Hypoglycemia Reduction

STARTER PACK – WEBINAR #1

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Illinois | Michigan | Wisconsin
Powered by the MHA Keystone Center

Accelerating Improvement at the Point of Care

Why is it important to reduce hypoglycemia?

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Why Hypoglycemia Reduction?

- Key Statistics
  - Overall 29% reduction in ADEs since 2010
  - Hypoglycemia still occurs in 1.9 of every 100 overall discharges
  - Hypoglycemia still occurs 630,000 times annually nationwide

AHRQ National Scorecard 2015

Why Hypoglycemia Reduction?

- Costs
  - No specific costs data on average hypoglycemia event, but the average ADE costs $5,000
  - $5,000 x 630,000 = $ 3.1B annually

  - And then there are the personal ”costs”

Can we prevent hypoglycemia, or… it is just a “cost of doing business”?

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But Don’t Diabetics Just Get Low?

- A known side affect is still an Adverse Drug Event
- Many are preventable
- If we don’t know they occur, we cannot redesign systems to prevent them

How Do We Know If We Have a Problem?

- Experience shows that occurrence reports find as few as 1 %
  - Importance of reporting not understood
  - Reporting methods are cumbersome
  - No meaningful feedback is given
  - ”They did fine with some OJ”

- The events reported are the bad ones that you already know about!

How Do We Know If We Have a Problem?

- We need to go look for them!

How Do We Know If We Have a Problem?

- Lab reports
- POCT reports

OK, So We Found It, Can We Improve?

- Many reports of substantial reduction in severe hypoglycemic events
- Barnes Jewish system published their results, an 80% drop in these events[1]
- A large Arkansas hospital reduced it by 80%
- A California academic hospital reduced it by 50%
- And many more…

[1]http://www.ashp.org/DocLibrary/Bookstore/AJHP-Institutional-landing-page.pdf

Can It Be Done?

Getting Started

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Project Goal

- HIIN goal -20% reduction in severe hypoglycemia events
- Great Lakes is one of 16 HIINs working to achieve this bold goal!

First Things First

- Ask:
  - Are we ready?
  - Is there urgency?
  - Is there leadership support?
  - Who owns this effort?
  - What resources are needed?
  - What if we are not ready for full-scale change?
- Assess the readiness before you proceed

Establishing Your Team

- Successful Glycemic Control teams are multi-disciplinary
- Who do you need on your team?
  - Executive Champion – senior leader who will provide support
  - Team Leader – a person with authority to test the change ideas
  - Team Members – hospitalists, surgeons, pharmacists, front line nursing (ICU, floor), dietary, quality leaders, admin, patient advocate! (and endocrinologists if you have them)

Tips for Effective Meetings

- Plan ahead
  - Set the agenda
  - Gather data/materials
  - Do pre-work
- Be brief
  - there is no rule that says a meeting needs to last an hour!
- Timed Agenda
- “Parking Lot”
- Take “actionable” minutes
- FOLLOW UP

Best Practices

WHAT WORKS

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Summary of Best Practices

- Partner with patients
- Make it easy to find the data and underlying themes of failures
- Target 140-180 mg/dL
- Use insulin drips on all critically ill patients with hyperglycemia
- Use basal + bolus + correction on all patients who are eating
- Use basal + correction on all patients who are NPO

Summary of Best Practices (continued)

- Eliminate sliding scale insulin as the sole means of glycemic control
- Adjust the insulin regimen after a single episode of hypoglycemia (glucose <70 mg/dL)
- Coordinate meal and insulin administration times
- Use manual or electronic alerts to notify staff of every patient with a prior episode of hypoglycemia
- Trust well controlled diabetics, especially Type 1's, to manage their insulin pump as inpatients

First…what about diabetics not on insulin?

- If ill, the ADA recommends that patients be switched over to insulin during their hospitalization for better control
- If stable, simple, short stay, continuing on oral anti-diabetic agents may be fine

Partner With Patients

- Many understand their illnesses better than we do
- We may be the ”Subject Matter Experts”, but they are often the “Expert on how my body reacts to insulin, carbs, activity, etc.”
- Listen to the patient
- Include patients in bedside rounding

Make it easy to find the data and underlying themes of failures

- How often do you find a patient is severely hypoglycemic from anything other than insulin?
- Do you really need to verify each event by diving into the chart?
- A patient's chart only needs to be reviewed/opened for two reasons:
  - Validate…Look at 10 in depth and verify that at least 9 are receiving insulin
  - While looking at those 10….look for themes…what is causing most cases of severe “hypoG” in your facility?

Make it easy to find the data and underlying themes of failures

- How often do you find a patient is severely hypoglycemic from anything other than insulin?
- Do you really need to verify each event by diving into the chart?
- Open the chart to:
  - Validate…Look at 10 in depth and verify that at least 9 are receiving insulin
  - While looking at those 10….look for themes…what is causing most cases of severe “hypoG” in your facility?

Target 140-180 mg/dL

- We abandoned lower targets in 2009 with the results of the NICE SUGAR study
- Ill patients' glucose levels can fall quickly and precipitously
- They are often catabolic with low glycogen stores or inhibited gluconeogensis
- Exception: targeting 110-140 in some surgery patients may slightly reduce SSI…*but that target is acceptable ONLY if any event of hypoglycemia (glusoe <70 mg/dL) can be avoided*

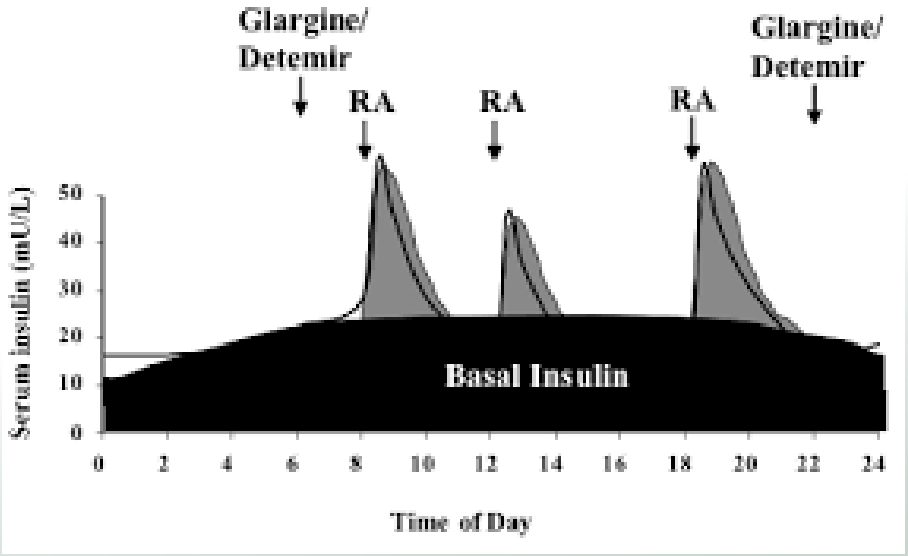
Use insulin drips on all critically ill patients with hyperglycemia

- Illnesses and medications can cause glucose intolerance
- Critically ill patients have very labile glucose levels
- Glucose control help prevent both high and low levels
- Many patients admitted to hospitals for any reason are *diagnosed* in the hospital with diabetes

Use insulin drips on all critically ill patients with hyperglycemia

- Test POCT glucose on every critically ill patient, whether or not the patient is known to be diabetic
  - If NPO, q6H
  - If eating, qAC and qHS
- Treat any patient with one (or two) glucoses > 180 mg/dL with an insulin infusion

Steal a page from the pancreas



Use basal + bolus + correction on all patients who are eating

- Give every patient a basal dose
- Give every patient a bolus dose (ideally based on carb counting)
- Have 2-3 standard correction orders for the physician to choose from that allow for correction

Use basal + correction on all patients who are not eating

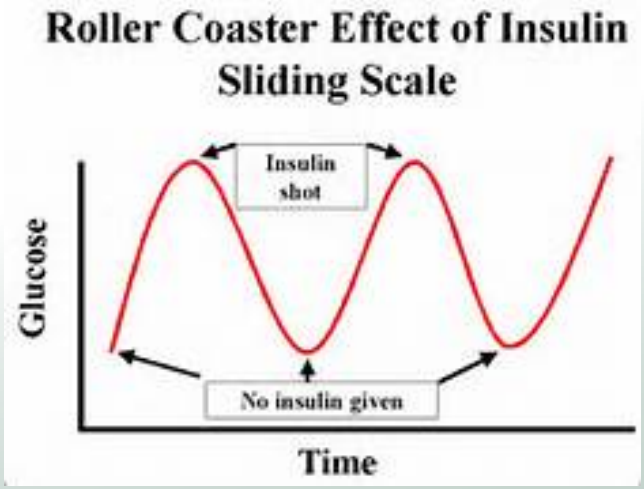
- Give every patient an basal dose
- No bolus dose since no periodic carb load (not eating)
- Have a 2-3 standard correction orders for the physician to choose from that allow for correction

Notice What Is Not Recommended

- Every physician making up their own correction scale on a day to day basis
  - Not shown to be better, likely worse
  - Standardization allows for learning loops
    - Opportunity for improving process across the organization
    - More standard work for nurses decreases errors
- Managing glucose control with “Sliding Scale Insulin” alone (SSI)

Eliminate sliding scale insulin as the sole means of glycemic control

- Ignores basal insulin requirements
- Causes DKA in Type I Diabetics regardless of glucose level
- Creates roller coaster effect



Adjust the insulin regimen after a single episode of hypoglycemia (glucose <70)

- ADA 2015 -2016
- Exception: You are certain the low glucose was due to a circumstance that will NOT repeat
- Call the physician and ask for revised orders

- Recommendations: education, scripting
- Process Measurement

Coordinate meals and insulin administration times

- Times have changed; Insulin has changed
- Regular to Short Acting
- Onset of action is 10-15 minutes
- Meal can’t be late anymore!
- Insulin needs to meet the schedule of the patient, not the nurse
- And with “room service”, this gets harder

Coordinate meals and insulin administration times

Tips:

- Do not administer the insulin until the meal tray is in front of the patient
- Do not administer insulin until the patient has eaten 25% of their meal
- Educate the patient not to eat until insulin has been administered
- Adopt the “15 minute rule”

Use manual or electronic alerts to notify staff of every patient with a prior episode of hypoglycemia

- Wouldn't it be nice to know that a patient has a history of hypoglycemia?
  - Earlier on shift; prior shift; prior admission
- Some IT depts have built in alerts when:
  - the nurse or physician logs onto that patient's EHR
  - the nurse scans the patient ID or insulin vial
- Proven to reduce hypoglycemia

Trust well controlled diabetics, especially Type 1's, to manage their insulin pump as inpatients

- Many diabetics have mastered an understanding of their diabetes
- Especially if Type I, insulin pump and CGM

So which patients might be safe?

- ADA 2016
- Successful self-management at home
- Have appropriate cognitive and physical skills
- Perform self monitoring
- Adequate oral intake
- Proficient at carb counting
- Use multiple daily injections or pump
- Have stable insulin needs
- Understand sick day management

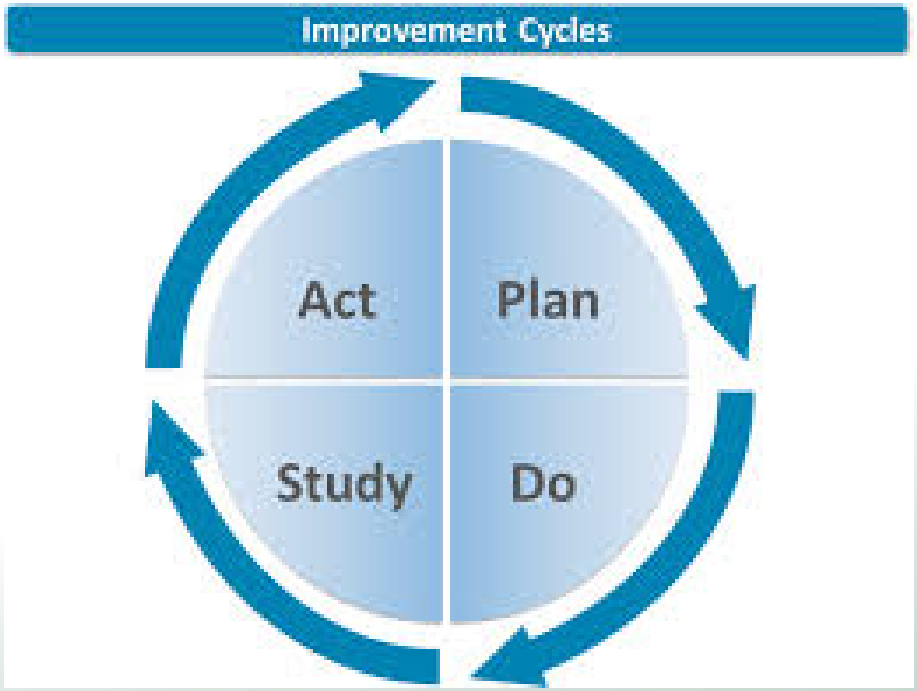
How do we get ready for this?

- Policy for self management and oversight
- Policy regarding pumps and CGMs
- Concurrence by physician, nursing staff, and patient that it is appropriate
- Why go to all this trouble?
- Because they just might do it better than we can!

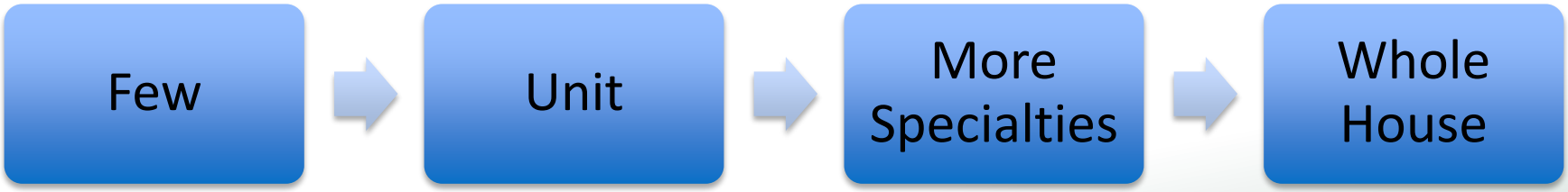
Develop your learning loop

PDSA…PDSA…PDSA…

- Small tests of change/rapid cycle



Keep Learning as You Spread



Key Resources for More Information

- ADA Standards if Medical Care in Diabetes, 2016 Chapter 13:S99-105 Retrieved at: http://care.diabetesjournals.org/content/39/Supplement_1/S99
- Society of Hospital Medicine Glucose Control Implementation Toolkit. Retrieved at: https://www.hospitalmedicine.org/Web/Quality_Innovation/Implementation_Toolkits/Glycemic_Control/Web/Quality___Innovation/Implementation_Toolkit/Glycemic/Overview.aspx

Key Resources for More Information

- Hypoglycemia Agent Adverse Drug Event Gap Analysis. Retrieved at: http://www.mnhospitals.org/Portals/0/Documents/ptsafety/ade/Medication-Safety-Gap-Analysis-Hypoglycemic.pdf
- Reduce Adverse Drug Events Involving Insulin, Institute for Healthcare Improvement. Retrieved at: http://www.ihi.org/resources/Pages/Changes/ReduceAdverseDrugEventsInvolvingInsulin.aspx

Understanding the Measures

HOW WILL YOU KNOW THAT YOU'RE MAKING A DIFFERENCE?

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ADE: MHA/IHA/WHA HIIN Evaluation Measure – All Facilities	
Adverse Drug Events (ADE) related to Glycemic Management: Hypoglycemia in inpatients receiving insulin	
Measure type	Outcome
Numerator	Number of patients experiencing a hypoglycemia event (e.g. hypoglycemia defined as plasma glucose concentration of **50 mg per dl** or less).
Denominator	Number of inpatients receiving insulin identified as warranted
Exclusions	Patients with hypoglycemia present on admission
Rate calculation	$\frac{number\ of\ patients\ with\ hypoglycemia\ (50\ mg/dl\ or\ less)}{number\ of\ inpatients\ receiving\ insulin}\ x\ 100$
Specifications/definitions Sources/Recommendations	Available from ASHP Safe Use of Insulin Patients with multiple blood glucose levels 50 mg/dL or less during an admission count only once.
Data source (s)	**Hospital Reported:** Submit to MHA Keystone Data System (KDS)
Automatic transfer from	n/a
Baseline period	Returning HEN 2.0 Hospitals: 2016 Q1 New GLPP HIIN Hospitals: 2016 Q4
Data collection period	Monthly, beginning 2016 Q4
KDS Survey Name	ADE – Anticoagulation & Glucose
KDS Measure ID(s)	KDS-HIIN-ADE-3
PfP Measure Name	BG_50

Gap Analysis

WHAT IT IS AND HOW YOU USE IT

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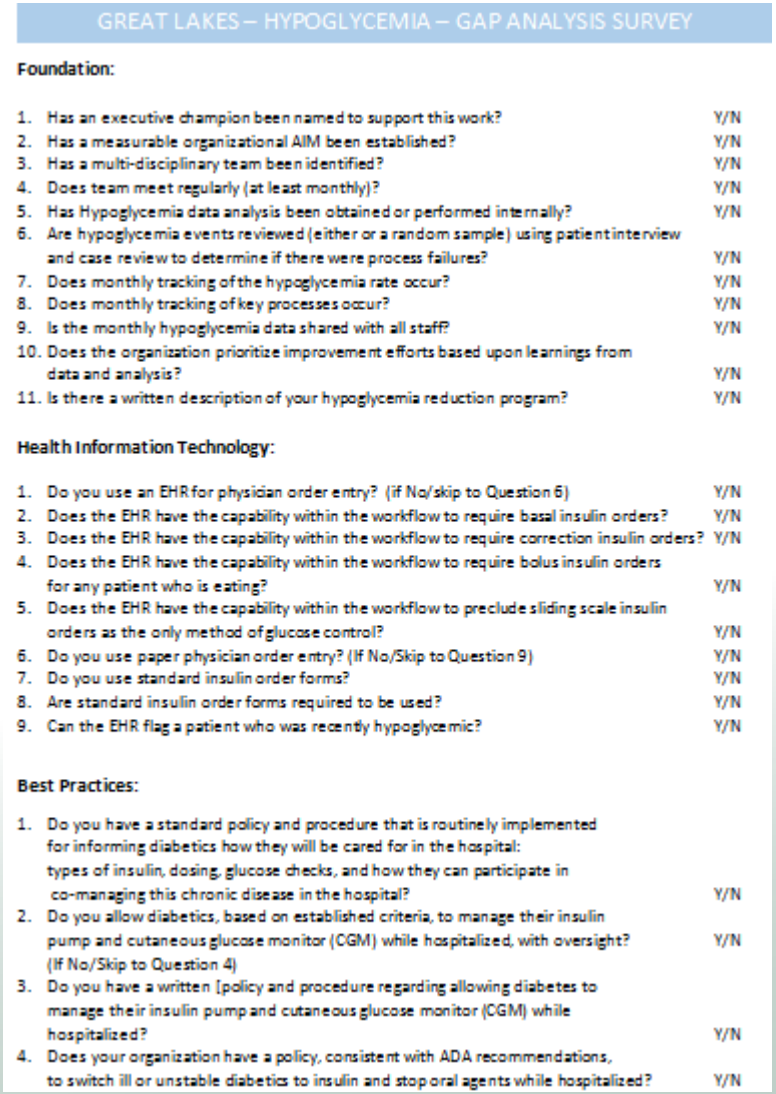
What is the Current State of Severe Hypoglycemia Prevention?

What and How

- A tool that will help you understand what's currently in place and not in place in your facility
- Check items that are in place
- Prioritize gaps based on learnings

Hypoglycemia Reduction Gap Analysis

- Domains
  - Contact info
  - Foundation
  - HIT
  - Best practices
  - Help



GREAT LAKES – HYPOGLYCEMIA – GAP ANALYSIS SURVEY

Foundation:

1. Has an executive champion been named to support this work? Y/N
2. Has a measurable organizational AIM been established? Y/N
3. Has a multi-disciplinary team been identified? Y/N
4. Does team meet regularly (at least monthly)? Y/N
5. Has Hypoglycemia data analysis been obtained or performed internally? Y/N
6. Are hypoglycemia events reviewed (either or a random sample) using patient interview and case review to determine if there were process failures? Y/N
7. Does monthly tracking of the hypoglycemia rate occur? Y/N
8. Does monthly tracking of key processes occur? Y/N
9. Is the monthly hypoglycemia data shared with all staff? Y/N
10. Does the organization prioritize improvement efforts based upon learnings from data and analysis? Y/N
11. Is there a written description of your hypoglycemia reduction program? Y/N

Health Information Technology:

1. Do you use an EHR for physician order entry? (if No/skip to Question 6) Y/N
2. Does the EHR have the capability within the workflow to require basal insulin orders? Y/N
3. Does the EHR have the capability within the workflow to require correction insulin orders? Y/N
4. Does the EHR have the capability within the workflow to require bolus insulin orders for any patient who is eating? Y/N
5. Does the EHR have the capability within the workflow to preclude sliding scale insulin orders as the only method of glucose control? Y/N
6. Do you use paper physician order entry? (If No/Skip to Question 9) Y/N
7. Do you use standard insulin order forms? Y/N
8. Are standard insulin order forms required to be used? Y/N
9. Can the EHR flag a patient who was recently hypoglycemic? Y/N

Best Practices:

1. Do you have a standard policy and procedure that is routinely implemented for informing diabetics how they will be cared for in the hospital: types of insulin, dosing, glucose checks, and how they can participate in co-managing this chronic disease in the hospital? Y/N
2. Do you allow diabetics, based on established criteria, to manage their insulin pump and cutaneous glucose monitor (CGM) while hospitalized, with oversight? (If No/Skip to Question 4) Y/N
3. Do you have a written [policy and procedure regarding allowing diabetes to manage their insulin pump and cutaneous glucose monitor (CGM) while hospitalized? Y/N
4. Does your organization have a policy, consistent with ADA recommendations, to switch ill or unstable diabetics to insulin and stop oral agents while hospitalized? Y/N

Your First/Next Steps

GET GOING

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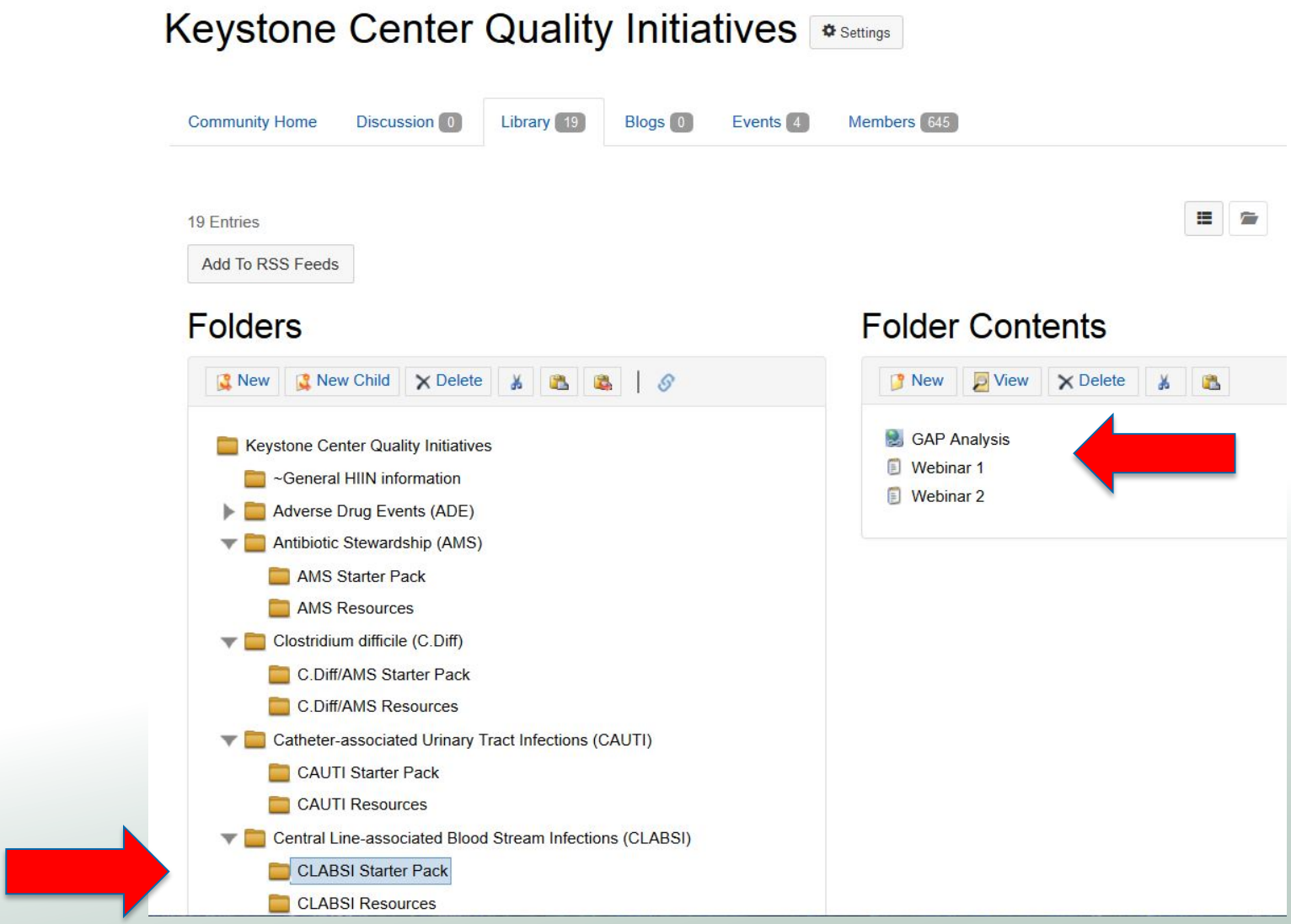
Stop Talking. Start Doing.

"The way to get started is to quit talking and begin doing."

- Perform your Gap Analysis
- Access the Resources provided - make notes and ask questions
- View Webinar #2
  - How to engage and involve stakeholders
  - Learn about PDSA and Small Tests of Change
- Decide the next level of HIIN support
  - Onsite assistance
  - Improvement Action Network
  - Other

Where to find the Resources



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