



Trends in Healthcare IT and What it Means for Rural Healthcare Delivery

*John P Hoyt, FACHE, FHIMSS
Vice President, HIMSS*

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And Who Is HIMSS?

- HIMSS is healthcare industry's professional society exclusively focused on providing leadership for the optimal use of healthcare information technology (IT) for the betterment of healthcare
 - 28,000 Individual Members
 - 350 Corporate Members
 - 164 Healthcare Organizational Affiliates
- Offices in Chicago, Washington DC, Ann Arbor, Brussels and Singapore
- John P Hoyt, VP for Healthcare Organizational Services
 - Former COO, CIO
 - Manages the Healthcare Organizational Membership
 - Manages the Senior IT Executive community
 - Consults on HIMSS Analytics database



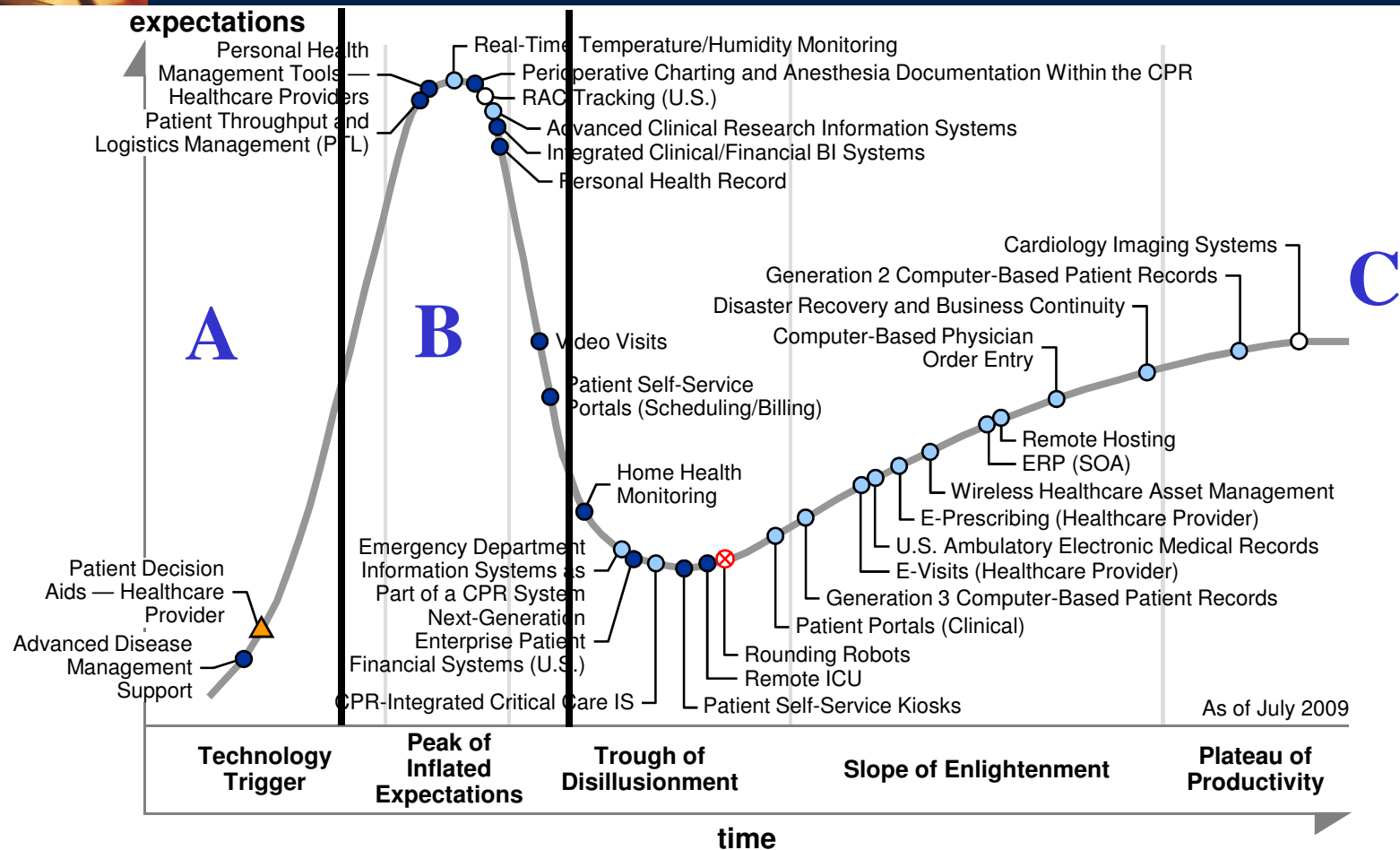
Definitions and Agenda

- **Market trends** – supported by data that shows true market movement toward or away from a certain technology or application.
- **Market glimmers** – supported by anecdotal data, market noise and industry hype

Agenda:

- **Trends** – IT Budgets, PACS, Bar Coding, EMRs, CPOE
- **Glimmers** – RFID, Interoperability Standards, Deriving ROI from Clinical Systems, Digital Hospitals, Stark Relaxation, Benchmarking IT in Healthcare

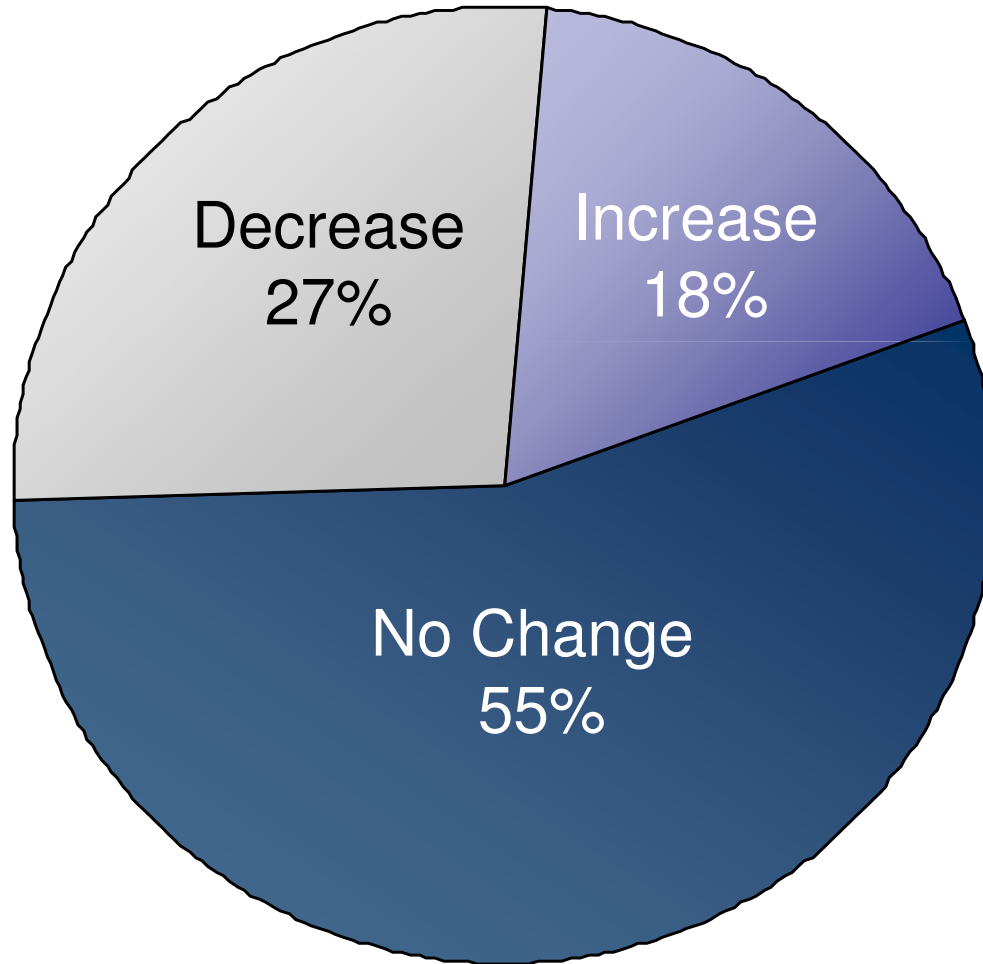
Hype Cycle for Healthcare Provider Applications and Systems, 2009





Trends: IT Budgets are moving up

2005

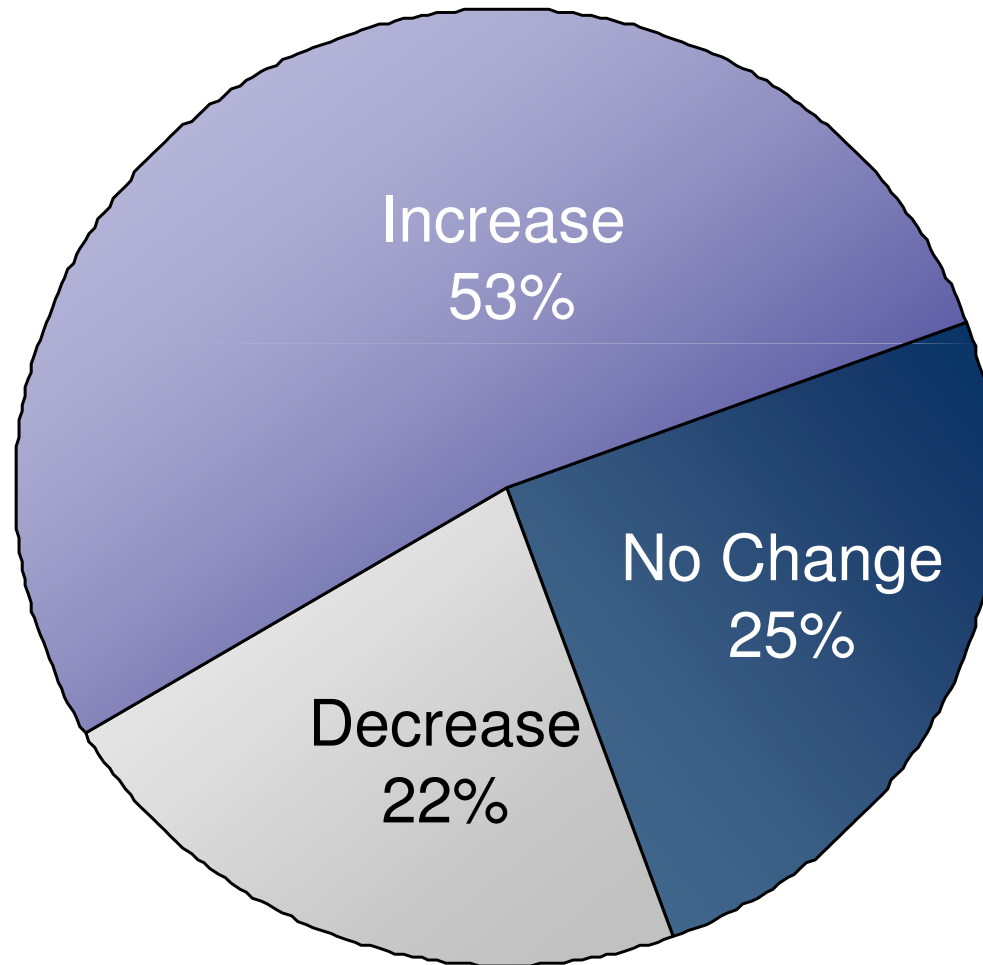


Based on IT Budget as a Percent of Total Operating Expense for the 155 IDs that provided data in both 2002 and 2005
Source: HIMSS Analytics™ Database



Trends: IT Budgets are moving up

2009

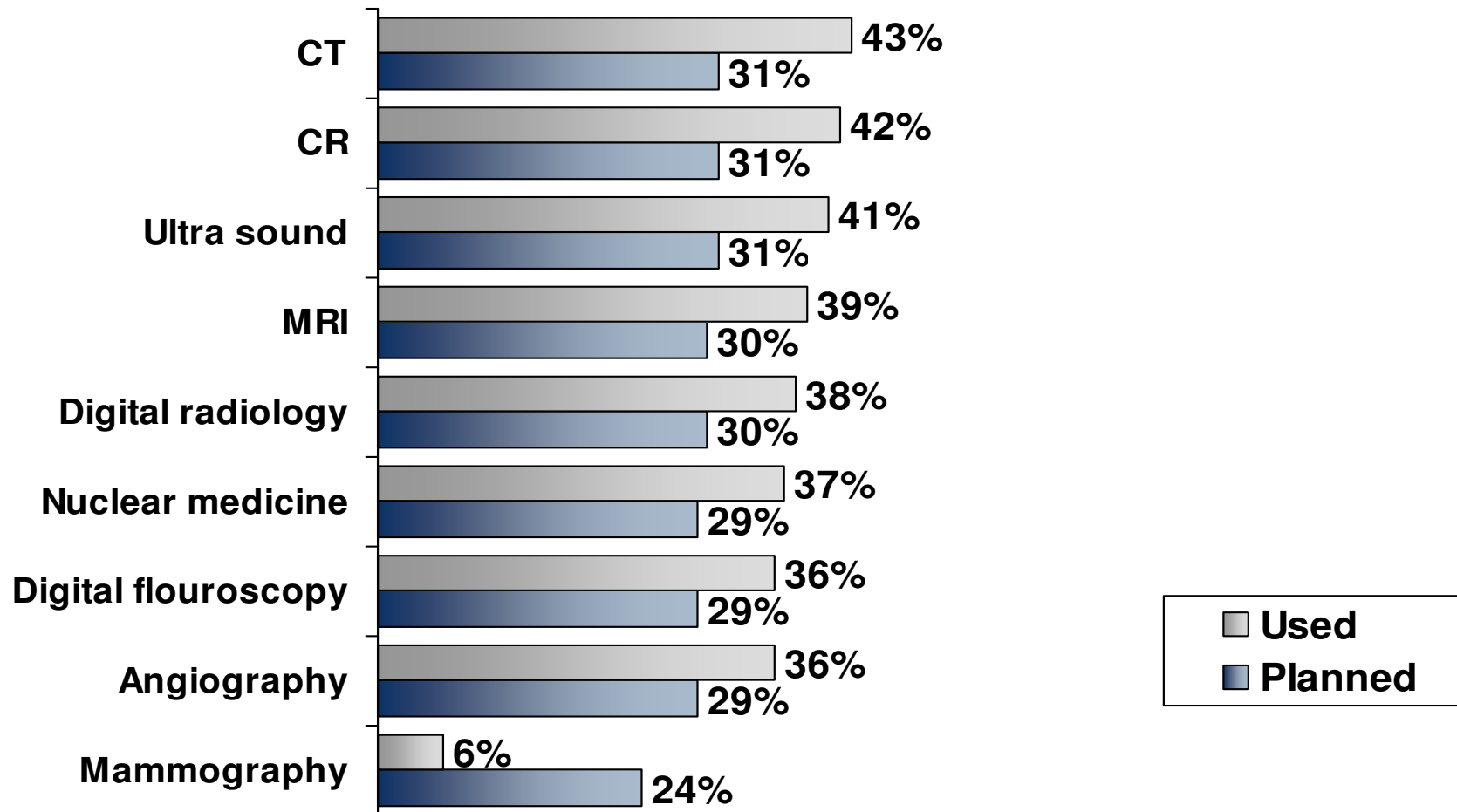


Based on IT Budget as a Percent of Total Operating Expense for the 100 IDs that provided data in both 2002 and 2009
Source: HIMSS Analytics™ Database



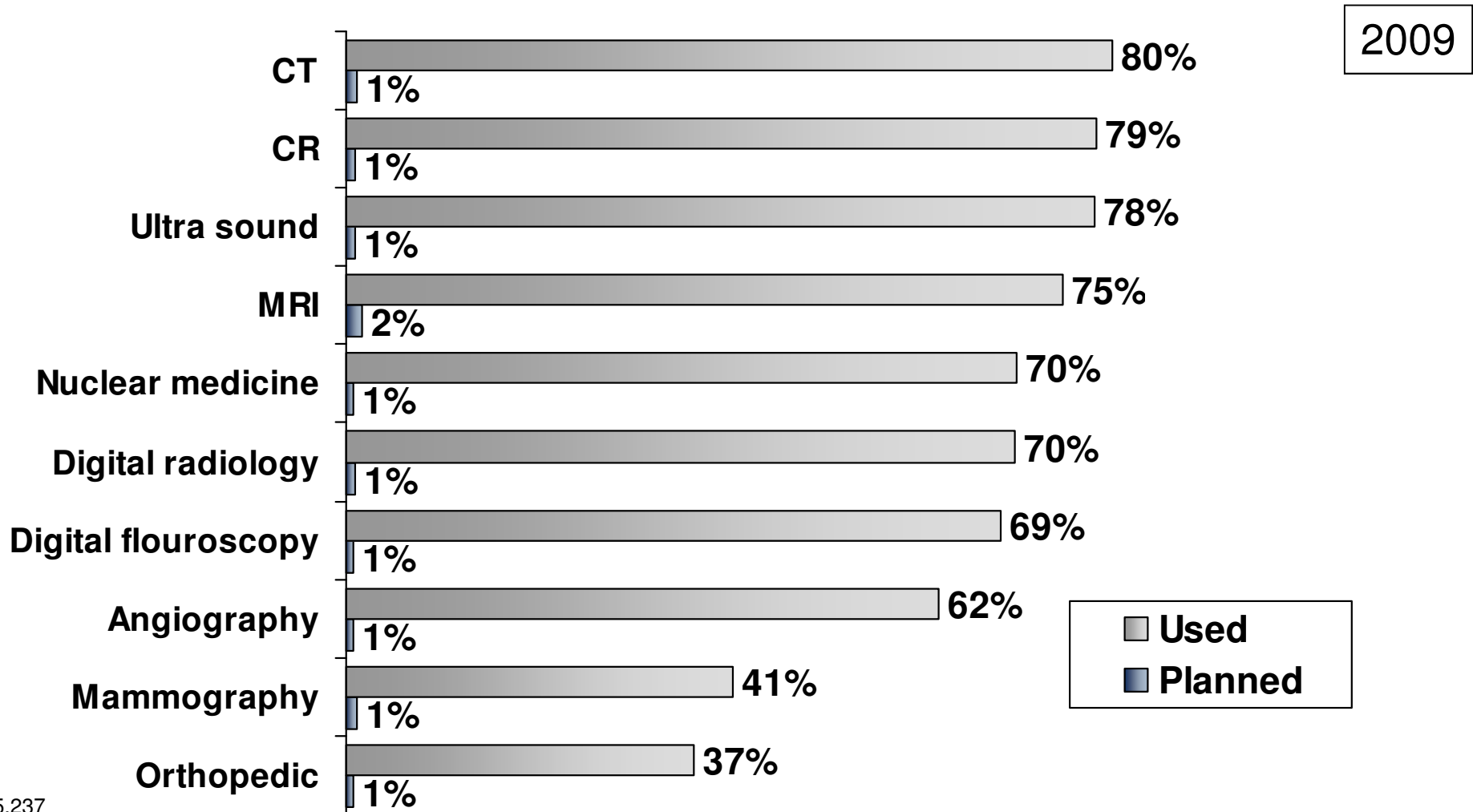
Trends: PACS — Not just for the Military Anymore

2005





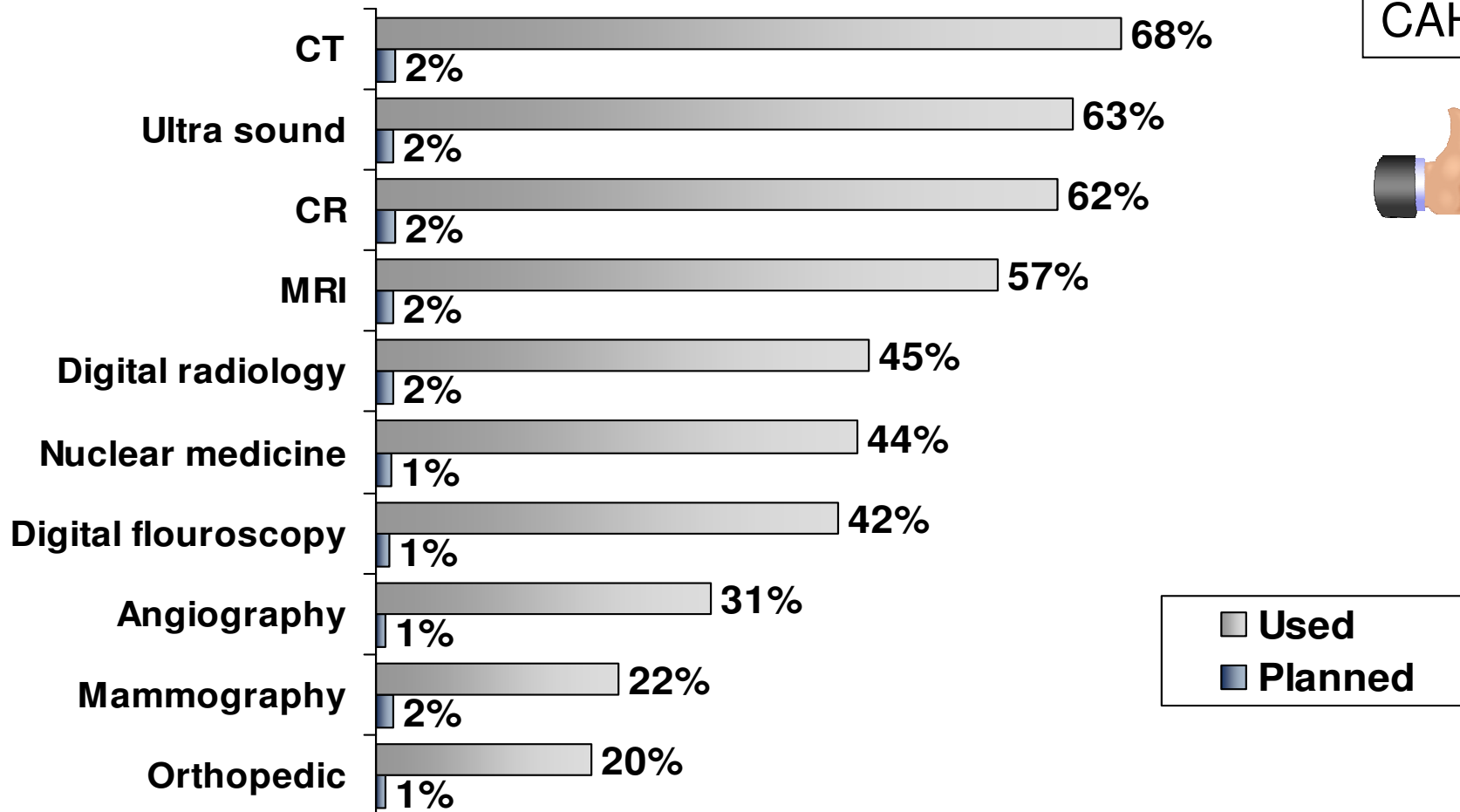
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Trends: PACS — Not just for the Military Anymore

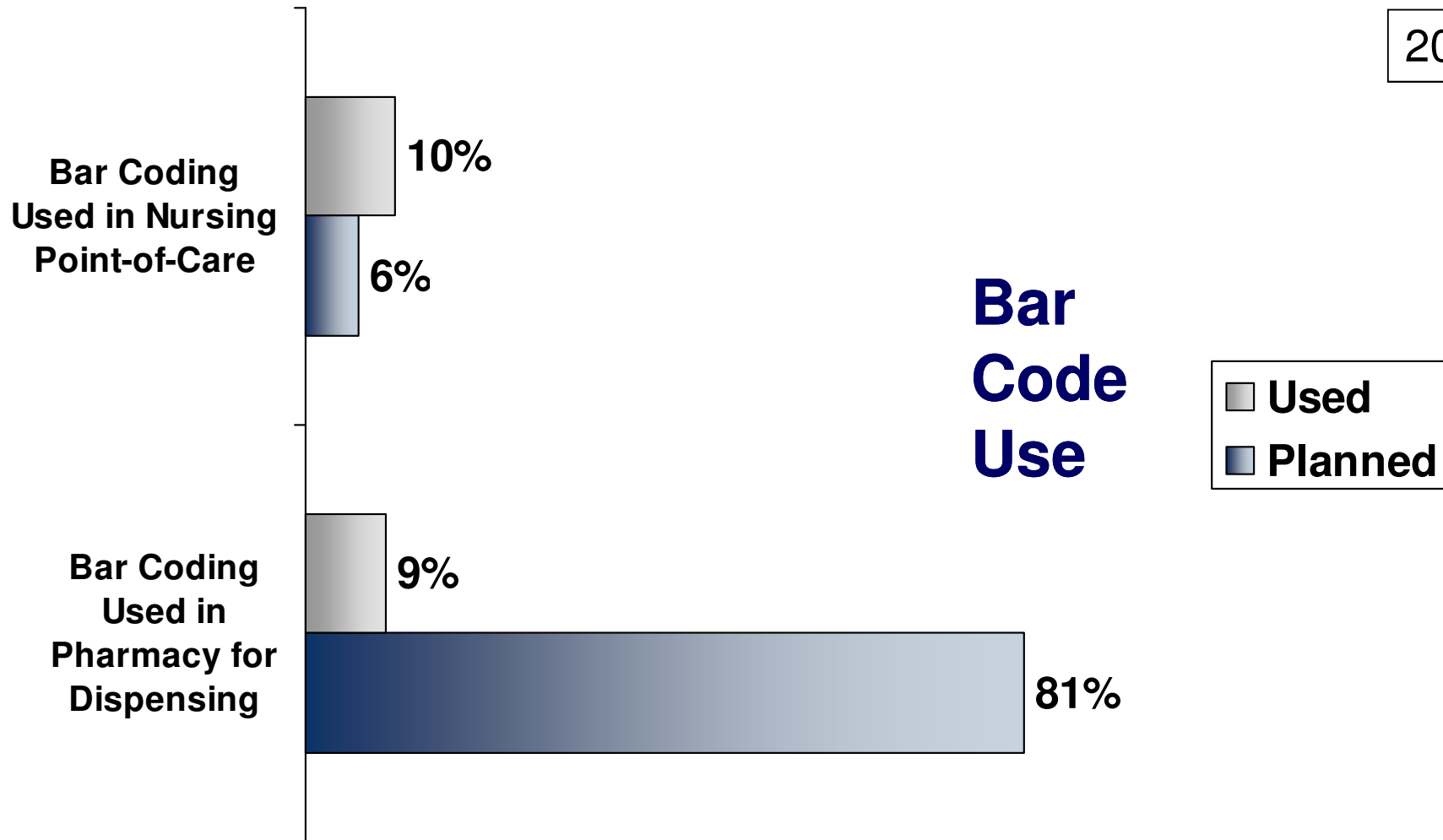
CAH 2009



Used
 Planned

Trends: Bar Coding — Three Decades After Safeway

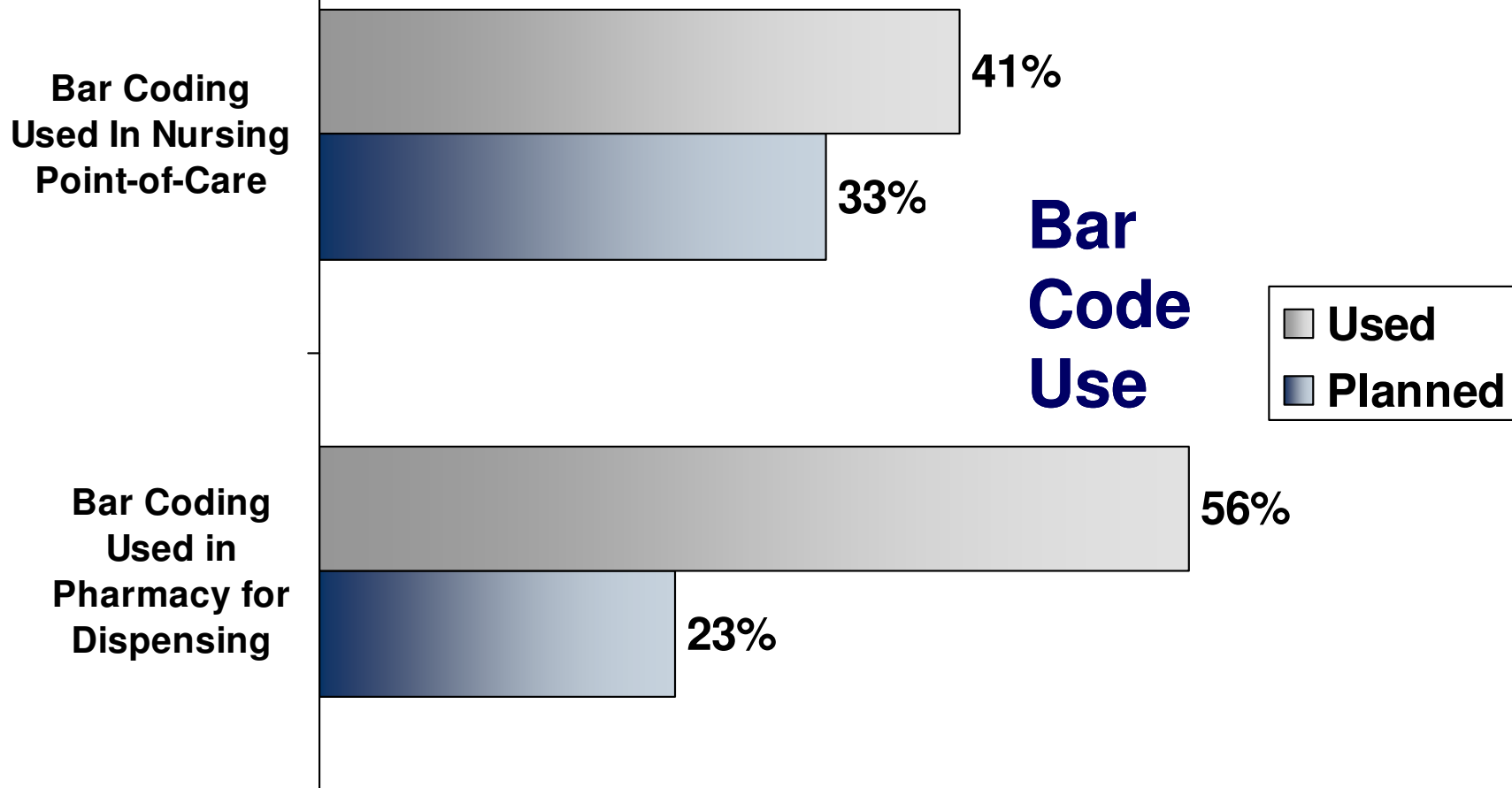
2005





Trends: Bar Coding — Three Decades After Safeway

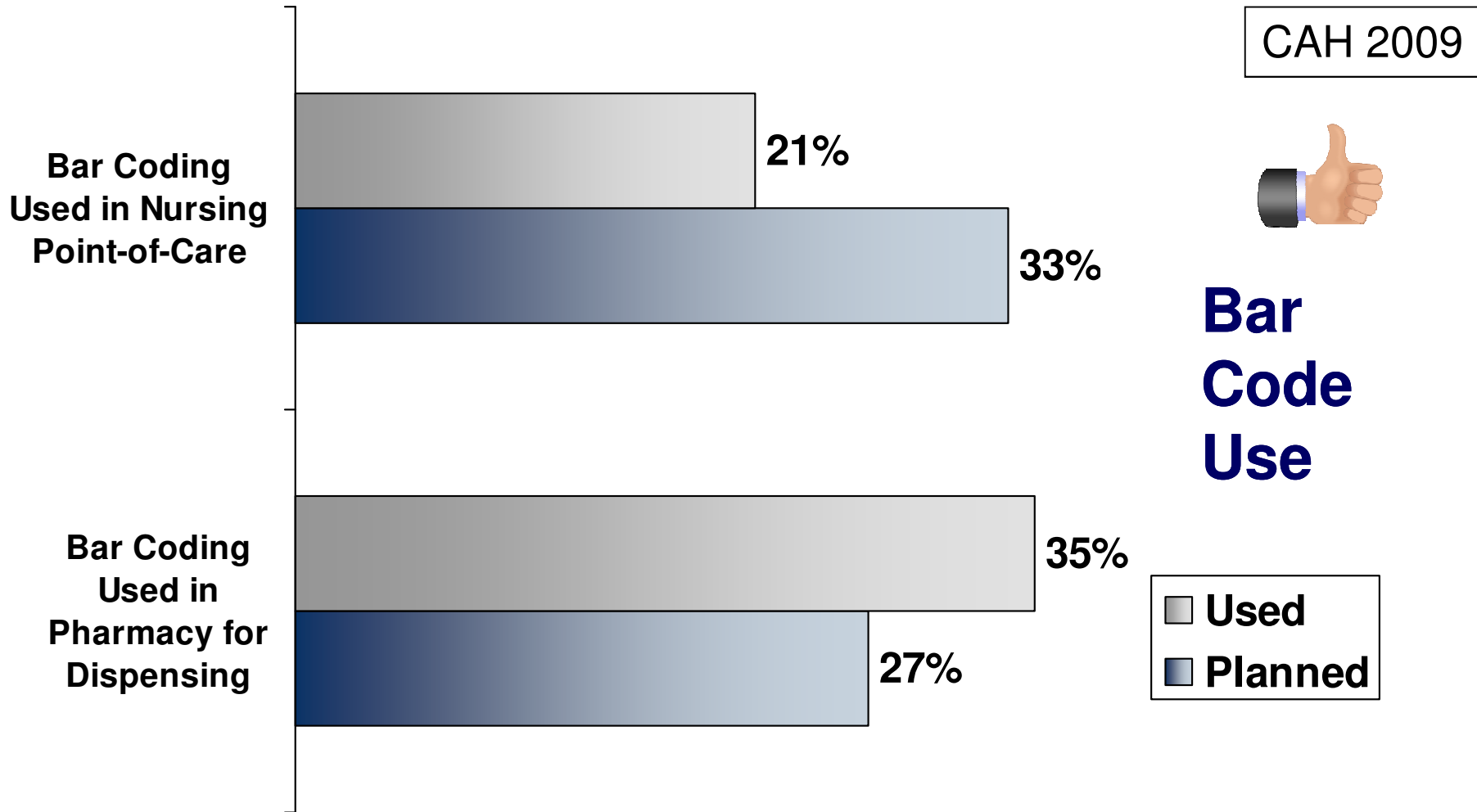
2009





Trends: Bar Coding — Three Decades After Safeway

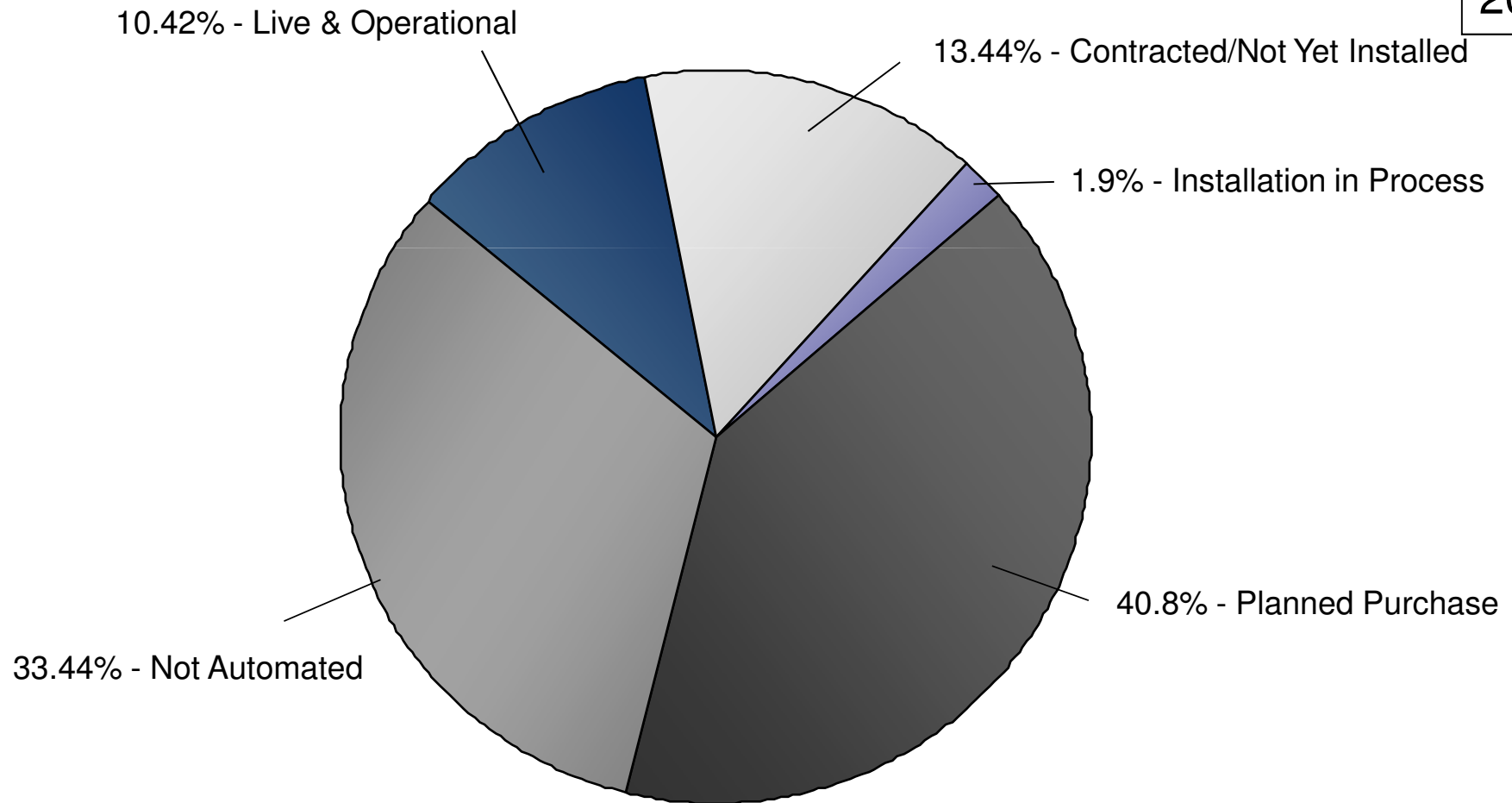
CAH 2009





Trends: CPOE Adoption

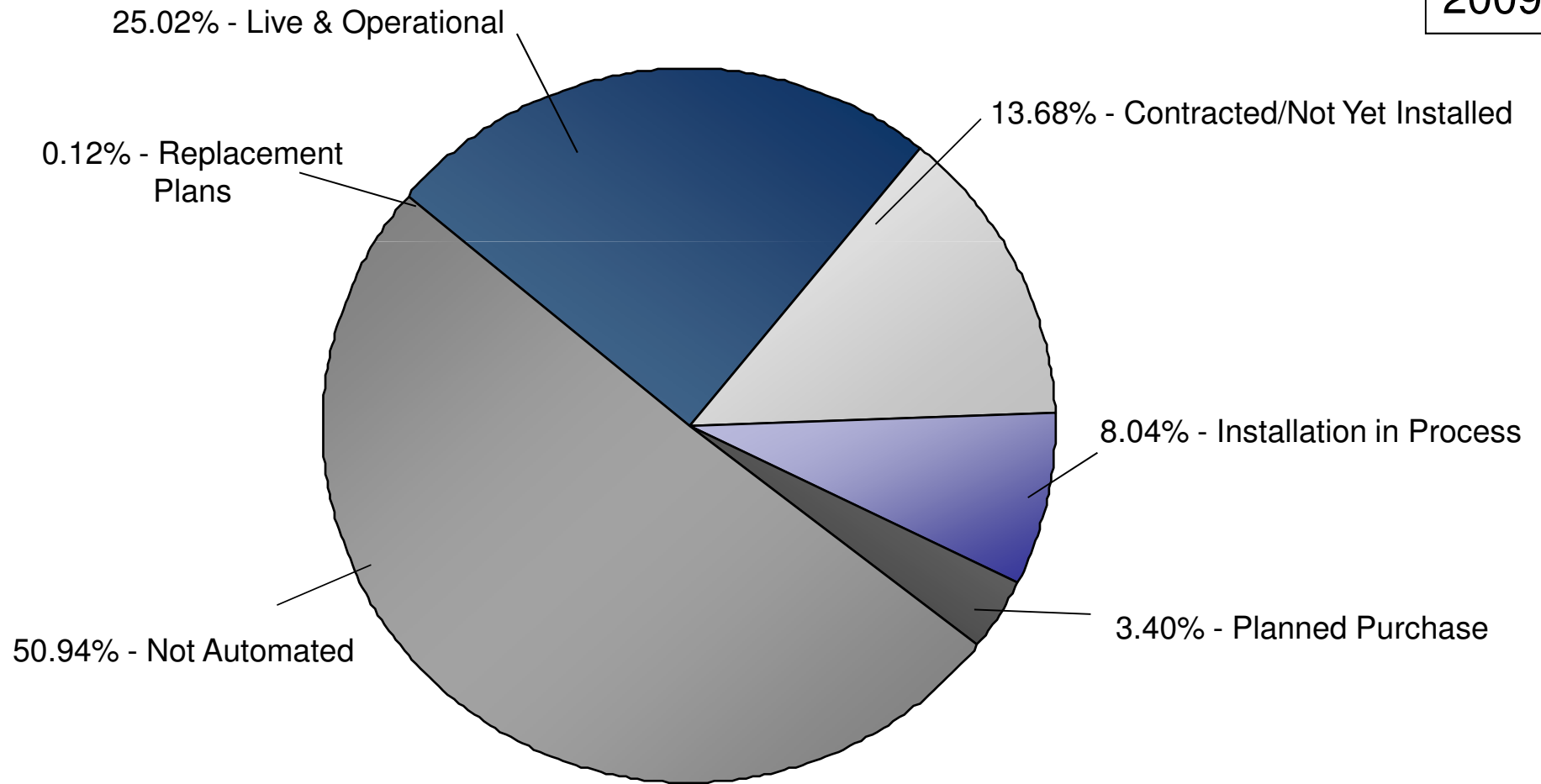
2005





Trends: CPOE Adoption

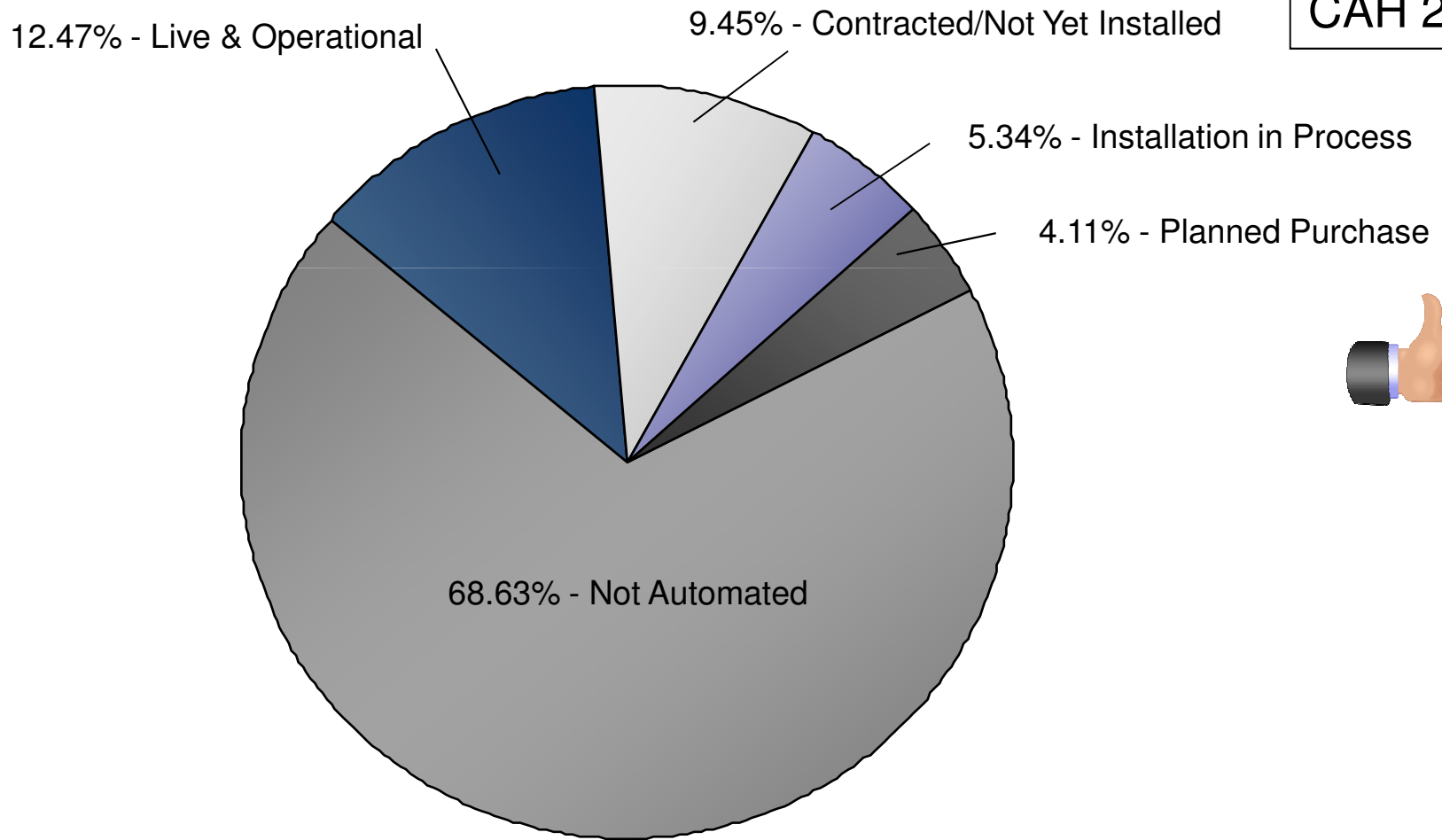
2009





Trends: CPOE Adoption

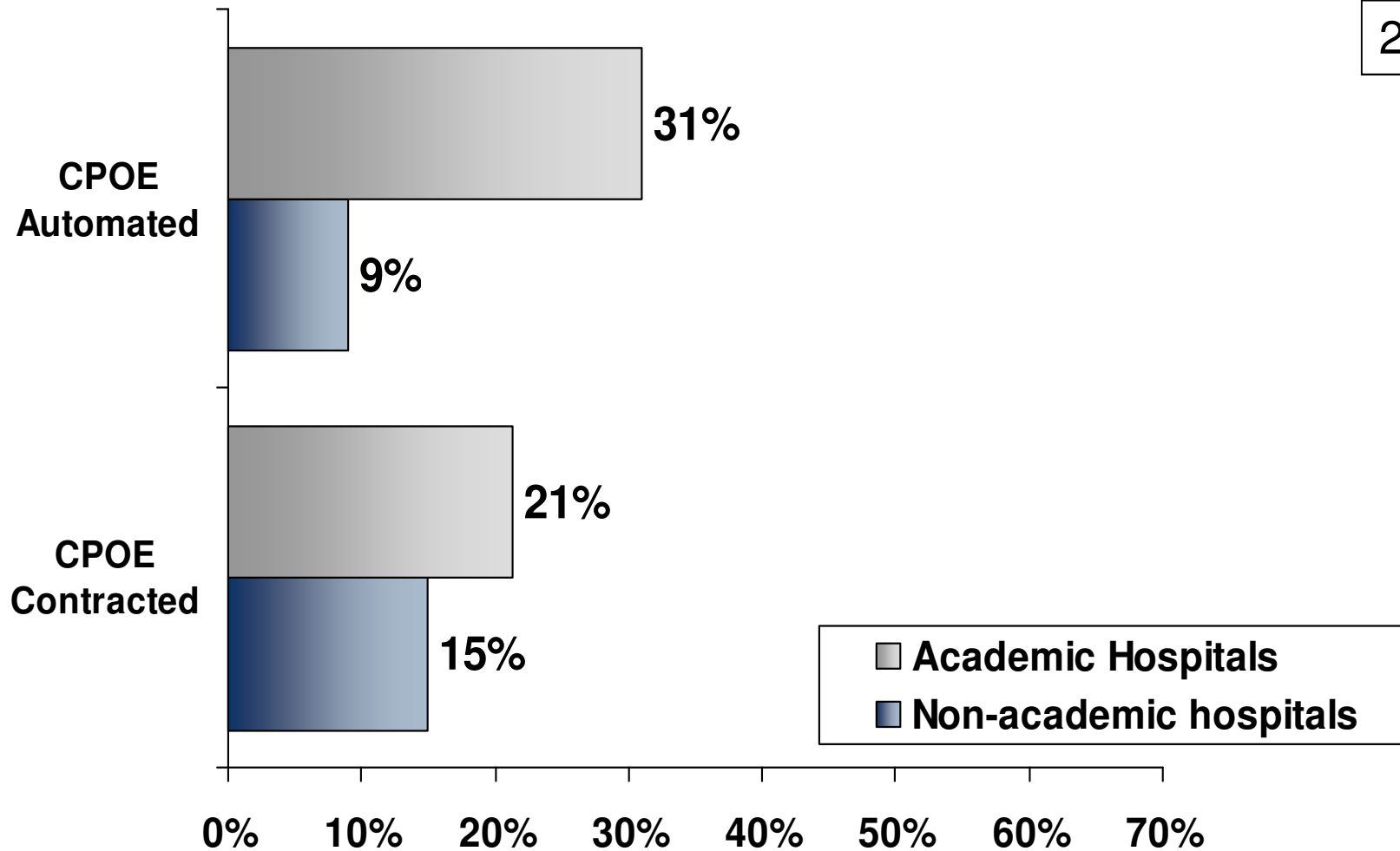
CAH 2009





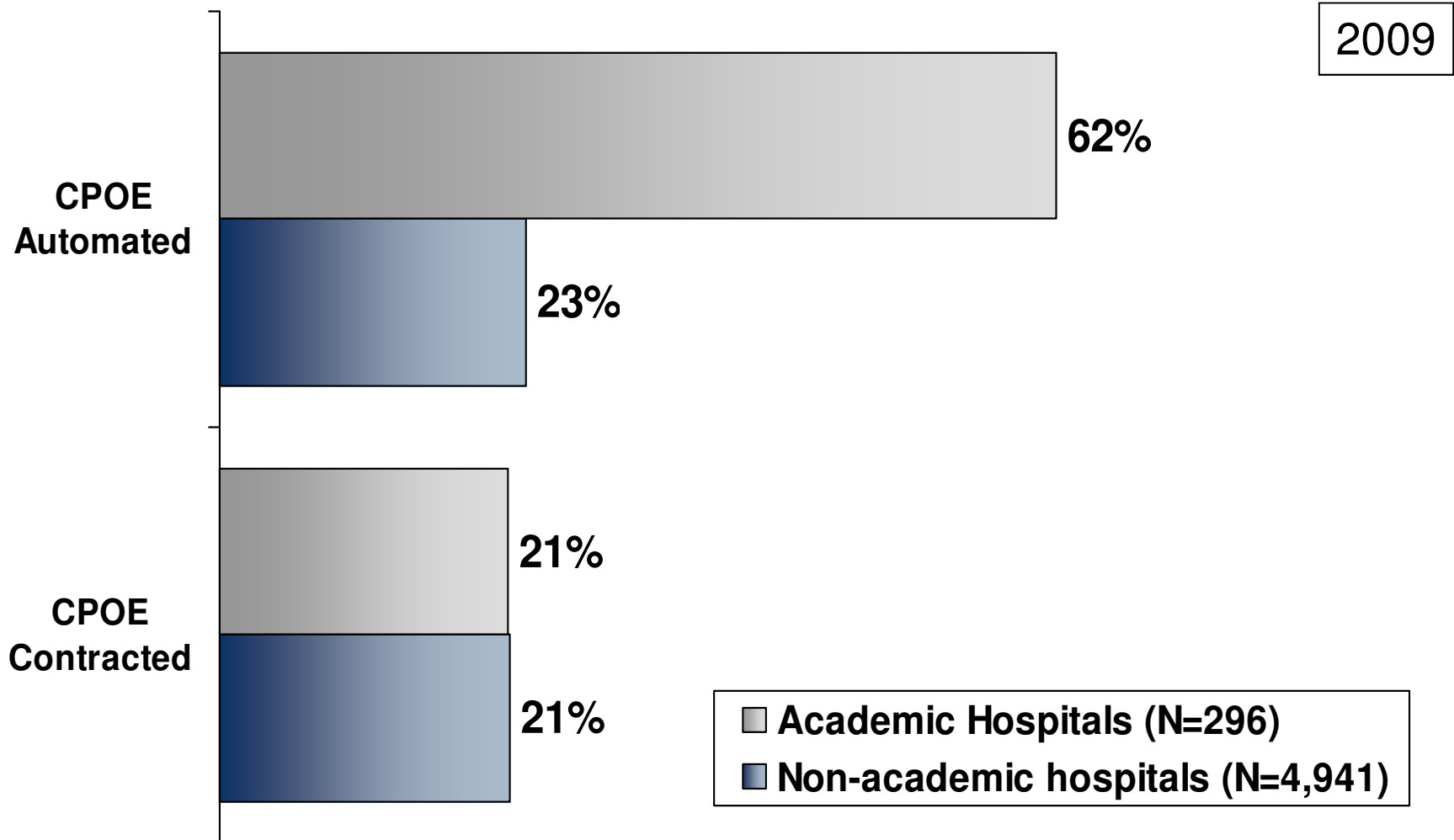
Trends: CPOE Adoption

2005



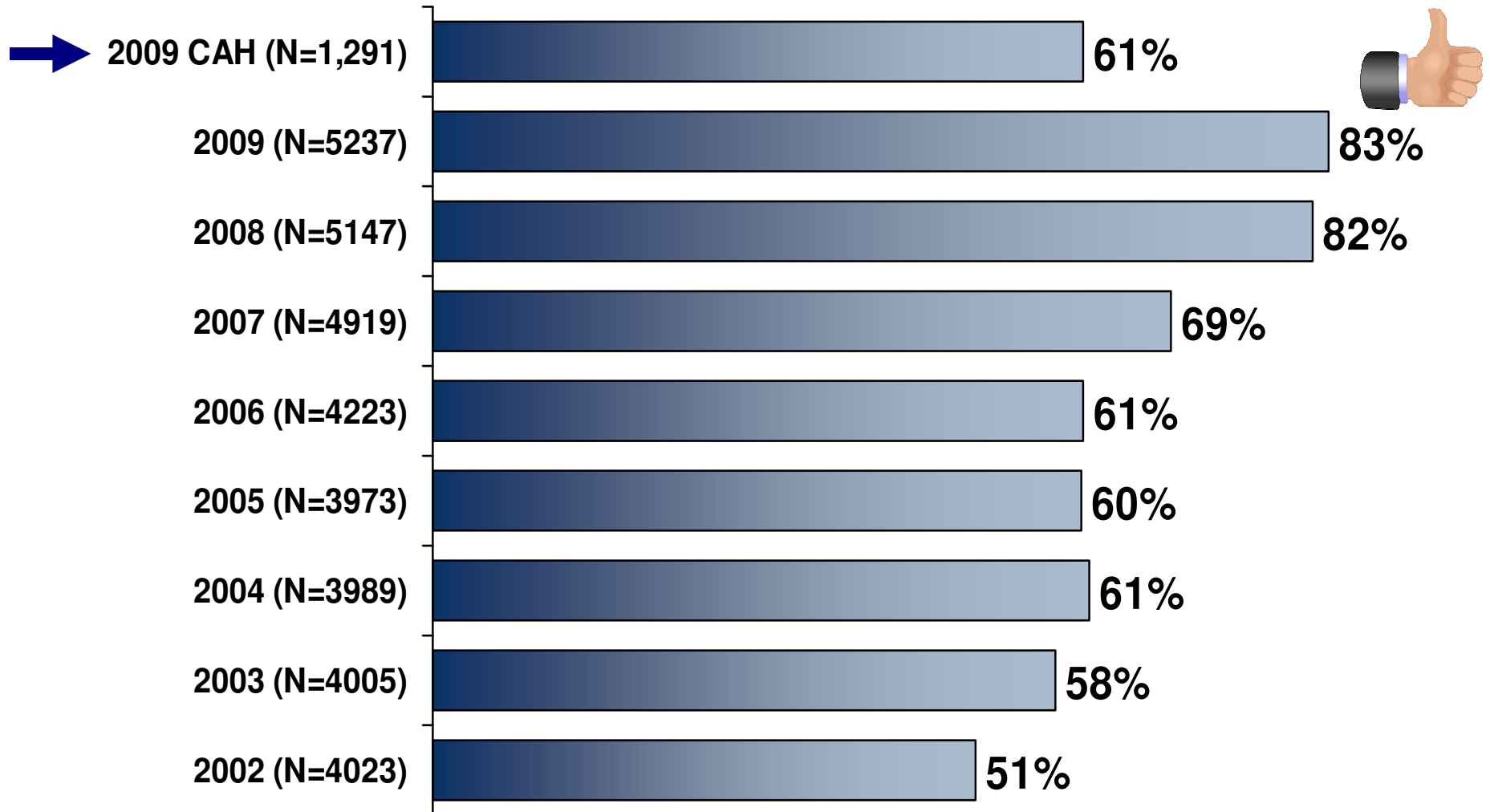


Trends: CPOE Adoption

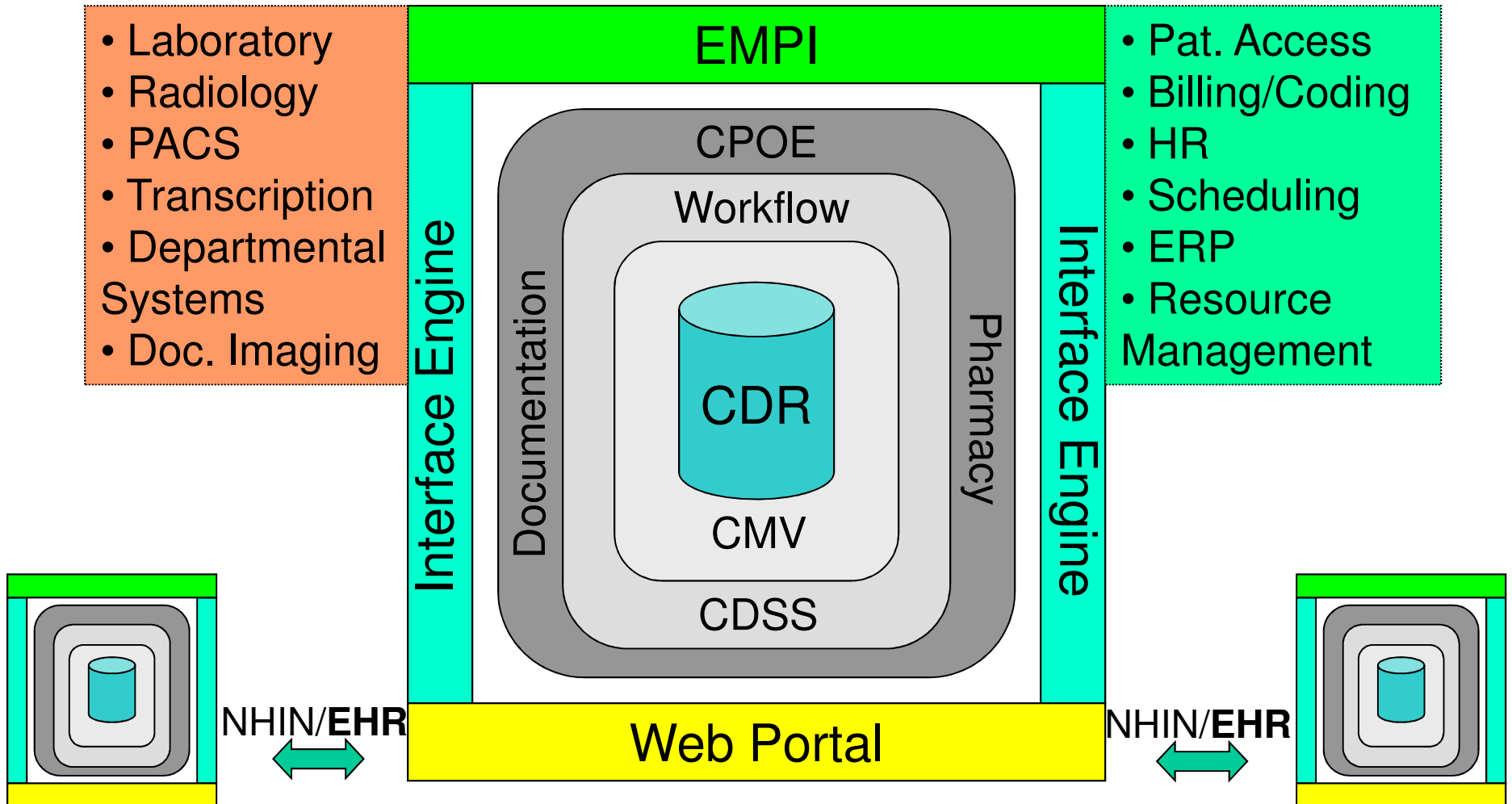




Trends: EMR Adoption



EMR and EHR Environments





2005-2009 EMR Adoption Model Trends

		2005 Final	2009 Final
Stage 7	Complete EMR; CCD transactions to share data; Data warehousing; Data continuity with ED, ambulatory, OP	0.0%	0.7%
Stage 6	Physician documentation (structured templates), full CDSS (variance & compliance), full R-PACS	0.0%	1.6%
Stage 5	Closed loop medication administration	.001%	3.8%
Stage 4	CPOE, Clinical Decision Support (clinical protocols)	2.5%	7.4%
Stage 3	Nursing/clinical documentation (flow sheets), CDSS (error checking), PACS available outside Radiology	10.0%	50.9%
Stage 2	CDR, Controlled Medical Vocabulary, CDS, may have Document Imaging; HIE capable	48.8%	16.9%
Stage 1	Ancillaries – Lab, Rad, Pharmacy – All Installed	19.6%	7.2%
Stage 0	All Three Ancillaries Not Installed	18.4%	11.5%



2009 EMR Adoption Model Trends

2009 Final **2009 CAH Q4**

Stage	Description	2009 Final	2009 CAH Q4
Stage 7	Medical record fully electronic; HCO able to contribute CCD as byproduct of EMR; Data warehousing/mining	0.7%	0.0%
Stage 6	Physician documentation (structured templates), full CDSS (variance & compliance), full R-PACS	1.6%	0.1%
Stage 5	Closed loop medication administration	3.8%	1.8%
Stage 4	CPOE, Clinical Decision Support (clinical protocols)	7.4%	3.8%
Stage 3	Clinical documentation (flow sheets), CDSS (error checking), PACS available outside Radiology	50.9%	33.1%
Stage 2	Clinical Data Repository, Controlled Medical Vocabulary, CDSS inference engine, may have Document Imaging	16.9%	18.0%
Stage 1	Ancillaries – Lab, Rad, Pharmacy – All Installed	7.2%	13.3%
Stage 0	All Three Ancillaries Not Installed	11.5%	30.0%



Regional EMRAM Numbers 4rd Q

Segment	Mean	Median	Number
Hospital Type Segment			
Academic/Teaching	3.7836	3.3770	296
Non-Academic	2.6903	3.1470	4,939
General Medical/Surgical	3.0282	3.2150	3,156
Others	2.3332	3.0550	2,079
Rural	1.8593	2.0710	1,171
Urban	3.0094	3.2150	4,064
IDS	3.0017	3.2160	3,134
Independent Hospital	2.3800	3.0640	2,101
Critical Access	1.8494	2.0630	1,291



Regional EMRAM Numbers 4rd Q

Segment	Mean	Median	Number
Bed Segment			
0-100 Beds	2.1999	2.2070	2,675
101-200 Beds	3.0949	3.2170	986
201-300 Beds	3.3780	3.3070	624
301-400 Beds	3.4009	3.3040	397
401-500 Beds	3.5128	3.3320	227
501-600 Beds	3.6051	3.3480	141
600+ Beds	3.8236	3.3630	185



Regional EMRAM Numbers 4rd Q

Segment	Mean	Median	Number
Regions (U.S. Census Defined)			
East North Central	2.9981	3.2135	816
East South Central	2.5713	3.0960	448
Middle Atlantic	3.0805	3.2080	493
Mountain	2.3731	3.0880	417
New England	3.4212	3.2920	203
Pacific	2.9186	3.1400	583
South Atlantic	3.0769	3.3040	781
West North Central	2.3753	3.0615	698
West South Central	2.3163	3.0150	796



Glimmers: RFID — Just when you thought it was safe to bar code

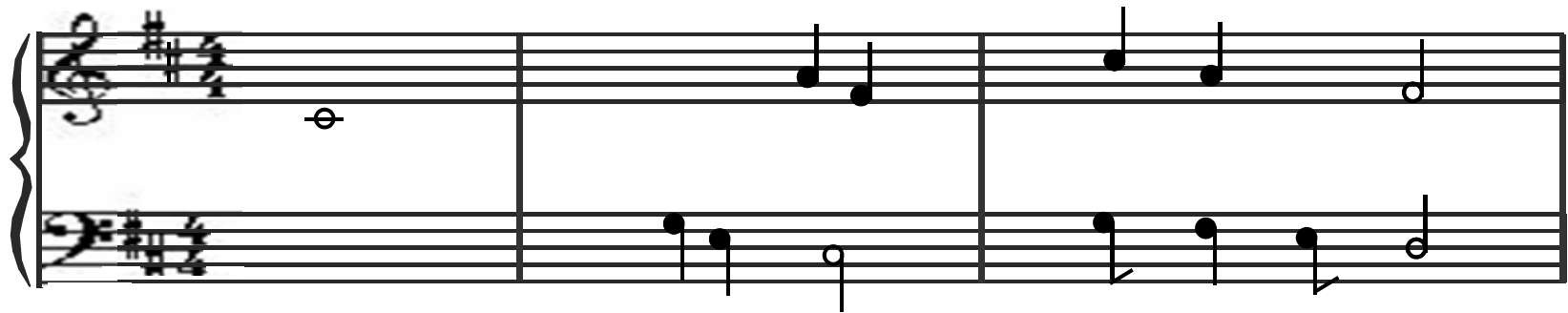
Bar Code vs. RFID





Glimmers: Interoperability Standards

One of the world's first, and best, interoperability standards





Glimmers: Interoperability Standards

AIR ON A G STRING

J. S. Bach

The image displays a musical score for the piece 'Air on a G String' by J.S. Bach. It features two staves: Violin I (top) and Violoncello (bottom). The key signature is one sharp (F#) and the time signature is 4/4. The score includes several performance annotations: a '1' above the first measure, a '10E' annotation above the first measure, and various tempo markings such as '♩=30', '♩=33', '♩=37', '♩=33', '♩=34', '♩=34', '♩=32', '♩=31', and '♩=20' placed above the notes. The Violoncello part includes a 'mf' dynamic marking below the first measure.



Glimmers: Interoperability Standards

A LITTLE MORE LOVE

Words and Music by
VINCE GILL

Moderate country rock =116



Glimmers: Interoperability Standards

Interoperability - *the ability of two or more systems or components to **exchange** information and to **use** the information that has been exchanged.**

- Requires standards for exchange and content that haven't existed.
- Problems:
 - Key standards organizations have been battling over how to create the standards.
 - The federal government has been loath to “mandate” standards for exchange and content because before, they would never have passed Congress. The economy changed that – see ARRA.
 - We don't have CMV standards.
 - We don't have an atomic-level data dictionary.
- 80% Solution – Continuity of Care Document



Glimmers: Digital Hospitals

- ***Indiana Heart Hospital***
 - Opened in December 2002
 - Features GE technology, including its electronic medical records system, CPOE, PACS and digital cardiovascular imaging and ultrasound systems
- ***St. Francis Heart Hospital***
 - Opened in September 2004
 - GE technology
- ***Kaiser Irvine Medical Center***
 - Opened in May 2008
 - Epic technology



Glimmers: Getting ROI out of clinical systems

- **NorthShore University HealthSystem** implemented an EMR (Epic) with CPOE capability at three hospitals and 50 outpatient clinics and medical offices. The number of system users is 6,200.
 - Number of delays in administering medication has fallen by 70%
 - Omitted administration of drugs has dropped 20%
 - Test results for mammograms now take one day, down from as long as three weeks
 - Cardiographics reports also take one day, down from as many as 10 days
 - Almost half the patients that come to the EDs have complete Epic records now—meds list, allergies, problem list, history, etc. due to automation efforts in employed and independent doc offices. Now have over 600,000 office visits a year in Epic.
 - 1/3 of the time Epic gives an alert for an allergy, the physician changes the medication order
 - Spent \$7.5 million on training and \$35 million capital on hardware, software, and implementation
 - Won the Davies Award for 2004 and is a EMRAM Stage 7 health system.



Glimmers: Stark Relaxation

Q: Do you currently provide Ambulatory EMR services to your community physicians under the current relaxation of Stark laws?

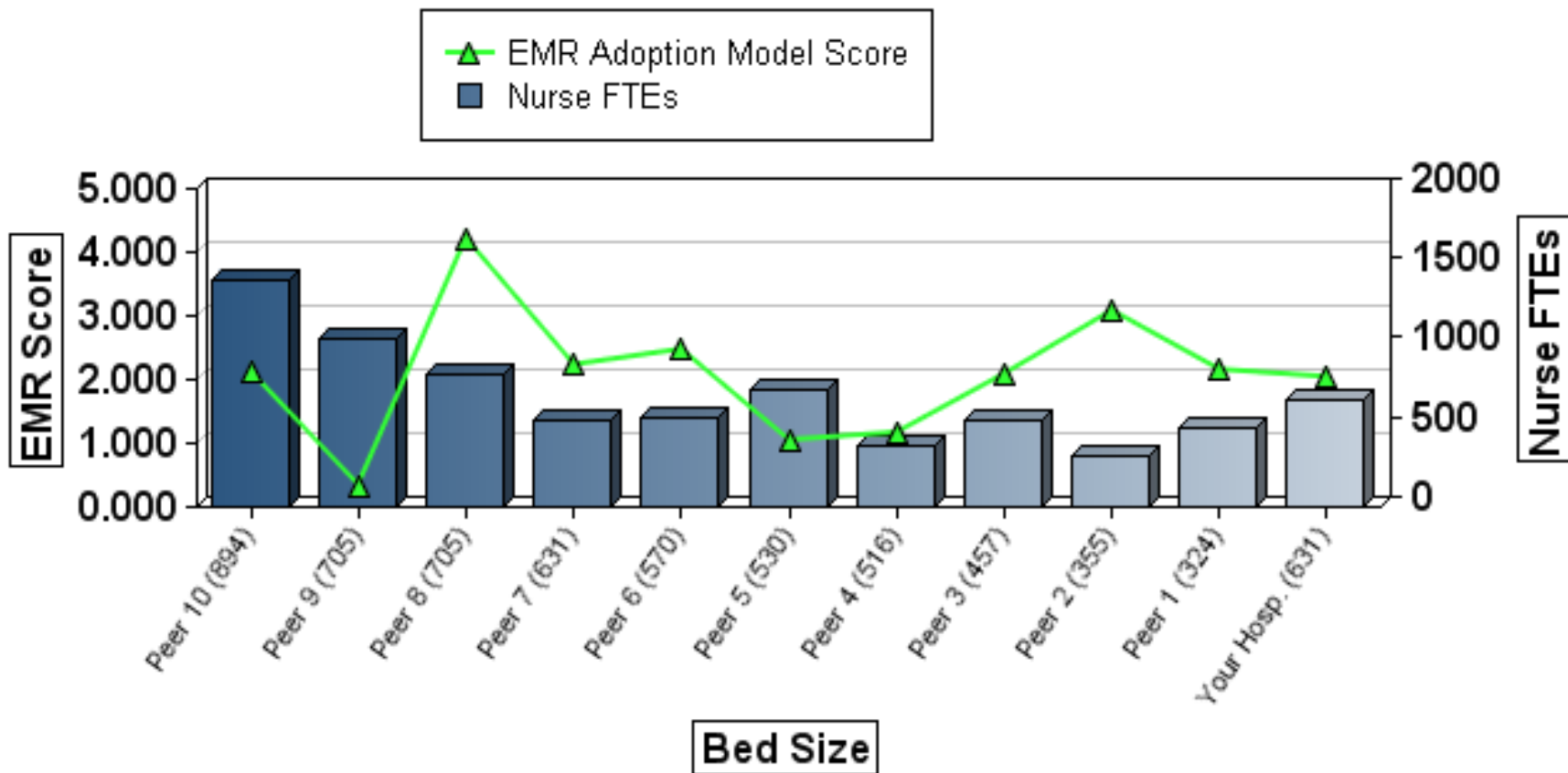
Type of Organization	EOY 2008	Q3 2009
Integrated Delivery System (IDS)	3.30% (N=484)	8.21% (N = 487)
Single Hospital Health System	1.18% (N = 2,112)	3.90% (N = 2,102)

Q: If you're not providing them, do you plan to offer Ambulatory EMR services to your community physicians (non-owned clinics)?

Type of Organization	EOY 2008	Q3 2009
Integrated Delivery System (IDS)	3.09% (N=484)	8.83% (N = 487)
Single Hospital Health System	1.70% (N = 2,112)	3.81% (N = 2,102)



Glimmers: Being able to “benchmark” IT in healthcare





Implications for Hospitals

- Hospitals must position their cultures and budgets to actively pursue IT applications that transform their operations.
- But don't get ahead of yourself or your organization – ***Type C organizations should not be implementing Type A applications.*** Build your application infrastructure and delivery credibility first and wait for the technologies to get to the point where you can implement them safely.
- While “return on investment” remains a critical factor for deciding some IT investments, it cannot become the sole factor in determining the value of IT on service quality or outcomes.



ARRA

Stimulus Funds for Healthcare IT

\$20.8 Billion

with strings attached



General Construct of the Incentives

- Available to eligible professionals (physicians) and hospitals for the “meaningful use” of *certified* EHR technology
 - Incentives offered FY2011- 2014 for physicians
 - Incentives offered FY2011- 2015 for hospitals
 - Both will see a reduction in their Medicare reimbursements if they are not “meaningful users of certified EHR technology” by the last year
- Those that adopt first will benefit the most due to declining incentives



Key Points on “Meaningful Use”

- Requirements should be made *increasingly stringent* in three phases of two year increments
- The final phase should include four attributes:
 - A functional EMR certified by CCHIT*
 - Electronic exchange of patient data with clinical & administrative stakeholders
 - Clinical decision support providing clinicians with clinical knowledge
 - Capabilities to support process that drive improvements in patient safety, quality outcomes, and cost reductions

* or by HHS itself – still unclear



Policy Priority Categories

1. Improve quality, safety, efficiency and reduce health disparities
2. Engage patients and families
3. Improve care coordination
4. Improve population and public health
5. Ensure adequate privacy and security protections for personal health information

Policy Priority → Objectives → Measures

Bending the Curve Towards Transformed Health

*“These goals can be achieved only through **the effective use of information** to support **better decision-making** and **more effective care processes** that improve health outcomes and reduce cost growth”*

Data capture and sharing

Advanced clinical processes

Improved outcomes

Criteria in 2013 will focus on process measures to demonstrate providers have started to meaningfully use EHRs. Goals and objectives for 2015 criteria will be heavily outcomes-oriented.

2009

2011

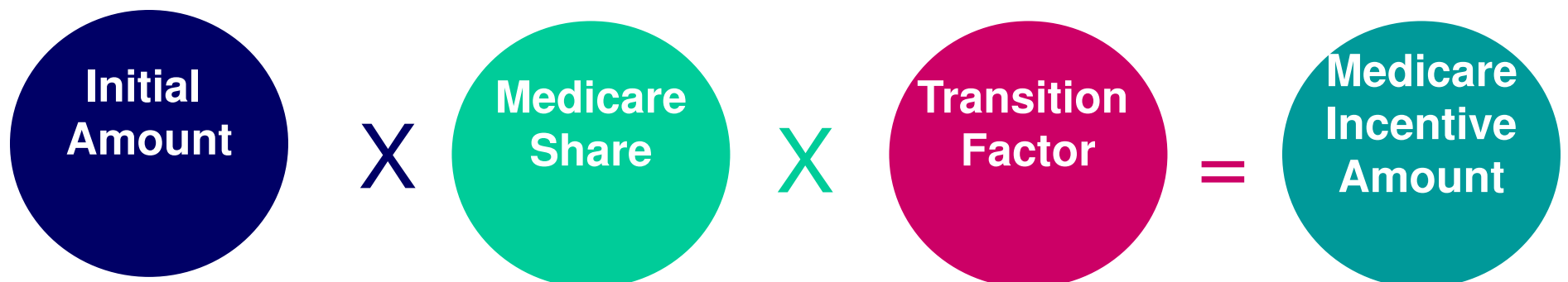
2013

2015



Medicare Incentives for Hospitals

- Formula is Initial Amount times Medicare Share times *Transition Factor*
- “Initial Amount” is \$2M plus
 - \$200 for each discharge between the 1,150th to 23,000th discharge in a 12 month period
 - \$0 for first 1,149 discharges and \$0 for each discharge after 23,000





Phase 1 Commencing FY11

- **Use objectives:**
 - 10% of all orders entered by authorizing provider
 - Basic drug to drug and drug to allergy checks for all orders
 - Record & chart changes in vital signs
 - Maintain an up to date problem list
 - All Lab results as structured data
 - Generate at least five clinical support rules for high clinical priorities
- **Report key basic quality measures:**
 - Report lists of patients with specific conditions
 - % diabetics with hemoglobin A1c >9%
 - % hypertensives with BP under control
 - % patients with LDL under control
 - % heart failure and LVSD patients who were prescribed ACE inhibitor or ARB therapy
 - % patients >50yrs who received flu shot during season
 - % smokers offered smoking cessation
 - % females ages 40 -69 receiving bi-annual mammogram

“Interim Final Regs”



Phase 2 Commencing FY13

Suggested

- Use objectives:
 - 100% of all orders entered electronically by authorizing provider
 - Use evidence based orders sets
 - Utilized closed-loop medication administration and e-MAR
 - Use CDSS at point of care for rules & alerts
 - Record clinical documentation in EHR
 - Access to PHR for all patients
- Additional quality measures:
 - % of all orders entered by authorizing care provider
 - Additional quality reports using HIT-enabled NQF endorsed quality measures
 - Report potentially preventable ED visits and hospitalizations
 - % of patients with full access to PHR



Phase 3 Commencing FY15

Suggested

- Use objective:
 - Medical device interoperability
 - Multi-media support (PACS)
 - CDSS for national high priority conditions
 - Electronic reporting on “experience of care”
- Additional quality measures:
 - Clinical outcome measures
 - Efficiency measures
 - Safety measures
 - Quality measures related to patient and family engagement



What Does This Mean for IT Planning?

Discussion of Planning Implications



IT Planning Impacts

- Do you know your EMR Adoption Model score?
 - Does the Executive Committee know your EMR Adoption Model score?
- Move aggressively to take advantage of the ARRA incentive schedule – earlier is better
 - Re-craft IT Strategic Plan to mimic the ARRA incentives
 - http://healthit.hhs.gov/portal/server.pt?open=512&objID=1325&&PageID=16490&mode=2&in_hi_userid=10741&cached=true
- Do you know if you are within “striking distance”?



IT Planning Impacts

- Specifically:
 - CPOE
 - Start with employed physicians... is it in their contract?
 - Medicine has far more orders, will move you to 100% faster
 - The CIO cannot do this alone, must have Medical Staff driving
- Closed Loop Medication Administration
 - Significant investment in technology and processes
 - Are you now bar coding the unit dose medications?
- HIMSS Analytics' data shows that Stages 4 & 6 have the highest costs associated
 - Significant involvement of physicians in process redesign
 - Often involve consultants in training and implementation



IT Planning Impacts

- Are you ready to generate e-prescribing?
 - Are the pharmacies in your market ready? This could be an issue in very rural areas
- Networked Medical Device interoperability
 - The ability of monitors and pumps to receive an order and to write results to the EMR
 - Are you buying the right equipment now? Is your Clinical Engineering department ready for this?
- Writing pertinent clinical results to a Personal Health Record
- Electronic submission of “the experience of care”
 - If you use an outsourced patient satisfaction vendor, be certain they can meet reporting requirements

HIMSSanalytics



Thank You!

John P Hoyt, FACHE, FHIMSS
HIMSS
230 E. Ohio St., Suite 600
Chicago, IL 60611
jhoyt@himss.org



Regional EMRAM Numbers 4rd Q

Segment	Mean	Median	Number
All Hospitals			
Total	2.7522	3.1560	5,235
United States			
Alaska	2.4579	3.1240	17
Alabama	2.6135	3.0800	103
Arkansas	2.2418	2.0870	85
Arizona	2.7355	3.1560	80
California	3.0028	3.1320	386
Colorado	2.6307	3.1855	84
Connecticut	3.8377	3.4150	33
District of Columbia	2.1558	3.1640	11
Delaware	3.4942	3.3390	9
Florida	3.0890	3.3240	234
Georgia	2.7965	3.2070	155
Hawaii	1.9702	2.0940	25
Iowa	2.7058	3.1115	118
Idaho	2.2698	2.1790	43
Illinois	3.1618	3.1840	197



Regional EMRAM Numbers 4rd Q

Segment	Mean	Median	Number
Indiana	3.0953	3.2390	129
Kansas	1.8145	2.0850	137
Kentucky	2.6456	3.0815	106
Louisiana	2.2656	2.1620	139
Massachusetts	3.3802	3.2670	81
Maryland	3.5229	3.3190	49
Maine	3.4549	3.3175	38
Michigan	2.8805	3.1840	159
Minnesota	2.7241	3.1390	133
Missouri	2.8590	3.1800	127
Mississippi	2.0463	2.0860	97
Montana	1.2831	1.0040	56
North Carolina	3.1242	3.3210	120
North Dakota	1.8347	2.0150	43
Nebraska	1.9567	2.0860	87
New Hampshire	3.0317	3.1910	26
New Jersey	3.1583	3.2715	86
New Mexico	2.5575	2.1280	40



Regional EMRAM Numbers 4rd Q

Segment	Mean	Median	Number
Nevada	2.4574	3.1560	40
New York	3.0951	3.1570	209
Ohio	2.9304	3.2270	195
Oklahoma	2.0420	2.1150	119
Oregon	3.0582	3.1720	62
Pennsylvania	3.0314	3.2190	198
Rhode Island	3.7207	3.3210	11
South Carolina	3.0945	3.3200	67
South Dakota	2.1805	3.0000	53
Tennessee	2.8440	3.1560	142
Texas	2.4180	3.0750	453
Utah	2.3375	2.2900	47
Virginia	3.5291	3.3350	85
Vermont	3.0729	3.1755	14
Washington	2.8151	3.2030	93
Wisconsin	2.9036	3.2250	136
West Virginia	2.6827	3.1310	51
Wyoming	2.5865	3.1400	27