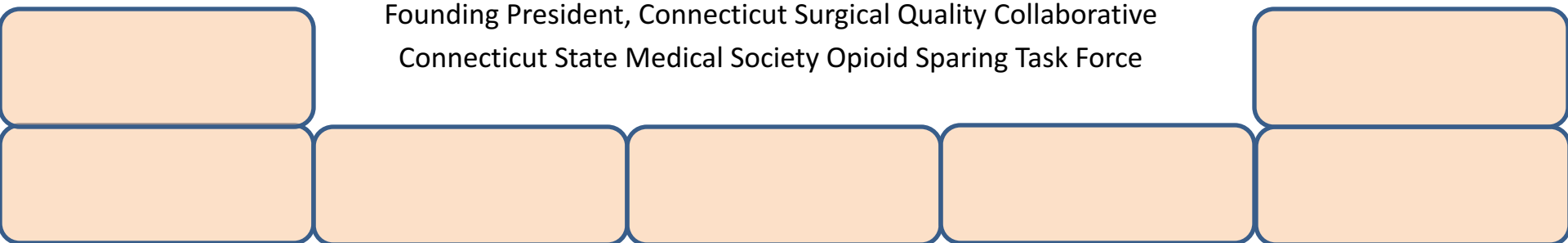
Opioid Free Surgery?
Yes We Can!
Enhanced Recovery After Surgery
~ We Are Building A Cathedral ~

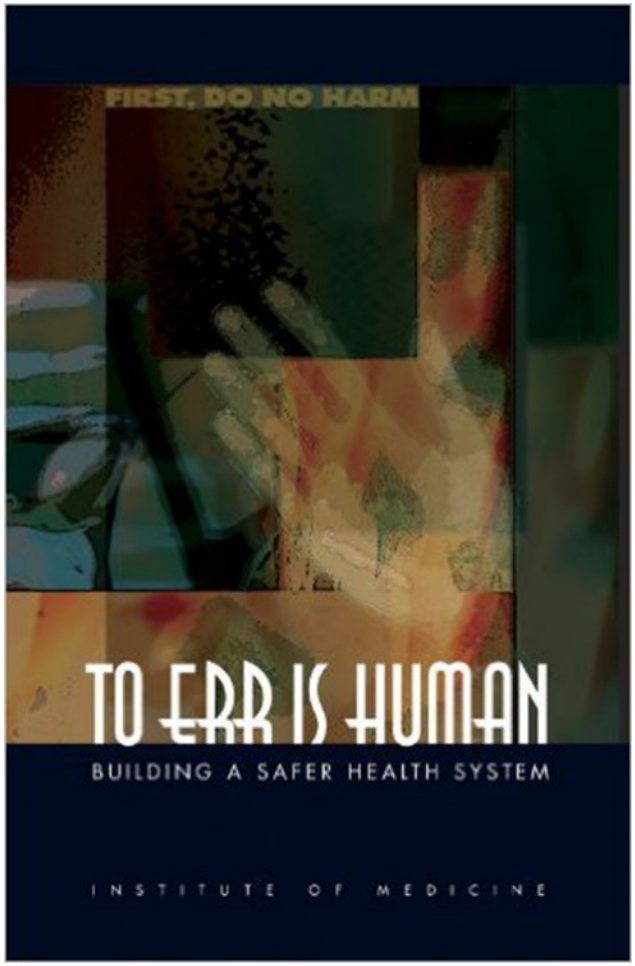
Philip R Corvo MD MA FACS
Chairman of Surgery
Director of Surgical Critical Care
Saint Mary's Hospital, Trinity Health Of New England
Governor, American College of Surgeons
Founding President, Connecticut Surgical Quality Collaborative
Connecticut State Medical Society Opioid Sparing Task Force



Disclosures:

- Consultant for Pacira, Mallinckrodt, Edwards
- The Connecticut Surgical Quality Collaborative receives grant money from Coverys and Cardinal

1999 IOM report:
"To Err Is Human"



- 44,000 – 98,000 people die each year in *our* hospitals.
- IOM suggestions:
  1) Establish a national focus
  2) Establish a nationwide reporting program
  3) Raise standards through oversight, organizations and voluntary reporting
  4) Implement safety systems
- Surgical answers: SCIP, SUSP, NSQIP & ERAS

SCIP Measures 2004 / 2006 - 2016

- “Proper” Antibiotics
- Antibiotics within 1 hr of surgery
- Discontinue Antibiotics within 24 hr
- “Appropriate” Hair Removal
- Remove Foley POD 1 or POD 2
- Monitor temperature
- Beta Blockade
- DVT Prophylaxis
- *Pain not addressed*

Other Hurdles

- Pain as a "5th Vital Sign"
- HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) Scores

Old ☹

12. During this hospital stay, did you need medicine for pain?

1☐ Yes
2☐ No ➔ **If No, Go to Question 15**

13. During this hospital stay, how often was your pain well controlled?

1☐ Never
2☐ Sometimes
3☐ Usually
4☐ Always

14. During this hospital stay, how often did the hospital staff do everything they could to help you with your pain?

1☐ Never
2☐ Sometimes
3☐ Usually
☐ Always

NEW !!

12. During this hospital stay, did you have any pain?

- ☐ Yes
- ☐ No -> **If No, Go to Question 15**

13. During this hospital stay, how often did hospital staff talk with you about how much pain you had?

- ☐ Never
- ☐ Sometimes
- ☐ Usually
- ☐ Always

14. During this hospital stay, how often did hospital staff talk with you about how to treat your pain

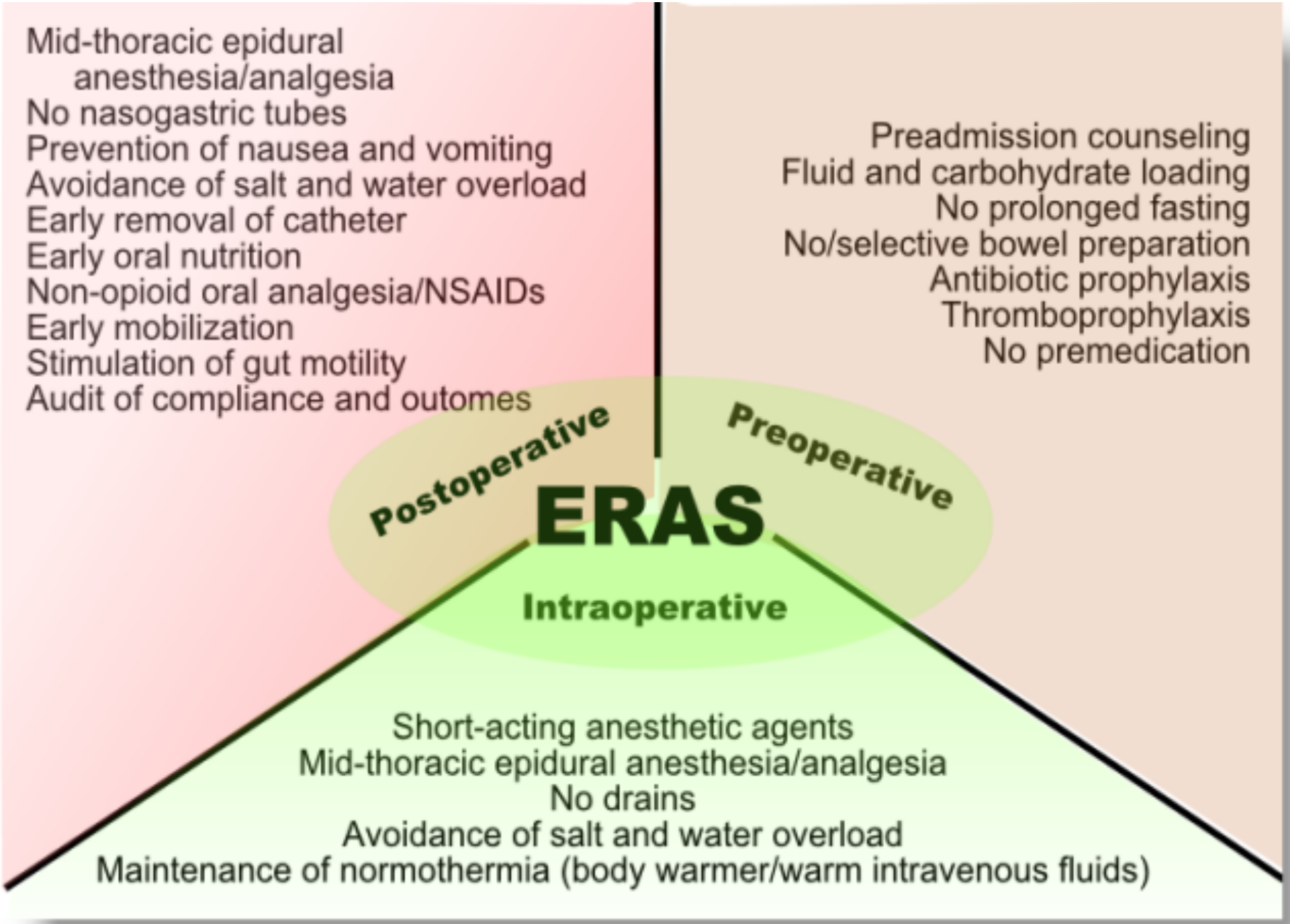
- ☐ Never
- ☐ Sometimes
- ☐ Usually
- ☐ Always

Despite early descriptions ERAS IS NOT…

- A “Fast Track” protocol
  - Focused on inpatient course and fast D/C
  - Ignored what happened after DC
  - Data showed high readmission rates
- A “pathway”
  - Focused on surgery / surgeon, not patient’s hospital course

Enhanced Recovery After Surgery

- > 10 Years
- > 800,000 articles
- Decreased LOS
- Decreased Complication
- Decreased Infection Rate
- Decreased Readmission Rates
- Increased Patient Satisfaction


Mid-thoracic epidural anesthesia/analgesia
No nasogastric tubes
Prevention of nausea and vomiting
Avoidance of salt and water overload
Early removal of catheter
Early oral nutrition
Non-opioid oral analgesia/NSAIDs
Early mobilization
Stimulation of gut motility
Audit of compliance and outomes
Preadmission counseling
Fluid and carbohydrate loading
No prolonged fasting
No/selective bowel preparation
Antibiotic prophylaxis
Thromboprophylaxis
No premedication
Postoperative
Preoperative
ERAS
Intraoperative
Short-acting anesthetic agents
Mid-thoracic epidural anesthesia/analgesia
No drains
Avoidance of salt and water overload
Maintenance of normothermia (body warmer/warm intravenous fluids)

Preadmission	Preoperative Day of Surgery	Intra-operative	PACU
Patient Instruction booklet from MD office to include information on all of the following items:	Check blood glucose in SDS and notify anesthesia and surgeon if >180 for orders.	Ensure that proper antibiotics are hanging and administered within 1 hour of incision time. Be aware of time to re-dose antibiotics	PACU: administer oxygen at 50% venti-mask until D/C from PACU even if o2 saturation is adequate
CHG Shower for 3 days prior to surgery, and morning of surgery	Clip entire abdomen in SDS. Nose to Toes program- nasal swabs, neck to toes CHG Sage Wipes	Maintain Temp > 36.5 throughout entire procedure using Bair Paws	**Bair Paws** on patient while in PACU to maintain temp >36.5 (97.7)
Mechanical Bowel Prep if MD ordered	DVT prophylaxis- thigh high TED stockings	Clearsight intraop fluid monitoring	Minimize use of narcotics: Use IV tylenol as ordered, IV toradol as ordered
Encourage electrolyte enhanced liquids day before surgery for non-diabetics (Gatorade, Powerade) No RED Gatorade	Hang appropriate IV antibiotic*	Redose antibiotics based on duration of operation	**Postoperative**
	· Cefoxitin 2gm AND Gentamicin 5mg/kg	· Cefoxitin Redose at 3 hours	
Non-diabetics: 12oz regular Gatorade/Powerade 3 hours prior to surgery. Please note time drink completed/amount taken/drink type. No RED drink. Be sure to get regular Gatorade, not G2 or diet drink.	· If B-lactim allergy only: Clindamycin 900mg AND Gentamicin 5mg/kg If no Gentamicin, please document reason for withholding (ie: renal failure)	· Clindamycin Redose at 6 hours · Gentamicin n/a for redose	Floors: All dressings are waterproof and are to remain in place for 48 hours, unless visibly soiled or per MD instructions Dermabond, Tegaderm over Steri-strips, Opsite
Smoking Cessation	Entereg 12mg po x1 in SDS	Maintain intra-op FIO2 at least 50%	D/C foley POD 1 unless MD order to continue with reason
Oral Antibiotics · Neomycin 1gm and · Metronidazole 1gm or · Erythromycin base 1gm · 2pm, 4pm, 10pm day before surgery	Bair Paws applied to patient in SDS to maintain temperature > 36.5 (97.7)	Monitor intraop glucose: target range 140-180 mg/dl Ranger fluid warmer for intraop warm IV fluids Minimize use of intra-op opiods. Consider IV tylenol, Toradol	Ambulate patient POD #0 at least once Ambulate patient POD #1 at least twice Clear liquid diet POD #0 with MD order Full liquid diet POD #1 with MD order
Instruct what medications may be taken with sip of water on the day of surgery	Exparel TAP block per MD order	Wound protectors used for all colon cases for specimen removal	Minimize use of Narcotics post op IV Acetaminophen or IV Toradol with MD order
Preoperative CEA level drawn for all patients diagnosed with colon cancer	IV Acetaminophen unless allergic	Lavage each layer at time of wound closure intra-op	Reinforce Discharge instructions: Patient preop handout
Preop pain medications: · Gabapentin · Lyrica		At time of closing: Change gloves and gown Use separate closing tray	8/1/2016

This is how we built it:

- ***BUY-IN FROM ALL PARTIES***
  - Then hold them accountable
- Decided on low-hanging fruit that was easy to implement in a short time frame
- Frequent updates
  - New options
  - Review

Pre ADMISSION

❖ Pt Instructions

- CHG Showers
- PO Antibiotics
- Mechanical Bowel Prep
- Electrolyte / Glucose Solution (Gatorade) until 3 hrs preop
- ERAS identifiers: color coded similar bracelets, binders, wall magnets


715 A
Enhanced Recovery
After Surgery
at Saint Mary's Hospital
www.stmh.org
203-709-6000

PREOP DOS

- Blood Glucose (check and control)
- Clip Hair
- Antibiotics (Antibiogram!)
- Entereg (?)
- Bair Paws Warming
- CHG (“Nose to Toes”)
- Opioid sparing pain control techniques:
  - Gabapentin / Lyrica
  - Slow released marcaine TAP or rectus sheath or QL block, OnQ Pumps
  - ATC (not prn) IV acetaminophen and / or ketorolac

INTRA OP

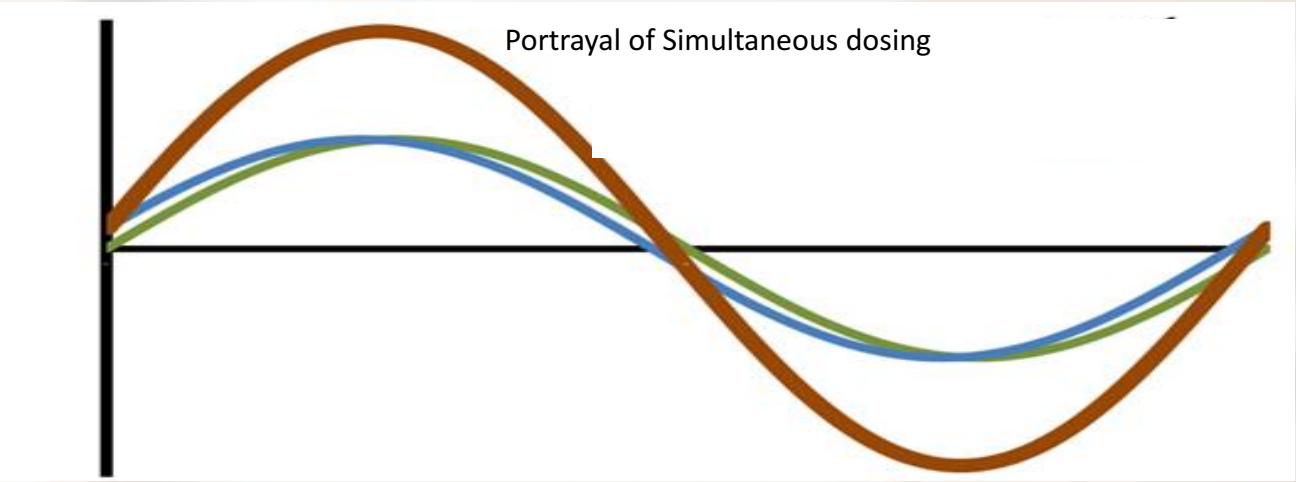
- Maintain Body Temp with Bair Paws
- Re-dose antibiotics when necessary
- IntraOp Fluid Monitoring and adjusting
- FiO2 > 50%
- Monitor Glucose
- Wound Protector*
- Separate Closing TRAY*
- CHANGE gloves / gown*
- Lavage closure layers*

POST OP

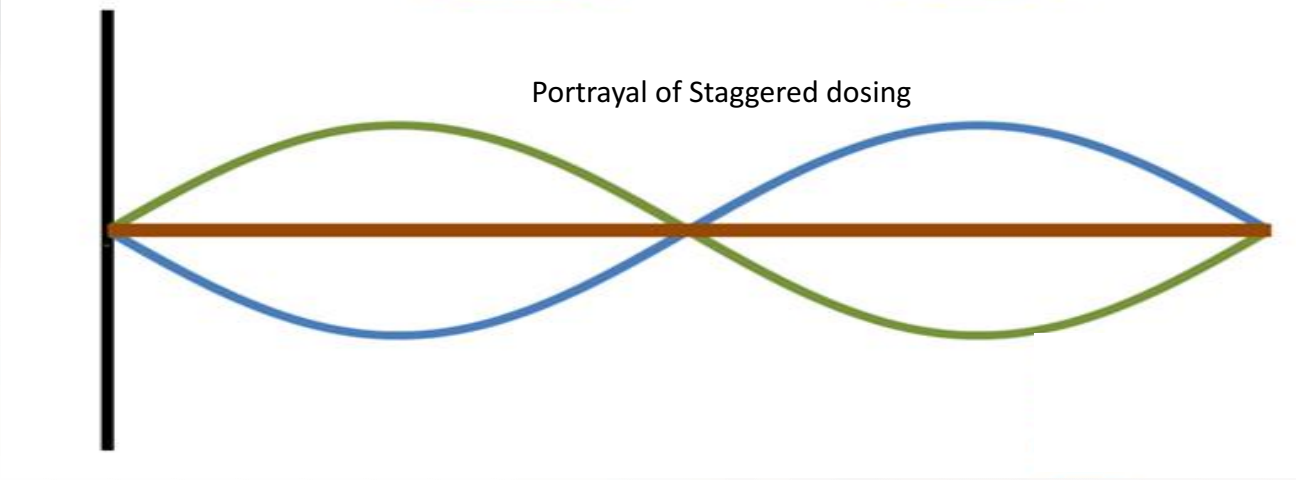
- Continue warming in PACU
- Continue FiO2 > 50%, regardless of SaO_2 (while in PACU)
- Remove Foley *asap*
- Ambulate POD 0
- Clear liquids / hard candy / gum on POD 0
- ATC non-narcotic pain control
  - No PCAs (new)
  - No epidural catheters
  - Scopolamine patches
  - PRN narcotics only after investigation by SHO (new)

Staggered Dosing

Fluctuating Serum Level



Consistent Serum Level



Saint Mary's ERAS Rollout

- 19 colorectal SSIs in 2014 – pre ERAS
- Zero since Oct 2015
- Colorectal LOS 1st NSQIP decile (from 5th)
- Colorectal Readmissions 7th NSQIP decile (unchanged)

			Penicillins			Cephalosporins				Fluoroquinolone	Aminoglycosides		Other	
	GRAM NEGATIVE ORGANISMS	# of isolates	Ampicillin	AMP / SUBLAC	Piperacillin / Tazobactam Zosyn	Cefazolin Ancef	Cefoxitin	Ceftriaxone Rocephin	Ceftazidime Fortaz	Ciprofloxacin	Gentamicin	Tobramycin	TMP/SMX Bactrim	Nitrofurantoin Macrodantin
Enterobacteriacea	Escherichia coli	2243	58%	65%	97%	?	94%	95%	97%	87%	92%	93%	81%	93%
	Citrobacter koseri	42	R	R	98%	R	95%	98%	98%	98%	100%	100%		71%
	Citrobacter freundi	42	R	R	90%	R	R	88%	90%	95%	98%	95%		87%
	Klebsiella pneumoniae ssp pneumoniae	397	R	88%	95%	?	96%	98%	98%	98%	98%	98%	93%	31%
	Klebsiella oxytoca	60	R	67%	97%	?	98%	97%	100%	98%	100%	100%	98%	83%
	Proteus mirabilis	228	89%	92%	99%	?	93%	97%	97%	85%	97%	98%	90%	R
	Enterobacter cloacae complex	74	R	R	78%	R	R	74%	76%	92%	92%	95%	88%	24%
	Enterobacter cloacae ssp cloacae	12	R	R	67%	R	R	67%	67%	83%	83%	92%	83%	38%
	Enterobacter aerogenes	36	R	R	89%	R	R	86%	89%	100%	97%	97%	100%	14%
	Morganella morganii ssp morganii	37	R		95%	R	51%	81%	78%	81%	95%	95%	73%	R
	Serratia marcescens	50	R	R		R	R	100%	100%	100%	100%	92%		R
	Providencia stuarti	15	R		93%	R	100%	93%	93%	67%	0%	0%		R
Other	Pseudomonas aeruginosa	226	R	R	100%			R	90%	80%	91%	97%	R	
	Stenotrophomonas maltophilia	30	R	R				R			R	R	87%	
	Acinetobacter baumanii complex	13	R	100%			0%		46%	77%	85%	92%		

Financial Impact
~ October 2017

- Decreased Infection Rate
  - 19 Colorectal SSIs 2014
  - 1 since using ERAS / Antibiogram
  - (NSQIP ROIC*, CMS) $28,000 / SSI
  - > $1,002,000 *savings*
- Decreased LOS –
  - 2.3 days (bottom 1st NSQIP decile, from 5th, no change in readmission rates)
  - (Becker's CFO report, state of CT, non profit hospitals**, CMS) $2406 / day, national average 4.8 days LOS (6.3 StM historical controls)
  - $ 78,532 *income* my patients alone (x10= $780,000)

- http://www.acsnsqip.org/ROICalc/home.jsp

** http://www.beckershospitalreview.com/finance/average-cost-per-inpatient-day-across-50-states.html

Obstacles

- ? Finance
- Surgeons! & Office staff
  - Apathy, still dont believe, goes against decades of teaching
- Anesthesia
  - Blocks, Clearsight monitoring
- Nursing and residents
  - Education about pain control (PCAs)

SPECIAL

Surgical Quality Initiatives in Connecticut: We Are Building a Cathedral

PHILIP R. CORVO, MD, MA, FACS, AND CHRISTOPHER TASIK, BS

Two stone cutters were asked what they were doing. The first said, "I'm cutting this stone into blocks. That's what a stone cutter does."

The second replied, "I'm cutting this stone into blocks because I'm on a team that's building a cathedral."

What could stone cutting possibly have to do with patient care? Not much really. However, the culture embodied by the second stone cutter has everything to do with patient care, and medicine is just starting to realize it, and apply it to clinical care models.

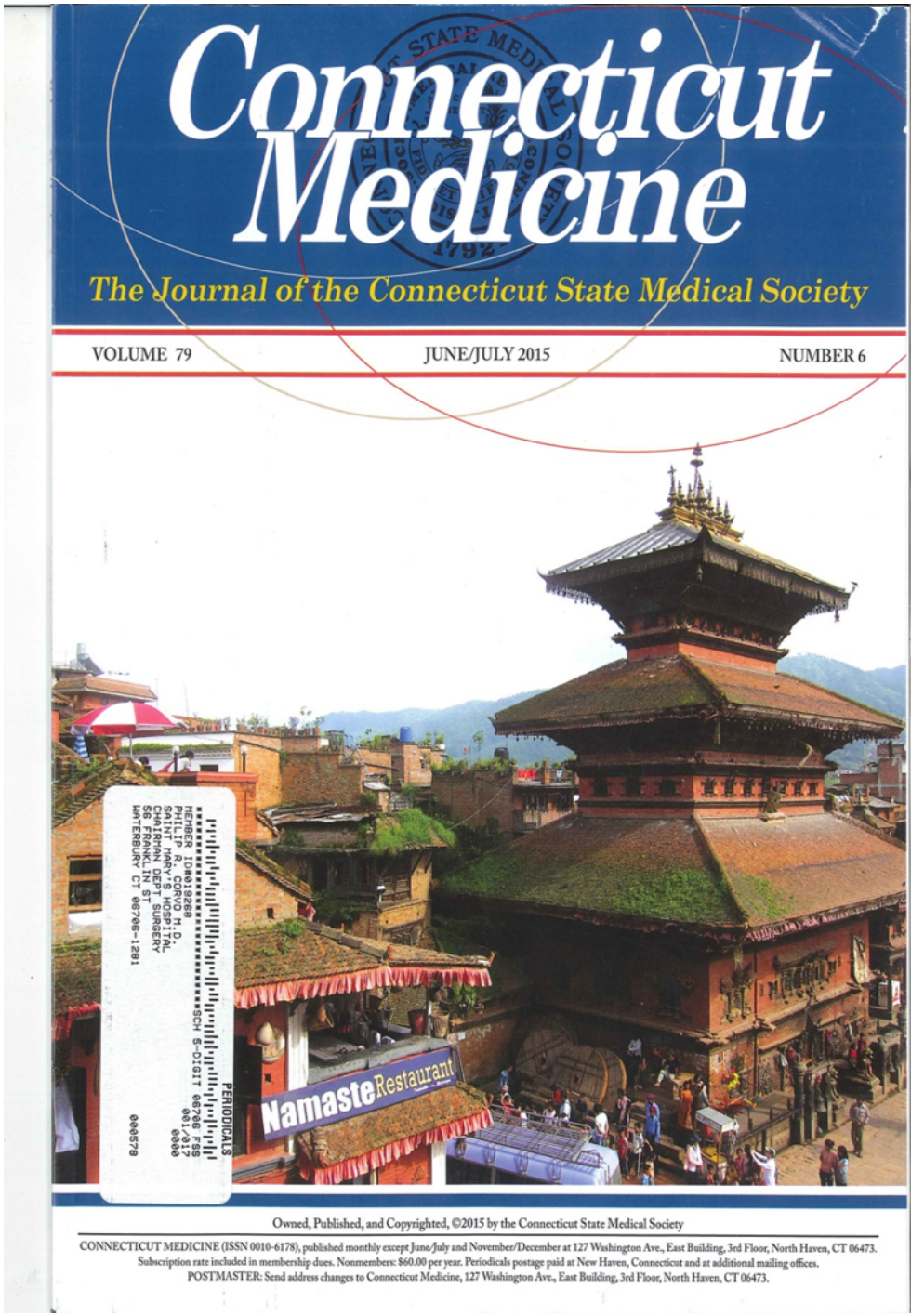
In October 2014, *Kaiser Health News* published an article on hospital infections that are tracked by the Centers for Disease Control (CDC).[1] In this article, the author noted that one out of 25 hospitalized patients experiences an infection while hospitalized, and 75,000 deaths per year can be attributed to these infections. This is not much different than the numbers reported in the 1999 Institute of Medicine (IOM) Report "To Err Is Human," which claimed that somewhere between 44,000 and 98,000 people die each year in the nation's hospitals.[2] Lacking any specific plan, the IOM suggested the following to reduce complications in the future:

1) Establish a national focus
2) Establish a nationwide reporting system
3) Raise standards through oversight organizations, and voluntary reporting
4) Implement safety systems

Coincidentally, The American College of Surgeons' National Surgical Quality Improvement Program (ACS NSQIP), and John's Hopkins Armstrong Research Surgical Unit Safety Programs (SUSP) allow hospitals to use all the above to improve their quality and safety. Unlike earlier data collection methods, and unlike data collected by insurance companies, NSQIP data is patient risk adjusted and stratified, so it gives a more accurate view of a patient's predicted and observed outcomes. This allows clinicians to better target their resources for a given patient population and disease state.

In that same *Kaiser Health News* report, Connecticut was listed as the worst state in the nation when evaluated on the six measures that were recorded by the CDC: Central Line Infections (CLABSI), Catheter Associated Urinary Tract Infections (CAUTI), MRSA, CDIFF, Surgical Site Infections (SSI) for colon resection, and also

PHILIP R. CORVO MD, MA, FACS, Chairman of Surgery, NSQIP Surgeon Champion, Saint Mary's Hospital, and Co-Founder of CtSQC; and CHRISTOPHER TASIK, BS, Executive Director, Connecticut Chapter of the American College of Surgeons. *Corresponding author*: PHILIP R. CORVO MD, MA, FACS, pcorvo@stmh.org.



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RepublicanAmerican

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U.S. TEAM IN LEAD

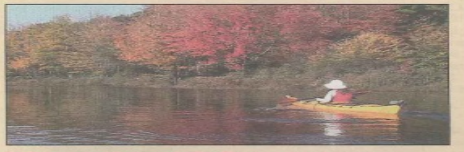
BRANDT SNEDEKER, AMERICANS HAVE 5-3 EDGE OVER EUROPE AFTER DAY ONE IN RYDER CUP, PAGE 10B

METS WIN AGAIN

NEW YORK KEEPS WILD CARD HOPES ALIVE WITH 5-1 VICTORY OVER THE PHILLIES, PAGE 5B

Boys and Girls Club gets boost

An unexpected grant has given the Boys and Girls Club of Greater Waterbury a boost in both finances and confidence, says executive director Karen Senich. PAGE 1B



The colors of the season

Outdoor writer Tim Jones details how paddling on the river can be the perfect way to enjoy the region's fall foliage this season. PAGE 7C

Cease and desist ordered

A Sharon couple has been ordered by the state to stop selling securities, reimburse investors and pay a $100,000 fine for committing securities fraud. PAGE 12C

Video of shooting released

Footage released Friday of the fatal police shooting of an unarmed man in California shows an officer firing almost immediately after the man raised his hands. PAGE 8A

OPINION OF THE DAY: "If trickle-down Reaganomics was such a failure, why was Ronald Reagan re-elected in 1984 in a landslide that has not been duplicated?" — **Mark Gibbons, Torrington**
READ THE FULL LETTER ON PAGE 6A

RA WEB EXTRAS
TODAY AT REP-AM.COM

Find content at bit.ly/ra_webextra

» SPECIAL SCREENING Watch a short film made by a group of Shepaug Valley middle school students that will be screened at the White House on Sunday.

» ON THE GRIDIRON Watch video from the Watertown-Wolcott football game on Friday night.

$170.4 million in the red

State comptroller releases final figures on last fiscal year

BY PAUL HUGHES
REPUBLICAN-AMERICAN

HARTFORD — Gov. Dannel P. Malloy and the Democratic-controlled legislature ran a $170.4 million budget deficit in the last fiscal year, State Comptroller Kevin Lembo reported Friday.

The updated figure that Lembo released was $109 million less than the initial estimate of a $279.4 million shortfall that was reported following the close of the fiscal year on June 30.

By state law, the 2016 deficit will now be offset through an automatic transfer from the state's budget reserve fund, leaving a balance of $235.6 million.

This marks the second year-end deficit in a row. The 2015 budget ended $113.1 million out of balance. The state last posted back-to-back deficits in 2002 and 2003 during an economic downturn.

Leaders of the Republican opposition blamed the state's budget troubles on the Democratic governor and the Democratic majorities. The governor's office pushed back against the GOP criticism.

There is a great degree of uncertainty and speculation concerning whether the billion budget for 2017 fall out of balance as qu as last year's state budge

At this time, a $20 surplus is anticipated. surplus forecast had lowered from $22.7 mill August based on early p tions of spending and enue trends.

See **DEFICIT**, *Pa*

PREVENTING ADDICTION

ERIN COVEY REPUBLICAN-AMERICAN

Alicia Cintron of Waterbury was treated with opioid-replacement medication after colon surgery in June at Saint Mary's Hospital. Beside her is Dr. Philip Corvo, director of surgical critical care at Saint Mary's.

Saint Mary's Hospital using replacement drugs to manage pain without opioid risks

BY JACQUELINE STOUGHTON
REPUBLICAN-AMERICAN

WATERBURY — When Alicia Cintron found out she had a tumor in her colon and needed surgery, she had no idea she was about to become one of the first patients to skip opioids while managing her pain.

Saint Mary's Hospital has instituted new protocols in the past year that replace opioid use after major surgeries. The goal is to prevent patients from developing opioid addiction.

"It's clear it's a public health medical problem," said Dr. Philip R. Corvo, chairman of Saint Mary's surgery department. "People are becoming addicted and overdosing on various narcotics. Some people get their first exposure at a party; some people get it because they have a legitimate medical problem and part of the treatment is to control their pain."

Cintron, 44, of Waterbury, experienced extreme bloat-

See **TREATMENT**, *Page* **4A**

Middlebu pedestria killed in Watertow

Victim, 71, w crossing stree in cross walk on Main Stre

BY AJHANI AYRES
REPUBLICAN-AMERICAN

A 71-year-old Middle woman was killed F night when she was hit car in front of the Rock den Cafe on Main Stre Watertown, police said.

Ruth Prieto was s while crossing the stre the crosswalk on Rou in Watertown around p.m.

The car that hit her driven by a 29-yea woman from Waterbur

The name of the w who operated the 2007 Chevrolet Cobalt ing withheld for furthe vestigation, Watertow lice said.

Police said a car trav southbound on Main S stopped to allow Prie cross. She was hit northbound car.

Police said the Reg Accident Team, whic cludes the Watertown Naugatuck police de ments, responded to scene.

Prieto was taken to terbury Hospital by a lance. She died there.

The accident is bein vestigated by Officer I Conard under the sup sion of Major Sgt. Robinson in Watertown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