



**ProHealth Care**

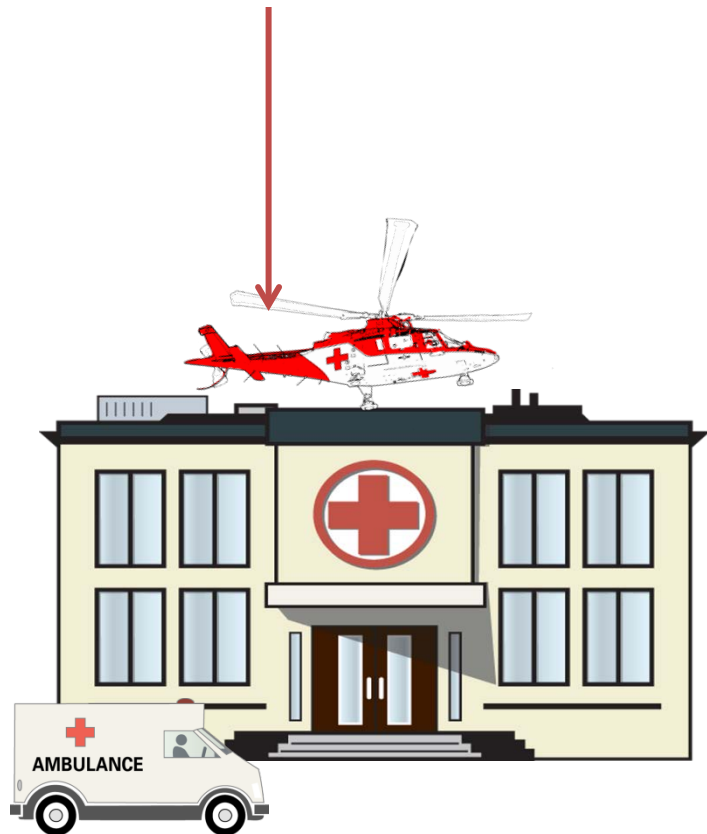
*Lynn Hartzel MT (ASCP), CIC*

*Lisa Schenker BSN, RN*

2015

SSI Committee in place. Infection Incidence rises.

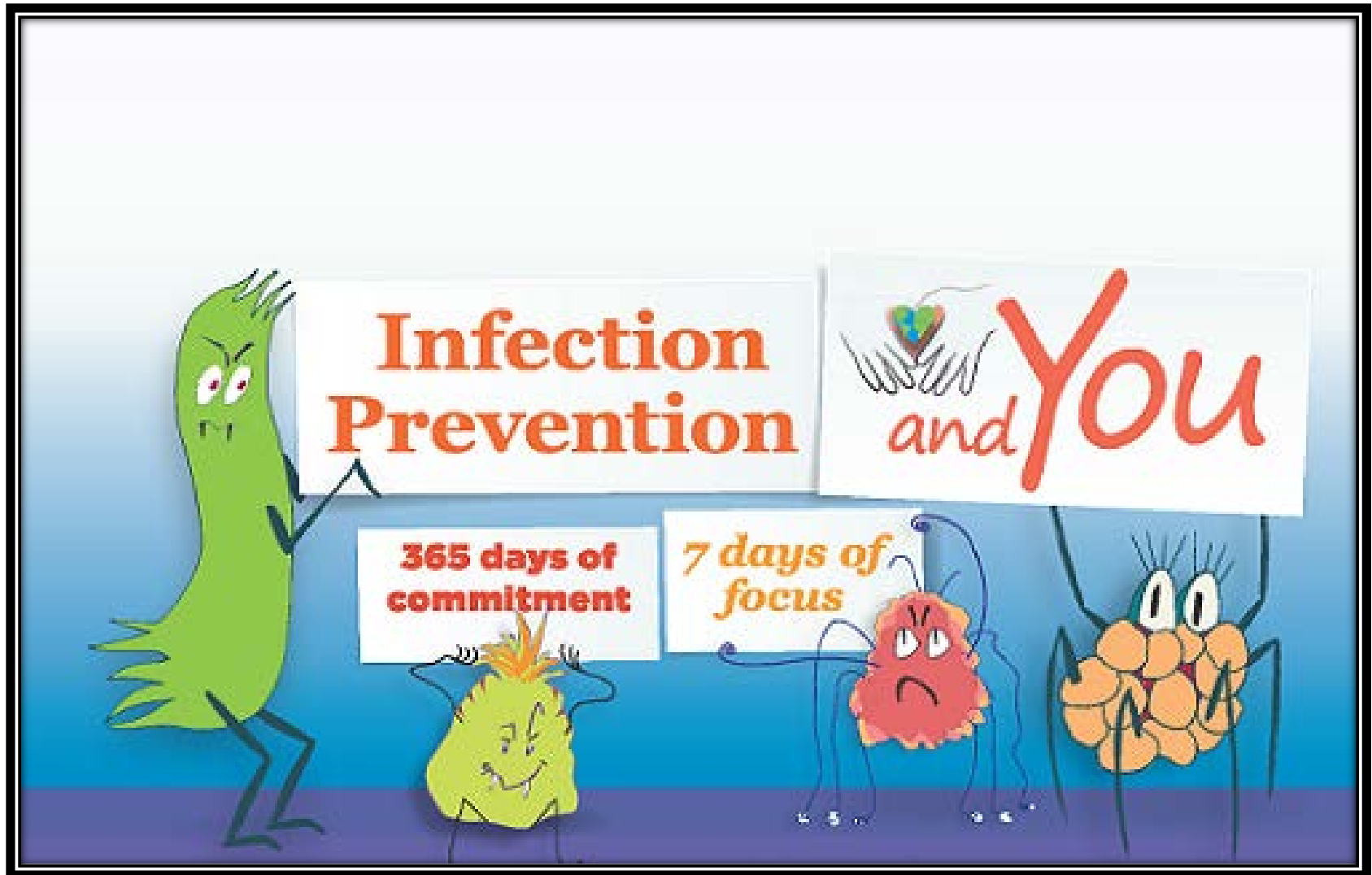
Wi DHS HAI Prevention visit. Provides data analysis, recommendations and emphasizes on a broad approach to SSI reduction.



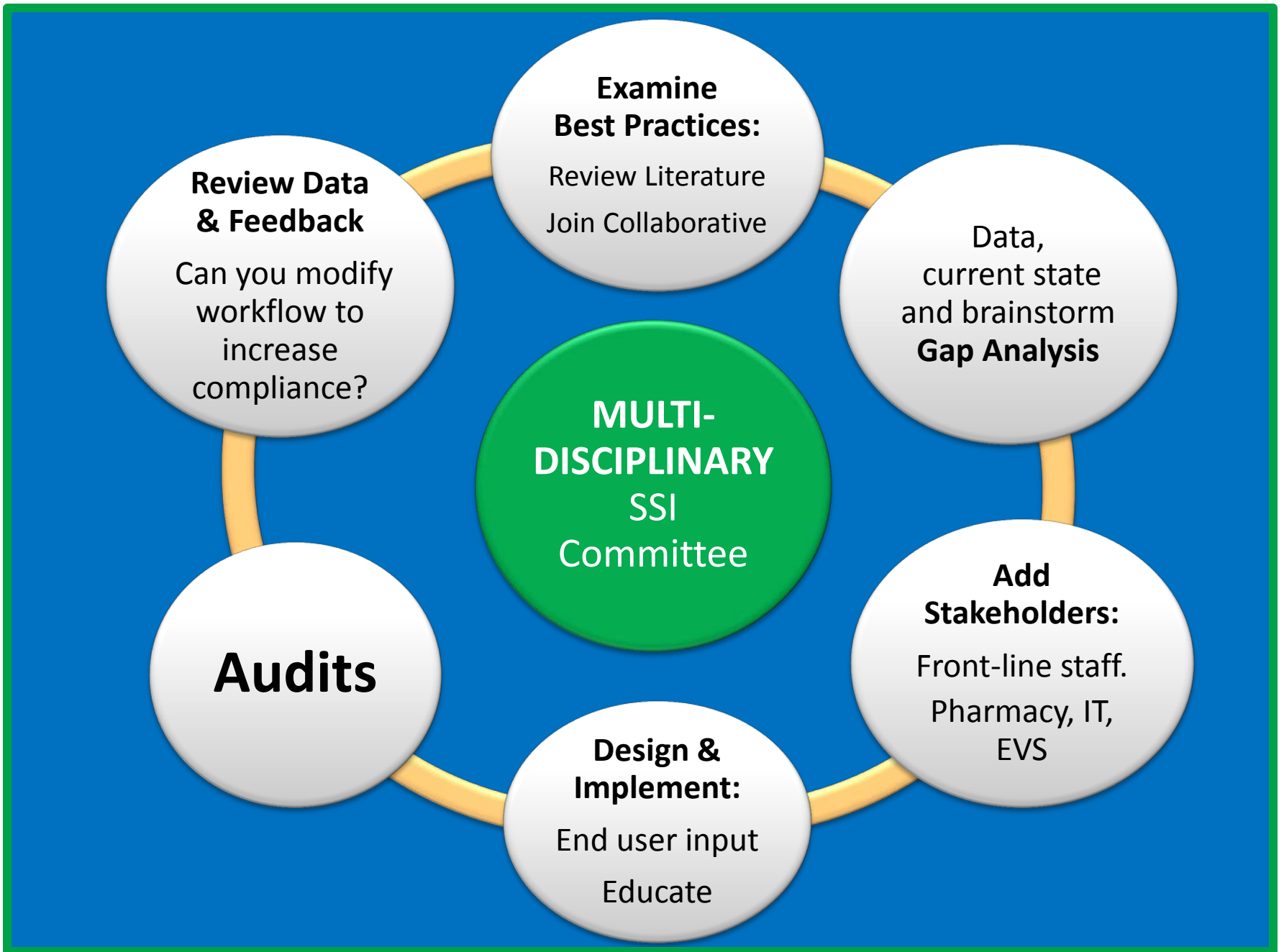
System-wide focus on implementing evidence based recommendations and best practices



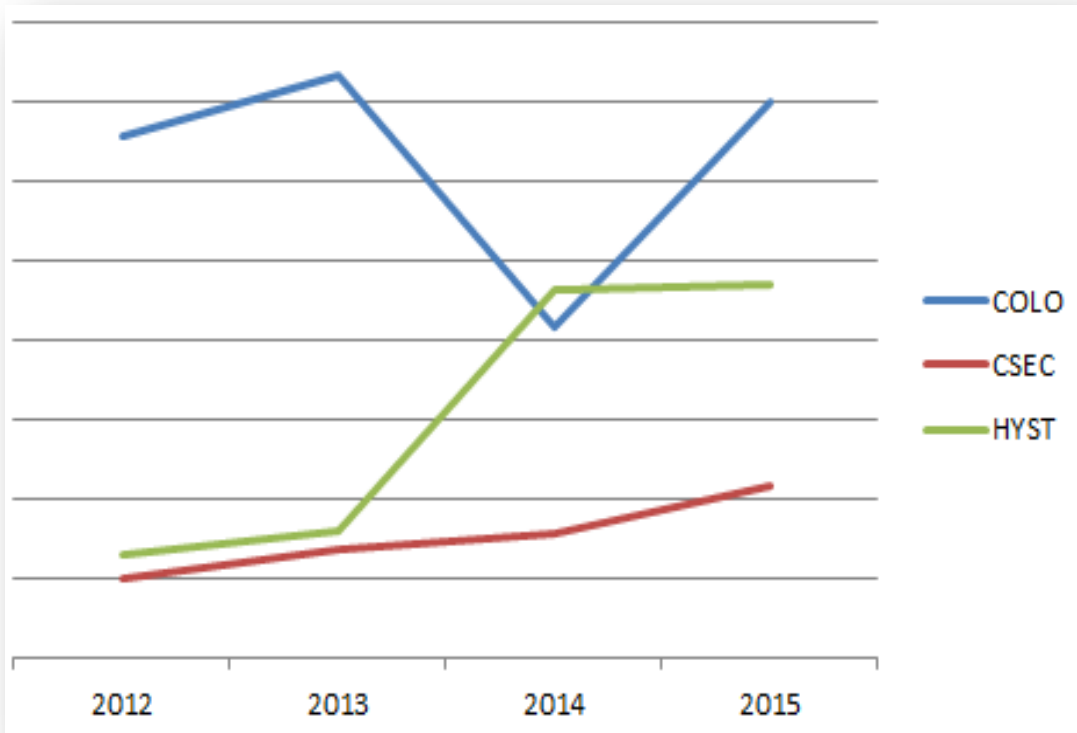
## Message was Loud & Clear



...Now, how do we accomplish this?



# Historical Trending & Starting Point



**Bundle  
Implementation**

## Quick (relative to other measures):

- IUSS reduction
- Changing gown/gloves

## Slow:

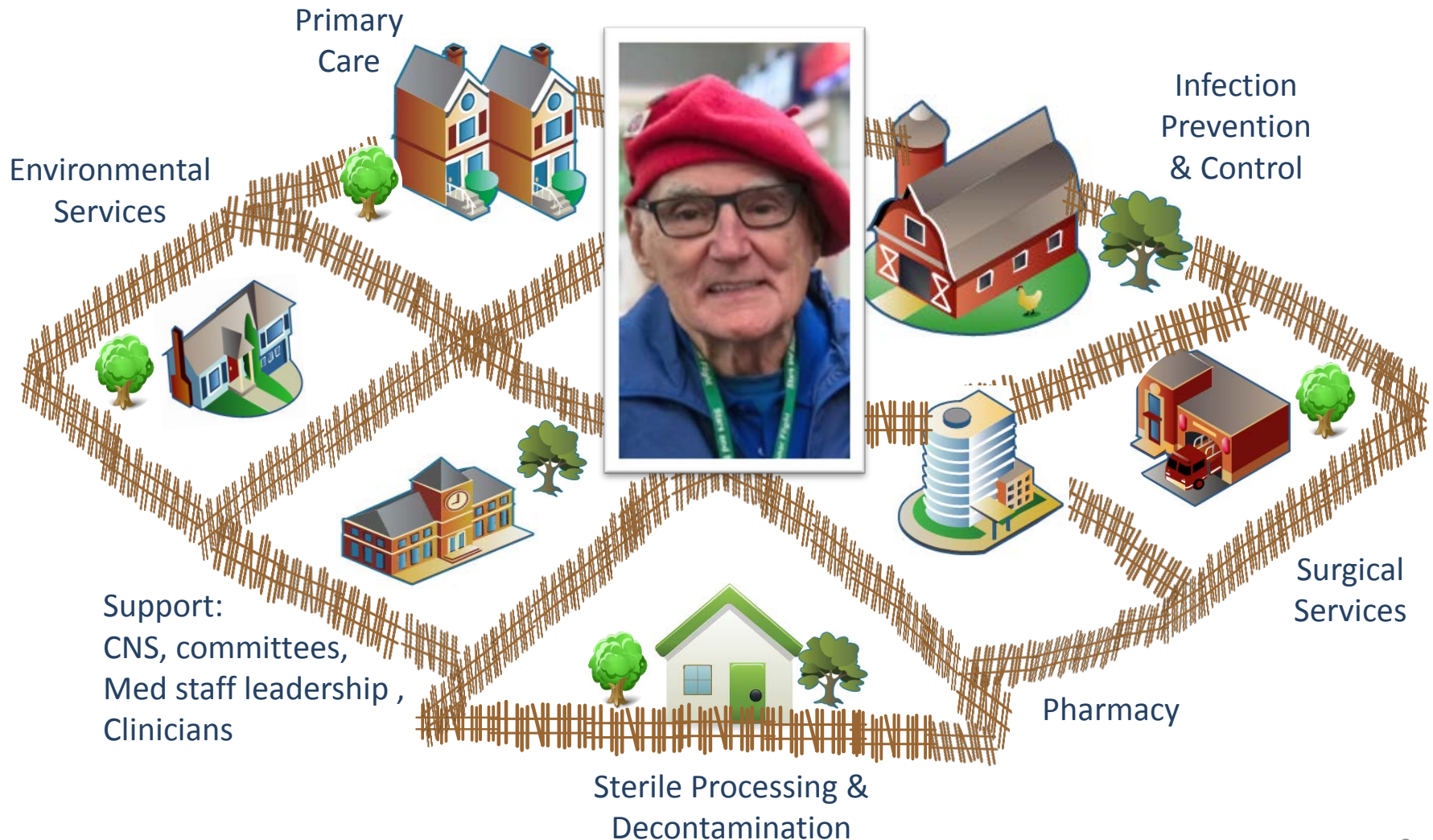
- Research, education and implementation move slowly.  
*CHG standardization, antimicrobial sutures*

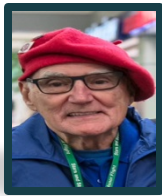
## In Progress:

- Agreement with the scientific evidence; but difficult to operationalize.  
*Glucose control*

# Reducing infections, including infections related to surgical procedures, requires collaboration, dedication and creativity.

Patient centered prevention i.e. every patient every time, takes a \_\_\_\_\_(fill in the blank)?





# Our Patient, Jim



- 86 y.o. male with degenerative joint disease.
- Scheduled for elective Hip
- Age-Related comorbidities: cognitive, auditory
- Social, emotional comorbidities “things that make us unique”
  - Depression era ideology of no-waste, no-fuss
  - Independent & resourceful
  - Stubborn: To be more likely to comply, he needs to understand how this relates to him during this event. Stubborn is dangerous, as is “too nice”. Very easygoing, nice patients can be silent when they do not understand; and quiet if they identify a concern, i.e. “I didn’t want to be a bother.”

Infection prevention bundles can optimize outcomes for patients whose fantastically unique qualities also have the potential of contributing to an increased risk of infection.



# First Stop: Outpatient Care



## Bundle Development

- **CHG Standardization:**

CHG kit developed and implemented, including education for providers.

*Audit opportunity:* C-section team requests return of the bottle and records volume.

- **Patient Optimization:**

Caregivers increase positive outcomes by performing a pre-op screen.

Glucose control, weight management, sleep apnea, oral care.

- **Education:**

- ~ Clean linens & clothing, no shaving site
- ~ Discourage Muffy (Jim's cat) from providing "in bed comfort" and ask that she sleep elsewhere temporarily.
- ~ Educate on SSIs and other healthcare associated infections

## How does this affect Jim?



### CHG Kits Increase Compliance



**Reinforce education:** Jim heard about every 3<sup>rd</sup> word, but nodded in understanding the entire time. Written instructions & pictures reinforce understanding of critical directions.



**Patient Cost 'upfront':** Sending Jim to the pharmacy to purchase what he calls "some soap", is not a direction likely to be followed. Hand him a kit; and he won't want to waste it.



**Ease of use:** The items he needs are contained within the kit: CHG, timer, washcloth, and instructions. Historically, he didn't allow for dwell time since he thinks its cold and doesn't like to be on his feet long in the slippery shower. New dwell time recommendations address his concerns.

### Optimization and Education



Jim has options for classes (e.g. nutrition, weight management) designed to help him get his glucose under control, a task he thought was daunting.



**Not only will the pre-op screens prepare him for his surgery, the benefits expand to a healthier lifestyle overall.**





# Pharmacy



## Bundle Components

### • Weight based dosing

Collaboration:

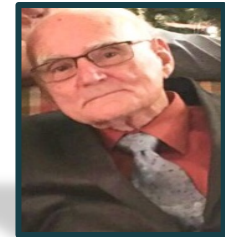
- ~ SSI committee and Pharmacy provided literature to various committees: Antimicrobial Stewardship, Pharmacy and Therapeutics, and the Infectious Disease committees.
- ~ SSI surgical prophylaxis strategies successfully implemented



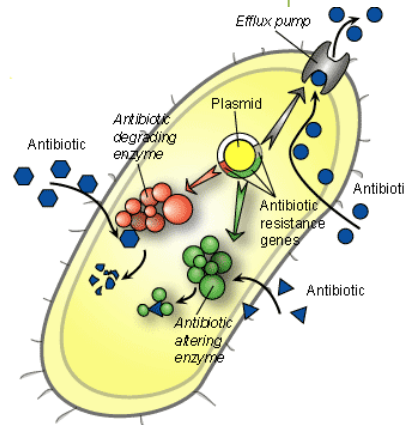
## How does this affect Jim?



Jim doesn't have a desire to learn about what antibiotics are used. "I've got some Penicillin in the cabinet, I'll be fine".



He trusts that his caregivers are providing him with what he needs i.e. antibiotics most likely to achieve a tissue concentration that yields the best outcomes.





# Surgical services

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**Collaborative Effort!**

### Work Practice



- Gown/Glove change
- Surgical Attire
- Isolation technique
- Surgical site barriers; skin/surface



### Sterile Processing & Decontamination

- Bioburden cleaning at “point of use”. Education on concept and expectations
- Enzymatic cleansers
- Quality Control
- Quarterly Environment of Care Rounds



### Operating Room Culture & Communication



### Physical Environment



- Specialized “ORA”s, Operating Room Assistants trained in unique cleaning & disinfecting needs. Quarterly rounds, with IPC, facilities, surgical staff and EOC
- Audits of cleaning process & QC verification provided to IPC medical staff committee
- Air pressure & quality monitoring

# Intra-Op Culture and Communication

**Recipe  
for  
Respectful  
Collaboration!**

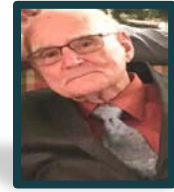
## Surgical Services

### Ingredients:

2# Trust	4 tbl Freedom
3 c. Honesty	3 c. Caring
¼ c. Fun	3 bushels Respect
2 tbl Talking	1 pinch Encouragement
1 bunch Kindness	1 ounce Sharing
3 tbl Listening	1 gallon Equality



# Intraoperative Measures



## SSI Prevention Focus

- Traffic Control: Team members who are needed in OR – are present & use of mid-room
- Supply Management: use CDS modules
- Day Surgery performs hair clipping & skin cleansing with sage wipe
- Antibiotic re-dose administered. Warm IV fluids & active forced air warming
- Surgical site prepped with an alcohol containing agent
- Airway management for adequate tissue perfusion
- Team members double glove
- Antimicrobial suture used

## How does this affect Jim?



All the necessary supplies & equipment are present for Jim's optimal outcome.



Team wide efforts are occurring during his procedure to prevent deep or superficial infection.

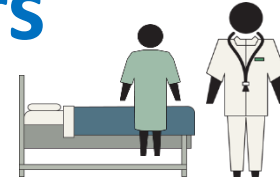


Efforts to promote healing of his surgical wound are initiated.



Concerns for bundle compliance are addressed real time to increase his safety. All staff expected to "stop the line" or to reinforce bundle practices.

# Inpatient Caregivers



## SSI Prevention Focus

- Date and Time written on the dressing
- Hand Hygiene: Caregiver AND patient
- Communication between RN staff and MDs when issues arise. Documentation of communication in EHR.

- \* For cases that involve taking an inpatient to surgery, the CHG bathing process and timing have been clarified.  
(Issues identified in case reviews)



## How does this affect Jim?



Inpatient hospital stays make him feel disoriented. Hand Hygiene may not be performed consistently. Reminders help keep him safe if he forgets. Staff hand hygiene is essential to his safety.



Concerns he expresses are addressed in a timely manner when there is open communication between caregivers.

- \* Patients requiring CHG baths on the inpatient unit will have the same effective CHG bath, as is expected in the bundle for elective procedures.



# Jim Goes Home!



## Continuum of Care

- **Home Care Service:**

Visits with skilled nursing, physical therapists and other providers as needed

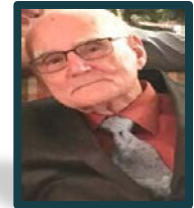
Accountability:

- ~ Home Health quality Infection Prevention group developed case criteria for infections, e.g. CAUTI. Case reviews for improvement efforts. Metrics presented to various committees
- ~ Audits of Hand Hygiene

- **Not on a Home Care Service:**

- ~ Office visits
- ~ Phone calls from case managers and caregivers
- ~ Transportation assistance

## How does this affect Jim?



When Jim isn't sure of what "normal" healing is, he has a partner to answer his questions and address his needs.

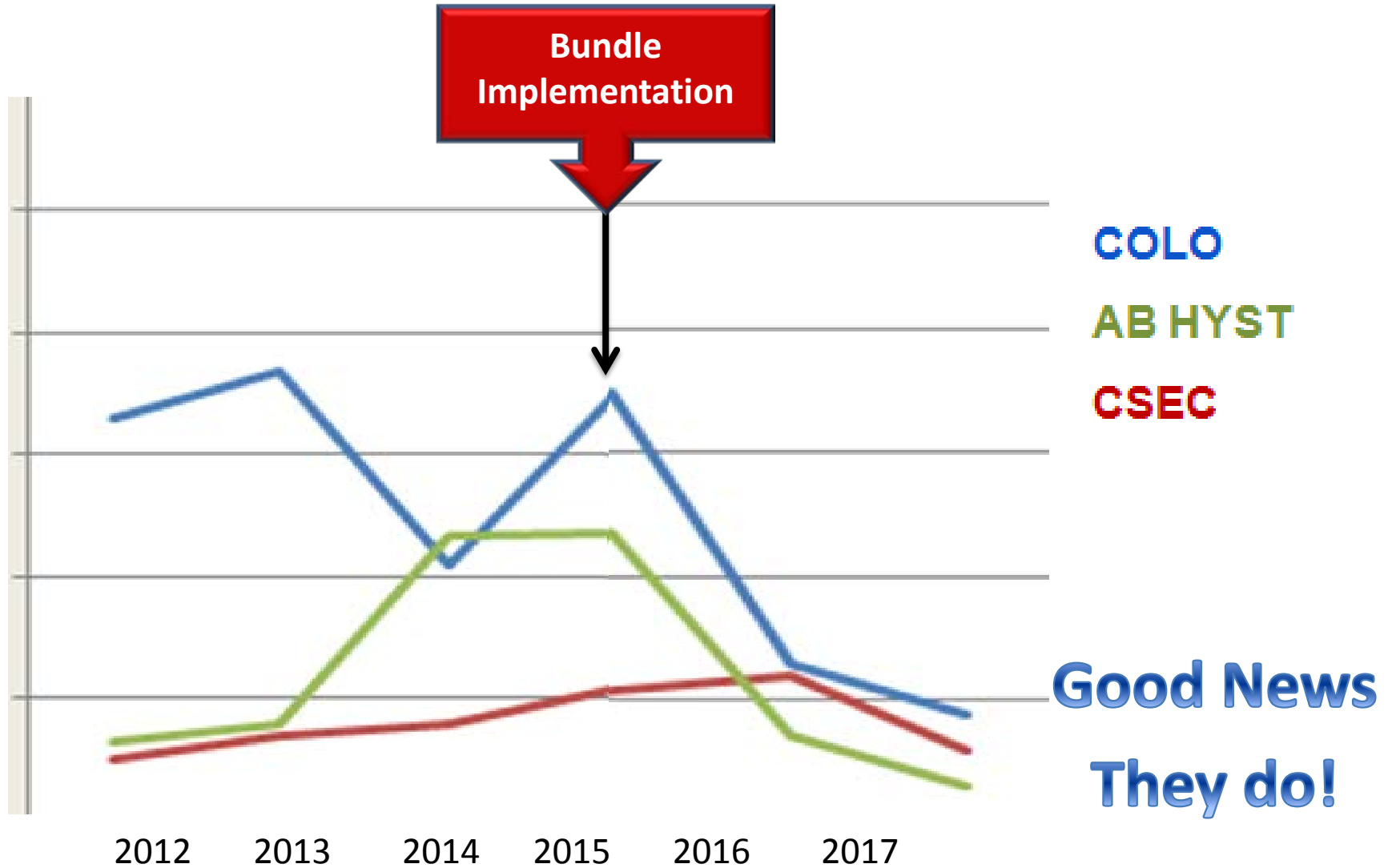


Early identification of adverse change in conditions can address health concerns before they cause additional health problems.



The team members sent to his home have further education in infection preventative measures, allowing Jim to get back to his life as soon as possible.

# Do bundles, implemented with collaboration, work?





## Preventing Surgical Site Infections is a team EFFORT!

**“We will celebrate ourselves because the patients whose lives we save cannot join us, because their names can never be known.”**

Our contribution will be what did **not** happen to them. And, though they are unknown, **we will know** that mothers and fathers are at graduations and weddings they would have missed, and that grandchildren will know grandparents they might never have known, and holidays will be taken and work completed, and books read, and symphonies heard, and gardens tended that, **without our work, would never have been.**”

Donald M. Berwick, MD, MPP, Former President and CEO,  
Institute for Healthcare Improvement

**Our Culture supports speaking up**

**Our Culture encourages vigilance to bundle compliance by all Members**

Procedure Type	# Procedures	# Infections	Statistical data	SIR (4 quarters presented for trending)
COLO	Denominator	Numerator	P value, CI	0.5



Greater the Threshold Between Threshold and Target, Between Target and Stretch, Less Than or Equal Stretch, NumExp is <1, too low to calculate a precise SIR



The SIR p-value is a statistical measure that tells you if the observed number of infections is significantly different from what was expected. A p-value less than 0.05 indicates that the number of observed infections is statistically significantly different (higher or lower) from the number expected.

SIR = Observed HAIs (Health-Associated Infection) / Expected HAIs (health-Associated Infection)

# What this means to Jim

## Spring of 2018:

Jim was able to attend a veteran Honor Flight to Washington D.C. and put his new hip to good use!





## Infection Prevention & Control

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# Bundle Evolution

- GRIP 2016
- 2/2016 6 bundle components; Hygiene & skin preparation, Antimicrobial prophylaxis & scheduled re-dosing, Normothermia, oxygenation, traffic control, then subcategories of surgical specialties
- 4/2016 Weight based dosing adjusted
- 4/2017 Weight based pre-op dosing readjusted & GYN barrier removed
- 1/2018 Added Antimicrobial Suture + C-section
- 4/2018 Pre-operative Oral Antibiotics with mechanical bowel prep
- 6/2018 Added Antimicrobial Suture + Colon / Hysterectomy

**GRIP**  
Guidance for SSI R and Infection Pr

TEAM  
SURVEILLANCE  
IMPLEMENTATION

A Comp Reduc

Applied Medical

**Cefoxitin**

Weight (kg)	Pre-operative	Intra-operative	Post-operative
< 80	2g	2g	2g
80 kg – 120 kg	4g	4g	4g
> 120 kg	6g	6g	6g

**Bundle Practices for Preventing SSI**  
Subcategories of Surgical Specialties  
Consider Best Practice & Support Use in Clinical Practice

	General - Colon	GYN Hysterectomy	OB Cesarean Section	Cardiac
Staff: Double gloving	Staff: Double gloving	Staff: Double gloving	Staff: Double gloving	Staff: Double gloving
Changing gloves: AORN recommendation at 90-150minutes	Changing gloves: AORN recommendation at 90-150minutes	Changing gloves: AORN recommendation at 90-150minutes	Changing gloves prior to fascia / dosing	Changing gloves: AORN recommendation at 90-150minutes
Irrigation- saline or antibiotic irrigation (1 liter) = increase volume of irrigation	Irrigation- saline or antibiotic irrigation (1 liter) = increase volume of irrigation	Irrigation- saline or antibiotic irrigation (1 liter) = increase volume of irrigation		Glucose Control: SQP residual clinical practice
"Isolation technique"	"Isolation technique"	"Clean Closure techniques"		
Recommended: Wound protection	Recommended: Wound protection	Recommended: Wound Protection		
Recommend: Antimicrobial Suture (1/2018)	Antimicrobial Suture (12/2017)	Antimicrobial Suture		
Pre-operative Oral Antibiotics with mechanical bowel prep (4/2018)	Dedicated vaginal manipulator			

# Examples of bundle audits, performed real time

Patient Label	Facility: OMH	Procedure: C-Section _____
	OB OR Room # 1	<input type="checkbox"/> Scheduled
	Date of Surgery: / /	<input type="checkbox"/> Urgent <input type="checkbox"/> Emergent Procedure

**TO BE COMPLETED BY Pre-Op OBRN:**

- Per the patient, how much CHG soap was **LEFT OVER** in the bottles after they completed both showers?  
 None    1/4 bottle    1/2 bottle    1 Bottle    2 Bottles (*didn't use any*)    NA –unscheduled CS
- Did staff perform CHG wipes?    Yes    No
- Warm IV fluids used pre-op?    Yes    No   Remember to document PreOp Warming interventions
- Forced Air Warmer (Bair hugger) used pre-op?    Yes    No    NA, patient was >99 degrees

**TO BE COMPLETED BY OR RN / ST: C-Section Technique Observational Audit** (Use comment field at bottom for variances)

**Antibiotic:** Was Ancef/Antibiotic started within (30) minutes of cut time?   Y   N   NA-Ancef not ordered

**Prep:** Chlorhexidine (CHG) containing product; compliance to application instructions?   Y   N  
(30seconds @ incision, scrub motion, used ≥ 2 sticks, minimize cross-contamination risk, included legs/mons; didn't contaminate with jacket)

Was **surgical attire** policy followed (see back for key components)?   Y   N

Personnel enter through **mid-room door**?   Y   N (*if no indicate who in comment field at bottom*)

**Clean Technique:**

Was a **wound protector** used (O-Ring)?   Y   N    Attempted to use but not successful

ProHealth ST **double** glove?   Y   N   Apply **NEW** gloves?   Y   N

ProHealth SA **double** glove?   Y   N   Apply **NEW** gloves?   Y   N

Prior to closing of the fascia, did the **Surgeon**:   **Don a NEW** outer glove?   Y   N

Prior to closing of the fascia, did **Assisting Surgeon**:   **Don a NEW** outer glove?   Y   N

'Clean' Mayo-Stand surface?   Y   N

Re-drape incision site with utility drapes?   Y   N

**Details for any NO Responses:**

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Patient Label	Facility: WMH   OMH	Actual procedure done:
	OR Room: #	Procedure type: (Open, Lap Assisted / Robotic / Laparoscopic) (circle)
	Date/Time of Surgery:	

**Hysterectomy Technique Observational Audit:**   RN: \_\_\_\_\_   ST: \_\_\_\_\_

Staff	Double Glove?	Don Clean Surgical Attire-exchange	
		Gown	Gloves
ST	Y   N	Y   N   NA	Y   N   NA
SA	Y   N	Y   N   NA	Y   N   NA
Vaginal Manipulator	Y   N	Y   N   NA	Y   N   NA
Surgeon	Y   N <i>if no, were gloves changed at 90-150 min?</i> Y   N	Y   N	Y   N
Assistant Surgeon/Resident	Y   N	Y   N   NA	Y   N   NA
Student (JMS/PA, etc)	Y   N	Y   N   NA	Y   N   NA

**ANY NO ANSWERS BELOW PLEASE EXPLAIN IN COMMENTS SECTION AT THE BOTTOM – THANK YOU!**

**Prep:** Chlorhexidine (CHG) containing product?   Y   N   Pt Allergy

**Traffic Control:** Personnel enter through mid-room door?   Y   N   **Unable** (*if no/unable indicate who in comment field at bottom*)

**Surgical Attire:** Personnel adhering to the Surgical Attire Policy?   Y   N (*if no indicate who in comment field at bottom*)

**Isolation Technique:**

Was there a designated vaginal manipulator?   Y   N   NA(TAH)

Vaginal/Rectal instrumentation & Supply Set-up Isolated from "Clean set-up"   Y   N   NA(TAH)

'Clean' surgical supplies: towels at surgical site, Bowie, suction, light handles exchanged.   Y   N   NA(Robotic)

GYN specimen was isolated from "clean set-up"   Y   N

Was Wound Protection Used?   Y   N   NA(Robotic)

Antimicrobial Plus Suture Used:   Y   N   Location (circle all that applies):   Cuff   Subcutaneous   Fascia

**Surgical Site Irrigation?**

	Irrigation	Amount (no recommendation)
Abdominal Cavity washout:	Y   N	None <1 liter, ≥1 liter
Sub-Q Cavity Incision:	Y   N   NA	None <1 liter >1 liter

**\*\*Laparoscopic / robot ports excluded**

**Combo Hyst/ Colon Procedure:** was colon isolation technique followed?   Y   N   **\*\*Bowel audit not needed**

Comments for variances/NO answers in bottom section please:

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