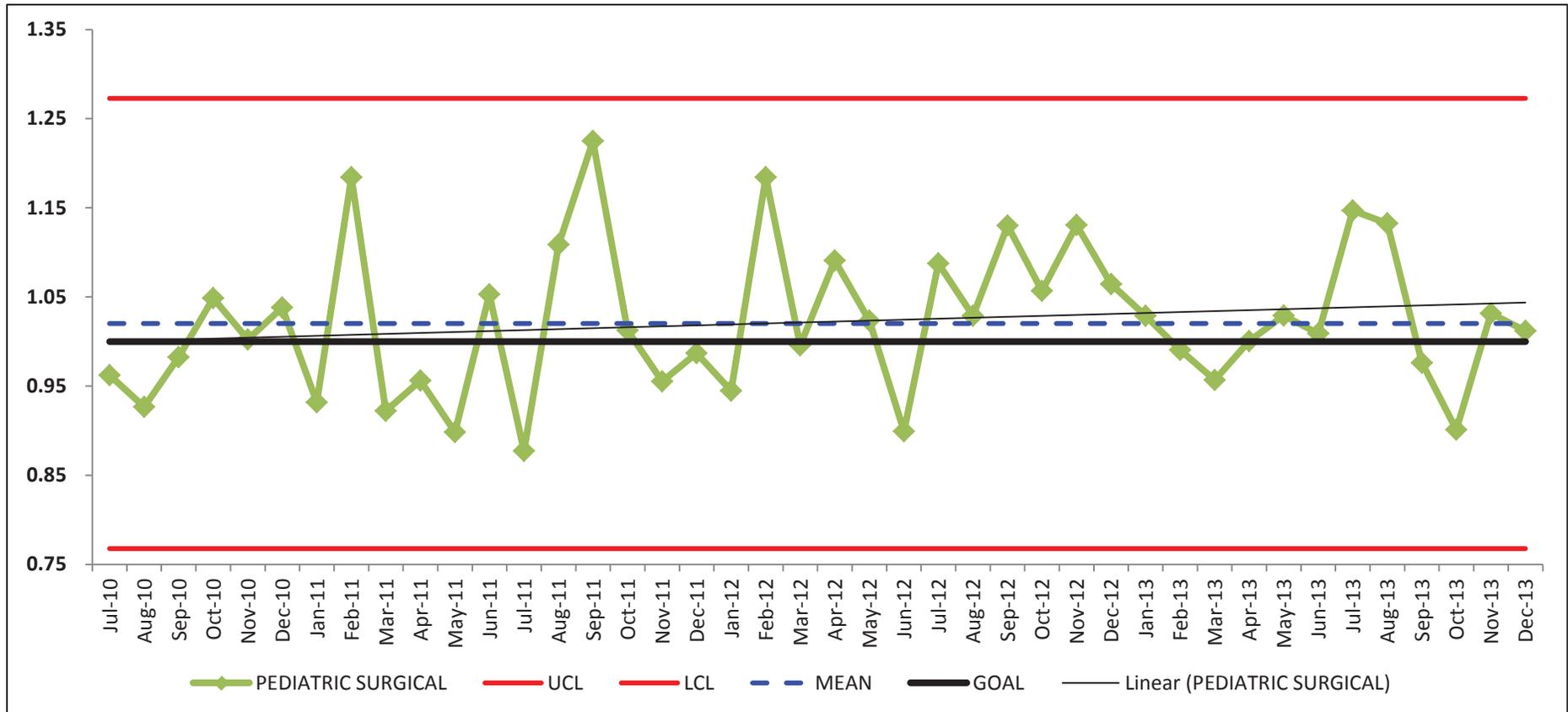
July 2010 through December 2013



(*) excludes outliers

Length of Stay Index – Pediatric Surgical^(*)

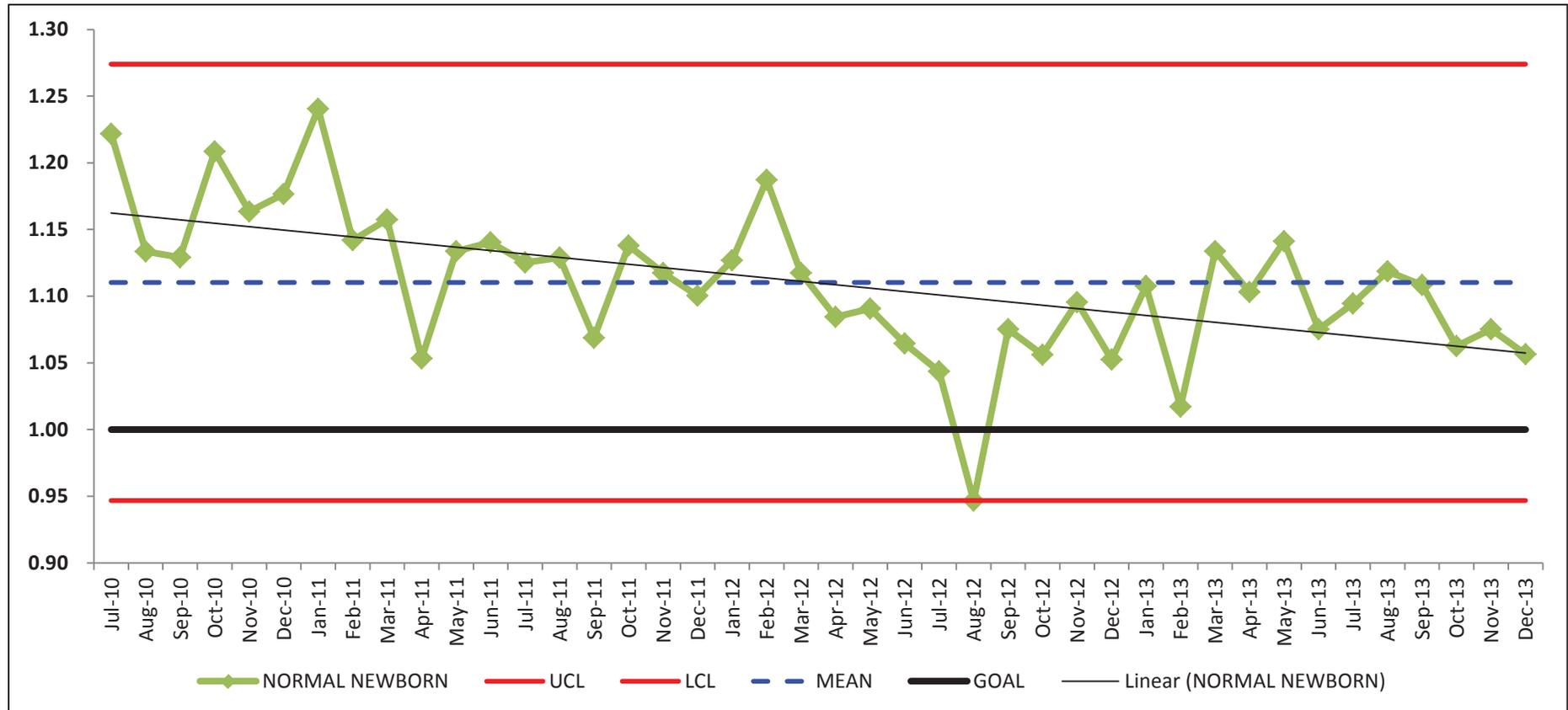
July 2010 through December 2013



(*) excludes outliers

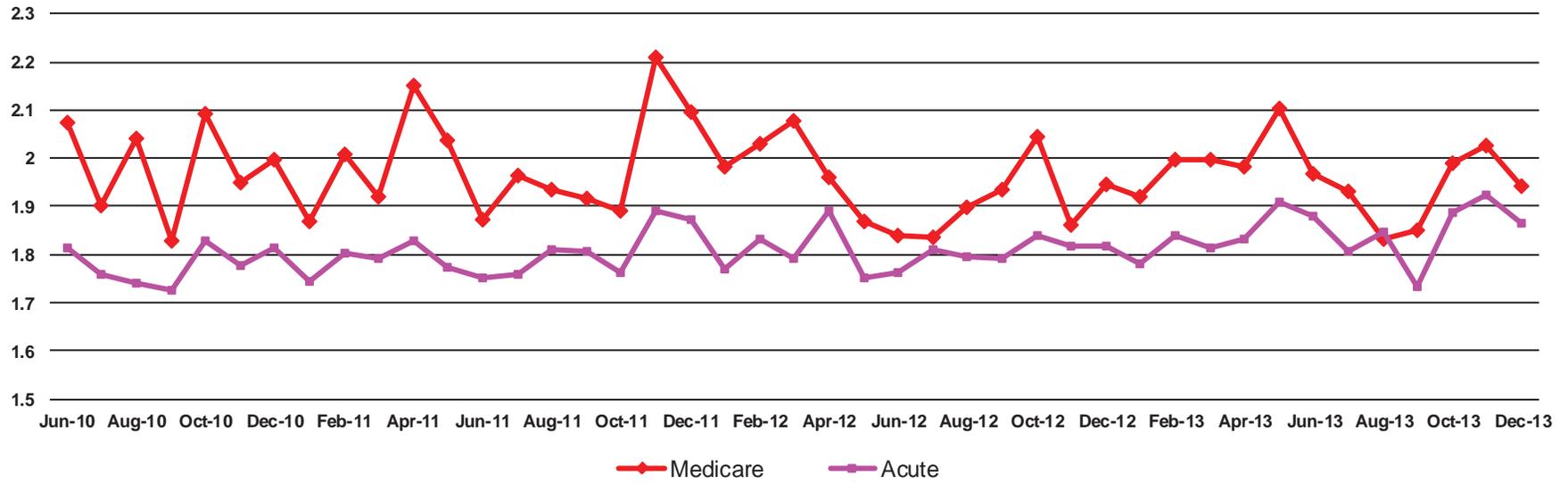
Length of Stay Index – Normal Newborn^(*)

July 2010 through December 2013



(*) excludes outliers

Case Mix Index



Inpatient Surgeries – by Clinical Department

December 2013



Operating Review (YTD)	Actual	Budget	Prior Year	Variance to Budget	% Variance to Budget	Variance to Prior Year	% Variance to Prior Year
Cardiothoracic	538	490	462	48	9.8% ●	76	16.5% ●
Dentistry	92	82	63	10	11.8% ●	29	46.0% ●
General Surgery	1,745	1,718	1,652	27	1.5% ○	93	5.6% ●
Gynecology	334	355	357	(21)	-5.8% ●	(23)	-6.4% ●
Neurosurgery	876	945	910	(69)	-7.3% ●	(34)	-3.7% ●
Ophthalmology	60	80	76	(20)	-25.0% ●	(16)	-21.1% ●
Orthopedics	1,503	1,437	1,395	66	4.6% ●	108	7.7% ●
Otolaryngology	311	347	333	(36)	-10.4% ●	(22)	-6.6% ●
Radiology – Interventional	43	53	64	(10)	-19.5% ●	(21)	-32.8% ●
Urology w/ Procedure Ste.	441	440	430	1	0.3% ○	11	2.6% ●
Total	5,943	5,947	5,742	(4)	-0.1% ○	201	3.5% ●
Solid Organ Transplants	139	193	179	(54)	-28.0% ●	(40)	-22.3% ●

● Greater than 2.5% Favorable
 ○ Neutral
 ● Greater than 2.5% Unfavorable

Outpatient Surgeries – by Clinical Department

December 2013



Operating Review (YTD)	Actual	Budget	Prior Year	Variance to Budget	% Variance to Budget		Variance to Prior Year	% Variance to Prior Year	
Cardiothoracic	38	58	32	(20)	-35.0%	●	6	18.8%	●
Dentistry	317	333	329	(16)	-4.7%	●	(12)	-3.6%	●
Dermatology	21	18	22	3	15.0%	●	(1)	-4.5%	●
General Surgery	1,399	1,350	1,353	49	3.7%	●	46	3.4%	●
Gynecology	406	380	385	26	6.8%	●	21	5.5%	●
Internal Medicine	4	5	6	(1)	-20.0%	●	(2)	-33.3%	●
Neurosurgery	350	320	292	30	9.5%	●	58	19.9%	●
Ophthalmology	1,964	1,967	1,866	(3)	-0.2%	○	98	5.3%	●
Orthopedics	2,109	1,981	1,914	128	6.5%	●	195	10.2%	●
Otolaryngology	1,231	1,297	1,214	(66)	-5.1%	●	17	1.4%	○
Pediatrics	1	2	2	(1)	-50.0%	●	(1)	-50.0%	●
Radiology – Interventional	15	19	27	(4)	-19.6%	●	(12)	-44.4%	●
Urology w/ Procedure Ste.	1,052	995	999	57	5.7%	●	53	5.3%	●
Total	8,907	8,725	8,441	182	2.1%	○	466	5.5%	●

●	○	●
Greater than 2.5% Favorable	Neutral	Greater than 2.5% Unfavorable

Emergency Department

December 2013



Operating Review (YTD)	Actual	Budget	Prior Year	Variance to Budget	% Variance to Budget	Variance to Prior Year	% Variance to Prior Year
ED Visits	30,476	31,339	30,689	(863)	-2.8%	(213)	-0.7%
ED Admits	9,256	8,911	8,717	345	3.9%	539	6.2%
ED Conversion Factor	30.4%	28.4%	28.4%		6.8%		6.9%
ED Admits / Total Admits	58.9%	56.6%	56.8%		4.2%		3.8%

Greater than 2.5% Favorable	Neutral	Greater than 2.5% Unfavorable

Clinic Visits by Specialty

Fiscal Year to Date December 2013

Operating Review (YTD)	Actual	Budget	Variance to Budget	% Variance to Budget	
Burn Clinic	1,570	2,267	(697)	-30.7%	●
Center for Disabilities & Development	4,517	4,669	(152)	-3.3%	●
Center for Digestive Disease	9,975	10,215	(240)	-2.3%	○
Clinical Cancer Center	24,786	27,318	(2,532)	-9.3%	●
Dermatology	10,953	11,201	(248)	-2.2%	○
General Surgery	7,979	8,834	(855)	-9.7%	●
Hospital Dentistry	8,495	8,297	198	2.4%	○
Internal Medicine	17,940	17,858	82	0.5%	○
Neurology	6,628	6,918	(290)	-4.2%	●
Neurosurgery	5,882	5,710	172	3.0%	●
Obstetrics/Gynecology	27,945	25,454	2,491	9.8%	●
Ophthalmology	32,497	34,151	(1,654)	-4.8%	●
Orthopedics	36,726	34,628	2,098	6.1%	●
Otolaryngology	10,125	10,262	(137)	-1.3%	○
Pediatrics	26,606	28,173	(1,567)	-5.6%	●
Primary Care (non-IRL)	87,446	79,448	7,998	10.1%	●
Psychiatry	16,136	17,004	(868)	-5.1%	●
Urology	7,022	7,861	(839)	-10.7%	●
UI Heart Center	8,101	8,845	(744)	-8.4%	●
IRL	59,262	53,806	5,456	10.1%	●
Total	410,591	402,919	7,672	1.9%	○

● Greater than 2.5% Favorable

○ Neutral

● Greater than 2.5% Unfavorable

Clinic Visits by Location

Fiscal Year to Date December 2013



Operating Review (YTD)	FY14 Actual				FY13 Actual *				Variance to Prior Year	%
	On-Site	IRL	UICMS & QuickCare	Total	On-Site	IRL	UICMS & QuickCare	Total		
Primary Care	28,394		59,052	87,446	42,809		53,679	96,488	(9,042)	-9.4%
General Internal Medicine		14,019		14,019		5,747		5,747	8,272	143.9%
Pediatrics		12,696		12,696		5,157		5,157	7,539	146.2%
<i>Subtotal - Primary Care</i>	<i>28,394</i>	<i>26,715</i>	<i>59,052</i>	<i>114,161</i>	<i>42,809</i>	<i>10,904</i>	<i>53,679</i>	<i>107,392</i>	<i>6,769</i>	<i>6.3%</i>
Burn Clinic	1,570			1,570					1,570	
Center for Disabilities & Development	4,517			4,517	4,434			4,434	83	1.9%
Center for Digestive Disease	9,975	1,897		11,872	10,584	528		11,112	760	6.8%
Clinical Cancer Center	24,786			24,786	26,239			26,239	(1,453)	-5.5%
Dermatology	10,953	2,808		13,761	11,406	642		12,048	1,713	14.2%
General Surgery	7,979			7,979	7,729			7,729	250	3.2%
Hospital Dentistry	8,495			8,495	7,753			7,753	742	9.6%
Internal Medicine	17,940	2,491		20,431	17,726	1,006		18,732	1,699	9.1%
Neurology	6,628			6,628	6,565			6,565	63	1.0%
Neurosurgery	5,882			5,882	5,294			5,294	588	11.1%
Obstetrics/Gynecology	27,945	9,737		37,682	29,478	3,380		32,858	4,824	14.7%
Ophthalmology	32,497	3,676		36,173	33,760	1,203		34,963	1,210	3.5%
Orthopedics	36,726			36,726	33,558			33,558	3,168	9.4%
Otolaryngology	10,125	3,323		13,448	10,655	1,029		11,684	1,764	15.1%
Pediatrics	26,606			26,606	25,615			25,615	991	3.9%
Psychiatry	16,136			16,136	16,361			16,361	(225)	-1.4%
Urology	7,022	2,976		9,998	8,485	966		9,451	547	5.8%
UI Heart Center	8,101	5,639		13,740	9,168	1,828		10,996	2,744	25.0%
<i>Subtotal – Specialty Care</i>	<i>263,883</i>	<i>32,547</i>		<i>296,430</i>	<i>264,810</i>	<i>10,582</i>		<i>275,392</i>	<i>21,038</i>	<i>7.6%</i>
Total	292,277	59,262	59,052	410,591	307,619	21,486	53,679	382,784	27,807	7.3%

* from ongoing operations



Greater than 2.5% Favorable

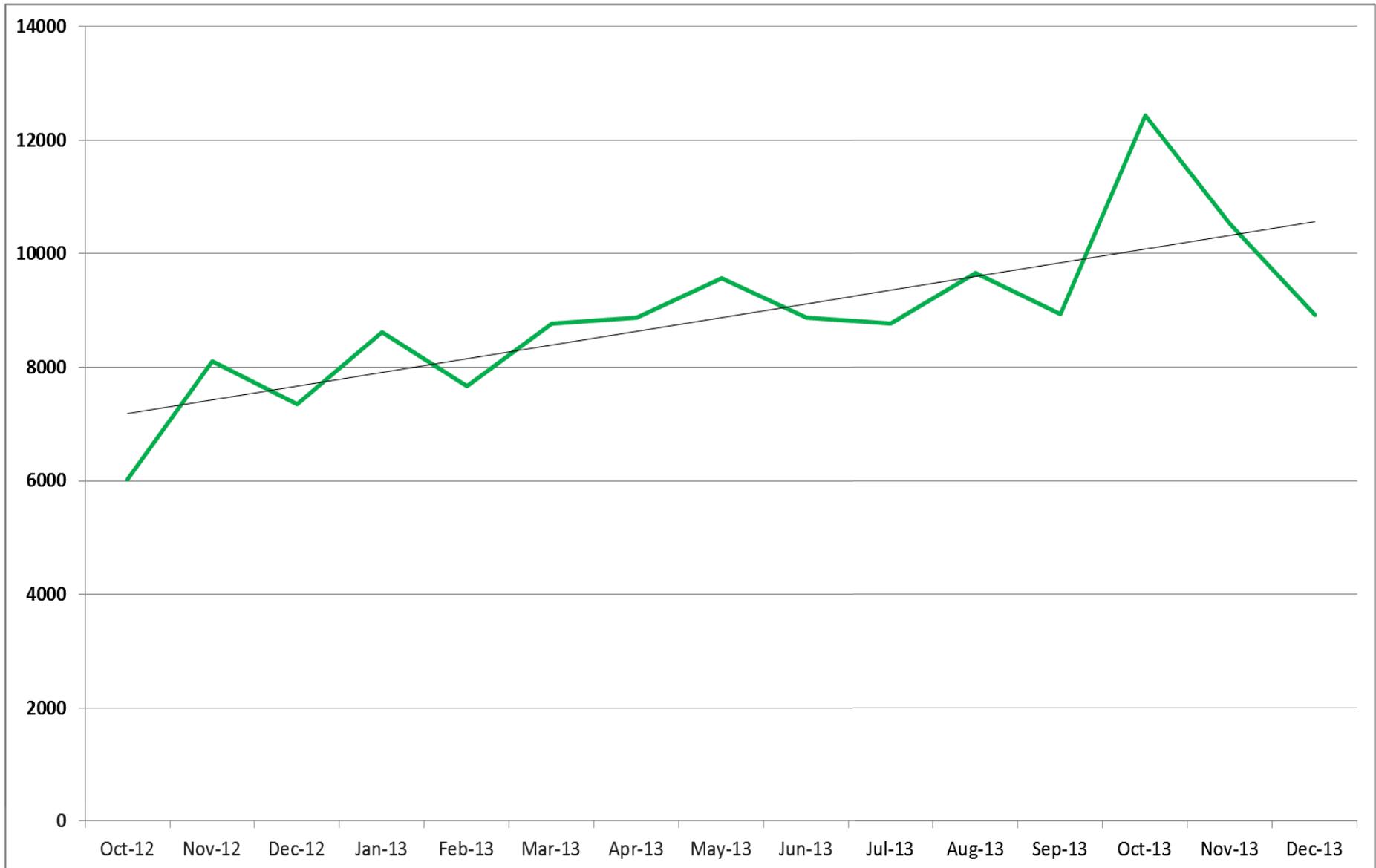


Neutral



Greater than 2.5% Unfavorable

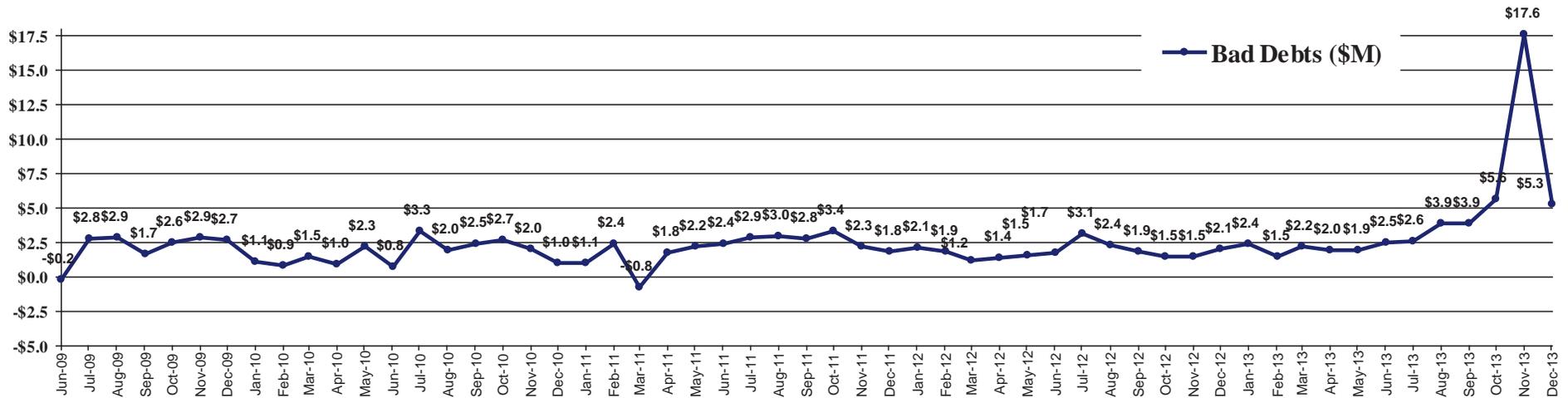
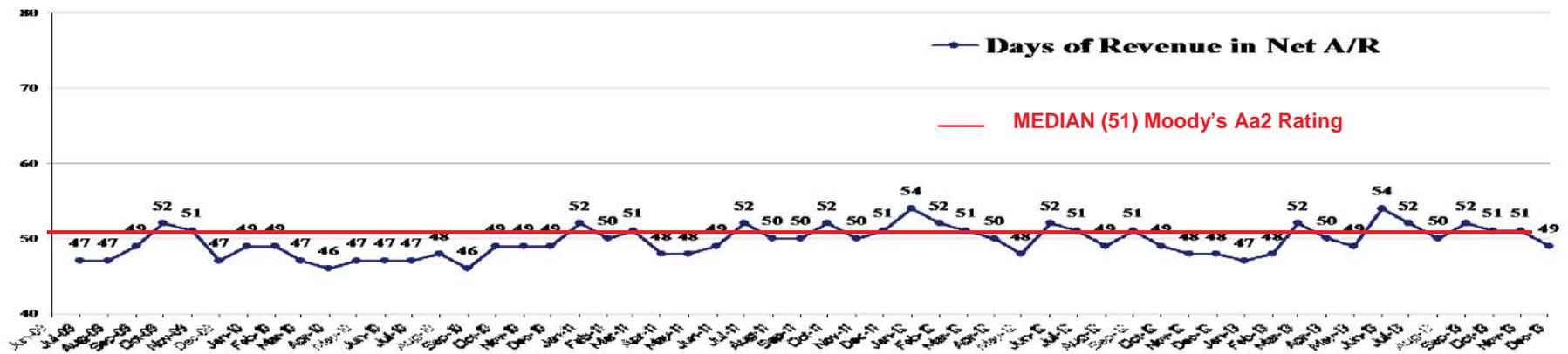
Iowa River Landing Ambulatory Visits



Comparative Accounts Receivable at December 31, 2013



	June 30, 2012	June 30, 2013	December 31, 2013
Net Accounts Receivable	\$153,061,293	\$161,942,694	\$159,172,752
Net Days in AR	52	54	49



UIHC Comparative Financial Results

December 2013



Dollars in Thousands

NET REVENUES:	Actual	Budget	Prior Year	Variance to Budget	% Variance to Budget	Variance to Prior Year	% Variance to Prior Year
Patient Revenue	\$92,437	\$94,123	\$83,568	(\$1,686)	-1.8%	\$8,869	10.6%
Other Operating Revenue	3,997	4,225	4,127	(228)	-5.4%	(130)	-3.2%
Total Revenue	\$96,434	\$98,348	\$87,695	(\$1,914)	-1.9%	\$8,738	10.0%

EXPENSES:

Salaries and Wages	\$48,349	\$49,246	\$47,035	(\$897)	-1.8%	\$1,314	2.8%
General Expenses	38,657	39,625	35,583	(968)	-2.4%	3,074	8.6%
Operating Expense before Capital	\$87,006	\$88,870	\$82,618	(\$1,864)	-2.1%	\$4,388	5.3%
Cash Flow Operating Margin	\$9,428	\$9,478	\$5,078	(\$50)	-0.5%	\$4,350	85.7%
Capital- Depreciation and Amortization	6,541	6,603	6,192	(62)	-0.9%	349	5.6%
Total Operating Expense	\$93,547	\$95,473	\$88,810	(\$1,926)	-2.0%	\$4,737	5.3%

Operating Income	\$2,887	\$2,875	(\$1,114)	\$12	0.4%	\$4,001	359.1%
Operating Margin %	3.0%	2.9%	-1.3%		0.1%		4.3%
Gain (Loss) on Investments	521	2,157	5,111	(1,636)	-75.8%	(4,591)	-89.8%
Other Non-Operating	31	(879)	(1,435)	909	103.5%	1,464	102.1%
Net Income	\$3,439	\$4,153	\$2,562	(\$714)	-17.2%	\$877	34.2%
Net Margin %	3.5%	4.2%	2.8%		-0.7%		0.7%

* Gain/(Loss) on Investments based on information available at close. Final investment return for this period is reflected in Fiscal Year to Date returns in the subsequent reporting cycle.

UIHC Comparative Financial Results

Fiscal Year to Date December 2013



Dollars in Thousands

NET REVENUES:	Actual	Budget	Prior Year	Variance to Budget	% Variance to Budget	Variance to Prior Year	% Variance to Prior Year
Patient Revenue	\$561,782	\$572,726	\$534,766	(\$10,945)	-1.9%	\$27,015	5.1%
Other Operating Revenue	24,875	25,353	25,553	(478)	-1.9%	(678)	-2.7%
Total Revenue	\$586,657	\$598,080	\$560,319	(\$11,423)	-1.9%	\$26,338	4.7%

EXPENSES:

Salaries and Wages	\$288,506	\$297,159	\$282,470	(\$8,653)	-2.9%	\$6,037	2.1%
General Expenses	243,076	245,745	227,870	(2,669)	-1.1%	15,205	6.7%
Operating Expense before Capital	\$531,582	\$542,904	\$510,340	(\$11,322)	-2.1%	\$21,242	4.2%
Cash Flow Operating Margin	\$55,075	\$55,176	\$49,979	(\$101)	-0.2%	\$5,096	10.2%
Capital- Depreciation and Amortization	37,085	39,616	35,771	(2,530)	-6.4%	1,314	3.7%
Total Operating Expense	\$568,667	\$582,520	\$546,111	(\$13,852)	-2.4%	\$22,556	4.1%

Operating Income	\$17,990	\$15,660	\$14,208	\$2,430	15.6%	\$3,780	26.6%
Operating Margin %	3.1%	2.6%	2.5%		0.5%		0.6%
Gain on Investments	16,812	12,939	13,639	3,873	29.9%	3,174	23.3%
Other Non-Operating	(5,502)	(5,273)	(4,257)	(229)	-4.3%	(1,245)	-29.2%
Net Income	\$29,300	\$23,226	\$23,590	\$6,074	26.2%	\$5,710	24.2%
Net Margin %	4.9%	3.8%	4.1%		1.1%		0.8%

* Gain/(Loss) on Investments based on information available at close. Final investment return for this period is reflected in Fiscal Year to Date returns in the subsequent reporting cycle.

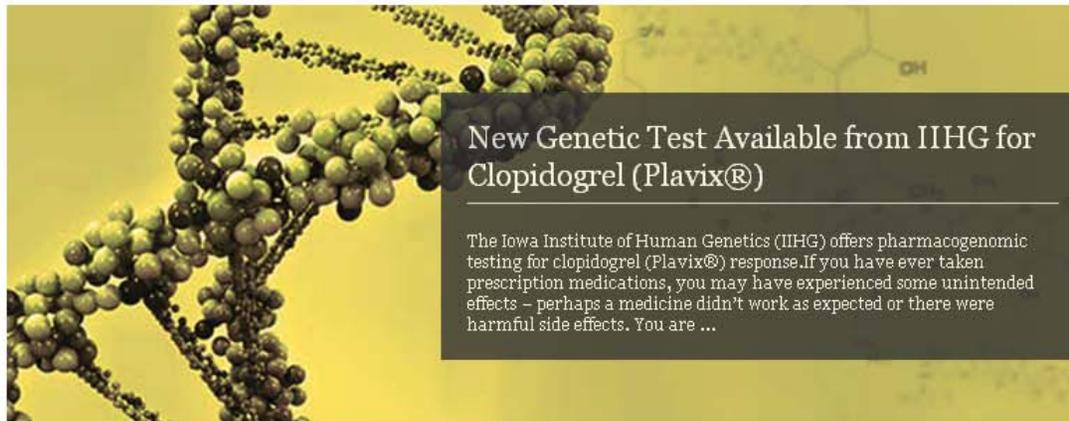


Iowa Institute of Human Genetics

Richard Smith, MD
Director, Iowa Institute of Human Genetics
Sterba Hearing Research Professor
Professor of Otolaryngology, Internal Medicine, Pediatrics and Molecular
Physiology and Biophysics

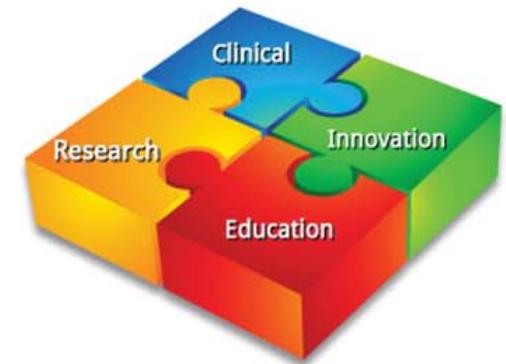
Iowa Institute of Human Genetics

Ways to give



New Genetic Test Available from IIHG for Clopidogrel (Plavix®)

The Iowa Institute of Human Genetics (IIHG) offers pharmacogenomic testing for clopidogrel (Plavix®) response. If you have ever taken prescription medications, you may have experienced some unintended effects – perhaps a medicine didn't work as expected or there were harmful side effects. You are ...



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Upcoming Events



[View full calendar of genetics events](#)

'Genome Wide Analysis Study of Idiopathic Intracranial Hypertension' by Benjamin Deonovic (Advisor: Janet Pendergast) 12/2/2013 3:30 PM - So30 CPHB ◀

[BIOINFORMATICS Seminar by Krishna Kalari.](#)

A Statewide Resource



The Iowa Institute of Human Genetics (IIHG) is dedicated to promoting clinical care, research and education focused on the medical and scientific significance of variation in the human genome. The IIHG serves as a statewide resource

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http://www.medicine.uiowa.edu/humangenetics/

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Iowa Institute of Human Genetics

 Ways to give

ITS MISSION

1. To promote clinical care focused on **personalized (precision) genomic medicine**
2. To promote research and education focused on the medical and scientific significance of variation in human genome
3. To provide state-wide outreach on issues related to understanding the extent and meaning of human DNA sequence variation



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ITS VISION

1. To develop a culture of innovation in human genetics
2. To support clinicians and researchers with shared and integrated interests in human genetics
3. To capture the imaginations of the next generation at the pre-professional level

 Clinical

(Advisor: Janet Pendergast) 12/2/2013 3:30 PM -
So3o CPHB ◀

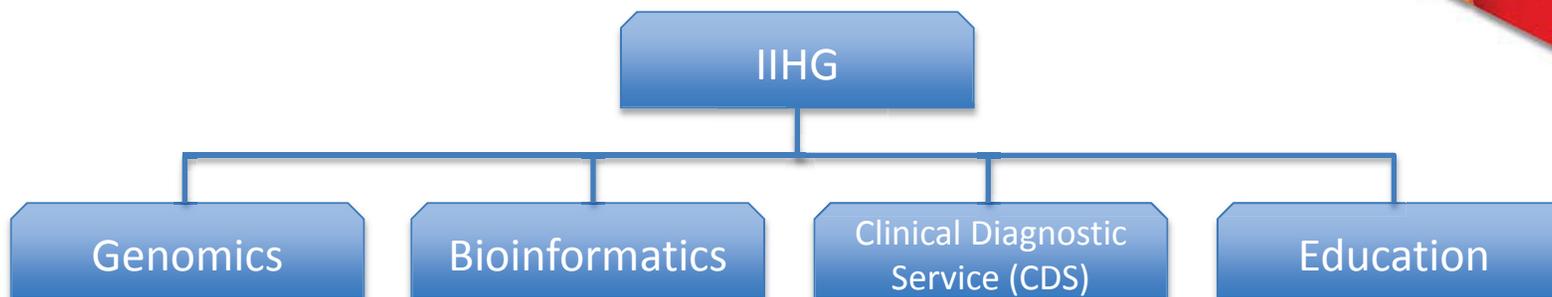


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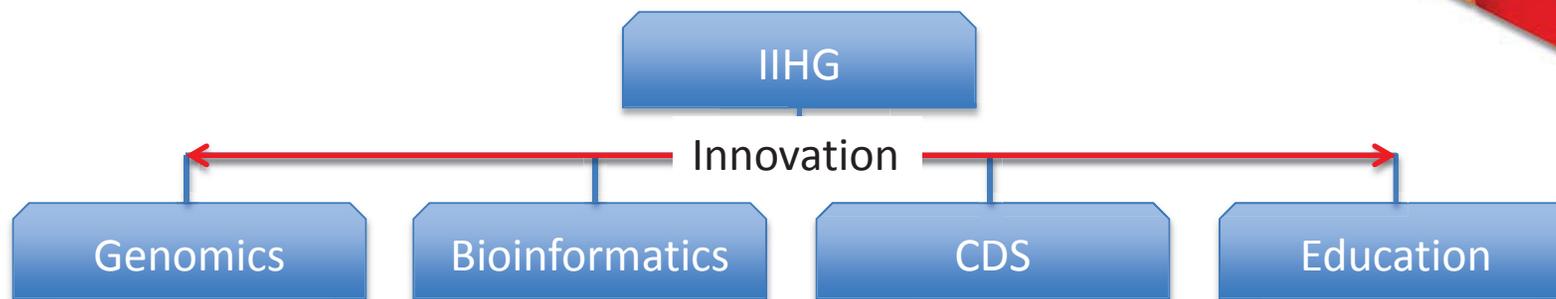
 Education

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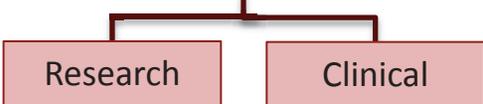
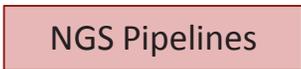
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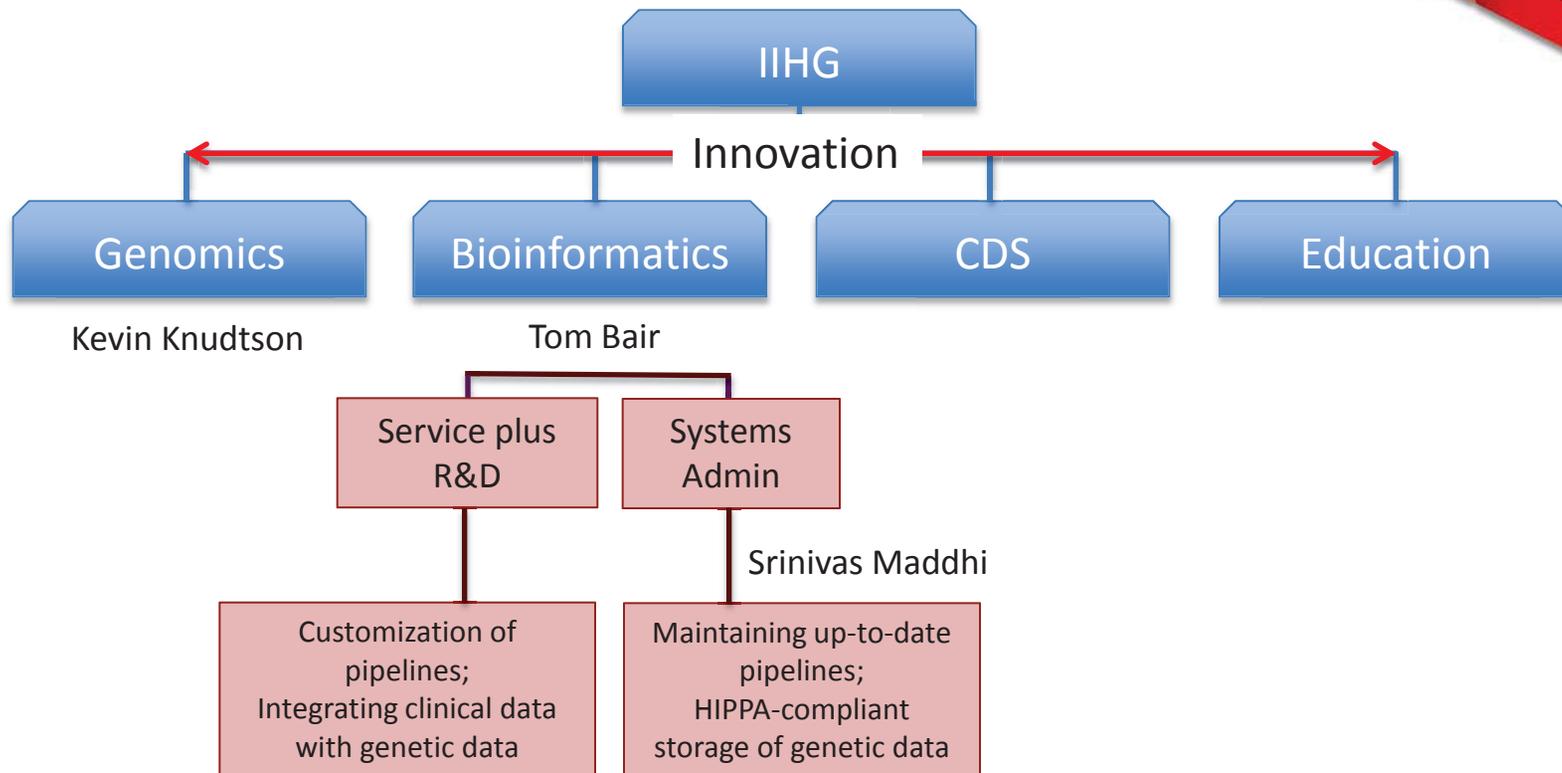
Innovation



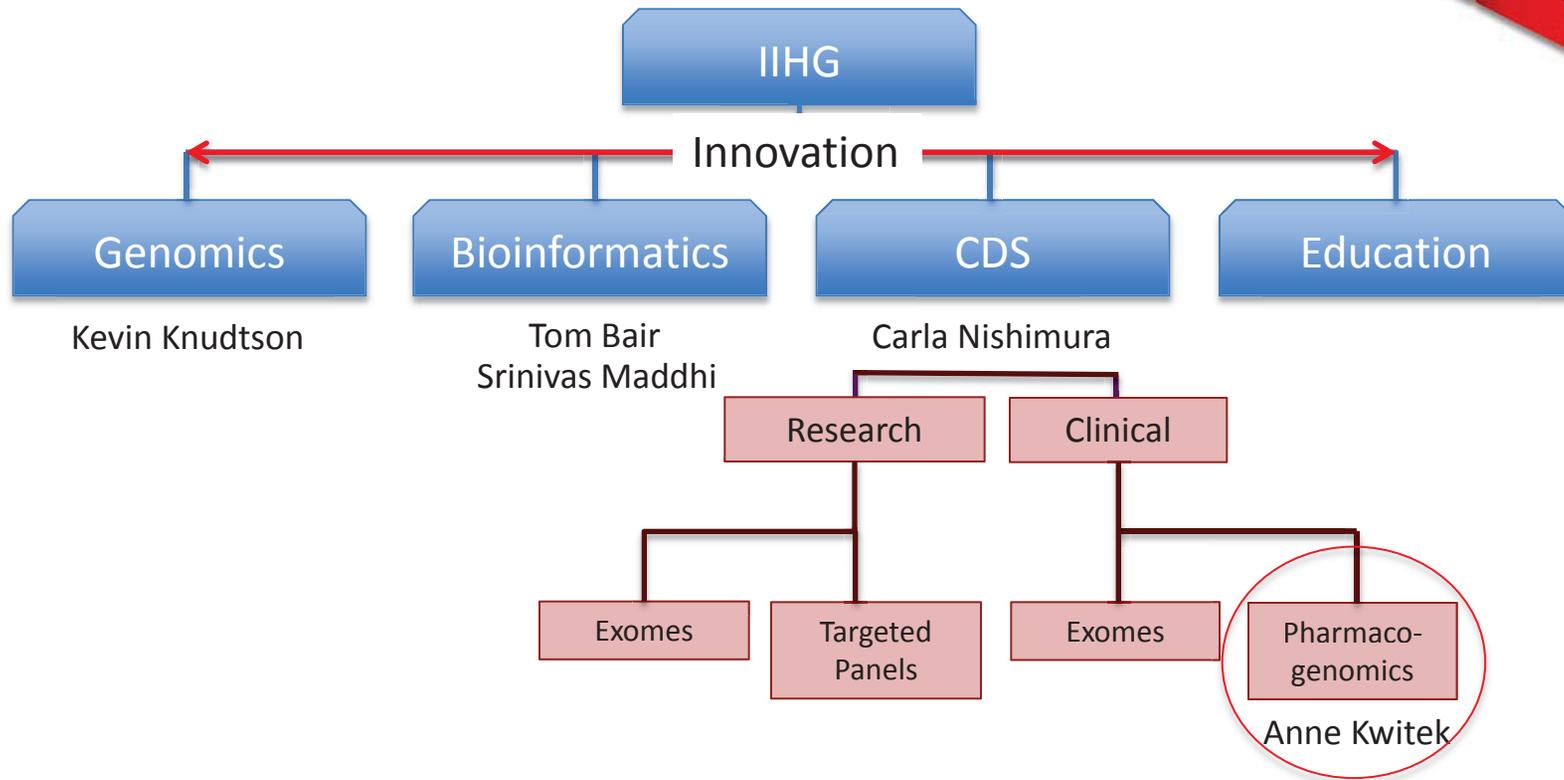
Kevin Knudtson



Iowa Institute of Human Genetics

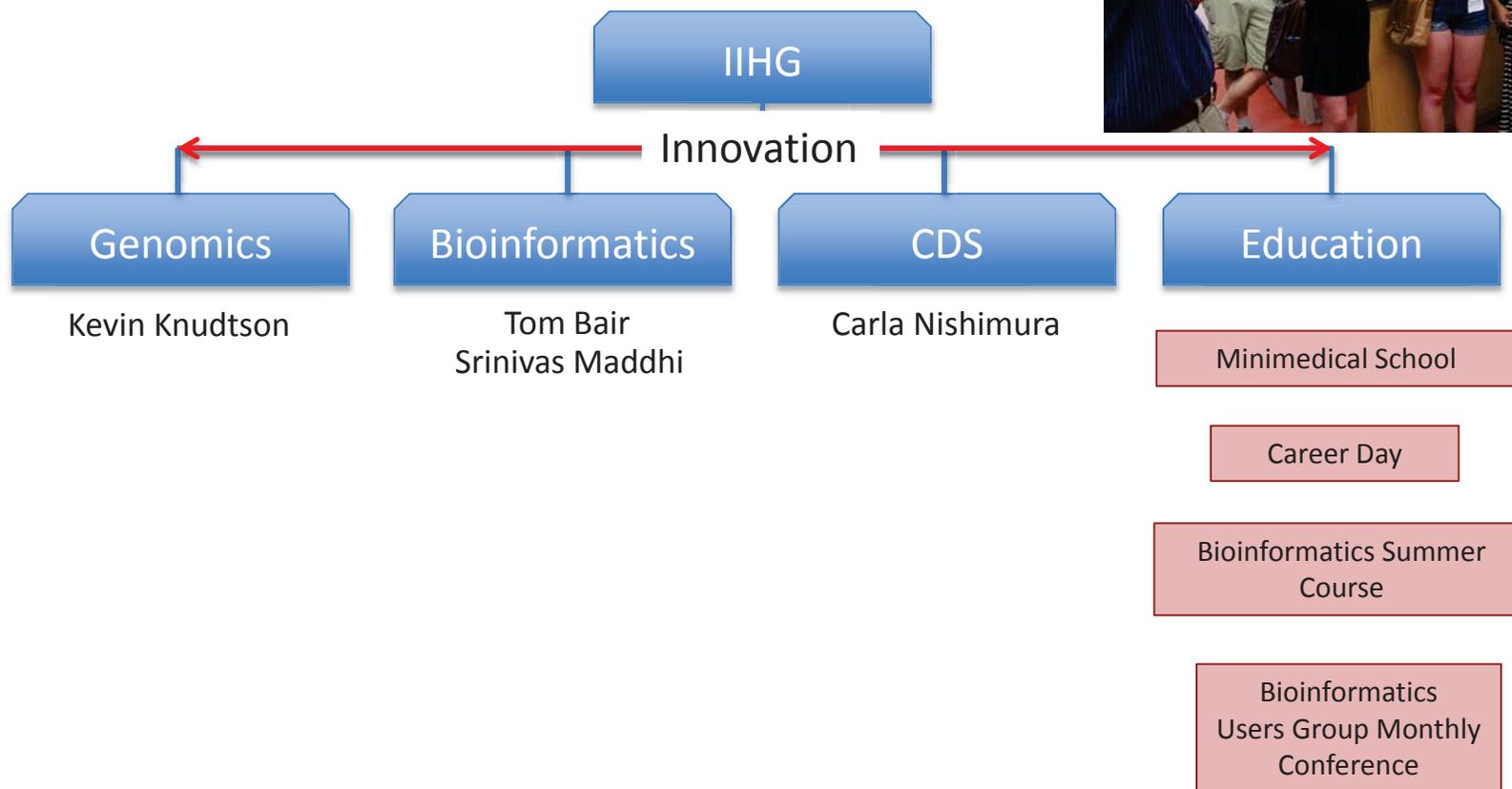


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Today's Goals



Pharmacogenomics (PGx)

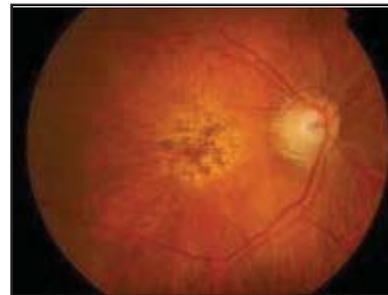
- a) Define personalized (precision) genomic medicine
- b) Demonstrate the need for PGx
- c) Review where we are at UIHC
- d) Why is it important to lowans?

What is Personalized Genomic Medicine?



1. Personalized - risks are uniquely yours
2. Predictive - of the risks you have for specific disorders
3. Preventive – if you address exposures / behaviors with targeted intervention/screening to change outcomes
4. Participatory – requires your participation

- AMD affects one-third of adults over the age of 75
- Exercise, low fat diet, sun glasses, and eat plenty of fruits and nuts



Pharmacogenomics.....The Need



1. Over the past month, how many of us took 1 prescription drug?
...3 or more? ...5 or more?

FASTSTATS – Therapeutic Drug Use

CDC <http://www.cdc.gov/nchs/faststats/drugs.htm>

percent of drugs NOT effective

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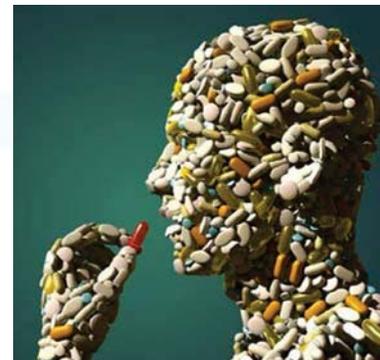
Accessibility

[NCHS Home](#) > [FastStats Home](#)

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Therapeutic Drug Use

(Data are for the U.S.)



[Email page link](#)

[Print page](#)

Contact Us:

National Center for Health Statistics
3311 Toledo Rd
Hyattsville, MD

1 (800) 232-4636

cdcinfo@cdc.gov

- Percent of persons using at least one prescription drug in the past month: 47.9% (2005-2008)
- Percent of persons using three or more prescription drugs in the past month: 21.4% (2005-2008)
- Percent of persons using five or more prescription drugs in the past month: 10.5% (2005-2008)

Source: [Health, United States, 2011, table 99](#) [PDF - 9.8 MB]

Pharmacogenomics.....The Need



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Genetics and your health

Personalized medicine and you Our research in action Support the Laboratory

Personalized medicine and you

What is personalized medicine?

Benefits of personalized medicine

Current applications of personalized medicine

Societal impact

Related technology

The benefits of personalized medicine

Throughout history, the practice of medicine has largely been reactive. Even today, we have to wait until the onset of diseases and then try to treat or cure them. And because we don't fully understand the genetic and environmental factors that cause major diseases such as cancer, Alzheimer's and diabetes, our efforts to treat them are often imprecise, unpredictable and ineffective.

In addition, the drugs and treatments we devise are tested on broad populations and are prescribed using statistical averages. For example, on average, any given prescription drug now on the market only works for half of those who take it. Among cancer patients, the rate of ineffectiveness jumps to 75 percent. Anti-depressants are effective in only 62 percent of those who take them.

Personalized medicine is beginning to transform the practice of medicine. It is allowing health care providers to:

- Shift the emphasis in medicine from reaction to prevention



Cancer research



Why?

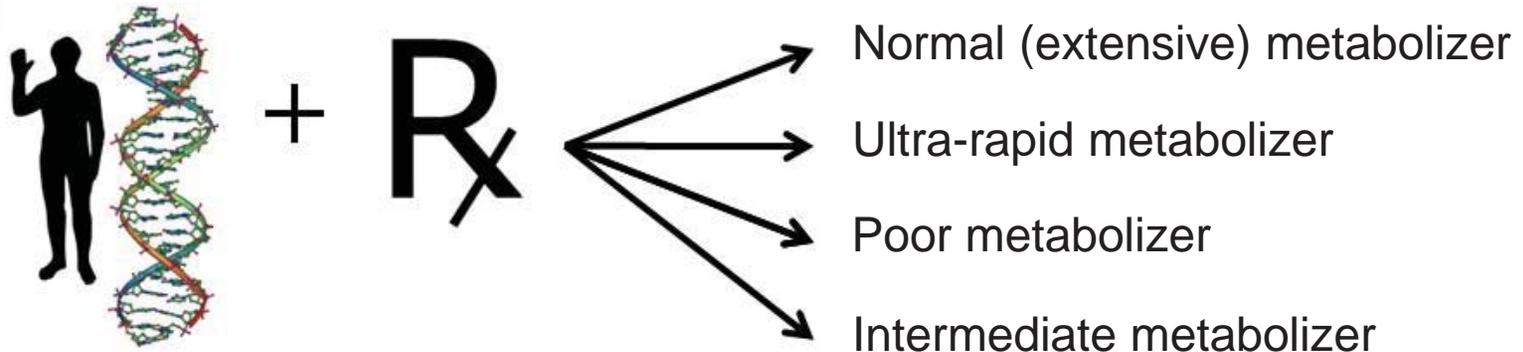
an ovarian cancer survivor. We're profiling people who personify the diverse and complex nature of cancer.

[Read Cheryl's story >](#)

Pharmacogenomics.....The Need

The facts

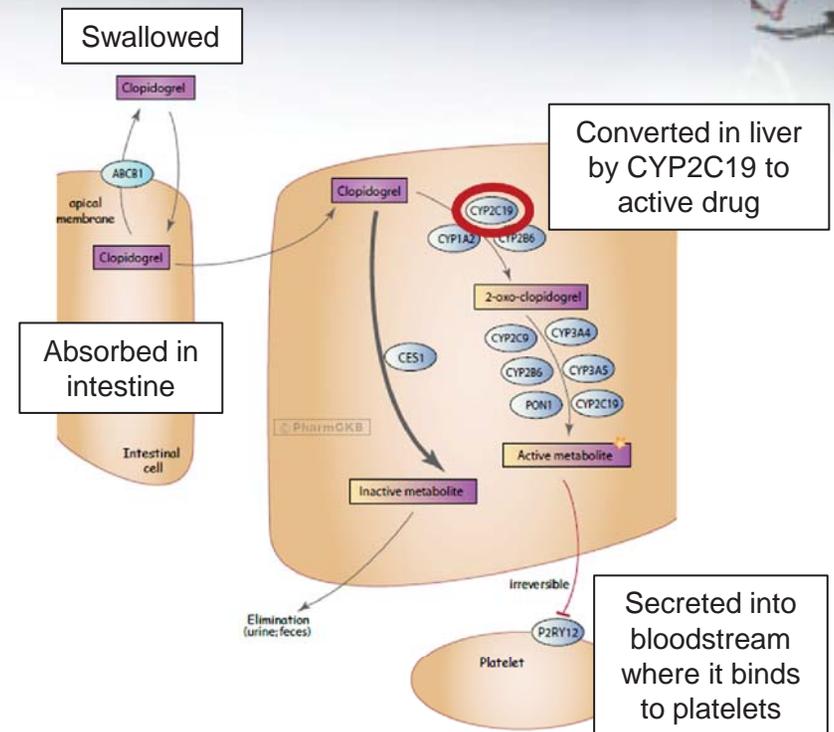
- Today, your medication dose is typically adjusted based only on your weight or body-surface area
- Your medication is NOT adjusted based on your genetics
 - Genetic variations can influence your response to a drug
 - PGx testing is used to link genetic variation to drug response



PGx – Where we are at UIHC...

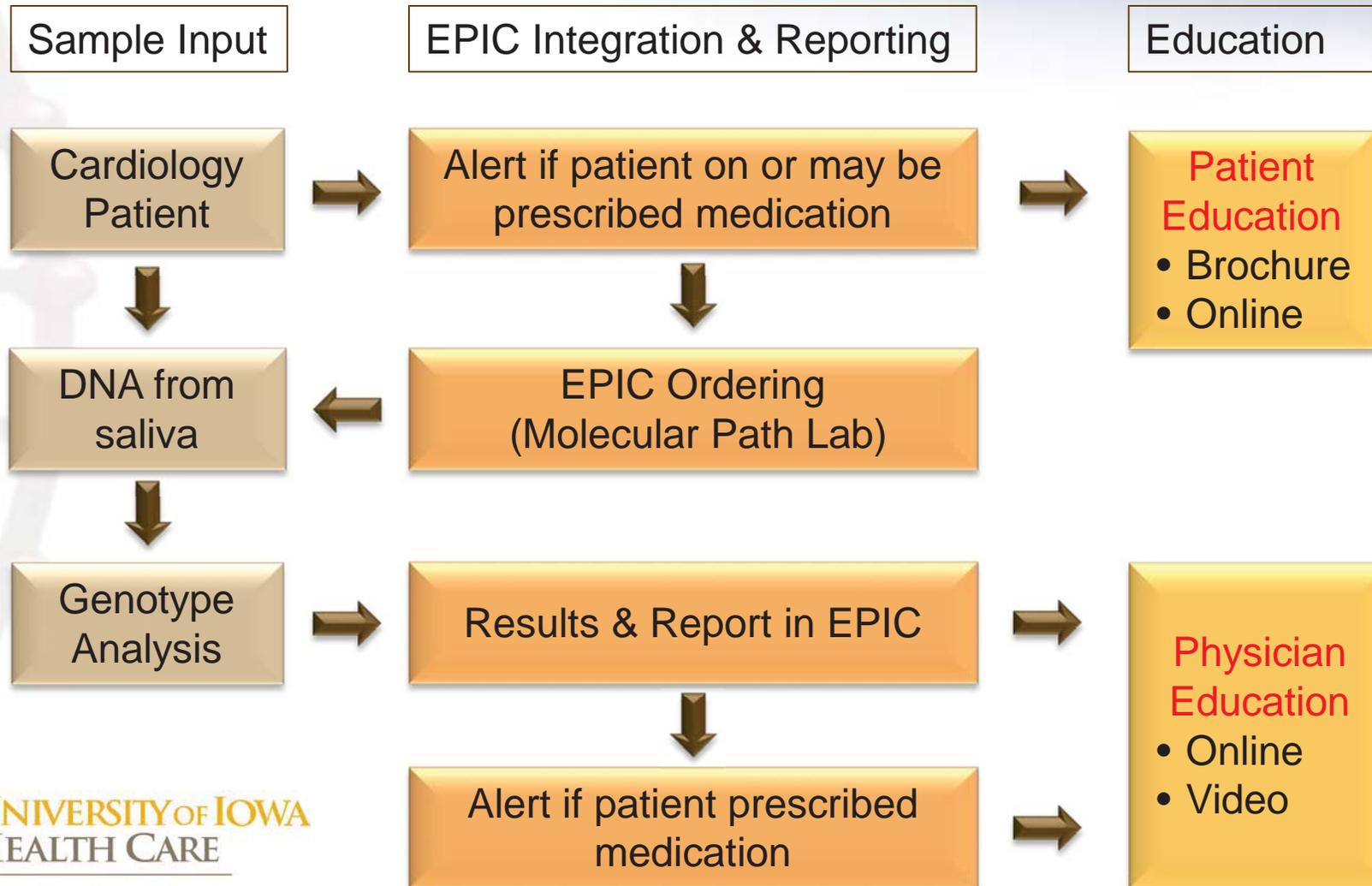


- Clopidogrel (Plavix®) at UIHC
 - Millions of Americans take Clopidogrel (Plavix®)
 - It is a blood thinner that helps to prevent stroke and heart attacks
 - It was the 3rd most commonly prescribed drug in 2010
- Up to 30% of people can be resistant to Clopidogrel
 - These persons are called ‘poor’ or ‘intermediate’ metabolizers
 - Variations in the *CYP2C19* gene affect how a person metabolizes and responds to Clopidogrel



CYP2C19 Genetic Types	Clopidogrel Metabolizer Status
*1/*1 (normal)	extensive metabolizer
*1/*17	ultrarapid metabolizer
*17/*17	ultrarapid metabolizer
*1/*2-8	intermediate metabolizer
*2-8/*2-8	poor metabolizer

PGx – Where we are at UIHC...



PGx – Where we are at UIHC...



Sample Input

Cardiology
Patient



DNA from
saliva



Genotype
Analysis

genetics_newsarticle.aspx?id=22468

Iow...

The Iowa Institute of Human Genetics (IIHG) offers pharmacogenomic testing for clopidogrel (Plavix®) response.

If you have ever taken prescription medications, you may have experienced some unintended effects – perhaps a medicine didn't work as expected or there were harmful side effects. You are not alone. Drugs do not work in up to half of people due to their genetic make-up.

Pharmacogenomics (PGx) testing is done to determine a person's genetic makeup affecting his or her response to a particular drug or class of drugs. This information makes precision medicine possible so that your healthcare provider can 'personalize' your optimal drug treatment.

Clopidogrel (Plavix®), for example, is commonly prescribed as a blood thinner to prevent heart attacks and stroke. Clopidogrel does not work properly in about 30% of patients, due to four common DNA changes in the gene *CYP2C19*.

The IIHG offers a simple test for these DNA variations so you can learn if clopidogrel will work for you or your patient. For more information on this test, please visit our websites for health care providers (<http://www.medicine.uiowa.edu/humangenetics/cyp2c19/>) and for patients (<http://www.medicine.uiowa.edu/humangenetics/CYP2C19/Patients/>).

Education

**Patient
Education**

- Brochure
- Online

**Physician
Education**

- Online
- Video

PGx - Why it is important to lowans?



- Provides lowans with better and more precise medical care
- Provides lowans with more economic medical care
- Reaching these goals is challenging
 - Must be responsive to the needs of health care providers
 - Must provide real-time education
 - Must justify changes in diagnostic and treatment paradigms
- CYP2C19 is a simple first step
 - Pre-emptive testing should be the goal
 - Offer to all patients at UIHC through EPIC
 - New PGx tests must be developed
 - Based on healthcare provider surveys
 - CYP2D6/codeine in progress

How Good is the IIHG?



An International Competition

Teams from the United States (including the NIH), Canada, China, India, Israel, Italy, Germany, the Netherlands, Singapore, Slovenia, Spain, Switzerland and Sweden

childrenshospital.org/gene-partnership-contest/about-the-clarity-challenge/ RSS ↻ 🔍 The Clarity Challenge

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- Challenge Design and History
- Team
- Why Boston Children's?
- CLARITY in the News

FAMILIES AND RESULTS

- MEET THE CONTESTANTS
- PRESS MATERIALS
- THE RESEARCH CONNECTION
- ADDITIONAL

About the CLARITY Challenge

The CLARITY Challenge (**C**hildren's **L**eadership **A**ward for the **R**eliable **I**nterpretation and appropriate **T**ransmission of **Y**our genomic information) is a contest initiated by Boston Children's Hospital. Its goal is to identify best methods and practices for the analysis, interpretation and reporting of individuals' DNA sequence data, to provide the most meaningful results to clinicians, patients and families.

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IHG – one of two runners-up



The competition—CLARITY stands for **Children's Leadership Award for the Reliable Interpretation and appropriate Transmission of Your genomic information**—was conceived by Isaac Kohane, David Margulies, and Alan Beggs at Boston Children's Hospital/Harvard Medical School. 30 teams from academia and industry initially entered the competition, although seven withdrew before the final phase.



Adam and Sarah Foye

The winning team—led by Shamil Sunyaev and assisted by investigators including Heidi Rehm (Harvard Partners), Daniel MacArthur (Mass General Hospital) and Mike Murray (Brigham)—receives the top prize of \$15,000. Two teams were named co-runners up and win \$5,000 apiece: the University of Iowa and a German team consisting of researchers from Genomatix, CeGaT (Tübingen) and the Institute of Pathology at University Hospital of Bonn.

The competition was launched in January 2012 and sponsored by Life Technologies and Complete Genomics, which also sequenced the genomes of the three patients and their parents. The results were announced at a press conference at the American Society of Human Genetics (ASHG) conference taking place in San Francisco this week.

Entries from the 23 registered teams were reviewed by a panel of judges chaired by Duke University geneticist Huntington Willard. The panel decided that the Brigham and Women's entry featured the best combination of bioinformatics analysis and utility of its clinical reports for the three families, as well as the correct identification of the genetic basis for the Foye family's disorder. The task of not only accurately interpreting the genetic basis of inherited diseases and cancer but also communicating those results in a medically meaningful and accessible way is considered a huge bottleneck towards the successful implementation of genomic medicine.

Of the two runners-up, the Genomatix team was considered to be the only group to correctly identify the putative mutation in all three families. The Iowa team drew credit for its approach to returning unexpected genetic results based on patient preferences and indicating regions of low confidence or coverage.

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Attend our
live webinar:

Using CDISC
ODM to
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It takes a team



Ways to go

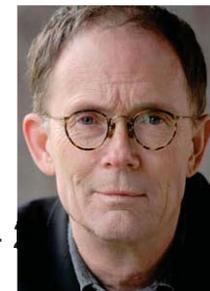


A Statewide Resource

Personalized Genomic Medicine = Precision in Medical Care

'The future is already here – it is just unevenly distributed.' *The Economist*, Dec 4

William Gibson



THANK YOU!