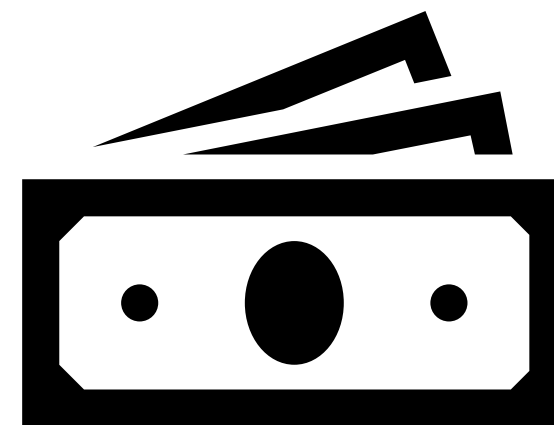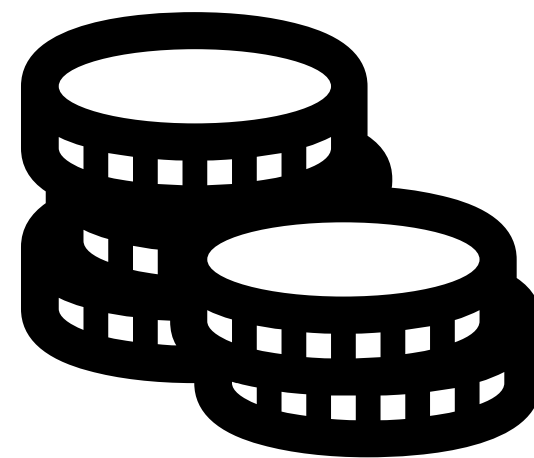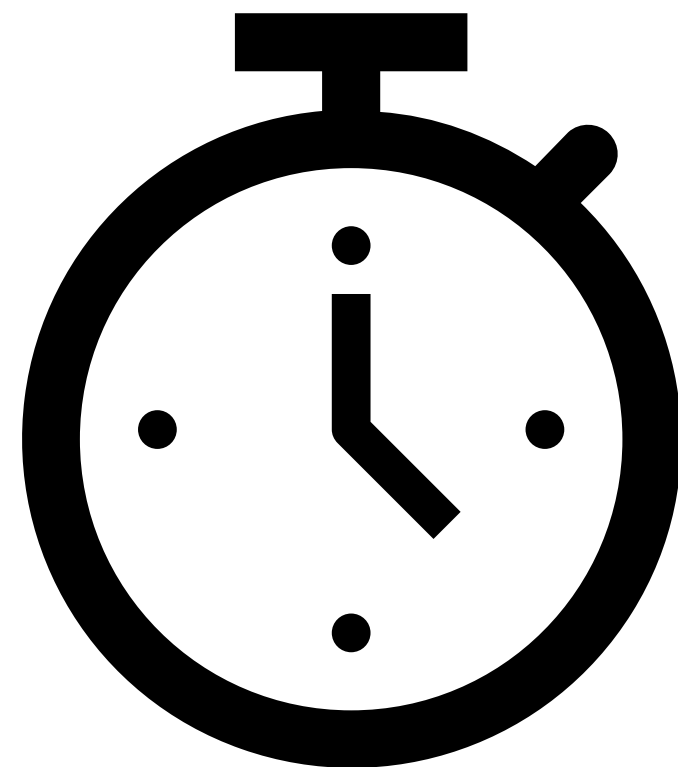# Simulation: Are We Clear With Our Objectives?

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ESS/OSS Program
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...and i should care, why?

Objectives

By the end of this presentation you will be able to

1. Identify how simulation can be optimally utilized for clinical education and hospital quality improvement

2. Understand the utility of having clear objectives (either educational or for quality improvement)

3. Develop and introductory approach to using simulation in your own institution.
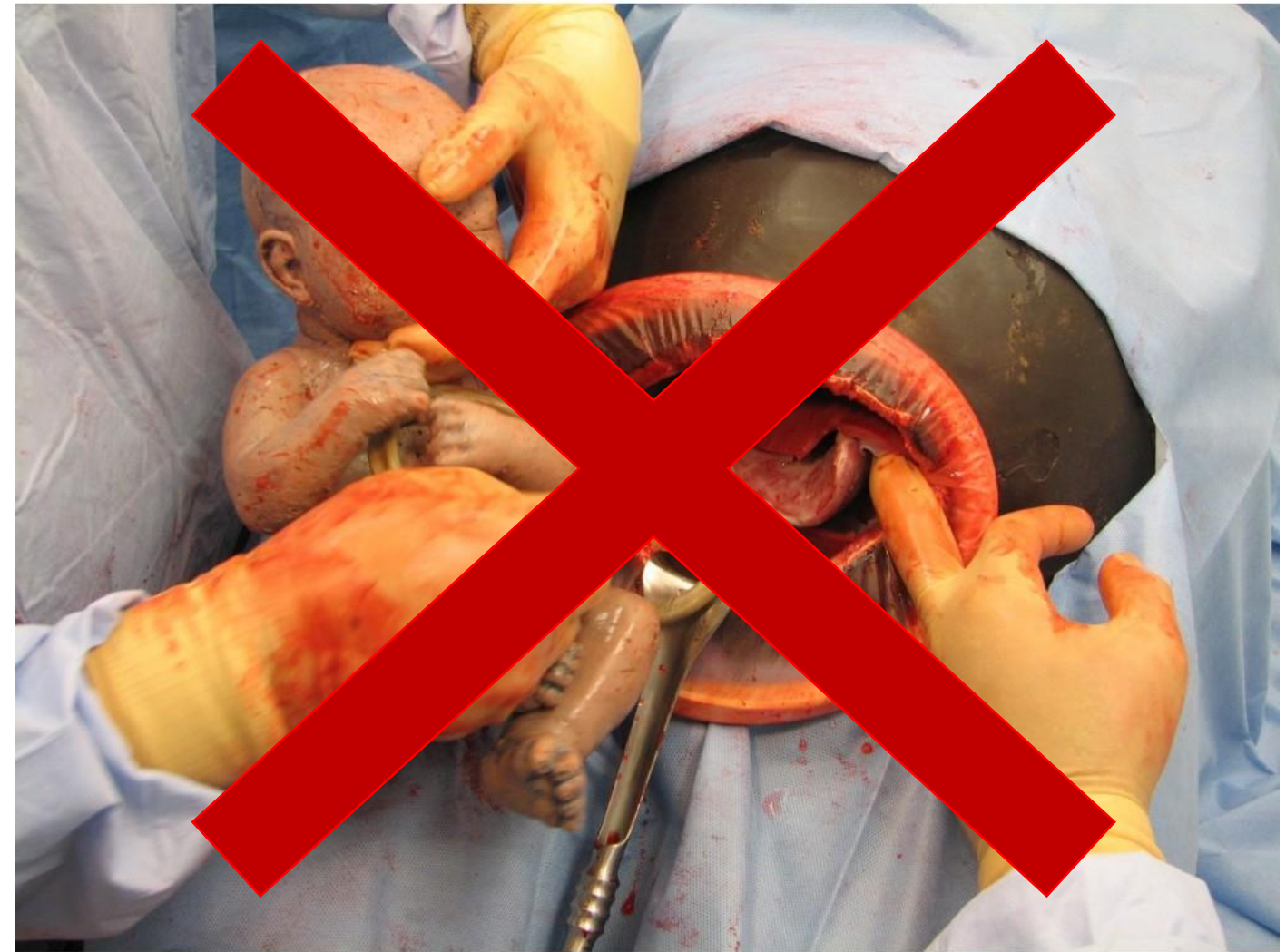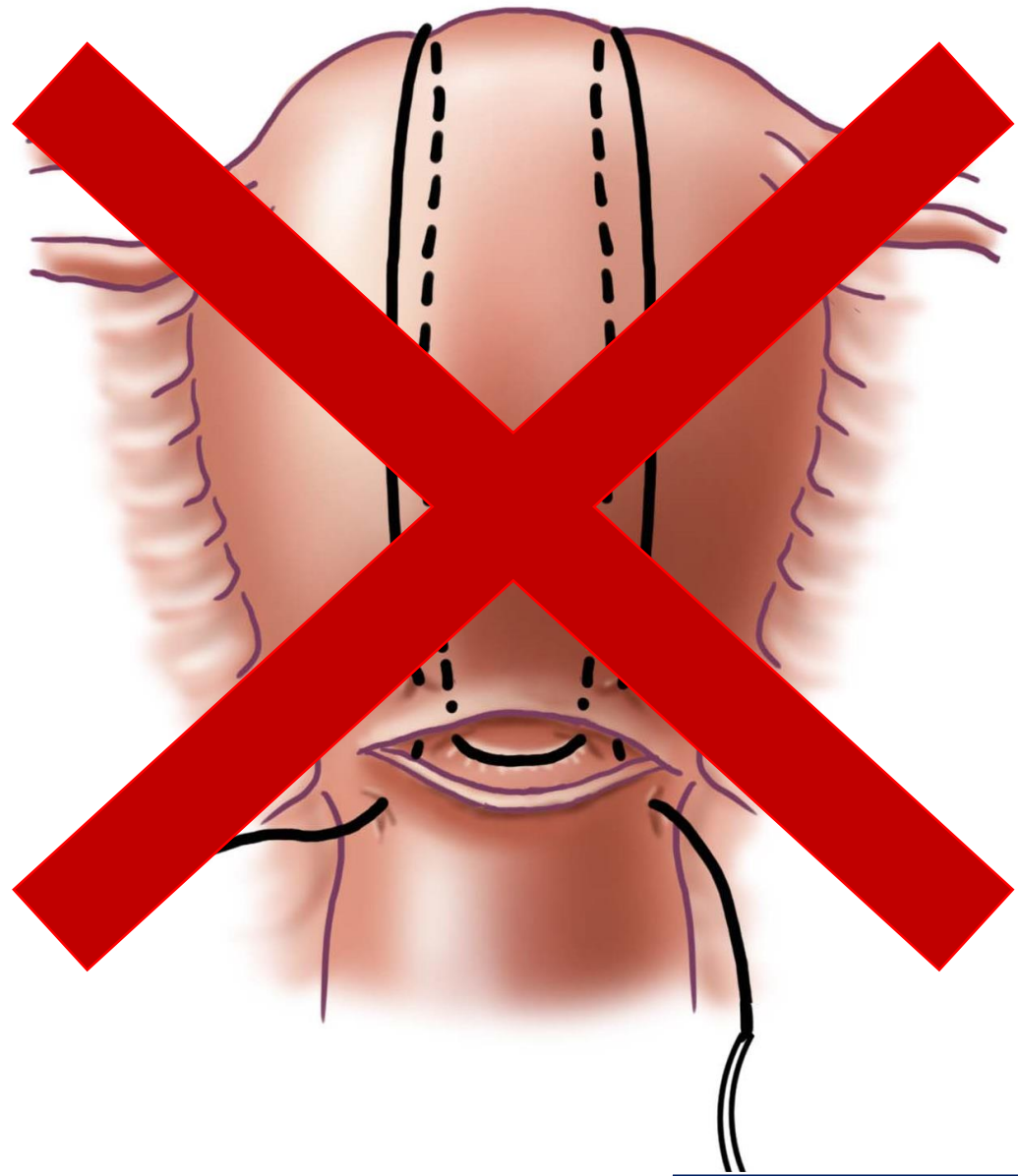
What is your objective?

Clinical Situations

What is your objective?

Surgical Procedures

Critical Patient Safety Event involving a Massive PPH in the OR

1. **Roles & responsibilities of each team member were ambiguous and poorly defined when responding to massive obstetrical hemorrhage**

   Clearly define the roles and responsibilities of each team member who in involved in the management of a massive PPH

2. **Hospital system deficiencies impeded the ability of team to respond on efficiently to obstetrical haemorrhage (Massive Transfusion)**

   Identify and remove latent safety threats that may impair management of a massive PPH

What is your objective?

Is your objective SMART?

S Specific → You goal should be as specific as possible and answer the questions: **What** is your goal? **How** often or how much? **Where** will it take place?

M Measurable → **How** will you measure your goal? Measurement will give you **specific feedback** and hold you accountable.

A Attainable → Goals should push you, but it is important that they are **achievable**. Are your goals attainable?

R Realistic → Is your **goal and timeframe realistic** for the goal you have established?

T Timely → Do you have a **timeframe** listed in your SMART goal? This helps you be **accountable** and helps in **motivation**.

Need **MODELS to simulate**

Model represents the key characteristics or behaviours of the selected system or process

Simulation defintions

- Simulation

    - Is the imitation of the operation of a real-world process

    - Is an <u>educational strategy</u> that helps learners acquire essential healthcare competencies through repetitive practice in technology-enhanced environments that mimic clinical realities

- Debriefing is the process where by the healthcare team can reexamine the clinical encounter to foster the development of clinical reasoning, critical thinking, judgment skills, teamwork and communication through a <u>reflective learning process</u>

Simulation defintions

<u>Procedural Simulation</u>

- The use of a simulation modality (for example, task trainer, manikin, computer) to assist in the process of learning to complete a technical skill or a procedure

- NB: Consider using different models to teach a different part of the procedure and linked to a specific objective

Lopreiato J O. Healthcare Simulation Dictionary. Rockville, MD: Agency for Healthcare Research and Quality; October 2016. AHRQ Publication No. 16(17)-0043.
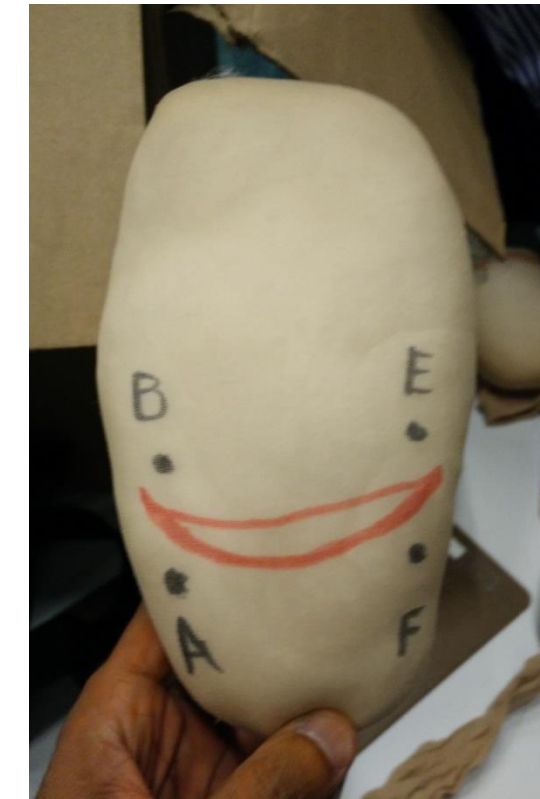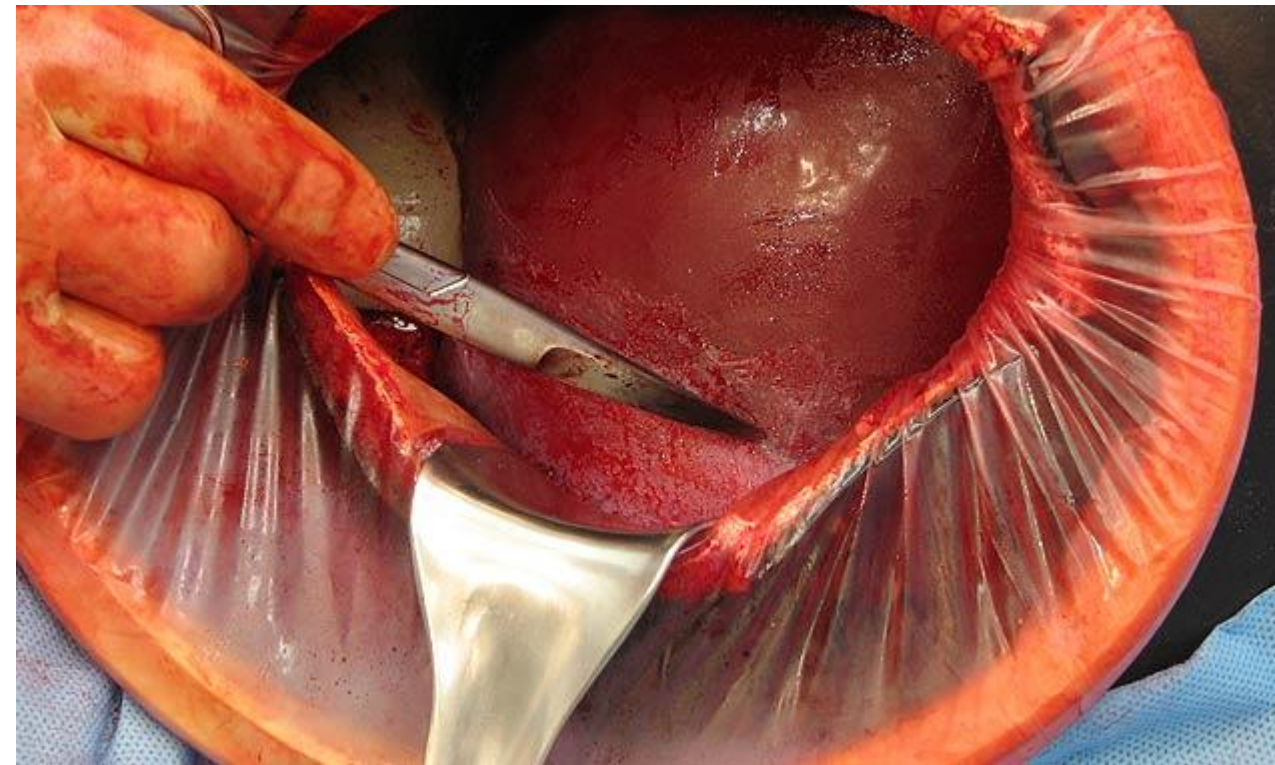
Simulation defintions

Theatre-based simulation

- Simulation involving preordained series of actions based on the time and sequence of specific events.

- Follows a script which provides a detailed plan of action for a simulation case; similar to a theatrical play.

- Optimal for teaching CRM and Non-technical skills

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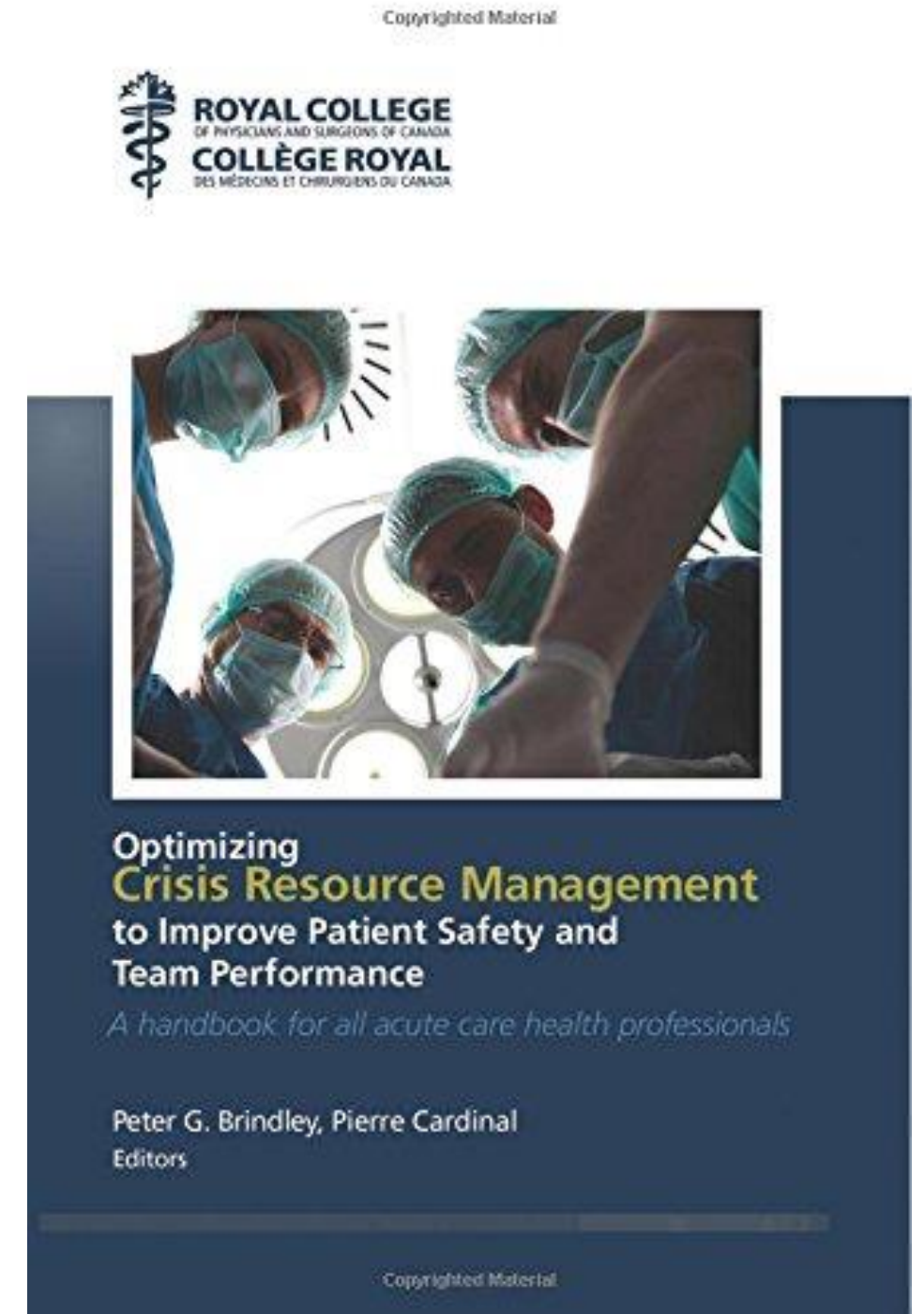
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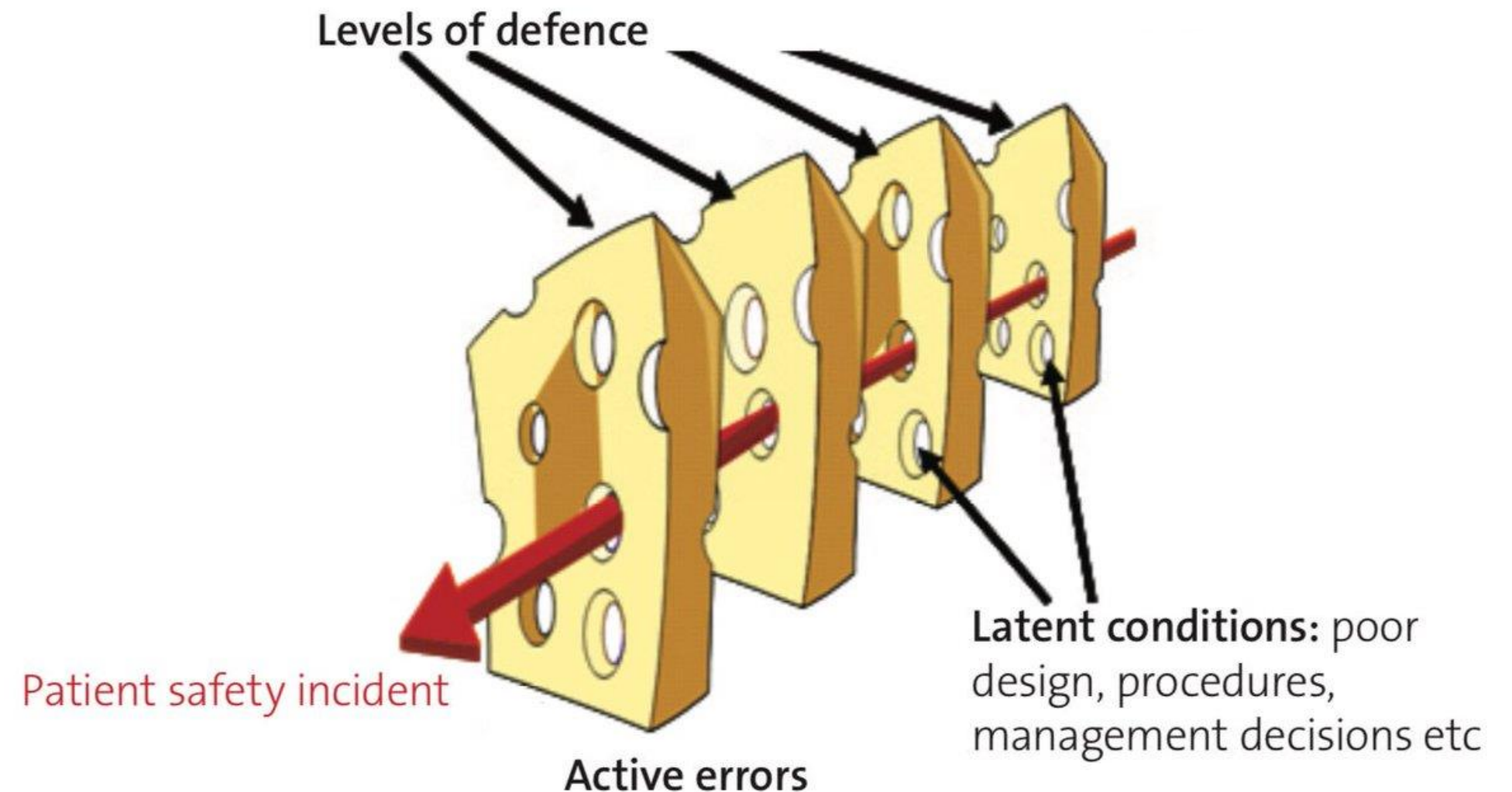
Process Simulation

- A simulation in which the process is considered more important than the outcome.

- Best for identifying latent safety threats

Levels of defence

Patient safety incident

Latent conditions: poor design, procedures, management decisions etc

Active errors

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Simulation defintions

- <u>In Situ Simulation</u> is simulation that takes place in the actual working environment and involving those who work there

- Distinct from <u>Centre-Based Simulation</u>, which takes place in a simulation space separate from the work environment

In Situ Sim ←————————————————————→ **Centre-Based Sim**

Process   Theatre-Based   Procedural

An actor + Mama Nathalie & IV arm

Sim Mom simulator

Clearly define the roles and responsibilities of each team member who in involved in the management of a massive PPH

Identify and remove latent safety threats that may impair management of a massive PPH

Large Scale In Situ Simulation

- Focus on process and indentifaction of latent safety threats
- Mock patient was created in the hospital computerized system to understand the interface between Labour and Delivery, OR, Transfusion Medicine and Laboratory Services during an emergency
- Multiprofessional teams: Nurses, Anaesthesiologists, Obstetricians, Respiratory Therapists, Unit clerk, Transfusion Medicine personnel, Laboratory Services personnel
- Focused debrief following simulation

Delivery of placenta & initial management of *Postpartum Haemorrhage*

Transfer to the OR

Activation & management of a *Massive Obstetrical Blood Transfusion*

- Development of roles and responsibilities protocol for management of Massive PPH
- Ability for team members to adequately perform their role and responsibilities was inhibited by several Latent Safety Threats that were identified

Anesthesiologist

1. Activate Obstetric Massive Transfusion Protocol:
- State to team: "Activating Obstetric Massive Transfusion Protocol"
- Request 2nd Anesthesiologist on call to assist in OR

After initial MTP pack, order blood components as required:
- 6 U RBC's and 4 U FFP's prepared in case of continued bleeding and poor hemostasis
- 4 U FP if INR >1.5
- 1 U Plt if count is <50 x109/L
- 10 U cryoprecipitate if fibrinogen is<1.5 g/L

2. Establish hemodynamic monitoring & access as needed:
- Arterial line
- Central line

3. Order blood work
- Repeat CBC
- Coagulation panel
- Lytes - include Ca2+ , ionized Ca2+ and Mg2+
- Urea, Creatinine
- ABG every 45 – 60 min

4. Consider additional assistance
- Consider calling Intensivist
- Consider transferring patient to St Paul's or VGH

Circulating RN

1. Activate Obstetric Massive Transfusion Protocol and note time
- Call Charge Nurse
- State "Obstetric Massive Transfusion Protocol activated"
- Request 2nd Anesthesiologist on call to be paged for assistance in OR
- Request 2 additional RN's (Transfusion RN & Assistant Circulating RN) to OR

2. Assign/Reassign RN roles of Primary & Secondary RN to Runner RN, Transfusion RN, & Assistant Circulating RN

3. Monitor blood loss
- Weigh & count sponges/pads/linen
- Assess suction canister volume
- Assess for coagulation of blood
- Communicate blood loss to Assistant Circulating RN

Latent Safety Threats Identified and Changes Implemented

Organize hemorrhage cart

Install 2nd phone in OR

Documentation

Relocate equipment in the OR to facilitate access/use

Installed whiteboard in the OR to track blood loss

Massive Blood Transfusion Pack

What is your objective? → I don't know

Clear Objective

Is your objective SMART? →

YES

Is simulation the best tool? → **NO** → Other education modalities

YES

Which simulation is best? → **Simulation Design**

Simulation is only as good as the objectives behind it