APPENDIX

I. Observation checklist used by research assistants

| Date:          | Observers: ST CE | Patient Number: | Start Time: | End Time: | Use of Filter? | Number of Distractions | Scrolling Burden | Toggling | External |
|----------------|------------------|-----------------|-------------|-----------|----------------|------------------------|------------------|-----------|----------|
|                |                  |                 |             |           | YES/NO         |                        |                  |           |          |
|                |                  |                 |             |           | YES/NO         |                        |                  |           |          |
|                |                  |                 |             |           | YES/NO         |                        |                  |           |          |
|                |                  |                 |             |           | YES/NO         |                        |                  |           |          |
|                |                  |                 |             |           | YES/NO         |                        |                  |           |          |
|                |                  |                 |             |           | YES/NO         |                        |                  |           |          |
|                |                  |                 |             |           | YES/NO         |                        |                  |           |          |
|                |                  |                 |             |           | YES/NO         |                        |                  |           |          |
|                |                  |                 |             |           | YES/NO         |                        |                  |           |          |
|                |                  |                 |             |           | YES/NO         |                        |                  |           |          |
|                |                  |                 |             |           | YES/NO         |                        |                  |           |          |

Key:
- P = Page (Received)
- I = Interruption (e.g., question from staff member or colleague, code or RRT)
- C = Cell Phone (Checking e.g., received call, text or checking time)
- S = Social Interactions
- T = Toggle

1. **Scrolling burden** indicates the degree to which the user was deemed by the observer to be scrolling up or down on a given EHR screen. Observers made this indication with upward or downward arrows to indicate the direction of the scroll and rated the scrolling burden on a scale from 1 to 3, with 1 arrow representing mild scrolling and 3 arrows indicating severe scrolling burden.

2. **Toggling** indicates whether the user was deemed to be flipping back and forth between the EHR screen and another window, such as a pop-up window containing a chest x-ray image or a pop-up window involving the web-based institutional paging system. This was assessed on a binary (yes/no) scale and indicated with a “+”.

3. **External** indicates whether the user was deemed to be using any external resources, such as web-based calculators or clinical resource guides.
II. Example annotated observation checklist from live observation.

1. **Scrolling burden** indicates the degree to which the user was deemed by the observer to be scrolling up or down on a given EHR screen. Observers made this indication with upward or downward arrows to indicate the direction of the scroll and rated the scrolling burden on a scale from 1 to 3, with 1 arrow representing mild scrolling and 3 arrows indicating severe scrolling burden.

2. **Toggling** indicates whether the user was deemed to be flipping back and forth between the EHR screen and another window, such as a pop-up window containing a chest x-ray image or a pop-up window involving the web-based institutional paging system. This was assessed on a binary (yes/no) scale and indicated with a “+”.

3. **External** indicates whether the user was deemed to be using any external resources, such as web-based calculators or clinical resource guides.
III. Interrater Reliability

| Participant | Total EHR Screens | # of Screens w/ agreement by 2 observers | IRR* (% Agreement) |
|-------------|------------------|-----------------------------------------|-------------------|
| 1           | 42               | 33                                      | 78.6%             |
| 2           | 63               | 51                                      | 81.0%             |
| 3           | 71               | 61                                      | 85.9%             |
| 4           | 62               | 47                                      | 75.8%             |
| 5           | 56               | 42                                      | 75.0%             |
| 6           | 36               | 30                                      | 83.3%             |
| TOTAL       | 330              | 264                                     | 80.0%             |

*IRR = interrater reliability, calculated as percent agreement for the observed EHR screens. Agreement was defined as both observers recording the same EHR screen in the same sequential workflow position for a given participant. IRR was calculated once for each participant and once in aggregate. Given that this work was performed as a pilot test as part of a larger mixed-methods investigation, no acceptability threshold was set in advance. No data were deemed unacceptable for inclusion. The paired observation sessions took place over three days between December 2017 – February 2018; given this limited timeframe and the range (75.0% - 85.9%), analysis for chronological trend in IRR was deferred.

IV. Results: Distractions Observed During Pre-Rounding Chart Review

| KEY | Participant | 1 | 2 | 3 | 4 | 5 | 6 | TOTAL | % |
|-----|-------------|---|---|---|---|---|---|-------|---|
| I   | Interruption | 2 | 2 | 6 | 3 | 5 | 3 | 21    | 38.2% |
| S   | Social interaction | 4 | 2 | 3 | 10 | 8 | 2 | 29 | 52.7% |
| P   | Pager       | 0 | 1 | 0 | 2 | 0 | 1 | 4 | 7.3% |
| C   | Cell phone  | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1.8% |

**Interruption** = clinical question involving face-to-face dialogue with colleague; rapid response or “code blue” (i.e., a medical emergency during which the participant was called to bedside to assess the patient), etc.

**Social interaction** = making small talk with colleague or co-worker, non-clinical conversation, etc.

**Pager** = page received

**Cell phone** = phone call received, text message sent or received, checking time, using calculator, etc.