

The Introduction of a New Weight Estimation Tool in A Pediatric Emergency Department

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Introduction or Purpose

Introduction

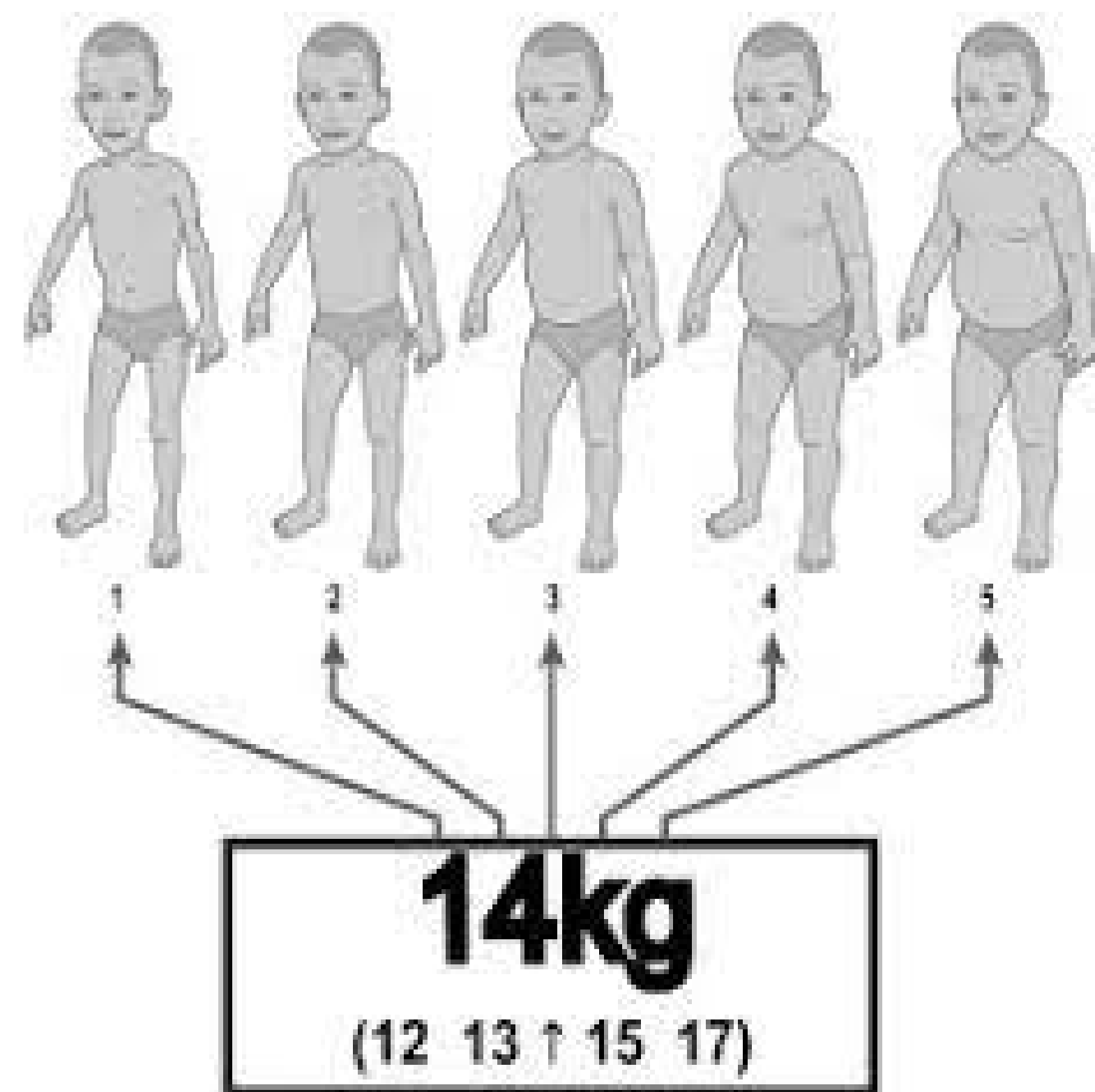
- The pediatric population is at an increased risk for medical errors based on inappropriate weight measurements during critical events such as traumas and resuscitations.
- Inaccurate weights have serious sequela leading to impairment or death. Medical staff often rely on the guardian's estimate or their own weight estimation.
- Rahman's (2023) study Comparing the Accuracy of different Weight Estimation Modalities in the Pediatric Emergency Department examined the accuracy of each: The guardian and clinician's estimation of child's weight, the standard length based tape and compared it with the new PAWPER-XL MAC tape.

Purpose

This quality improvement initiative aims to improve accuracy on estimation of pediatric weights during medical and trauma resuscitations

Design Setting

Quality improvement project conducted in a Pediatric Emergency Department of a free-standing Pediatric Level I Trauma Center in Western New York



METHOD

PDSA Cycle 1

- Rahman's 2023 study findings determine need for accurate measurement tool in ED
- Education created for hospital on-line learning platform and assigned to ED and PICU RN's (129 total)
- Exposure to using measuring tool during mock simulations
- Unit rounding with measuring tool
- Staff feedback: tool accessibility, need two measuring modalities, ease of cleaning between use

PDSA Cycle 2

- 124 RN's completed, 5 incomplete with on-line education
- Tool accessibility: placed in trauma bay next to side of bed
- Additional paper tapes for bicep measurement stocked next to side of bed
- Measuring tape placed in Plexiglass for easy cleaning
- Staff feedback: tool too bulky and heavy, still unsure of "how to use", early users identified

PDSA Cycle 3

- Revisited education, opportunities to measure mannequins
- Enlisted ED research assistant to measure nurse use in Trauma room
- Discussion of using tape measurement roll with out Plexiglass



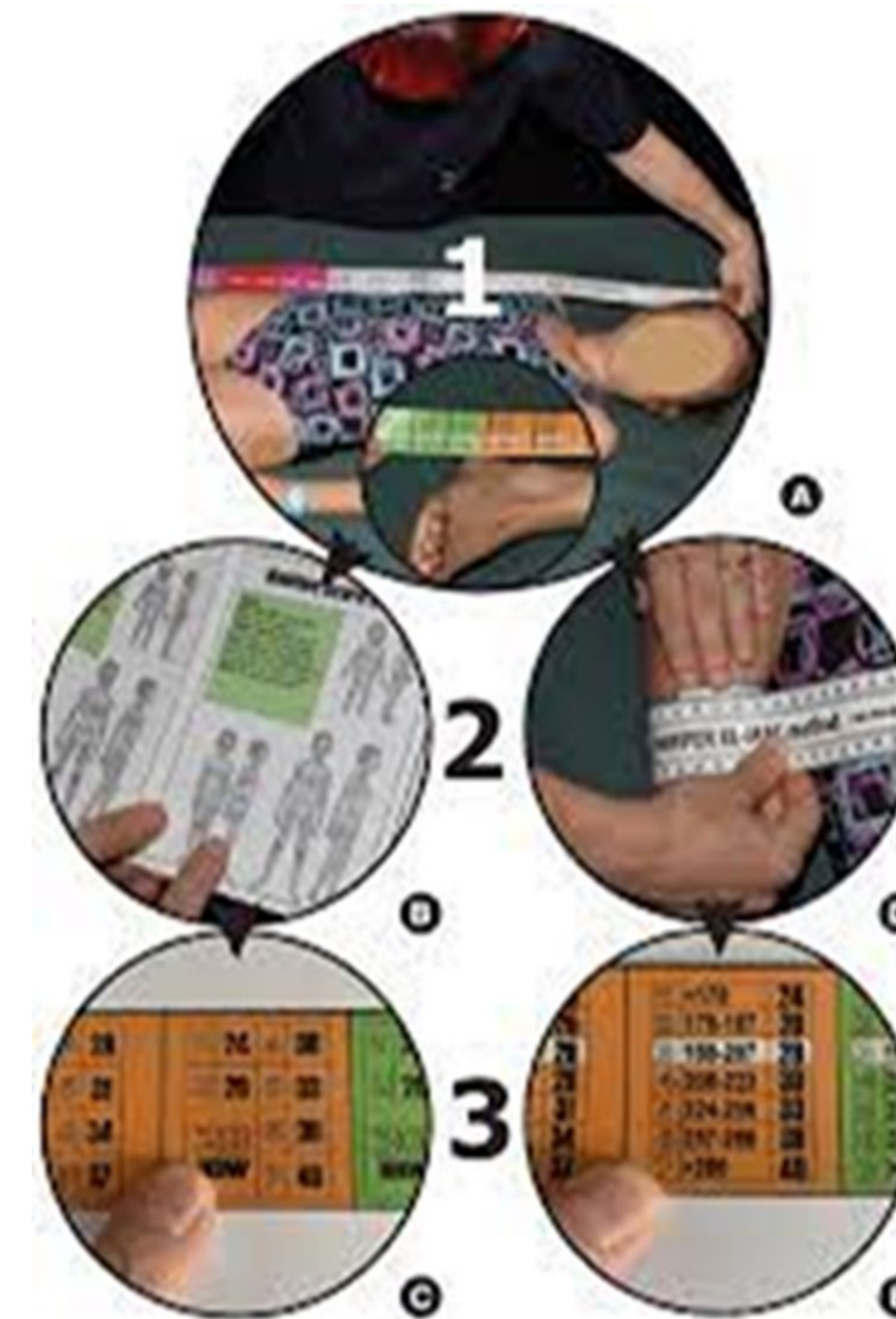
BENEFITS/BARRIERS

Benefits

1. When used frequently in trauma room staff had increased level of confidence in using measuring tape
2. RN's felt empowered to use measuring tool and ready the tool for use prior to patient arrival
3. RN's who used the measuring tool could quickly enter patient's height and weight into EMR

Barriers

1. Staff that are infrequently assigned to the Trauma Team felt unfamiliar with using tool correctly and independently
2. Staff that are not frequently assigned to trauma team perceived that the measuring tape was cumbersome
3. Staff felt it was a multi step process that slowed down EMR order entry
4. Staff willing to take the parent's estimate or statement of child's weight over using the tool



Implications/ Conclusions

The pediatric population is at an increased risk for medical errors based on inappropriate weight measurements during critical events. There are several modalities to obtain a child's weight in an emergency.

The most accurate tool available besides the parent's estimation is the Pawper Tape XL. Education was provided to implement this tool. However, the usage is dependent on nurses confidence to perform this task.

Education is ongoing. The online learning will be reassigned for 2024, simulations using the tool will occur monthly as well real time education in trauma and medical resuscitations.

ED research assistant will continue to capture the usage of the tool and the data will also identify team members who are not utilizing the tool allowing for expedited education and nurse feedback on barriers perceived.

REFERENCES

Chavez H, et al. (2015) Weight estimation in an inner-city pediatric ED: The effect of obesity. *AmJ Emergency Medicine*(10),1364-1367.

Georgoulas VG, & Wells M. (2016) The PAWPER tape and the Mercy method outperform other methods of weight estimation in children at a public hospital in South Africa. *South Africa Med J.* 7(9), 933-9.

Lubitz DS, et al. (1988) A rapid method for estimating weight and resuscitation drug dosages from length in the pediatric age group. *Annual Emergency Medicine* 17, 576-81.

Rahman A., et al. (2023) *Comparing the accuracy of different weight estimation modalities in the pediatric emergency department.* [Poster presentation] Department of Pediatrics Division of Pediatric Emergency Medicine University of Buffalo, NY.

Silvagni, D. et al. (2022) The Pawper tape as a tool for rapid weight assessment in a Paediatric Emergency Department: Validation study and comparison with parents' estimation and Broselow tape. *Resusc Plus* 12. doi:10.1016/j.resplu.2022.100301.

Wu MT, & Wells M. (2020) Pediatric weight estimation: Validation of the PAWPER XL tape and the PAWPER XL tape mid-arm circumference method in a South African hospital. *Clin Exp Emergency Medicine* 7(4),290-301.

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