NATIONAL DEVELOPMENT PLAN 2020

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INVESTING IN YOUR FUTURE

Improving Patients Safety and Quality in Latvia:

Safety standards for invasive procedures and IV medications: How to improve safety by focusing on the team function?

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Riga Stradins University - June 7, 2018

Declaration of interests

- No financial, commercial or intellectual property interest in any related matters
- Member of European Board of Anaesthesiology (EBA) Safety Committee
- Member ESA Patient Safety and Quality Committee
- Chairman of Norwegian Association of Anaesthesiologists' Committee on Patient Safety and Quality
- Founder and Board Chairman of BEST Foundation: Better & Systematic Team Training
- Board Member of Norwegian Standardisation Organisation

ESA 10 YEARS

UNIVERSITAS BERGENSIS

NASJONAL KOMPETANSETJENESTE for TRAUMATOLOGI
Norwegian National Advisory Unit on Trauma

U.E.M.S. Section
European Board of Anaesthesiology

best
Stiftelsen BEST:
Bedre & systematisk teamtrening

Why do things go wrong…?

«If there are two or more ways to do something, and one of those ways can result in a catastrophe, someone will do it.»

Edward A. Murphy Jr.
Edwards Air Force Base, California 1949

How Complex Systems Fail

- Complex systems are intrinsically hazardous systems
- Complex systems are heavily and successfully defended against fail
- Catastrophe requires multiple failures – single point failures are not enough…
- Complex systems contain changing mixtures of failures latent within them
- Catastrophe is always just around the corner
- Post-accident attribution accident to a ‘root cause’ is fundamentally wrong
- Hindsight biases post-accident assessments of human performance

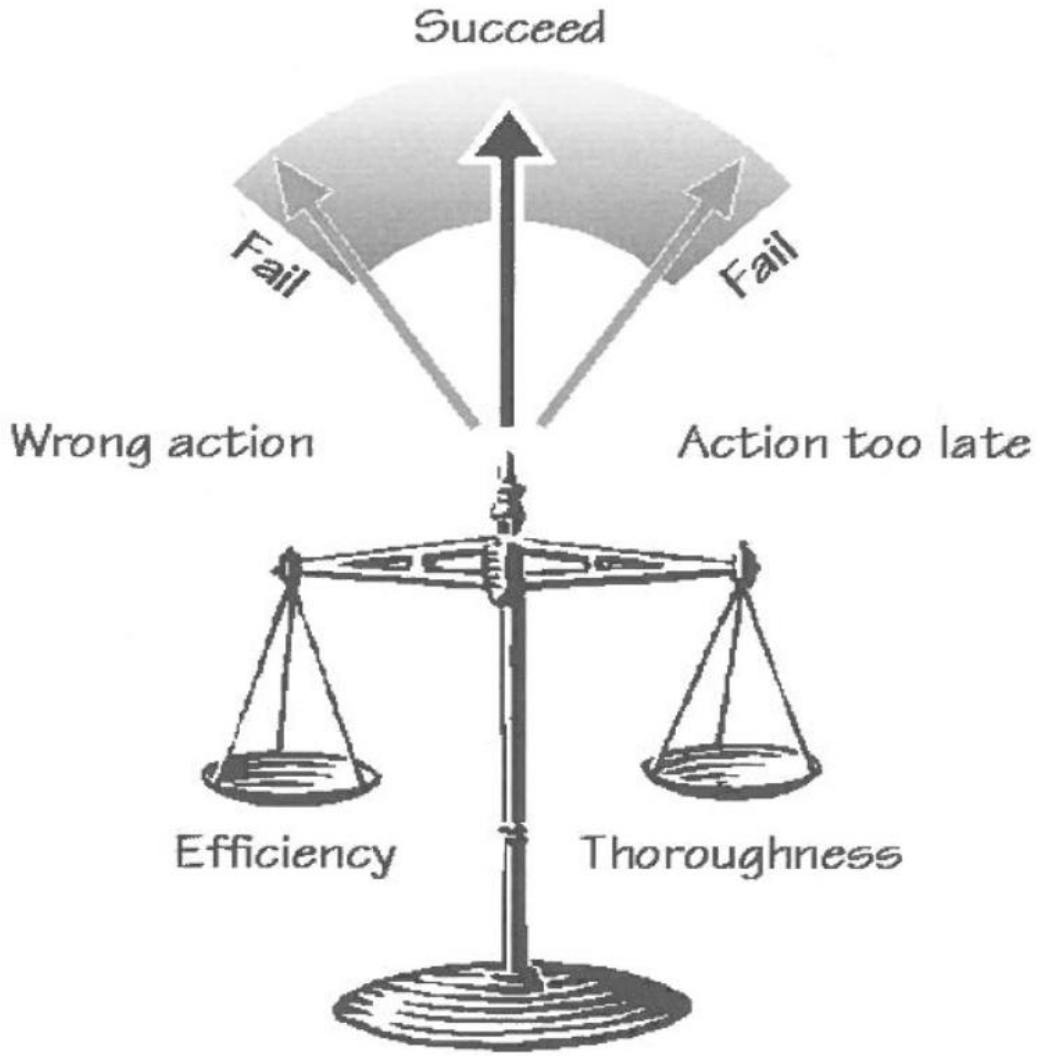
Cook RI, CTL Chicago 2000

How Complex Systems Fail (cont.)

- Human operators have dual roles: as producers & as defenders against failure
- Human practitioners are the adaptable element of complex systems
- Human expertise in complex systems is constantly changing
- Change introduces new forms of failure
- Safety is a characteristic of systems and not of their components
- People continuously create safety
- All practitioner actions are gambles

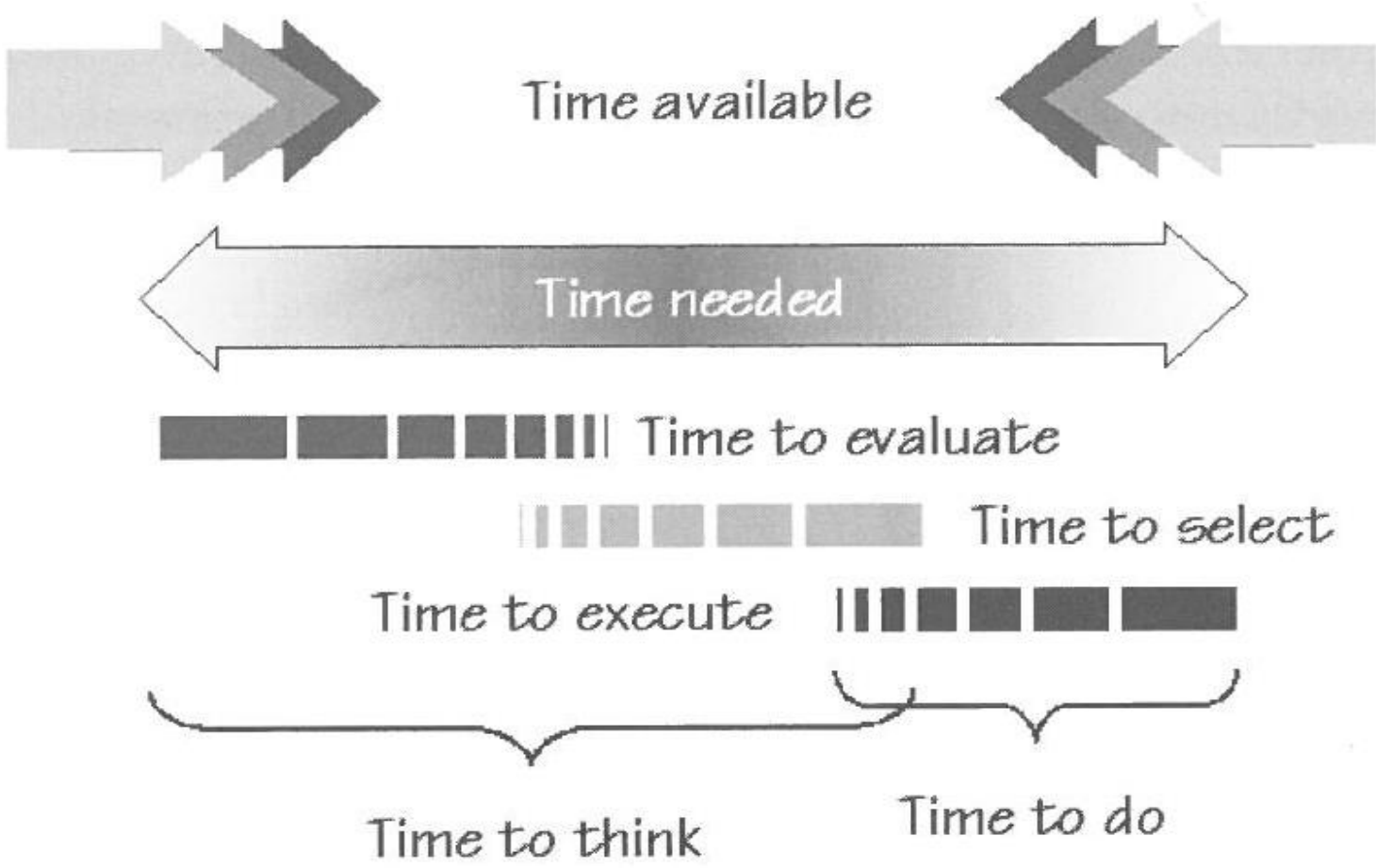
Cook RI, CTL Chicago 2000

Efficiency Thoroughness Trade Off (ETTO)



Hollnagel 2009

ETTO-principle



Hollnagel 2009

“Never events” in UK - NHS

- Wrong site surgery
- Wrong implant/prosthesis
- Retained foreign object post procedure
- Mis-selection of a strong potassium solution
- Administration of medication by the wrong route
- Insulin overdosing
- Overdose of methotrexate for non-cancer treatment
- Mis-selection of high strength midazolam during conscious sedation

- Failure to install functional collapsible shower or curtain rails
- Falls from poorly restricted windows
- Chest or neck entrapment in bed rails
- Transfusion or transplantation of ABO-incompatible blood components or organs
- Misplaced naso- or oro-gastric tubes
- Scalding of patients
- Unintentional connection of a patient requiring oxygen to an air flowmeter

https://improvement.nhs.uk/documents/2613/Never_Events_1_February_to_31_March_2018_.pdf

NHS England Surgical Never Events Taskforce report 2014

Problem:

Never event	Number of never events reported to SHAs 2012/13
Wrong site surgery	83
Wrong implant/prosthesis	42
Retained foreign object post-operation	130
Total of all never events reported (including non-surgical never events)	**329**

Solution:

Standardisation of generic operating department procedures

Systematic education and training for operating theatre environments

Harmonising activity to support a safer environment for patients

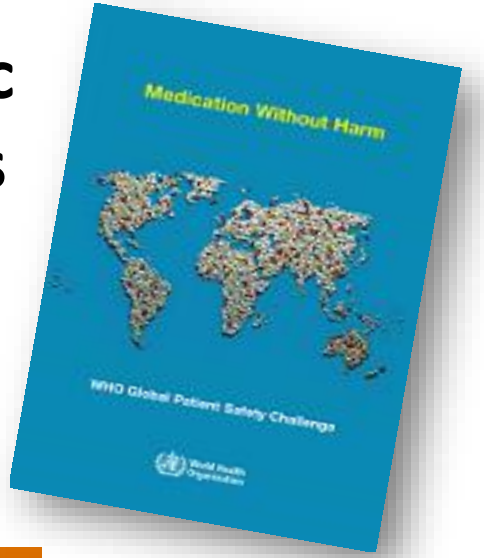
https://improvement.nhs.uk/documents/921/sur-nev-ev-tf-sum.pdf

Medication Safety - Global background

- Medication errors occur when weak medication systems and/or human factors such as
  - fatigue, poor environmental conditions, lack of training, or staff shortages
- Affect prescribing, transcribing, dispensing, administration and monitoring practices
- These factors can then result in severe harm, disability and even death

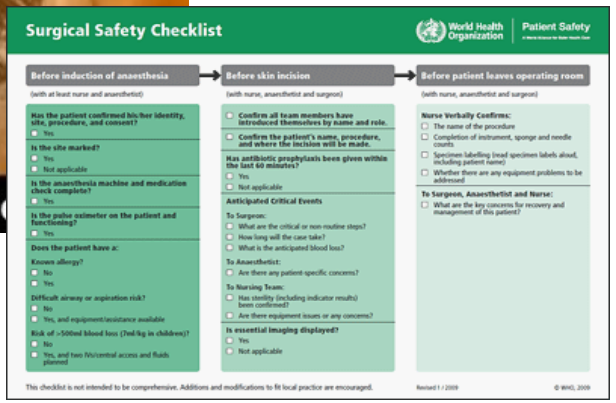
WHO 3rd Global Patient Safety Challenge

Aims to reduce the global burden of iatrogenic medication-related harm by 50% within 5 years



Plans to match the global reach and impact of first two Global Patient Safety Challenges:

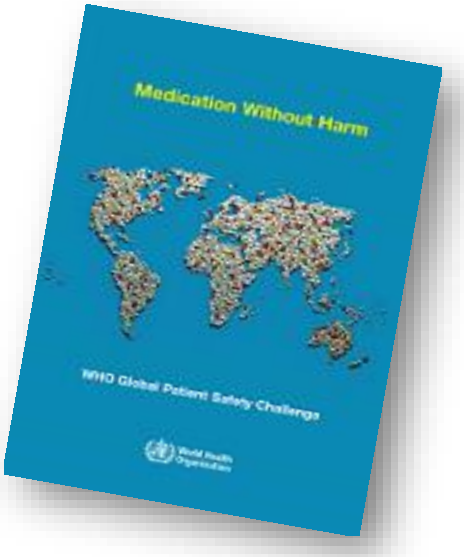
- **Clean care is safer care 2005**
- **Safe surgery saves lives 2008**



WHO 3rd Global Patient Safety Challenge

Will focus on three priority areas of medication safety

1. **High-risk situations**
2. **Polypharmacy**
3. **Transitions of care**



Each area is associated with substantial harm - If appropriately managed, risk of harm to many patients could be reduced

World Health Organization

Preventable Patient Harm across Health Care Services: Review and Meta-analysis

Understanding Harmful Care, July 2017

- General Medical Council Report
- 13% of patients experience total harm (any, preventable & non-preventable)
- **6% of patients experience preventable harm**
- Most common type of preventable patient harm was **medication-related incidents**

  (25% of harm)

General Medical Council

https://www.gmc-uk.org/about/research/31435.asp

WHO 3rd Global Patient Safety Challenge

- **What should we do?**
- Don't need to reinvent the wheel:

  Just **implement** the existing guidance
- *The European Board of Anaesthesiology recommendations for safe medication practice: First update*
- European Journal of Anaesthesiology 2017;34:4-7

https://journals.lww.com/ejanaesthesiology/fulltext/2017/01000/The_European_Board_of_Anaesthesiology.2.aspx

EBA Recommendations for Safe Medication Practice

EJA

Eur J Anaesthesiol 2016; **33**:1–4

GUIDELINES

The European Board of Anaesthesiology recommendations for safe medication practice

First update

David Whitaker, Guttorm Brattebø, Stefan Trenkler, Indulis Vanags, Flavia Petrini, Zuhal Aykac, Dan Longrois, Stephan Alexander Loer, Tomasz Gaszynski, Jurate Sipylaite, Elena Copaciu, Vladimir Cerny, Jonas Akeson, Jannicke Mellin-Olsen, Carmel Abela, Adela Stecher, Sibylle Kozek-Langenecker and Indrek Rätsep, The European Section and Board of Anaesthesiology of the UEMS

These European Board of Anaesthesiology (EBA) recommendations for well tolerated medication practice replace the first edition of the EBA recommendations published in 2011. They were updated because evidence from critical incident reporting systems continues to show that medication errors remain a major safety issue in anaesthesia, intensive care, emergency medicine and pain medicine, and there is an ongoing need for relevant up-to-date clinical guidance for practising anaesthesiologists. The recommendations are based on evidence wherever possible, with a focus on patient safety, and are primarily aimed at anaesthesiologists practising in Europe, although many will be applicable elsewhere. They emphasise the importance of correct labelling practice and the value of incident reporting so that lessons can be learned, risks reduced and a safety culture developed.

Published online xx month 2016

https://journals.lww.com/ejanaesthesiology/fulltext/2017/01000/The_European_Board_of_Anaesthesiology.2.aspx

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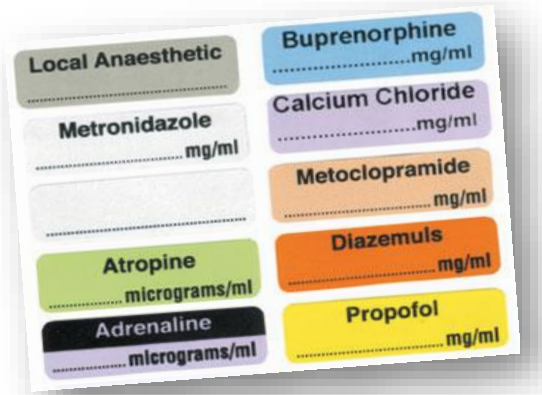
The European Board of Anaesthesiology recommendations for safe medication practice

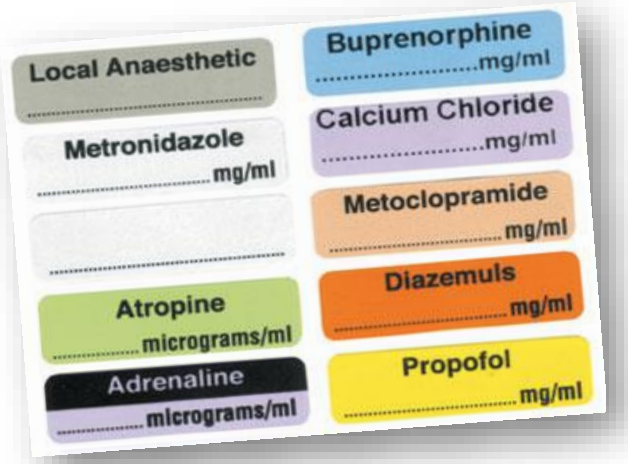
All medications prepared for routine use in anaesthesia, intensive care, emergency medicine and pain medicine should be clearly labelled (ISO 26825)



https://journals.lww.com/ejanaesthesiology/fulltext/2017/01000/The_European_Board_of_Anaesthesiology.2.aspx

Evidence of the value of drug colour coding

- In a study of 74,478 anaesthetic cases, potentially very dangerous **syringe swap errors between drug classes** were reduced by 66%
- 47 in 550,105 bolus drug administrations (0.009%) **without** ISO coloured labels
- 5 in 183,852 bolus drug administrations (0.003%), **with** ISO coloured labels $P = 0.01$



Webster CS, Larsson L, Frampton CM, et al. Clinical assessment of a new anaesthetic drug administration system: a prospective, controlled, longitudinal incident monitoring study. Anaesthesia 2010;65:490–9

GUIDELINES

The European Board of Anaesthesiology recommendations for safe medication practice

Labels should never be put on to empty syringes

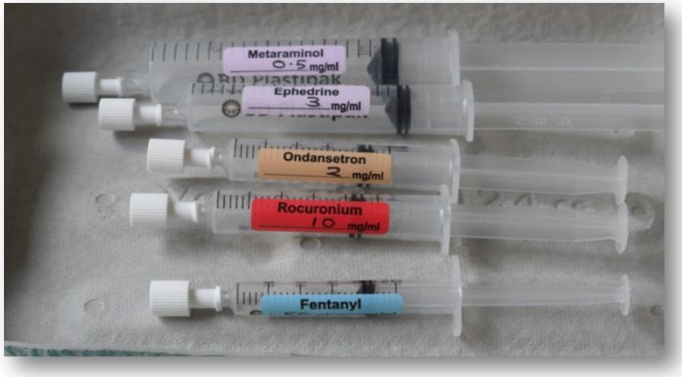
- **Never label an empty syringe,** always label **after** filling
- Purpose of label is to tell you what is in a container, therefore label is always wrong if container is empty
- NPSA Standard operating procedure
- Many ‘wrong-blood-in-tube incidents’ from labelling bottles prior to sample collection for transfusion

https://journals.lww.com/ejanaesthesiology/fulltext/2017/01000/The_European_Board_of_Anaesthesiology.2.aspx

GUIDELINES

The European Board of Anaesthesiology recommendations for safe medication practice

- *The EBA recommends that pre-filled syringes should be used wherever possible*
- *Hospital pharmacies and manufacturers should be encouraged to supply them particularly in the first instance for high-risk medicines and those administered as infusions because of the risks of dilution errors and infection*



https://journals.lww.com/ejanaesthesiology/fulltext/2017/01000/The_European_Board_of_Anaesthesiology.2.aspx

- ***The EBA recommends that pre-filled syringes should be used wherever possible***
- *Preventing drug errors: Prefilled syringes and beyond* (NAVAt IV 2016) http://navat.org/videos/
- *Intravenous medication safety.* Anesthesia Patient Safety Foundation Video http://apsf.org/resources_video2.php
- National Patient Safety Agency. Safe Anaesthesia Liaison Group (SALG): Patient Safety Update including reported incidents relating to anaesthesia Jan 2012 to March 2012 https://www.aagbi.org/sites/default/files/images/PATIENT%20SAFETY%20UPDATE%20-%20Mar%202012.pdf

GUIDELINES

The European Board of Anaesthesiology recommendations for safe medication practice

- ***Contamination of any drug must be avoided***
- ***To minimise the risk of cross-infection between patients, the contents of any one ampoule should be administered to only one patient***
- ***The use of multi-dose ampoules is not recommended***
- Over 500 cases of 'Propofol Hepatitis' in USA
- Malaria and Hepatitis with contaminated saline flush UK, use separate ampoules or saline

https://journals.lww.com/ejanaesthesiology/fulltext/2017/01000/The_European_Board_of_Anaesthesiology.2.aspx

GUIDELINES

The European Board of Anaesthesiology recommendations for safe medication practice

- ***Drugs should be stored in ways designed to facilitate their easy identification and minimise the risk of error or misidentification***
- ***Arranging medicines in drug cupboards in their pharmacological medication class groups can reduce the risk of between-class errors, which are generally likely to be more dangerous than within-class errors***

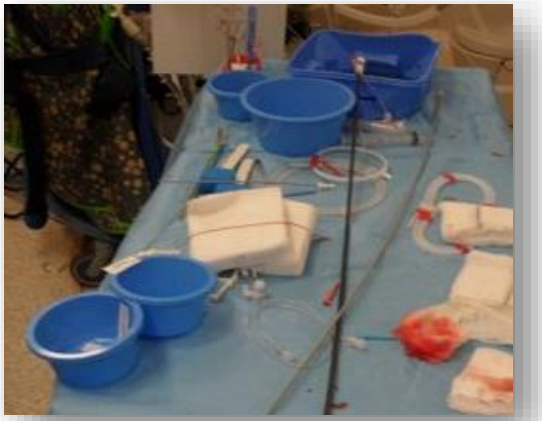
- Syringe swap errors reduced by 66%

Webster CS. Anaesthesia 2010;65:490–9

GUIDELINES

The European Board of Anaesthesiology recommendations for safe medication practice

Gallipots, bowls or other open containers for drugs, antiseptics or saline should no longer be used on the sterile field to prevent possible contamination and drug swaps, some of which have been fatal



- Due to the risk posed by unidentifiable solutions 'open systems' their use for injectable medicines indefensible practice. **Action** by 7 June 2017

https://improvement.nhs.uk/uploads/documents/NHSI_Patient_Safety_Alert_-_Restricted_use_of_open_systems.pdf

Classification: Official

NHS Improvement

Patient Safety Alert

Restricted use of open systems for injectable medication

7 September 2016

GUIDELINES

The European Board of Anaesthesiology recommendations for safe medication practice

Cannulae should be flushed after administration of drugs to reduce the risk of inadvertent administration of anaesthetic drugs in the recovery room or on the ward

- 6 cardiac or respiratory arrests due to residual anaesthetic drugs in cannulae
  reported to the national reporting and learning system (NRLS) 2011-14 (esp. in children)

NHS England

Patient Safety Alert

Stage One: Warning
Residual anaesthetic drugs in cannulae and intravenous lines
14 April 2014

https://journals.lww.com/ejanaesthesiology/fulltext/2017/01000/The_European_Board_of_Anaesthesiology.2.aspx

UK:
Healthcare Safety Investigation Branch

- November 14th 2017 announced HSIB to investigate an incident where a child who was inadvertently given oral liquid medication intravenously during an elective procedure.
- January 19th 2018 Interim bulletin: Wrong route administration of oral midazolam into a vein
- https://www.hsib.org.uk/investigations-cases/notification-investigation-wrong-route-administration-oral-drug-vein/interim-bulletin/

GUIDELINES

The European Board of Anaesthesiology recommendations for safe medication practice

Safe medication practice implementation checklist

Appendix. Safe medication practice implementation assessment/checklist

1. Are all medications prepared for routine use in anaesthesia, intensive care, emergency medicine and pain medicine clearly labelled? **YES / NO**
2. Are pre-filled syringes used wherever possible, e.g. atropine, epinephrine, norepinephrine, insulin, morphine? **YES / NO**
3. Is a supply of user-applied colour-coded syringe labels [ISO, 2008. ISO 26825:2008(E)] available in every necessary location? **YES / NO**
4. Is there a policy for labelling drug-containing syringes and infusion lines? **YES / NO**
5. Is there a policy to minimise the risk of drug contamination and transmission of infections between patients, e.g. the contents of any one ampoule should be administered to only one patient? **YES / NO**
6. Are drugs stored in ways designed to facilitate their easy identification and minimise the risk of error or misidentification? **YES / NO**
7. Are local anaesthetic agents stored separately from general anaesthetic drugs? **YES / NO**
8. Is intravenous potassium stored securely? **YES / NO**
9. Are bowls, gallipots or other open containers for drugs, antiseptics or saline no longer used on the sterile field? **YES / NO**
10. Is there a policy for flushing cannulae to reduce the risk of inadvertent administration of anaesthetic drugs in recovery units or on the ward? **YES / NO**
11. Do all drugs supplied meet current national standards and regulations? **YES / NO**
12. Do all anaesthetists report medication incidents to a local and/or national incident reporting system which is regularly reviewed in departmental meetings so that lessons can be learned and passed on? **YES / NO**
13. Is there a policy for managing and learning from adverse events when they occur? **YES / NO**

https://journals.lww.com/ejanaesthesiology/fulltext/2017/01000/The_European_Board_of_Anaesthesiology.2.aspx

Conclusions

- Modern medicine is complex and inherently dangerous!
- Get the personnel involved, they are the experts
- Standardisation of departmental procedures
- Harmonising activity to support a safer environment for patients
- Systematic education and training for staff, both pre- and postgraduate
- Important to develop communication skills and the training of this (“Speaking Up!”)
- Use simulation training when possible
- Use the patients and relatives as valuable resources in the strive for safety
- Don’t expect miracles - hard work and endurance is needed!

Acknowlegdement

- I’m grateful to Dr David Whitaker UK for his help in preparing for this presentation

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Thank you for listening & Good luck!