Acute Care Nurses Answer a Clinical Question alongside Academic and Hospital Nurse Leaders through Partnership

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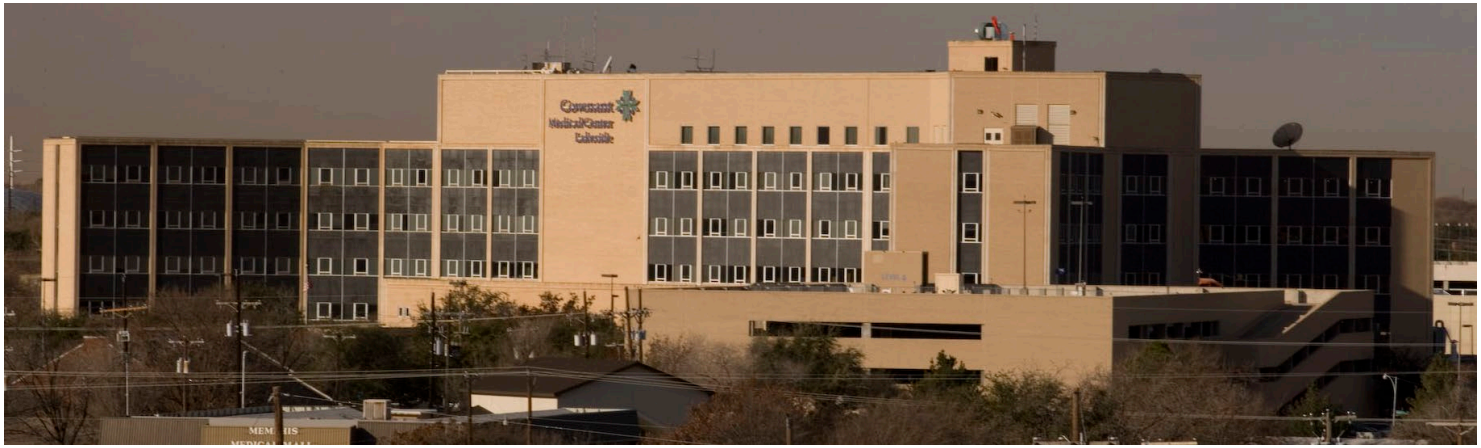
Background

Covenant Health recorded 51/12,077 (0.422%) transfusion-related adverse reactions in 2017, thus highlighting the importance of identifying evidence to support vital sign frequency to detect transfusion reactions.



Purpose

The purpose of this project was to build confidence in applying skills attained through Research Academy (RA) participation to answer a clinical question of significance and relevance to cohort four participants through facilitative learning and role-modeling strategies by RA faculty.

Aim

The aim of this project was to ascertain what frequency of vital signs should be used to detect a reaction during blood product administration by applying newly acquired translational research skills with RA faculty facilitation.

Research Question

In individuals receiving a blood transfusion, what frequency of vital signs should be used to monitor for a reaction during blood administration?

Research Academy Project

- A research question was strategically developed by RA faculty, including a research librarian, for the fourth RA cohort to answer as a group.
- The research question was selected to represent a topic common to clinicians across practice settings and patient populations, thus engaging interest in finding an answer.

Research Academy Cohort

- RA 4th cohort consisted of nurses with varied levels of comfort, exposure, & skill to concepts being presented.
  - 3 BSN prepared direct care nurses
  - 4 MSN prepared nurses
- Five nurses represented certified nurses in an area of nursing specialty.
- Nurses represented neonatal, critical care, palliative medicine, neurology, wound, resource pool, and diabetic focused clinicians.

Background

- Research Academy (RA) fourth cohort sought to answer the clinical question by conducting a literature review, appraisal, and synthesis of current published evidence.
- Initially cohort members were teamed up with a RA faculty member to write different sections of an abstract.

Background

- Curriculum modification was made to synthesize findings as a group after feedback from RA participants.
- Synthesis was role-modeled using a research grid and themes emerging from reviewed articles by RA faculty.
- Active participation by direct care nurses was supported by nurse administrators who saw resourcing RA initiatives as an institutional priority.

Significance

Ensure Covenant Health's blood administration policy and practices align with current evidence for vital sign frequency to detect adverse blood product reaction.

Significance

Blood transfusions may result in severe complications including death

(Battard Menendez, 2016; Cortez-Gann et al., 2017)

Adverse reactions occur immediately or within several hours post transfusion

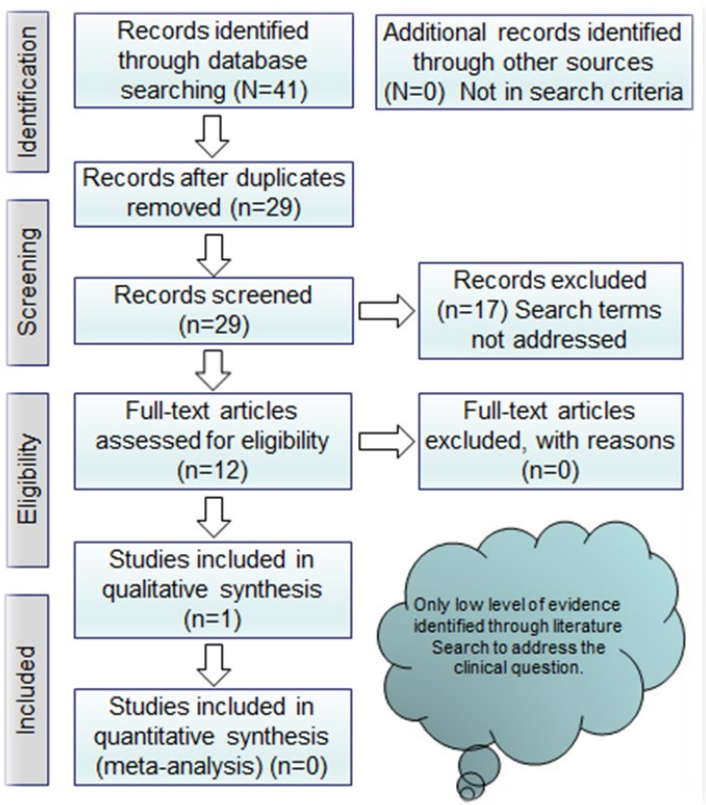
(Battard Mendez, 2016; Cortez-Gann et al., 2017; Hardwick, Osswald & Walker, 2013; Goodall, 2014)

Methods

- Literature review conducted using Integrated Research Review (IRR) methodology (Brown, 2018; Whittemore & Knafle, 2006)
- Databases searched included CINAHL, Cochrane, Medline, & PubMed
- Key search terms were "blood transfusion" AND "vital signs" as MeSH major word terms
- Included current (≤5 years) peer-reviewed articles not limited to English
- Consensus was not to include practice guidelines

Methods

PRISMA Flow Diagram



- Independent review for level of evidence conducted by RA cohort members (N=9) of final article sample (N=12)
- Level of evidence was established through interrater reliability
- Final sample excluded four articles due to lack of relevance to clinical question

Results

- Final article sample highlighted the impact of blood transfusion reactions on the respiratory system and pain.
- Systolic blood pressure, heart rate, and temperature were the only components included in all “vital signs” across manuscripts.
- In addition to not having “vital sign” components consistently applied throughout reviewed studies to allow for metanalysis of findings, the question of frequency of vital signs to detect an adverse reaction was not found.

Gaps

- Inconsistencies found in frequency of vital sign monitoring and “vital sign” components in reviewed literature.
- Respiratory rate was not always included in “vital signs” to identify transfusion reaction, including The Joint Commission standards

Literature Table

	Blood Pressure	Heart Rate	Respiratory Rate	Temp	Pulse Oximetry	Physical Assessment
Battard Menedez, 2016	Not specified	Not specified	Not specified	Not specified	Not specified	Chills, pain, nausea, reports of feeling unwell
Cortez-Gann et al., 2017	Systolic blood pressure only	Yes	Not included	Yes	Not included	Hives, itching, chills, flushing, nausea, pain, cyanosis
Deyoung Sullivan, 2015 *Literature Review*	Not specified (n=6) Yes (n=4)	Not specified (n=6) Yes (n=4)	Not specified (n=6) Yes (n=1) Only if change noted (n=1)	Not specified (n=6) Yes (n=4)	Not specified (n=6) Not included (n=4)	Not specified (n=10)
Mackenzie et al., 2014	Yes	Yes	Not included	Not included	Yes	Not included

Implications/Translation

- Lack of derangement definitions to identify “abnormal” vital sign components or to indicate transfusion reactions prevent triggering blood reaction recognition and interventions by nurses.
- Paucity of evidence exists to guide how frequent vital signs should be monitored and what components should be included in “vital signs” to identify transfusion reactions.
- Throughout the literature, vital signs were noted to not be enough to detect blood transfusion reactions.

Conclusion

Due to lack of high level evidence and guidelines in peer-reviewed literature to inform nurses in how frequently vital signs should be monitored and what components should be included in "vital signs" to identify transfusion reactions, an answer to the clinical question was not found.

Conclusion

- More research needs to be completed to answer how often vital signs should be done to detect blood transfusion reactions.
- Early detection potentially prevents adverse outcomes, increased lengths of stay, higher costs to treat, and promotes customer satisfaction.

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