



Center for Quality and
Productivity Improvement
University of Wisconsin-Madison



Survey on EHR/CPOE for Geisinger ICU Staff



3 months after the implementation...

Letter to Geisinger Intensive Care Unit Staff

Dear Geisinger ICU Staff,

A group of University of Wisconsin researchers is working in collaboration with researchers from Geisinger's Center for Health Research on a study examining the impact of Computerized Provider Order Entry (CPOE) and Electronic Health Record (EHR) technologies on the work organization and quality of working life. This survey is part of an effort to evaluate the technology before and after its implementation. Like any intervention, use of an EHR may result in unintended consequences. We ask you to complete this survey to help us assess the implications, both positive and negative, of using the EHR (Epic). This will aid us in the ongoing task of making the EHR more useful to you.

We will be collecting survey data three times:

- before implementation of the CPOE technology,
- three months after implementation of the technology (now), and
- nine months after the technology has been in use (now).

Your response at each survey round is appreciated.

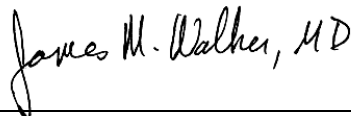
Completion of the survey is voluntary. We are collecting information about your job, your quality of working life, your perceptions of the technology and your performance. The questionnaire will take about 15 minutes to complete. You can leave blank any questions you do not want to answer. **No one at your work place will ever see your answers.** Your responses are strictly confidential and will be closely guarded. Research staff will be the only people to see your answers. Your name and other identifying information will not be associated with your survey answers. All results of this study will be reported in the aggregate so that no one person can be identified. No answers of individuals will ever be released.

It is our hope that through the information we obtain from this study, we can better understand how EHR technology affects employees. Thank you for your consideration.

Sincerely,



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We appreciate the time you are taking to complete this questionnaire and hope that the information will help us better understand how new technology influences people.

Instructions

When completing the questionnaire, you can leave blank any questions that you do not want to answer. Remember that your responses are strictly confidential and will be closely guarded. This questionnaire has been designed to gather information about the work you do, the technology you use, and your quality of working life. Please try to answer all of the questions.

To answer the questions, check the appropriate box on the scale. For example:

| | Strongly Disagree | Disagree | Neither Disagree Nor Agree | Agree | Strongly Agree |
|---|----------------------------|----------------------------|---------------------------------------|----------------------------|----------------------------|
| 1. Communication with people on this ICU is very open. | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input checked="" type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |

Some questions will require answers similar to the scale above, while other questions will require different responses. Please try to be as accurate as possible.

Section A. About your job...

1. Please, check your current job position:

- ₁ Nurse
 ₂ Physician Assistant (PA)
 ₃ Nurse Practitioner (NP)
₄ Attending
 ₅ Fellow
 ₆ Resident (years 2 and 3)
 ₇ Intern (year 1)

If you are a resident, please answer the following questions for the ICU you worked on most recently.

2. How long have you worked for Geisinger? _____ years _____ months
3. What unit do you primarily work on?
₁ Adult ICU
₂ Cardiac ICU
₃ Pediatric ICU
₄ Neonatal ICU
4. How long have you worked on your current ICU? _____ years _____ months
5. How many hours do you work at your job in an average week? _____ hours per week
6. When during the week do you typically work?
₁ Weekdays
₂ Weekends
₃ Both
7. When do you typically work?
₁ Day (first shift)
₂ Evening (second shift)
₃ Night (third shift)
8. How long is your typical shift?
₁ 8 hours
₂ 12 hours
₃ Other: _____
9. *If you are a resident*, please indicate which month you worked in the ICU:
- ₁ January
₂ February
₃ March
₄ April
₅ May
₆ June
₇ July
₈ August
₉ September
₁₀ October
₁₁ November
₁₂ December

Section B. About communication and coordination in the ICU...

If you are a resident, when answering the questions in this section, please think about the ICU that you worked on most recently.

| | Strongly Disagree | Disagree | Neither Disagree Nor Agree | Agree | Strongly Agree |
|---|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| 1. Communication with <u>nurses</u> on this ICU is very open. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 2. It is easy to ask advice from <u>nurses</u> on this ICU. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 3. Communication with <u>physicians/PAs/NPs</u> on this ICU is very open. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 4. It is easy to ask advice from <u>physicians/PAs/NPs</u> on this ICU. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 5. Communication with <u>pharmacists</u> on this ICU is very open. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 6. It is easy to ask advice from <u>pharmacists</u> on this ICU. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 7. I can think of a number of times when I received incorrect information regarding patient care from <u>nurses</u> on this ICU. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 8. It is often necessary for me to go back and check the accuracy of information regarding patient care I have received from <u>nurses</u> on this ICU. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |

| | Strongly Disagree | Disagree | Neither Disagree Nor Agree | Agree | Strongly Agree |
|--|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| 9. I can think of a number of times when I received incorrect information regarding patient care from <u>physicians/PAs/NPs</u> on this ICU. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 10. It is often necessary for me to go back and check the accuracy of information regarding patient care I have received from <u>physicians/PAs/NPs</u> on this ICU. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 11. I can think of a number of times when I received incorrect information regarding patient care from <u>pharmacists</u> on this ICU. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 12. It is often necessary for me to go back and check the accuracy of information regarding patient care I have received from <u>pharmacists</u> on this ICU. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 13. I get information on the status of patients when I need it. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 14. When a patient's status changes, I get relevant information quickly. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 15. In matters pertaining to patient care, nurses call <u>physicians</u> in a timely manner. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 16. There is effective communication between <u>nurses</u> across shifts. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 17. <u>Nurses</u> associated with the unit are well informed regarding events occurring on other shifts. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 18. There is effective communication between <u>physicians/PAs/NPs</u> across shifts. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 19. <u>Physicians/PAs/NPs</u> associated with the unit are well informed regarding events occurring on other shifts. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |

| | Not at all effective | Slightly effective | Moderately effective | Effective | Very effective |
|--|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| 20. To what extent does <u>one-to-one communication</u> between staff contribute to the coordination of staff activities <u>within your ICU</u> ? | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 21. To what extent do <u>daily staff rounds</u> contribute to the coordination of staff activities <u>within your ICU</u> ? | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 22. To what extent does <u>one-to-one communication</u> between ICU staff and members of other units effectively contribute to the coordination of your unit's activities <u>with other hospital units</u> ? | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 23. To what extent do <u>daily staff rounds</u> contribute to the coordination of your unit's activities <u>with other hospital units</u> ? | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 24. In your ICU, how effective are <u>nurses' shift changes</u> in passing on the adequate information about patients' cases and management plans? | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 25. In your ICU, how effective are <u>physicians/PAs/NPs' sign-outs</u> in passing on the adequate information about patients' cases and management plans? | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |

Section C. About the EHR (Epic) in general...

This section asks about the EHR or Electronic Health Record also known as the Epic system.

1. What do you think about the information you received about the EHR implementation?

| | | | | | | | | | |
|-----------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|------------|
| a. Insufficient | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Sufficient |
| b. Incomplete | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Complete |
| c. Non-timely | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Timely |
| d. Vague | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Precise |
| e. Useless | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Useful |

2. What do you think about your inputs in decisions regarding the implementation of the EHR?

| | | | | | | | | | |
|-------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|------------|
| a. Non-timely | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Timely |
| b. Insufficient | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Sufficient |
| c. Useless | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Useful |
| d. Meaningless | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Meaningful |
| e. Bad/poor | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Good |
| f. Non-productive | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Productive |

3. Did you participate in any of the following activities during the EHR implementation?

| | Yes | No | | Yes | No |
|--|--------------------------|--------------------------|--|--------------------------|--------------------------|
| a. System-level Strategic Design Team | <input type="checkbox"/> | <input type="checkbox"/> | g. Operations Managers Meeting | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Inter-Disciplinary Feedback Team (IDAC) | <input type="checkbox"/> | <input type="checkbox"/> | h. Project Oversight Committee | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Nursing Feedback Team | <input type="checkbox"/> | <input type="checkbox"/> | i. Usability Testing | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Physician Feedback Team | <input type="checkbox"/> | <input type="checkbox"/> | j. Prospective Risk Analysis (PRA) | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Pre-IDAC (scope-of-practice team) | <input type="checkbox"/> | <input type="checkbox"/> | k. Post Go Live suggestions for EHR enhancements | <input type="checkbox"/> | <input type="checkbox"/> |
| f. Departmental meetings | <input type="checkbox"/> | <input type="checkbox"/> | | | |

Please rate the following characteristics of the EHR.

| | | | | | | | | | | | | |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---------------------------------|
| 4. Learning to operate the system | Difficult | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Easy |
| 5. Exploring new features by trial and error | Difficult | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Easy |
| 6. Remembering names and use of commands | Difficult | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Easy |
| 7. Tasks can be performed in a straightforward manner. | Never | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Always |
| 8. Help messages on screen | Unhelpful | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Helpful |
| 9. Supplemental reference/training materials | Confusing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Clear |
| 10. Experienced and inexperienced users' needs are taken into consideration | Never | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Always |
| 11. Correcting your mistakes | Difficult | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Easy |
| 12. Please check the box that best reflects your <u>acceptance</u> of the EHR: | | | | | | | | | | | | |
| Dislike very much and don't want to use | | | | | | | | | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Like very much and eager to use |

The following five questions ask about specific parts of the EHR.

13. What are your overall reactions to order entry (CPOE)?

- a. Difficult ₀ ₁ ₂ ₃ ₄ ₅ ₆ ₇ ₈ ₉ Easy
- b. Frustrating ₀ ₁ ₂ ₃ ₄ ₅ ₆ ₇ ₈ ₉ Satisfying

14. Order entry (CPOE) functions as I expect.

- c. Never ₀ ₁ ₂ ₃ ₄ ₅ ₆ ₇ ₈ ₉ Always

15. What are your overall reactions to the electronic medication administration record (eMAR)?

- d. Difficult ₀ ₁ ₂ ₃ ₄ ₅ ₆ ₇ ₈ ₉ Easy
- e. Frustrating ₀ ₁ ₂ ₃ ₄ ₅ ₆ ₇ ₈ ₉ Satisfying

16. The electronic medication administration record (eMAR) functions as I expect.

- f. Never ₀ ₁ ₂ ₃ ₄ ₅ ₆ ₇ ₈ ₉ Always

17. What are your overall reactions to the nursing flowsheet?

- g. Difficult ₀ ₁ ₂ ₃ ₄ ₅ ₆ ₇ ₈ ₉ Easy
- h. Frustrating ₀ ₁ ₂ ₃ ₄ ₅ ₆ ₇ ₈ ₉ Satisfying

The following questions ask specifically about the CPOE or order entry system of the EHR. Based on your experience, please indicate whether the following statements about order entry are true.

| | Never | | | It varies | | | Always |
|--|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| 18. The order entry system is reliable – it does its job consistently. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |
| 19. Order entry improves my productivity. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |
| 20. Order entry has a negative impact on patient care. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |
| 21. Order entry reduces patient care errors. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |
| 22. The order entry system is easy to use. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |
| 23. Compared to paper ordering, order entry slows me down. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |
| 24. Order entry gives me the information I need to write better orders. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |
| 25. I feel I had adequate training on order entry. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |
| 26. Order entry improves the quality of patient care. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |
| 27. System response time on order entry is slow. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |
| 28. When I have a problem with order entry, I just ask someone for help. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |
| 29. I feel that I can benefit from refresher classes on order entry. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |
| 30. When I need help on order entry, I can find it. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |
| 31. Overall, order entry improves the safety of care I provide. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |
| 32. Overall, order entry saves me time. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |
| 33. Overall, I am satisfied with the order entry system. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |

The following questions ask you about specific features in order entry (CPOE). Please check the usefulness of each feature, or, if you never use that feature, please indicate so in the last column.

| | Not useful at all | | | It varies | | Extremely useful | Never use this feature | |
|---|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| 34. Order sets | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ | <input type="checkbox"/> ₈ |
| 35. Writing orders from off the patient floor | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ | <input type="checkbox"/> ₈ |
| 36. Custom orders with pre-filled medication dose, frequency and indication | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ | <input type="checkbox"/> ₈ |

The following questions ask you about the usefulness of specific features in order entry (CPOE) in identifying a problem with a medication order. Please check the usefulness of each feature.

| | Not useful at all | | | It varies | | Extremely useful | |
|------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| 37. Allergy messages | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |
| 38. Drug-drug interaction messages | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |
| 39. FDA black box warnings | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |

The following questions ask you about the usefulness of specific features in order entry (CPOE) in correcting a problem with a medication order. Please check the usefulness of each feature.

| | Not useful at all | | | It varies | | Extremely useful | |
|------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| 40. Allergy messages | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |
| 41. Drug-drug interaction messages | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |
| 42. FDA black box warnings | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ |

43. What are the three things you like most about order entry (CPOE)?

44. What are the three things you would like to change about order entry (CPOE) to make it better?

The following questions ask about drug alerts in the EHR.

45. How often do you override the drug alerts in the EHR?

Never ₁ ₂ ₃ ₄ ₅ ₆ ₇ Always

To what extent do you agree or disagree with the following statements about drug alerts?

| | Strongly Disagree | Moderately Disagree | Neither Disagree Nor Agree | Moderately Agree | Strongly Agree | Not Sure/Not Applicable |
|--|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| 46. Drug alerts help me prescribe safely. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ |
| 47. Drug alerts often identify interactions which are clinically useful. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ |
| 48. Drug alerts often identify possible interactions that I was otherwise unaware of. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ |
| 49. Drug alerts identify clinical situations where an alternative medicine may be less of a risk | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ |
| 50. Drug alerts make me more aware of drug interactions when I am prescribing medications. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ |

In your experience with EHR thus far, to what extent has each of the following factors limited your use of the EHR drug alert system in your practice?

| | A great deal | Moderately | Somewhat | A little | Not at all | Not sure |
|---|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| 51. System problems (e.g., too slow, shuts down at inconvenient times) | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ |
| 52. Too many non-relevant alerts | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ |
| 53. Lack of time to review alerts | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ |
| 54. Alert does not provide enough information | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ |
| 55. Lack of trust in content of alert | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ |
| 56. Alert does not allow for tailoring to providers' individual needs (e.g., cannot turn alert function on/off) | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ |
| 57. Important alerts are missing | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ |
| 58. Poor visual presentation (e.g., too much information displayed, difficult to read) | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ |

Section D. About your quality of working life...

Please indicate to what extent you agree or disagree with the following statements.

| | Strongly Disagree | Disagree | Neither Disagree Nor Agree | Agree | Strongly Agree |
|---|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| 1. In general, I am satisfied with the quality of care that I provide. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 2. I have enough time to complete patient care tasks safely. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 3. I usually have plenty to do; but I can always follow rules and procedures related to patient safety and standards of care. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 4. We have patient safety problems in our unit. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 5. I feel that it is just pure luck that more serious mistakes don't happen around here. | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |

| | Never | It varies | | | Always |
|--|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| 6. How often does an error occur when a medication is ordered? | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 7. If an error occurs when a medication is ordered, how often is it detected before it can lead to an adverse event? | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |

The following questions deal with the workload that you experience in your job. Please put an 'X' on each of the following six scales at the point that matches your overall experience of workload.

| | Low | High |
|--|-----|------|
| 8. Mental demand. How much mental activity is required to perform your job (thinking, deciding, calculating, remembering, looking, searching, etc...)? | | |
| 9. Physical demand. How much physical activity is required to perform your job (e.g., pushing, pulling, turning, controlling, activating, etc.)? | | |
| 10. Temporal demand. How much time pressure do you feel due to the rate or pace at which the tasks or task elements occurred? | | |
| 11. Effort. How hard do you have to work (mentally and physically) to accomplish your level of performance? | | |
| 12. Performance. How satisfied are you with your performance at your job? | | |
| 13. Frustration level. How insecure, discouraged, irritated, stressed and annoyed versus secure, gratified, content, relaxed and complacent do you feel about your job? | | |

| | | | | | |
|--|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| 14. In general, how much influence do you have over work and work-related factors? | Very little | A little | Moderate amount | Much | Very much |
| | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |

| | | | | |
|--|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| 15. All in all, how satisfied would you say you are with your job? | Not at all satisfied | Not too satisfied | Somewhat satisfied | Very satisfied |
| | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ |

| | Never | A few times a year or less, almost never | Once a month or less, rarely | A few times a month, sometimes | Once a week, rather often | A few times a week, nearly all the time | Every day |
|---|----------------------------|--|------------------------------|--------------------------------|----------------------------|---|----------------------------|
| 16. I feel emotionally drained from my work. | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 | <input type="checkbox"/> 6 | <input type="checkbox"/> 7 |
| 17. I feel used up at the end of the workday. | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 | <input type="checkbox"/> 6 | <input type="checkbox"/> 7 |
| 18. I feel fatigued when I get up in the morning and have to face another day on the job. | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 | <input type="checkbox"/> 6 | <input type="checkbox"/> 7 |
| 19. Working all day is really a strain for me. | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 | <input type="checkbox"/> 6 | <input type="checkbox"/> 7 |
| 20. I feel burned out from my work. | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 | <input type="checkbox"/> 6 | <input type="checkbox"/> 7 |
| 21. How likely is it that you will actively look for a new job in the next year? | | | | | | | |
| Not at all likely | Somewhat likely | | | Quite likely | | Extremely likely | |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 | <input type="checkbox"/> 6 | <input type="checkbox"/> 7 | |

Section E. About you...

1. What is your gender? 1 Male 2 Female

2. What is your education level? (Check only one)

1 Some college or technical training beyond high school (1-3 years)

2 Graduated from college (BA, BS)

3 Some graduate school

4 Graduate degree (Masters, Ph.D., M.D.,)

3. How old are you? 1 34 or less 2 35-44 3 45-54 4 55+

4. Are you of Hispanic or Latino origin? 1 Yes 2 No

5. What is your racial background? (Check all that apply)

1 American Indian / Alaska Native

2 Asian

3 Native Hawaiian or Other Pacific Islander

4 Black / African American

5 White

6 Other (please specify): _____

6. How many years of computer experience do you have? _____ years

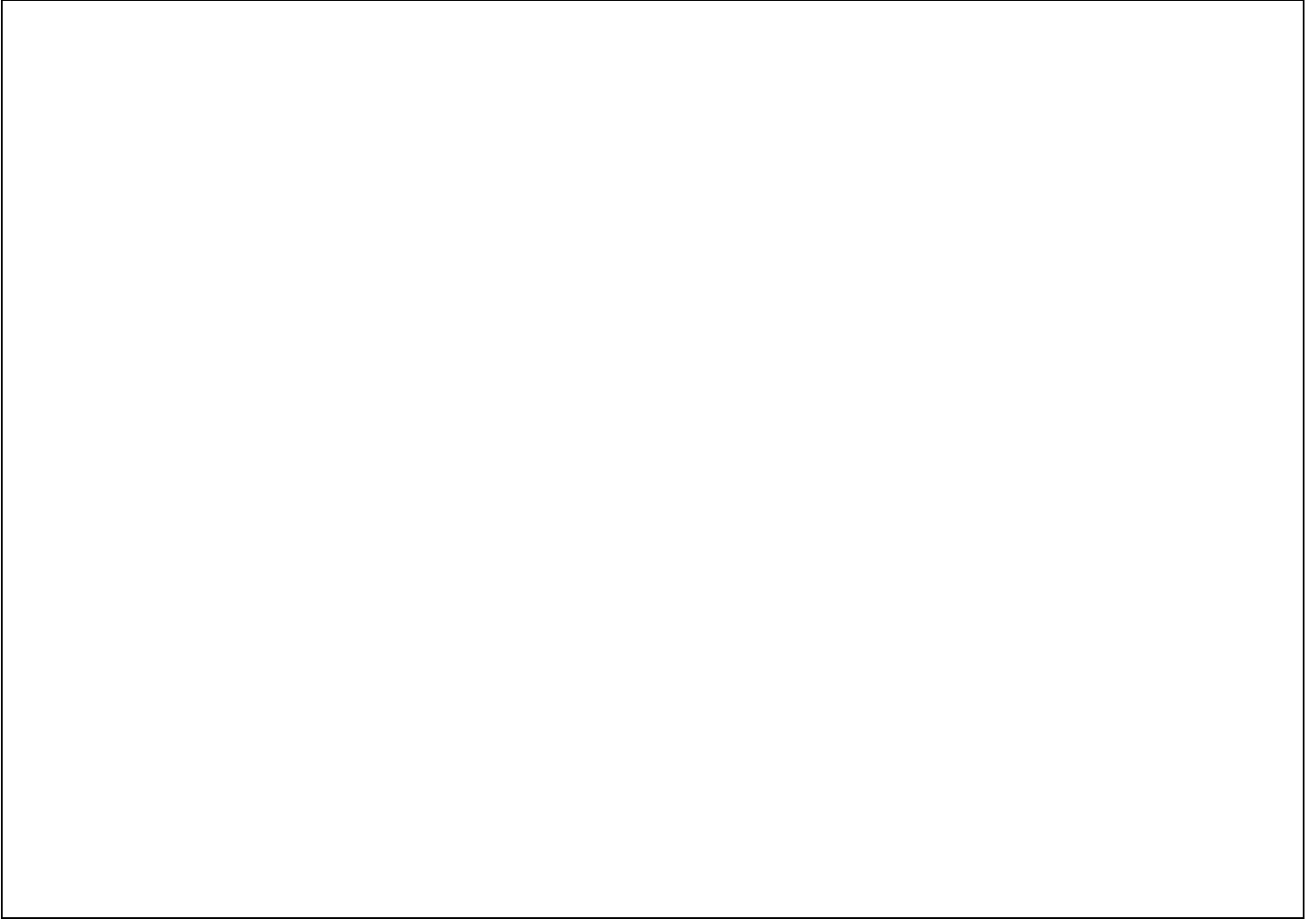
7. How much experience do you have using computers?

| I never use it | Occasional user | | | | I am a regular and expert user | | |
|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|--------------------------------|----------------------------|--|
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 | <input type="checkbox"/> 6 | <input type="checkbox"/> 7 | |

8. A computer is available on the unit when I want to use it.

| | | | | | | | | | | | |
|-------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|--------|
| Never | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 | <input type="checkbox"/> 6 | <input type="checkbox"/> 7 | <input type="checkbox"/> 8 | <input type="checkbox"/> 9 | Always |
|-------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|--------|

Please write any comments you may want to share with the research team.

A large, empty rectangular box with a thin black border, intended for participants to write their comments. The box is currently blank.

Thank you very much for your participation in this study.

When utilizing this document please cite:

1. Hoonakker, P. L., Carayon, P., Brown, R. L., Cartmill, R. S., Wetterneck, T. B., & Walker, J. M. (2013a). Changes in end-user satisfaction with Computerized Provider Order Entry over time among nurses and providers in intensive care units. *Journal of the American Medical Informatics Association*. 20(2): 252-259. PMID: PMC3638190
2. Hoonakker, P. L., Carayon, P., Walker, J. M., Brown, R. L., & Cartmill, R. S. (2013b). The effects of computerized provider order entry implementation on communication in intensive care units. *International Journal of Medical Informatics*. 82(5): e107-e117. PMID: PMC3624062
3. Carayon, P., Cartmill, R., Blosky, M. A., Brown, R., Hackenberg, M., Hoonakker, P., Hundt, A.S., Norfolk, E., Wetterneck, T.B. & Walker, J. M. (2011). ICU nurses' acceptance of electronic health records. *Journal of the American Medical Informatics Association*. 18(6): 812-819. PMID: PMC3197984
4. Hoonakker, P. L., Cartmill, R. S., Carayon, P., & Walker, J. M. (2011). Development and psychometric qualities of the SEIPS survey to evaluate CPOE/EHR implementation in ICUs. *International Journal of Healthcare Information Systems and Informatics*. 6(1): 51-69. PMID: PMC3070305