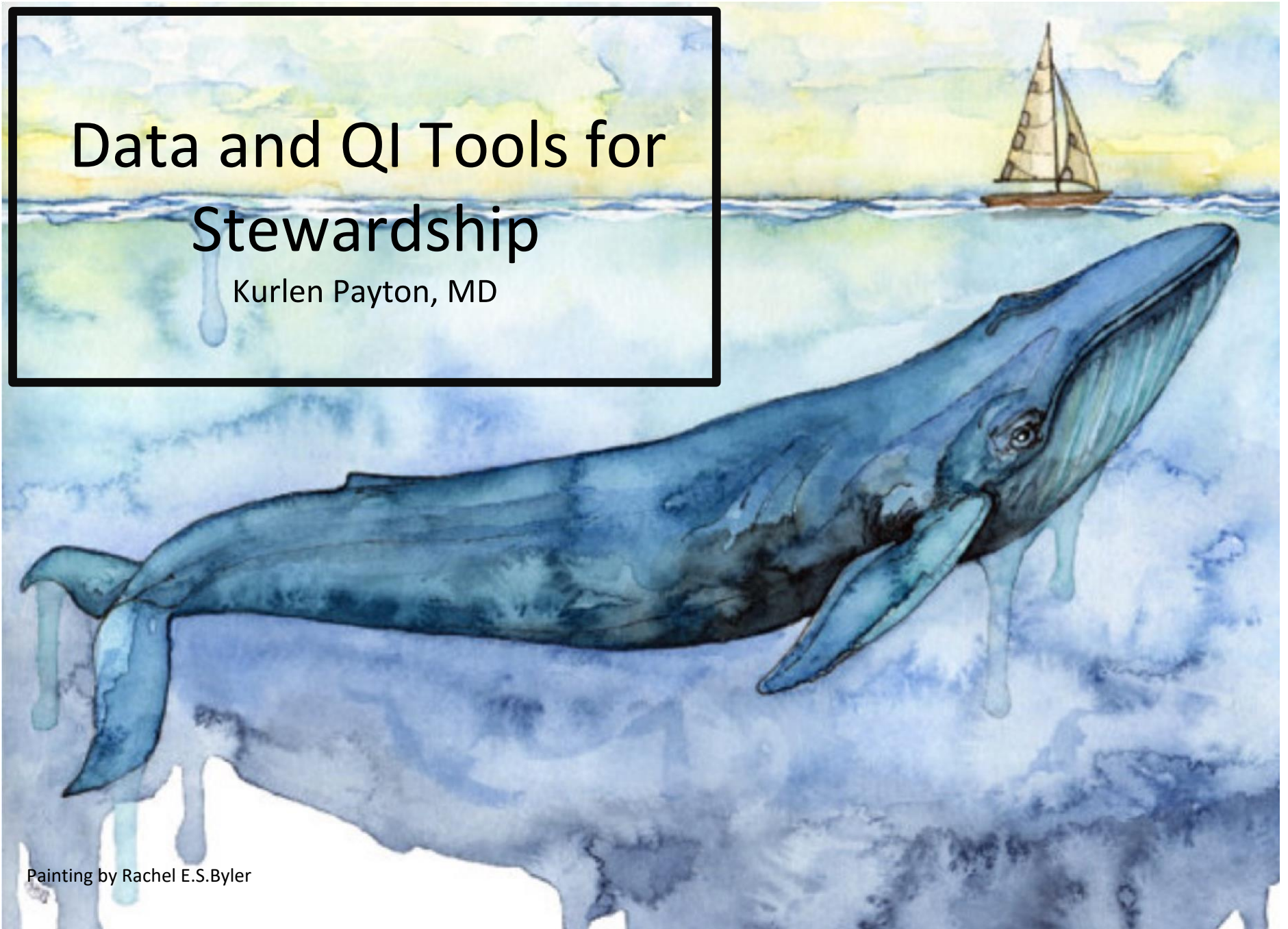


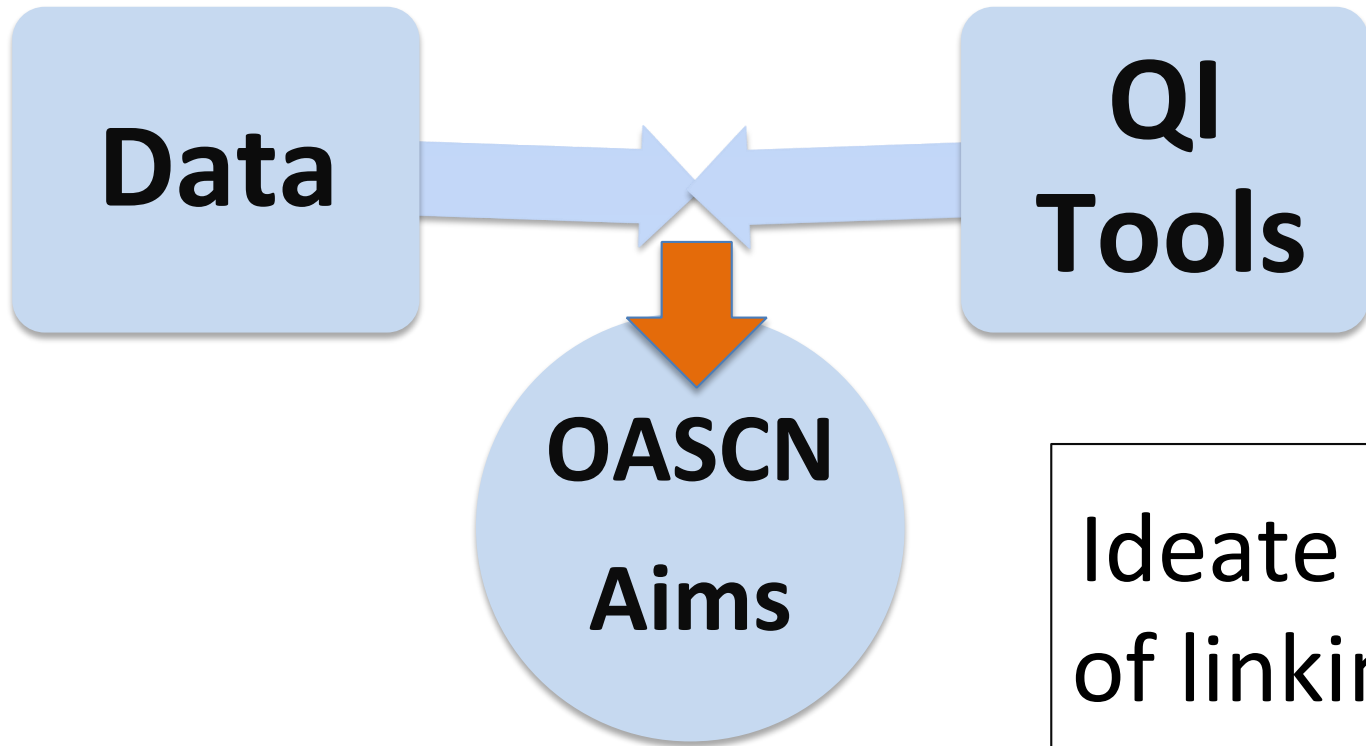
Data and QI Tools for Stewardship

Kurlen Payton, MD



Painting by Rachel E.S.Byler

Objectives



Ideate on methods of linking data & QI tools to impact your OASCN aims

NICU

In a ~~turbulent~~ world, there's another set of cognitive skills that might matter more: the ability to **rethink and unlearn.**



The Power of Knowing What You Don't Know

THINK AGAIN

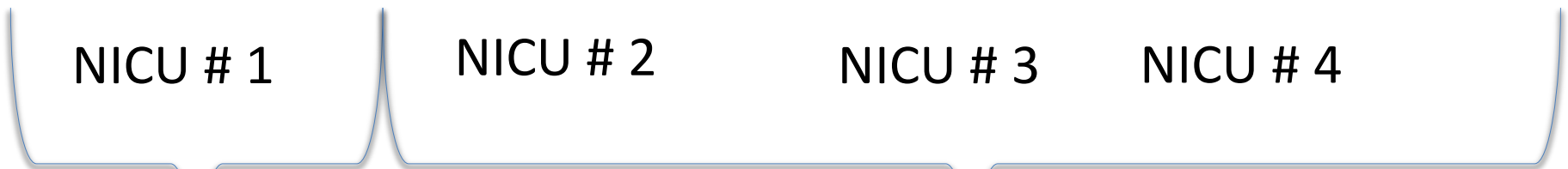
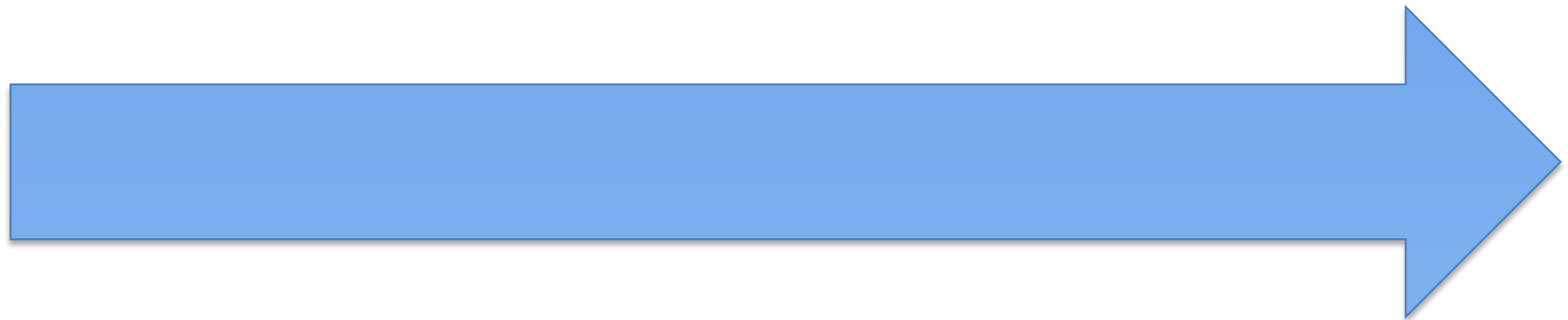


A must-read...
the lessons in
this book are more
important than ever
- Bill and
Melinda Gates

ADAM GRANT

#1 New York Times bestselling author of
ORIGINALS

The QI continuum



NICU # 1

NICU # 2

NICU # 3

NICU # 4

- No documentation
- Isolated improvement

A3 reports

PDSA

Publication/
SQUIRE

Widespread
dissemination

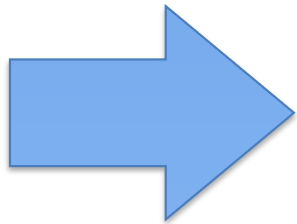
“Chart person”

Vignettes?

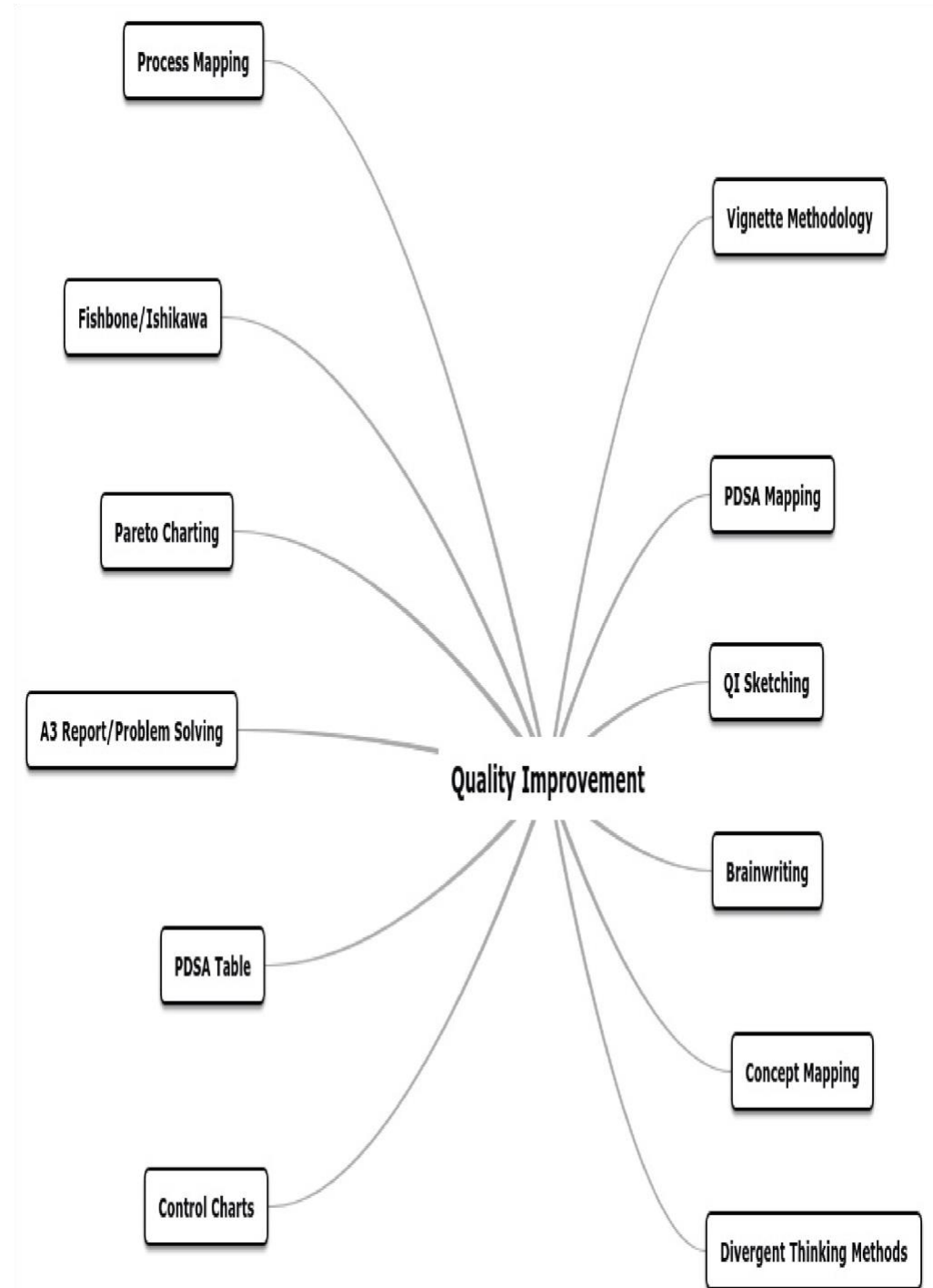


What is “Quality Improvement” in OASCN?

A systematic set of actions seeking to **document** and **sustain** measurable improvements in appropriate antibiotic use processes and outcomes



Methodical, Deliberate, Orderly?



Team Members/ Position / Role:

1. MD Lead — YB
2. QI Lead — KP (Auto data capture; data analysis, SPC)
3. Pharm Lead — KN
4. Nursing Lead — AW, Bevin, Karen C.
5. Culture positive sepsis review— SG
6. Chart review — SS
7. Lit Review and "Yokoten"
8. SPC — JN
9. Karen C — ICC



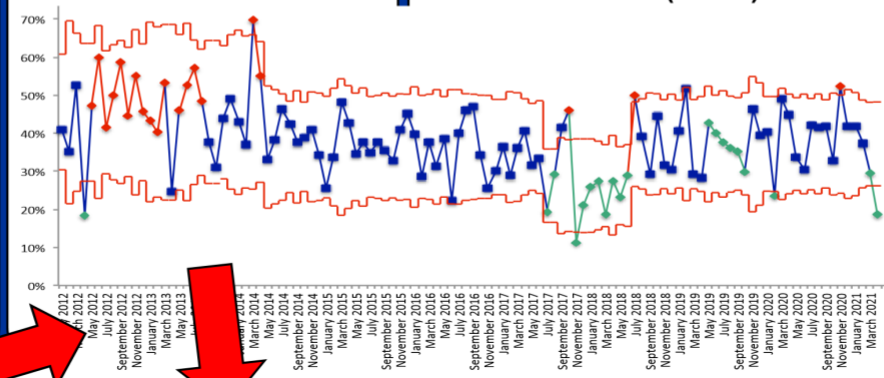
Cedars-Sinai OASCN AS QI study (12-17-20...)

12-17-20: Kick off meeting; started A3; Defined roles
 Feb, 2021 Mtg: All Faculty seem open to watchful waiting w/out ab for transitioning babies
 March 17: Discussed "Notify MD" expectations..
 May

What is the problem?

1. Widespread abx overuse in NICUs
 2. Evidence of QI projects safely reducing AU.
 3. We reduced AUR during 1st AS collab, but did not sustain
1. 5 Whys? We lost our previous gains? We continue abx for culture negative sepsis because of labs and risk factors?

What is your SMART AIM?

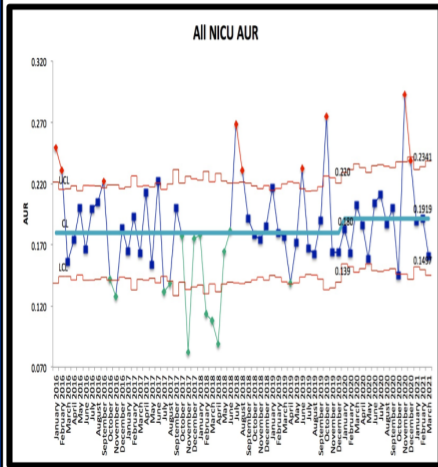


PDSA Cycle # 2: (Dates)

Lessons Learned:

1. List your lessons learned in any format that you think is most beneficial.
2. Consider which PDSA cycle this lesson originated.
3. How did you discover these lessons?
4. What's your process for capturing lessons learned?
5. How will you disseminate these lessons?

What data describe the problem?



PDSA Cycle # 1: Engaging RNs, RTs in monitoring (5/10/21—)

- PDSA #1 email to ~110 RN, RT's
- Admit nurse has newborn for 1-2 hours before switching nurse assignment. Opportunity here for safety check??
- Questions:
 - 1) 24 hour rule out OK for improving newborn?
 - 2) Probiotics to help impact of abx?

What data describe progress toward your SMART AIM?

1. Perhaps a single control chart may be ideal here
2. Are there issues or concerns about your original aim?

Sustainability Plan:

Process Metric Tracking:

1. How can you "hardwire" your successful processes?
2. Is this plan feasible?

Outcome Metric Tracking:

1. Is it possible to automate this?
2. How can you build this into regular daily activities?
3. Is this plan feasible?

Team Members/ Position:

CG (Neo) - Nutrition committee; Guidelines
 SG (NNP) - Pt level data extraction and spreadsheet
 ML (RD) - N.T.O; EMR metric consolidation
 PP (RD) - N.T.O; EMR metric consolidation
 KG (Data) - Extranet lead
 KP (Neo) - SPC analysis, QI Tools, A3
 AW (CNS) - Nursing liason & Communication

Cedars-Sinai NICU: VLBW Growth QI A3 Report (CPQCC QI Collaborative # 6, "Grow, Babies, Grow!")

October 2018 — April 2020

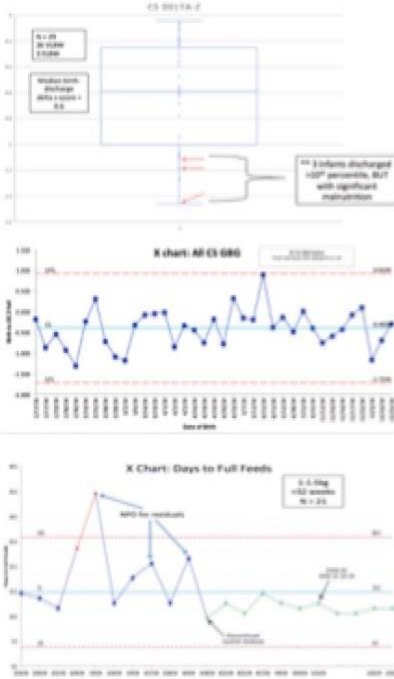
Updated: 3-3-2020
 (K.Payton)



What is the problem?

- Many VLBWs have suboptimal growth during NICU course
- May lead to suboptimal neurodevelopmental outcomes in our NICU graduates
- We don't truly know the scope of the problem

What data describes the problem?



What is your SMART AIM?

To decrease mean z score fall (birth-36 wks) in eligible GBG infants with BW 1-1.5kg by 20% compared to baseline by December 2019

What is your baby step outcome metric?

Days to full feeds (DTFF)?

PDSA Dates

- #1: Early Fortification (Nov2018— Feb 2019)
- #2: Start Feeds Earlier (Feb 2019—Apr 2019)
- #3: Advance Faster (Aug 2019—Dec 2019)
- #4: ????????

- 1. RD led "N.T.O"
- 2. Simplified feeding guideline w/ early fortification and faster advance
- 3. Default admit feeding order
- 4. Prenatal DBM attestation and start DBM ASAP

Lessons Learned:

(+)

1. Routine residuals were impeding DTFF
2. Prospective daily feeding order
3. Single page feeding guideline
4. RNs like early fortification, b/c ↓ CLABSI risk
5. MDs open to feeding earlier (EVEN with UAC)

(-)

1. "The Failed Bedside feeding chart"
2. MD and RN using different weights for calc
3. Some RNs less comfortable w/ advancing feeds based on their calculations
4. **Difficult to maintain data collection during high census/staffing shortage**
5. "Rounding down" ---> significant delay in DTFF
6. **Maybe more hyponatremia b/c off TPN earlier?**



Sustainability Plan:

Process:

1. VLBW admission orderset w/ **Default Feeding Order and Advance**
2. EMR auto feeding advance
3. Forcing function w/auto calc and displayed "DELTA Z". (March 2020)

Outcome Metric Tracking:

1. DTFF —Bi-annual Report???
2. Primary growth metric: **Birth to 36 week z-fall vs Birth to DC?**
3. How do we auto capture #1 and #2 above automatically and flip into SPC charts for continuous tracking?



UCI Medical Center Nutrition QI A3 Report

(CPQCC QI Collaborative: "Grow, Babies, Grow!")

October 2018 — April 2020

Team Members/ Position / Role:

CM/RC: medical team leaders, guideline development
 JP: dietician, leads NTO
 RK: CNS, nursing team leader, guideline development, SPC
 JJ: Lactation Consultant, guideline development
 PA: Everything data (extraction, extranet, and spreadsheet)

What is the problem?

- We believe the growth of VLBW infants may be suboptimal
- Adequate growth is important and contributes to improved neurodevelopmental outcome

What data describes the problem?

- Initially, 15 babies were included in the baseline data revealing that 26% were discharged as growth restricted
- A second analysis was completed and included all AGA eligible babies in 2018:
 8/33 discharge below the 10th percentile = 24%



Concurrent Interventions:

- TPN Guidelines modified
- Addition of Ready-to-Feed (RTF) ProLacta for select patients
- Use of Starter 5% AA starter TPN ONLY
- Order custom TPN on DOL 1
- Oral swabbing on DOL 1
- Modification of feeding protocols
- Monthly Nutrition Case Review (12/19) for ongoing learning

What is your SMART AIM?

Reduce the percentage of AGA VLBW patients discharged as growth restricted by 20%, from 26% (baseline) to 20% by October 1, 2019

What is your baby step metric?

- Days to return to birthweight
- Hours to initiation of Starter TPN
- Hours to initiation of enteral feedings

PDSA Cycle # 1: (October 2018-December, 2018) Nutrition Time Out (NTO)

UCI Health Grow Baby Grow! PDSA Table: Nutrition Time Out

Step #	Start Date	End Date	Plan	Do	Study/Check	Act	Lessons Learned
1	10/22/18	11/05/18	Nutrition Time Out will identify those infants not meeting nutritional goals AND recommend interventions to improve growth. Engage all stakeholders in the value of Nutrition Time Out: <ul style="list-style-type: none"> Medical Team Nursing Dietary Pharmacy Lactation Nutrition Time Out will: <ul style="list-style-type: none"> Engage Nurse/Pharm at DOL diagnostic will lead to include medical team, CNS, lactation consultant, pharmacist, nursing, program analyst (SPP) 	1. Email to stakeholders with proposal for Nutrition Time Out and need for participation. 2. Develop Nutrition Time Out tool for use and modify as needed. 3. Perform Nutrition Time Out tool on patients and evaluate methodology and tool.	1. Performed Nutrition Time Out tool on 4 patients. 2. 4 patients met criteria; each patient had time out spreadsheet. 3. 9 patients met criteria; each patient had a time out spreadsheet, some times/week. 4. Time and days are working well and synchronized with antibiotic Time Out. 5. Stakeholders are present each time. 6. Recommendations are communicated to medical team. 7. Nutrition Time Out tool modified for efficiency.	1. Nutrition Time Out tool. 2. Stakeholders identified during time out documented on tool. 3. Tool steps for PDSA Cycle #2 consider categorizing infants. 4. Use tool to keep Time Out process streamlined and efficient. 5. Modified tool to include categories of recommended interventions, simplified measures, and relations. 6. Use tool to keep Time Out process streamlined and efficient.	1. Stakeholders identified during time out documented on tool. 2. Stakeholders are present each time. 3. Recommendations are communicated to medical team. 4. Nutrition Time Out tool modified for efficiency.

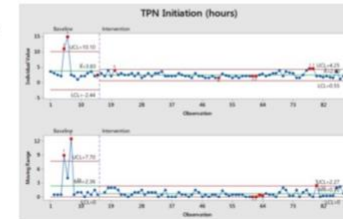
How well are VLBW babies growing in our unit this week? (10/22/18)

Our Goal? No babies in the RED category

PDSA Cycle # 2:

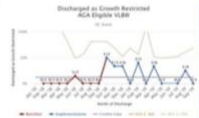
(January-March, 2019)
Initiate Starter TPN within 2 hours of birth

Baseline, N=15
 Intervention, N=72
 IMPROVEMENT!



What data describe progress toward your SMART AIM?

- Current percent of AGA VLBW patients discharge as growth restricted is 18% (7/39)



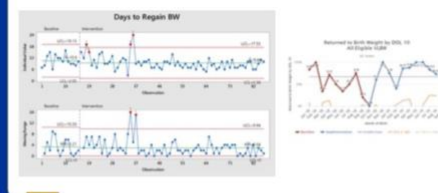
Lessons Learned

- Simplification of Nutritional guidelines help all providers to be successful
- NTO helps team members to focus on nutritional goals and interventions
- Posting NTO results helps EVERYONE see what is happening with GBG babies
- Don't wait to intervene when growth is suboptimal
- Will look at changing aim statement to reflect fall in Z score
- Collect data prospectively; very difficult to look at charts retrospectively
- May need more patients and more time to see improvement in outcome goal
- This is a marathon not a sprint!
- Interventions that will improve growth may not be any of the processes we implemented

PDSA Cycle # 3:

(April-June, 2019)
Regain BW by DOL 10

Baseline, N=15
 Intervention, N=72
 IMPROVEMENT!



PDSA Cycle # 4:

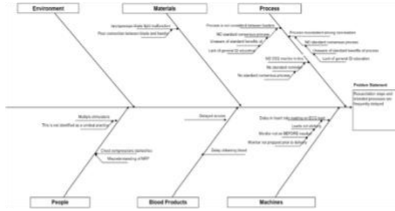
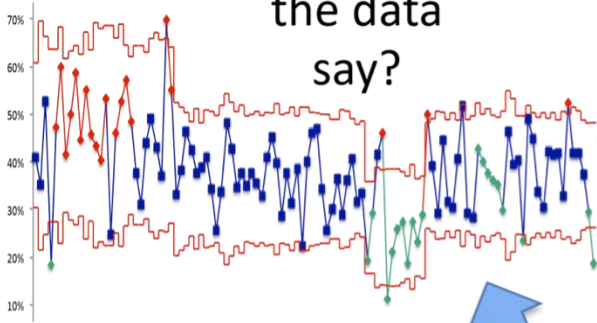
(April-June, 2019)
Time (hours) to First Feed

All GBG infants:
 N=72

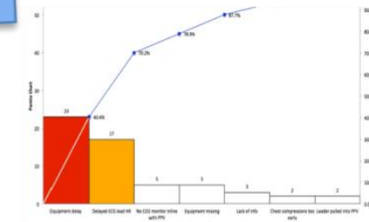


Causes of the problem?

What does the data say?



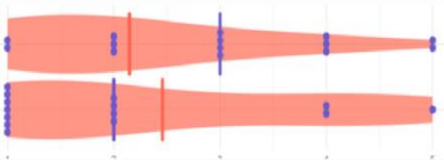
Priority?



Progress Report

Hypothesis/Prediction

Vignettes?



Cedars-Sinai NICU: VLBW Growth QI A3 Report
(CPQCC QI Collaborative # 6, "Grow, Babies, Grow!")
October 2018 — April 2020

What is the problem?

- Many VLBW have suboptimal growth during NICU course
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What is your SMART AIM?

To decrease mean z score fall (birth-36 weeks) in eligible OBG infants with BW 1-1.5kg by 20% compared to baseline by December 2019

What is your baby step outcome metric?

Days to full feeds (DTFF)?

PDSA Cycle # 2: STARTING FEEDS EARLIER (Feb 15 — Apr 15, 2019)

Lessons Learned:

- Routine reassess with impending DTFF
- Prospective daily feeding order
- Single stage feeding guideline
- RNG like early fortification, dic CLASS risk
- MCI open to feeding earlier (EVEN with UAC)

What data describes the problem?

PDSA Cycle # 3: Race to full feeds (Aug 2019 — Dec 2019)

Sustainability Plan:

- VLBW admission order set w/ Default Feeding Order
- EMR auto feeding advance?

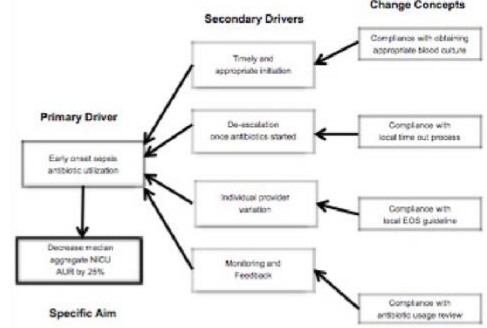
Outcome Metric Tracking:

- Baby Step Metric: Days to Full Feeds
- Primary growth metric: Births to 36 week z fall
- How do we auto capture #1 and #2 above automatically and flip into SPC charts for continuous tracking?

PDSA Cycle # 1: EARLY FORTIFICATION (Nov 28, 2018 — Feb 1, 2019)

What data describes progress toward SMART AIM?

Special cause variation noted in 'B36Z'



Reinterpretation?

Cedars-Sinai NICU PDSA #1 Table -- for Learning Session #1

Order #	Status	Plan/Predict	Do	Study/Check	Act
1	Completed	• Predicting new identified patients (CL) will lead to earlier fortification and quicker to full feeds	• Implemented new CL on first VLBW on 12-8-19	• 85 survey feedback (1/21)	• 80 feedback via PM 1/22/20
2	In Progress	• Reassess 40% fortification @ 40-70 cc/kg/day	• New CL, parity at 40-70 cc/kg/day (1 kg = 1kg)	• Plan to check after 5 VLBW check fortification step on new CL	• Monitor
3	Completed	• Fortified at 40 cc/kg/day	• 23 there to reach 100 cc/kg/day (for both feed and protein intake)	• 10 CL feedback via PM 1/22/20	• 10 CL feedback via PM 1/22/20

Hypothesis testing

Conclusion



1. Linking **QI data** and **QI tools** optimizes individual & group **problem solving, engagement, and dissemination.**



1. **Re-think** your place along the QI continuum.

2. Do you have **new ideas** for documenting and disseminating for stewardship in your NICU?

