



Cómo mejorar la calidad de atención

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Historias verdaderas



True Stories

- A term baby was born with sluggish respirations. During labor, the mother had received meperidine (Demerol, half-life 2.5-4.0 hours in adults and 12-39 hours in neonates.) The physician started resuscitation and ordered naloxone. Shortly after administration of the medication, the baby's condition began to deteriorate further.
- Prompted by the proximity of the deterioration to the administration of the naloxone, the physician checked the packaging of the drug. The syringe had inadvertently been filled with Lanoxin. The packages of both drugs, made by the same manufacturer, were almost identical. ECG revealed bi-directional ventricular tachycardia, consistent with digoxin toxicity.
- Approximately 1 hour later the baby died. A post-mortem digoxin level was 17 ng/ml - 10X the therapeutic range (0.8 to 2 ng/ml).

From the AHRQ Web M&M files



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Safe?

From the AHRQ Web M&M files



True Stories

- A previously healthy 10-month-old girl was diagnosed with iron-deficiency anemia. One of the nurses explained in broken Spanish that the child had “low blood” and needed to take a medication. The pediatrician wrote the following prescription in English:

“Fer-Gen-Sol iron, 15 mg per 0.6 ml, 1.2 ml daily (3.5 mg/kg)”

- The pharmacist attempted to demonstrate proper dosing and administration. The prescription label on the bottle was written in English. Within 15 minutes of receiving the first dose, the child vomited twice and appeared ill. In the emergency department, the serum iron level 1 hour after ingestion was 365 mcg/dL (therapeutic = 60-180 mcg/dL). Upon questioning, the parents stated that they had administered a household tablespoon of the medication, approximately 43 mg/kg (a 12.5-fold overdose).

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Equitable?

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Patient-Centered?

From the AHRQ Web M&M files



- A 75 year old man developed fever and cough while away from home at his grand-daughter's graduation, but did not get care until he returned home, breathless and hypoxic, and was hospitalized for 5 days for pneumonia. Widely accepted guidelines for CAP recommend levoquin alone, but he got levoquin and vancomycin, which causes painful phlebitis. He refused to eat, did his best not to cough, and didn't get an incentive spirometer until his wife asked for something to make him try to breathe deeply. He had a CT scan for elevated liver enzymes, the results of which were missing for 2 days. He was ready for discharge on Sunday, but his own doctor was not on call, so he stayed until Monday.



- A 75 year old man developed fever and cough while away from home at his grand-daughter's graduation, but did not get care until he returned home breathless and hypoxic, and was hospitalized for 5 days. He was given the commonly accepted guidelines for CAP recommended by the IDSA, but he got levoquin and vancomycin, which caused painful phlebitis. He refused to eat, did his best not to cough, and didn't get an incentive spirometer until his wife asked for something to make him try to breathe deeply. He had a CT scan for elevated liver enzymes, the results of which were missing for 2 days. He was ready for discharge on Sunday, but his own doctor was not on call, so he stayed until Monday.



- A 75 year old man developed fever and cough while away from home at his grand-daughter's graduation, but did not get care until he returned home breathless and hypoxic, and was hospitalized for 5 days. He was given the commonly accepted guidelines for CAP recommended by his primary care physician, but he got levofloxacin and azithromycin, which caused painful phlebitis. He was given oxygen, but he still had to cough, and didn't get an incentive spirometer. His wife asked for something to make him cough more deeply. He had a CT scan for elevated liver enzymes, but the results of which were missing for 2 days. He was ready for discharge on Sunday, but his own doctor was not on call, so he stayed until Monday.

Efficient
Efficient



•A 75 year old man developed fever and cough while away from home at his grandchild's graduation, but did not get care until he returned home. He was tachypneic and hypoxic, and was hospitalized for pneumonia. Widely accepted guidelines recommend levofloxacin, but he got levofloxacin and ampicillin, which causes painful phlebitis. He refused to eat and his best not to cough, and didn't get an incentive spirometer until his wife asked for something to breathe deeply. He had a CT scan for elevated creatinine, the results of which were missing for 2 days. He was ready for discharge on Sunday, but his own doctor was on call, so he stayed until Monday.

Efficientive

Timely?

Efficiente



•A 75 year old man developed fever and cough while away from home at his grand daughter's graduation but did not get care until he was 72 hours old unless and hypoxemic and hospitalized for pneumonia. Widely accepted guidelines for CAP recommend levofloxacin alone, but he got levofloxacin and vancomycin, which causes painful phlebitis. He refused to eat and did not cough, and did not get an incentive spirometer. He was asked to make a decision about surgery. He had a CT scan and elevated liver enzymes. Results of which were missed for 3 days. He was ready for discharge on Sunday, but his cardiologist was not on call, so he stayed until Monday.

Effective?

Timely?

Efficient?

Patient-Centered?



No, Really...How are we doing?

- Failure to provide appropriate care
- Provision of unnecessary care
- Variations in care not explained by patient characteristics
- Unacceptable rates of adverse outcomes
- Inequities by race/ethnicity



Quality of Care Received by Children & Adolescents in the US

- 242 indicators in 16 clinical areas
 - 4 preventive, 6 acute, 6 chronic
- 1,536 patients from 12 metropolitan areas
- Only 44.3% of recommended care was given:
 - Preventive 43%; Acute 48%; Chronic 45.3%
 - Diagnostic 33.8%; Treatment 67%
 - OME 64.5%; Adolescent prevention 26.1%

Mangione-Smith R, et al. PAS 2006

Variations in Care Among 14 Neonatal Centers

INTERVENTION	% OF 401-1000 GRAM INFANTS RECEIVING
High frequency ventilation	0-59%
Early indomethacin	1-75%
Phototherapy at Bili<5mg/dl	0-100%
Steroids for CLD	20-54%



Use of Non-Recommended Tests during Preventive Health Visits

- The USPSTF recommends against provision of UA, CXR and EKG for routine screening
- National data show that at least one of these tests is ordered at 43% of routine preventative care visits for adults
- Not studied in children

Merenstein D et al, Am J Prev Med 2006




How well do we follow guidelines?

Asthma guidelines in a disease management format in 20 private practices increased inhaled corticosteroid use by 47%

Asthma guidelines in ER care: only 36% of children with persistent asthma were on a controller medication

12% of child psychiatrists, 8% of Developmental/Behavioral Peds, and 9% of Child Neurologists complied with AAP clinical guidelines for management of ADHD (2012 data)



Why are you here? To improve care!

- It is the essence of clinical work to do two things:
 - Take care of patients and
 - Get better at taking care of patients*
- You would not be here if you were not committed to improving quality
- Just as you cannot just take care of patients (and not try to get better at it), you also can't just “do” Quality Improvement (QI) – you must also get better at it
- The world also needs skilled QI researchers who can use science to improve quality improvement

*Attributed to Paul Batalden



What to do?

- Do the right thing:
 - Start with the evidence
 - High quality guidelines
- Do things right:
 - Quality Improvement

Quality Improvement: It's Easier Than Rocket Science



With appreciation to Paul Miles, MD

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Quality Improvement

- Isn't just trying harder
 - Doing the same thing over and over expecting a different result is...



Quality Improvement

- Isn't just trying harder
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 - the definition of insanity!



Quality Improvement

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 - the definition of insanity!
- Usually involves changing human behavior



Quality Improvement

- Isn't just trying harder
 - Doing the same thing over and over expecting a different result is...
 - The definition of insanity!
- Usually involves changing human behavior
 - “If you want to make enemies, try to change something”
 - Woodrow Wilson



Quality Improvement

- “the combined and unceasing efforts of everyone – healthcare professionals, patients and their families, researchers, payers, planners and educators – to make changes that will lead to better patient outcomes...”
 - Paul Batalden
- QI is a team sport

Use Standard QI Methodologies

Evidence-Based Change Concepts

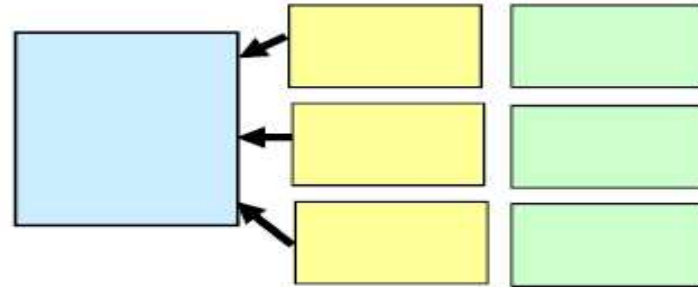
Chronic Care Self-Management

Aim Statement/Target Population

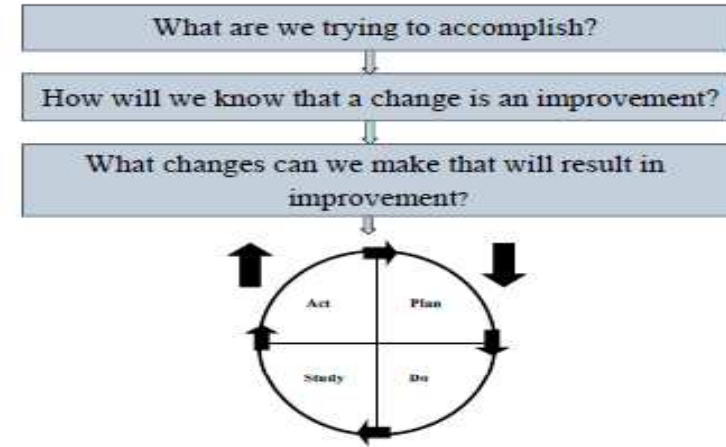
Target Users

Introduction

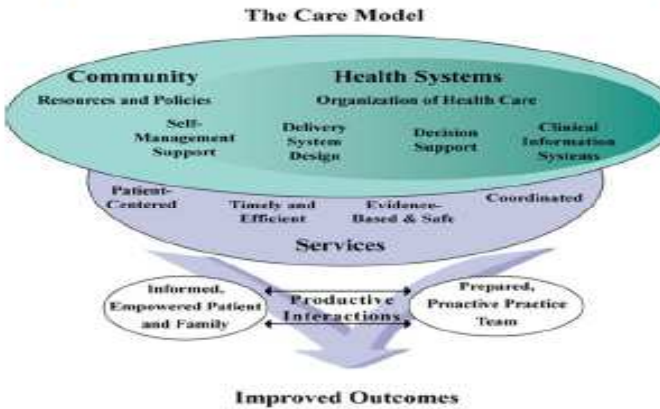
Aim - Key Drivers



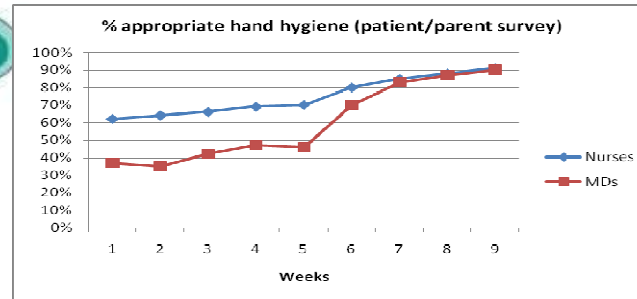
Process Change Strategy



System Change Concepts

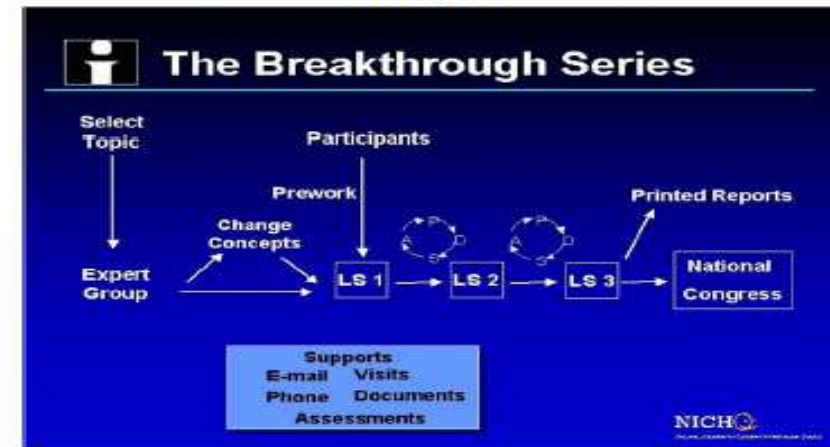


Run Chart



Adapted from Ed Wagner, MD

Learning Model





Develop Expertise

IHI Open School

Advanced Training Program(s)

- ATP
- I2S2

Certification Programs

Masters Degree in Quality

IHI.org

A resource from the Institute for Healthcare Improvement

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IHI OPEN SCHOOL

for health professions

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An interprofessional educational community giving you the skills to become a change agent in health care. [Learn more >>](#)

Meet the Students



Saranya Kurapati

! Don't Miss This

Jefferson School of Population Health

Master of Science in Healthcare Quality & Safety (MS-HQS)

Online Program

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[Course Descriptions](#) | [Online Learning at JSPH](#)

Health care in America is in crisis. There are increasing concerns regarding the cost and coordination of care, disparities in access, and the rise in chronic illnesses across all segments of the population.

Improving the quality and safety of health care is the cornerstone to overcoming many of the deficits in the healthcare system. By making health care more efficient and safer, we can improve the quality of care and the health of the population as a whole.

Jefferson's online **Master of Science in Healthcare Quality and Safety (MS-HQS)** prepares healthcare professionals in all venues of healthcare delivery to be leaders and advocates in the effort to improve healthcare quality and patient safety.

For further information about the online MS-HQS program, contact [Susan DesHarnais](#), Program Director.

MS-HQS graduates will be well-equipped to lead quality and safety improvement initiatives in:

- Hospitals
- Outpatient facilities
- Integrated delivery systems
- Health insurance organizations
- Governmental healthcare agencies
- Health policy research firms, and community-based advocacy and service organizations

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Message
David B. Nash,
Dean, JSPH



Susan DesHarnais,
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& Safety

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Health IQ
a future for



Improvement Science

- Quality improvement is a legitimate academic pursuit
 - A young science
 - Much to be learned from other sciences
 - Engineering, psychology, communications
 - Golden opportunity to break new ground
 - The clinical setting is your laboratory



The news is not all bad...



Standardizing communication and treatment of shock

- Evidence-Based Guidelines for resuscitation of patients with septic shock.
 - Brierley J, et al, Crit Care Med 2009 Vol. 37(1), 1-23.
- Early recognition of compensated shock
- Rapid initiation of early goal directed therapy
- Optimize communication handoffs between EC and PICU

Binita Patel, Section of Emergency Medicine
Eric Williams, Section of Critical Care
Baylor College of Medicine, Texas Children's Hospital



EC



PICU

Communication between the EC and PICU has been associated with occasional unpleasantness.(!)



Emergency Center

¡Te odio más!



Pediatric ICU

Standardizing communication and treatment of shock

DATE/TIME: _____ BARCODE MEASURES 1W X 3" _____
EC ORDER SET: SHOCK ERM8043A

Inclusion criteria:

- Fever (100.4°F or 38°C) or hypothermia (98°F or 36.5°C) AND
- High-risk patient, check one or more
 - Malignancy
 - Bona-marrow transplant
 - Solid-organ transplant
 - Abnormal HR beyond temperature correction (5 beats per 1°F above 100F) (see table on back) AND/OR
 - Abnormal mental status or capillary refill > 3 seconds
- If above criteria are met, activate shock protocol OR
- Patient in shock outside above criteria, physician orders initiation of protocol
- Notify EC attending physician at 6-4310 that patient is in triage or room location
- Notify charge nurse (6-4328 or 6-4326) of need for room & shock nurse/Kangaroo Crew
- Tylenol per protocol
- Procedural Pain Protocol

START TIME FOR PROTOCOL: _____

Phase 1, GOAL: 5 minutes from initiation of protocol

- Weight: _____ Allergies: _____
- Place oxygen, face mask or non-rebreather, on patient
- Place on cardiopulmonary monitor, continuous pulse oximetry
- Initiate frequent vital signs: HR, BP, RR q 15min x 1 hour, neurochecks q30min x 2 hours
- Strict I&O
- Foley catheter
- Obtain IV access (Port-a-cath: May use ethyl chloride, NO LMX)
- Call physician if no access in 5 minutes.

Phase 2, GOAL: 15 minutes from initiation of protocol

ALL fluid boluses given via PUSH/PULL or via RAPID INFUSER

- Bolus 1: Normal saline _____ mL IV (20mL/kg, **pediatric or BMT 10 mL/kg**) (max 1000mL)
- time ordered: _____ physician initials: _____ time given: _____

Antibiotic therapy (Pharmacy prepares STAT):

Zosyn to be given first. May give Zosyn and gentamicin at the same time through same line.

- Piperacillin-tazobactam (Zosyn®) _____ mg piperacillin component IV q8hr over 30 min (dose 100 mg/kg/dose q 8 hours, >40kg: 3 grams/dose, < 40mos age 80mg/kg/dose)
- Gentamicin _____ mg IV (usual dose 2.5mg/kg, max dose 120mg/dose) over 30min
- Vancomycin _____ mg IV q8hr (usual dose 15mg/kg, max 1500mg/dose) over the
- Other antibiotics (Consider coverage for resistant/atypical microbiologic organisms or nafcillin if S. Aureus suspected. DO NOT delay orders for prolonged phone consultations)

a. _____
 b. _____
 c. _____

Physician's Signature: _____ Page # _____
 Printed Name: _____

The Pharmacy & Therapeutics Committee has recommended that orders for certain intravenous drugs be written as dose per kilogram body weight. Drugs will be dispensed generically according to the policy of the Pharmacy and Therapeutics Committee unless the proprietary name is listed.

PHYSICIAN'S ORDERS

EMR 8043A

Date _____ Time _____ Allergies _____ NKDA

Weight _____ kg

O₂ Delivery _____ @ _____ LPM IV sites: #1 _____ #2 _____

INITIALS SIGNATURE & TITLE

Plot Systolic BP V Diastolic BP Δ and Heart Rate • every 15 minutes

Vital Signs	Time	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	
Resp	Temp	SpO ₂	UOP	GCS	Cap Refl	PULSES	ETCO ₂	PAWS															

IV Fluids/ Medications	Volume/ Dose	Route	Time	Initials
Bolus # 1				
Bolus # 2				
Bolus # 3				
Bolus # 4				
Zosyn®				
Gentamicin				
Vancomycin				

Suggest 2mg/kg VS (10mg for BMT & Cancer patients)

VBG pH _____ CO₂ _____ O₂ _____ BE _____ iCa _____
 ScvO₂ _____ Lactate _____ Dstick _____
 DIC PT _____ INR _____ PTT _____ Ddimer _____ Fibr _____
 Cultures sent? Blood Urine Other _____
 Ca _____
 Mg _____
 Phos _____

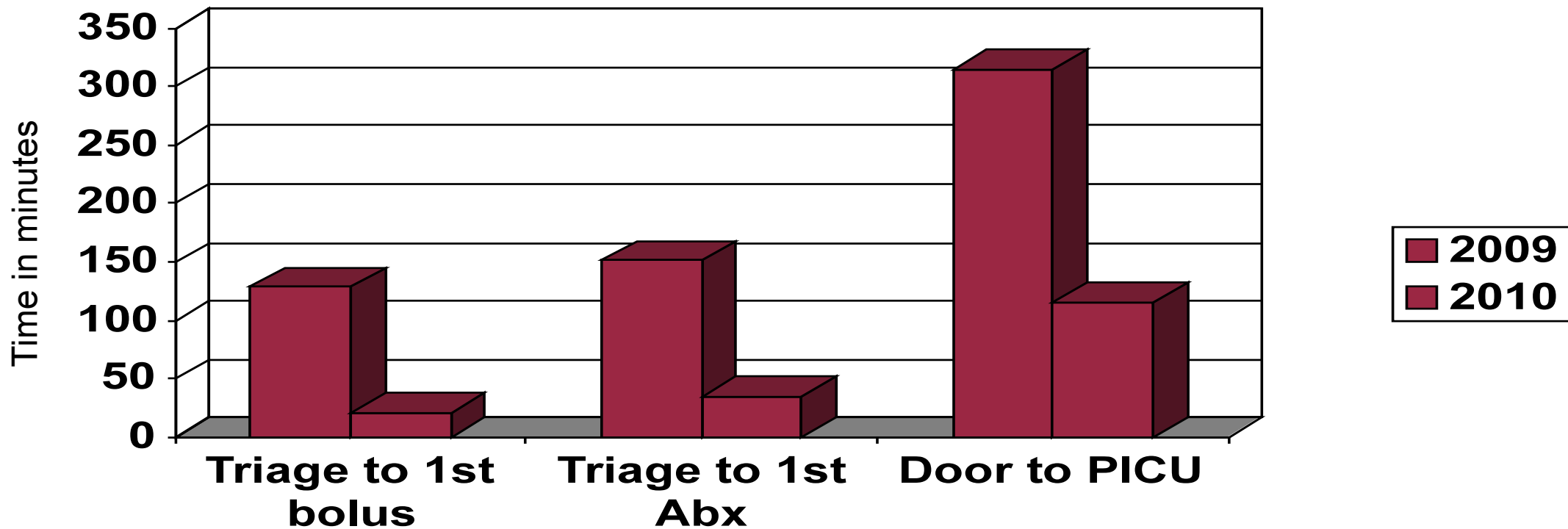
MD Summary: _____

PICU Notified: _____
 Bedside Report given: _____
 Disposition location: _____

Shock flow sheet: ERM-XXXX

Optio Label

Standardizing communication and treatment of shock



Binita Patel, Section of Emergency Medicine

Eric Williams, Section of Critical Care

Baylor College of Medicine, Texas Children's Hospital

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Barriers to translating evidence into practice

- Lack of will
 - Failure to see the problem
 - Baseline measurement (DATA) is key
- Financial disincentives
 - Time, resource use
 - In a Fee for Service world: the sicker, the better, even if we cause the problem
- Lack of skills
 - QI training, incentives



Questions?



Thank you for all you do for children!





IOM Domains of Quality

- Safe
- Effective
- Patient Centered
- Timely
- Efficient
- Equitable



A published Hand Hygiene QI effort

PEDIATRICS[®]

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Utilizing Improvement Science Methods to Improve Physician Compliance With Proper Hand Hygiene

Christine M. White, Angela M. Statile, Patrick H. Conway, Pamela J. Schoettker, Lauren G. Solan, Ndidi I. Unaka, Navjyot Vidwan, Stephen D. Warrick, Connie Yau and Beverly L. Connelly

Pediatrics 2012;129:e1042; originally published online March 5, 2012;

DOI: 10.1542/peds.2011.1864

The American Board of Pediatrics



Context

- Inpatient teaching unit at a children's hospital that is a leader in quality improvement
- Baseline physician hand hygiene rates were 65% while nurse and staff rates were >90%
- A physician led QI effort that involved residents and used third year medical students to measure compliance and to act as improvement champions



PROJECT AIM

% appropriate hand hygiene rates for physicians and staff before and after patient encounter within months from start of project

GLOBAL AIM

Eliminate preventable health care associated infections

KEY DRIVERS

Physicians and staff are aware of the importance of the problem and what can be done

Adequate supplies and processes are available to achieve desired results

QI team and processes are in place to achieve aim

INTERVENTIONS

Educational sessions on hand hygiene

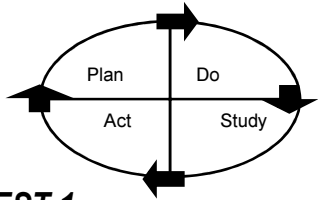
Install alcohol dispensers in appropriate locations and assure access to soap and water where appropriate

Form QI team, establish ongoing monitoring (measure process and process for documenting meaningful participation)

Key: Gray shaded = what we're working on right now

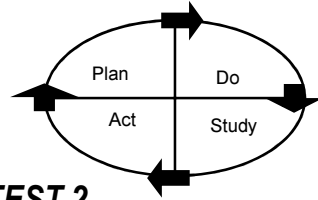
KEY DRIVER DIAGRAM

PDSA Evidence Application



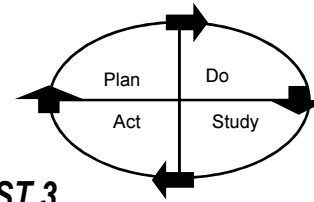
TEST 1

What: Educational session on importance of hand hygiene
 Who: All providers & staff
 Where: Practice
 When: next week
 Who executes: MD/Nurse champions
 Results: pre/post survey



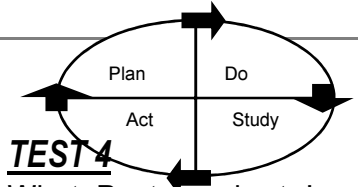
TEST 2

What: Install dispensers
 Who: all patients
 Where: outside each patient care area
 When: by end of month
 Who executes: Office manager
 Results: Dispensers installed, hand hygiene rates improved



TEST 3

What: Move dispensers
 Who (population): all patients
 Where: Inside patient care areas
 When: by end of month
 Who executes: Office manager
 Results: Dispensers moved
 Hand hygiene rates improved further

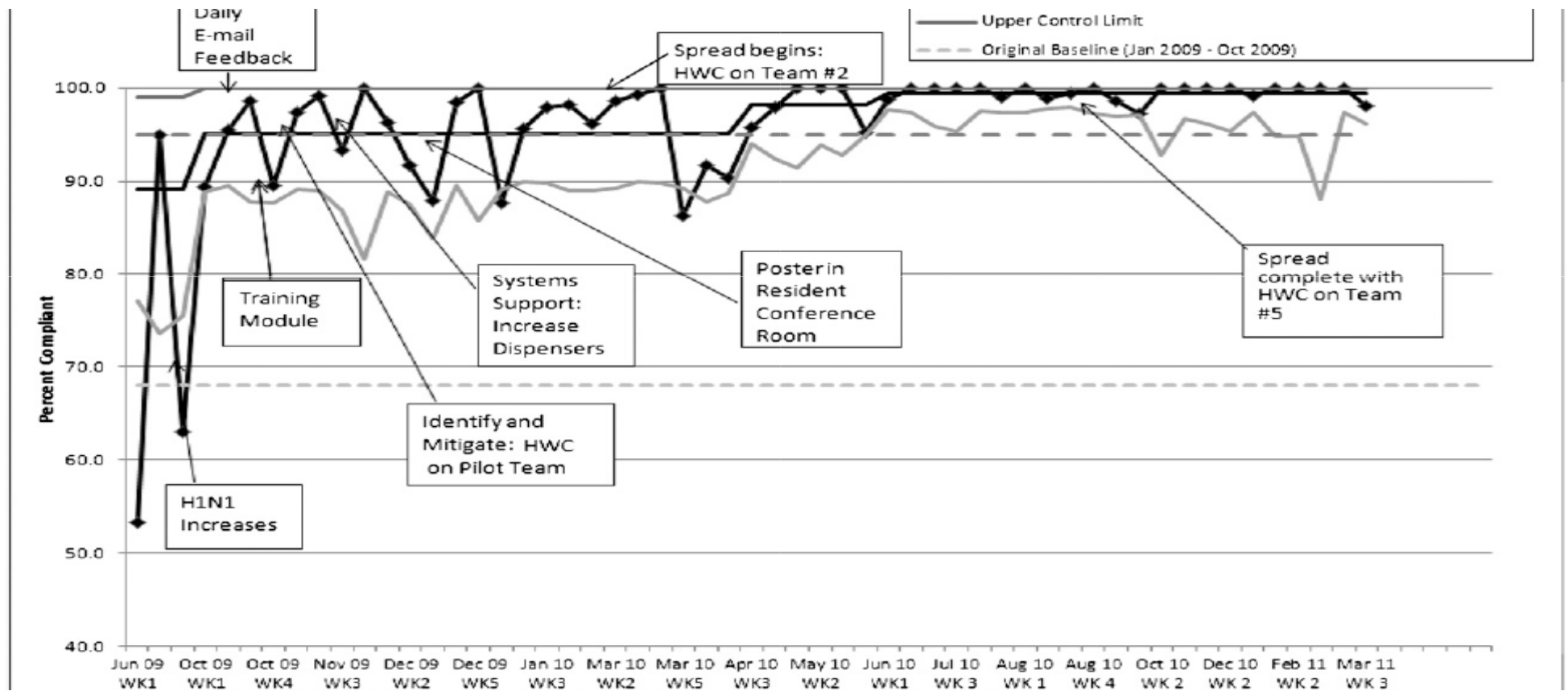


TEST 4

What: Post run chart documenting progress
 Who (population): all practice staff
 Where: Prominent clinical care area
 When: by next week
 Who executes: Nurse champion
 Results: hand hygiene rates improved further



Improvement in Physician Hand Hygiene Rates (65% to >95%)





Measurement

- Need to improve the “performance of performance measures”
 - Pronovost and Lilford
- Implied precision of measures creates a false sense of validity
- Issues with incorrect and missing data in EMR
- False negative and false positive “diagnoses” in quality of care
 - “43% of hospitals that showed higher than expected mortality by one vendor’s method had lower than expected mortality by another.”



Measurement

- Available quality measures have not been widely or consistently implemented
- Lack of robust quality measures for many important aspects of health care
- Lack of reliable, widely available quality measures for most of the things that really matter to patients
 - Experience of care
 - Functional measures
 - Ability to work, activities of daily living
- We don't have reliable and consistent information on the price and costs of care



Reporting

- SQUIRE guidelines
- For scientific studies of implementation, should be used in conjunction with other appropriate reporting guidelines (CONSORT, etc)
- Reports should include the theory on which the intervention is based, and should include the hypothesized outcomes



New theories: Thinking outside the box

- Many interventions are effective (lipid-lowering agents, rapid administration of aspirin for early MI, beta-blockers post MI) to lower cardiac mortality.
 - Effect is additive, quality can be scored by % compliance of each individually
- But if you only wash your left hand, are you 50% compliant?
- Bundling (all-or-nothing scoring) was a new conceptual model
 - Game changing



What can we (you) do?

- Develop compelling theories on which to base planned interventions
- Test theories – do their predictions bear out?
- Differentiate research approaches to early work to find candidate approaches from approaches to evaluate interventions
- Promote methodologic rigor at every level
- Incorporate other methodologies (qualitative research, chaos theory...)
- Develop new study designs that account for organizational complexity

•



What to study?

- Teamwork training
- Are collaborative networks really better?
- Transitions of care
- Care coordination
- Variations in care
- Overdiagnosis, overuse
- Whatever you **believe** with all your heart
- Measures (of practically everything)
- ...!



What you will have

- More data
- Better data
- More colleagues
 - A critical mass?
- Better training
- The patient viewpoint
- Experts from other fields
 - Human factors engineering, rhetoric, social sciences...

**“ IT AIN’T SO MUCH WHAT
WE DON’T KNOW THAT
GETS US INTO TROUBLE
AS WHAT WE DO KNOW
THAT AIN’T SO “**

•Will Rogers

•“An American cowboy philosopher”