Introduction and Background

Prior studies on Personal Protective Equipment (PPE) donning and doffing:
- Focused on number of donning and doffing errors and potential causes of contamination.
- Highlighted an opportunity for increased compliance with PPE standards to improve provider and patient safety.
- Found that errors in PPE use occurred more during the process of doffing than donning.

Donning and doffing at Advocate Children’s Hospital:
- The COVID-19 pandemic heightened the importance of meticulous PPE donning and doffing, while making the process more complex with the addition of mandatory eye wear and routine N95 use and reuse.
- Accuracy of PPE donning by Health Care Providers at both campuses from September 2019 to March 2020 ranged from 88% - 100%.
- Monitoring doffing was not standard practice.

Goal
- Identify and ameliorate modifiable, individual and system factors through process standardization and education to achieve 100% compliance with PPE donning and doffing for contact, droplet, and airborne transmission.

Methods

IRB-approved multidisciplinary quality improvement initiative:

Baseline
- Survey: Anonymous online (REDCap) survey sent to healthcare providers to gauge potential causes of PPE errors.
- Audits: Team members were observed donning and doffing.

Interventions
- Storage solutions: Bedside PPE carts with individualized storage.
- Education: PowerPoint slides, 1:1 demonstration and teach back.

Post
- Survey: To be sent 05/17/2021
- Audits: Initiating 05/17/2021

Results

Baseline Audits
- Common errors in process included:
  - N95 not removed correctly (42%)
  - Goggles/face shield not removed or cleaned correctly during doffing (31%)
  - Incorrect removal of nonsterile gloves after mask donning (44.4%)

86 providers (27 physicians/advanced practice providers, 38 nurses, 20 respiratory therapists, and 1 ancillary service) returned the REDCap survey.

Baseline Survey Key Takeaways

- Supplies need to be more readily available: Supplies are hard to find and a common source of delay (n=42).
- More education and practice of donning and doffing needs to be provided: Request for video instructions and a buddy team member to evaluate their practice (n=17).
- Need for signage indicating proper order and technique for donning and doffing for real time reference (n=9).

Data:
- Major sources of information: Electronic communication from leadership (63%), and online COVID-19 toolkit (56%).
- About 30% of team members self reported errors/contamination during donning or doffing.

Interventions

Bedside PPE Carts
- Created to provide:
  1. Single resource at bedside for necessary supplies.
  2. Short-term (during shift) bedside storage for providers involved in direct patient care.
  3. Location to clean eye wear and/or PAPR.

Before
- Swivel hook
- Mask/Gown holder
- Wipe container holder
- Donning/Doffing Surface
- Storage area for bins

After
- Clove box holder
- Instructions
- Consult room storage
  - One bin per person for long-term storage of face shield/goggles and brown bag with N95.
- Education was provided to team members to clarify use of PPE carts and consult room storage.

Conclusions and Next Steps

Conclusions:
- Baseline survey and audits identified a need for additional education and readily available supplies.
- Educational interventions implemented include: videos showing proper donning and doffing technique, in-person validation of said technique and just-in-time review for team members.
- To make supplies more readily available custom designed, dedicated PPE carts were placed at the bedside for short-term storage and easy access to equipment.

Next Steps:
- A post intervention survey and audit will be completed to assess the effectiveness of the interventions and to determine if further interventions are needed.

References