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To Push or Not to Push? Use of IV Dextrose vs. Oral Dex4 for Treatment of Hypoglycemia.

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Background and Evidence

Background:

- Within the network, there have been a number of adverse events in which patients have needed to go into surgery after extravasation of IV D50.
- There is currently a national shortage of IV dextrose.
- IV D50 is \$6.58-\$7.77 per administration versus oral dextrose which costs \$1.29 (more cost effective to give oral Dex4).
- Staff nurses found to be administering IV D50 despite physician order parameters to only give if unable to administer oral treatment.

Evidence:

- IV dextrose is considered a vesicant drug if the concentration is $\geq 10\%$
- Risk of extravasation and permanent nerve and tissue injury if IV D50 is administered peripherally (Lawson, Brady, & Mahmoud, 2013).
- Oral liquid/gel dextrose is first line therapy for the patient who is able to safely swallow and is not NPO (AACE, 2014).
- Reserve IV D50 only for the patient unable to safely swallow or is NPO (AACE, 2014).
- When medication is not given per the physician order (given IV when the patient is not NPO and can swallow), it is considered working outside nursing scope of practice (PA State Board of Nursing, 2000).

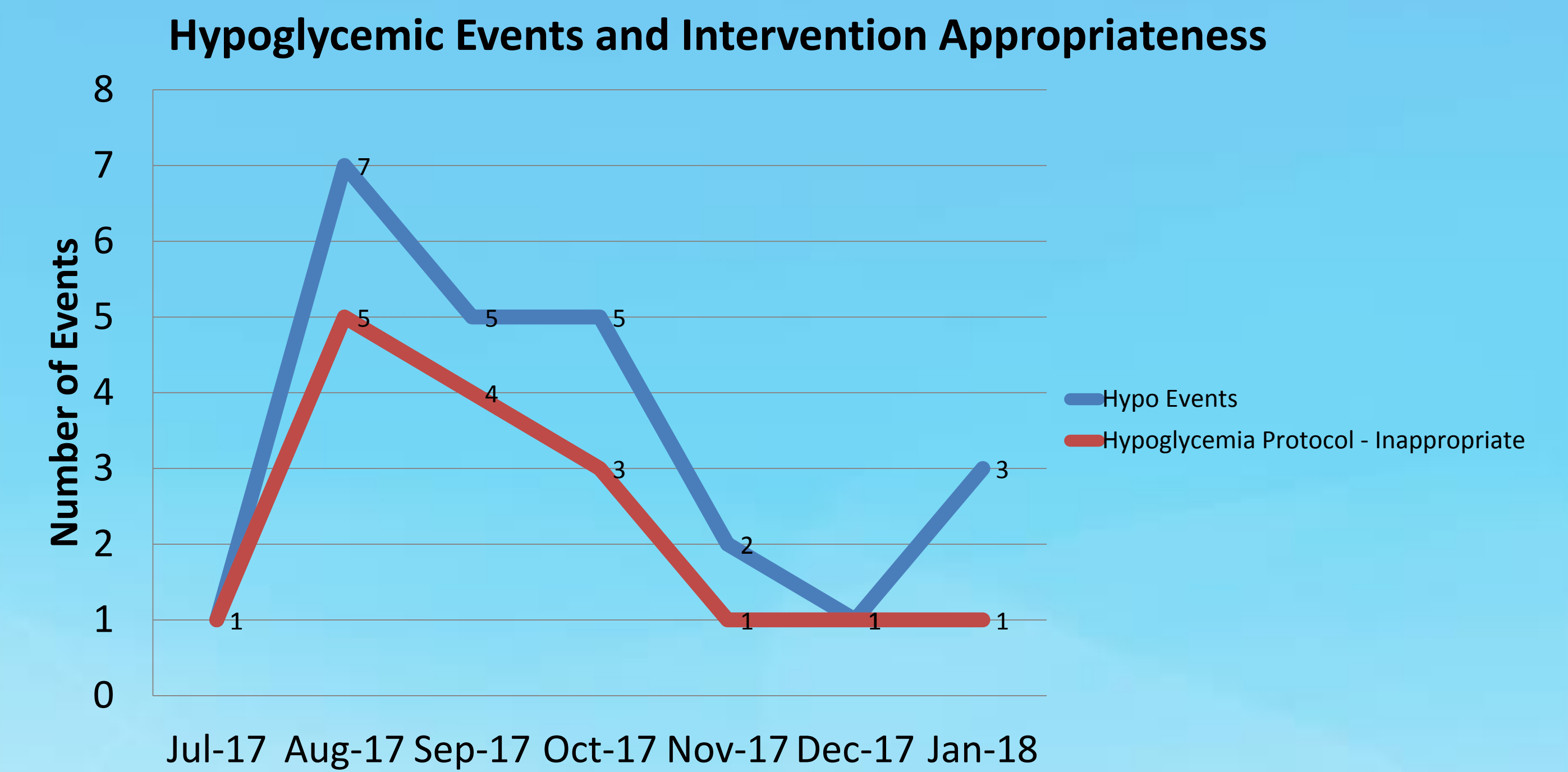
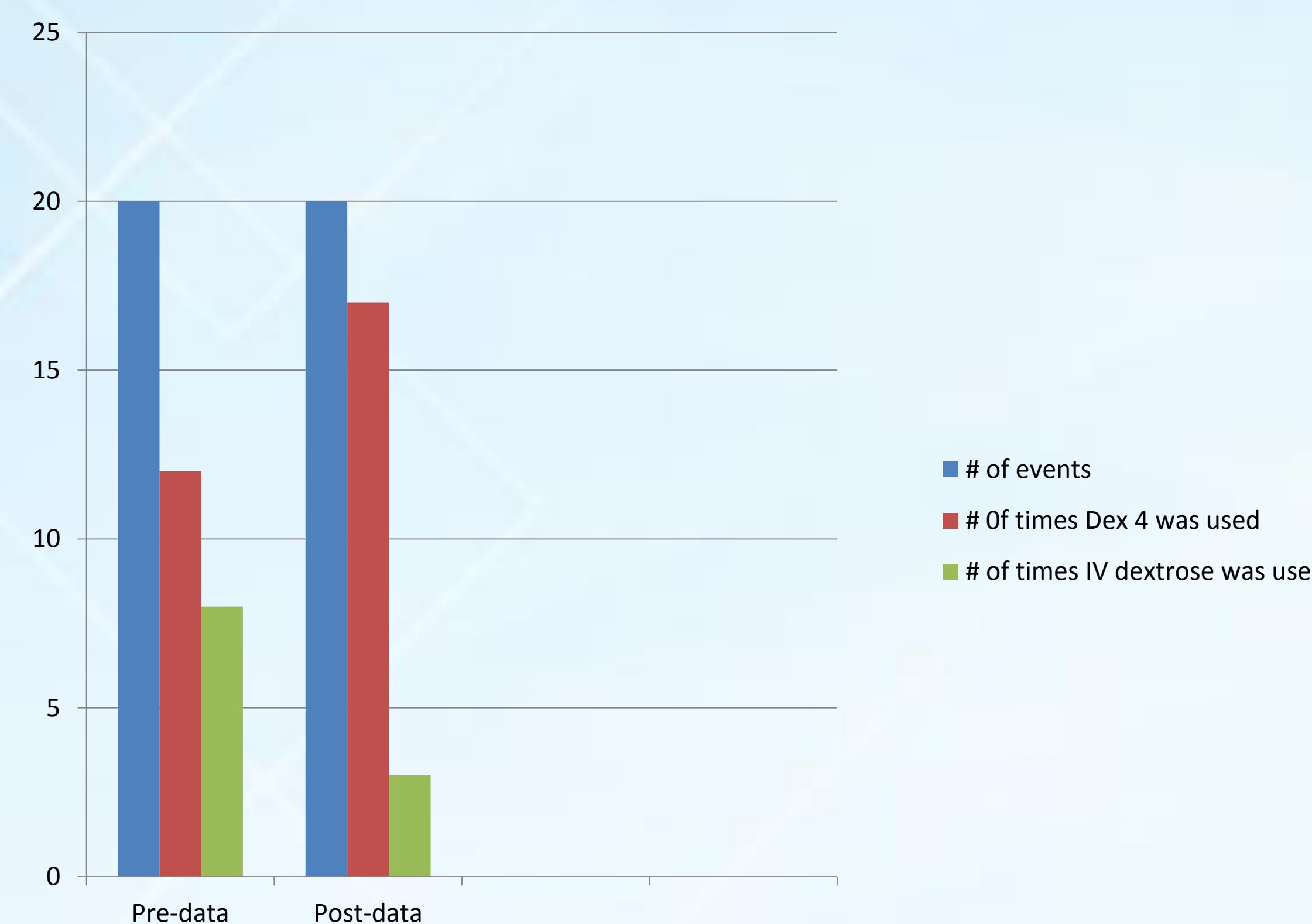
PICO Question

- Will educating Registered Nurses on the proper use and administration of hypoglycemic agents increase the compliance of administering the appropriate hypoglycemic agent at the time needed?
 - P: Medical-surgical registered nurses
 - I: Educating Registered Nurses on the appropriate treatment of hypoglycemic events
 - C: Administering oral glucose versus intravenous dextrose
 - O: Increased compliance with administration of the appropriate hypoglycemic treatment

Process and Methods

- Retrieved data from RL Solutions Patient Safety reporting regarding 20 episodes of hypoglycemia before the start date of the project (December 4th). Baseline unit compliance with using correct treatment was compiled using the review notation of the LVHN Inpatient Diabetes Education Manager, who investigates all episodes of severe hypoglycemia.
- A pre-survey was administered to 20 staff nurses to assess knowledge regarding oral versus IV dextrose treatment for hypoglycemia
- A power point education outlining which treatment is indicated for hypoglycemia was created to educate staff nurses. The education included input from the Inpatient Diabetes Education Manager as the subject matter expert. Electronic communication was sent to staff requesting review of education by 12/18/17.
- Education placed in break room with a roster. Staff nurses reviewed power point and signed roster once finished. Education reviewed by 18 nurses.
- Data was retrieved using same methods for 20 episodes of hypoglycemia starting 12/18/17. Compliance with indicated treatment was compared from before and after the education was reviewed by staff.

Data and Results



Conclusion

- Compared to pre-education data, the number of hypoglycemic events with inappropriate treatment decreased 62.5% after RN education completed.
- **Barriers** – It was noted that nurses were more likely to want to give IV D50 for severe hypoglycemia (<40) even if the patient was able to safely swallow – possibly because of the emergent nature of the hypoglycemia.
- **Next steps** – LVHN Diabetes Quality Improvement Team is working in conjunction with pharmacy to reinforcement appropriate treatment using an electronic “pop-up” notification in the Pyxis machine to prompt nursing into making the proper medication selection. This project was initiated shortly before this network wide initiative was implemented on 1/22/18.

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