BROWN
Alpert Medical School

Improving Utilization of Order Sets at a Pediatric Hospital in Haiti

K.Alzuphar[1] , T. Deshommes[2],M.Koster[1], J.Gautier[2]

[1] Brown University, Hasbro Children's Hospital-Providence, RI

[2]Hopital Saint Damien, Nos Petits Freres et Soeurs, Tabarre, HT

Nos Petits Frères et Sœurs™

Background and Objectives

- Admission order sets are clinically proven to lower rates of in-hospital mortality, improve treatment outcomes, and reduce the cost and length of a patient's hospital stay
- They are ideal in a resource-poor country like Haiti because they are simple and cost-effective
- The St. Damien Collaborative (SDC) was formed between Saint Damien Hospital (SDH) in Port-au-Prince, Haiti and six US-based children's hospitals, including Brown University, to improve the quality of care provided at SDH for children.
- This quality improvement project was launched to measure the impact of recently developed order sets designed by the Collaborative for SDH.
- **Primary aim**: To investigate the design, acceptability, and uptake of pneumonia, sickle cell, and malnutrition order sets currently used by nurses, attending physicians, and resident physicians at SDH.

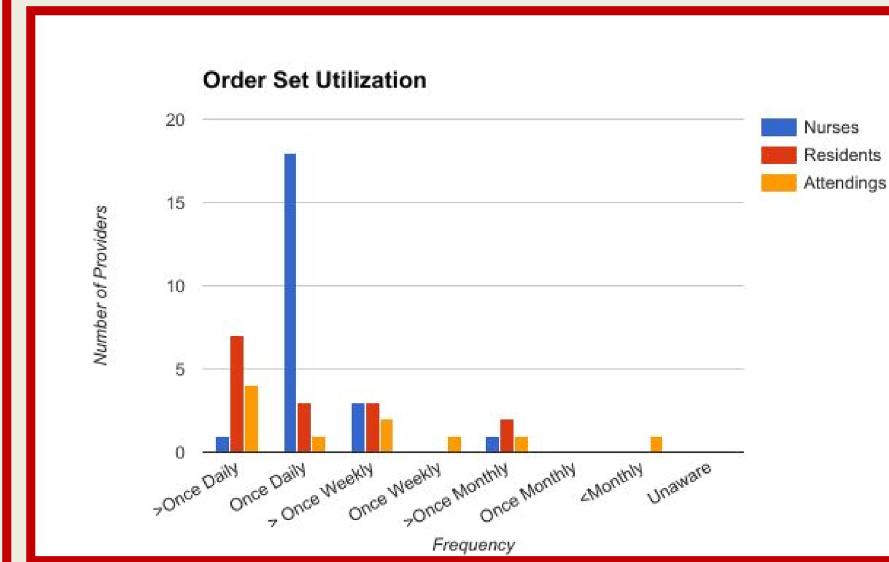
Methods

- All physicians and nurses at SDH were invited to complete an anonymous 12 question survey.
- Months later, they were recruited to participate in multidisciplinary focus groups or key-informant interviews depending on their availability.
- 55 providers completed the survey
- 28 providers participated in focus groups and interviews

Survey Questions	Focus Group/Interview Questions
1. How often do you use order sets?	1. Describe your average usage of order sets
2. What diseases have an order set?	2. Do you think the current order sets are clinically pertinent?
3. Where are blank order sets stored?	3. How do you communicate with other health care providers about orders in the order set?
4. How do nurses indicate they completed an order given via order set?	4. What do you think are the biggest successes of the order sets?
5. Order sets make my job harder (T/F)	5. What are challenges/barriers to use?
6. Order sets improve patient care (T/F)	6. How often do you feel the admission order sets should be revised?
7.Order sets slow me down (T/F)	7. What opportunities do you think Saint Damien has for expanding admission order set use?
8. Order sets reduce medical errors (T/F)	
9. Having an English/French side is helpful (T/F)	
11.What can be changed for improvement?	
12. What diseases should be included in more order sets?	

Results

Frequency of Use



1."We use the malnutrition order set each time a patient presents with the condition, or sickle cell mostly. We don't really use the pneumonia one"

1."I use the malnutrition order set often. Yesterday was the 1st day I used the anemia one, and I never use the pneumonia order set.

1."I don't use the pneumonia order set because it is easier for me to fill out my own order."

1."The malnutrition order set is used more often because the nurses already include it in a patient's chart. Pneumonia is not included, however."

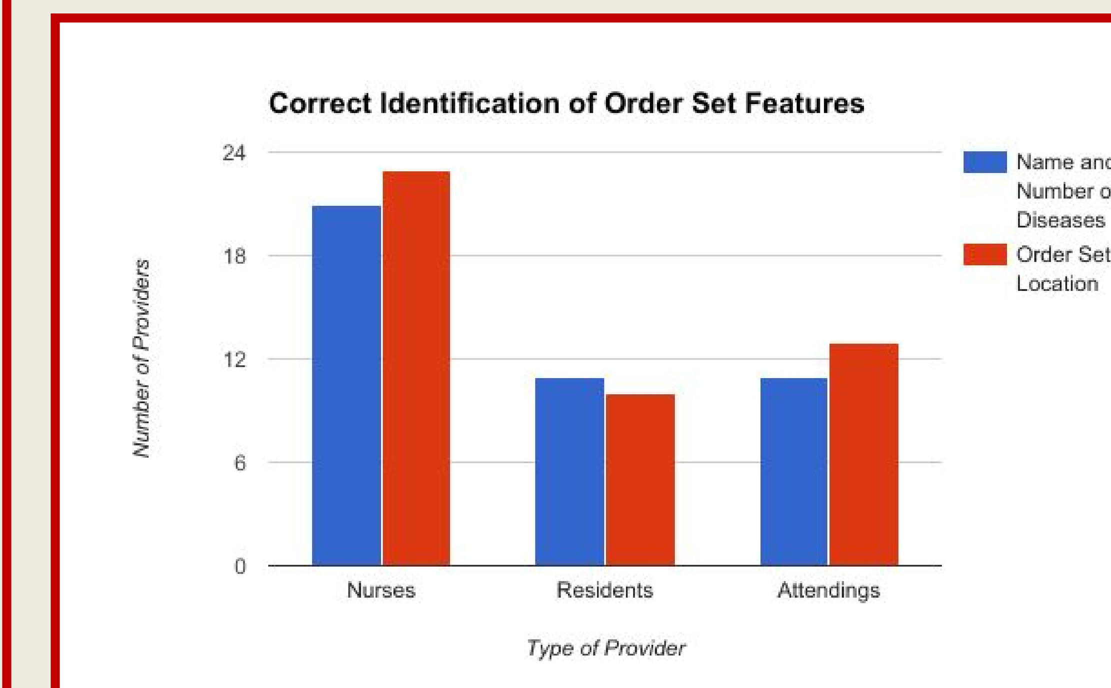
1."I would say that we use the malnutrition and anemia, but rarely use the pneumonia order set."

1."I use about 2 order sets per 24 hours. The residents see the children more often so they use it more often. I use them all."

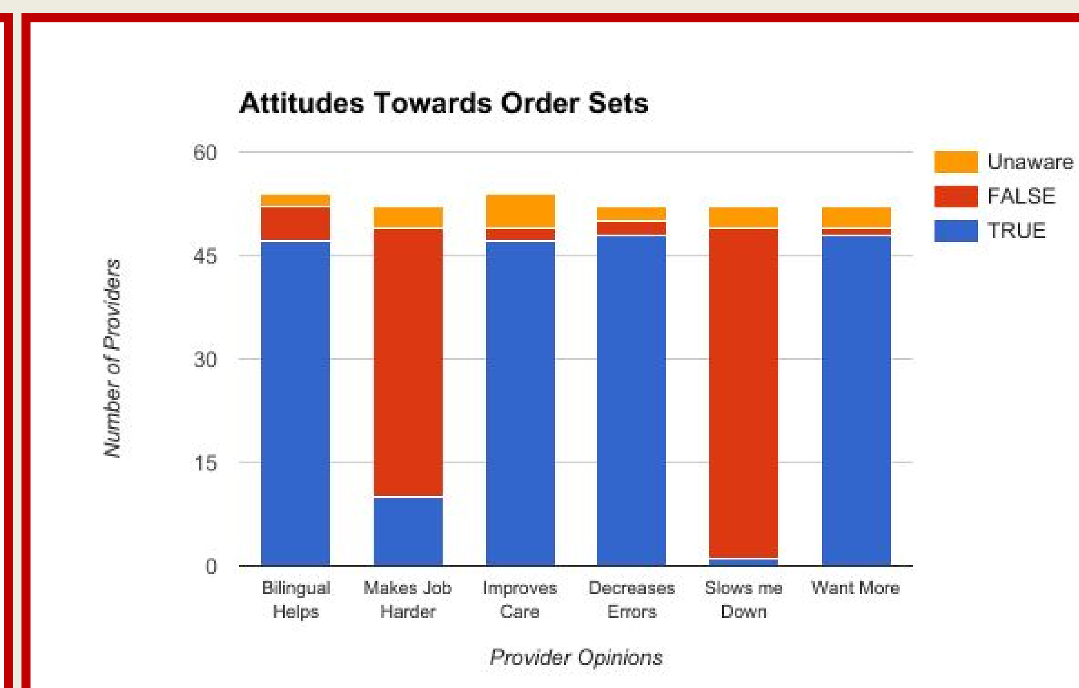
1."I use it for almost all malnutrition cases, unless it isn't available. I use the malnutrition one the most because I find it to be the most useful. "

1."I never use the pneumonia one. As for malnutrition, we always have that green paper."

Knowledge of Order Sets



Attitudes Towards Order Sets



Suggestions for Improvement

2."The order set says F75 is a Q4 treatment, but I administer it Q3. I also don't follow the 20cc/kg guideline and instead give 50cc/kg/24 hr."
2."Order sets aren't adapted to different patient cases and severities of presentation. For example, I won't give a septic child D5W."
2."The amount of milk that is listed in the malnutrition order set does not correspond to the national protocol. Also, approximately 80-100 kcal per 24 hr period or about 130 cc/kg every 8 hours doesn't correspond to 22 cc/kg. You'll see that this is often corrected in the order sets."
2."The order set lists ketoconazole, but we use it only in extreme cases. Instead, we use Nystatin for simple cases.If we want to hit harder, and because it is more available, we use Fluconazole."
2."The Ampicillin/Gentamicin dosage is not appropriate. We don't use 12.5 mg/kg when the correct dose is 50 mg/kg and 100 mg/kg if the patient is septic."
2."We give children Isomil (soy-based) if they have diarrhea, but this is not reflected in the order sets."
3."In the sickle cell order set, it is not clear to the nurses that Ceftriaxone dosage is weight based. It would be better to leave a blank space that can be filled out according to weight."
3."Verbal orders are not well executed. Sometimes the nurse hears what you said, but is overworked. Often a nurse has too many patients to manage at once, so orders are delayed. Hiring more nurses would help with that problem."
5."Some growth parameters are not measured at this hospital. We are able to obtain height and weight, but we don't measure the brachial perimeter for malnutrition cases."
5."There is not enough space for the labs and there are a lot of labs we order and have to fit tightly on the side."
5."There are other order forms called 'Ordonnances' that are already in the file, so it would help to also put the order sets in a chart instead of making people get them on their own."
5."There's not enough space on the sheet and sometimes I can't fit what I write on the lines provided."
5."Increase the font at least up to 11"
6."They can be revised every 6 months – 1 year, but we don't really have research in our hospital culture."
7."Add other pathologies in the realm of critical care: cardiomyopathy, acute glomerulonephritis, DKA"
7."It would be a good idea for St Damien to have order sets that address septic shock, meconium aspiration, electrolyte abnormalities such as hyponatremia, and metabolic acidosis."

Conclusions

- This study helped to illuminate many of the successes and failures related to order set utilization at SDH.
- Currently, attitudes towards order sets are positive and overall baseline knowledge of their existence is optimal.
- Nurses demonstrated the greatest frequency of use and knowledge of order sets.
- Although the utilization of the malnutrition order set is optimal (>75%), pneumonia and sickle cell order sets have a low utilization rate.
- Executing a PDSA cycle with increased local input and development is a critical next step in order to improve order set utilization.
- This PDSA cycle would include revising current order set guidelines so that they reflect national guidelines and the resources available to providers at SDH.
- Additionally, it would include improving the font and margin of the forms and creating additional protocols. According to the anonymous survey, order sets for tuberculosis, sepsis, and cardiomyopathy are most needed to improve the quality of care at SDH.

References

- Ballard DJ, Ogola G, Fleming NS, et al. The Impact of Standardized Order Sets on Quality and Financial Outcomes. *Adv in Patient Safety: New Directions and Alternative Approaches (Vol. 2: Culture and Redesign)*.2008.
- Fishbane S, Niederman MS, Daly C, et al. The impact of standardized order sets and intensive clinical case management on outcomes in community-acquired pneumonia. *Arch Intern Med* 2007;167;1664-9.
- Lee F, Teich JM, Spurr CD, et al. Implementation of physician order entry: user satisfaction anmd self-reported usage patterns. *J Am Med Inform Assoc 1996*; 3: 42-55.
- Marie TJ, Lau CY, Wheeler SL, et al. A controlled trial of a critical pathway for treatment of community-acquired pneumonia. CAPITAL Study Investigators. Community-Acquired Pneumonia Intervention Trial Assessing Levofloxacin. *JAMA* 2000; 283: 749-755.
- Ozdas A, Speroff T, Waitman LR, et al. Integrating "best of care" protocols into clinicians' workflow via care provider order entry: impact on quality-of-care indicators for acute myocardial infarction. *J Am Med Inform Assoc* 2006; 13: 188-96.
- Taylor R, Manzo M, Sinnett M. Quantifying value for physician order entry systems: a balance of cost and quality. *Healthc Financ Manage* 2002; 56;44-8.

Acknowledgements

Special thanks to the Brown University's MHIRT Program, Brown University's Global Health Initiative, the leadership and staff of Saint Damien Hospital, and the Office of Medical Education at Alpert Medical School for supporting this project and ensuring its success.