1. Surgical site infection

Operating a patient
2. Sepsis

**Applying a central venous catheter (CVC)**

- Select optimal catheter site
- Prepare insertion site
- Insert the catheter
- Secure the catheter
- Connect the CVC
- Administer medication
- Monitor the patient
- Assess the patient for sepsis
- Initiate appropriate therapy
- Document the intervention

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**Mechanism of complications & solutions**

- Malpractice
- Infection
- Occlusion
- Air embolism

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**Steps to take if sepsis is suspected**

- Stop the infusion
- Notify the doctor
- Isolate the patient
- Use appropriate antibiotics
- Observe the patient closely

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**References**

- Bow Tie Diagrams on Patient Safety BowTies
- www.patientsafetybowties.com
- Complete Version

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**Report**

- Bow Tie Diagrams
- 4 Jul 2016
3. Critically ill patients

Treatment of critically ill patients

- Critically ill patient is not recognized
  - Measure vital signs three times a day
- Healthcare personnel get training (together) in the use of the criteria for early recognition
- Incorrect care delivered by incorrect healthcare personnel
  - Staff reluctance in alerting and / or call the Rapid Response Team
- Always approach staff in a positive manner, else when alerting the Rapid Response Team was unnecessary
  - Evaluate and feedback after each alarm and / or call to the Rapid Response Team
- Appoint Rapid Response Team coordinator and a contact person for each department
  - Staff reluctance in alerting and / or call the Rapid Response Team
- Alternative plan is not effective within 1 hour
  - Call Rapid Response Team
- Rapid Response Team member not available fast enough
  - Rapid Response Team 24 hours a day 7 days a week on call and available within 10 minutes
- Rapid Response Team members lack competency
  - The Rapid Response Team must consist of a Doctor or Cardiologist and at least one doctor with fundamental critical care knowledge or equivalent
- The intensivist must be available for consultation 24 hours a day 7 days a week and the intensivist is not part of the Rapid Response Team
  - Call Rapid Response Team for support or take over in accordance with agreed criteria
- Doctor suggests unnecessary treatment within 30 minutes of the recognition
  - Call Rapid Response Team for support or take over in accordance with agreed criteria
- Call Rapid Response Team
  - The Rapid Response Team must consist of a Doctor or Cardiologist and at least one doctor with fundamental critical care knowledge or equivalent
  - The intensivist must be available for consultation 24 hours a day 7 days a week and the intensivist is not part of the Rapid Response Team
- Call Rapid Response Team for support or take over in accordance with agreed criteria

- Unplanned Intensive Care admission
- Prolonged hospital stay
- Vital functions fail

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4. Medication verification at admission and discharge

Medication verification in handoff during hospital admission
4. Medication verification at admission and discharge

Medication verification in handoff during hospital discharge

Incorrect discharge medication overview

- Confusion due to change in medication before and during admission
- Include in the actual medication overview details on medication that has been deliberately modified or discontinued, just before or during the admission, including the reasons therefore

Incorrect information about medication use provided to stakeholders

- Medication inventory performed by trained staff, with standardized checklist
- Regular check by a nurse in accordance with protocol (e.g. calling)
- Inform an consult patient and family by physician

Wrong interpretation of discharge medication overview

- Medication information is not transferred
- Send medication overview, discharge information, plus information regarding to changes to pharmacy, health system etc. via electronic medical record or fax

Not every employee can perform a good medication interview

- Specific training in interview skills, proper implementation of procedure
- Employee will be selected based on a number of core skills

Patient is unable to take in or understand the information

- Presence of a relative or caretaker during medication interview
4. Medication verification at admission and discharge

Medication verification in handoff during hospital discharge
4. Medication verification at admission and discharge

**Administration of medicines**

- Human error - wrong drug or dose administered to patient
- Mis-labelled drug packaging
- Patient self-administers incorrect drug or dosage
- Incorrect information about medicine use provided to stakeholders

- Patient receives wrong medication, wrong dose or wrong...

- Regular check by a nurse in accordance with protocol (e.g., calling)
- Inform a consult patient and family by physician
- Financial damage - litigation or compensation
- Insurance
- Inform an consult patient and family by physician
- Involve patient and family in the investigation of causes and recommendations
- Widely communicate improvements and lessons learned from the investigation
- Communication with authorities in accordance to protocol

- Negative patient care outcome
- Reputation damage due to negative stories of patient
5. Vulnerable elders

Hospitalization of vulnerable elders (> 70 years)
5. Vulnerable elders

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Hospitalization of vulnerable elders (> 70 years)
6. Early recognition and treatment of pain

Treatment of patient with pain

- Intractable or chronic pain due to late detection
  - After admission: ask three times per day how the pain currently is. In any case, at the start of the shift, check with the Numerical Rating Scale (NRS)
  - Nurse is too busy or forgot
  - Pain measurement is not possible
  - Knowledge level of physician or nurse is insufficient

- On the ER: measure pain at triage and discharge (if applicable also after an intervention)
  - Link pain measurement to the measurement of patients with pain or to a fixed control moment (e.g. medication round)
  - Look at the non-verbal pain behavior of the patient with an observation scale.

- Register the pain score in the patient’s electronic medical record
  - Apply pain treatment in accordance with protocol from pain score 4 or higher on the NRS
  - Provide patient with education and involve the patient in his or her treatment

- Patient receives wrong medication, wrong dose or wrong route of administration
  - Patient or patient’s agents are not familiarizing with pain treatment plan

- Treatment inadequate due to miscommunication
  - Conflicting medication or treatment strategies
  - Unavailability of manipulation by physical therapist

Delay in adequate treatment of pain

- Medical complications (e.g. respiratory infections, slow recovery etc.)
- Chronic pain
- Unnecessary, unpleasant, sensory and emotional experience
7. High risk medication parenterals

Preparing parenterals (excluding cytostatic drugs)
7. High risk medication parenterals

Administration of parenterals (excluding cytostatic drugs)
8. Wrong operating procedure

Performing surgical procedures
9. Optimal care in Acute Coronary Syndromes

Treatment of patients with acute coronary syndrome

Incorrect treatment in ambulance

Diagnosis and treatment in ambulance in accordance with protocols

Decision tree and risk stratification individualized by the treating physician and the patient

Diagnosis and treatment in accordance with protocols

Untimely determination and implementation of appropriate interventions

Internal procedures applied

Untimely deployment of treatment in hospital

Medication during admission in accordance with directive

Incomplete aftercare

Complete information handoff

The "Golden Five" drugs prescribed upon discharge

Cardiac rehabilitation prescribed

Wrong medication

Delay in adequate treatment

Patient or patient agents uncooperative

Delay in authorisation

Inadequate human resources

Facilities or ER unavailable when needed

Treatment of patients with acute coronary syndrome

Negative patient care outcome - reduced functions or death

Delay in adequate treatment

Wrong medication

Patient or patient agents uncooperative

Delay in authorisation

Inadequate human resources

Facilities or ER unavailable when needed
10. Preventing renal failure when using iodinated contrast agents

Administering intravascular iodinated contrast media (excluding intensive care patients)