

## TEAM

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## Aim

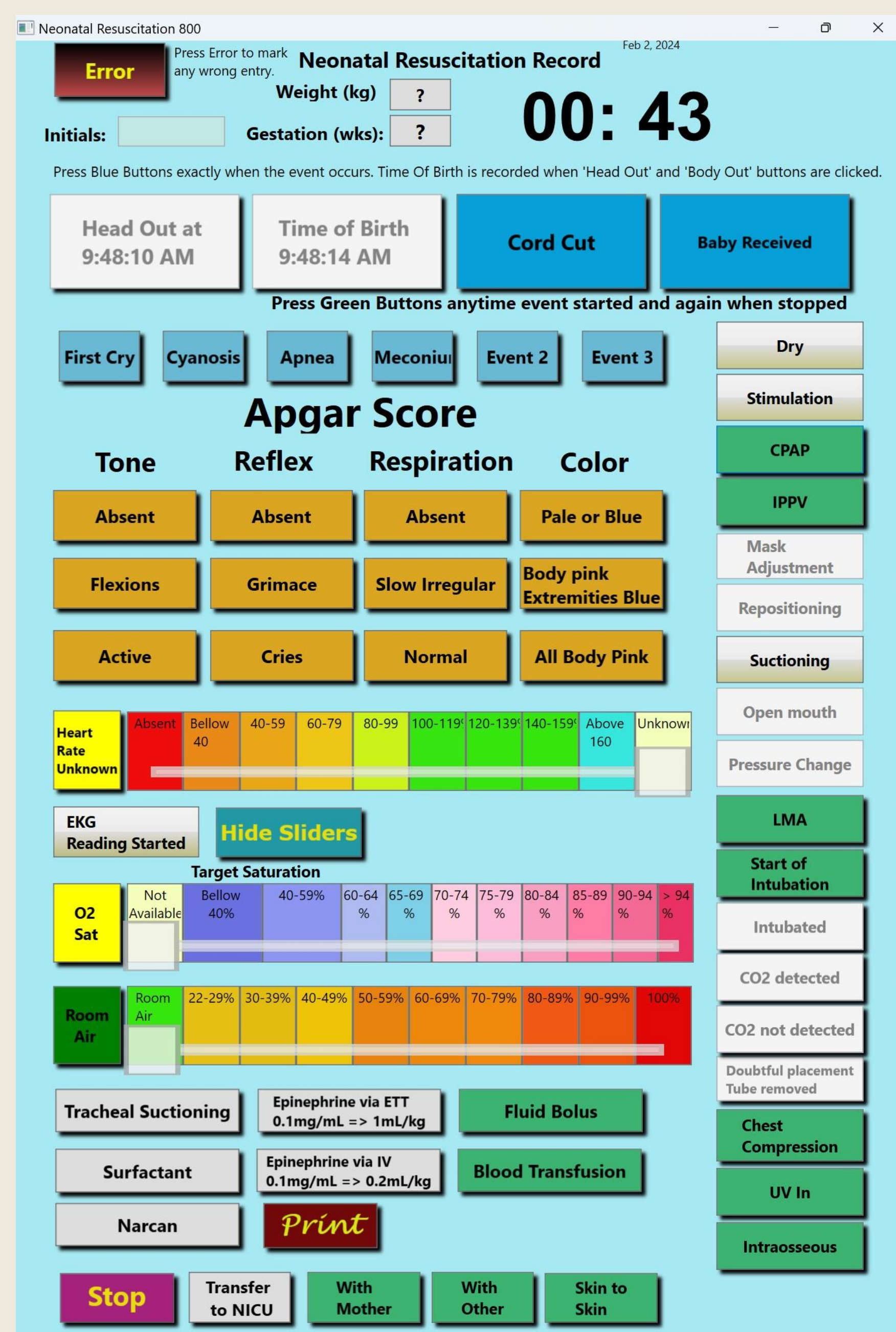
- To improve the quality of the documentation process of neonatal status
- To improve the quality of APGAR score assessment
- To have automatic APAGR Score assessment
- To provide a real time documentation and save documentation time.

## Importance

This electronic method of recording the resuscitation will:

- Enhance the accuracy and comprehensiveness of event documentation from the moment of birth until newborn is transferred to the NICU or family newborn unit is essential.
- Ensure high-quality care, provide a clear record of events during resuscitation, and support staff with precise and reliable documentation for future care.
- Enhance the integration of resuscitation data into Electronic Health Records or other systems.
- Enables detailed post-event analysis, which is critical for identifying areas of improvement in resuscitation techniques and outcomes.

## The APP



## The Report

Baby was born at 13:21:05 on Friday, July 7, 2023.  
 Head was out 0 min 4 seconds before baby was born

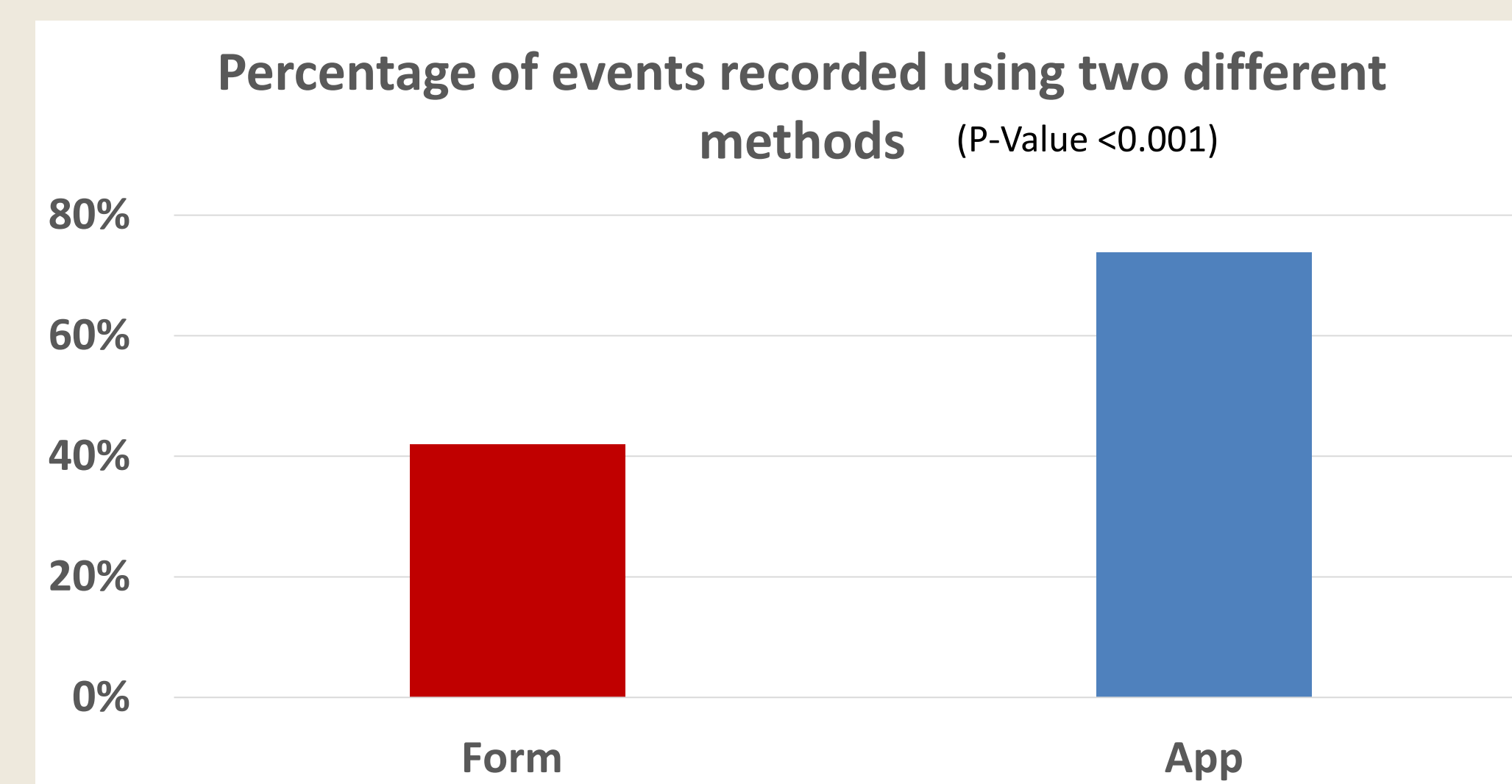
| Event                               | Value           | Time                |
|-------------------------------------|-----------------|---------------------|
| Cord was cut                        |                 | at 13:21:08         |
| Cord was cut                        | 0 min 2 seconds | after baby was born |
| Baby was received                   |                 | at 0 min 7 seconds  |
| Stimulation                         |                 | at 0 min 8 sec      |
| Drying                              |                 | at 0 min 9 sec      |
| Warmer                              |                 | at 0 min 10 sec     |
| Suctioning                          |                 | at 0 min 22 sec     |
| Heart Rate                          | 40-59/min       | at 0 min 32 sec     |
| IPPV was started                    |                 | at 0 min 41 sec     |
| Tone                                | 0               | at 1 min 3 sec      |
| Reflex                              | 0               | at 1 min 3 sec      |
| Respiration                         | 0               | at 1 min 4 sec      |
| Color                               | 0               | at 1 min 5 sec      |
| Heart Rate                          | 40-59/min       | at 1 min 12 sec     |
| Apgar score was 1                   |                 |                     |
| Apgar recorded at                   | 1 min 12 sec    |                     |
| Saturation                          | 40-59%          | at 1 min 37 sec     |
| Heart Rate                          | 40-59/min       | at 1 min 42 sec     |
| Oxygen                              | 30-39%          | at 1 min 44 sec     |
| Chest compression started           |                 | at 1 min 55 sec     |
| Heart Rate                          | 40-59/min       | at 2 min 33 sec     |
| Saturation                          | 60-64%          | at 2 min 37 sec     |
| Oxygen                              | 40-49%          | at 2 min 43 sec     |
| Chest Compression stopped           |                 | at 3 min 1 sec      |
| Baby received Chest Compression for | 1 min 6 sec     |                     |
| Chest compression started           |                 | at 3 min 9 sec      |
| Baby was intubated                  |                 | at 3 min 52 sec     |
| Heart Rate                          | 40-59/min       | at 4 min 29 sec     |
| Saturation                          | 70-74%          | at 5 min 2 sec      |
| Oxygen                              | 50-59%          | at 5 min 4 sec      |
| Tone                                | 0               | at 5 min 7 sec      |
| Respiration                         | 0               | at 5 min 7 sec      |
| Color                               | 0               | at 5 min 8 sec      |
| Heart Rate                          | 40-59/min       | at 5 min 10 sec     |
| Reflex                              | 0               | at 5 min 15 sec     |
| Apgar score was 1                   |                 |                     |
| Apgar recorded at                   | 5 min 15 sec    |                     |
| Epinephrine via ETT                 |                 | at 5 min 18 sec     |
| Heart Rate                          | 80-99/min       | at 5 min 48 sec     |
| Suctioning                          |                 | at 6 min 52 sec     |
| Tracheal Suctioning                 |                 | at 6 min 59 sec     |
| Heart Rate                          | 80-99/min       | at 7 min 26 sec     |
| Heart Rate                          | 100-119/min     | at 7 min 26 sec     |

## Results and Discussion

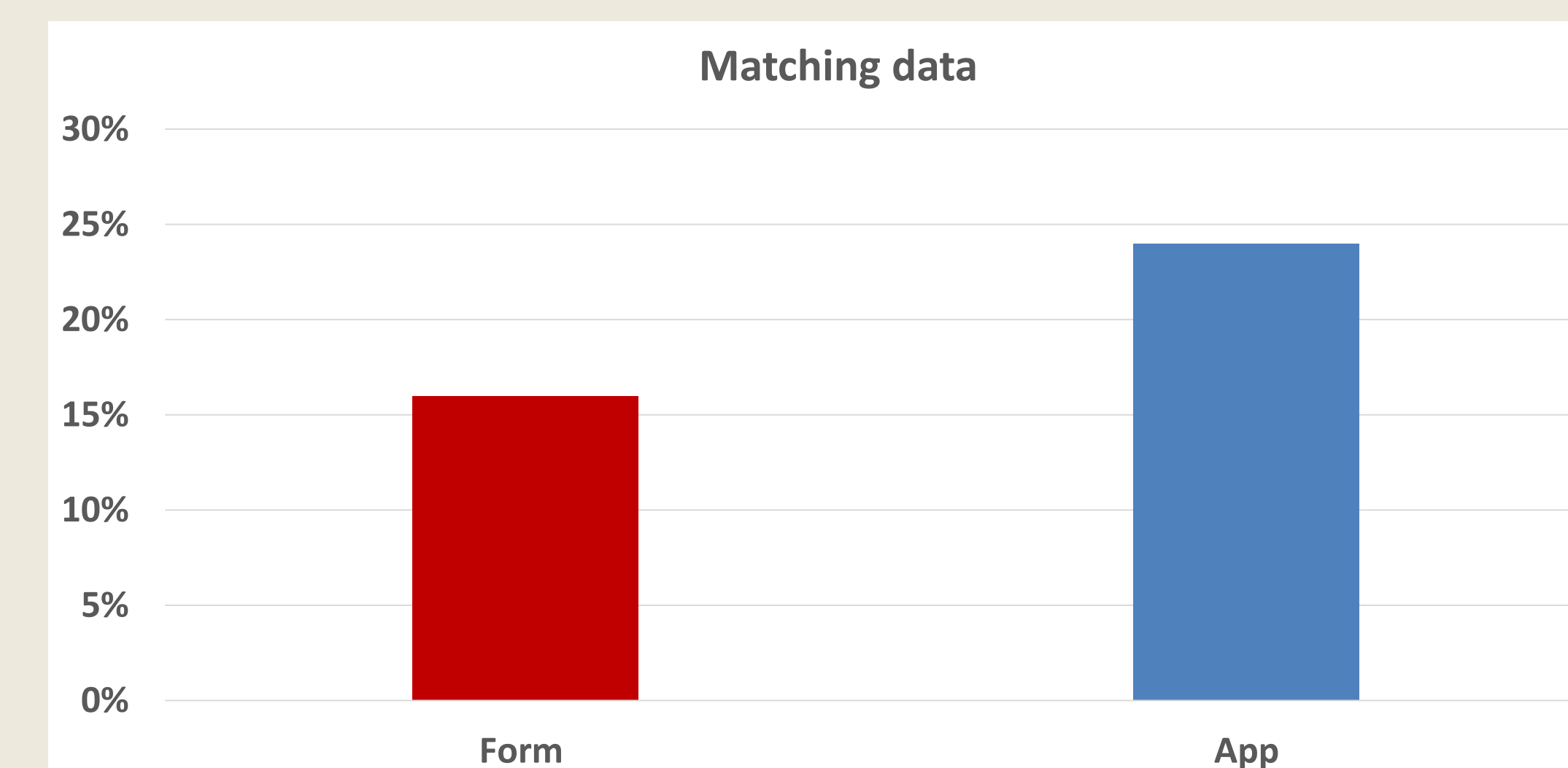
|                    | Video | Form | APP |
|--------------------|-------|------|-----|
| Mean               | 39    | 16   | 30  |
| Standard Deviation | 12.1  | 3.1  | 6.1 |
| Minimum            | 27    | 14   | 24  |
| Maximum            | 68    | 23   | 44  |

Events captured during 10 SIM birth cases were analyzed using descriptive analysis, comparing the App and Standard Form to video recordings.

- The number of events recorded during births ranged from 27 to 68, averaging 39 events per case.
- Nurses using the Standard Form recorded significantly fewer events, with an average of 16 events per case (range: 14-23).
- Nurses using the App captured a substantially higher average of 30 events per case (range: 24-44).



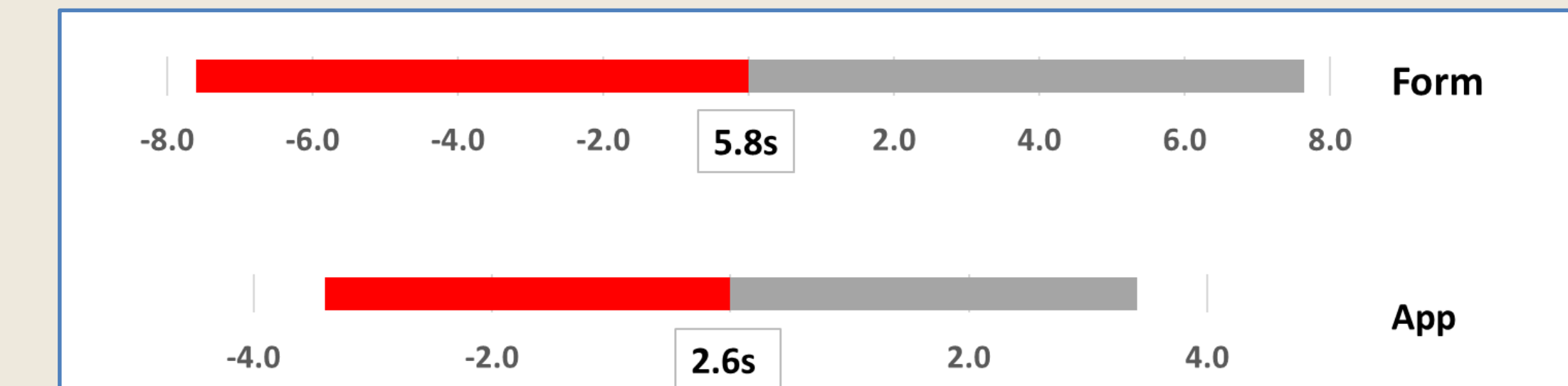
This represents a **38%** increase in the ability of nurses to capture events when using the APP, demonstrating its effectiveness in enhancing the accuracy and thoroughness of event documentation of neonatal status from moment of baby's birth till they transferred to NICU or other.



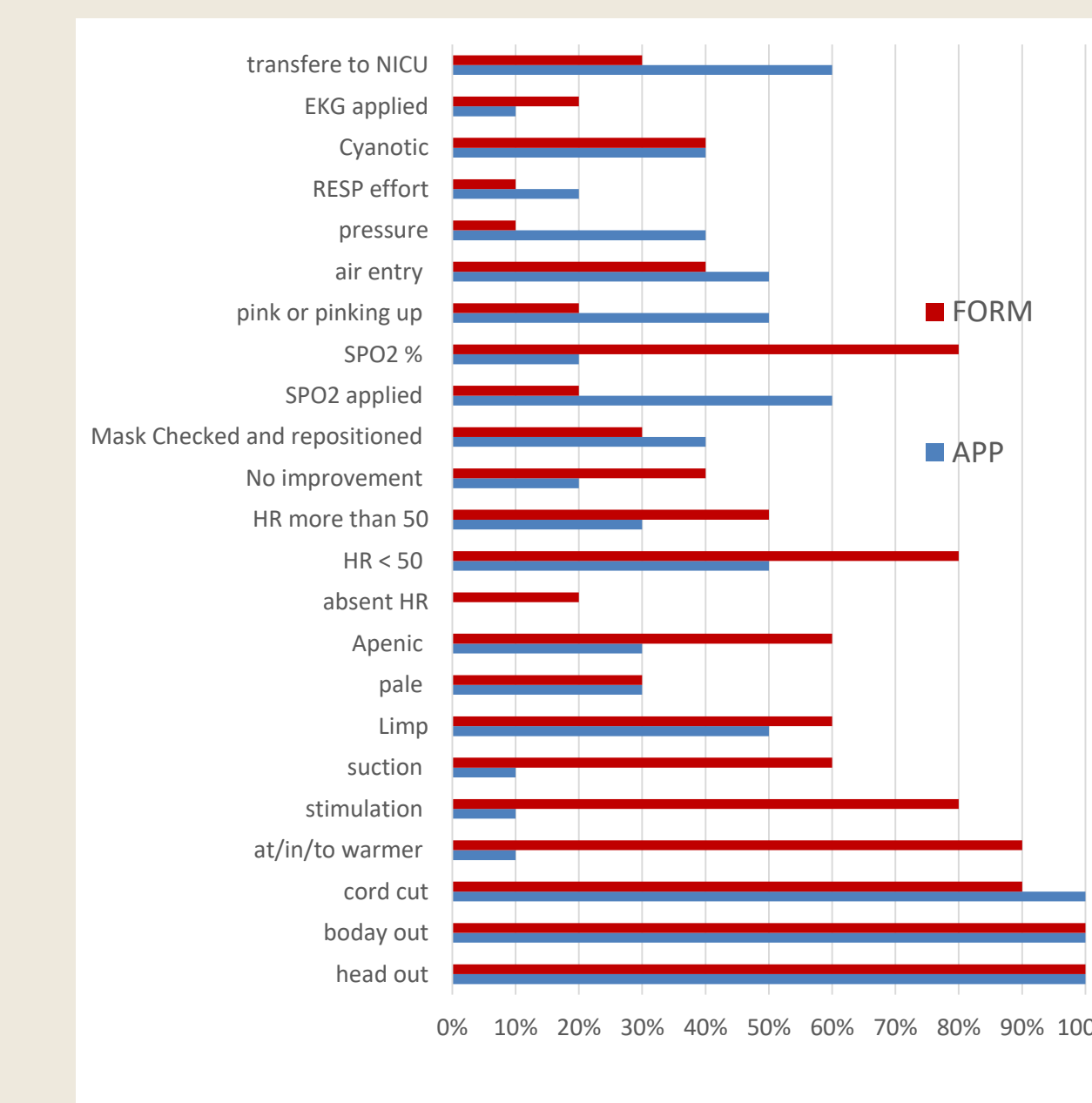
The Neonatal APP demonstrated a **50%** improvement in accurately matching the actual event times observed in the video, compared to using the standard paper form.

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## Results and Discussion



The APP improved the accuracy of data collection. The mean deviation from the actual event time was reduced from 5.8 seconds ( $\pm 7.6$ ) when using traditional forms to 2.6 seconds ( $\pm 3.4$ ) with the app. This indicates that the app enabled more precise and real-time data collection.



Upon reviewing the missing data points or events, it was observed that SPO2 applied or SPO2% and HR were missing in both methods (form and APP). However, the percentage of these events that were missed is higher in the regular form method. Many critical events were 100% missing in the form method.

## Saved Time

The app will print out your resuscitation record following resuscitation. This saved nurses on average 15 minutes that was used to transcribe resuscitation from paper to form. It also includes exact date and time of birth, APGAR score, time taken to perform procedures and duration of each procedure.

## Act and Future Directions

- Staff will receive comprehensive education and hands-on training to ensure proper documentation practices and familiarity with APP and updated processes.
- Necessary changes will be made to improve usability and provide critical information i.e. medication doses based on estimated weight per NRP guidelines.
- A trial phase will be introduced to test the updated process and gather feedback from staff.
- This will enhance documentation accuracy, streamline workflows, and improve overall care delivery.
- Start trials within labor and delivery & OR, write research paper and include another hospital in trials to help validate the app.