

**Rapid implementation of  
Clinical Handover System using  
MEWS & SBAR  
in a regional hospital in Hong Kong**

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**Clinical Handover Project**

An Initiative of Cluster Q&RM Office

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To set up a structured and comprehensive multi-disciplinary **clinical handover system** for safe and effective management of unstable and critically ill patients

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**Modified Early Warning Score (MEWS)**

A simple physiological scoring system for bedside application

- Identifies patients **at risk of deterioration & urgent need for active intervention**
- Enhances communication** between healthcare professionals for safe and effective patient management

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**Communication Tools**

- Revised Vital Signs Observation Chart (MEWS & other assessment tools)
- SBAR to be used if MEWS is high
  - Situation
  - Background
  - Assessment
  - Recommendation

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**Strategy**

Top-down and bottom-up approach

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### Key issues in the implementation of Clinical Handover System

- Clinician engagement
- System design
- Pilot with modification



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## Clinician Engagement


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### Clinician Engagement

- A **multi-disciplinary working group** of frontline doctors and nurses set up to discuss the application of MEWS in PYNEH
- 6 parameters to be measured (BP, P, T, RR, CNS, UO)
- **Consensus** obtained for trial for **high risk groups**: new admission, recent unstable condition, Q4H or more frequent monitoring



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### Modified early warning score '6 parameters version' adopted

Score	3	2	1	0	1	2	3
Pulse	≤40	41-50	51-100	101-110	111-129	≥130	
RR	≤8		9-14	15-20	21-29	≥30	
Temp	≤35.0	35.1-36	36.1-38	38.1-38.5	≥38.6		
CNS			Alert	Response to voice	Response to pain	Unresponsive	
Systolic BP	≤70	71-80	81-100	101-199		≥200	
Urine output ml/h	nil	<30					



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## System Design


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### How could MEWS be incorporated into patient observation?

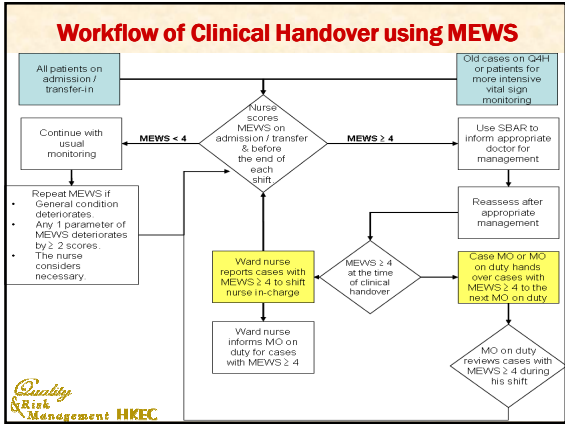
- Integrate general observation chart with MEWS (**Vital Signs Observation Chart**)
- Track-and-trigger warning system (**Workflow of Clinical Handover System**)


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### System Design

- Workflow designed based on **consensus**
- SBAR tool for communication if MEWS score  $\geq 4$
- MEWS stamp to facilitate scoring and documentation on patient records

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### Expected response from doctors on receiving MEWS report $\geq 4$

MEWS	Management	Recommended Response time
4 or 5	Give appropriate assessment + inform senior as appropriate	Within 30 minutes
$\geq 6$	<ol style="list-style-type: none"> <li>1. Involve senior/more experienced colleague within own department</li> <li>2. Consult other department(s) including ICU as clinically appropriate</li> </ol>	Within 15 minutes

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### System Design

- Workflow designed based on **consensus**
- SBAR tool for communication if MEWS score  $\geq 4$
- MEWS stamp to facilitate scoring and documentation on patient records

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### Logistics

- MEWS assessment does not override routine clinical assessment (esp. in situations where MEWS score is not defined, eg AMI)
- Usual practice of managing cases with clinical deterioration or critically ill cases continues
- Existing 'Jump call' system is still in place and to be followed


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### Logistics

- To highlight patients with **MEWS  $\geq 4$**  on ward whiteboard or **clinical dashboard** (if available)
- In critically ill patients, **senior or more experienced staff are to be involved** in clinical handover
- **DNR cases: No need for MEWS monitoring**
- **Exclusions: Paediatric and Obstetric patients ICU and CCU patients**


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# Implementation



## Top-Down Strategy


- **Dec 07:** HKEC QRMO established Working Group involving doctors & nurses
- **1Q08**
  - Pre-pilot assessment of feasibility & practicability in 2 acute medical wards
  - Drafted MEWS Workflow & Observation Chart
- **Apr 08:** Conducted 1st phase pilot-run for 2 weeks (1 surgical admission ward + 2 acute medical wards)



## Phase 1 pilot: MEWS stamp designed


Modified Early Warning Score (MEWS)								
MEWS	3	2	1	0	1	2	3	Score
Pulse / min	≥ 40	41-50	51-100	101 - 110	111-129	> 129		
RR / min	≥ 8		9-14	15-20	21-29	> 29		
Temp (°C)	≤ 35.0	35.1-36	36.1-38	38.1-38.5	≥ 38.6			
CNS			Alert	Response to voice	Response to pain	unresponsive		
Systolic BP (mmHg)	≤ 70	71-80	81-100	101-199		≥ 200		
Urine Output ml/hr	nil	< 30						
Total								

*Nurse stamps the MEWS chop on Progress Note, completes data entry and calculates the score*




## Phase 1 Pilot: Result of MEWS scoring

- **4.6% patients** of >500 patients had **MEWS ≥4**, of whom **92% responded to enhanced treatment** in the general ward
- All critically ill or deteriorating patients thus identified warranted assessment by doctors
- **No increase in nursing workload, just the usual nursing observation**




## Bottom Up Strategy

- **Apr 08:** Opinion survey for medical & nursing staff
- **Sep 08:** Fine-tuned the design of "Vital Signs Observation, Pain Assessment & MEWS Chart"
- **Sep 08:** Conducted discussion forum on MEWS & SBAR (> 200 attendees)



## Post-1st Phase Pilot Survey

- **95% of doctors** agreed that MEWS had facilitated early identification of unstable patients
- Only half of the nurses supported the use of MEWS



### Bottom-Up Strategy

- Apr 08: Opinion survey for medical & nursing staff
- Sep 08: Fine-tuned the design of "Vital Signs Observation, Pain Assessment & MEWS Chart
- Sep 08: Conducted discussion forum on MEWS & SBAR (over 200 attendees)

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### New Vital Signs Observation Chart

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**Back**  
Revised Vital Signs Observation Chart

**MEWS Scoring System**

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**Front**  
Revised Vital Signs Observation Chart  
*Adapted from PMH model*

**Total MEWS**

**Vertical bar on either side graduated to show MEWS scores**

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### Further Development & Implementation 2nd phase pilot

- Sep 08: 2nd phase pilot planned for 1 month but has not stopped
  - Sur, Med, O&T, Gyn, Psy, Onc and EMW
  - 13 wards, over 500 beds
  - Still ongoing
- Nov 08: Opinion survey for medical and nursing staff

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### Post 2nd Phase Pilot Survey

- 67% of all participants agreed that the clinical handover system had improved monitoring and the early identification of unstable patients

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### Continued Implementation

- Nov 08: Train-the-trainer workshop on MEWS / SBAR for senior nursing staff in HKEC (41 attendees)
- Departmental “MEWS & SBAR briefing kit for medical staff” posted in intranet
- Mar 09: Departmental briefing on MEWS & SBAR



### Continued Implementation

- Full implementation in PYNEH
- 1400 beds
- All clinical departments (Sur, Med, O&T, Gyn , Psy, Onc, EMW, NS and ENT)
- 760 nurses and 220 doctors



### Continued Implementation

- Apr 09: Conducted discussion forum on MEWS & SBAR (120 attendees)
- Apr 09: Unified the method of documentation in Vital Signs Observation Chart based on consensus among nursing staff



### Continued Implementation

- Discussion forum and departmental briefing in cluster hospitals
- Full implementation in HKEC hospitals
 

Wong Chuk Hung Hospital	May 09
Tung Wah Eastern Hospital	Jun 09
Cheshire Home, Chung Hom Kok	Jul 09
St. John Hospital	Nov 09
Ruttonjee/ Tang Shiu Kin Hospital	Jan 10



### Conclusion

- A robust clinical handover system using MEWS and SBAR could be successfully implemented in a large regional hospital within a short period of time.



### Critical Success Factors in implementation of clinical handover system

- Frontline engagement starting from conceptual and design phases to piloting and full implementation
- Gradual and stepwise approach with modifications based on feedback





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- |                    |                          |
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