Community of Practice: Choosing Wisely in Paediatrics

Moderators:

Dr. Jeremy Friedman, Staff Physician, Paediatric Medicine, Associate Paediatrician-in-Chief, and Clinical Director of the SickKids Choosing Wisely Program

Dr. Olivia Ostrow, Staff Physician, Emergency Medicine, and Associate Director of the SickKids Choosing Wisely Program

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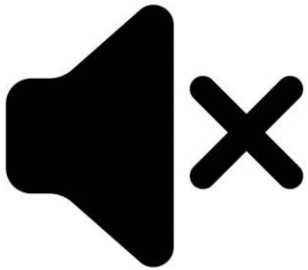
Housekeeping



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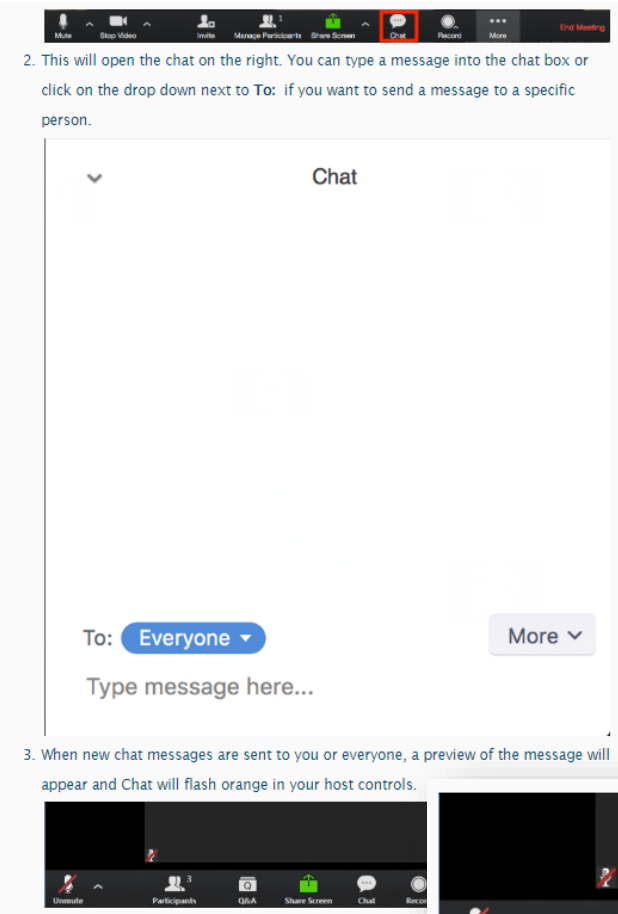
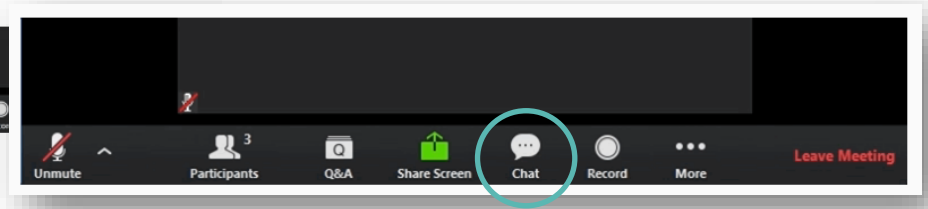


Have a Question?

- Use the **chat function** in Zoom at anytime
- If you wish to contribute to the conversation, be sure to **un-mute** on the Zoom dashboard
- Note: *we will moderate the Q&A after all presentations have been completed*



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Agenda

Item	
1	Welcome and Updates
2	New SickKids Choosing Wisely Recommendations – Quick Hits
3	COVID-19 and Resource Stewardship - Discussion

Welcome!

The Choosing Wisely in Paediatrics Community of Practice (CoP) mandate is to foster knowledge sharing and collaborative learning to promote high-quality, value-added care by focusing on overutilization of certain tests and therapies. This will be facilitated through:

- Building capacity in QI / resource stewardship (Choosing Wisely) by sharing lessons learned and successful initiatives;
- Supporting continuous QI / resource stewardship (Choosing Wisely) efforts;
- Promoting consistency in recommendations locally, provincially and nationally;
- Supporting the spread of evidence-based best practices related to the delivery of paediatric healthcare;
- Developing a central repository for idea sharing; and
- Engaging in new opportunities for collaboration

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- **The Choosing Wisely in Paediatrics Health Hub**
  - Connects individuals with "like" peers across Canada to share information and exchange resources
  - Provides information on past and upcoming events
  - **Visit https://choosingwisely.squarespace.com/**

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Five Things Clinicians and Patients Should Consider

1 Don't routinely discharge children with acute pain on opioid analgesia for more than three days. Do prescribe morphine as a first line opioid when opioid analgesia is required.

Most acute pain can be successfully treated with a multimodal therapeutic approach consisting of a combination of non-opioid pharmacotherapy (acetaminophen and/or nonsteroidal anti-inflammatory drugs [NSAIDS]), physical, and psychological interventions. Opioids should not be routinely prescribed for pain in children unless these strategies are therapeutically inadequate. When opioids are indicated, current opioid prescribing guidelines and standards recommend that opioids prescribed for acute pain for children who do not regularly take opioids should be prescribed for only short-term use at the lowest effective dose of morphine, the preferred first line opioid. Evidence suggests a duration of three days or less is often sufficient; more than seven days is rarely indicated and is associated with a risk of long-term opioid use. Prescribing physicians should provide patient- and caregiver-centred education about potential benefits and harms of opioid therapy, treatment options for the management of pain, and safe storage and disposal of unused medications, to allow them to make informed decisions about their care.

2 Don't use Free T4 or T3 to screen for primary hypothyroidism or to monitor and adjust levothyroxine (T4) dose in this condition.

Thyroid function tests are among the most commonly ordered laboratory tests. Since thyroid-stimulating hormone (TSH) is sensitive to even small changes in free thyroxine (fT4) and triiodothyronine (T3) levels, current guidelines state that TSH alone should be used to screen for primary hypothyroidism and to assess the adequacy of thyroid hormone replacement for this condition. In the presence of a normal TSH, which constitutes the majority of cases, fT4 and T3 add little clinical value. In spite of this, fT4 and T3 continue to be frequently ordered in combination with TSH. These inappropriate tests can lead to unnecessary repeat testing, further investigations and referrals, and in some cases, even unnecessary treatments. In select patients, for example, with suspected or known pituitary or hypothalamic disease, where the TSH may not be reliable, a free T4 would be indicated.

3 Don't routinely hospitalize or start empiric antibiotics for otherwise healthy and well-appearing children presenting with a febrile illness and first episode of neutropenia.

While the management of febrile neutropenia in cancer patients has been well studied with clear practice guidelines, the management of previously healthy, immunocompetent children with a febrile illness and first episode of neutropenia is often treated with empiric broad-spectrum antibiotics and hospitalization. However, multiple studies have shown that healthy, immunocompetent children are at low risk of serious bacterial infections if well appearing with a short history of neutropenia (often viral induced). Less aggressive management should be considered in these otherwise well-appearing, previously healthy patients with suspected viral induced, febrile neutropenia if clear clinical criteria are met, including that the rest of the blood counts and blood smear are entirely normal.

4 Don't routinely order urine amino acids (UAAs) as part of a screen for inborn errors of metabolism or in a work-up for critical hypoglycemia. To help rule out inborn errors of metabolism, consider ordering urine organic acids and plasma amino acids instead.

Urine amino acids (UAAs) are often ordered erroneously by clinicians not familiar with this test. This has led to unnecessary testing, mounting costs, false positive "non-specific" results requiring repeat testing, and patient safety events from delays in ordering the correct test. There are only a handful of indications for ordering UAAs, such as Lysinuric Protein Intolerance (LPI), Cystinuria, Hartnup disease, and Fanconi renotubular syndrome. UAAs should not be confused with similar-sounding investigations that are part of the basic metabolic work-up: plasma amino acids and urine organic acids.

5 Don't routinely order catheterization for urinary tract infection (UTI) testing in febrile children 6-24 months of age without first considering a noninvasive technique for urine screening.

Children presenting to the Emergency Department (ED) with fever without a source is very common in the first 2 years of age. As part of the diagnostic process, UTI often needs to be considered. Since this age group is usually not able to provide a midstream 'clean catch' sample, a culture is sent generally using a sterile approach (catheterization or suprapubic aspiration) to avoid contamination and false positive cultures. These options are invasive and painful and can be time consuming in a busy ED. Prior studies have shown that a two-step approach, with dipstick urinalysis performed on a sample that is collected in a urine bag, with an invasive culture sent only if the screening urinalysis test was positive, significantly reduced the catheterization rate in febrile children 6-24 months of age without prolonging ED length of stay and with no missed UTIs. Reducing automatic catheterization for the diagnosis of UTI in this age group will not only decrease the number of invasive, painful and time-consuming procedures, but will also decrease the number of unnecessary urine cultures sent, and the potential consequences of contamination, return visits and unnecessary antibiotic treatment.

How the list was created

The Departments of Paediatrics and Surgery & Perioperative Services at The Hospital for Sick Children (SickKids) in Toronto, Canada established its third list of Choosing Wisely recommendations in 2020 through the following process. A diverse group of SickKids stakeholders including representatives from Diagnostic Imaging, Laboratory Medicine, Pharmacy, Paediatrics, Surgery & Perioperative Services as well as the Hospital's Utilization Management and Antimicrobial Stewardship Committees were encouraged to submit recommendations applicable to a tertiary/quaternary care paediatric hospital and demonstrating evidence of overuse. In an iterative process, all proposed recommendations were reviewed by the Choosing Wisely steering committee to determine their appropriateness for inclusion in the new list. Factors considered included evidence of overuse/misuse, implementation and measurement plan, and presence of a clinician champion to lead the project. With a total of 15 recommendations developed to date, the Hospital continues to review applications for new Choosing Wisely recommendations from stakeholders across a variety of Divisions and Departments.

Sources

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Opioid Wisely

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Background

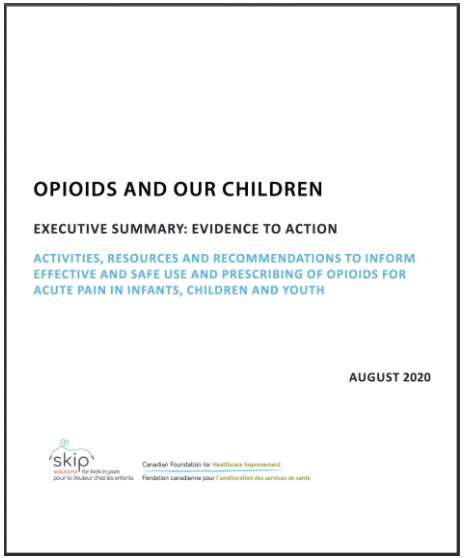
Prescription opioids

- implicated in opioid crisis; contributory factor in opioid-related deaths
- youth prescriptions - doubled in past 10 years
- young adult - fastest growing hospitalization rates of opioid overdose

Persistent opioid use after acute pain (e.g. surgery, trauma)
? pathway to misuse

Guidelines and standards - emerged to guide practice:

- *Canadian Opioid Prescribing Guideline (2017)*
- *Health Quality Ontario Quality Standard on Opioid Prescribing for Acute Pain (2018)*



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Aim

This quality improvement project aims to **implement** evidence-based quality standards through a *Choosing Wisely* recommendation and **evaluate** an evidence-based education protocol related to **opioid type**, **dose**, and **duration** in children with acute pain to **reduce harm** and **improve pain management**.

Recommendation

1 Don’t routinely discharge children with acute pain on opioid analgesia for more than three days. Do prescribe morphine as a first line opioid when opioid analgesia is required.

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Interventions

QI Bundle

- Evidence-based protocol to support implementation of CW recommendation
- Education material for **MDs/NPs re: opioid prescribing** and for **patients/caregivers re: opioid benefits/harms**

Team

- SK Pain Centre (Clinicians, Patient Advisory Committee Patient Partners), Medication Safety Committee, Plastic Surgery (Surgeon, NP) & PACU Representative.

Implementation plan

- Orientation package, grand-rounds, teaching session
- Disseminate on SickKids websites, posters, publications, presentations, social media
- Regular stakeholder engagement (prescribers, nurses, pharmacists, children / families) to promote education and shared decision-making
- Outcomes measurement; with feedback to key stakeholders

Measures

Outcome Measures:

1. Primary: Type of opioid and opioid dose in mg/kg
2. Secondary: Opioid duration in number of days/doses/volume dispensed
3. Tertiary: % prescribers including a non-opioid adjunct analgesic medication: acetaminophen, NSAID or both.

Process Measures:

- % prescribers completing opioid education package (developed in partnership)
- before & after survey of education package
- % prescribers implementing protocol after receiving education

Balancing Measures:

- Unintentional restriction of opioids for pts that merit them (meet exclusion criteria)
- Unintentional opioids for pts who do not merit them (don't meet inclusion criteria

Safely Reducing Unnecessary Thyroid Hormone Testing

Christine Tenedero, MD, FRCPC
Pediatric Endocrinology Fellow
The Hospital for Sick Children

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Background

- Thyroid function tests are among the most commonly ordered laboratory tests
- Current ATA guidelines state that TSH alone should be used to screen for and monitor treatment in primary hypothyroidism
- Despite this, free thyroid hormones (T4 or T3) are frequently ordered in combination with TSH
- Up to 75% of free thyroid hormone levels are unnecessary

Recommendation

2 **Don’t use Free T4 or T3 to screen for primary hypothyroidism or to monitor and adjust levothyroxine (T4) dose in this condition.**

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Intervention

- Laboratory reflex free T4 system

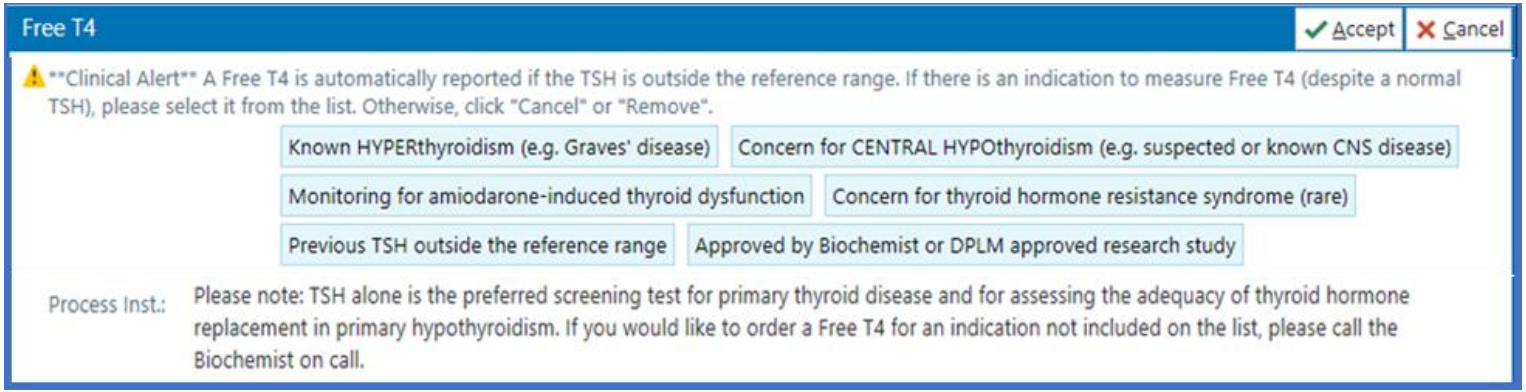
  Free T4 automatically ordered if TSH falls outside of the normal range

- Forced function

  Providers must select an appropriate indication for all free T4 or T3 orders

- Clinical decision support has been incorporated into all TSH, free T4 and T3 orders in Epic

Intervention



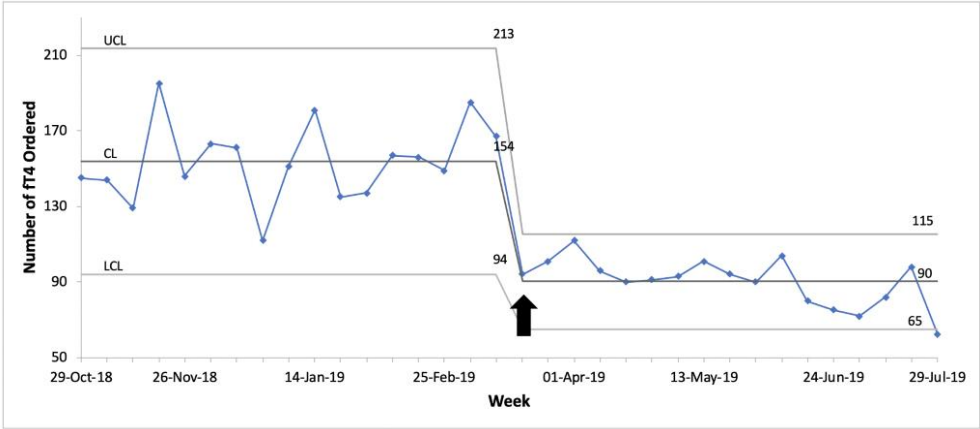
Results

Inappropriate free T4 ordering by 48%

Free T4 tests run by 35%

T3 tests run by 65%

Costs $43,000/year



First Episode of Febrile Neutropenia

Charlotte Grandjean-Blanchet, Stephanie Villeneuve, Carolyn Beck, Michaela Cada, Daniel Rosenfield, Michelle Science, Michelle Fantauzzi, Sheila Butchart and Olivia Ostrow

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Background

Significant practice variation in the management of febrile neutropenia in otherwise healthy children leading to unnecessary hospitalizations and broad spectrum IV antibiotics exposure

Literature suggests that **less aggressive management with close follow-up could be done** in most of these otherwise well-appearing, previously healthy patients with suspected viral induced febrile neutropenia

Our aim is to decrease unnecessary hospitalizations and empiric antibiotics prescribed by 50% for otherwise **healthy**, **well appearing patients** presenting to the emergency department with a **first episode of febrile neutropenia** over a 12-month period

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Recommendation

3 **Don’t routinely hospitalize or start empiric antibiotics for otherwise healthy and well-appearing children presenting with a febrile illness and first episode of neutropenia.**

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Intervention

Multidisciplinary team of key stakeholders including pediatric emergency medicine, general pediatrics, hematology and infectious disease

Review of the **literature**, peer institutions and local **practices** on febrile neutropenia in healthy children were performed

Guideline for the management of healthy children with first episode of febrile neutropenia was developed and refined

Outcome measures: % of low-risk patients hospitalized and % of low-risk patients receiving empiric antibiotic treatment

Balancing measures: missed serious bacterial infection, ED return visit and new hematologic diagnoses

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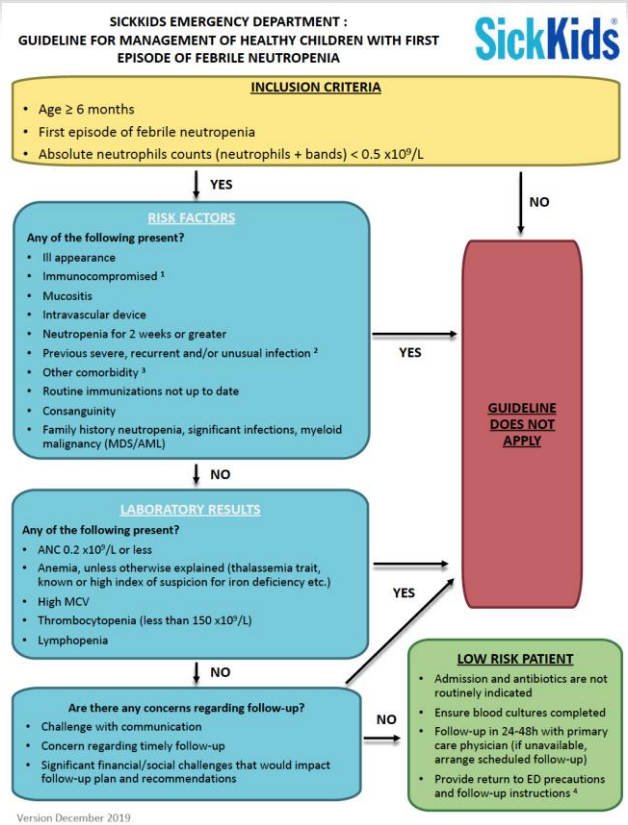
Guideline



[1] Immunocompromised (please note this is not an exhaustive list):
- Oncology
- Transplant
- Primary immunodeficiency
- Immunosuppressant therapy
- Aplastic anemia or other bone marrow failure

[2] Previous severe, recurrent and/or unusual infection (please note this is not an exhaustive list):
- Meningitis
- Sepsis
- Severe pneumonia
- Abscess

[3] Other comorbidity (please note this is not an exhaustive list):
- Chronic medical condition/illness
- Chronic lung disease
- Cardiomyopathy
- Global developmental delay
- Failure to thrive
- Short stature
- Dysmorphism
- Congenital anomalies

[4] Follow-up:
- CBC to be redrawn 1 month later to confirm resolution of neutropenia
  - If abnormal, CBC should be redrawn 2 months later (3 months after ED visit)
  - Outpatient referral to hematology if persistent neutropenia after 3 – 6 months or sooner if abnormalities in other cell lines develop

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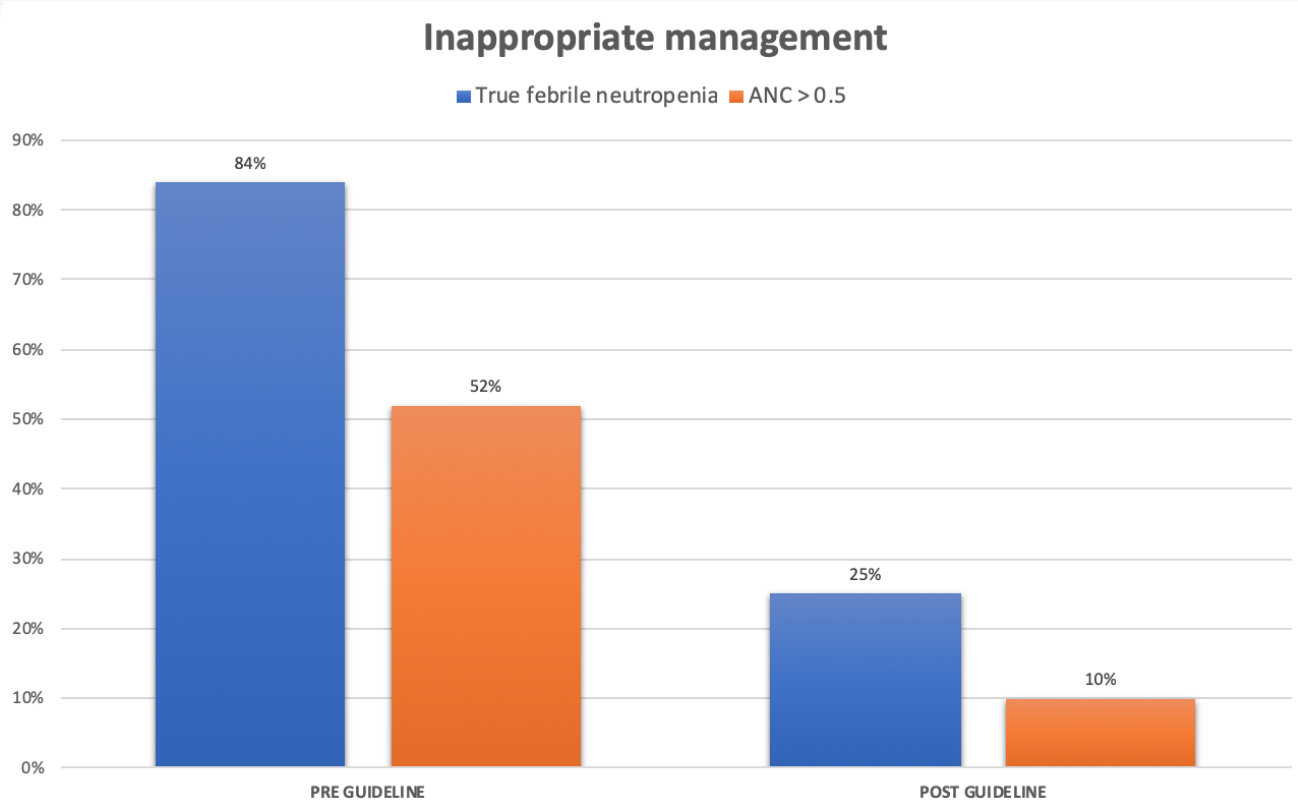
Results


Inappropriate management
True febrile neutropenia
ANC > 0.5
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
84%
52%
25%
10%
PRE GUIDELINE
POST GUIDELINE

Next Steps

- Further iterations to the guideline to increase impact
- Sustainability planning
- Dissemination to community hospitals

Putting a Stop to Unnecessary Urinary Amino Acid (UAA) Ordering

Presented by Mayowa Osundiji
On Behalf Of
The SickKids Medical Genetics and Genomics and Co-Learning Quality Improvement programs
Laura Guilder, Ash Marwaha, Shawn Shao, Sarah Al-Qattan, Ashish Deshwar, Yiming Wang, Hanna Faghfoury, Lauren Chad, Vanda McNiven

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Background – Urine Amino Acids (UAAs)

- UAAs are often ordered erroneously by clinicians who are not familiar with this test
- This has led to unnecessary testing, mounting costs, and patient safety issues (e.g. delays in ordering correct test)
  - At our centre, we estimate a cost of $40,500 over 6 months (with only a 0.3% positive yield)
- Aim: avoid unnecessary testing, save on costs, and improve patient safety by reducing the number of UAA tests ordered

Background – Why is This Happening?

- Ordered as part of a “basic metabolic work-up”
- Ordered as part of different order sets (e.g. hypoglycemia critical sample order set)
  - Automatically checked off; unclear why
- Confused with similar-sounding tests
  - Such as “urine organic acids” and “plasma amino acids”
- There are no safety checks on Epic to dissuade unnecessary ordering of UAAs

Recommendation

4 **Don’t routinely order urine amino acids (UAAs) as part of a screen for inborn errors of metabolism or in a work-up for critical hypoglycemia.**

To help rule out inborn errors of metabolism, consider ordering urine organic acids and plasma amino acids instead.

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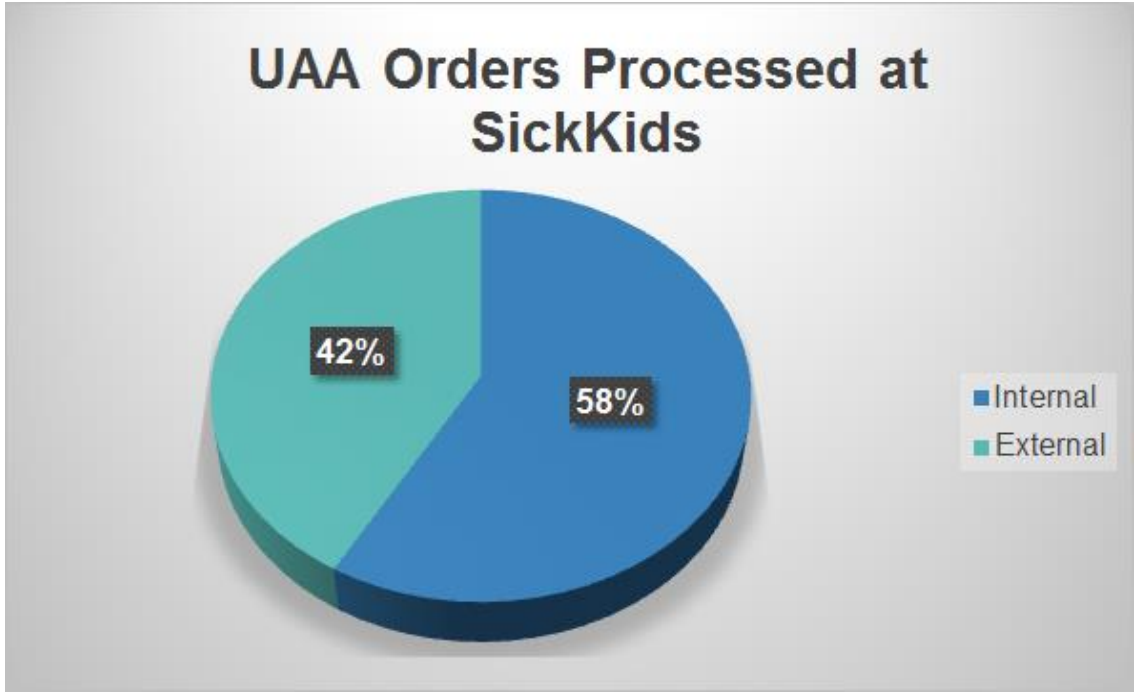
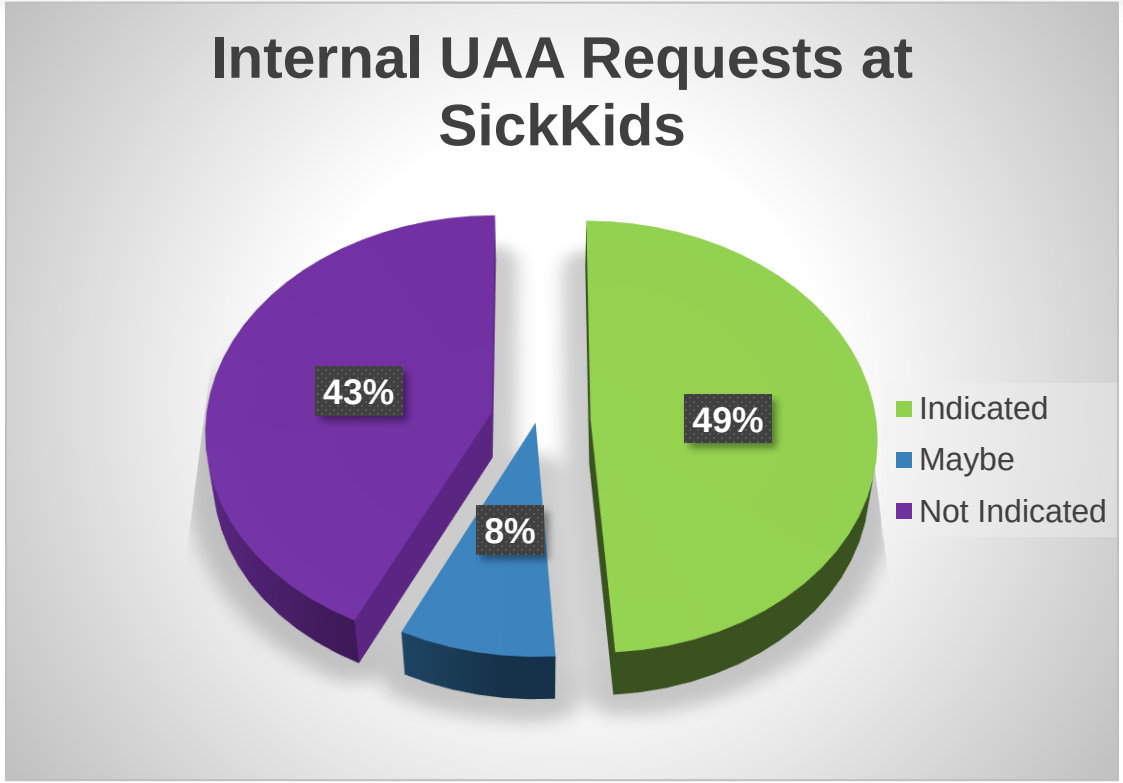
Preliminary Data Dec 1, 2019 - Jan 31, 2020

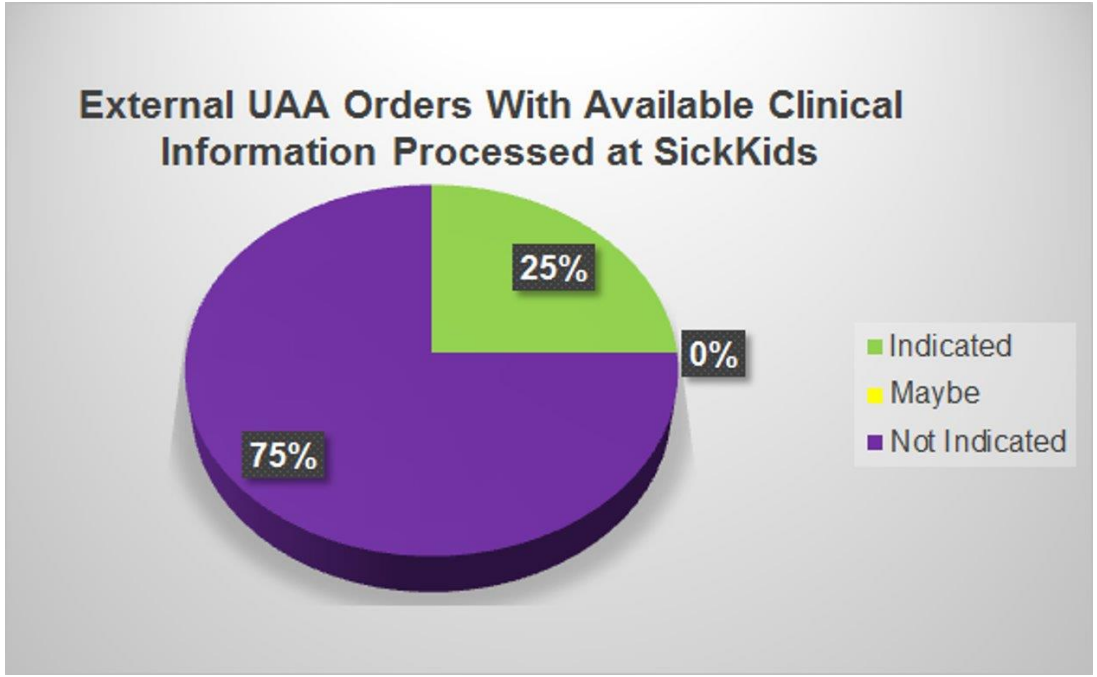


Preliminary Data Dec 1, 2019 - Jan 31, 2020



1/3 of Unindicated Tests Were From Hypoglycemia Critical Panel

Preliminary Data Dec 1, 2019 - Jan 31, 2020



Almost all unindicated tests were for autism investigation

Intervention

1) Add “plasma amino acid” as a synonym for “serum amino acid”

2) Remove UAAs from hypoglycemia order set

3) Add warning to UAA Epic order

Record number of UAA tests ordered in 1 month after each intervention

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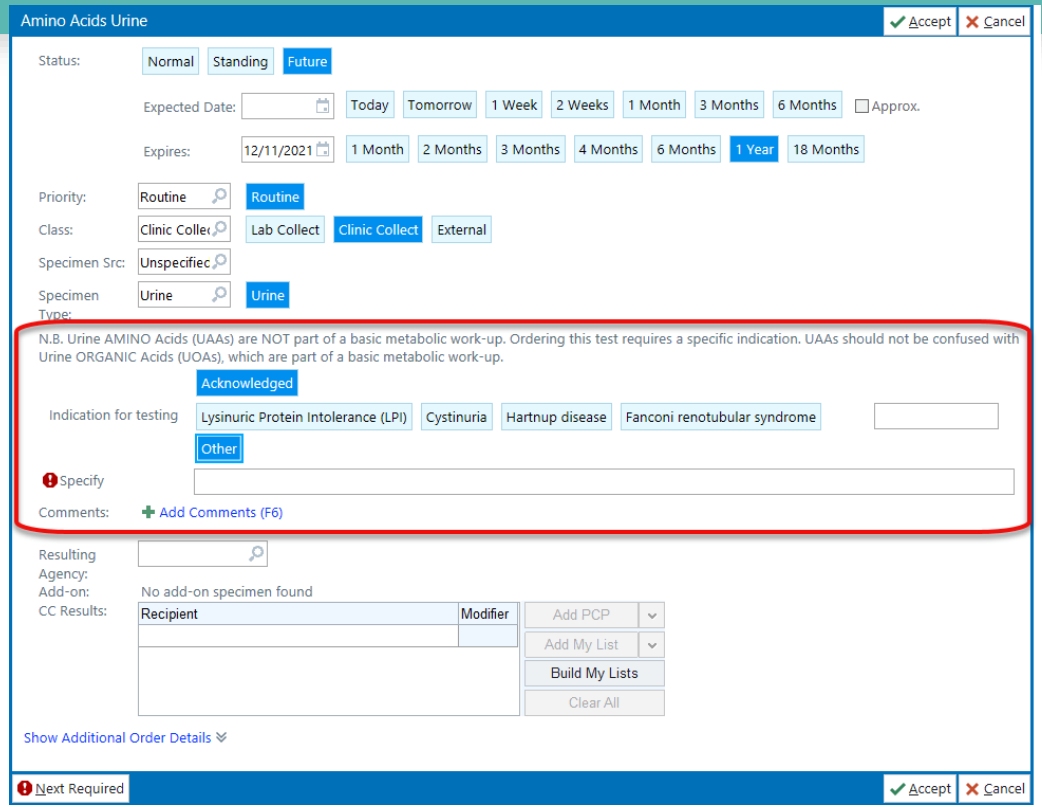
Intervention

1. Added “plasma amino acids” as a synonym for “serum amino acids”

2. UAA removed from hypoglycemia order set

3. Modify Epic UAA order
   - Approved and pending final Epic reveal

Intervention – Modify EPIC



Conclusions

- Potential to reduce costs and improve patient safety
- Ongoing study (data up until January 2021 obtained)

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Two-Step Urinalysis Quality Improvement Project

Felicia Paluck, MD
Paediatric Resident
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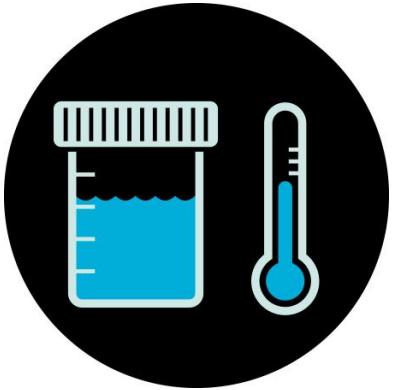
Brooke Brimmer, RN
Emergency Department Nurse
The Hospital for Sick Children



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QI Team

ED Project:

- Felicia Paluck MD, Brooke Brimmer RN,
  Inbal Kestenbom MD, Gidon Test MD, Laurel Bown RN,
  Olivia Ostrow MD

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Background

- Fever without a source is a common presenting complaint to ED in young children
- UTI needs to be excluded
- Young children unable to provide clean catch
- Sterile techniques are used
- These are invasive, traumatizing, time-consuming
- 2-step screening approach can reduce invasive sampling

Aim and Measures

Aim Statement

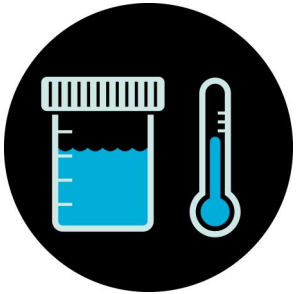
To implement a two-step approach for UTI screening in febrile children aged 6-24 months over a 2-year period, in order to decrease the number of unnecessary urine catheterizations by 50% without impacting ED length of stay (LOS), return visits (RVs) or missed UTI diagnoses.

Family of Measures

- **Outcome measure**: Rate (%) of urine catheterizations of total Urinalysis
- **Process measures**: Total number of urine cultures sent to microbiology and % positivity
- **Balancing measures:** ED length of stay (LOS) and return visits

Recommendation

5 **Don’t routinely order catheterization for urinary tract infection (UTI) testing in febrile children 6-24 months of age without first considering a noninvasive technique for urine screening.**



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Intervention

Jan 2019-June 2019
- Baseline data collected
- QI approval April 2019

July 2019
- QI team formed
- Process mapping
- Two-stage screening pathway developed

- First launch of two step intervention
- Monthly data collection
- MDT staff education

December 2019
- Nursing champion joined QI team

March 2020
- COVID began impacting project results

November 2020
- Extension project to inpatient Paediatric ward
- Nursing directed education

December 2020
- Project accepted by Choosing Wisely Campaign

January 2021
Additional optimization strategies for re-launch:
- Updated workflow/pathway
- Staff education
- New wipes ordered
- "U-bag kits" stocked in rooms with parent instruction sheet
- Visual reminder in patient rooms

Intervention

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Emergency Medicine
Two-Step Approach for UTI Detection in Young Children: Reducing Catheterization Rates

INCLUSION CRITERIA:

Age: 6-24 months in females and uncircumcised males
6-12 months in circumcised males
Symptoms: Fever for greater than or equal to 48 hours, and/or UTI symptoms

EXCLUSION CRITERIA:

- Less than 6 months old
- Immunocompromised
- Known GU abnormality
- Requiring immediate medical interventions
- Significant diaper rash
- Antibiotics in past week

SAMPLE PRODUCED?

Is patient in the...

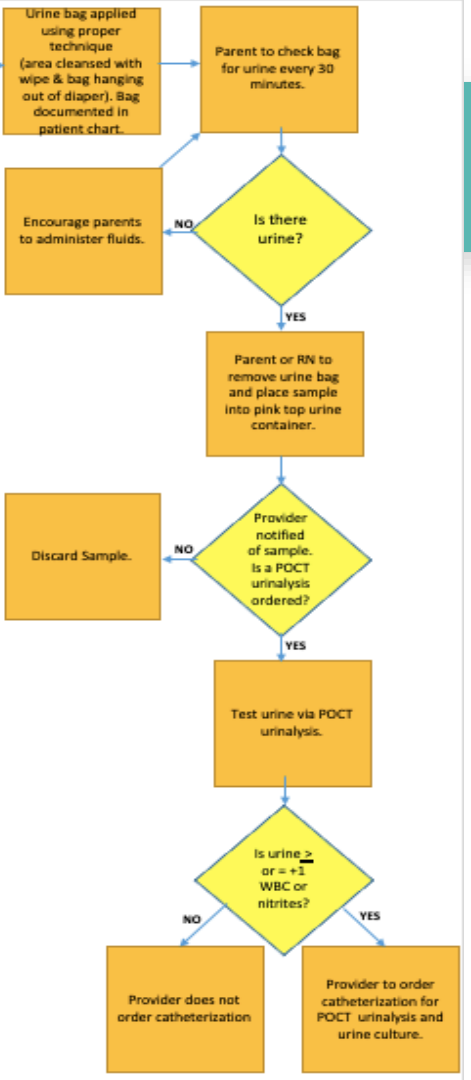
WAITING ROOM?

- Parent to bring labelled sample to triage and place in drop box. Triage nurse to document time of collection on biohazard bag.
- Once brought to a room, if sample is required, RN to obtain sample for testing.

*Sample can remain at room temperature for a maximum of 2 hours.

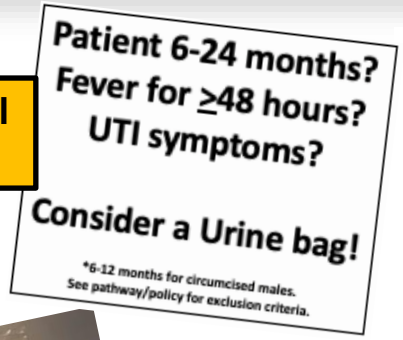
DEPARTMENT?

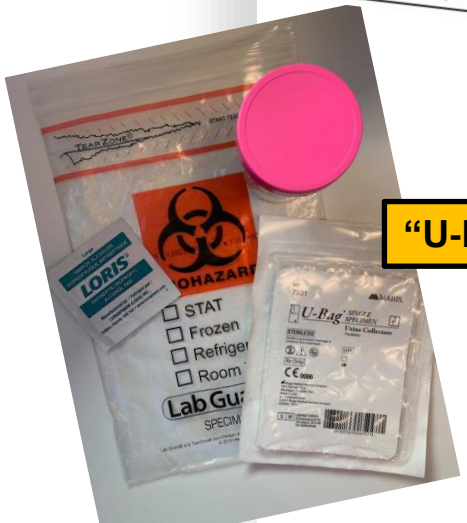
- Parent to notify RN that sample has been obtained.
- RN to discuss with MD whether sample should be tested or not.
- If order for POCT urinalysis, RN to test sample or delegate task to EMT.



Intervention

In room visual cue reminder





"U-bag Kit"

Parent Instruction Sheet

SickKids

A urine bag has been placed on your child to collect a urine sample. This sample may be used to check for a potential urinary tract infection (UTI) being a possible source of your child's fever and/or UTI symptoms. If the provider orders a urine test, and the sample is positive, your child may require a catheter to collect a sterile sample to be sent to the lab.

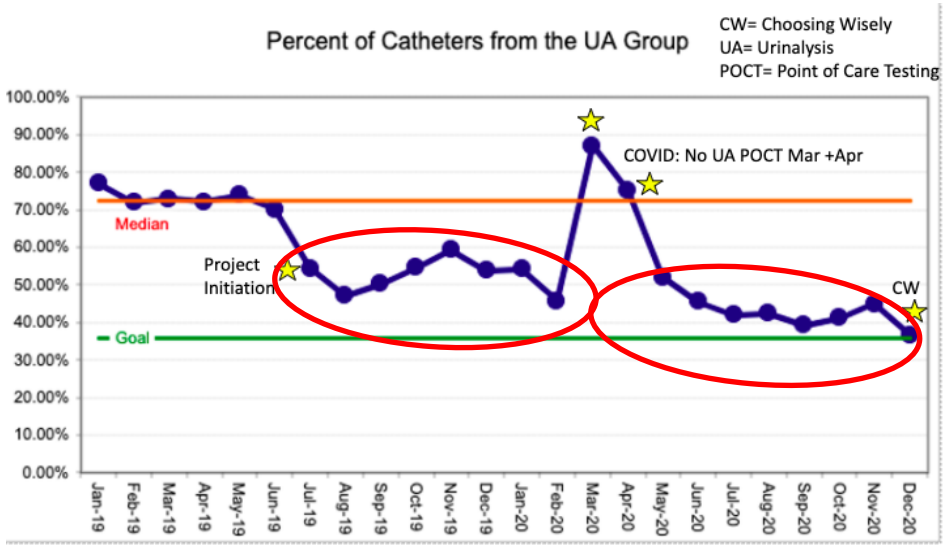
1. Please encourage your child to drink and check for urine in the bag every 30 minutes. 	**2. If your child does produce urine, carefully remove the urine bag by gently pulling it off.**  *Photo of an infant mannequin
3. Place it upright in the biohazard bag provided. 	**4. Let a nurse or doctor know.** 

B.B. 2020

Results – Outcome Measure

Outcome Measure:

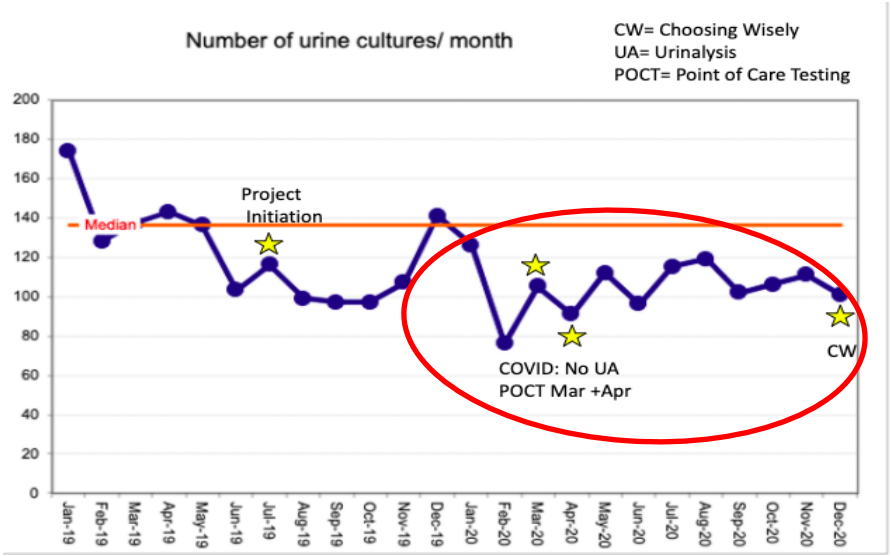
- ED catheterization rate **decreased from 73% to 52%**
- Median number catheters per month decreased from **126 to 96, saving ~30 catheters/ month**



Results – Process Measures

Process Measures:

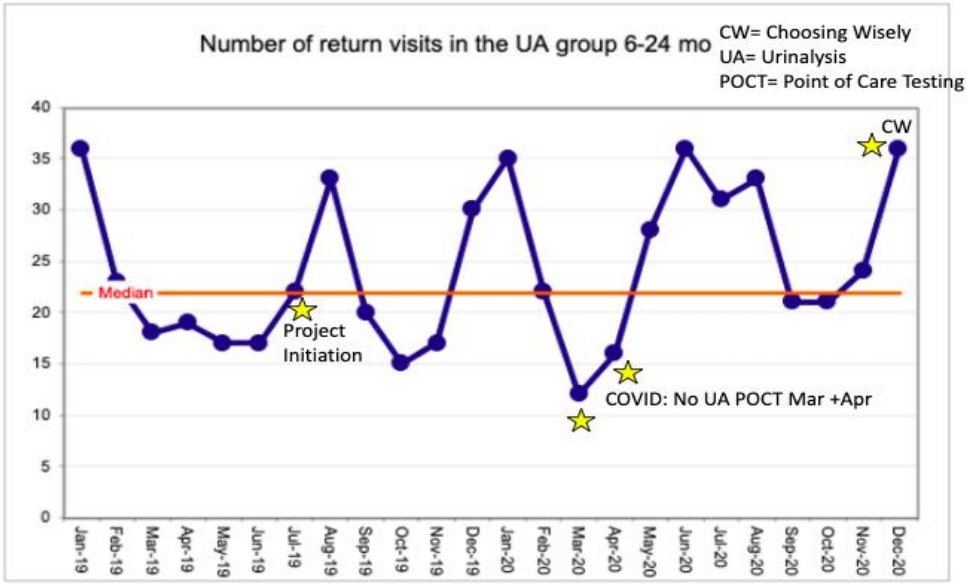
- Number of urine cultures sent to Microbiology **decreased by 23%**
- Urine culture positivity rate **increased 16% to 19%**



Results – Balancing Measures

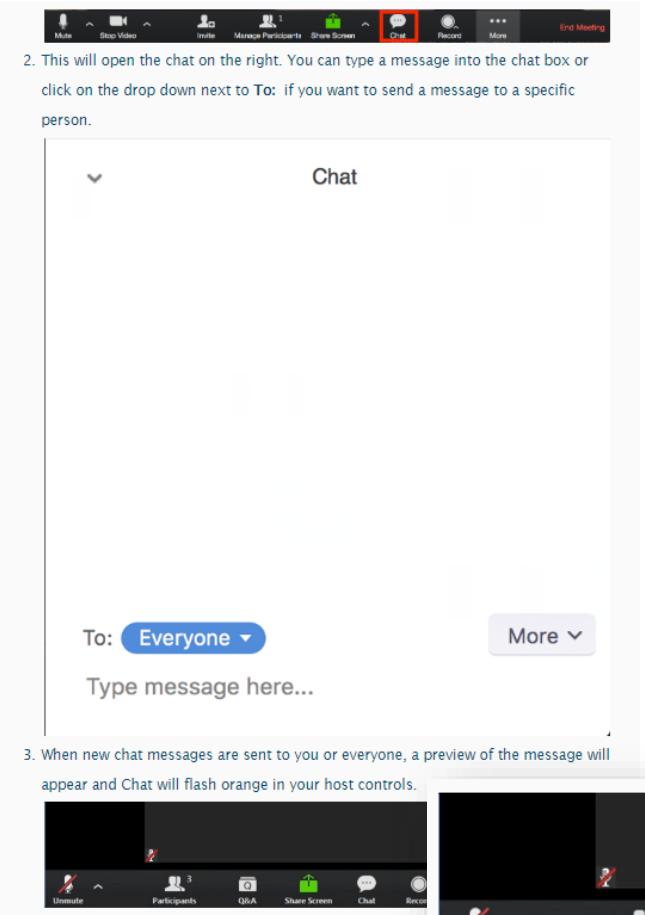
Balancing Measures:

- There was no significant in return visits over this period
- 10 min increase in LOS



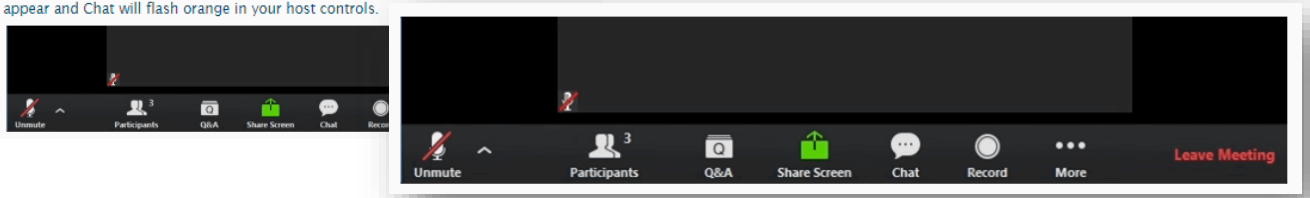
Next Steps: Spread to Paediatric Ward

- Paediatrics QI Team: Chandandeep Bal MD, Felicia Paluck MD, Sarah Lettieri RN, Noel Wong RN, Ting Ting Liu NP, Laila Premji MD
- November 2020 project presented to Paediatrics Department
    - MDT QI Team created + QI approval
    - Process mapping of current process
    - Creation of Paeds specific pathway taking into consideration difference in patient population
- Awarded UMC Resource Stewardship Grant
- Plan for launch next month



Questions?

- **We will now moderate the Q&A…**
- If you wish to contribute to the conversation, be sure to **un-mute** on the Zoom dashboard OR
- Use the **chat function** in Zoom



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COVID-19 Impact

- Surgical and procedural backlogs
- Laboratory resource utilization
- Access to mental health
- Antibiotic overuse and resistance
- Access to preventive health care
- Marginalized populations

PRACTICE POINTER

Using antibiotics wisely for respiratory tract infection in the era of covid-19

Jerome A Leis, [1,2,3,6] Karen B Born, [3] Guylene Theriault, [4] Olivia Ostrow, [5,6] Allan Grill, [7] K Brian Johnston[8]

VIEWPOINT

Less is more, now more than ever

Christine Soong, [1] Karen B Born, [2,3] Wendy Levinson[4]

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Discussion

- What are resource stewardship priorities during Covid-19 for pediatrics?
- What are national resource stewardship priorities for children?
- What resources are need to support the growth of RS work nationally?

Next Steps

Next Webinar – May 2021 (TBD)

If you are interested in presenting, designing our agendas or have resources you wish to share, please email lauren.whitney@sickkids.ca

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