

Learning from Patient Safety Events

The journey so far at Tunbridge Wells ICU

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Why do we need to learn from failures, mistakes and errors?



How Complex Systems Fail

(Being a Short Treatise on the Nature of Failure; How Failure is Evaluated; How Failure is Attributed to Proximate Cause; and the Resulting New Understanding of Patient Safety)

Richard I. Cook, MD¹

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- 1) Complex systems are intrinsically hazardous systems.
- 2) Complex systems are heavily and successfully defended against failure.
- 3) Catastrophe requires multiple failures – single point failures are not enough.
- 4) Complex systems contain changing mixtures of failures latent within them.
- 5) Complex systems run in degraded mode.
- 6) Catastrophe is always just around the corner.
- 7) Post-accident attribution to a 'root cause' is fundamentally wrong.
- 8) Hindsight biases post-accident assessments of human performance.
- 9) Human operators have dual roles: as producers & as defenders against failure.
- 10) All practitioner actions are gambles.
- 11) Actions at the sharp end resolve all ambiguity.
- 12) Human practitioners are the adaptable element of complex systems.
- 13) Human expertise in complex systems is constantly changing.
- 14) Change introduces new forms of failure.
- 15) Views of 'cause' limit the effectiveness of defences against future events.
- 16) Safety is a characteristic of systems and not of their components.
- 17) People continuously create safety.
- 18) Failure free operations require experience with failure.



How Complex Systems Fail

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1) Complex systems are intrinsically hazardous systems.

All of the interesting systems (e.g. transportation, healthcare, power generation) are inherently and unavoidably hazardous by the own nature. The frequency of hazard exposure can sometimes be changed but the processes involved in the system are themselves intrinsically and irreducibly hazardous. It is the presence of these hazards that drives the creation of defenses against hazard that characterize these systems.

6) Catastrophe is always just around the corner.

Complex systems possess potential for catastrophic failure. Human practitioners are nearly always in close physical and temporal proximity to these potential failures – disaster can occur at any time and in nearly any place. The potential for catastrophic outcome is a hallmark of complex systems. It is impossible to eliminate the potential for such catastrophic failure; the potential for such failure is always present by the system's own nature.

18) Failure free operations require experience with failure.

Recognizing hazard and successfully manipulating system operations to remain inside the tolerable performance boundaries requires intimate contact with failure. More robust system performance is likely to arise in systems where operators can discern the “edge of the envelope”. This is where system performance begins to deteriorate, becomes difficult to predict, or cannot be readily recovered. In intrinsically hazardous systems, operators are expected to encounter and appreciate hazards in ways that lead to overall performance that is desirable. Improved safety depends on providing operators with calibrated views of the hazards. It also depends on providing calibration about how their actions move system performance towards or away from the edge of the envelope.



PRIVATE
CUSTOMER
PARKING
ONLY

ALL OTHERS
WILL BE TOAD

Let's eat Grandpa!
Let's eat, Grandpa!

COMMAS
They save lives!

TABLES
ARE FOR EATING
CUSTOMERS ONLY

NO LOITERING



Figure 1: The imbalance between things that go right and things that go wrong

The journey so far at Tunbridge Wells ICU

TW INTENSIVE CARE

PATIENT AND STAFF TRACKING SHEET



DATE	SHIFT
12/08/23	NIGHT

SHIFT LEADER -

ITU 1 – Level -1

NURSE IN CHARGE: JOSE					
Bed	Patient Name	DEP	COVID /FLU STATUS	Nurse	
1	H. POTTER I+V	1.0	NEG	Litty	
2	B. WILLIS I+V	1.0	NEG	Maria + Rozam	
3	M. JAGGER I+V RRT	1.0	NEG	Praisyy	
4					
5	J. DEPP I+V RRT	1.0	NEG	Kelly	
6					
7					
8					
9	R. SUNAK NIV	1.0	NEG	Ashly R	
FLOAT		Anna J			
CSW		Shyne			
RECOVERY					
10					

HDU - Level + 1

NURSE IN CHARGE: Ted + Danielle					
Bed	Patient Name	DEP	COVID /FLU STATUS	Nurse	
1	N. DUBZ W	0.5	NEG	Rinku	
2	O. ASIS W	0.5	NEG	Rinku	
3	M. JACKSON RRT	1	NEG	Shanu	
4	B. YONCE W	0.5	NEG	Shanu	
5	P. ANDREW W	0.5	NEG	Corona	
6	Q. ELIZABETH W	0.5	NEG	Corona	
7	R. ASTLEY	0.5	NEG	Aparna	
8	B. JOHNSON	0.5	NEG	Aparna	
CSW			Clyde		

TOTAL DEPENDENCY: 5 (+1) + 4.5 = 10.5

1	Jose
2	Anna J
3	Ted
4	Maria + Rozam
5	Shanu
6	Kelly
7	Corona
8	Rinku
9	Litty
10	Ashly R.
11	Aparna
12	Praisyy
13	Danielle (B) rostered
14	Aparna
15	

1	Clyde
2	Shyne
3	
4	

Incident Reports TWH Oct, Nov, Dec 2019

Incident: Patient was admitted to ITU with pre-existing pressure/moisture damage.

Learning Point: Presence of damage was noted and body map and other relevant documentation was completed within the required 6hr time frame. No concern from Tissue Viability and unit based care was continued.

Incident: Patient absconded from ITU - this lady has a long psychiatric history and is known at times to be violent. She has previously been in a secure unit. She came to us after taking an overdose but is now medically fit but having been seen by psych liaison they advised that she is at high risk of self-harm and so should be under a section 5:2.

Learning Point: There is sometimes a lack of psychiatrists available. In this case if she had been seen by a Consultant that day then she could have been allowed to go home which would have prevented the huge use of staff and resources to search for her. Staff made aware that if a patient is on a section then they cannot be left alone for even a few minutes.

Incident: A patient had morphine PCA and while he was sleeping, his girlfriend had been pressing the bolus button as a bolus became available. The patient reported feeling really "spacy" when he woke up.

Learning Point: All staff reminded that it is a good idea to explain to relatives the use of a PCA as well as the patient and remind relatives that only the patient can press the button.

Incident: A blister or possibly a grade 2 pressure sore was noted on the left buttock of a patient

Learning Outcome: Blister confirmed to buttock. Potentially friction. Continue to reposition 2-4 hourly. Moisturise and keep dry.

Incident: Several patients on Alfentanil IV infusions. Day team alerted night team to the low stock levels. On-call pharmacist called in to supply Alfentanil out of hours in order to ensure enough stock for the night.

Learning Outcome: It is the responsibility of all staff that access the CD cupboard to either inform the Nurse in Charge of low stock levels in a timely manner or order further supplies and then communicate with both the nurse in charge

“Bland”

“Hard to Read”

“Not interesting.”



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Safety Culture

- Incident reporting
- No blame
- Emphasis on shared learning
- Continual improvement

iTS AAR



Health Services Safety
Investigations Body


LFPSE Yearly Report

Hi everyone 🙋

Over the next two weeks I will be sharing the learning from our Datix incidents that I've compiled in the past year - January 2022 to December 2022.

Today is A for Airway - Three Dislodged Tracheostomies.

#Learning22


TWH ICU DATIX REPORTS JANUARY 2022 - DECEMBER 2022

AIRWAY RELATED INCIDENTS THREE DISLODGED TRACHEOSTOMIES

1) A Patient came back from surgical tracheostomy insertion. Tracheostomy dislodged due to excess bleeding from surgical site. Incident managed appropriately by staff and patient was swiftly reintubated.

2) A Patient on Passy Muir Valve was being repositioned by an RN and Physio. Tracheostomy found to be dislodged as the patient was not triggering breaths on the V60 when their cuff was inflated. This led to an unplanned decannulation.


- LEARNING POINTS -

Airway emergencies are time critical. Any issues with the airway such as excessive bleeding, cuff leaks, deviation of landmarks on ETT or Tracheostomy need urgent escalation to the NIC or Senior Doctor. If the airway is dislodged and no airway trained Doctor in the unit, fast bleed Anaesthetics ASAP through #2222. Use the respective Airway Emergency Dislodgment algorithm.


SHIFT CHECKS:

The bedside nurse should always check that ETTs or Tracheostomies are appropriately secured and the cuff pressure inflated appropriately. These checks should be performed more regularly, especially prior to turning patient or manoeuvring the airway. If patients have a tied ETT, consider replacing the with an Anchorfast with the assistance of a Senior Nurse. Never change Tracheostomy dressings, ties or Anchorfasts on your own. It always needs to be done with two RNs or with the assistance of the Anaesthetist.


Each room should always have a Mapleson Water Circuit, an Anaesthetic Ma and a Bag Valve Mask. Please ensure you check these are in your room as part of your shift checks.



TRACHEOSTOMY
Surgical / Percutaneous



BAG VALVE MASK



MAPLESON WATER CIRCUIT

Patients with Tracheostomies should always have three spare Tracheostomy devices (the same size, one smaller and one larger) and a tracheal dilator placed near the ventilator for quick access in case of dislodgements. They should have a bed head sign with the emergency algorithm placed on their door or near the ventilator where it can be handed over and accessed easily and quickly.

For more advanced airway management training, speak to Mary, Di or Beaula so they can enroll you to the High Fidelity Emergency Airway Management course.

To err is human. To learn, divine.


TWH ICU DATIX REPORTS JANUARY 2022 - DECEMBER 2022

AIRWAY RELATED INCIDENTS THREE DISLODGED TRACHEOSTOMIES

2) A patient came back from theatre after Surgical Tracheostomy insertion where an Adjustable Clinger was inserted. The wings were split down and it was connected by ENT to both lower limbs. Following this the patient was light on analgesia and coughed repeatedly causing dislodgement. The Adjustable Clinger had not been inserted far enough as there was minimal protrusion beyond the clamp. The patient had to be re-intubated. Another tracheostomy was re-inserted the following day.

- LEARNING POINTS -



Airway Diagram

Always check where the depth marker has been set on insertion by checking the longitudinal marker on your side checks. The white tip should always be outside the clamp with the longitudinal marker showing.

DO NOT adjust the Blue Tracheo Clamp. This can cause the Tracheo half to move in deeper or out of the surrounding tracheal tissues causing dislodgement. This will result in respiratory and if not appropriately managed can lead to cardiac arrest.

ESCALATE ANY CONCERNS TO YOUR NURSE IN CHARGE

Use the Emergency Tracheostomy Management algorithm. These events can be very stressful experiences. The algorithm will provide a systematic guide to keep the team in focus during the event.

TRACHEOSTOMY

Emergency tracheostomy management - Patient upper airway

Emergency Tracheostomy Dislodgement

Emergency Endo Tracheal Tube Dislodgement

Difficult Airway

To err is human. To learn, divine.

Watch Out Notices

TWH ICU Watch Out Notice

Watch out for...

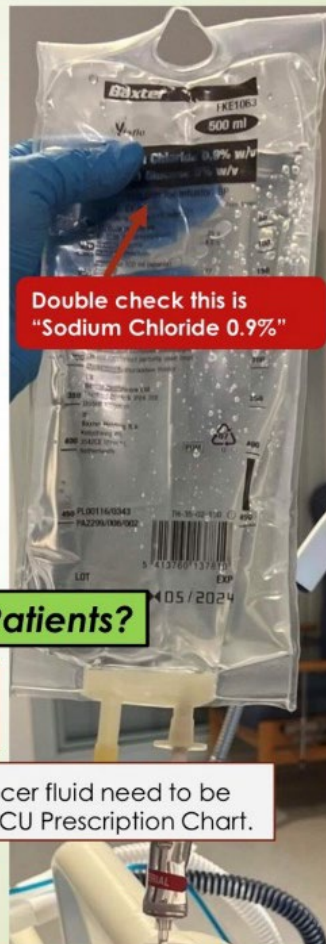


Sodium Chloride 0.9% for **Arterial Line** and **Central Line** Transducer Fluid

What happened?

A patient was started on Actrapid infusion due to a Blood Sugar reading from an ABG of 15mmol. Prior to this episode, their blood sugar levels have been stable.

The following day, it was found that the transducer fluid used was Sodium Chloride 0.9% with Glucose 5%.



How did this happen?

IV Fluid bag labels are not clearly annotated and look very similar to each other. This is an ongoing National Patient Safety issue.

How can we Protect our Patients?

Sodium Chloride 0.9% 500ml is the only acceptable Transducer Fluid.

Arterial Line and **Central Line** Transducer fluid need to be double checked and signed on the ICU Prescription Chart.

Label the Transducer line – Sign, Date set up and IV Fluid used.



! Watch Out For

Pressure damage from NIV/HFNO interfaces

What happened?

- Category 2 pressure damage occurred to patients nose due to incorrect fitting of NIV mask
- Category 2 pressure damage occurred to patients ears due to HFNO interface



What was expected to happen?

- NIV: Correct size mask to be selected after measuring patients face using the fitting guide (see QR code)
- Masks should be removed at regular intervals as the patients condition allows
- Barrier cream and siltape/duoderm should be applied prior to fitting mask
- HFNO: Barrier cream and siltape/duoderm should be applied to face and ears prior to use
- HFNO straps should be repositioned regularly



Why did this happen?

- NIV mask fitting guide was not readily available- see QR code for full PDF guide
- Mask was not fitted correctly- fitted below chin
- Siltape/Duoderm was not applied



NIV mask fitting PDF

What can be learned from this?

- Masks should be fitted correctly as per the video and PDF guide mask fitting guide (See QR codes)
- Siltape/duoderm and barrier cream should be applied to all patients prior to starting therapy
- Regular skin inspection should be carried out on all patients receiving HFNO and NIV
- Any skin damage should be photographed and inphased as soon as it is observed



NIV mask video



NIV full face mask video

*Note: we have stock of both pulmodyne and vyaire masks but the principal of fitting the mask remains the same

Learning from Excellence

Learning from Excellence



An intubated and ventilated patient who was admitted to TWH ICU after suffering a VF cardiac arrest with a downtime of 40 minutes required a transfer to St. Thomas' Hospital. **The decision to transfer was made at 21:30** for a projected theatre list for cardiac stenting in the early morning.

What Happened?

The patient left TWH ICU at 22:40 and arrived at St. Thomas' Hospital by 23:45.

How was our care Excellent?

Preparing the patient for transfer was prioritised urgently as soon as the decision to transfer was made

There was clear and specific allocation of roles to each member of staff involved

Clear dialogue between the ICU NIC and SEACAMB Handler enabled to prioritise the transfer as Category 2

Effective communication between each staff member ensured each delegated task was done promptly with ownership and responsibility



What happened?

A patient's **tracheostomy** was noticed to be **dislodged** during handover after the patient briskly moved to the right side of the bed.

Urgent help was sought and the patient was assessed by the Nurse in Charge to have **no etCO2 trace**, spO2 of 92 – 94% and **was not registering tidal volumes on the ventilator**.



How was care Excellent?

There was urgent escalation of the airway emergency. Appropriate nursing assessment and management was conducted prior to ICU/Anaesthetic Registrar review using the Tracheostomy Emergency Algorithm.

After the ICU/Anaesthetic Registrar reviewed the patient, it was decided to replace the tracheostomy. There was clear communication of roles, clear delegation of tasks and appropriate planning in place prior to removing and replacing the tracheostomy.

What can be learned from this?

- Urgent escalation of concerns and asking for help
- Fast Bleeped Anaesthetic Emergency via 2222
- The patient had a Tracheostomy Emergency Algorithm which was followed
- The patient had an appropriately stocked Tracheostomy box which was used and re-stocked
- There was clear communication of roles and appropriate delegation of tasks
- Clear plans were put in place prior to the removal and re-insertion of a new tracheostomy

Pre-shift Team Huddle – SAFEITU



Online 'Bedside' Resource Padlet

TWH Intensive Care Unit

Cardio

PiCCO_de

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+ Add c

Loren

PiCCO Values

FAMILY NAME:	
Given name:	
Preferred name:	
Title:	
NHS number:	
Hospital number:	
Date of birth:	
Complete atb:	
Location:	
Thermidul	
Frequency	
Continental	
Minimum	
Blood Flow	
Cardiac Index	
Stroke Volume	
Preload	
Global End Diastol	
TIB	
cc: Blood	
ml	

PDF

PiCCO Be

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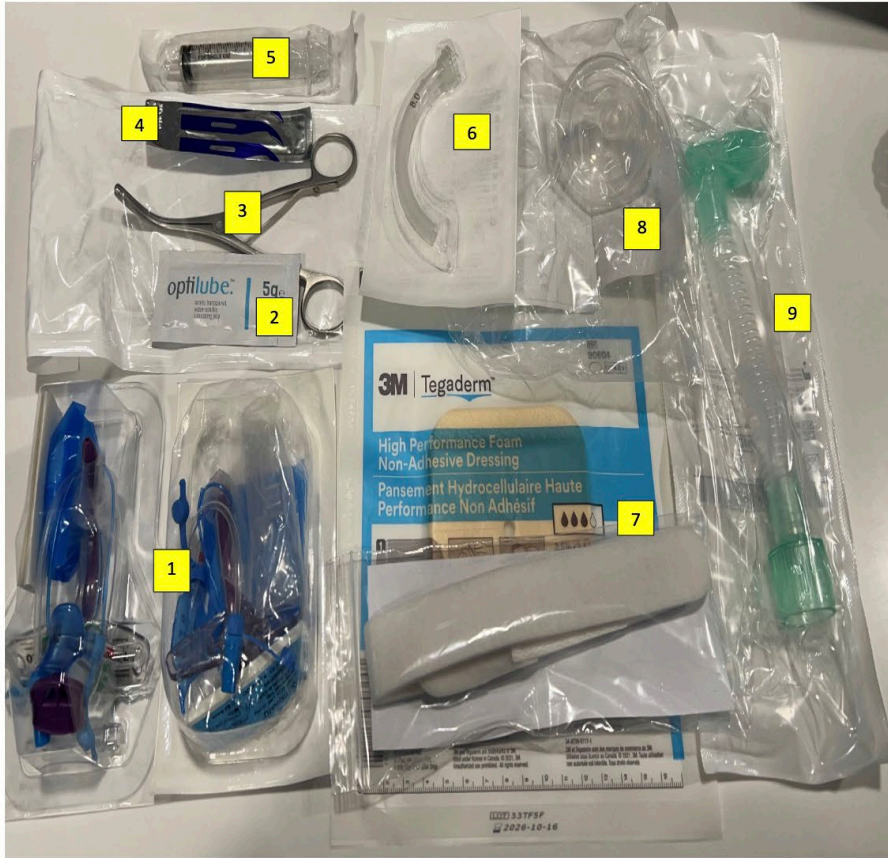
+ Add c

What you should have inside of the bedside Trachi-Case


- 1 Spare tracheostomy tubes of the same type as inserted: one same size and one smaller size
- 2 Water based lubricant
- 3 Tracheal dilator
- 4 Stitch cutter
- 5 10 ml syringe
- 6 Spare inner tubes of the same type tracheostomy inserted
- 7 Tracheostomy tube holder and dressing
- 8 Paediatric facemask
- 9 Catheter mount

Emergency algorithm sheet and bedhead sign displayed

Please ensure disposable bag/valve ventilation device is connected to oxygen and checked every shift



Airway Management

 Lorenzo Gacuma 10mo

ATOS Trachi Case

Emergency Equipment for patients with a Tracheostomy.

If on a Ventilator:

- Place in the footwell of the Hamilton Ventilator

If not on a Ventilator:

- Place next to where spare inner tubes are kept

Trachi Cases should be kept clearly visible incase of emergencies and the location handed over per shift.

trache case

1

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+ Add comment

Unit 2yr

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unit.

Unit 1yr

uide

TWH Intensive Care Unit 3yr

Pre-shift Team Huddle

Mini Education Structured Sessions (MESS)



Pre-shift Team Huddle

Mini Education Structured Sessions (MESS)



Work as Done

Processes that have led to safety events in the past year

Pre-shift Team Huddle

Mini Education Structured Sessions (MESS)



Work as imagined and aspired to be
Checking process that can reduce safety events

Simulation

Safety Events Simulation Sessions



Simulation

Major Incident Evacuation



Thank you.

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