

Information Systems: Unique Challenges of Managing Medicines Information

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Medicines as a Key Component of Universal Health Coverage

International Expert Consultation

Singapore, October 2-4 2013



Overview

- IT system framework and development
 - Joint Learning Network
- Unique IT needs for medicines
- Issues for group discussions

Medicines in Insurance System Design

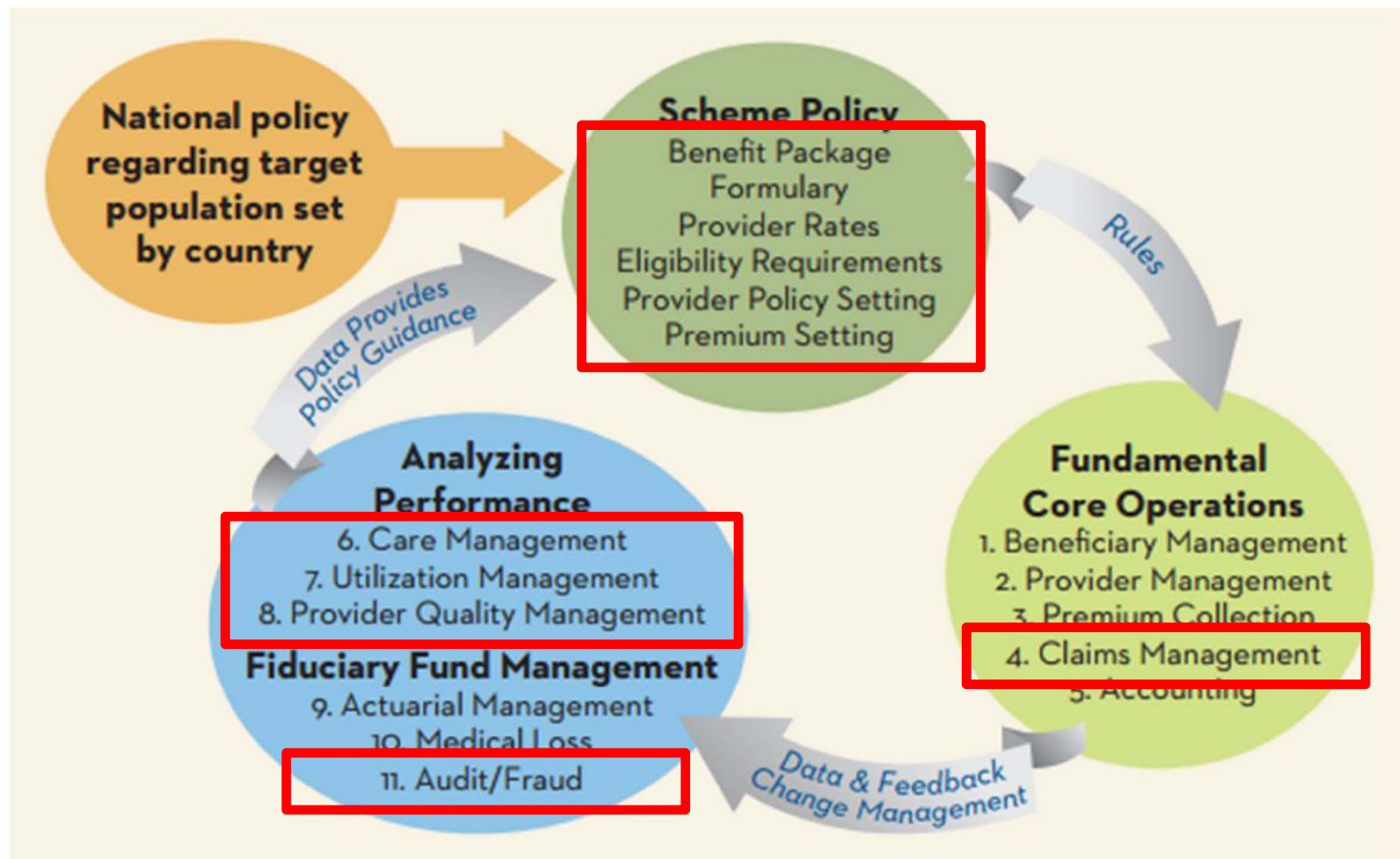
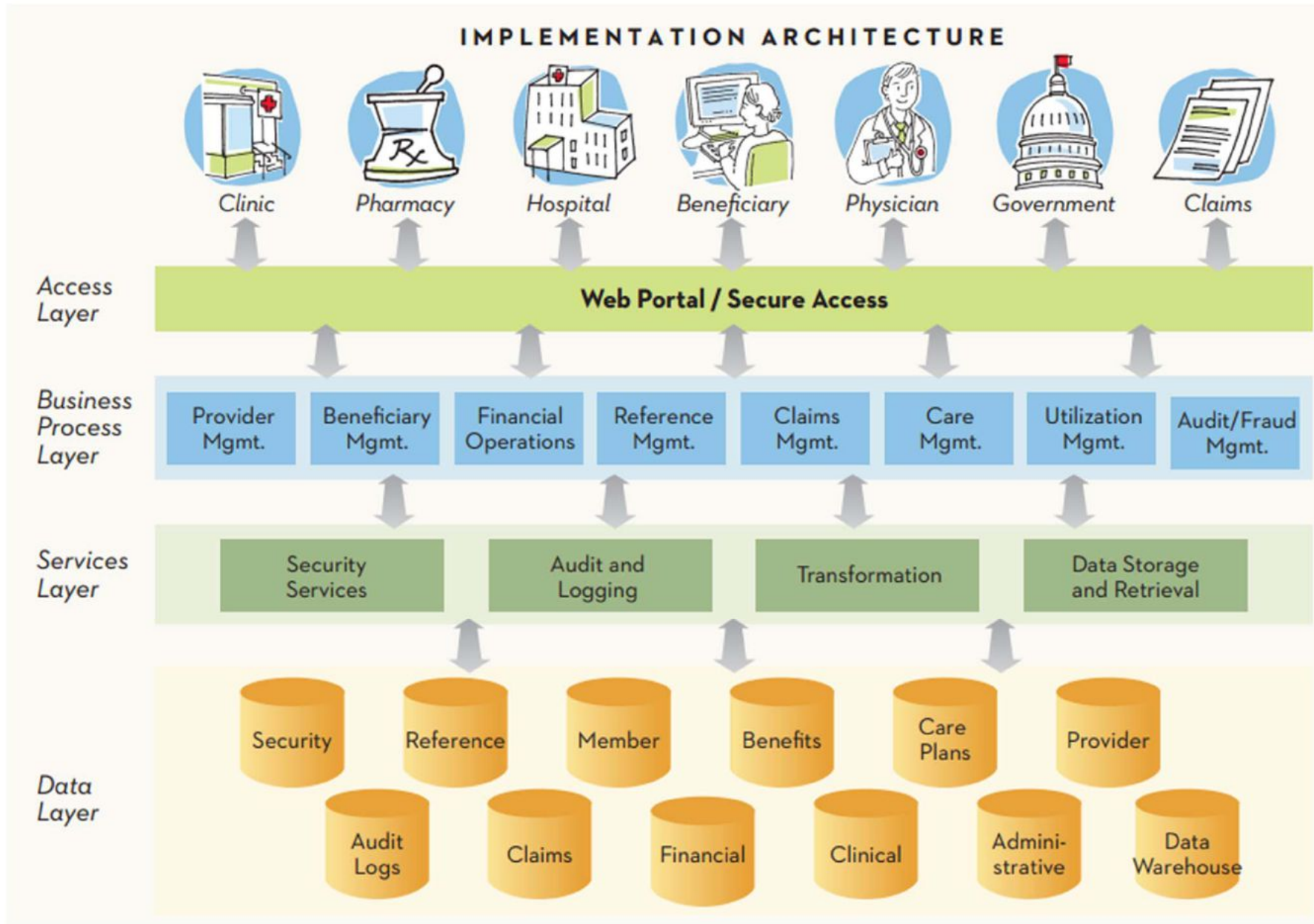


Figure 1: A conceptual design, or framework, for a national health insurance system that was developed with the input of a diverse group of global health insurance experts in January 2011 ³

Kate Wilson et al. Provider Payment Reform and Information Technology Systems: A Chicken and Egg Question for National Health Coverage Programs. JLN Sep 2013



Kate Wilson et al. Provider Payment Reform and Information Technology Systems: A Chicken and Egg Question for National Health Coverage Programs. JLN Sep 2013



Unique IT Issues for Medicines

- Providers and data sources
 - Pharmacies, public/private, facility/community
 - Integrating primary care and hospital data
 - Data ownership, governance, transparency
- Data complexity
 - Large # of choices, complex names, multiple equivalent products, no standard coding
 - Complex pricing systems, many prices
- Data volume and quality
 - Multiple medicines per encounter, frequent encounters (e.g., NCDs), common errors in recording names, dosage forms, units



Provider Payment and Data Quality

- Provider payment reforms often go hand in hand with changes in IT systems
 - Movement from claims payment to payment by capitation, episode, case (DRGs), global budget
 - Trend to performance-based contracting
 - What gets paid for is what gets measured
- Implications
 - Plus: Efficiency in payment, lower administrative burden, predictability, alignment of incentives
 - Minus: Less detail about clinical services, quality, true cost of care
- Detailed data on medicines utilization and cost can go from limited to none

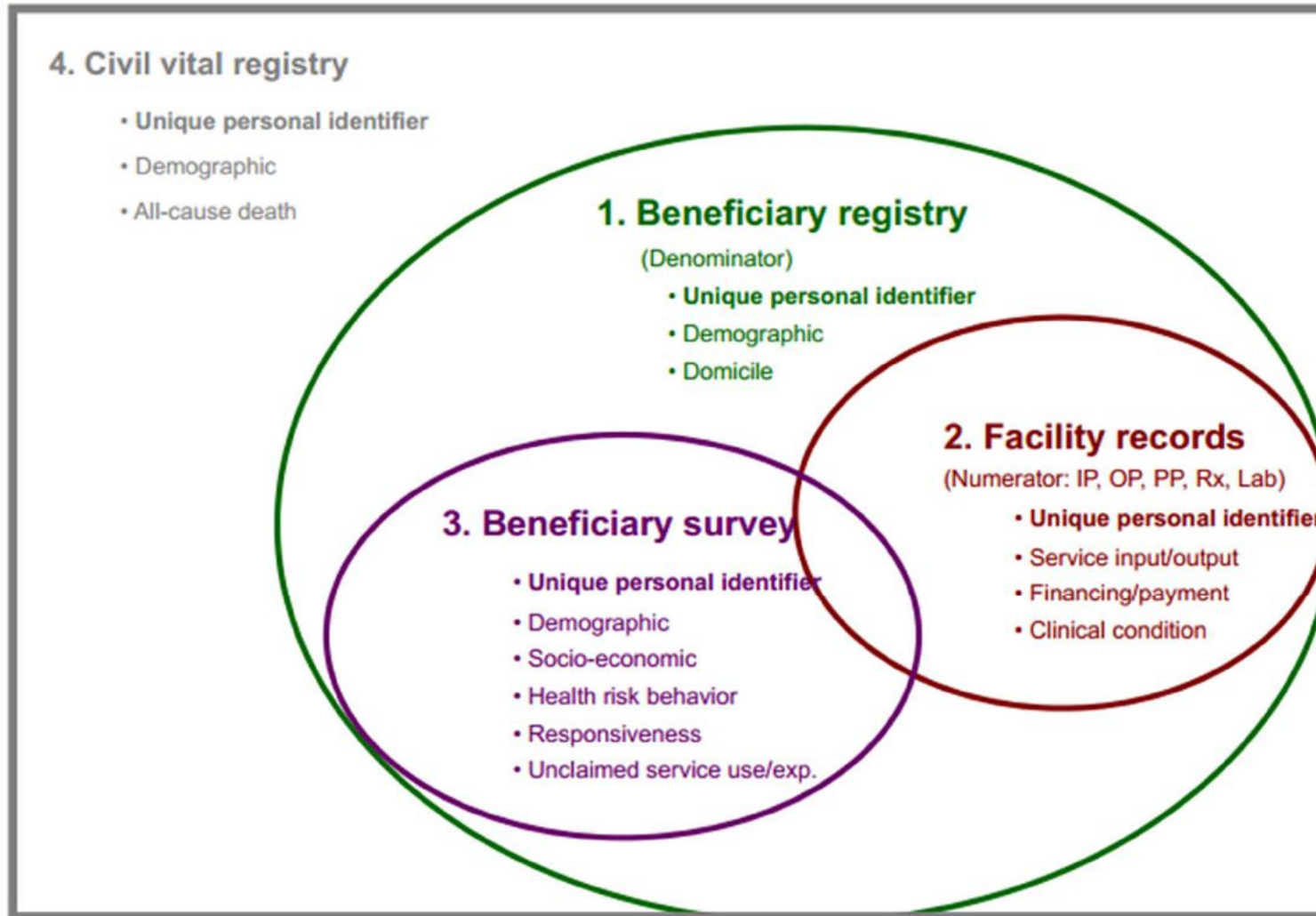
Data Sources for Monitoring and Evaluation in Thailand UHC-measured dimensions and required data sources

1. Inputs	2. Outputs	3. Outcomes	4. Impact
<p>1.1 Financing</p> <ul style="list-style-type: none"> - NSO's Socio-Economic Survey (SES, 2012 latest) - IHPP's National Health Account <p>1.2 Infrastructure/wkforce</p> <ul style="list-style-type: none"> - MOPH's Health Resource Survey <p>1.3 Medicines/technology</p> <ul style="list-style-type: none"> - CSMBS' prescription billing database 	<p>2.1 Access and utilization</p> <ul style="list-style-type: none"> - NSO's Health and Welfare Survey (HWS, 2013 latest) - UNICEF's MICS (2005, 2011) - MOPH's adhoc surveys - Health insurance's IP admissions, OP visits, P&P databases 	<p>3.1 Service coverage</p> <ul style="list-style-type: none"> - NSO's HWS - UNICEF's MICS (2005, 2011) - MOPH's adhoc surveys - Health insurance's membership databases - NHSO's vertical programs databases: NAP, RRT, Pap-smear, Influenza vaccine <p>3.2 Financial risk protection</p> <ul style="list-style-type: none"> - NSO's SES 	<p>4.1 Improved health</p> <ul style="list-style-type: none"> - HSRI's National Health Examination Survey (NHES, wave-4 2009, planned 2014) - UNICEF's MICS (2005, 2011) - MOI's Civil Vital Registry <p>4.2 Increased responsiveness</p> <ul style="list-style-type: none"> - ABAC Poll (2011, latest)

Viroj Tangcharoensathien et al. Measuring achievement of the universal health coverage in Thailand. Measurement and Monitoring UHC Technical Meeting. Singapore Sep 2013

Data Sources for Monitoring and Evaluation in Thailand

The need for interlink between various data sources



Viroj Tangcharoensathien et al. Measuring achievement of the universal health coverage in Thailand. Measurement and Monitoring UHC Technical Meeting. Singapore Sep 2013



Harvard Pilgrim Health Care Pharmaceutical Monitoring Approaches

- Pharmacy Monitoring Report
 - Summary pharmacy trends, year on year
 - Top drug classes, YTD and change from last year
 - Utilization trend summary graphs, last 4 years
 - Detailed summary graphs, last 12 months
 - Trends for key individual drugs
- Pharmacy as component of medical analytics
 - Expenditure and utilization tracking
 - Provider performance metrics



Some Issues for Group Discussion

- Key indicators and data sources
 - Medicines as part of integrated UHC MIS
 - Insurance system responsibilities
 - What goes on a medicines dashboard?
- Coding systems
 - Planning for data integration
 - Data capture and reporting requirements
 - Managing data quality
- Information system architecture
 - Big bang vs. incremental development
 - Interoperability
 - Planning for secondary use



Extra slides





Joint Learning Network IT Track Activities

- Document user and system requirements for core insurance operations
 - Enrollment, claims management, utilization management, payment collections
- Develop common global standards, a glossary, and Health Data Dictionary (HDD)
- Develop common e-claims standard
 - Currently used in Ghana and Kenya
- Practical guidance documents for policy makers



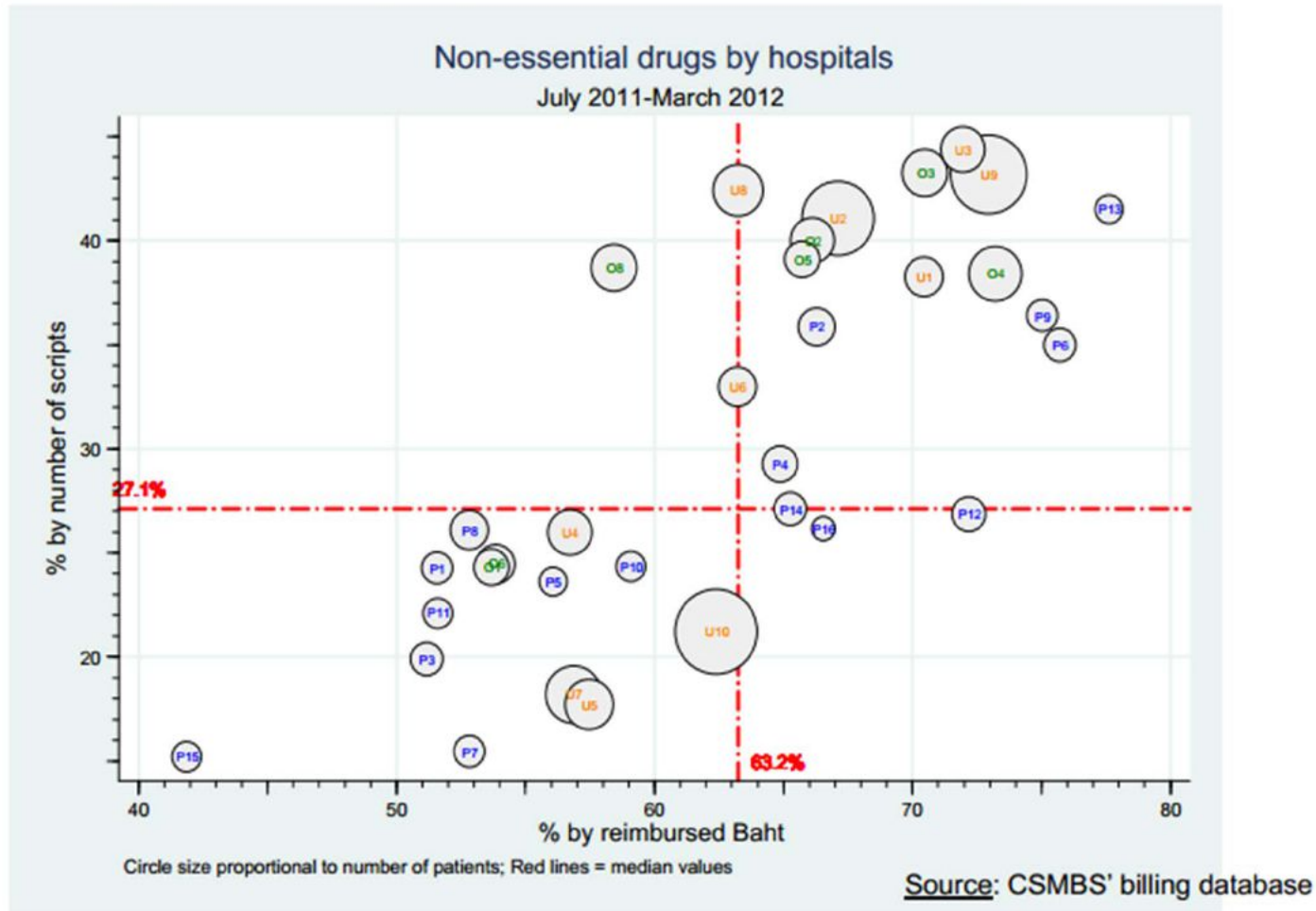
Role of a Health Data Dictionary (HDD)

- Promote interoperability
 - Set of uniform definitions for persons, providers, health events
 - Promotes availability, consistency, completeness
 - Facilitates data exchange and aggregation between providers, facilities
- Starting point for building country-specific data architecture
 - Tool (open HDD) that some countries (e.g., Philippines, Malaysia) use to build their HDD

Example: Medicines Quality Indicator

1. Tracking medicine and health technology inputs

Hospitals' prescriptions for non-essential medicines in open-end payment system

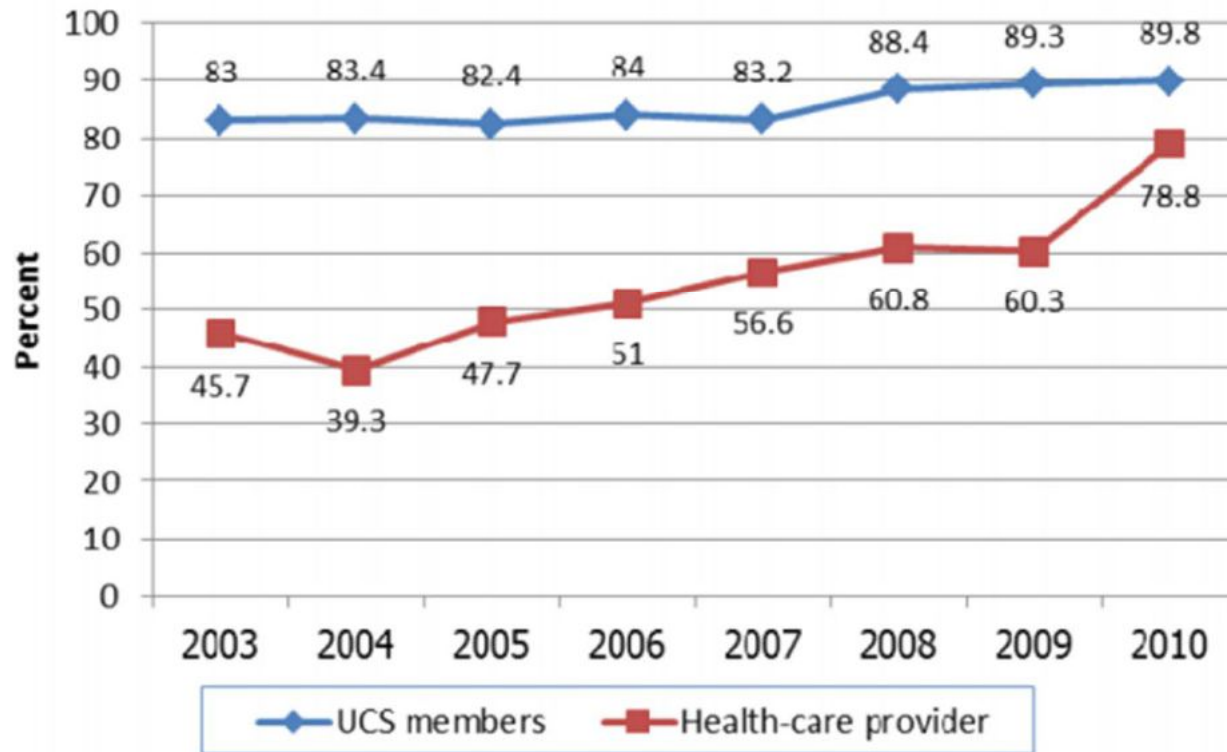


Viroj Tangcharoensathien et al. Measuring achievement of the universal health coverage in Thailand. Measurement and Monitoring UHC Technical Meeting. Singapore Sep 2013

Example: Monitoring Satisfaction

4.2 Increased satisfaction by population and providers

% persons reported with satisfaction



Source: ABAC Poll, various years

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Summary YTD Trend Analysis

August 2009 Pharmacy Trends

Includes HMO, POS, PPO Fully Insured men

No rebate revenues included : estimated Rebates PMPM \$3.85

Trend YTD

	Trend from FY'09 vs FY'08				12 Months Trend		
	FY'09 vs FY'08	YTD 2009	YTD 2008	Change	Pct change	12MM Avg	12MM %
Excludes medical benefit drug claims.	Net PMPM	\$57.60	\$55.64	\$1.96	3.5%	\$57.50	4.8%
	Net Cost / Rx	\$56.99	\$53.69	\$3.31	6.2%	\$56.70	6.9%
	Rx PMPM	1.01	1.04	-0.03	-2.5%	1.014	-2.0%
	Copay / Rx	\$14.87	\$14.62	\$0.24	1.7%	\$14.81	1.3%
	Deductible / Rx	\$0.20	\$0.06	\$0.14	213.2%	\$0.15	200.2%
	Copays PMPM	\$15.02	\$15.15	-\$0.13	-0.9%	\$15.02	-0.7%
	Gross PMPM	\$70.25	\$68.28	\$1.97	2.9%	\$70.10	3.7%
	Gross Cost / Rx	\$69.51	\$65.88	\$3.63	5.5%	\$69.13	5.7%
	Member's Cost/Rx Share copay	21.7%	22.3%	-0.6%	-2.8%	21.6%	2.0%
Including Medical	Net PMPM with Medical specialty drugs included YTD trend					\$0.00	N/A

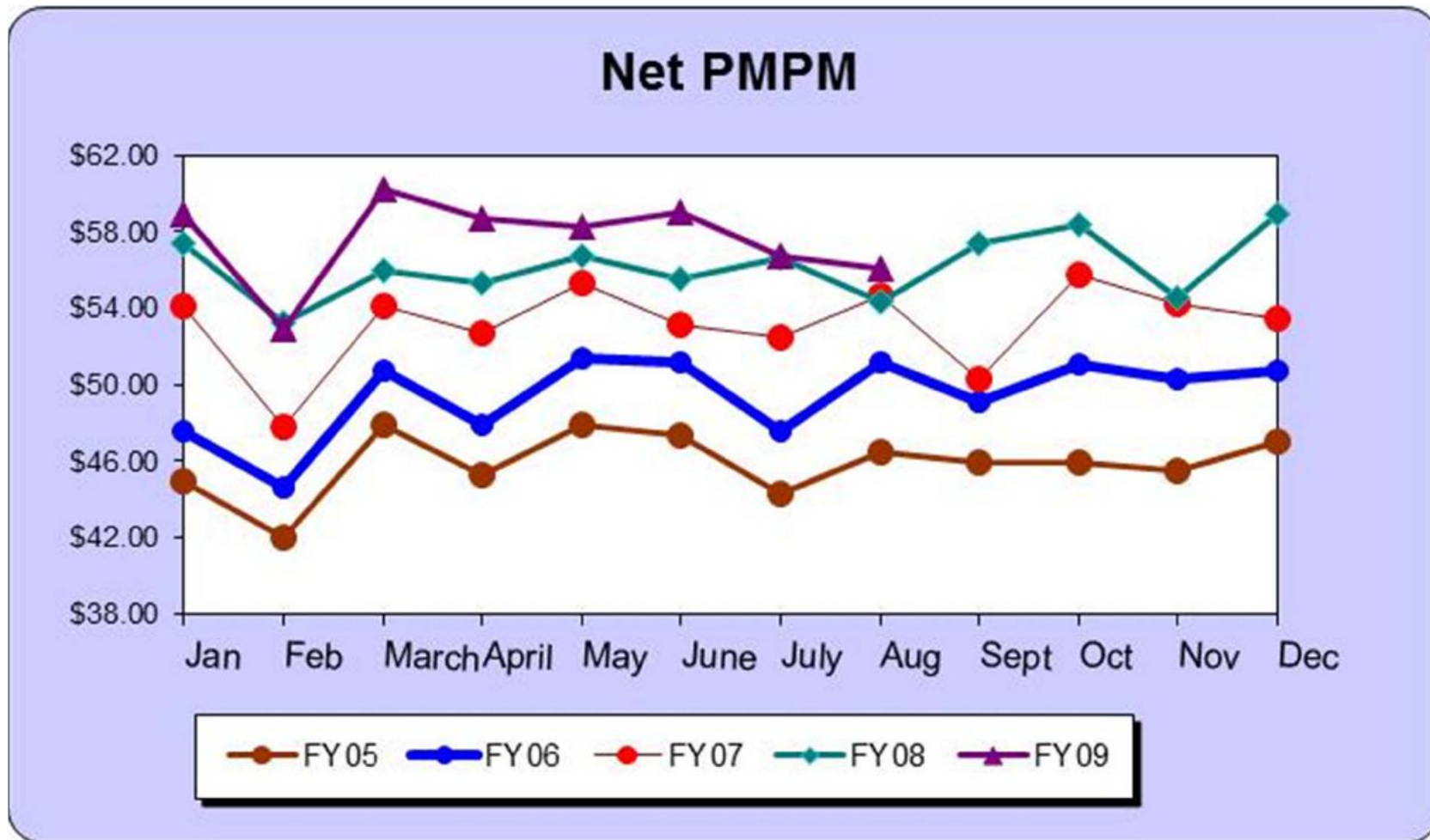
Trends in Dispensing by Tier

Percent of Claims				Net Cost/Rx*				
By Tier	YTD 2009	FY 2008	FY 2007	YTD 2009	FY 2008	FY 2007	Change	% Change
Tier1 Generics & Brands	71.1%	69.3%	64.6%	\$20.40	\$19.30	\$17.46	\$1.11	5.7%
Tier2 Select Brand	20.5%	21.9%	25.5%	\$158.74	\$144.78	\$119.77	\$13.97	9.6%
Tier3 Non Select Brand	8.3%	8.8%	10.0%	\$117.70	\$107.14	\$90.19	\$10.56	9.9%
Total	100.0%	100.0%	100.0%	\$56.99	\$53.69	\$3.31	\$3.31	6.2%
Formulary Percent of Claims	YTD 2009	FY 2008	FY 2007					
Select (tiers 1-2)	91.7%	91.2%	90.0%					
Tier 1 Growth YTD08 vs FY07	2.6%	1.8%						
Tier 1 Growth FY07 vs FY06		7.4%	4.8%					

Claims by tier	Tier 1	Tier 2	Tier 3
August-09	72.3%	19.6%	8.1%
July-09	71.8%	20.0%	8.2%
June-09	71.3%	20.2%	8.5%
May-09	71.1%	20.4%	8.5%
April-09	71.0%	20.5%	8.4%
Q1 2009	70.5%	21.1%	8.4%
month of December 2008	70.4%	21.2%	8.4%
month of December 2007	66.4%	23.8%	9.8%

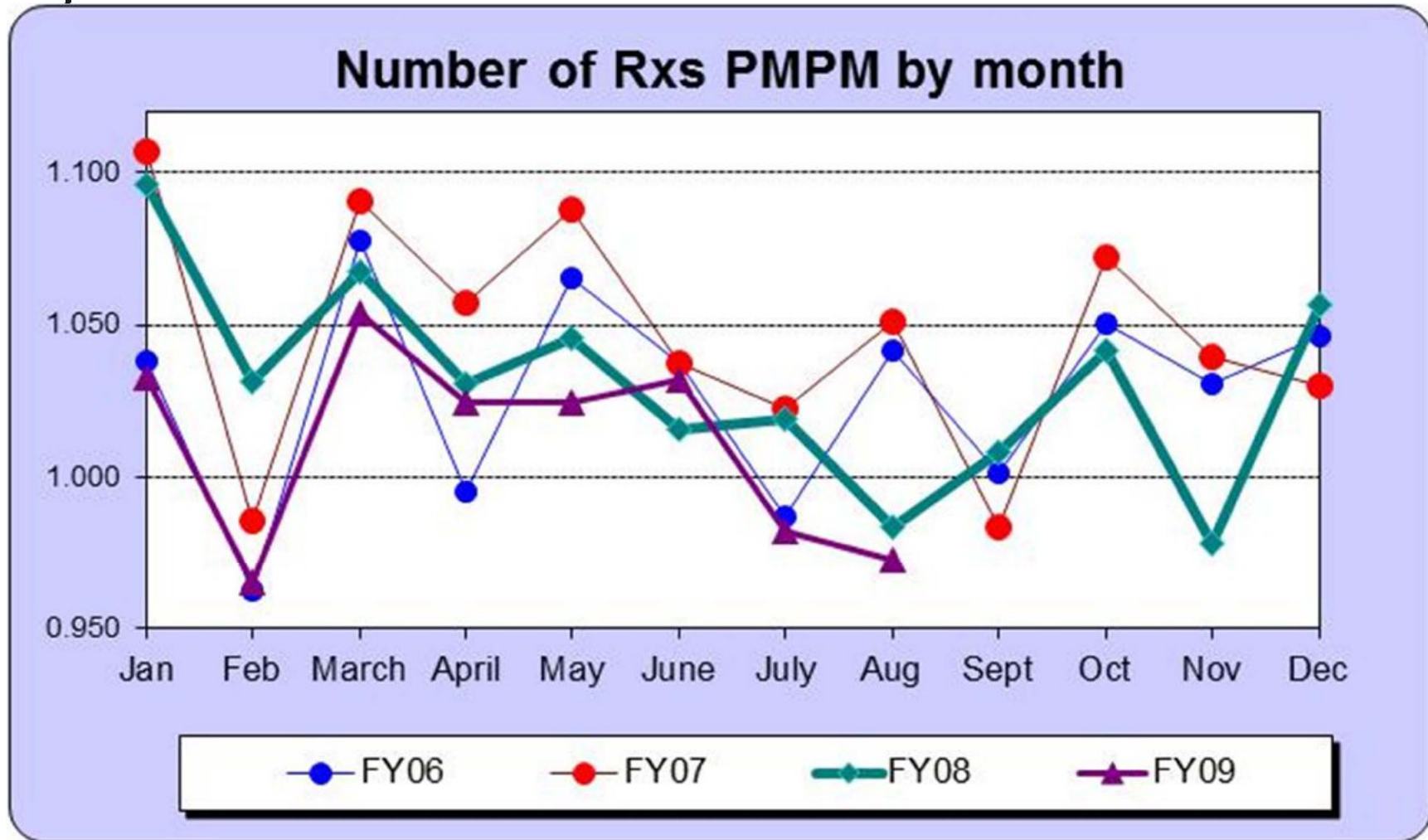
Courtesy of Harvard Pilgrim Health Care Pharmacy Program, 2010

Monitoring Cost: Net Cost per Dispensing (After Copay)



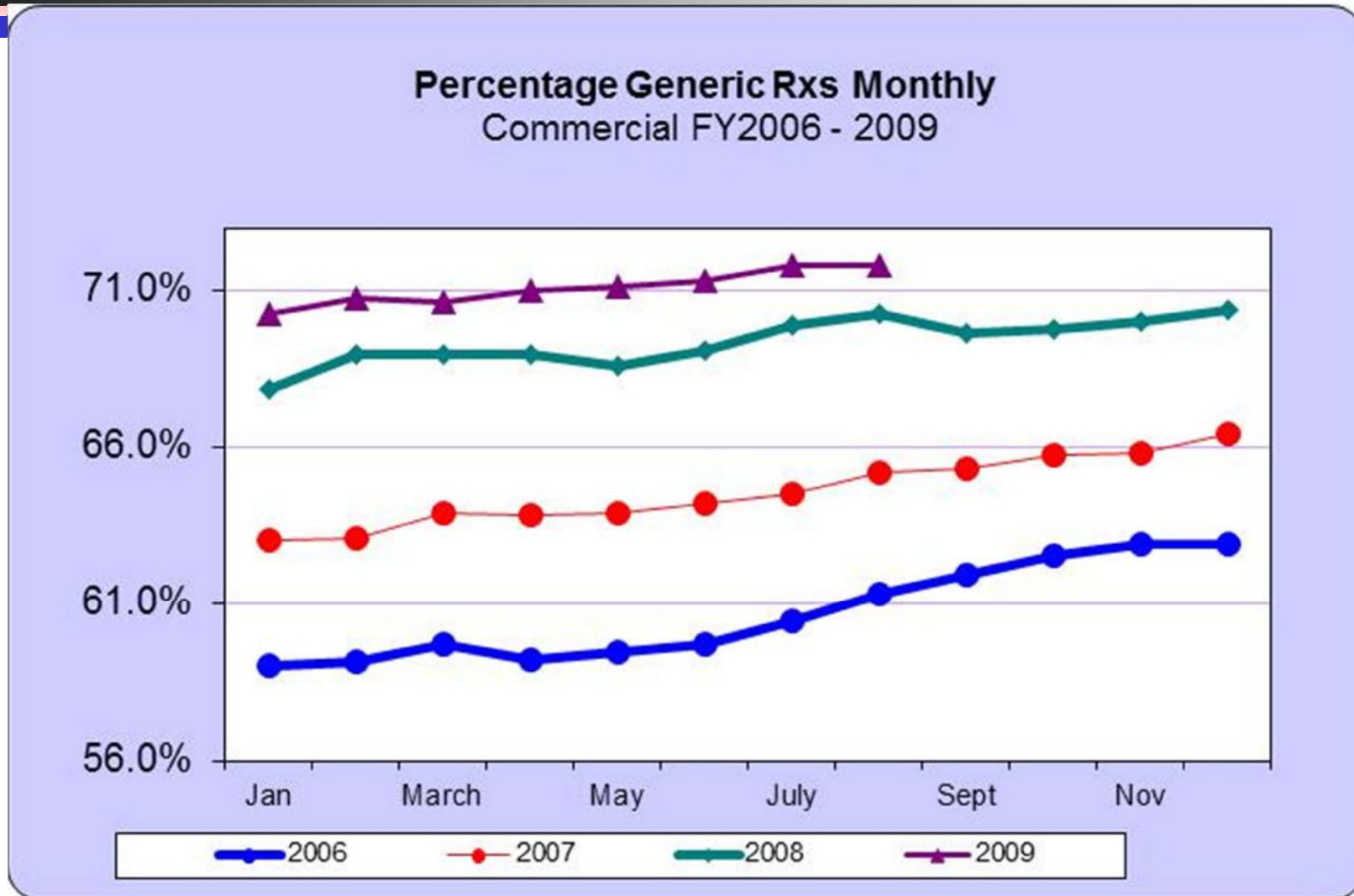
Courtesy of Harvard Pilgrim Health Care Pharmacy Program, 2010

Monitoring Volume: Dispensings per Member per Month



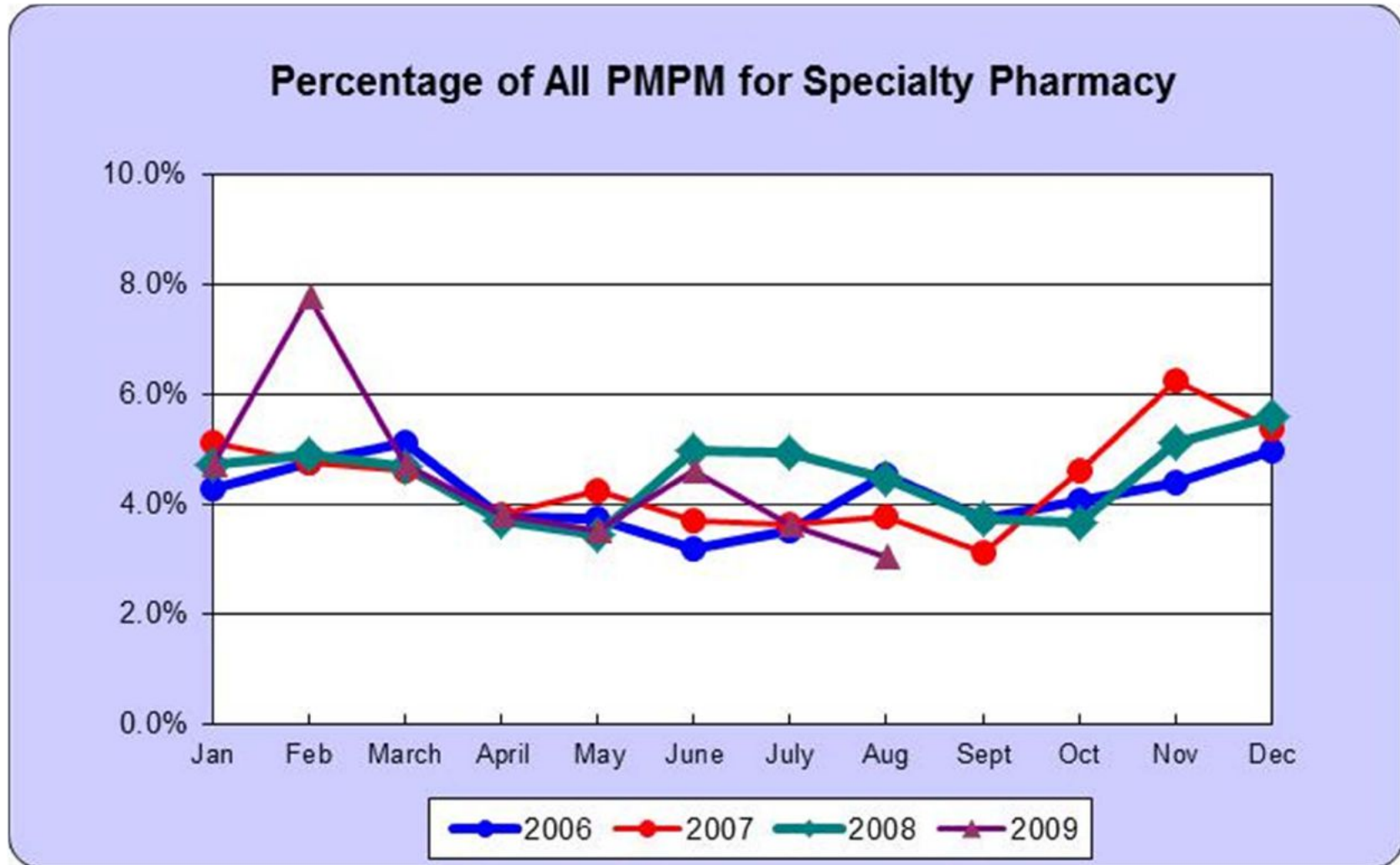
Courtesy of Harvard Pilgrim Health Care Pharmacy Program, 2010

Monitoring Generic Utilization: Generic Dispensings per Member per Month



Courtesy of Harvard Pilgrim Health Care Pharmacy Program, 2010

Monitoring Specialty Pharmacy as % of Total PMPM Spending





Monitoring Individual Specialty Medicines

August 2009 Pharmacy Trends		
Specialty Medical Benefit drugs Detailed		
Non G-4 sites: SMC, DMA and SBG & HVMA Excluded		
HMO, POS, PPO Fully Insured members with drug benefit		
Drugs in Current Month	Rx	Cost
ADVATE SH	1	\$31,450
BONIVA	4	\$1,688
BOTOX	36	\$35,615
CINRYZE	2	\$85,800
ELAPRASE	2	\$76,349
EUFLEXXA	10	\$6,546
FABRAZYME	3	\$42,712
HELIXATE FS	2	\$13,692
HYALGAN	2	\$1,141
IMPLANON	1	\$707
LUCENTIS	2	\$4,046
LUPRON DEPOT	33	\$26,901
LUPRON DEPOT-PED	10	\$11,970
MYOBLOC	2	\$2,557
OCTREOTIDE ACETATE	1	\$6,300
ORENCIA	1	\$1,482
OSTIVIA	1	\$5,249

Courtesy of Harvard Pilgrim Health Care Pharmacy Program, 2010

Sample Monitoring Report of Utilization and Cost by Therapeutic Class

August 2009 Pharmacy Trends		YTD											
Trends by Class Detailed Q209		MMs		2,213,622		2,268,461							
Includes HMO, POS, PPO Fully Insured members with drug benefit. Excludes Atrius & Indemnity PPO.													
No rebate revenues included: estimated Rebates PMPM \$3.85													
Therapeutic categories by NET PMPM showing percentage change PMPM FY09 vs FY08													
Includes specialty medical benefit drugs*													
Cost does not include rebate revenues													
				FY2009			FY2008			Trend			
Specific Category Desc	General Class Desc	Claims	2009 Pay Amt	PMPM	Rx PMPM	Cost/Rx	PMPM	Rx PMPM	Cost/Rx	PMPM	Rx PMPM	Cost/Rx	
ANTIHYPERLIPIDEMIC - HMG COA REDUCTASE INHIBITORS	CARDIOVASCULAR DISEASE - LIPID IRREGULARITY	155,270	\$7,486,048	\$3.38	0.070	\$48.21	\$3.65	0.0700	\$52.12	-7.3%	0.2%	-7.5%	
CONTRACEPTIVES, ORAL	CONTRACEPTION/OXYTOCICS	129,613	\$2,804,378	\$1.27	0.059	\$21.64	\$1.22	0.0604	\$20.23	3.7%	-3.0%	7.0%	
SELECTIVE SEROTONIN REUPTAKE INHIBITOR (SSRIS)	BEHAVIORAL HEALTH - ANTIDEPRESSANTS	112,414	\$2,576,308	\$1.16	0.051	\$22.92	\$1.35	0.0524	\$25.80	-13.9%	-3.1%	-11.2%	
ANALGESICS, NARCOTICS	PAIN MANAGEMENT - ANALGESICS	91,212	\$4,211,184	\$1.90	0.041	\$46.17	\$1.53	0.0408	\$37.51	24.2%	0.9%	23.1%	
PROTON-PUMP INHIBITORS	UPPER GASTROINTESTINAL DISORDERS - ULCER DISEASE	85,824	\$7,352,780	\$3.32	0.039	\$85.67	\$3.31	0.0373	\$88.72	0.4%	4.0%	-3.4%	
ANTIHYPERTENSIVES, ACE INHIBITORS	CARDIOVASCULAR DISEASE - HYPERTENSION	84,358	\$314,908	\$0.14	0.038	\$3.73	\$0.19	0.0409	\$4.61	-24.6%	-6.8%	-19.0%	
BETA-ADRENERGIC BLOCKING AGENTS	CARDIOVASCULAR DISEASE - HYPERTENSION	83,433	\$607,485	\$0.27	0.038	\$7.28	\$0.32	0.0422	\$7.47	-12.9%	-10.6%	-2.6%	
THYROID HORMONES	ENDOCRINE DISORDER - THYROID	67,598	\$153,927	\$0.07	0.031	\$2.28	\$0.07	0.0324	\$2.09	2.6%	-5.8%	8.9%	
ANTICONVULSANTS	SEIZURE DISORDER	62,445	\$5,548,505	\$2.51	0.028	\$88.85	\$2.99	0.0278	\$107.58	-16.3%	1.3%	-17.4%	
PENICILLINS	INFECTIOUS DISEASE - BACTERIAL	53,388	\$562,264	\$0.25	0.024	\$10.53	\$0.28	0.0247	\$11.43	-10.1%	-2.4%	-7.8%	
ANTI-ANXIETY DRUGS	BEHAVIORAL HEALTH - OTHER	51,318	\$225,638	\$0.10	0.023	\$4.40	\$0.11	0.0226	\$4.77	-5.4%	2.7%	-7.9%	
NSAIDS, CYCLOOXYGENASE INHIBITOR-TYPE	INFLAMMATORY DISEASE	42,841	\$793,215	\$0.36	0.019	\$18.52	\$0.35	0.0199	\$17.84	1.2%	-2.6%	3.8%	
CALCIUM CHANNEL BLOCKING AGENTS	CARDIOVASCULAR DISEASE - HYPERTENSION	41,504	\$1,060,705	\$0.48	0.019	\$25.56	\$0.53	0.0180	\$29.16	-8.8%	4.1%	-12.4%	
THIAZIDE AND RELATED DIURETICS	CARDIOVASCULAR DISEASE - HYPERTENSION	40,695	\$14,249	\$0.01	0.018	\$0.35	\$0.01	0.0198	\$0.30	10.1%	-7.3%	18.7%	
MACROLIDES	INFECTIOUS DISEASE - BACTERIAL	39,028	\$695,660	\$0.31	0.018	\$17.82	\$0.51	0.0178	\$28.84	-38.6%	-0.7%	-38.2%	
BETA-ADRENERGIC AGENTS	ASTHMA	35,854	\$701,608	\$0.32	0.016	\$19.57	\$0.30	0.0163	\$18.71	4.0%	-0.5%	4.6%	
NASAL ANTI-INFLAMMATORY STEROIDS	ALLERGY	35,277	\$1,240,425	\$0.56	0.016	\$35.16	\$0.82	0.0156	\$52.97	-32.0%	2.4%	-33.6%	
NOREPINEPHRINE AND DOPAMINE REUPTAKE INHIB (NDRIS)	BEHAVIORAL HEALTH - ANTIDEPRESSANTS	28,559	\$2,714,183	\$1.23	0.013	\$95.04	\$1.20	0.0127	\$94.62	1.8%	1.4%	0.4%	
ANTIHYPERGLYCEMIC, BIGUANIDE TYPE (NON-SULFONYLUREA)	DIABETES	28,453	\$165,829	\$0.07	0.013	\$5.83	\$0.08	0.0139	\$5.86	-7.8%	-7.2%	-0.5%	

Courtesy of Harvard Pilgrim Health Care Pharmacy Program, 2010

Leading Edge of Insurance System Analytics – “Big Data” Approaches

The screenshot shows the homepage of the International Institute for Analytics. At the top left is the IIA logo, a stylized blue and orange swirl. To its right is the text "INTERNATIONAL INSTITUTE FOR ANALYTICS." in blue and orange. Further right are login and search fields. Below the header is a navigation menu with links: Home, About, Participate, Faculty Blogs, Resources, News, Contact Us, and Member Area.

The main content area features a large banner for "IIA Faculty:" with the text "Experts in moderating meaningful conversations among experienced analytics professionals." and a portrait of Thomas H. Davenport, Co-Founder and Research Director. Below the portrait is a "More faculty" link. To the right of the banner is a "Participate" section with "CUSTOM RESEARCH" and a "LEARN MORE" button.

Below the banner are four columns of content:

- Faculty Blogs:** A post titled "Organizing Analytics and Big Data" with a small portrait of a man and a "Read More" link.
- Webcasts:** A section titled "Improve Analytic Results with Decision Modeling" featuring a replay by James Taylor, CEO of Decision Management Solutions.
- ANALYTICS 3.0: Get the eBook:** A promotional section for an eBook, with a "LEARN MORE" button.
- Join Today! Professional Membership available online! ENROLL NOW:** A call to action for membership.
- Conferences:** A section for "Predictive Analytics World" held from Sept 29 - Oct 3 in Boston.
- RESEARCH CLIENTS:** A section listing "Building Systems Technology" with a play button icon.

Pharmacy Measures in Medical Analytics Dashboard


Use of Services Dashboard
Summary
Type of Services Detail
Help

Incurred Period: 01/01/2011 to 01/31/2013 | Paid Through : 03/31/2013
Gender: Female, Male **Age Band:** 0-18, 19-64, 65+ **Funding Arrangement:** Fully Insured, Self Insured

Select Service : Inpatient Outpatient
 Choose Metric : Cost PMPM

Type of Service

	2011		2012		2013	
	Cost PMPM	Change	Cost PMPM	Change	Cost PMPM	Change
Pharmacy	\$67.55	--	\$67.39	-0.2%	\$71.04	↑ 5.4%
Professional Visits - Office / Other	\$41.82	--	\$41.65	-0.4%	\$44.30	↑ 6.4%
Facility Procedures - Outpatient	\$34.30	--	\$35.58	3.7%	\$33.18	↓ -8.7%
Lab	\$25.27	--	\$25.51	1.0%	\$25.22	-1.1%
Radiology Standard	\$20.02	--	\$20.01	-0.1%	\$20.02	0.0%
Radiology Advanced	\$14.83	--	\$15.24	2.8%	\$14.02	↓ -8.0%
Other Outpatient Pharmacy	\$12.41	--	\$12.60	1.5%	\$13.22	↑ 4.9%
Well Visit	\$10.29	--	\$11.71	↑ 13.8%	\$12.24	↑ 4.5%
Professional Procedures - Outpatient	\$11.04	--	\$11.04	0.0%	\$10.52	↓ -4.8%
Anesthesia	\$9.32	--	\$9.65	3.5%	\$9.30	-3.6%
Professional Procedures - Office / Other	\$8.98	--	\$9.51	↑ 5.9%	\$9.52	0.1%
BEH Professional Visits	\$8.81	--	\$8.94	1.5%	\$8.30	↓ -7.2%
Professional Procedures - Inpatient	\$8.53	--	\$8.84	3.6%	\$8.10	↓ -8.4%
Radiation Therapy/ Chemotherapy	\$7.66	--	\$8.28	↑ 8.0%	\$7.96	-3.8%
Professional Visits - Outpatient	\$8.28	--	\$8.18	↓ -1.2%	\$10.31	↑ 26.1%

Legend : Change over +4% ↑ Change below - 4% ↓ Change between - 4% & +4% : Blank