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Implementing an Early Warning Score System; a Quality Improvement Project

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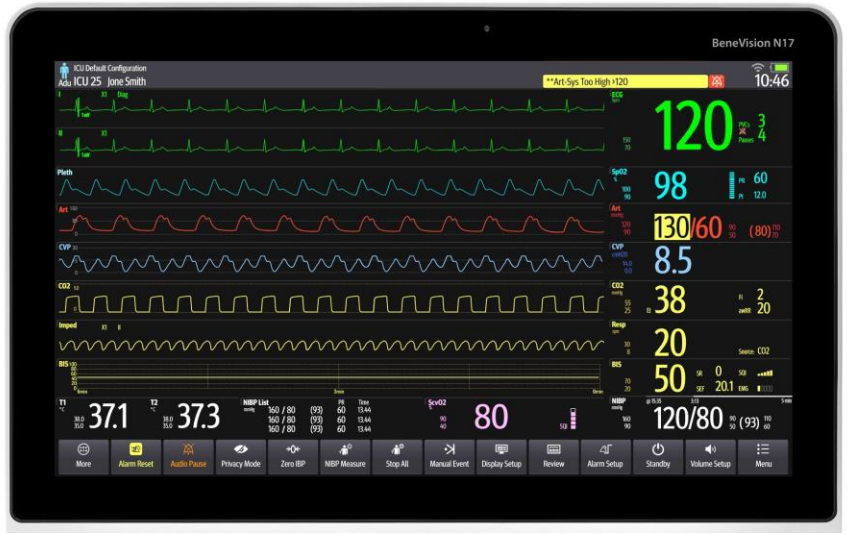
Outline

- Background
- Implementation
- Project profile
- Tools used
- FOCUS-PDCA
- Challenges
- Success factors
- Areas for improvement
- Conclusion

Background

Early Warning Scores (EWS) are commonly used in acute care hospitals to:

- Detect early signs of patients that are medically deteriorating
- Have timely intervention by multidisciplinary medical teams
- Reduce admissions to Intensive Care Units (ICUs)
- Reduce morbidities and mortalities
- Improve patient safety
- Improve clinical outcomes
- Improve patient and family experience



Background

- [1] Several studies demonstrated that patients before dying or going into a cardiac arrest are is commonly preceded by several hours of deranged physiology.
- The EWS scoring system is based on physiological measurements:
  - Respiratory rate
  - Oxygen saturation
  - Temperature
  - Systolic blood pressure
  - Heart rate
  - Level of consciousness

Background

Each measure is scored from 0 to 3 and added together to give an overall score with an additional two points for supplemental oxygen [2].

Based on the score the medical intervention will be formulated to care for the patient; examples include putting the patient under frequent observation to admitting the patient to ICU.

Patient Observation

Implementation

- A multidisciplinary team of physicians and nurses was formulated and started researching the internationally published references and forms on EWS.
- It was decided to adapt one of them to avoid reinventing the wheel.
- The adapted EWS Policy and related forms were modified resulting in having a draft that meets the hospital criteria, needs and population it serves
  - ranging from neonates to adults taking into consideration special services at the tertiary hospital like Obstetrics and Gynecology and Long-Term Care which requires a modified EWS.

Implementation

- Having this as a Quality Improvement (QI) project in the patient safety domain pilot testing [3] was conducted for 3 months using the Plan-Do-Study-Act (PDSA) cycle across all inpatient units excluding the ICUs.

- Data was gathered and the draft of the EWS Policy and related forms were revised based on the feedback gathered. That was the first PDSA cycle, followed by 3 additional ones.

Implementation

- This process took about 9 months to ensure that the EWS system meets the set expectations by being:
  - Sound,
  - In line with international standards,
  - Helpful to staff and patients.

- Staff engagement in this project helped a lot in the buy-in which is very crucial to implement any new system or program [4].

Implementation

- The hospital staff was involved in choosing the name of the multidisciplinary team that will respond to the EWS activation.

- They had to choose between ‘Rapid Response Team (RRT)’ or ‘MEDICAL EMERGENCY TEAM call (MET call)’ and they decided to have it as MET call [5]; which comprised of an in-charge nurse, General Practitioner and an Intensivist.

Rapid Response Team (RRT)

VS

Medical Emergency Team(METCall)

Implementation

- Afterwards, an education and training campaign was initiated to all concerned staff at the inpatient units to help in the EWS implementation.

- Constant feedback and support were given to staff to ensure correct implementation and maintaining the practice.

Implementation

- The clinical leadership always encouraged the clinical staff to activate the METcall whether by the nurses or physicians when necessary, and

- Even when they have doubts or feel uncertain.

Implementation

Project Profile

- **Description of Initiative/Project:**
  - Implementing and improving the compliance of Early Warning Signs system (EWS) across the hospital.

- **Duration** – 1 year
- **Owner** – Nursing Department
- **Partners** – Doctors

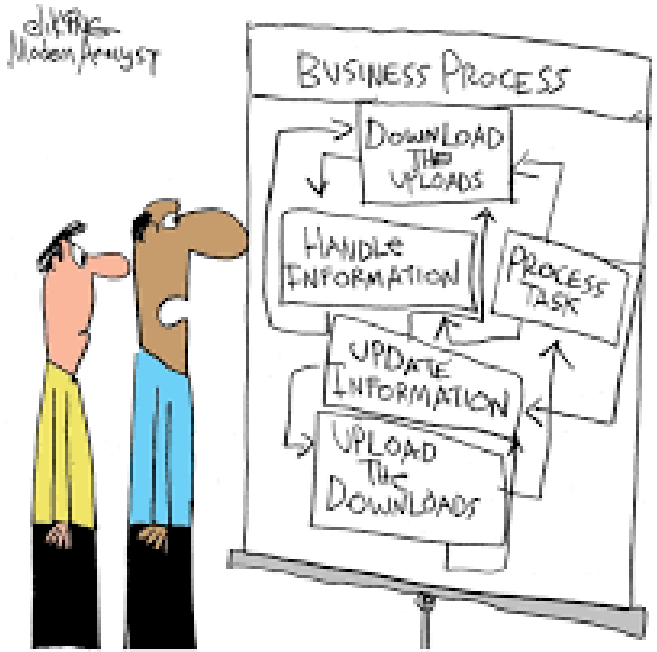
Project Profile

Rationale for choice of projects

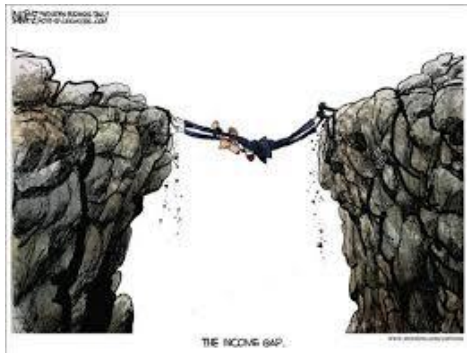
- Delayed transfer to the appropriate level of care which compromises' Patient safety
- Reduce any Code Blue outside critical care through the early recognition of deteriorating patients.
- Non-compliance to early response in accordance to EWS algorithm.
- Non-Compliance to EWS documentation.

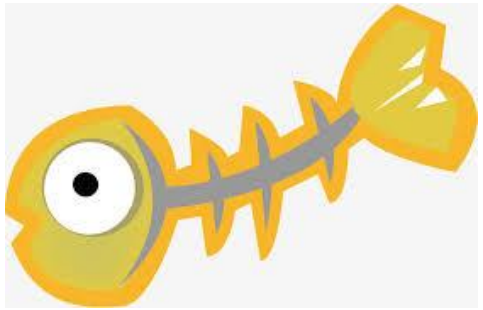
Project Profile

- **Goal of the Project/Expected Output**
- Increase the compliance to Early warning sign compliance in hospital up to 96% by June 2019 in terms of implementation of Policy; staff to comply with EWS; escalate the care level accordingly.
- Improve early recognition of patient deterioration in the non-critical area
- Ensure the early transfer of patients to a higher level of care when needed in a timely manner in order to initiate early treatment of patients to improve patient outcomes, patient safety and to reduce potential morbidity and mortality.
- To decrease the number of incidents related to Early Warning Signs.



"Charlie, did you really get these details from the customer?"





Tools used in the Project

- FOCUS PDCA
- Brainstorming
- Ishikawa diagrams
- Process flow
- Gap Analysis

Find an Opportunity

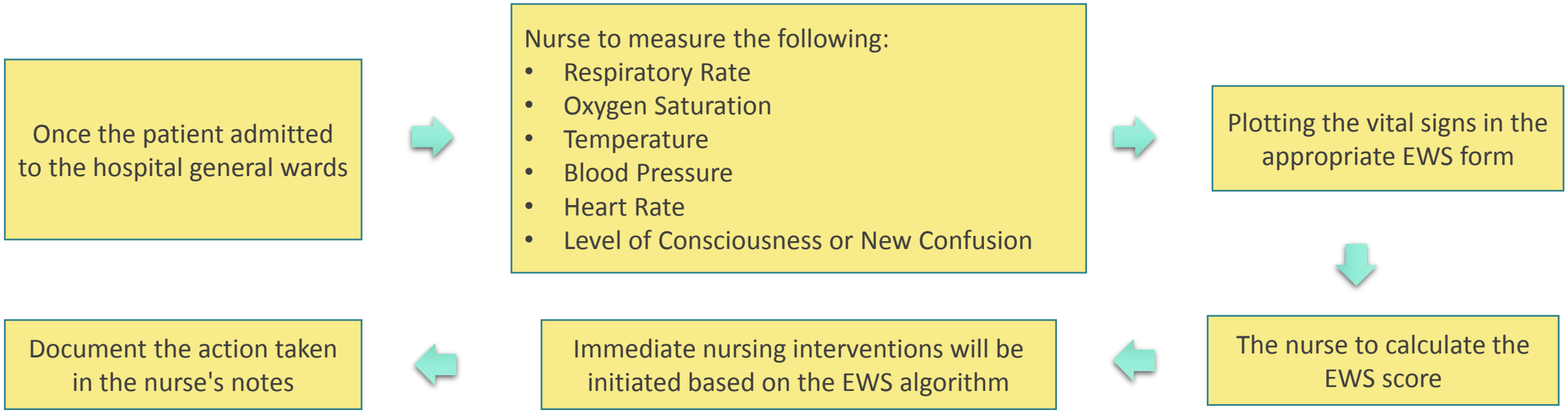
The Current Monitoring of Data reveals:

- During the last 3 months i.e. from Oct to Dec 2018 a total of 13 incidents were reported related to Non-Compliance to EWS documentation,
- Non-compliance to early response in accordance to EWS algorithm,
- Delayed transfer to the appropriate level of care.

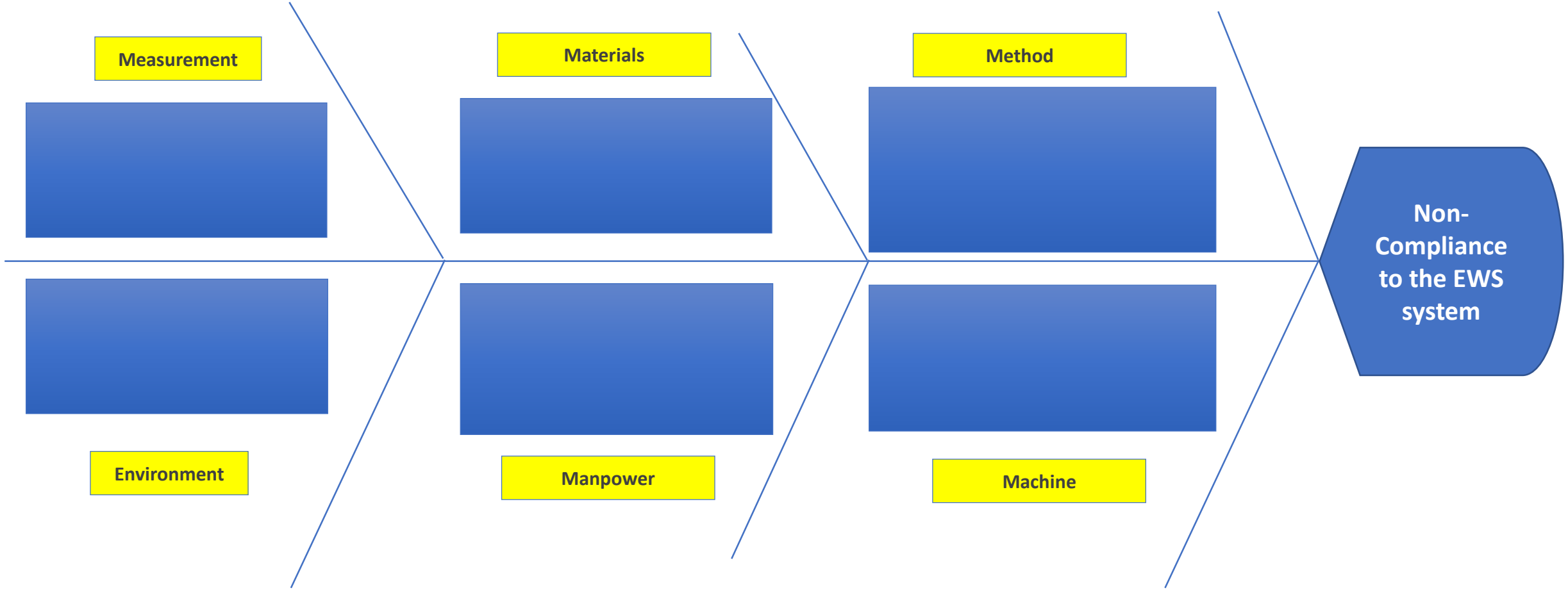
Organize a Team

Project Leaders	
Project Sponsors	
Team Members	

Clarify the Current Process



Understand Causes of Process Variation



Select a Solution

- Adopt evidence based EWS forms
- Revise EWS policy and forms
- Implement MET call policy and ensure availability of MET call team
- Provide training and awareness about updated EWS and MET Call system

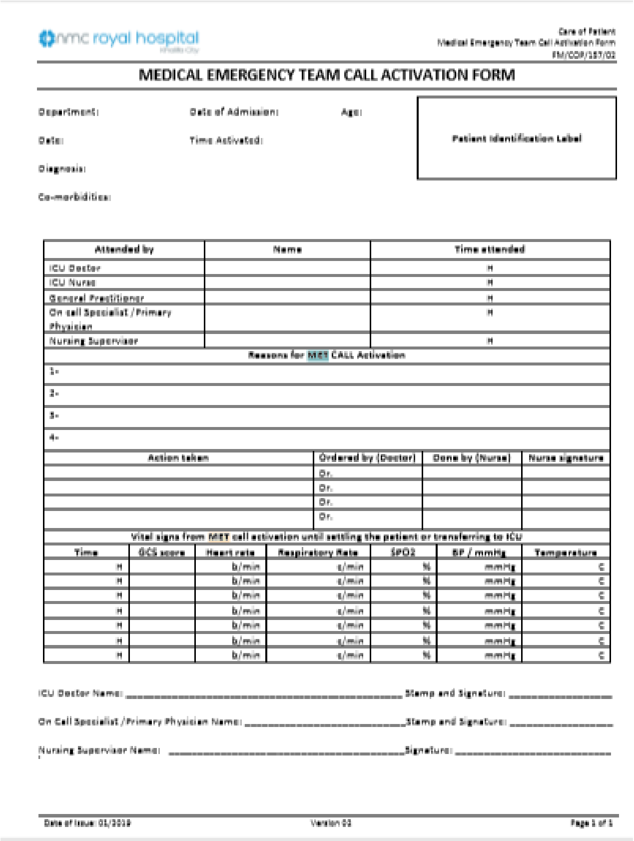
Select a Solution

- Real time documentation at the bed side
- Utilization of computer on wheels (COWs) for documenting vital signs
- Giving patient and family education on the hospital routine with regards to taking of Vital Signs,
    - to be done during the admission orientation
- Spot check audits

Plan the Improvement

No	Problem	Solution	Responsibility	By when	Approver
1					

Do the Improvement



Care of Patient
Medical Emergency Team Call Activation Form
FM/COP/157/02

MEDICAL EMERGENCY TEAM CALL ACTIVATION FORM

Department: Date of Admission: Age:

Date: Time Activated:

Diagnosis:

Co-morbidities:

Patient Identification Label

Attended by	Name	Time attended
ICU Doctor		H
ICU Nurse		H
General Practitioner		H
On call Specialist / Primary Physician		H
Nursing Supervisor		H

Reasons for MET CALL Activation
1-
2-
3-
4-

Action taken	Ordered by (Doctor)	Done by (Nurse)	Nurse signature
	Dr.		
	Dr.		
	Dr.		
	Dr.		

Vital signs from MET call activation until settling the patient or transferring to ICU

Time	GCS score	Heart rate	Respiratory Rate	SPO2	BP / mmHg	Temperature
H		b/min	c/min	%	mmHg	C
H		b/min	c/min	%	mmHg	C
H		b/min	c/min	%	mmHg	C
H		b/min	c/min	%	mmHg	C
H		b/min	c/min	%	mmHg	C
H		b/min	c/min	%	mmHg	C
H		b/min	c/min	%	mmHg	C

ICU Doctor Name: ______________________ Stamp and Signature: ____________

On Call Specialist / Primary Physician Name: ______________ Stamp and Signature: ____________

Nursing Supervisor Name: ______________________ Signature: ____________

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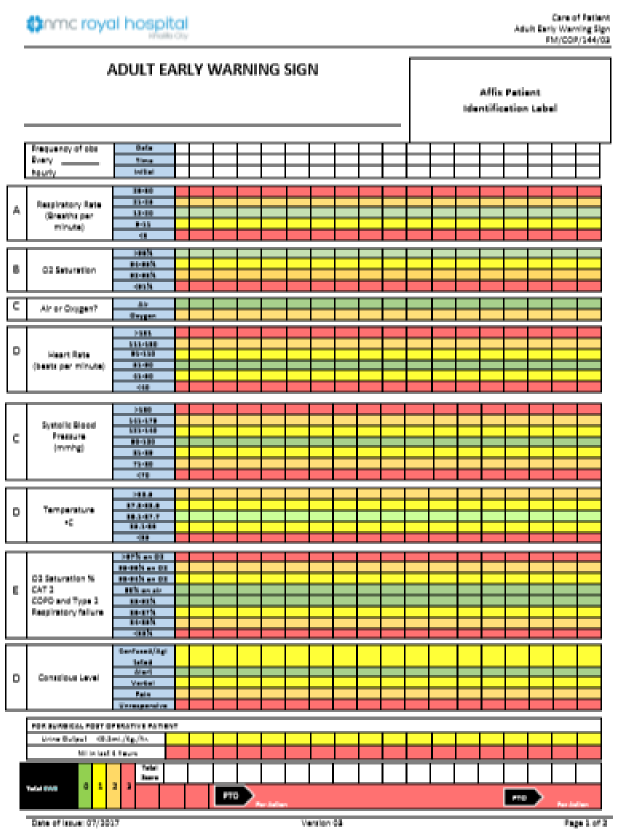


Care of Patient
Adult Early Warning Sign
FM/COP/144/02

ADULT EARLY WARNING SIGN

Affix Patient Identification Label

Frequency of obs Every ____ hourly — Date / Time / Initial

	Parameter	Range
A	Respiratory Rate (Breaths per minute)	[illegible]
B	O2 Saturation	[illegible]
C	Air or Oxygen?	Air / Oxygen
D	Heart Rate (beats per minute)	[illegible]
C	Systolic Blood Pressure (mmhg)	[illegible]
D	Temperature °C	[illegible]
E	O2 Saturation % CAT 2 COPD and Type 2 Respiratory failure	[illegible]
D	Conscious Level	Confused/Agi tated / Alert / Verbal / Pain / Unresponsive

FOR SURGICAL POST OPERATIVE PATIENT

Urine Output <0.5ml/kg/hr

Nil in last 6 hours

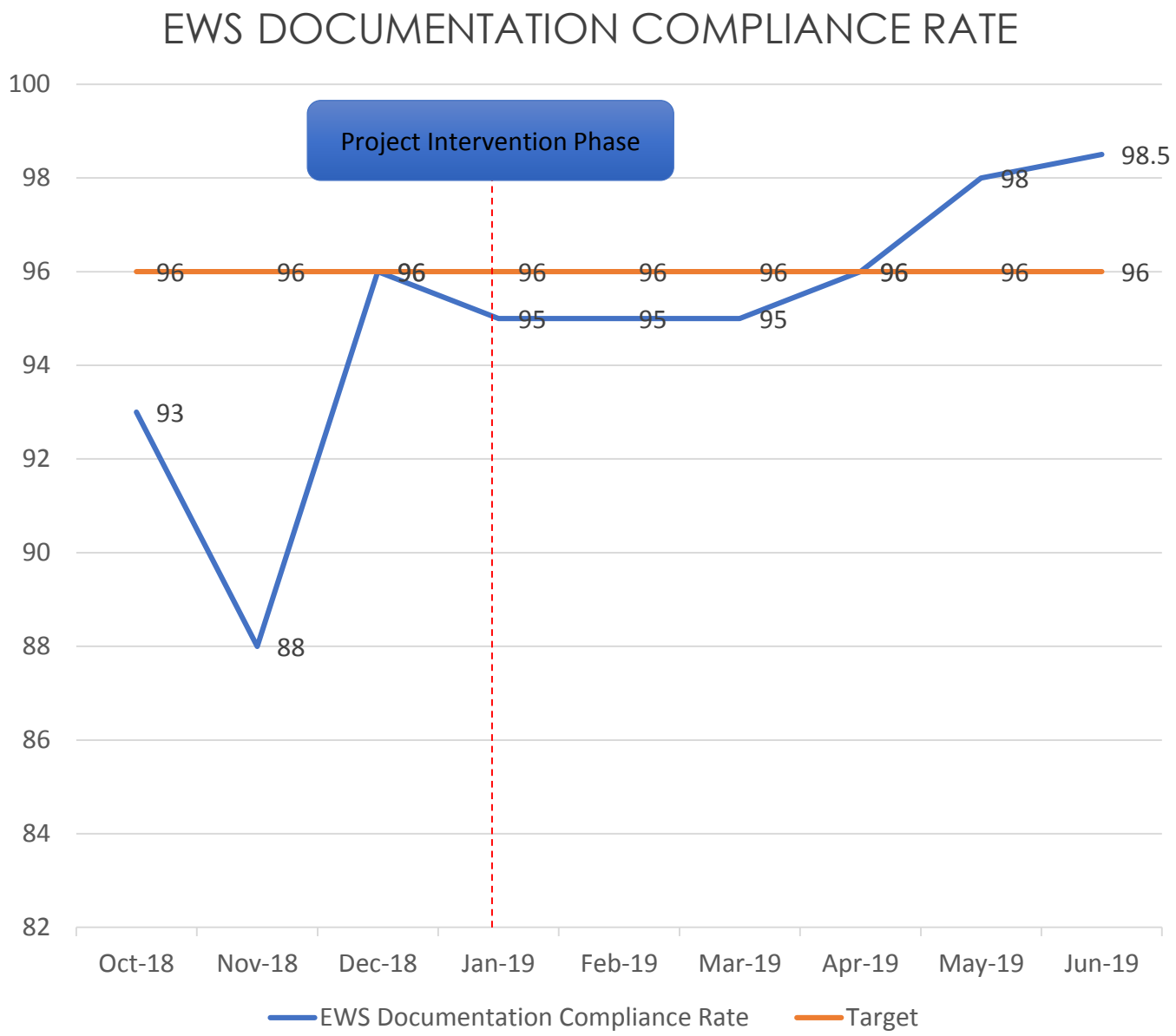
Total EWS 0 1 2 3 Total Score

PTO

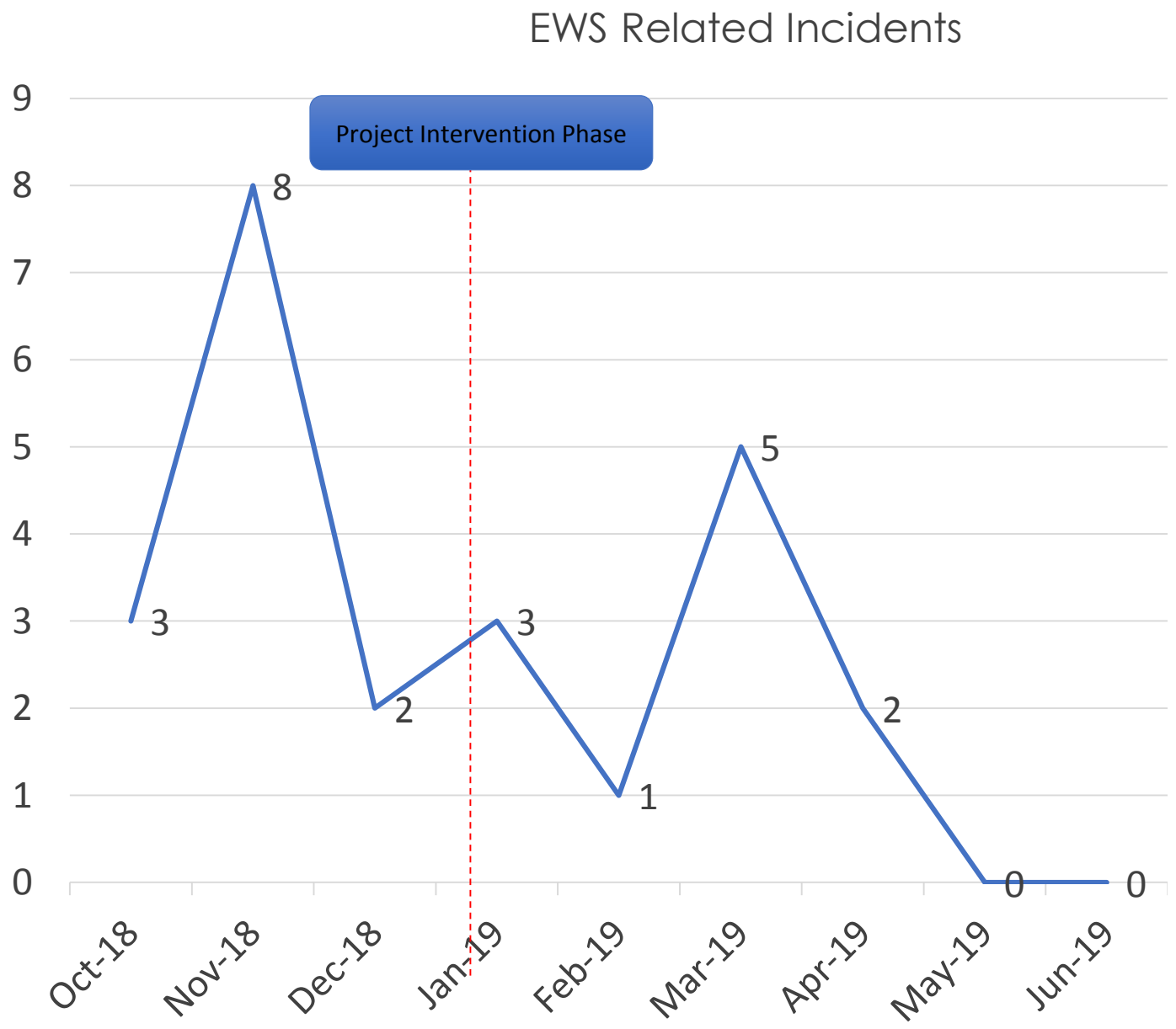
PTO

Date of Issue: 07/2017 Version 02 Page 1 of 2

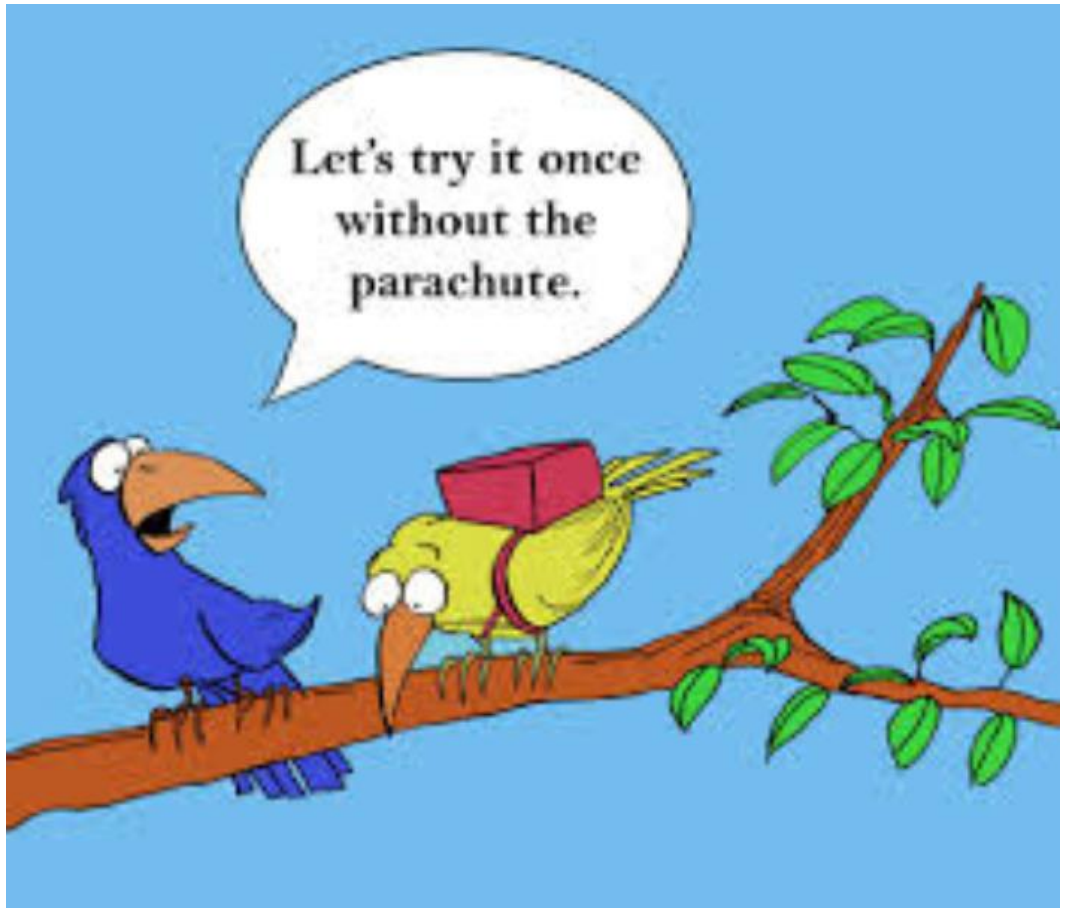
Check the Improvements



Check the Improvements



Check the Improvements



Act

Continue utilizing the EWS forms and activation of MET Call to identify early deterioration of any patient condition admitted in the non-critical care units.

Continue monitoring and sustaining EWS compliance and improvements respectively.

Continuous monitoring of EWS and reducing code blue events outside the critical area.

Conduct Quality Care rounds on daily basis by the Nursing IN-Charges and spot checks by the Nursing Supervisors and immediately addressing any gaps

Challenges

- Having noted all of the above, this doesn't necessarily mean that all sick patients will be captured by the EWS as the physiologic measurements may not fall within the pre-determined high-risk values of the EWS [6].
- Staff initially were hesitant to call the physicians to avoid any inconvenience or potential 'trouble'.
- Other challenges included things like, nurses didn't record the right physiological measurements or totally forgot to document it, and didn't activate the EWS and call the MET call team [6].

Success factors

The key success factors in the implemented EWS system were having debriefs following the MET call team response to any call.

All feedback gathered from all METcalls' activations are discussed in the Code Blue Committee in which the feedback is regularly shared with staff on any changes required and good practices to improve and maintain the implementation of the EWS system.

[6] The MET call team served as a resource and support to the medical team.

Support and respect from management and medical team regardless of whether the METcall was valid or invalid.

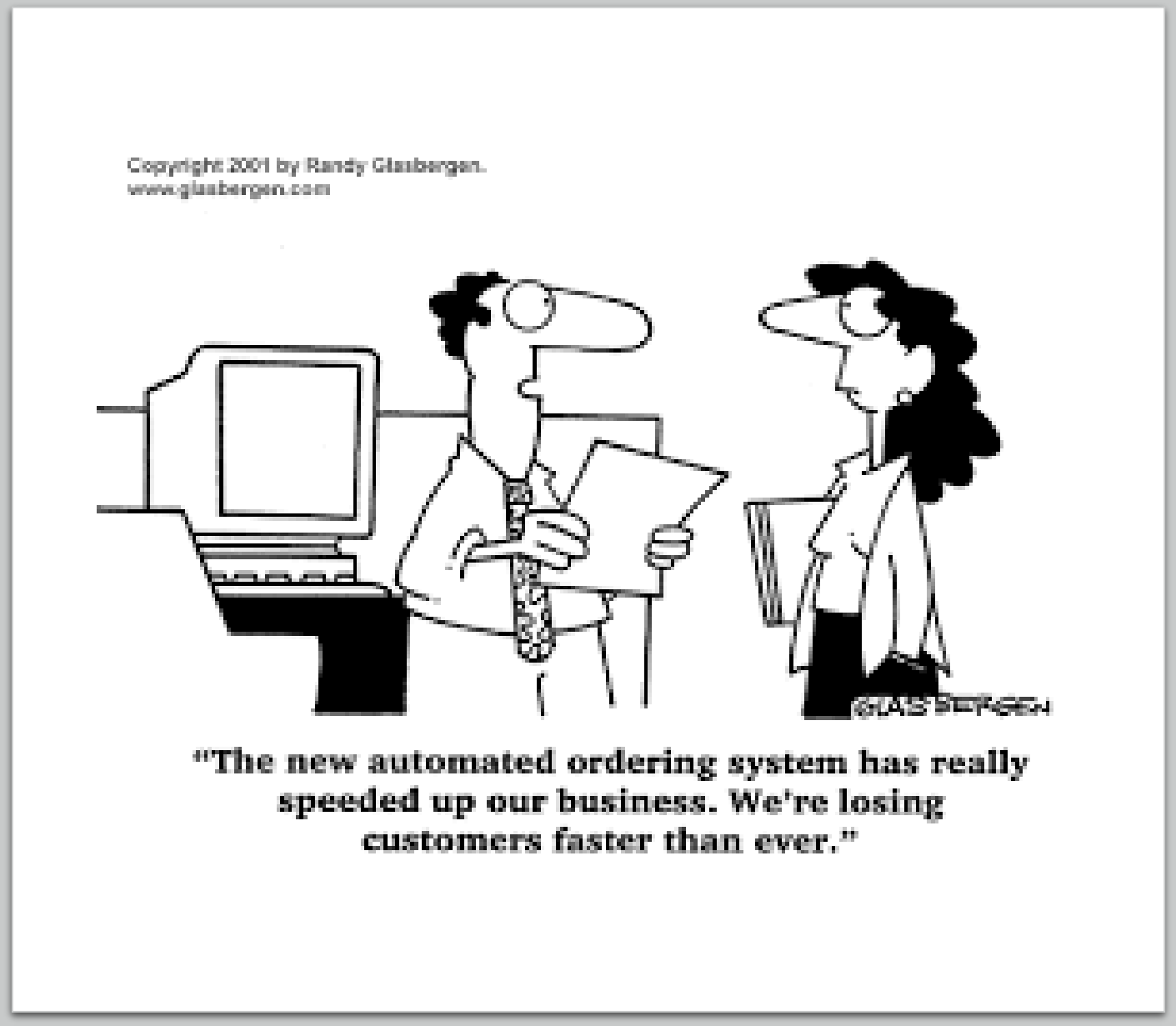
One must have the attitude that this is a learning experience to sharpen the clinical skills of staff to better serve the patients, and keep them safe.

Areas for improvement

- Have an automated system.
- All the physiological measurements that are needed for the EWS can be accurately captured by an electronic system that can be configured to do the calculations and give the staff an idea about what actions to take.
- Reducing the human intervention can help in reducing errors due to manual data entry errors and miscalculations.

Areas for improvement

On the other hand, the team will need to keep in mind that having an automated system could have some errors due to the automaton that needs to be managed before implementing it [7].



Conclusion

Implementing an EWS is a very important hospital patient safety initiative.

It reduces mortalities, morbidities, admissions to ICU and code blue activations.

It’s a learning journey with some challenges, but with the right tools, support, and team members, it can make a significant difference for both clinical teams, patients, and their families.

Very importantly it will make the staff feel supported, and it will keep the patients and their families safe.

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Thank You