Speakers:

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1. What computer program allowed this data collection from your EMR? Was this blended into your EMR or added to the program?

We developed the HELP clinical information system over 40 years ago and developed the ePOD application on that system first. We have also been able to develop the ePOD alerts in iCentra, our new clinical information system we’re implementing with Cerner. Both systems use data entered by the clinicians in the Electronic Medical Record (EMR). The ePOD logic (also within the EMR) evaluates vital sign data and if an alert is warranted, sends the alert to the clinicians on the acute care unit who assess the patient and intervene as appropriate. Clinicians have access to 24 hour graphs specific to the ePOD data.

2. How far back in time does ePOD look back to get a score, given that vitals may be entered at various times?

It will pull the most recent data within a four hour time period looking backward. The vital sign parameters used in the ePOD score algorithm may be from different time periods within that four hour timeframe.

3. How were you able to get the buy-in from physicians?

We started by running the ePOD tool in the background on two acute care units (medicine/oncology and surgical/trauma). We collected data over a two year period and adjusted the alerting parameters with the goal of detecting patient deterioration without over-alerting the bedside nurses. We then presented our tool to the nursing and physician groups it would directly affect (those who cared for patients on the two pilot units). We implemented the ePOD alerts and over another two year period, validated the score. Actually, when the physicians started noticing they were getting called and the nurses had (ePOD) data to support their concerns, they started requesting ePOD be instituted on the other acute care units in which they managed patients.

4. Is the data manually charted or wirelessly sent to the EHR?

Both. Most of the acute care units will collect some data automatically and some manually. For instance, a patient’s respiratory rate will always be gathered manually. For a blood pressure reading, the CNA or nurse will apply the cuff and hit a button; the number is then recorded automatically in the EMR. The heart rates are often just recorded automatically every 15 minutes from leads on the patient’s chest.
5. Was DNR status or recommended DNR looked at in regards to slow transfer deaths?

The ePOD alert looks for hospice, and comfort care data in the EMR. It is not always there. If it is, ePOD will not send an alert. We still alert for DNR patients and in our study, did not look specifically at DNR status and how it correlated with slow transfer deaths.

6. Do all vital signs need to be entered at the same time to get a EWS score? If so, who is entering the neuro data? Is it the same person who is doing the other vital signs? Is that a nurse or a tech? Is the tech assessing neuro data? And who is entering AVPU?

Usually the CNA and sometimes the nurse assigned to the patient enter the basic vitals (BP, HR, RR, Temp) in the EMR. They do this as often as they’re ordered (usually Q4 on the acute care units). The nurse assesses the patient and charts their AVPU in the EMR usually every 12 hours; more frequently if the patient has a neuro change from baseline. If the patient is getting pain medicine, or sedation, the NAMDU is documented 45-60 minutes after every narcotic dose, at least every two hours if the patient has a PCA/epidural. If the patient is post-op, vitals are done every two hours until the Aldrete score is ≥ 13.

7. MEWS and similar algorithms have been around for many years. RRT research has shown that a key barrier to improving the ID of deterioration is getting timely, consistent and accurate (especially respiration) data. Did your program assess the quality of vital signs data?

The ability to correctly alert is contingent on the accuracy of the vital sign data entered in the EMR. We rely on education to ensure accurate, timely collection of vital sign data. Of interest, the ePOD alerts improved vital sign documentation. If data was entered in error and an ePOD alert was generated, the clinician was made aware of the data entry error and was able to edit the incorrect data.

8. What patient populations has ePOD been used on? Medical / Surgical etc?

Our pilot began on a 33 bed surgical/trauma and a 33 bed medical/oncology unit. Since then, ePOD has been moved out to all acute care patient populations aged 13 and older. ePOD does not alert in the ICU, OR/PACU, ED, L&D and for hospice/comfort care patients.

9. What are the nursing expectations for documentation when they receive an ePOD alert? Is there a set expectation for the documentation? Did you find resistance from nurses initially when this was implemented? Also, -how are these charge nurses alerted of an alarming ePOD score?

When an ePOD alert is generated by the computer algorithm, charge nurses automatically receive a page/text. After the alert is received, they go to the patient room with the bedside nurse to assess the patient. A graphical report is available showing 24 hours of vital sign trends giving the clinicians the information they need to quickly evaluate their patient. They feel more confident about their assessment and more comfortable requesting help. In our HELP system implementation the nurse documents appropriate “Problem” documentation. In our new iCentra system, the nurse documents the ePOD Action Taken. The nurses did not resist ePOD alerts. The ePOD alerts provided value and hence were appreciated by nurses.

10. Does the computer auto-compute the score?

Yes, each time vitals are entered, the computer program looks for the data elements used to calculate the ePOD score, pulls them in, and calculates a total score. If the patient’s data has not produced an alert in the last four hours, an alert will be sent to the charge nurse.
11. Is the data entered directly into the medical record or in a separate place?

Vital sign data are entered into the medical record by the clinician. Once the ePOD is calculated and a score > 4 is reached, the ePOD alert is sent to the clinician and stored in the EMR.

12. Will physicians eventually be notified directly vs via charge nurse?

We can notify anyone who wants to receive the alerts via pager/phone/email, etc., including the physician. We have not opted to do that because the doctors are generally not with the patient and may not know how to take the alert in context. We notify those closest to the patient so they can use the data with their other assessment information to make clinically appropriate decisions.

13. What age groups are using ePOD? Is any of the data stratified by age group?

13 years and older. Initially we used 18 years and older but were concerned about younger patients treated on the acute care floors. We are currently working to develop a modified PEWS alert for pediatric patients.

14. How widely adopted is the protocol outside the centers where the study was conducted?

The ePOD algorithm is being used in 20 of the 22 hospitals Intermountain Healthcare owns. It is being implemented in the 21, 22nd hospitals on Feb 16, 2016 as we also implement iCentra, our Cerner version.

15. Who captures the VS data? If it is a PCT, can they do the neuro check? Did you experience delays with manual entering on VS into EMR?

Nurses can enter vital sign data at any time. We also collect the data from the physiological monitors every minute and store the median vital sign every 15 minutes in the EMR. The PCT does not enter neuro data. We continue to emphasis real time data entry.

16. You referenced the need for effective communication as one of the three elements leading to failure to rescue. In addition to e-POD, have you any helpful strategy regarding the role, or value of family members in recognizing and escalating deteriorating conditions? They often know when something is "just not right" but have no avenue to escalate.

Family members or patient friends do not have any role in the ePOD alerts. The alerts are automatic based on patient data in the EMR. Intermountain Healthcare has had the rule that family and friends can call a MET/RRT alert at any time.

17. In reference to the RR, are more facilities starting to use capnography technology to determine respiratory changes or concerns?

The ePOD alerts are not using capnography data at this time. Intermountain Healthcare is looking at capnography and we can add that to the alerts when it is available in the EMR.

18. How difficult is it to implement ePOD?

That depends on the EMR you are using. We were able to develop it on Cerner, so other vendors should be able to develop it as well. The main issue is to not let the vendor just use MEWS. The false positive rate will make if unreliable and nurses will not trust it and want to turn it off.

19. How do you automatically bring in neuro AVPU and NAMDU?

The AVPU and NAMDU are charted in the EMR by the nurse. After the score is charted, ePOD goes out and looks at all vitals that comprise the ePOD score; this includes the AVPU and NAMDU. If it
sees that “moderate sedation” was charted, it assigns that “data point” a score of 2. If “deep sedation” was charted, it gives that a 3, etc. The vitals are entered in the EMR as they normally would be by the clinicians and ePOD looks at the data as it’s charted.

20. Do you have a dedicated MET?

We do not have a dedicated MET team at Intermountain Medical Center where ePOD began or dedicated RRT teams at any of the other 22 hospitals in the Intermountain Healthcare system.
21. Do you use a rolling spot check monitor or do you have bedside monitor in each room?

It’s different on each acute care unit. Some patients need closer monitoring and may be on continuous tele, etc. Other’s will be more stable and the CNA will roll the blood pressure/saturation machine from room to room.

22. Do the pagers, phones, and other tools break or get lost? How do you have backups always ready?

The pagers get transferred to the next charge nurse at shift change. They could get lost, but we’re not aware of that being an issue. The same applies with the phones or Vocera devices.

23. What is the annual cost of this program to implement?

The cost to implement ePOD was part of an internal quality Improvement study to improve patient care. The actual cost is difficult to determine.

24. Does Intermountain do any patient monitoring on their lower acuity units for patients at risk of a deteriorating clinical condition? And if so, what do they use -- telemetry packs, vital signs monitors capable of continuous monitoring, multi parameter patient monitors, or something else?

Our patient monitoring needs did not change with the implementation of ePOD.