What We Achieved in the 100k Lives Campaign

William A. Conway, M.D.
Senior Vice President and Chief Quality Officer
Henry Ford Health System
Chief Medical Officer, Henry Ford Hospital
Objectives 目的

- Global interest in Health Care Safety
  - 医療安全のグローバルな関心
- The Henry Ford Experience
  - ヘンリーフォードにおける経験
- Tips for rapid improvement
  - 速やかな改善のための秘訣
Fast and dramatic improvement in safety is possible.

医療安全における速やかで劇的な改善は可能である。
The Beginning of the Change in the Health Care Environment:

In 1999 - “To Err is Human” “人は誰でも間違える”
(Institute of Medicine) (米国医学研究所)

- Described a fragmented health care system prone to errors and detrimental to the goal of safe patient care.

- Up to 100,000 people die each year from medical error
  - More people die from medical errors than from breast cancer, or AIDS or motor vehicle accidents
The U.S. Reaction
米国における反応

- Hospitals collaborate to improve
  - 病院は状況を改善するために協力した
- Multiple regulatory rules
  - 複数の規制に関する法規
- Public performance reports
  - パフォーマンスの公表
- Many news media reports
  - 数々のニュースやメディアによるレポート
When Bad Medicine Happens to Good People

“If pilots make mistakes, they go down with the plane. In medicine we don’t have that kind of personal incentive.”

Don’t Let It Happen to You

“Everyone was reluctant to disturb the chief doctor at home because they were afraid he’d get angry.”

Lewis Blackman at age 13, two years before he died from the side effects of a painkiller, which hospital residents ignored.
Hospital error blamed for more infant Heparin overdoses

By Scott Allen, Globe Staff | July 27, 2004

In-hospital errors kill thousands in U.S., but go unreported in New Hampshire

By NANCY WEST
The Union Leader
updated 1:18 a.m. ET, Sun., Oct. 12, 2008

How a hospital failed a boy who didn’t have to die
by JOHN MONK
## 2009 Hospital Quality Ratings: Prostatectomy

<table>
<thead>
<tr>
<th>Hospital Name</th>
<th>Location</th>
<th>Major Complications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High Volume Hospitals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Henry Ford Hospital</td>
<td>Detroit, MI</td>
<td>★★★★★★★</td>
</tr>
<tr>
<td>Sinai Grace Hospital</td>
<td>Detroit, MI</td>
<td>★★★★★★</td>
</tr>
<tr>
<td>Harper University Hospital</td>
<td>Detroit, MI</td>
<td>★★★★★★</td>
</tr>
<tr>
<td>Saint John Hospital &amp; Medical Center</td>
<td>Detroit, MI</td>
<td>★★★★★★</td>
</tr>
<tr>
<td><strong>Low Volume Hospitals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There are no low volume hospitals in this area</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Report on Hospital Performance

within 20 miles of Detroit, MI

## Table: Hospital Performance Summary

<table>
<thead>
<tr>
<th>Name</th>
<th>Heart Attack</th>
<th>Heart Failure</th>
<th>Pneumonia</th>
<th>Infection Prevention</th>
<th>Mortality</th>
<th>Safety - Process</th>
<th>Safety - Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detroit Receiving Hospital &amp; University Health Center</td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td>N/A</td>
</tr>
<tr>
<td>Henry Ford Hospital</td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
</tr>
<tr>
<td>St John Hospital &amp; Medical Center</td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
</tr>
<tr>
<td>William Beaumont Hospital</td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
<td><img src="image" alt="Score" /></td>
</tr>
</tbody>
</table>

### Legend

- **Scored in the top 25% of all hospitals for a given indicator**
- **Scored in the middle 50% of all hospitals for a given indicator**
- **Scored in the bottom 25% of all hospitals for a given indicator**

N/A indicates that a value would not be meaningful. For a hospital, it means that there were too few cases for the indicator to be meaningful, or that the hospital chose not to report the information. For a National or 7 County Average, it means that the indicator is not meaningful at that level.

© 2007 WebMD, Inc. All rights reserved.
Stimulating U.S. Hospitals to Improve
米国の病院に改善を促す方法

- Public Report
  - データ公表
- Pay Incentive
  - お金のインセンティブ
- Punish
  - 処分
- Improvement Collaborative
  - 改善のための共同行動
Six Changes That Saved Lives

1. Rapid Response Teams
2. Reliable Care for Acute Myocardial Infarctions
3. Reliable Use of Ventilator Associated Pneumonia bundles
4. Reliable Use of Central Venous Line Bundles
5. Surgical Site Infection Prophylaxis
6. Prevention of Adverse Drug Events with Reconciliation
3,000 Hospitals Join Collaborative (3000の病院が協力)
Results June 2006
結果 2006年6月

- 120,000 unnecessary deaths avoided each year
  - 年間12万人もの不必要な死が避けられた。

- Country wide hospital mortality dropped 5% from 2004-2006
  - 2004年から2006年にかけて、国全体の病院死亡も5％減少した。
New interventions targeted at harm

- Prevent Harm from High-Alert Medications
- Reduce Surgical Complications
- Prevent Pressure Ulcers
- Reduce Methicillin-Resistant Staphylococcus aureus (MRSA)
- Deliver Reliable, Evidence-Based Care for Congestive Heart Failure
- Get Boards on Board
Preliminary Results

150 New Jersey hospitals decreased pressure ulcers by 70% - ニュージャージーの150の病院では、褥瘡が70%減った。

Many hospitals report no central line or ventilator infections for a whole year. - 多くの病院が1年間、中心静脈カテーテルや人工呼吸による感染がなかったと報告した。
The Scottish Patient Safety Programme (SPSP)
Global Change: Movements Abroad

世界での活動
The Henry Ford Hospital Story
Henry Ford Hospital
ヘンリーフォード病院

- 903-bed academic medical center （903病床）
- 1,000 group practice physicians, 650 residents
- Level One Trauma Center
- Multi-Organ Transplant Institute
- 26 ambulatory care centers
- $65M research
We’re in a Blue State（民主党の州）
Michigan Hospitals
Risk Adjusted Mortality 2007
ミシガン州の病院のリスク調整死亡率（2007年）
Michigan Hospitals
Risk Adjusted Mortality 2007
ミシガン州の病院のリスク調整死亡率（2007年）
Some Changes that Reduce Mortality
死亡率を下げる変化

- Hospital acquired infections
  - 院内感染
- Rapid Response Teams
  - 緊急対応チーム
- High risk medication
  - 危険薬
- Deep venous thrombosis
  - 深部静脈血栓症
- Sepsis
  - 敗血症
Hospital Acquired Infections
The Big 5
院内感染の5大原因

- Central Venous Catheter (CVカテーテル)
- Methicillin-resistant Staphylococcus aureus (MRSA感染)
- Surgical Incision (術後傷感染)
- Ventilator Associated Pneumonia (人工呼吸器関連肺炎)
- Urinary Tract (尿路感染)
Preventing Central Line Infections Bundle

- Maximal sterile precautions
- Chlorhexidine skin antisepsis
- Catheter site care
- Prompt removal
Key Process Changes:

- A single kit with all supplies
- One care process with education
- Nurse empowered to stop procedure if any violations
What is a Bundle?

- All or Nothing Measure of Multiple Requirements.
- Central Line Placement Bundle
- All Five Requirements must be met for Bundle Measure

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Wash Hands</th>
<th>Gloves</th>
<th>CHG Prep</th>
<th>Mask &amp; Gown</th>
<th>Full Drape</th>
<th>Bundle</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No (3/5)</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes (4/5)</td>
</tr>
</tbody>
</table>

60%  80%
Results

HFH Line Placement Bundle Compliance

HFH Combined ICU Bloodstream Infection Rate

HFH Combined GPU Bloodstream Infection Rate

結果
MRSA Reduction Bundle

- Nasal swab all ICU admissions
- Rapid polymerase chain reaction test
- Contact isolate the 23% who are carriers
- Handwashing Campaign
- Special cleaning
- No shared equipment
### HFW MRSA

<table>
<thead>
<tr>
<th>Variable</th>
<th>Control Period</th>
<th>Intervention Period</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>New MRSA Carrier from ICU</td>
<td>0.70</td>
<td>0.42</td>
<td>0.37</td>
</tr>
<tr>
<td>Hospital-wide MRSA Infections</td>
<td>0.63</td>
<td>0.31</td>
<td>0.02*</td>
</tr>
</tbody>
</table>

*Statistically significant, P < 0.05
**Infections are per 1,000 days

#### Combined ICU MRSA Monthly Report

![Graph showing monthly report of MRSA transmissions per 100 patient days from January 2008 to September 2008.](image)
Handwashing  手洗い
“Health care’s dirty secret”

- Frequent reminders
  - Screen savers
  - Tent cards
- Observational audits with report by unit and specialty
- Alcohol dispensers everywhere
Proper hand hygiene is the single best way to prevent the spread of infection.
Please wash your hands with soap and water or use alcohol-based hand sanitizer.
What is the #1 way to prevent the spread of infection and disease?
Proper hand hygiene.
Handwashing Audits
手洗いの観察評価

Good

Handwashing Audits

<table>
<thead>
<tr>
<th>Year</th>
<th>HFH</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>06 Q2</td>
<td>20%</td>
<td>80%</td>
</tr>
<tr>
<td>06 Q3</td>
<td>30%</td>
<td>80%</td>
</tr>
<tr>
<td>06 Q4</td>
<td>40%</td>
<td>80%</td>
</tr>
<tr>
<td>07 Q1</td>
<td>50%</td>
<td>80%</td>
</tr>
<tr>
<td>07 Q2</td>
<td>60%</td>
<td>80%</td>
</tr>
<tr>
<td>07 Q3</td>
<td>70%</td>
<td>80%</td>
</tr>
<tr>
<td>07 Q4</td>
<td>80%</td>
<td>80%</td>
</tr>
<tr>
<td>08 Q1</td>
<td>90%</td>
<td>80%</td>
</tr>
<tr>
<td>08 Q2</td>
<td>100%</td>
<td>80%</td>
</tr>
<tr>
<td>08 Q3</td>
<td>90%</td>
<td>80%</td>
</tr>
</tbody>
</table>
Rapid Response Team
緊急対応チーム

- Development of physiology criteria to guide calls
- Respectful and experienced critical care nurses
- Collaborate with unit staff and residents
- Call on others when help is needed
Henry Ford Hospital Percent of No Pulse Blue Alerts Outside the ICU
Does Improving Safety Save Money?
安全にすることで、お金を節約できるか？

<table>
<thead>
<tr>
<th>IMPROVEMENT</th>
<th>COST</th>
<th>SAVINGS</th>
<th>NET</th>
</tr>
</thead>
<tbody>
<tr>
<td>SURGICAL INFECTIONS</td>
<td>($110,000)</td>
<td>$540,000</td>
<td>$430,000</td>
</tr>
<tr>
<td>BLOODSTREAM INFECTIONS</td>
<td>($22,500)</td>
<td>$4,780,000</td>
<td>$4,757,500</td>
</tr>
<tr>
<td>VENTILATOR PNEUMONIAS</td>
<td>($0)</td>
<td>$1,166,400</td>
<td>$1,166,400</td>
</tr>
<tr>
<td>RAPID RESPONSE TEAMS</td>
<td>($390,000)</td>
<td>?</td>
<td>($390,000)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>($522,500)</td>
<td>$6,486,400</td>
<td>$5,963,900</td>
</tr>
</tbody>
</table>
103 ICUs Working on Central Line Infections:

- 82% Reduction in Mean Rate
- 1,578 Lives Saved
- 81,020 Hospital Days Saved
- Over $165,000,000 in Costs Averted
Deep Venous Thrombosis / Pulmonary Embolism
深部静脈血栓症と肺塞栓症

- Admission risk screening
- Standing orders for pneumatic leg compression or anticoagulants
- Leg compression in operating room
Key Process Change
キーとなるプロセス変化

- Every patient screened for risk
- Treatment standardized
Deep Vein Thrombosis and Pulmonary Embolism in Surgical Patients
外科患者の深部静脈血栓症と肺塞栓症
Medication Safety
薬の安全投与

- Standardize care for most dangerous drugs
  （危険薬の投与方法のスタンダード化）
  - Insulin, narcotics, anticoagulant

- Reconcile medication list for every care transition
  （転科・転院などの際に薬のリストを作成し、照合確認）
Key Process Step
キーとなるプロセスステップ

- Medical staff agree on one protocol administered by nurse and pharmacist
  - 医療スタッフ（医師ら）が看護師・薬剤師の行う1つのプロトコールに合意する。
Glucose Control （血糖コントロール）
Anticoagulation Results

抗凝固剤結果

Median Inpatient Warfarin Days = 4d per group
Sepsis Treatment Bundle
敗血症治療セット項目

- Rapid identification  -- 迅速な同定
- Antibiotics < 1 hour  -- 抗生剤を1時間以内に
- Blood lactate level  -- 血中乳酸値
- Fluid resuscitation  -- 輸液蘇生
- Monitor venous O₂ level
  -- 静脈血酸素レベルのモニター
Sepsis Key Process
敗血症キープロセス

- Nurse Educator/Process Manager
  看護師エジュケーター/プロセスマネージャー
  - Teach staff the protocol
    （スタッフにプロトコールを教える）
  - Measure and feedback performance
    （評価し、パフォーマンスにつきフィードバックを行う）
Results

HFH Sepsis Bundle Performance

Henry Ford Hospital Sepsis Mortality

Sepsis Mortality

Expected Mortality MHA
Henry Ford Hospital Unadjusted Mortality Rate

- Goal (25% Reduction)
- Aggressive Infection Control
- No Harm

Events:
- Glucose
- ICU
- RRT
- Glucose all HFH
- Sepsis
- Interrupted
- Hand Washing
- Anticoag Team

Timeline:
- 3Q03
- 4Q03
- 1Q04
- 2Q04
- 3Q04
- 4Q04
- 1Q05
- 2Q05
- 3Q05
- 4Q05
- 1Q06
- 2Q06
- 3Q06
- 4Q06
- 1Q07
- 2Q07
- 3Q07
- 4Q07
- 1Q08
- 2Q08
So How’s That Happen
では、これはどのようにしたら起こるのか
Short answer:

A Multi Year Commitment to High Performance and Execution.

高いパフォーマンスのための長年の努力・責任感と、実行
Leadership for Improvement
改善のためのリーダーシップ

1. Set Direction: Mission, Vision and Strategy
   - Make the status quo uncomfortable
   - Make the future attractive

2. Establish the Foundation
   - Reframe Operating Values
   - Build Improvement Capability
   - Prepare Personally
   - Choose and Align the Senior Team
   - Build Relationships
   - Develop Future Leaders

3. Build Will
   - Plan for Improvement
   - Set Aims/Allocate Resources (1, 5)
   - Measure System Performance (5)
   - Provide Encouragement
   - Make Financial Linkages
   - Learn Subject Matter

4. Generate Ideas
   - Understand Organization as a System
   - Read and Scan Widely, Learning from other Industries & Disciplines
   - Benchmark to Find Ideas
   - Listen to Patients
   - Invest in Research & Development
   - Manage Knowledge

5. Execute Change
   - Develop a rational portfolio (2)
   - Use Model for Improvement for Design and Redesign (4)
   - Review and Guide Key Initiatives (5)
   - Communicate & spread results (4)
   - Sustain improved levels of performance (5)
   - Deploy resources (3)
Build Will
意志を育てよう

- Set Ambitious Aims
  - 野心的な目標を立てよう

- Coach Leaders
  - リーダーを指導しよう

- Feedback Performance
  - パフォーマンスをフィードバックしよう

- Recognition and Celebration
  - 認識して、祝福しよう

- Put patients on the Team
  - 患者をチームに入れよう
Execution of Change
変化の実行

- Plan and set priorities
  - 計画を立て、優先順位を決める
- Allocate personnel and resources
  - 人と資源を配分する
- Secure oversight
  - 監督する（できるようにする）
- Use small tests of change
  - 変化を検出できる小さなテストを行う
<table>
<thead>
<tr>
<th>Project</th>
<th>Resources and Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Senior Sponsor</strong></td>
</tr>
<tr>
<td>Cardiac Care</td>
<td>Director of Cardiac Service Line</td>
</tr>
<tr>
<td>Medical Safety</td>
<td>Chief Operating Officer</td>
</tr>
<tr>
<td>Patient Care Unit</td>
<td>Chief Operating Officer</td>
</tr>
<tr>
<td>Infection Control</td>
<td>Chief Medical Officer</td>
</tr>
<tr>
<td>Intensive Care Unit Safety</td>
<td>Chief Medical Officer</td>
</tr>
<tr>
<td>Surgery Safety</td>
<td>Director of Surgery</td>
</tr>
</tbody>
</table>
Execution of Change
変化の実行

- Plan and set priorities
  - 計画を立て、優先順位を決める
- Allocate personnel and resources
  - 人と資源を配分する
- Secure oversight
  - 監督する（できるようにする）
- Use small tests of change
  - 変化を検出できる小さなテストを行う
Create a Culture of Safety
安全文化を作ろう
Goal: To be safest health care system

- Encourage adverse event reporting and share trends widely
- Implement team communication training and communication tools
- Support staff “Speaking out”
Create a Culture of Safety
安全文化を作ろう
Goal: To be safest health care system

- Implement Just Culture
  - Balances the need to have a non-punitive learning environment with the need to hold individuals accountable for their actions
- Expect compliance with personal safe practices
- Engage patients to speak up
No Harm Improves Patient Satisfaction
有害事象がなくなることは、患者的満足度を改善する
And No Harm is Good Business
（そして病院経営にもよい）

Total Net Income (in thousands)

Year | Net Income
--- | ---
2003 | $11,750
2004 | $95,780
2005 | $112,224
2006 | $134,851
2007 | $105,774
Fast and dramatic improvement in safety is possible.

医療安全における速やかで劇的な改善は可能である。
http://www.ihi.org/ihi

Institute for Healthcare Improvement: Home - Windows Internet Explorer

File Edit View Favorites Tools Help
Links Customize Links Free Hotmail Windows Windows Marketplace Windows Media

Institute for Healthcare Improvement: Home

We invite you to be a part of a global community dedicated to improving health care for all patients.

Programs
Topics
Community
Workspace
Results
Products
About Us

20th Annual National Forum on Quality Improvement in Health Care
- Watch a video clip about the National Forum.
- Can't join in person? Join via satellite!
- With a new play starring Monk's Tony Shalhoub!
- Enroll for the National Forum.

5 Million Lives Campaign
- Thank you for joining National Network Day!
- Please complete the online evaluation.
- Go to the National Network Day page for

IHI OPEN SCHOOL
For health professionals
- What is it?
- Get involved

IMPACT
improvement/action
- Learn about IHI's network for change
- See sample results