



Linking Cost to Quality: The Next Frontier for the C-Suite

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Ground to Cover...

- Reflections on the last five years
- The Improvement Map
- The next frontier in quality
- Time for questions and discussion

Origins of 100K and 5M Campaigns

- Frustration with persistent variability in the quality of care and the national rate of change
- Observation of isolated excellence in safety
- Belief that our sense of urgency was shared by leaders and providers throughout the system
- Belief in the value of a shared, explicit set of aims
- Desire for a new, highly democratic method of spreading change

PROTECTING

5 Million

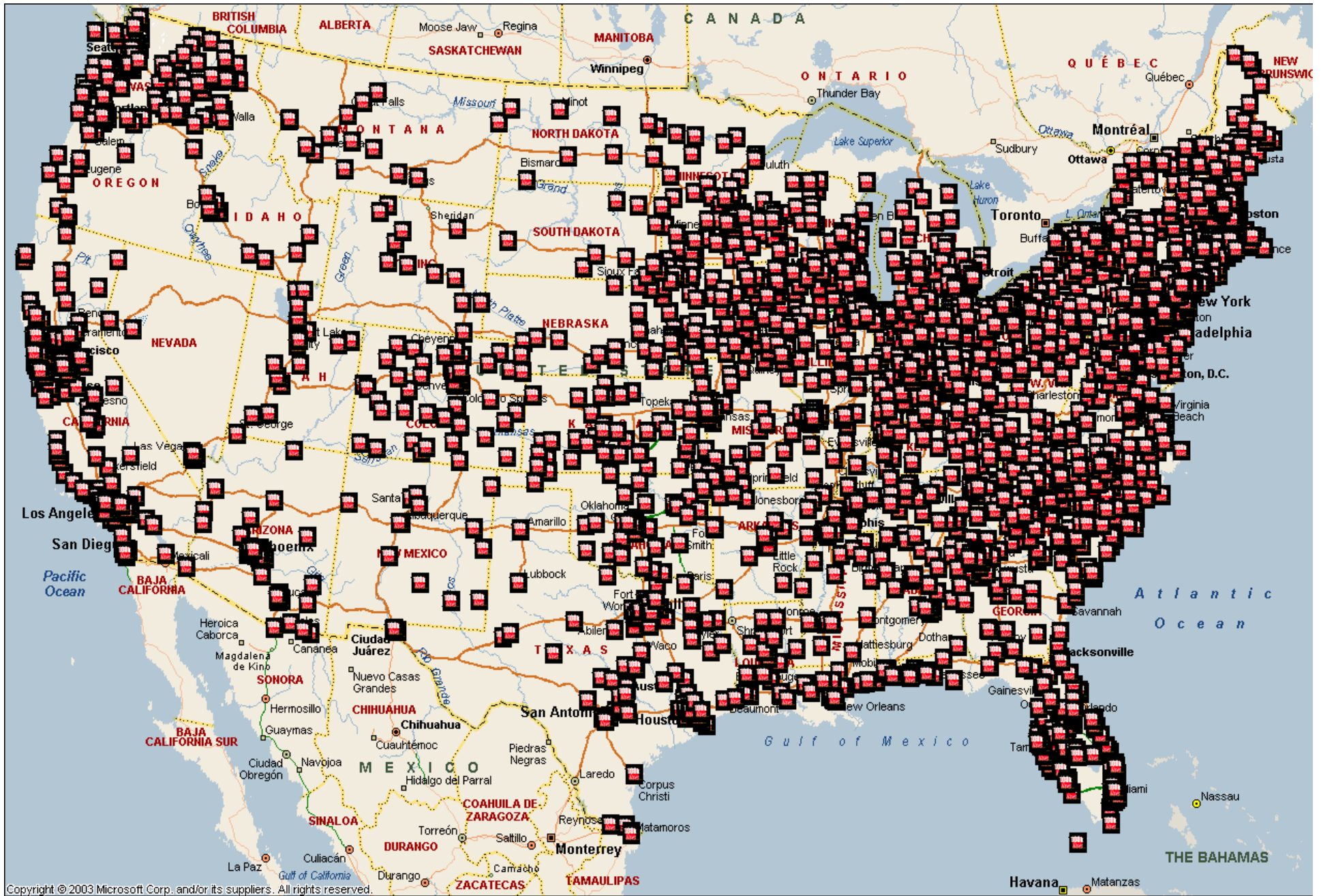
lives

FROM HARM

IHI.org

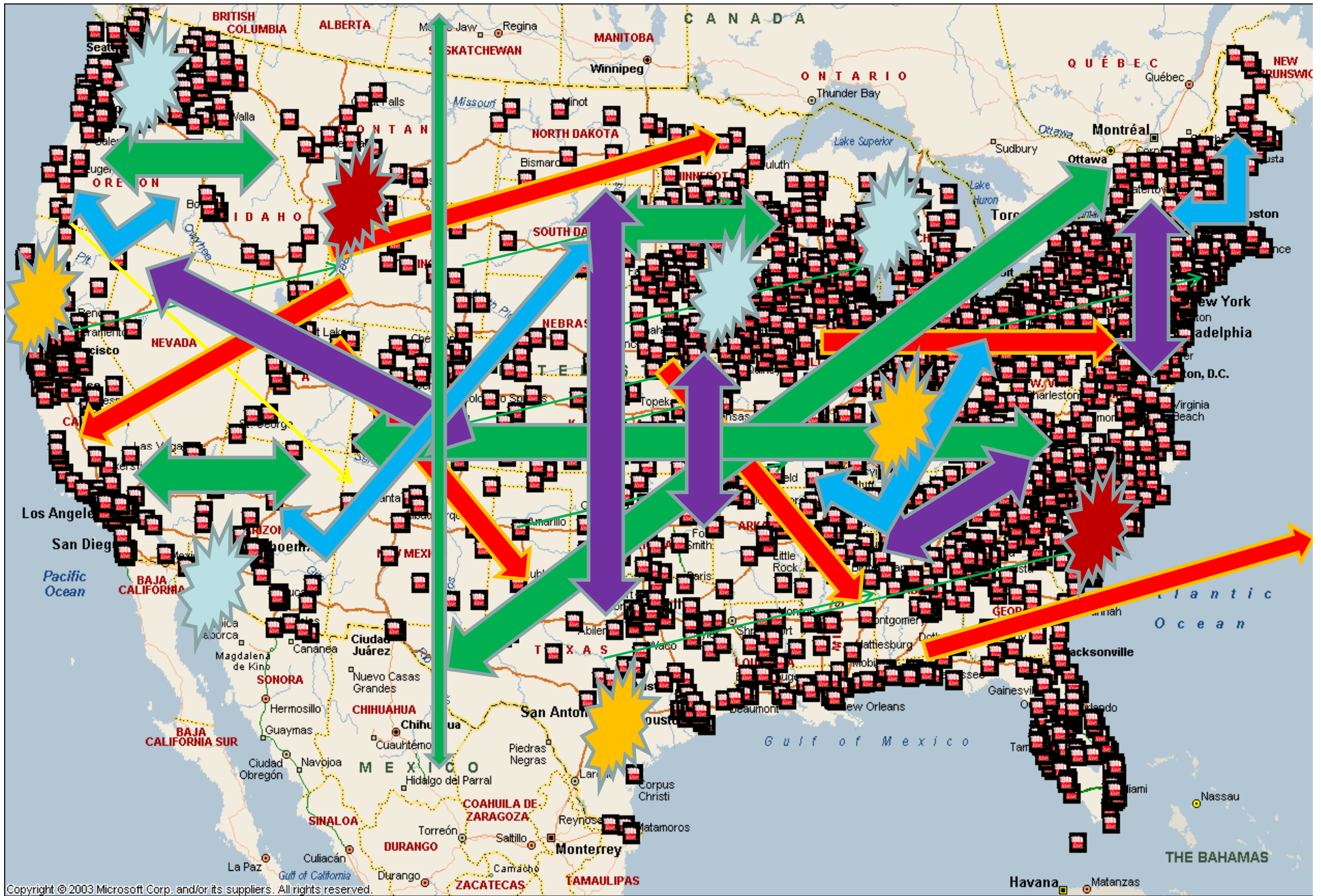
The *5 Million Lives Campaign*

- Campaign Objectives:
 - Avoid five million incidents of harm over the next 24 months;
 - Enroll more than 4,000 hospitals and their communities in this work;
 - Strengthen the Campaign's national infrastructure for change and transform it into a national asset;
 - Raise the profile of the problem - and hospitals' proactive response - with a larger, public audience.



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IMPROVEMENT



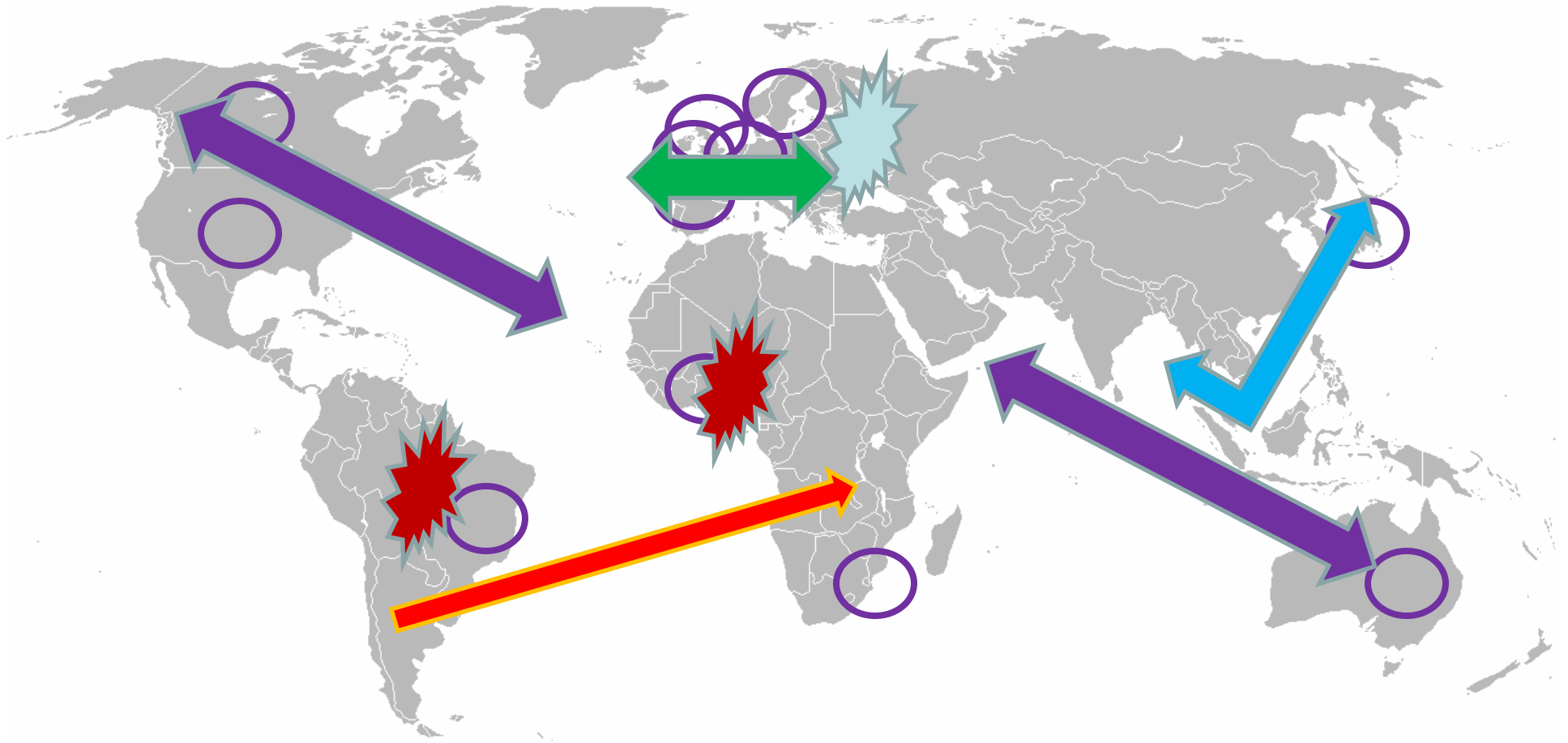
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IMPROVEMENT

Some Returns...

- Enrollment eclipsing 4,000 hospitals (approximately 75%-80% of all US hospital beds)
- Eight states at 100%; 18 states at 90% or better
- At least 2,000 hospitals at work on every intervention (53% committed to the Board Intervention)
- Nodes in all 50 states (69 in total) and 200 mentor hospitals
- Outstanding national call attendance (250-500 lines/call), and more than 50,000 downloads of intervention kits
- Increased action in rural, pediatric, public affinity groups
- 50 million new media impressions
- Large national learning events (e.g., Fall Harvest)

An International Network of Networks?



National Reductions in Mortality and Harm

- All-cause mortality in Medicare beneficiaries dropped almost 5% from 2004 to 2006 (HealthGrades);
- Failure to rescue improved by more than 11% (HealthGrades)
- Steady reductions in VAPs and CLIs (CDC)

ACHE Annual Top 3 Survey

Top Issues Confronting Hospitals

<i>Issue</i>	2003	2004	2005	2006
Financial challenges	73%	71%	67%	72%
Physician/hospital relations	26%	32%	33%	40%
Care for the uninsured	26%	36%	35%	37%
Quality	17%	18%	23%	29%
Patient safety	9%	16%	20%	27%
Governmental mandates	18%	19%	16%	23%
Patient satisfaction	7%	13%	18%	16%
Capacity	28%	16%	17%	11%
Malpractice insurance	24%	25%	11%	3%

What Is Possible

- 150 New Jersey health care facilities reduced pressure ulcers by 70%
- Rhode Island reported a 42% decrease in Central Line-Associated Bloodstream Infections (2006-2007)
- More than 65 Campaign hospitals report going more than a year without a ventilator-associated pneumonia in at least one unit; more than 35 report going a year without a central line infection
- 60% fewer VAPs than expected and 66% fewer CLIs than expected in The Beacon Collaborative (2006/2007)
- Drops in adverse event rates of 51%-75% in four Safer Patients Initiative hospitals

Defects Abound

- 45% of needed care is not received
- 22% of chronically ill adults report a “serious error” in their care
- 74% of chronically ill adults say the system needs “fundamental change” or “complete rebuilding
- Case-mix adjusted hospital death rates vary 400%
- Resource use in the last six months of life varies >500% among 77 top-rated US hospitals
- There are about 240,000 preventable in-hospital deaths per year

Sources: HealthGrades; McGlynn, et al; Fisher and Wennberg



A Sequence of Change

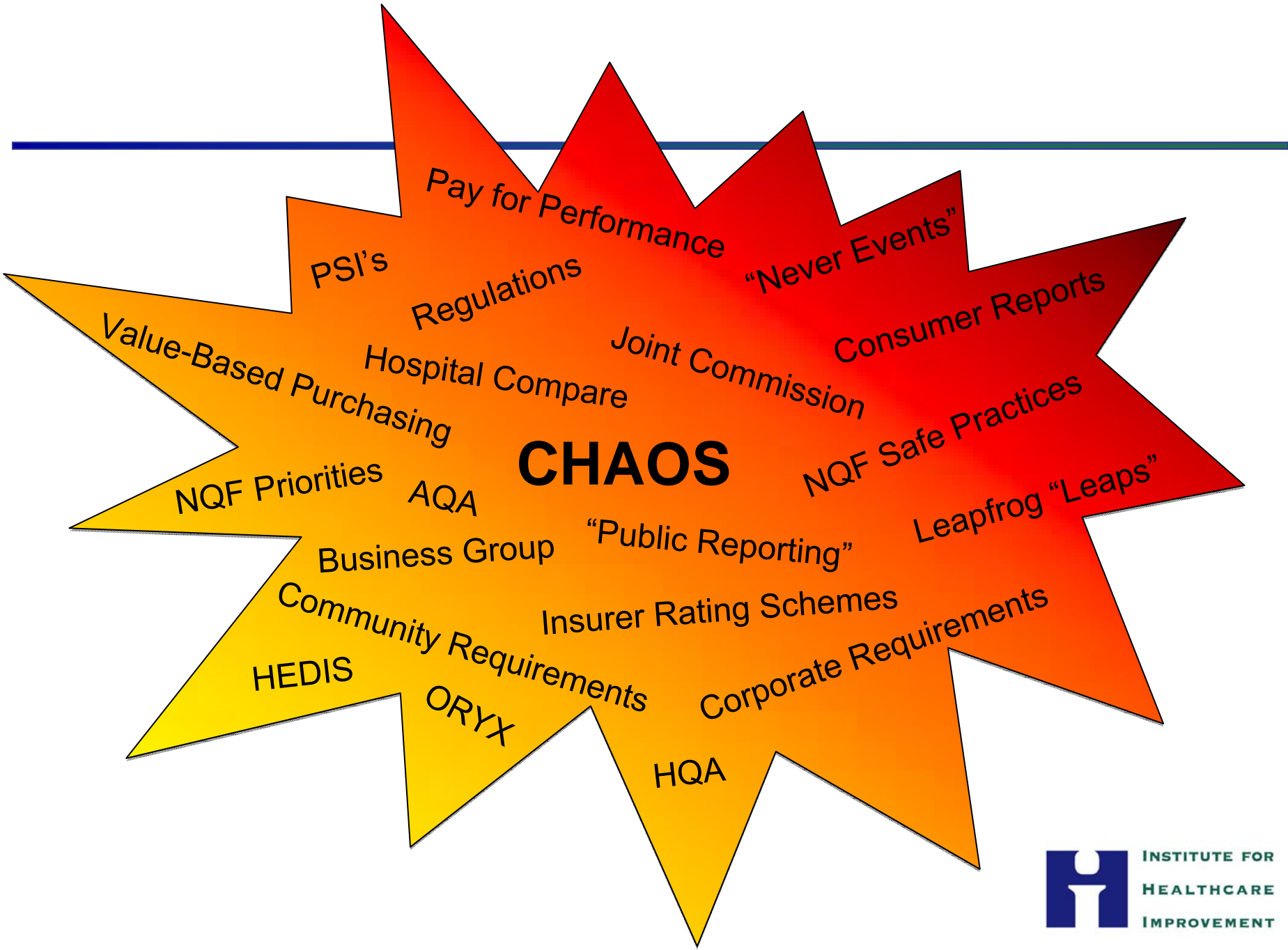
1. An innovative discovery
2. A demonstration in 50 hospitals
3. Outstanding results in 4 states
4. Interest from purchasers and payers
5. A state law in 14 states
6. A national mandate
7. A part of graduate-level training
8. An expectation and a standard
9. Confidence in ability to make change
10. More ambitious aims

IHI

i m p r o v e m e n t

map

RELIABLE ROUTES TO EXCEPTIONAL HOSPITAL CARE



Look This Way

Initiatives

Processes to Improve

PURPOSE

Mortality,
Harm,
Satisfaction,
Cost per
Case,
Equity

Clinical Care

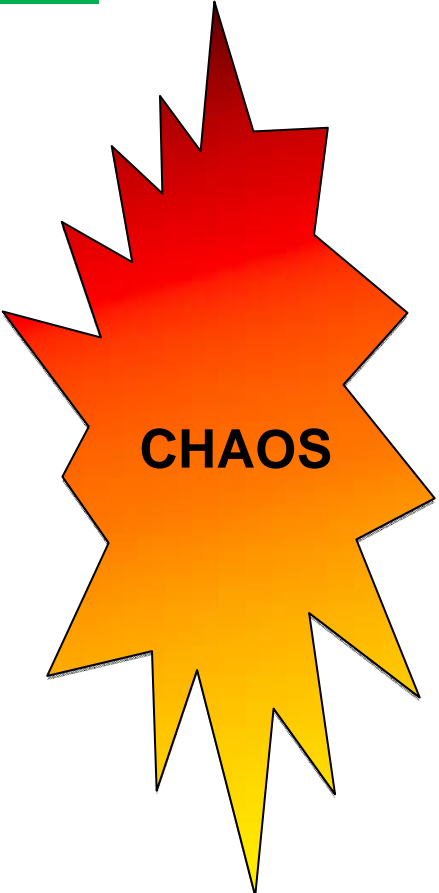
- AMI Care
-
-

Cross Cutting Support

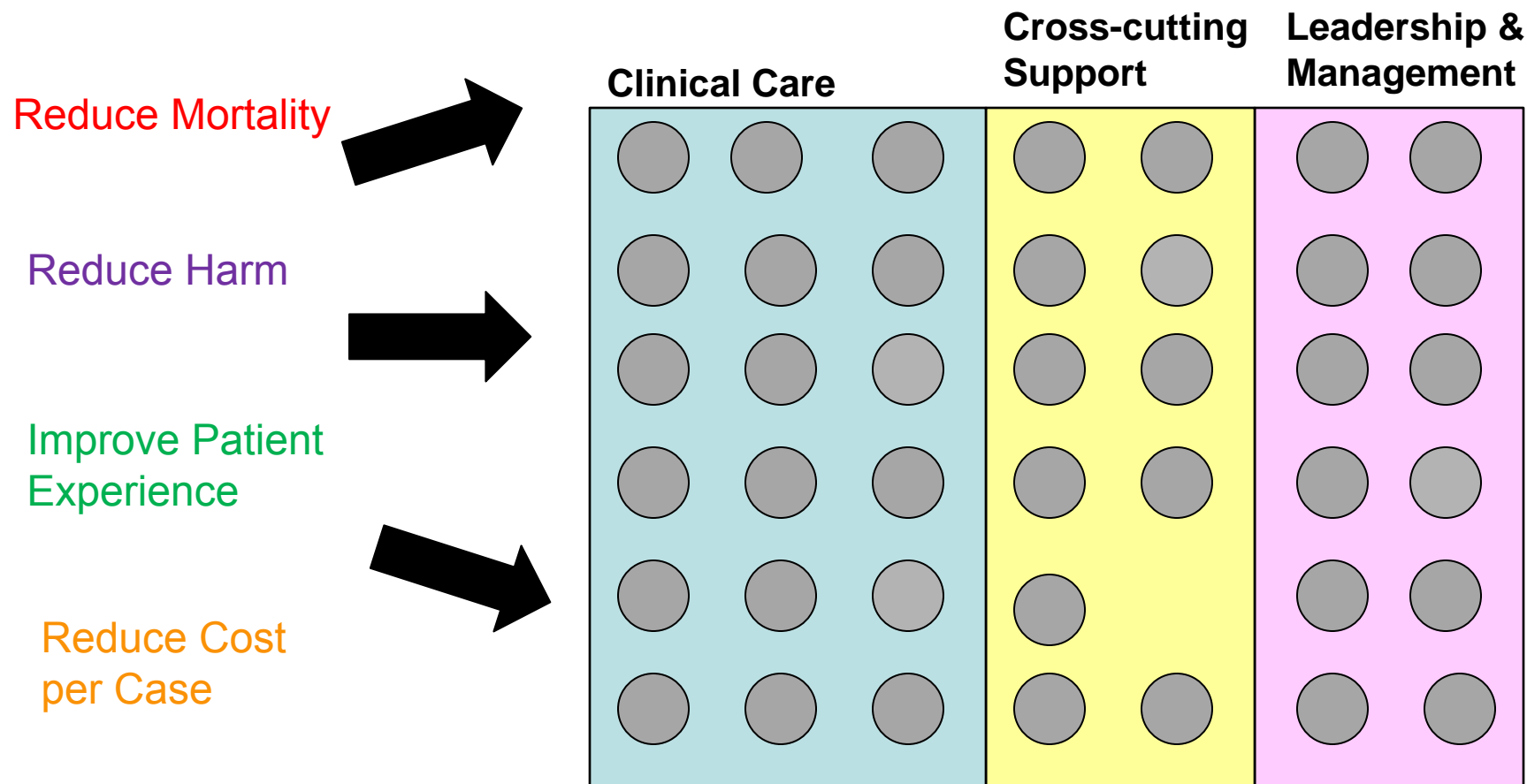
- End of Life Care
- High Hazard medications
- Reliable Lab Processes
-

Leadership and Management

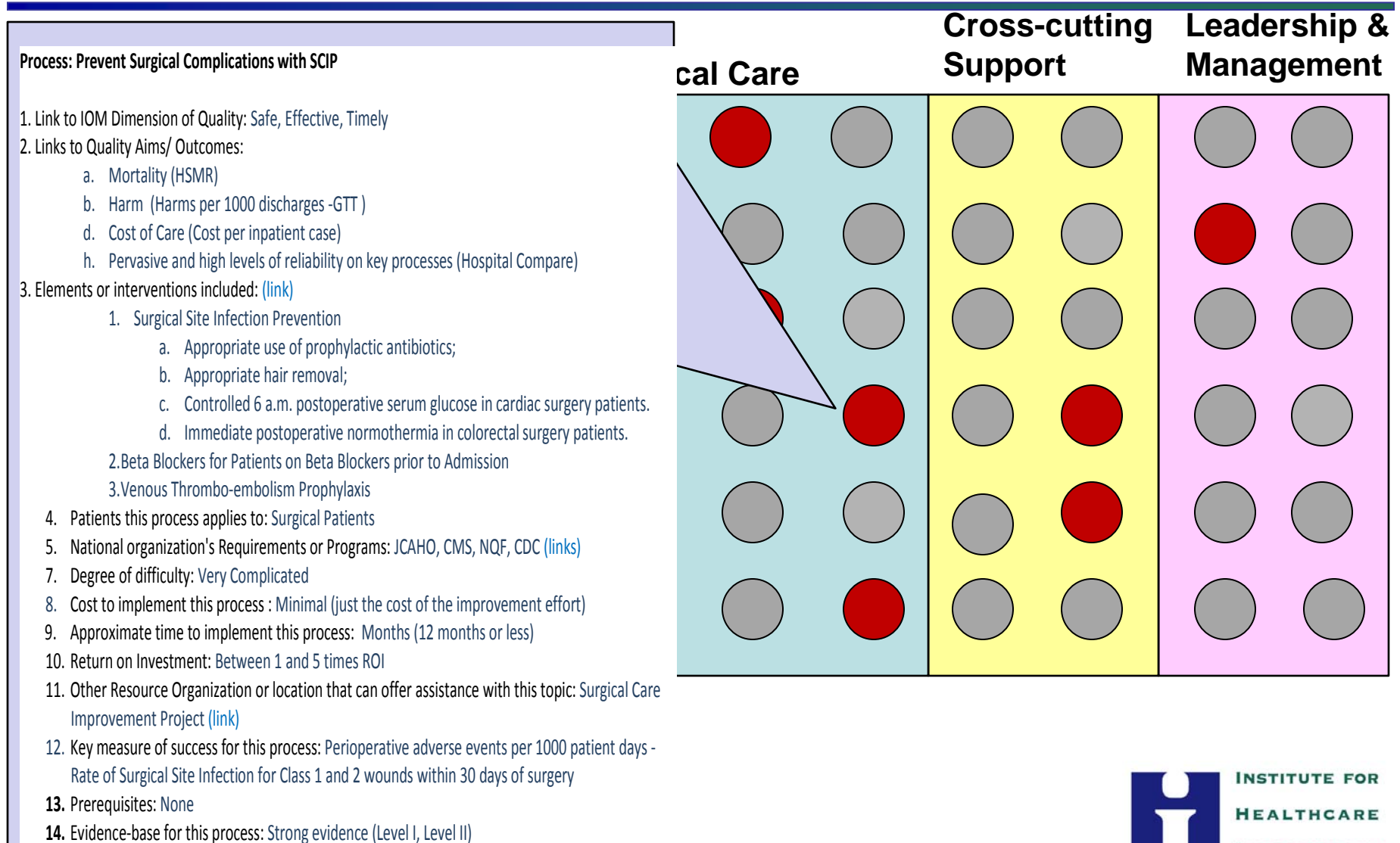
- Boards on Board
-
- Time in Patient Care
-



IHI Improvement Map



IHI Improvement Map



Entry Points

- How-to guides, tools and introductory calls at no cost
- Virtual membership with unlimited access to Expeditions and conference call series, affinity groups, courses and video-based resources at a lower price point
- Smaller, ambitious community of facilities pursuing organization-wide change
- (Leadership Community and Collaboratives)

Available Resources

- Getting-started kits (how-to guides, tips and tricks, bibliographies, measure definitions, alignment grids)
- National conference calls (recorded)
- Local learning opportunities (through “nodes”)
- Thousands of other hospitals in the U.S. *and abroad*
- More than 200 mentor hospitals

An Industry in Crisis

- Employers looking to cut costs are passing more responsibility for health care benefits to their employees
- Government organizations are cutting benefits for their program members
- Care-seeking patterns are changing as patients delay care for reasons of cost
 - AHA November 2008 survey: 51% of hospitals saw an increase in uncompensated care
 - Georgia and New Jersey Hospital Associations 2009 surveys: Over 50% of hospitals saw a decrease in elective admissions

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An Industry in Crisis

- New competition
 - Overseas health providers:
 - Represent 50-90% cost savings
 - 25% annual growth in recent years
 - Retail clinics
 - 30% growth in the number of sites in 2008
 - Supporting organizations include Blue Cross Blue Shield of Minnesota, Black & Decker Corporation, Chicago Sun-Times

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Changing Political Environment

- Increased political will
 - Baucus and Grassley bill linking Medicare payments and quality
 - Obama administration prioritizing health reform
- Growing support of private organizations
 - Twenty-nine member National Priorities Partnership released nine waste reduction targets

Waste Reduction Targets for National Priorities Partnership*

*A partnership between the National Quality Forum and 28 other organizations

- **Inappropriate medication use**

Targeting inappropriate antibiotic use and polypharmacy (for multiple chronic conditions; of antipsychotics).

- **Unnecessary laboratory tests**

Targeting panels (e.g., thyroid, SMA 20), special testing (e.g., Lyme Disease with regional considerations).

- **Unwarranted maternity care interventions**

Targeting unwarranted cesarean section.

- **Unwarranted diagnostic procedures**

Targeting cardiac computed tomography (non-invasive coronary angiography and coronary calcium scoring), lumbar spine MRI prior to conservative therapy, without red flags, uncomplicated chest/thorax CT screening, bone or joint x-ray prior to conservative therapy, without red flags, chest x-ray, preoperative, on admission, or routine monitoring, endoscopy.

- **Unwarranted procedures**

Targeting spine surgery, percutaneous transluminal coronary angioplasty (PTCA)/Stent, knee/hip replacement, coronary artery bypass graft (CABG), hysterectomy, prostatectomy.

- **Unnecessary consultations**

- **Preventable emergency department visits and hospitalizations**

Targeting potentially preventable emergency department visits, hospital admissions lasting less than 24 hours, and ambulatory care sensitive conditions.

- **Inappropriate non-palliative services at end of life**

Targeting chemotherapy in the last 14 days of life, inappropriate interventional procedures, and more than one ED visit in the last 30 days of life.

- **Potentially harmful preventive services with no benefit**

Targeting BRCA mutation testing for breast and ovarian cancer – female, low risk, CHD: Screening using ECG, ETT, EBCT – adults, low risk, carotid artery stenosis screening – general adult population, cervical cancer screening – female over 65, average risk; female, post-hysterectomy, prostate cancer screening – male over 75 (from the U.S. Preventive Services Task Force D Recommendations List).



What is Our Theory on How National Change Will Occur?

- Alignment?
- Joint support?
- Coordinated regulations?
- Shared infrastructure (e.g., videoconference)?
- Pay for performance?
- Collaboration?

True Definition of Quality (Deming)

$$\text{Quality} = \frac{\text{Results of Work Efforts}}{\text{Total costs}}$$

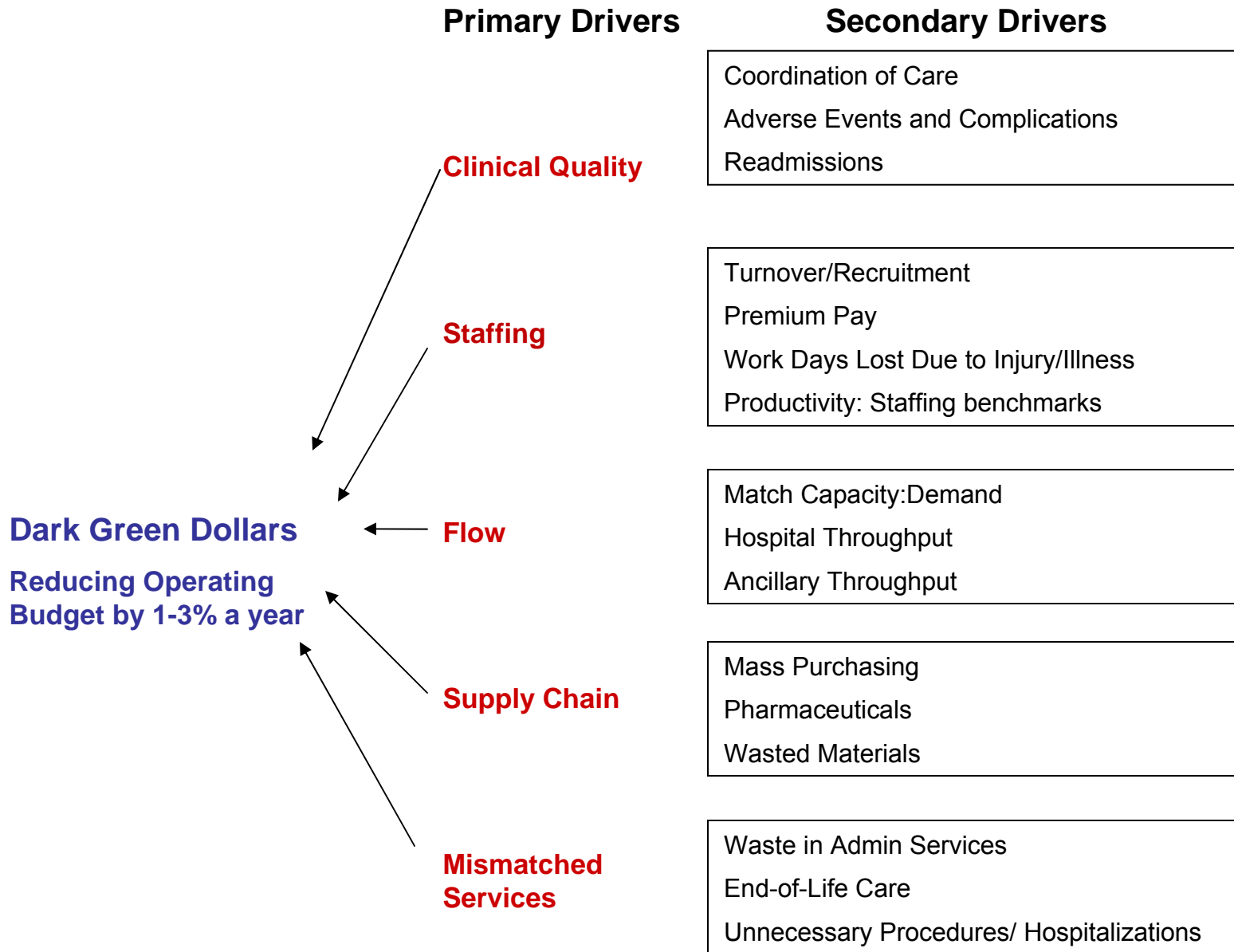
Framework for Moving Forward

Noriaki Kano's Three Levers for Improving Value

Historic focus in healthcare

- 1** Eliminate quality problems that arise because customers' (patients') expectations are not met **HIGH**
- 2** Reduce costs (waste) significantly while maintaining or improving quality **VERY LOW**
- 3** Expand customers' (patients') expectations by providing products and services (care delivery) perceived as unusually high in value **VERY HIGH**

IHI's Framework for Achieving Dark Green Dollars



Primary Drivers and Examples of Cost Savings

- **Clinical quality problems:** Colorado non-profit system saved \$295,000 in one year by reducing rehospitalization rate by 3.5%
- **Staffing:** Each nurse turnover costs \$48,258-\$73,538
- **Flow:** Intermountain Healthcare optimized its ICUs and saved \$5.5 million system-wide annually
- **Supply chain:** St. Joseph Regional Health Center saved \$100,000 by eliminating one device
- **Mismatched services:** 500-bed academic medical center saved by \$10.5 million by matching Accounts Receivable to industry benchmarks



Kano 1

*Eliminate quality problems that
arise because customers'
(patients') expectations are not
met*

Kano 1

- Primary driver – Clinical quality problems
- Marks of success
 - Measure patient satisfaction and share common defects data
 - Offer staff training and support
 - Provide financial analysis tools
 - Track improvements' effects on bottom line

Losses Attributable to CLABs in Two ICUs at Hospital of the University of Pennsylvania

- Average Payments: \$64,894
- Average Expense: \$91,733
- Average Loss from Operations: -\$26,839
- Total Loss from Operations: -\$1,449,306
- In only 4 cases the hospital made money
- The cost of the additional care averaged 43% of the total costs of care.
- Average LOS: 28 days (7-137)
- Only three patients were discharged to home.

Hospital of the University of Pennsylvania

Reduction in HAI in CCU/MICU:

Return on Investment

- Total Operating Improvements
 - CLAB= \$1,235,765 (2 years)
 - VAP= \$1,003,162 (1 year)
 - MRSA= \$ 295,342 (1 year)
- Highmark PFP = \$3,100,000 (2 years)
- HAI elimination Initiatives = +\$5,634,269
- Investment = \$85,607
- 388 additional ICU admissions
- 57 lives saved



Kano 2

*Reduce costs (waste) significantly
while maintaining or improving
quality*

Kano 2

- Primary drivers
 - Staffing
 - Flow
 - Supply Chain
 - Mismatched Services

Kano 2

- Barriers to improvement
 - Complexity of delivery process
 - Lack of clarity on cost
 - Misalignment of incentives
 - Frustration at previous failures
 - Absence of teamwork
 - Lack of tools to address and track waste
 - Competing priorities

Kano 2

- Marks of success
 - Link waste reduction with operational and financial systems
 - Understand hospital operations
 - Outline overall savings potential
 - Identify areas not subject to waste removal
 - Set waste reduction goals for all areas
 - Track dark green dollars

Reducing Cost while Improving Quality

- Intermountain Healthcare
 - 60% reduction in ventilator time
 - Resulted in a 30% reduction in thoracic ICU length of stay
 - 15% reduction in the total costs of performing open-heart surgery
 - ~\$3,000 per patient; or net of \$5.5 million per year, system-wide
- Washington Hospital Center
 - Reduced turnaround for blood test results from 75 minutes to 46 minutes
 - Able to leave two technical positions unfilled.
 - Total savings of \$79,000 a year.



Kano 3

Expand customers' (patients') expectations by providing products and services (care delivery) perceived as unusually high in value

Kano 3

- Marks of success
 - Invest in innovation teams
 - Focus on patient- and family-centered care
 - Form multidisciplinary teams
 - “Lengthen the chain”
 - Report and act on cost and quality measures

Lengthen the Chain to Reduce Length of Stay

- University of Pittsburgh Medical Center (UPMC) redesigned care for patients undergoing total joint replacement.
- New Design:
 - Pre-op testing, teaching
 - Coaching meetings with other patients
 - Pre-surgery discharge planning
 - Strong focus on complete pain management
 - “Wellness” design in orthopedics unit

UPMC Results

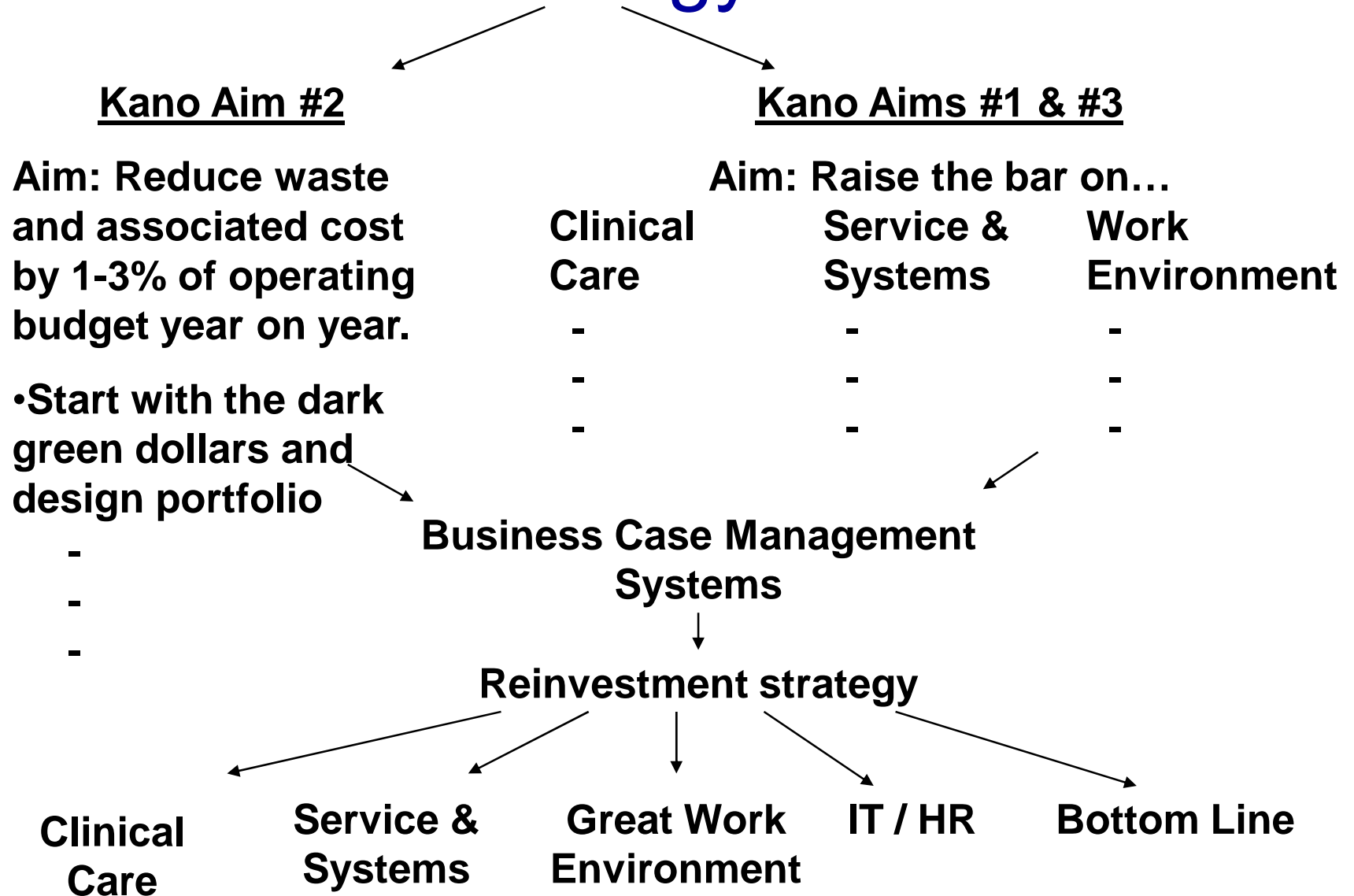
- Average length of stay:
 - 2.8 days for TKA (national average is 3.9 days)
 - 2.7 days for THA (national average is 5.0 days)
- Mortality rates: 0.1% (0.2% for TKA and 0% for THA)
- Infection rates: 0.3% (0% for TKA and 1.0% for THA)
 - 91% of patients discharged without handheld assistance directly to home (national rates: 23-29%)



Moving Toward Action:

Next Steps for the Financial Team

A Balanced Strategy of Initiatives



Linking Cost to Quality: Actions for the CFO

1. Create a waste reduction portfolio.
2. Assign a finance team member to improvement projects.
3. Know how to convert light green dollars to dark green dollars.
4. Count the savings.
5. Work with the entire Leadership Team to execute flawlessly.

1. Create a Waste Reduction Portfolio

1. Understand the Financials in Your Organization
2. Understand Your Organization's Operations
3. Outline the Overall Savings Potential
4. Identify Areas That are Not Subject to Waste Reduction and Calibrate the Goal
5. Identify Areas of Focus
6. Track the Dark Green Dollars

2. Assign a Finance Team Member to Improvement Projects

- Speak the same language: finance members need to learn quality language and quality members need to learn finance.
- Gather support from all constituents:
 - Give more than you ask for:
 - Example: An organization able to achieve a \$5 - \$6 million reduction each year
 - 20% of their improvement projects led to the vast majority of savings, the other 80% are improvement efforts that are considered essential and build will.

3. Know How to Convert Light Green Dollars to Dark Green Dollars

- Outline the savings possible at the onset.
- Establish a measurement method upfront.
- Determine how to use savings achieved prior to starting the initiative.
- Identify areas that will not produce dark green dollars.

4. Count the Savings

- Use a tracking process to verify savings
- Three examples:
 - Using a formula to track “dark green dollars”
 - Use a matched case study to identify “dark green dollars”
 - Use a tool from outside of health care to identify “dark green dollars”

Example: Use Formulas

- Divide the primary outcome into components to break the effort into parts.
 - Note that the components are not empirically derived or evidence based. They are arithmetic; by definition movement in the components provides movement in the outcome.
- Example:
 - Total wages / admission = (Average wage/hour) x (Worked hours/patient day) x (Patient days/admission)
 - Total medication costs / admission = (Average cost/dose) x (Number of doses/admission)

Example: Formulas

Total Wages/ Admission	Average Wage / Hour	Worked Hours / Patient Day	Patient Days / Admission
	<p>“The costs associated with recurring and training new nurses to fill vacant positions.”</p> <p>Primary Driver: Staffing Secondary Driver: Turnover/ Recruitment</p>	<p>“Inappropriate staff time in the ICU because a patient is unable to be discharged to a lower-acuity unit due to problems with the discharge of patients from these units.”</p> <p>Primary Driver: Flow Secondary Driver: Hospital Throughput</p>	<p>“Excess patient days because of delays in discharge because of poor coordination of the processes associated with discharge.”</p> <p>Primary Driver: Clinical Quality Problems Secondary Driver: Coordination of Care</p>

Example: Formulas

Total Medication Costs / Admission	Average Cost / Dose	Number of Doses / Admission
	<p>“Excess cost of brand medications when generics are available.”</p> <p>Primary Driver: Supply Chain</p> <p>Secondary Driver: Pharmaceuticals</p>	<p>“Excess cost associated with failure to stop medications appropriately (for example, continuing prophylactic use of antibiotics for longer than 24 hours after surgery).”</p> <p>Primary Driver: Supply Chain</p> <p>Secondary Driver: Wasted Materials</p>

Example: Use a Matched Case Study

Cost savings from a decrease of surgical site infections (SSIs)

	Aggregate 16 Patients		Average per Case (n=16)	
	Hospital Days	Costs	ALOS	Costs
Pre-SSI	74	\$376,863	4.6	\$23,554
Post-SSI	166	\$466,436	10.4	\$29,152
Total-SSI	240	\$843,299	15.0	\$52,706
Total-Match	70	\$406,692	4.4	\$25,418
Total Difference	170	\$436,607	10.6	\$27,288
% Difference	243%	107%	243%	107%

Example: Use a Tool from Outside of Health Care

Sigma-Aldrich Savings Tracker Worksheet

Savings Tracker Worksheet: Hospital Flow Example

(Adapted from Sigma Aldrich Process Improvement Savings Worksheet)

Step 1: Department:

Location:

Currency:

Prepared by:

Step 2. Select Reporting Month ==>		Step 4			Step 5				Step 6				Run Rate + Productivity Savings	
1/31/2006		FY2004	FY2005	2005	Adj. for Annual Wage Increase			Productivity/Volume Measure Adj.						
Step 3. Select account where savings occurred	Account Code	YTD Actual	YTD Actual	Savings	Wage Incr %	Wage Adj. to Savings	2005 Adjusted	2005 Savings	FY 2004 Volume	FY 2005 Volume	Volume Factor	2005 Savings		
not applicable	N/A	18450000	18545875	-95875		0	18545875	-95875	12929	14018	1.08	1554030	1458155	
not applicable	N/A	0	0	0	0	0	0	0	0	0	0	0	0	
not applicable	N/A	0	0	0	0	0	0	0	0	0	0	0	0	
not applicable	N/A	0	0	0	0	0	0	0	0	0	0	0	0	
not applicable	N/A	0	0	0	0	0	0	0	0	0	0	0	0	
not applicable	N/A	0	0	0	0	0	0	0	0	0	0	0	0	
		Total Actual Savings		\$ (95,875)	Total Run-rate Savings			\$ (95,875)	Total Productivity Savings				\$ 1,554,030	\$ 1,458,155

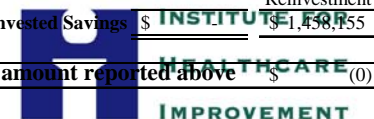
Step 7. Process Improvement Savings Detail

List/Describe Major Improvements or Changes	YTD Savings Contribution
1 IHI Flow concepts	\$ 1,458,155
2	
3	
4	
5	-
6	-
7	-
8	-
Total Estimate YTD Savings	\$ 1,458,155

Step 8. Savings Reinvested or Lost

List/Describe Major Reinvestments or Lost Savings	YTD Reinvestment Amount
1	
2	-
3	-
4	-
5	-
6	-
7	-
8	-
Total Estimate YTD Lost or Reinvested Savings	\$ 1,458,155

Difference from amount reported above \$ (0)



Example: Tool from Outside of Health Care

Cost per Bed Turn

	Adjusted Turns	Actual Turns	Beds	Total Paid Hours	Paid Hours per Actual Turn	Cost per Actual Turn
FY 2004	89	60.7	213	738,000	57.1	\$1,425
FY 2005	96.7	65.2	215	741,835	52.9	\$1,313

Were “Dark Green Dollars” achieved?

Savings Tracker Worksheet: Hospital Flow Example

(Adapted from Sigma Aldrich Process Improvement Savings Worksheet)

Step 1: Department:
 Location:
 Currency:
 Prepared by:

Step 2. Select Reporting Month ==>		Step 4			Step 5				Step 6				Run Rate + Productivity Savings	
1/31/2006		FY2004	FY2005	2005	Adj. for Annual Wage Increase			2005	Productivity/Volume Measure Adj.			2005		
Step 3. Select account where savings occurred	Account Code	YTD Actual	YTD Actual	Savings	Wage Incr %	Wage Adj. to Savings	2005 Adjusted	Savings	FY 2004 Volume	FY 2005 Volume	Volume Factor	Savings		
not applicable	N/A	18450000	18545875	-95875			0	18545875	-95875	12929	14018	1.08	1554030	1458155
not applicable	N/A	0	0	0	0		0	0	0	0	0	0	0	0
not applicable	N/A	0	0	0	0		0	0	0	0	0	0	0	0
not applicable	N/A	0	0	0	0		0	0	0	0	0	0	0	0
not applicable	N/A	0	0	0	0		0	0	0	0	0	0	0	0
not applicable	N/A	0	0	0	0		0	0	0	0	0	0	0	0
		Total Actual Savings		\$ (95,875)	Total Run-rate Savings				\$ (95,875)	Total Productivity Savings			\$ 1,554,030	\$ 1,458,155

Step 7. Process Improvement Savings Detail

List/Describe Major Improvements or Changes	YTD Savings Contribution
1 IHI Flow concepts	\$ 1,458,155
2	
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5	-
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7	-
8	-
Total Estimate YTD Savings	\$ 1,458,155

Step 8. Savings Reinvested or Lost

List/Describe Major Reinvestments or Lost Savings	YTD Reinvestment Amount
1	
2	-
3	-
4	-
5	-
6	-
7	-
8	-
Total Estimate YTD Lost or Reinvested Savings	-
	YTD Savings
	Less
	Reinvestment
	\$ 1,458,155
Difference from amount reported above	\$ (0)

\$1,458,155 in “dark green dollars”

5. Execute Flawlessly

- Use the Model for Improvement.
- Reset the rhythm of testing.
- Focus changes and provide tight feedback loops.

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