Sept. 22, 2020

BOOST-3 Bulletin

Brain Oxygen Optimization in Severe TBI Trial Newsletter

73 participants enrolled! Congratulations and thank you!

There are 30 sites open to enrollment: (4 on COVID hold)

16 - Sites have enrolled at least one subject

Ben Taub General Hospital, Houston, TX	(13)
Froedtert Hospital, Milwaukee, WI	(10)
Strong Memorial Hospital, Rochester, NY	(9)
Harborview Medical Center, Seattle, WA	(7)
UPMC Presbyterian Hospital, Pittsburgh, PA	(6)
Penn Presbyterian Medical Center, Philadelphia, PA	(6)
University of Utah Healthcare, Salt Lake City, UT	(5)
University of Cincinnati, Cincinnati, OH	(4)
Oregon Health & Science University Hospital, Portland, OR	(4)
Maine Medical Center, Portland, ME	(2)
UF Health Shands Hospital, Gainesville, FL	(2)
San Francisco General Hospital, San Francisco, CA	(1)
Yale New Haven Hospital, New Haven, CT	(1)
Cooper, New Jersey	(1)
Univ. of Massachusetts	(1)
Mass General Hospital	(1)

A Few Case Examples to Help You Through the Data Maze

Sometimes things get complicated when ICP and PbtO2 values are spiking, dropping, normalizing, and doing it all over again within minutes. Below are a few simple case examples. As always, please reach out to the Protocol Trainers with questions on how to interpret and enter Tier Treatment CRF data, especially for more complex participants!

Case Example: Subject that quickly transitions from a Type B episode—to Type D—to Type C, all within a short period of time:

You may observe cases in which one abnormality precedes a different abnormality (example—ICP spikes, and within a few minutes PbtO2 drops, resulting in a quick transition between B or C episodes to a Type D (combined) episode. Here is an example of how to interpret and enter the data:

Type B Episode—Increased ICP

Start: 5:21—document ICP and PbtO2 values at Episode Start

End: 5:24 (transition to a Type D episode) —document ICP and PbtO2 values at this time point, when ICP remains elevated and now PbtO2 has decreased below normal --this is a very short duration, in which there was no time to implement a Type B Tier 1 treatment.

SOLUTION

*Enter in "**General Comments" in the B form** that patient quickly transitioned to Type D prior to any initiation of Type B tier 1 treatments.

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The B transitioned quickly to a Type D Episode
Start: 5:24 8/8/20 (should match with end time of Type B episode) —document ICP and PbtO2 values at Episode Start (these values should match with what was entered at the end of the Type B Episode)

Tier 1 treatment performed—Adjusted Analgesia at 5:30

End of Episode D: 5:29 (ICP was resolved)
Then it jumps to a Type C Episode —document ICP and PbtO2 values at this time point in D form, when ICP returns to normal range, yet PbtO2 is still below normal.

Now you are working in a Type C.
Type C Episode
Start: 5:29—document ICP and PbtO2 values at Episode Start (these values should match the values entered at the end of the Type D Episode).
PbtO2 quickly normalizes, prior to any implementation of Type C Tier 1 Treatments.

End of C: 5:30 Based on CarePath, it seems that both ICP/PbtO2 remain normal for at least 30 minutes (or until 6:00) so this is the end of the Episode. All of these changes from beginning at 5:24 until the end at 5:30 are really one Episode. If they all remain normal until 6:00 – 30 minutes from the time everything was normal- the Episode is over and a new abnormality after 6:00 will start a new Episode.

SOLUTION
*Enter in General Comment: Type D Tier 1 Tx was performed at 5:30 (adjusted analgesia)
*NOTE: *there is no 'adjusted analgesia' as a Type C Tier 1 treatment, so it should be entered within the Type D Episode**

How do you record abnormalities before the FiO2 challenge has been done?
Since patients can be complex and clinical management may vary among sites, we wanted to show a few similar (but different) case scenarios that may occur, and how to interpret and enter into WebDCU:

Case #1: Low PbtO2 value alarms prior to FiO2 challenge, no treatments performed

- Probes placed at 3:07am
- At **4:29**, CarePath alarms with a PbtO2 abnormality. ***This was before the FiO2 challenge was started***.
- FiO2 challenge started at **4:44am** and passed at 4:53am, PbtO2 increased to 21mmHg.
- Vent settings: AC 22, TV 440, 40%, 5 PEEP
- **No recent ABG to review.**

FiO2 challenge started at 4:44am and passed at 4:53am, PbtO2 increased to 21mmHg.
Critical care team / physician were aware of low value prior to start of challenge. Since PbtO2 is now within normal range, no additional interventions were ordered at this time. Vent settings resumed to AC22/440/40/5.
Since no Tier treatments were ordered in this case, this is NOT a reportable Type C event.
PbtO2 normalized and stayed normal. There were no additional interventions performed and original vent settings were maintained.

Case #2: Low PbtO2 value alarms prior to FiO2 challenge, Treatments were performed after FiO2 challenge was completed

- Probes placed at 3:07am
- At 4:29, CarePath ID'd a PbtO2 abnormality. ***This was before the FiO2 challenge was started.***
- Vent settings: AC 22, TV 440, 40%, 5 PEEP
- **ABG done at 4:20am**: 7.37/PaO2 78/PaCO2 36/SaO2 99%
- FiO2 challenge started at **4:44am** and passed at **4:53am**.
- Critical care / physician reviewed recent ABG and following the FiO2 challenge, and decided to order a **Tier 1 treatment**: The FiO2 was set at 60% at **4:54am**.
- PbtO2 normalized at **5:02am** and remained normal.

In this example, this as an Episode C, because the clinical team decided to treat the abnormality. The start time of the Episode would be at **4:29** when the abnormality began (this was prior to FiO2 challenge). The alarm would have sounded at 4:34 after 5 minutes of sustained abnormality, but the beginning of the episode is the time from when the abnormality actually began, not the time of the alarm sound.
According to the Protocol, the 15 minute window of requiring a treatment would be at 4:44am. The team did an FiO2 challenge at that time, and after confirming that the catheter was functioning properly and reviewing a recent ABG, noting that the PaO2 was < 150, the physician ordered that the FiO2 should be increased to 60% (from 40%).
To complete the CRF, you can document the following as a Type C Episode:

- Episode Start: 4:29
- Vent settings: 22/440/40/5
- Tier 1 Tx: Increased FiO2 (60) at 4:54
- End of Episode: 5:02am

To avoid a protocol deviation (Tx was implemented after 15 minutes), explain in Gen Comments that treatment was delayed due to need to perform FiO2 challenge FIRST to confirm functionality of the probe before implementing a Tier Treatment.

Case #3: A Tier Treatment was performed *prior* to FiO2 challenge based on additional clinical data

- Probes placed at 3:07am
- Vent settings: AC 22, TV 440, 40%, 5 PEEP
- **ABG done at 4:20am**: 7.37/PaO2 78/PaCO2 36/SaO2 99%
- At **4:29**, CarePath ID'd a PbtO2 abnormality. ***This was before the FiO2 challenge was started***.

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- Critical care team/physician was at the bedside, and after reviewing the most recent ABG, ordered a Tier 1 treatment: that the FiO2 should be increased to 60%. Vent change made at **4:35am**.
- FiO2 challenge started at **4:44am** and passed at 4:53am, PbtO2 increased to 20mmHg at **5:02am** and remained within normal range; no additional orders/treatments.

In this example, the critical care team/physician was aware of low value prior to start of challenge but ordered a Tier 1 treatment to be performed based on recent ABG.
Since a treatment was performed with the goal to optimize PbtO2, it is recommended to enter as a Type C Episode into WebDCU.
To complete the CRF, you can document as a Type C Episode:

- Episode Start: 4:29
- Vent settings: 22/440/40/5
- Tier 1 Tx: Increased FiO2 to 60% at 4:35
- End of Episode: 5:02 (time that PbtO2 reached 20)

Enter in General Comments that Episode started prior to FiO2 challenge, and a treatment was ordered prior to challenge starting

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Important reminders:

1. Day 1 begins at the time of randomization and goes through midnight that day. Day 2 is a 24-hour period beginning after midnight of Day 1.

2. For all participants (unless they expire or are discharged before 120 hours) continue to collect applicable information through 120 hours on the Day 6 form in WebDCU even if monitors are removed early.

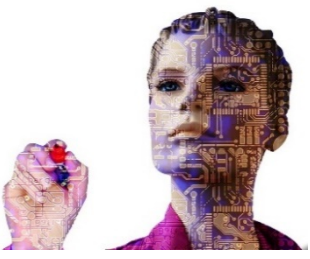
Important phone numbers & emails:

For immediate emergency assistance (enrollment, clinical, protocol, adverse events, etc.), please call the:

24/7 BOOST-3 Principal Investigator Hotline
855-4-BOOST3 (855-426-6783)

Clinical questions for BOOST3 trial PIs:
boost-PIs@umich.edu

Urgent WebDCU randomization questions call:
1-866-450-2016



WebDCU Nuggets

Please review the following items in WebDCU

- **Respond to DCRs within 5 days**
- **Review rule violations**
- **Complete overdue CRFs. CRFs should be completed within 5 days of the visit. SAEs must be completed with 24 hours of discovery.**
- **Please do not enter personally identifiable information (PII) in WebDCU. If entered, please remove.**

Questions about BOOST-3?
boost-contact@umich.edu