



UAB Pediatric Resident Quality Improvement Project Worksheet

Submit electronically to andreasearcy@uabmc.edu by March 4, 2022

One Worksheet per Project is sufficient if #4 (role of each resident) is complete

Name(s) of Residents: Jacob Evans, James Dunville

Date: 4/4/2022

Criteria for QI Project Worksheet Completion

- I have a faculty mentor
- I have a global aim
- I have a specific aim
- I have a measure (either process or outcome measure) I have collected data on
- I have completed a PDSA cycle or have one planned

Definitions:

Aim= goal or objective

Global Aim= the overall objective of a project

Specific SMART Aim=the specific objective of a project

“SMART” aim=

Specific

Measurable

Actionable

Realistic

Timely

Measures= Data

Process Measure= how the system works (intermediate step)

Outcome Measure= the end result or the clinical effect on the patient

Intervention= change to be enacted that is postulated to improve the measures

Please complete all sections to the best of your ability as this is information we need for the ACGME. Type directly into table and expand area.

<p>1. Project Title:</p>	<p>“Reducing Time to Antibiotic Administration for High-Risk Patients”</p> <p>Jacob Evans is new on the project.</p>
<p>2. Lead resident for QI project (point person for communication)</p>	<p>There should only be ONE person listed.</p> <p>Lead resident: James Dunville Email: hjdunville@uabmc.edu Cell (for texts) 7046099633</p>
<p>3. Project Faculty Mentor(s) (required):</p>	<p>Christine Campbell</p>
<p>4. Resident QI Project Team Members AND roles</p>	<p>James Dunville: Data collection and analysis, create write up/poster, monthly meetings Jacob Evans: Data collection/analysis and monthly meetings</p>
<p>5. Other team members (includes nursing or other staff). If not relevant, please write “NA”</p>	<p>ED nurse department director, ED medical director, ED nurses, ED attendings, pediatric residents, IT department, radiology, pharmacy</p>
<p>6. Scholarship</p>	<p>Did you present your QI project as an oral or poster presentation at a meeting or meetings</p> <p><input type="radio"/> Yes: COA QI poster day 2021. Won award for best poster.</p> <p>Did you write up your QI project for journal publication?</p> <p><input type="radio"/> No, but hoping to</p> <p>Are you planning to submit for American Board of Pediatrics Maintenance of Certification (MOC) Part 4 QI Credit (requires SMART specific aim and 3 PDSA cycles)</p> <p><input type="radio"/> We are not planning to but our project meets criteria and we would be interested in additional help</p>
<p>7. Other QI Projects Involvement</p>	<p>If you are involved in another QI project but it is not your “main” project, please list title(s) here and residents involved: N/A</p>

<p>8. For Med-Peds residents ONLY. Please list each Med-Peds person separately if the answer is different.</p>	<p>Our QI project is a (please circle):</p> <ul style="list-style-type: none"> a. Pediatrics project (COA campus, Pediatrics faculty mentor) b. Medicine project (UAB campus, Medicine faculty mentor) c. We are involved in both a Pediatrics and Medicine project <p>If involved in multiple projects, submit the Peds QI project on worksheet</p>
<p>9. Background: (describe the setting of the problem)</p>	<p>Patients with specified high risk conditions who present to the pediatric ER with fever are at an increased risk of morbidity and mortality secondary to infectious causes. Evidence shows that reduced times to first dose of antibiotics on entering the ED is associated with improved outcomes/reduced morbidity and mortality.</p>
<p>10. Problem: (one-line description)</p>	<p>See above.</p>
<p>11. Global Aim: (big picture goal):</p>	<p>Reduce morbidity/mortality associated with delayed receipt of antibiotics in the ED.</p>
<p>12. SMART Specific Aim (goal of project): Needs to be: SPECIFIC MEASURABLE ACTIONABLE REALISTIC TIMELY</p>	<p>We aim to increase the percentage of patients with specified high-risk conditions presenting to the COA ED that receive abs within an hour to 90% by July 2022.</p>
<p>13. Measure (process or outcome): the data your team is planning or has collected) BE SPECIFIC.</p>	<p>Please see attached slide deck.</p>
<p>14. Intervention: (what the team is planning or have performed to improve measure):</p>	<p>Current interventions in 2021-2022: Modified High-Risk Order set and Nurse release IM antibiotics.</p>
<p>15. The most important lesson(s) we have learned from this project was:</p>	<p>How to organize and analyze data from multiple PDSA cycles.</p>
<p>16. What worked/is working well:</p>	<p>High risk orderset and high risk badge (see data on slide deck)</p>
<p>17. What were the obstacles we didn't anticipate:</p>	<p>Disagreements between pharmacy and nursing re: the availability of pre-made IM antibiotics.</p>

18. Future directions for the project:	Still working on impact of nurse release antibiotics. Analyzing impact of COVID on the project.
19. To be eligible for the Resident Outstanding QI Project, your project must have all components to the Please check if you would like to be considered.	<ul style="list-style-type: none"> ○ I have all three components and would like to be considered for the Resident Outstanding QI Award
20. If you feel you need QI mentorship for your project, please include specific needs and the lead resident will be contacted. If no help is needed, write "None needed"	Would like to talk to Adolfo re: a possible write up. Have reached out to him about this.

Example: (only need one measure for project but example of a process and outcome measure shown)

Global Aim: The global aim of this project is to improve transitions of care when a patient is discharged from Children’s of AL.

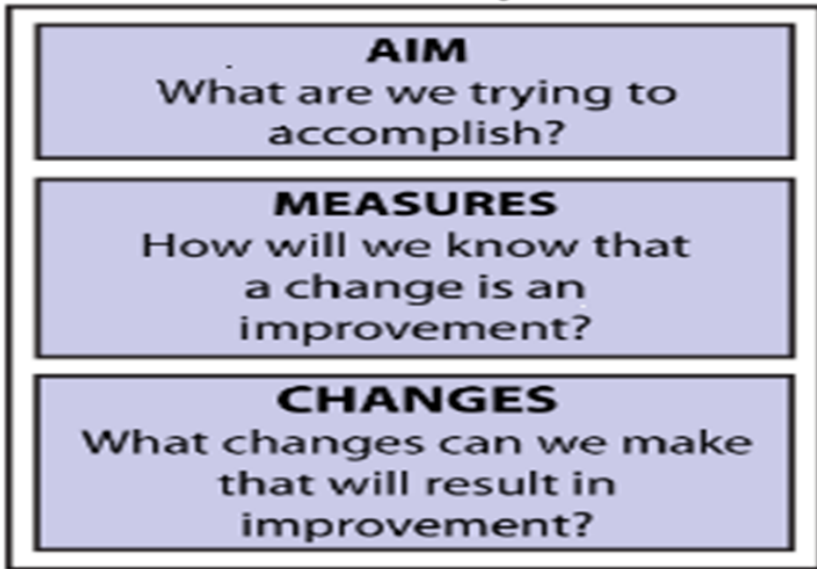
Specific Aim: The specific aim of this project is for 90% of discharge summaries from the General Inpatient Pediatric teams to be accessible by the PCP office within 24 hours of patient discharged by January 2018.

Example of a Process Measure: the time it takes for the discharge summaries to be signed as final in iconnect by the discharge team

Example of an Outcome Measure: preventable patient readmissions

Intervention: physician portal that is accessible to the community physicians that populates with discharge summary when signed in iconnect

The Model for Improvement



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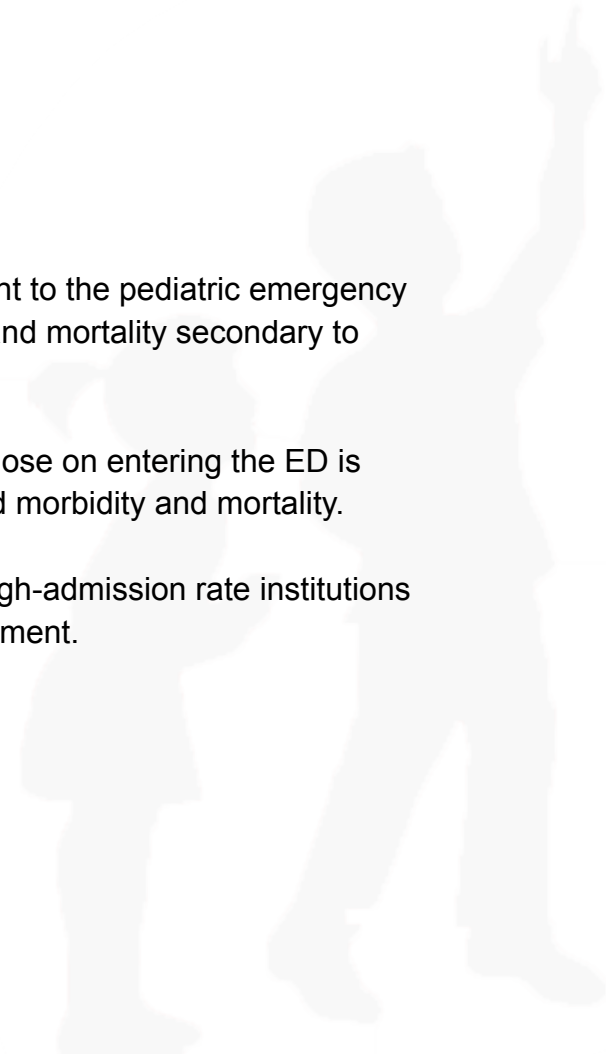
Reducing Time to Antibiotic Administration for High-Risk Patients *in the* Pediatric Emergency Department

AUTHORS: JAMES DUNVILLE MD, CHRISTINE CAMPBELL MD, CAROLINE EVANS CPNP

Patients with specified high risk conditions who present to the pediatric emergency room with fever are at an increased risk of morbidity and mortality secondary to infectious causes.

Evidence shows that reduced times to first antibiotic dose on entering the ED is associated with improved outcomes including reduced morbidity and mortality.

ED personnel face many challenges at high-volume, high-admission rate institutions such as the Children's of Alabama Emergency Department.

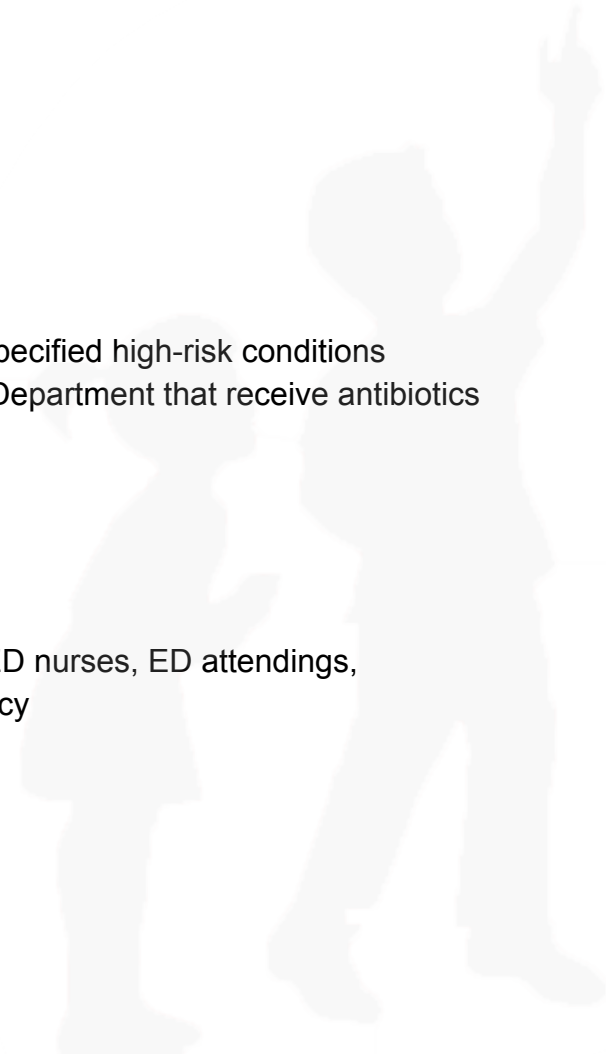


Smart Aim

We aim to increase the percentage of patients with specified high-risk conditions presenting to the Children's of Alabama Emergency Department that receive antibiotics within an hour to 90% by July 2022.

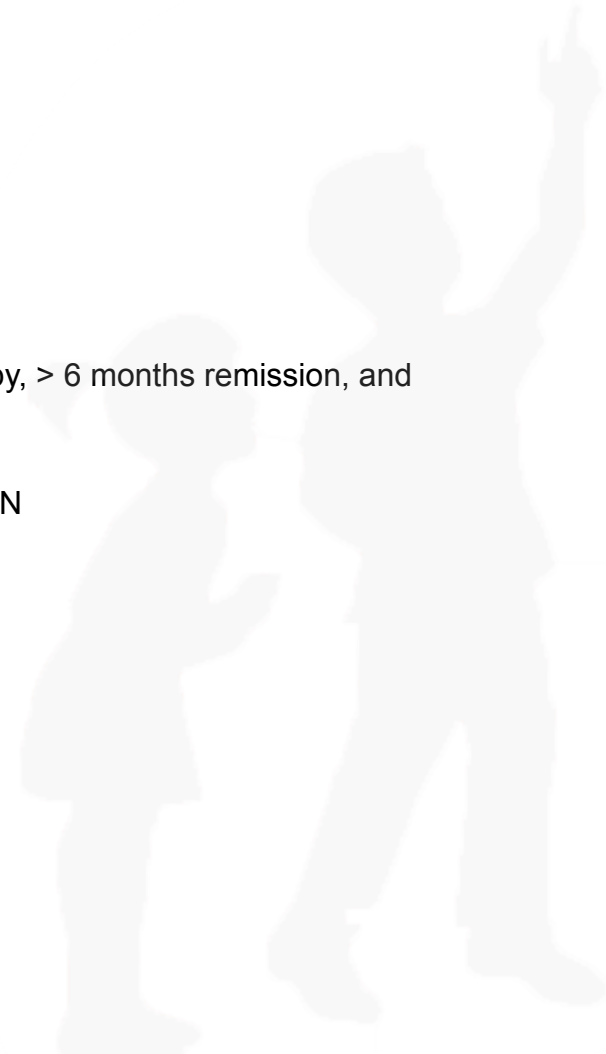
Team Members/Groups

ED nurse department director, ED medical director, ED nurses, ED attendings, pediatric residents, IT department, radiology, pharmacy



High Risk Groups

- Cancer/oncology patients until off chemotherapy, > 6 months remission, and port removed
- Sickle cell disease
- Intestinal failure (“short gut” and others), on TPN
- Asplenia (congenital or surgical)
- Neutropenia (chronic only)
- Heart, liver, bowel, and kidney transplants
- Externalized central line (broviac, picc)
- Cardiac ventricular assist device



Methods

Six Plan, Do, Study, Act (PDSA) cycles were implemented in effort to increase the percentage of high-risk patients who receive antibiotics within the first hour of arrival to at least 90%. These cycles took place over an 8 year total time period as shown by the timeline below:

April 2014: Fever Neutropenia Order Set Created

May 2016: Fever Neutropenia Initiative Began

Sept 2017: Inclusion of other High-Risk Groups with Oncology Patients

Nov 2017: High-Risk Order Set Created

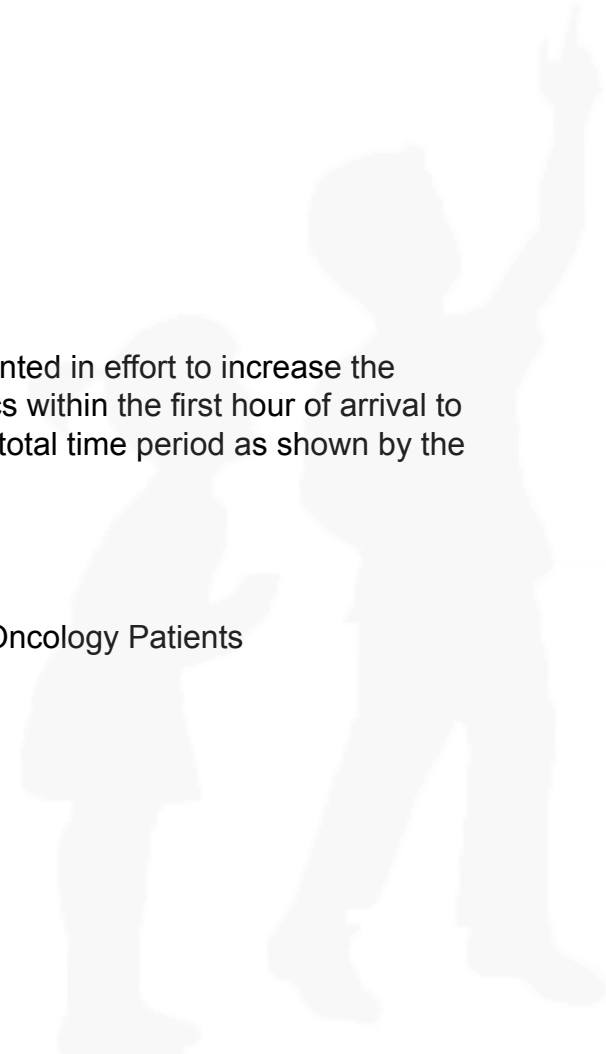
Mar 2018: Voalte Message

Nov 2018: Radiology Delay for Films

June 2019: Order-Set Update

Aug 2019: High-Risk Badge

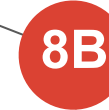
Feb 2020: Antibiotic Pre-Dosed Category



High-Risk + Fever Process Map

Patient enters Triage
Hi RISK badge activated

ESI 2 category for fever > 100.4



Primary Nurse identifies patient & confirms fever > 100.4

Vital signs obtained
Sepsis screening tool
Room assigned

If sepsis triggered, follow sepsis protocol

If patient does not trigger sepsis, continue to high risk- fever pathway

MD and RN meet patient in room
MD confirms high risk- fever
MD places orders

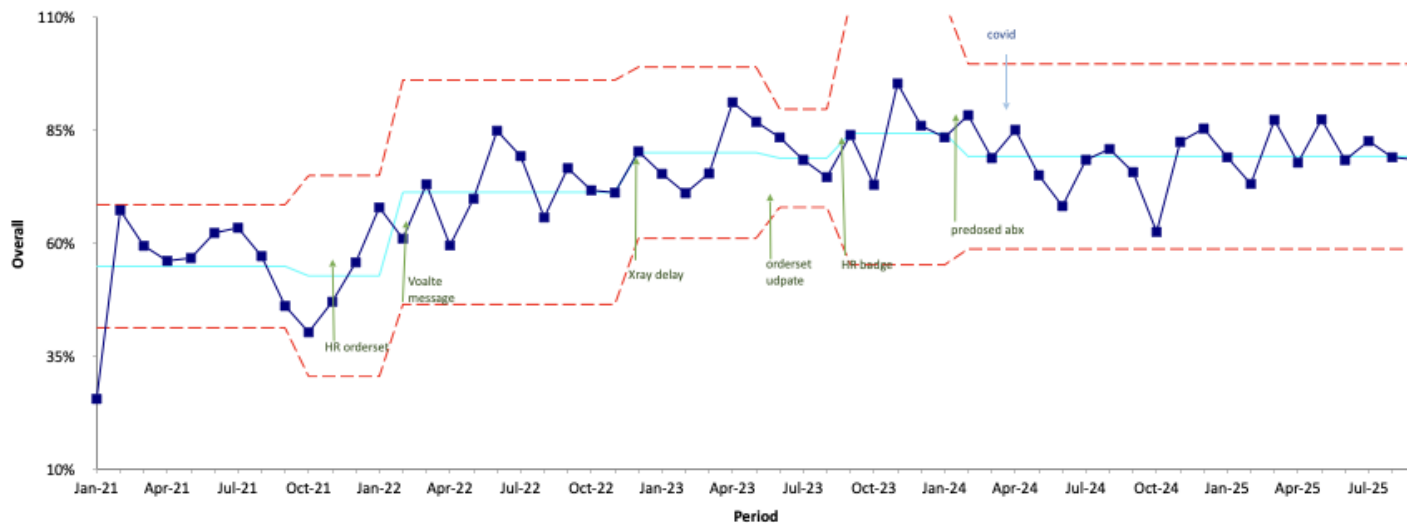
RN obtains access
Labs obtained
Antibiotics started

If IV access not obtained after 3x, MD notified and IM antibiotics ordered

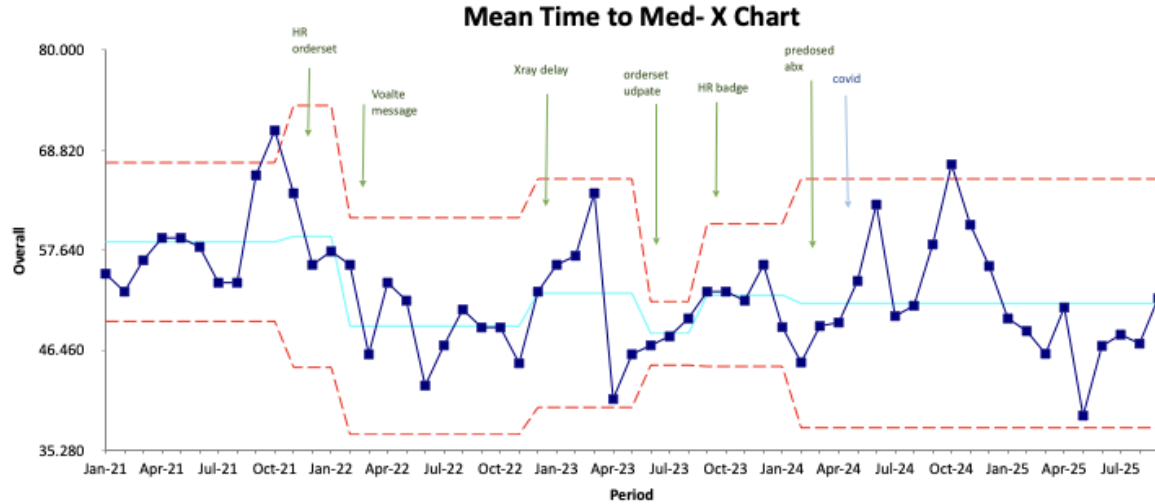
If IV access obtained, Imaging notified and obtained

Percent Under 60 Minutes

Overall Time to Med %<60min - X Chart



Mean Time to Antibiotics



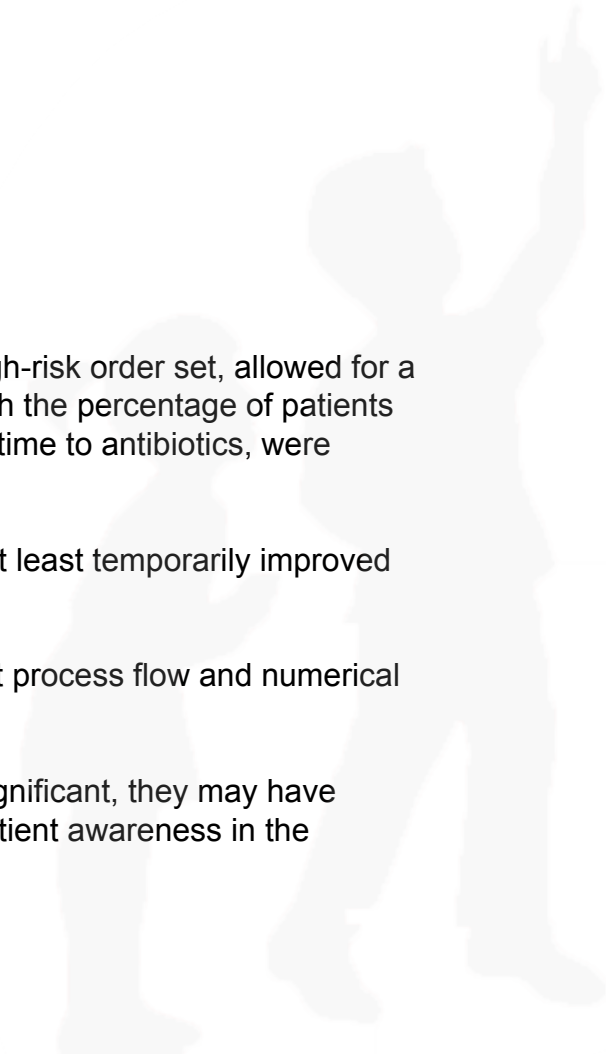
Discussion

We found that the initial PDSA cycle, introducing a high-risk order set, allowed for a positive process shift when TTA metrics, including both the percentage of patients under 60 minutes who received antibiotics and mean time to antibiotics, were analyzed.

The addition of the high-risk badge appears to have at least temporarily improved percentage of patients under 60 minutes.

The COVID-19 pandemic may have negatively impact process flow and numerical goals.

Although other PDSA implementations appear less significant, they may have contributed to improved process flow and high-risk patient awareness in the emergency department.

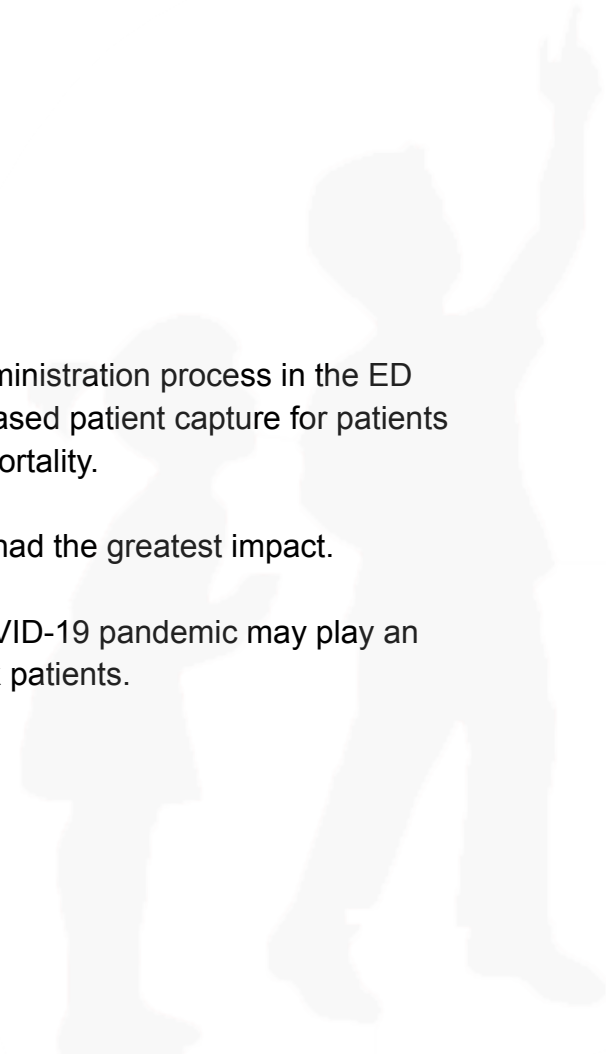


Conclusion

Implementing a dynamic high-risk group antibiotic administration process in the ED appears to have reduced time to antibiotics and increased patient capture for patients at increased risk of infectious-related morbidity and mortality.

The addition of a high-risk order set appears to have had the greatest impact.

Recent metrics have regressed to the mean. The COVID-19 pandemic may play an effect on rapid identification and treatment of high-risk patients.



NEXT STEPS

We anticipate significant improvement following the addition of two new PDSA cycles introducing:

Modified High-Risk Order Set - remaining 2021 through 2022

Nurse-Release IM Antibiotics - remaining 2021 through 2022

REFERENCES

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