

# Paediatric Early Warning Score with Information Technology Support to Strengthen Patient Safety

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# Manual PEWS Chart

**United Christian Hospital**  
**Paediatric Early Warning Score Chart**

Diagnosis: \_\_\_\_\_ AFFIX PATIENT LABEL HERE

Heart Rate	Age (circle one)	Respiratory Rate
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50	< 1 yr	<30 with Retractions 31 50 51 60 >60
	1 - 3 yrs	<20 with Retractions 21 40 41 50 >50
	4 - 6 yrs	<16 with Retractions 17 33 34 43 >43
	7 - 12 yrs	<14 with Retractions 15 31 32 41 >41
	13 - 19 yrs	<11 with Retractions 12 28 29 38 >38

Behavior	Score
Lethargic / Confused / Reduced pain response	3
Irritable	2
Sleeping	1
Appropriate for patient / Playing	0
<b>Behavior Sub-score (take only highest score)</b>	

Cardiovascular	Score
Grey / cyanotic & mottled CRT ≥ 5sec	3
Grey / cyanotic CRT = 4sec	2
Pale / CRT = 3sec	1
Pink / CRT = 1-2sec	0
Heart Rate (refer to table)	3
Heart Rate (refer to table)	2
Heart Rate (refer to table)	0
BP (mmHg) [Inform if <5 <sup>th</sup> or >95 <sup>th</sup> percentile of BP reference]	0
<b>CVS Sub-score (take only highest score)</b>	

Respiratory	Score
Respiratory rate (refer to table)	3
Respiratory rate (refer to table)	2
Respiratory rate (refer to table)	1
Respiratory rate (refer to table)	0
O <sub>2</sub> funnel <input type="checkbox"/> O <sub>2</sub> mask <input type="checkbox"/>	
N.Cannula <input type="checkbox"/> Without O <sub>2</sub> <input type="checkbox"/>	
O <sub>2</sub> funnel ≥ 8L/min (O <sub>2</sub> mask FIO <sub>2</sub> ≥ 50%) [N.Cannula ≥ 8L/min]	3
O <sub>2</sub> funnel ≥ 6L/min (O <sub>2</sub> mask FIO <sub>2</sub> ≥ 40%) [N.Cannula ≥ 6L/min]	2
O <sub>2</sub> funnel ≥ 5L/min (O <sub>2</sub> mask FIO <sub>2</sub> ≥ 30%) [N.Cannula ≥ 2L/min]	1
Using accessory muscles	1
No retractions	0
Grunting [Inform senior nurse]	
SpO <sub>2</sub> (%) [Inform if ≥3yrs SpO <sub>2</sub> <95% OR <3yrs SpO <sub>2</sub> <93%]	
<b>Resp. Sub-score (take only highest score)</b>	
Extra 2 pts for: every 15-minute nebs/puffs OR continuous nebs OR persistent post-op vomiting	2
<b>PEWS Total Score (sum all sub-scores)</b>	

**PEWS prescription** 1) Upon admission, and 2) q8h, and 3) Retake PEWS in either of the following: Dullness, Non-consolable, Abnormal Muscle tone/Speech/Gaze/Cry/Airway sounds/Positioning, Chest retraction, Nasal flaring, if you have any concern

Action	Instructions
Single category score of 3 OR Total PEWS ≥ 4	1. Report to senior nurse/ nurse IC 2. Senior nurse / nurse IC decides - Increase frequency of observation OR - Directly call attending doctor 3. Please connect cardiac monitor and/or SpO <sub>2</sub> monitor
Total PEWS = 3	1. Report to senior nurse/ nurse IC 2. Increase frequency of observation less than every 4 hours 3. Please connect cardiac monitor and/or SpO <sub>2</sub> monitor
Total PEWS = 0 - 2	1. Routine observation

Performed by (please initialize) \_\_\_\_\_

Updated: Nov 2013

- A scoring system to enhance identification of Paediatric patients at risk of deterioration
- Parameters with age-specific reference range
- Time-consuming and subject to errors for charting and calculation



# Computerized PEWS for charting

United Christian Hospital  
Paediatric Early Warning Score Chart

Diagnosis: \_\_\_\_\_ AFIK PATIENT LABEL HERE

Heart Rate	Age (years)	Respiratory Rate
100-160	< 1 y	20-40
90-150	1-2 y	20-30
80-140	2-5 y	20-30
70-130	6-10 y	18-30
60-120	11-15 y	12-20

Date / Time

Sub-score	Score
Letargic / Confused / Reduced pain response	0-2
Instable	0-2
Unwept	0-2
Appropriate for patient / Playing	0-2
<b>Subtotal Sub-score</b>	
Grey / cyanotic / mottled	0-2
Grey / cyanotic CRT > 3sec	0-2
Pale CRT > 3sec	0-2
Pink CRT < 3sec	0-2
Heart Rate (refer to table)	0-2
Heart Rate (refer to table)	0-2
BP (mmHg) (Infants < 4yr or < 50% percentile of BP reference)	0-2
<b>Subtotal Sub-score</b>	
Respiratory rate (refer to table)	0-2
Respiratory rate (refer to table)	0-2
Respiratory rate (refer to table)	0-2
<b>Subtotal Sub-score</b>	
No retractions	0-2
Using accessory muscles	0-2
<b>Subtotal Sub-score</b>	
<b>Total PEWS</b> (sum of all sub-scores)	

PEWS prescription: Upon admission, and 2nd, and 3rd PEWS in either of the following: Dullness, Non-consolable, Abnormal Muscle tone/Speech/Cry/Positioning, Chest retraction, Nasal flaring, if you have any concern

Actions

Single category score of 3	OR	OR
Total PEWS ≥ 4	OR	OR
Total PEWS = 3	OR	OR
Total PEWS = 0 - 2	OR	OR

Performed by (press initials)

Updated: Nov 2013




Honeywell

UCH PEWS 14:31

# PEWS

## Paediatric Early Warning Score

for paediatric & adolescent medical department



Location: 4C

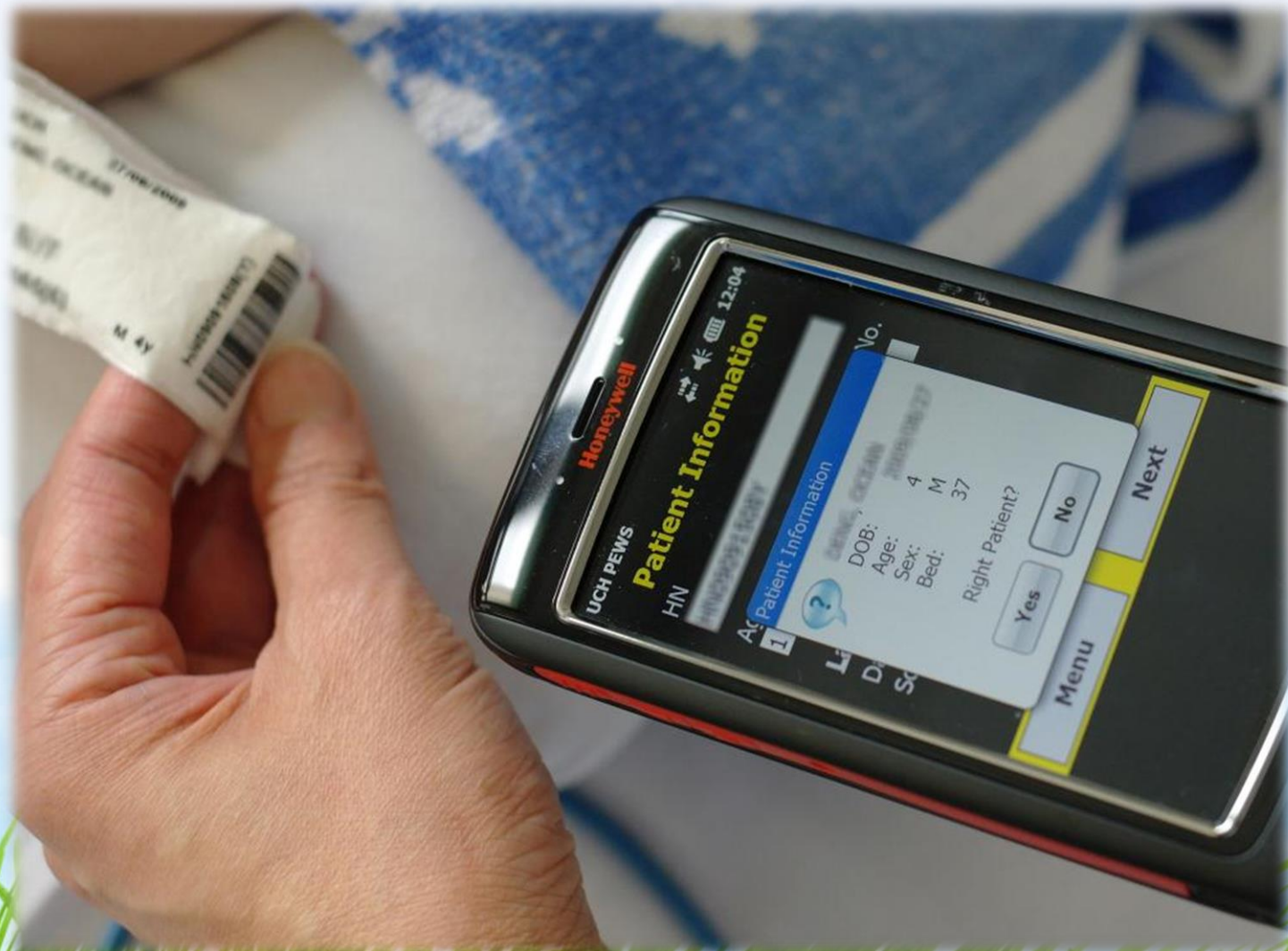
Powered By UCH H A P I T Y

**PEWS prescription**

- 1) Upon admission
- 2) Q8h
- 3) Retake PEWS in either of the following:  
Dullness, Non-consolable, Abnormal Muscle tone/  
Speech/Gaze/Cry/Airway sounds/Positioning,  
Chest retraction, Nasal flaring, if you have any concern

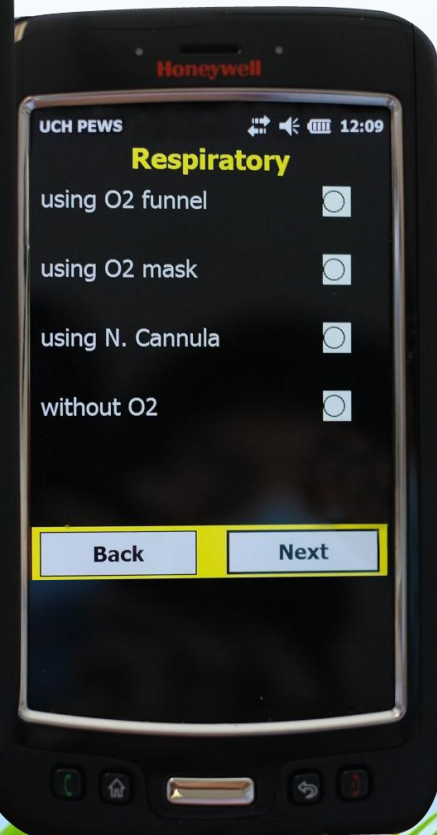
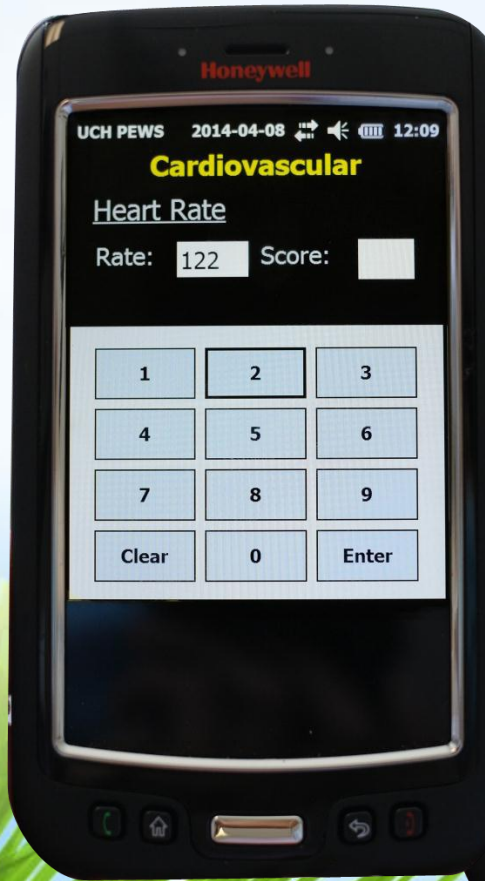
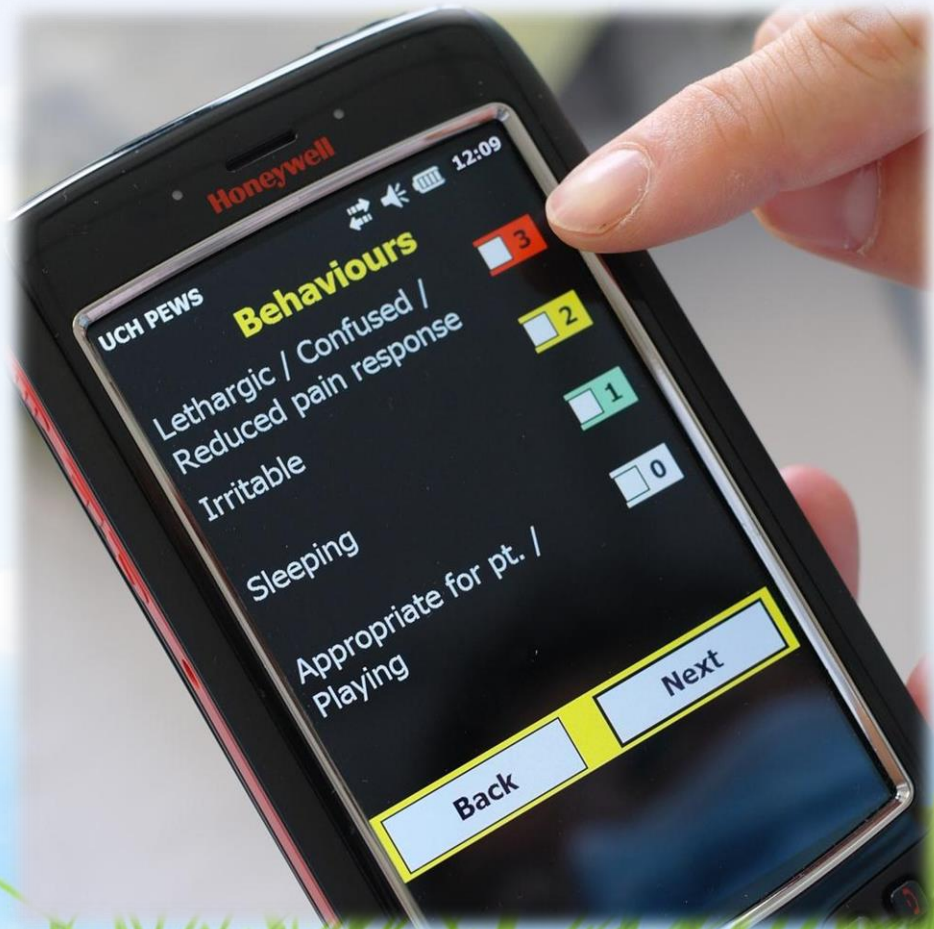


# 1. Patient Identification



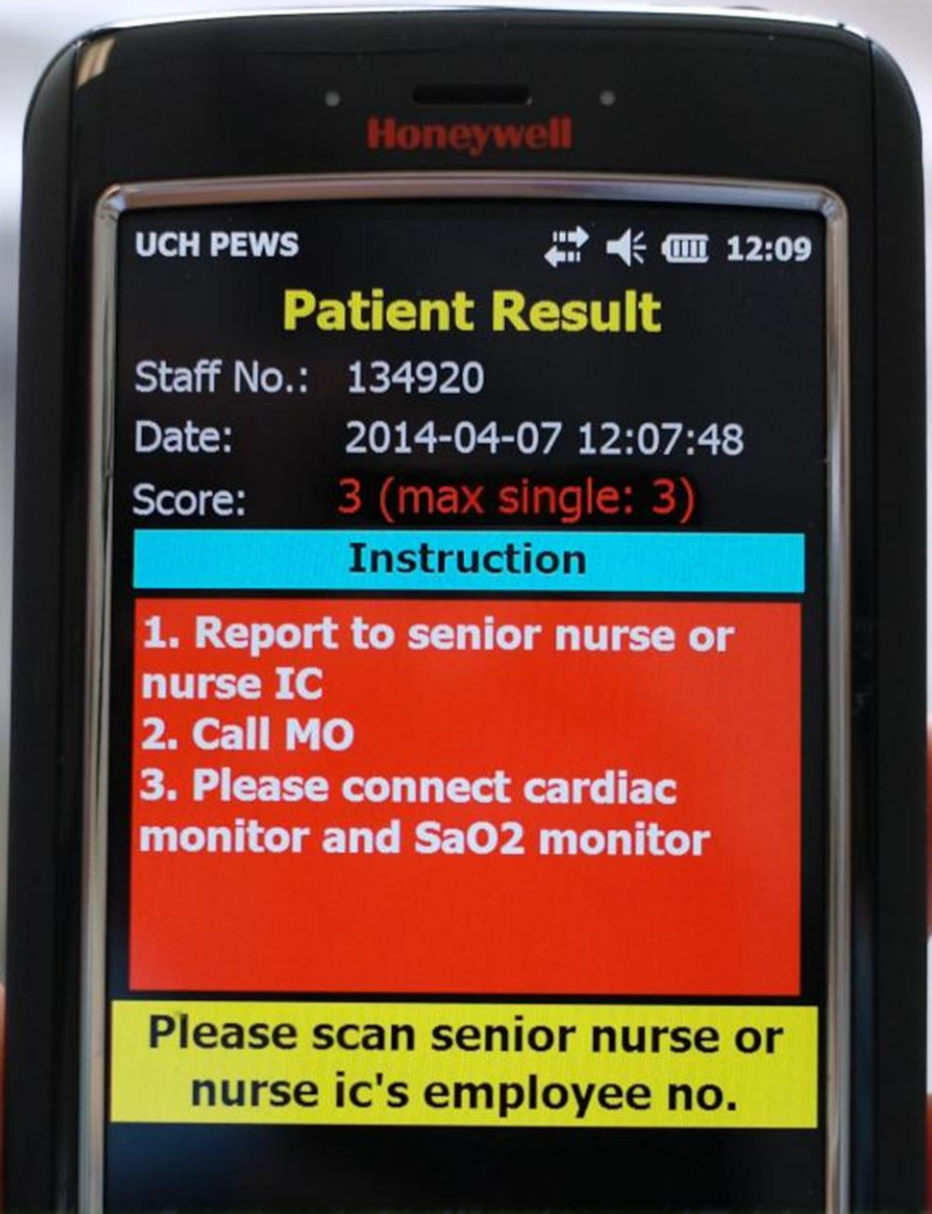
# 2. PEW Chart

- Step-by-step guide for charting



# 3. PEWS Score

- Scan employee number
- Calculate PEWS score

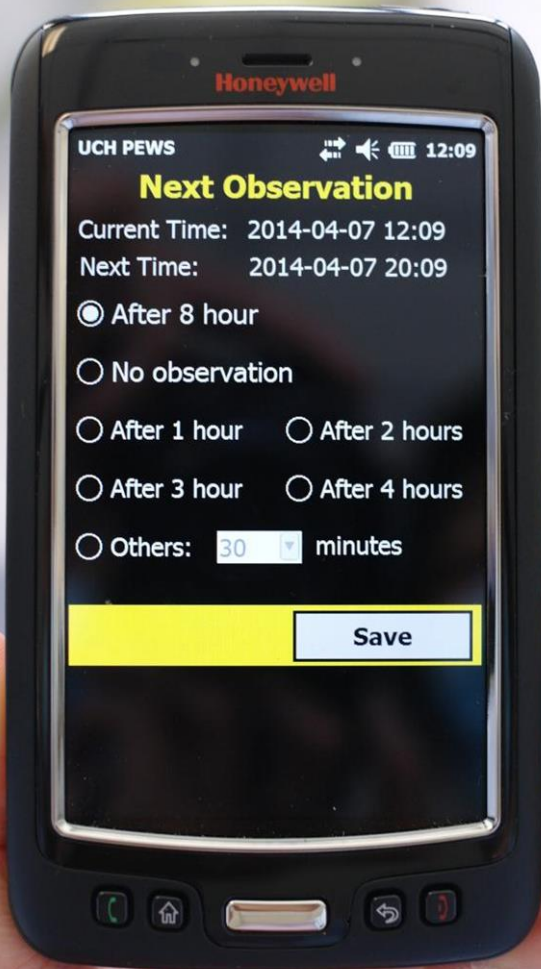


# 4. Push Notification for high score



通知你，PEWS 高分警告，病房4D，床號12，請按 1 字確認收到信息。

# 5. Next Observation



- Schedule next observation
- PEWS data will be sent to dashboard



# Dashboard

Powered By 

## UCH Paed Early Warning Score

observation monitoring - ward 4D 2014-04-04 10:43

observation list

Observation Time	Patient	Bed No.	Remark	
2014-04-04 06:45:00	李卓謙	35	Due Time	<a href="#">select</a>
2014-04-04 06:49:00	區卓怡	34	Due Time	<a href="#">select</a>
2014-04-04 11:49:00	李汶謙	01		
2014-04-04 11:56:00	劉煥志	03		
2014-04-04 12:19:00	黃梓謙	27		
2014-04-04 12:21:00	黃煥達	28		
2014-04-04 14:23:00	區煥謙	07		
2014-04-04 14:24:00	何煥謙	12		
2014-04-04 15:43:00	吳文心	15		
2014-04-04 15:44:00	曾煥宇	17		
2014-04-04 15:47:00	黃煥希	09		
2014-04-04 15:48:00	陳煥廷	11		
2014-04-04 15:52:00	曾煥廷	02		



護士姐姐夠鐘做 PEWS 呀!



# Results

Date	PEWS Charting	High Scores	Admitted to PICU
1 Dec 2011 to 16 Oct 2013	27,480	3,533	35 (1.8%)

Another earlier pilot study had shown no false negative if the PEWS is low

16 Oct 2013 to 21 Jan 2014	2,964	223	13 (5.8%)
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The system was enhanced with refined stratification of the physiological parameters and oxygen support

# Conclusions

The computerized PEWS system:

- To calculate the PEWS accurately
- To decrease nurses' workload and reduce errors
- To notify senior nurses early for prompt management
- To ensure proper documentation and allow data retrieval for medicolegal, research and audits purposes

Thank you



**Enhancing Patient Safety**  
**We can do it!**

