

BACKGROUND

- Modified Early Warning System (MEWS) is a tool to identify early deterioration of a patient that generates a numeric score based on vital signs and level of consciousness.
- Research has shown that a MEWS score of 5 or greater is associated with increased ICU admissions, risk of death or admission to a high dependency unit.
- In February 2016, MEWS was implemented at Vidant Medical Center (VMC), Greenville NC. From June 2016-March 2017, a MEWS of 5 or greater was found in 50% of VMC patients with a diagnosis of sepsis, and 66% of the ED patients with an initial MEWS of 5 or greater were admitted to the hospital.

PROJECT AIM

PDSA #1 Aim: By April 2018, we want to decrease the number of Best Practice Alerts (BPAs) to providers by 10% by integrating the SIRS protocol into the MEWS BPA

PDSA #2 Aim: We want to obtain baseline subjective data from healthcare providers (RNs, MDs, ERTs) in units that have MEWS by doing a system-wide survey in June 2018.

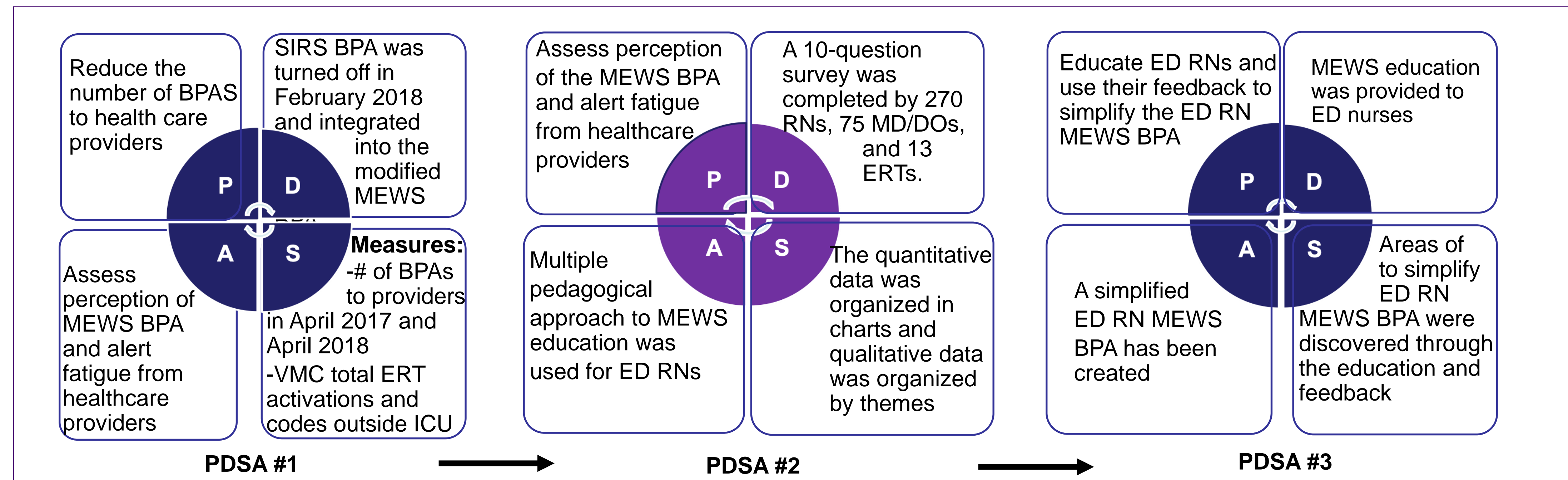
PDSA #3 Aim: By February 2020, use multiple pedagogical approach to educate ED RNs about MEWS and collect feedback to simplify ED RN MEWS BPA to reduce alert fatigue

Global Aim: Improve the care of acutely decompensating patients, especially those with sepsis.

PROJECT DESIGN/STRATEGY

- A robust mixed methods quality improvement project with multiple Plan-Do-Study-Act (PDSA) was implemented.
- PDSA #1:** Using a multidisciplinary Sepsis Steering Committee and Epic IT team support, SIRS protocol was integrated into the MEWS.
- PDSA #2:** A hospital wide 10 question survey was implemented in units that have MEWS at VMC which was completed by 270 RNs, 75 MD/DOs, and 13 ERTs. The quantitative data was analyzed using Microsoft Excel and qualitative data (comments from the survey) were compiled based on themes.
- PDSA #3:** MEWS education was provided to VMC ED nurses via virtual huddle, face-to-face education, and one-on-one walk-through of MEWS documentation steps. Real-time feedback was obtained from the RNs about the utility of the BPA.

CHANGES MADE (PDSA CYCLES)



RESULTS/OUTCOMES

Type of healthcare provider	Number of SIRS and MEWS alerts in April 2017	Number of MEWS alerts in April 2018
Nurse	860 (9 units)	900 (9 units)
Physician	120 (7 units)	95 (7 units)

Table 1: The number of alerts to providers was measured from April 2017 vs. April 2018.

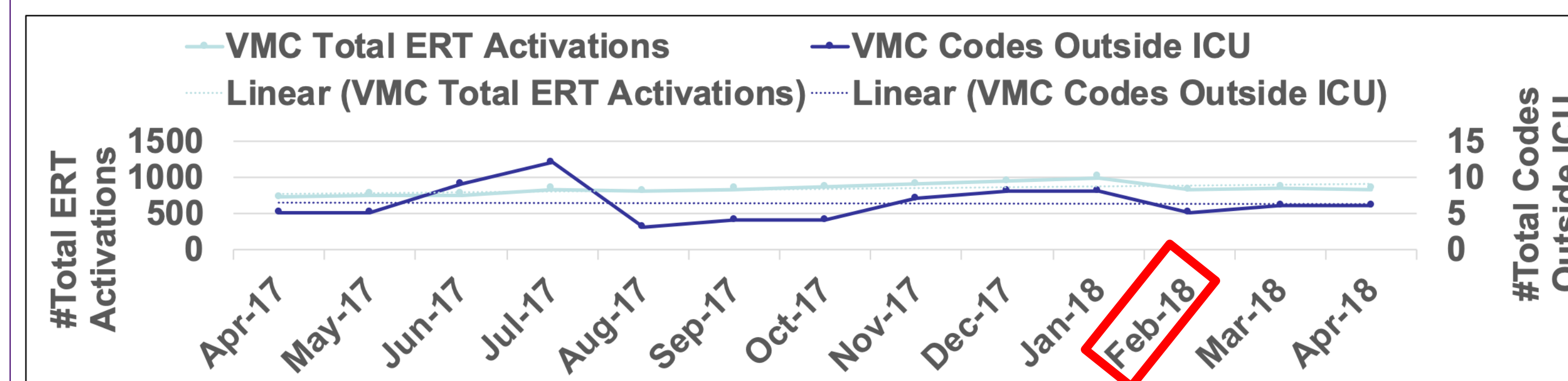


Chart 1: The chart above describes the VMC total ERT activations and codes outside ICU before and after turning off SIRS BPA

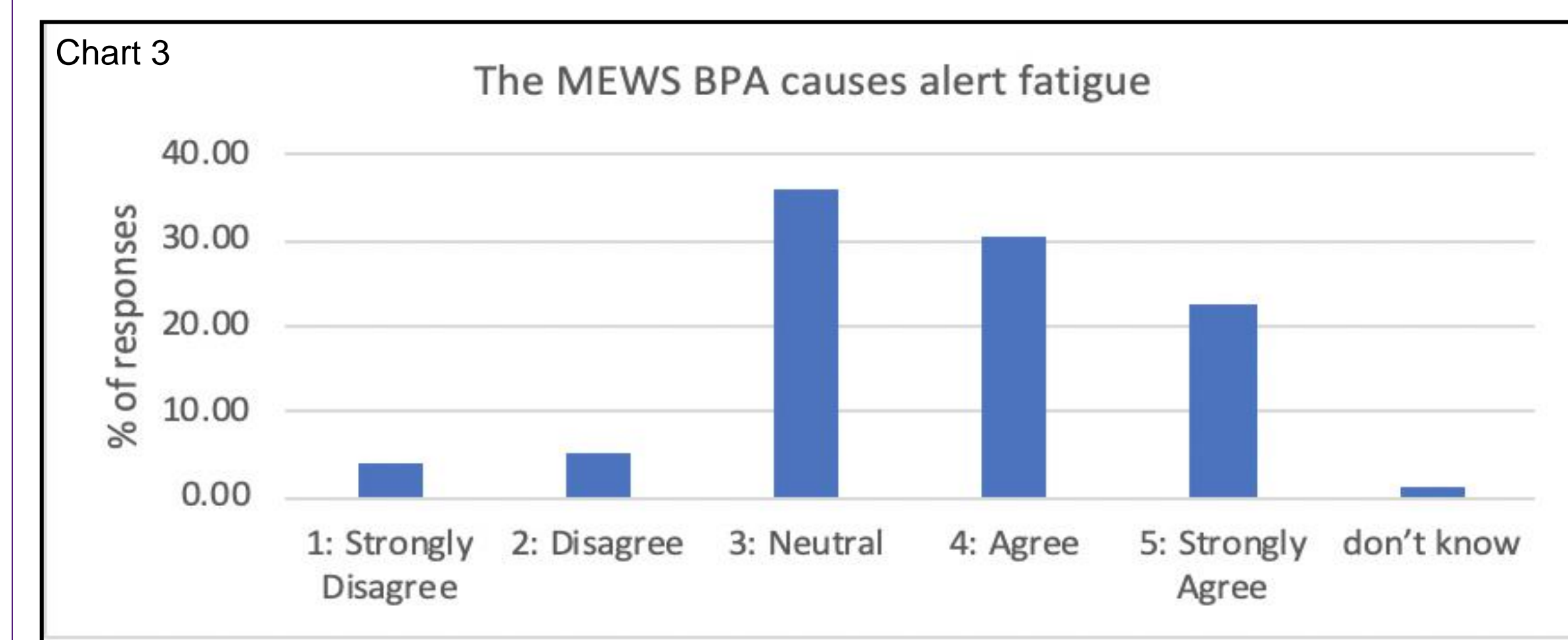
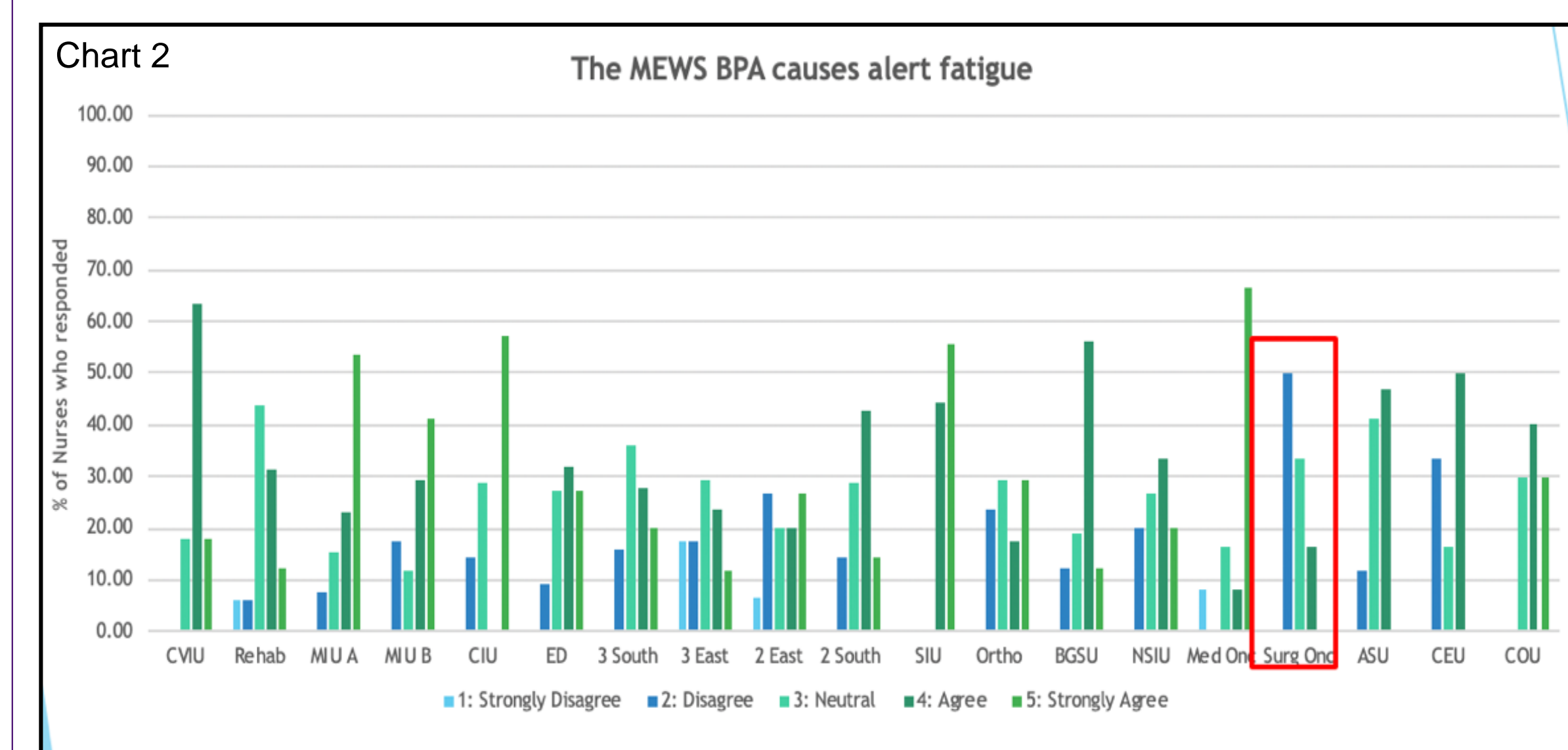


Chart 2-3: The charts above describe results from the RN and physician surveys

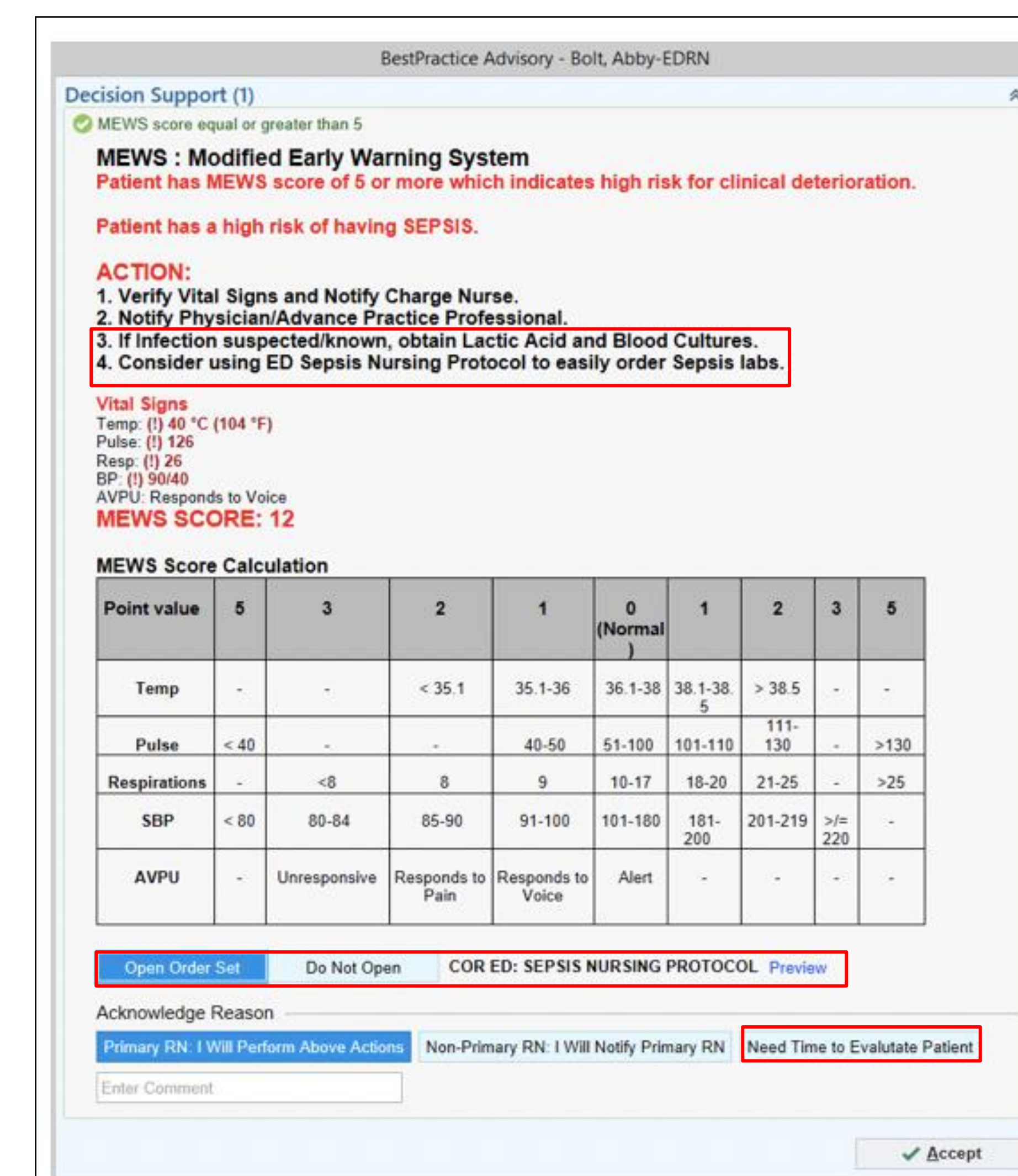


Image 1: The red boxes include 2 action items, Sepsis Nursing Protocol Order set, and 1 acknowledge reason. They were removed to simplify the ED RN MEWS BPA

LESSONS LEARNED

- Contrary to the expectation, the total number of alerts for RNs went up in April 2018 when compared to April 2017. Some possibilities include: (i) over alerts (ii) lack of education about the MEWS protocol's purpose and action items.
- Turning off SIRS and modifying MEWS has neither significantly increased nor decreased the total codes outside ICU. Total ERT activations have increased with the modified MEWS BPA
- Our providers are vulnerable to alert fatigue. Some possibilities to MEWS causing alert fatigue that were realized through the survey included: (i) over alerts (ii) lack of education about the MEWS protocol's purpose and action items.
- MEWS is working to detect our sepsis patients earlier based on results from provider surveys.
- One challenge to assessing alert fatigue caused by MEWS BPA is that there is no objective measure to track over time.
- Areas of simplification were identified through ED RN education and feedback sessions. These areas included: (i) reducing action items from 4 to 2 (ii) ED Sepsis Nursing Protocol was rarely used per ED RNs, so it was removed (iii) Acknowledge reason were reduced from 3 to 2

NEXT STEPS

- Survey ED nurses to assess if the simplified ED MEWS RN BPA is helping reduce alert fatigue
- Future studies will include exploring the impact of adding the MEWS column to the track board of ED Pharmacy.
- There is a need to design meaningful clinical decision support to improve care while balancing the number of alerts.

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