**Appendixes**

Appendix A. AE classification of causes of and a priori preventability a

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| --- | --- | --- | --- |
|  |  | **Preventability** | **Example of events identified during the study (final rating of preventability if different from a priori judgment)** |
| Diagnostic procedure | | |  |
|  | Diagnoses omission, delay or error | P | Readmission one week after discharge for abdominal pain; peritonitis complicating intra uterine device, diagnosis made on 2nd stay |
|  | Diagnostic investigations omission, delay or error (inappropriate test, misinterpretation or inappropriate answer to abnormal result) | P | Multiple hospitalizations after appendectomy for recurrent surgical site infections, pulmonary embolism, anaemia with at least late diagnosis of extended cecum cancer during laparotomy performed 8 months after the first operation |
|  | Severity assessment omission, delay or error | P | Severe COPD readmitted for respiratory failure two days after premature discharge |
| Therapeutic decision | | |  |
|  | Treatment omission, delay or error (wrong decision despite correct diagnosis) | P | Deep venous thrombosis in bedridden 87 y. old patient admitted for pneumonia and without thrombosis prophylaxis |
| Drug | |  |  |
|  | Wrong drug prescribed | P | - |
|  | Wrong drug dispensed | P | - |
|  | Dose omission, improper route of administration | P | - |
|  | Improper dose resulting in over- or under-dosage due to monitoring error: drug-drug interaction, drug-patient condition interaction, contraindicated drug | P | Symptomatic hypoglycemia at 2.9 mmol/l due to sulfonylurea added to metformin despite a glycated hemoglobin of 6% at admission in a 86 years old frailty patient suffering from Parkinson disease. |
|  | Drug allergic reaction with documented allergy | P | Anaphylactic reaction to cephalosporin with a known allergy to Penicillins (cross sensitivity between the two drugs not discussed in the chart) |
|  | Other (included expected side effects or previously unknown allergy) | NP | Anaphylactic reaction during platelet transfusion |
| Non surgical care | | |  |
|  | Infection (hospital acquired) | U | Norovirus enteritis acquired during hospital outbreak in a 80 years old patient admitted for heart failure due to auricular fibrillation (judged CA because reflected failure of infection control measures)  S. maltophila pneumopathy in a 67 years old patient admitted for hemorrhagic severe anemia due to clopidrogel (judged NP) |
|  | Injury | P | Pneumothorax after insertion of central venous catheters in ICU |
|  | Hospital acquired decubitus ulcer | P | Hospital acquired heel ulcer |
|  | Other | U | Severe radiation induced oesophagitis in breast cancer (judged NP) |
| Surgical care | | |  |
|  | Technical mishap, organ injury or foreign body left inside | P | Bladder perforation during prolapse surgery |
|  | Surgical site infectionb | P | Infection of the surgical site three days after an elective laparoscopic cholecystectomy. |
|  | Complication of operated site likely related to technical skill (hemorrhage, mechanical complication of implanted material, anastomotic leak, fascial disruption) | P | Bleeding after a tension free vaginal tape procedure for stress urinary incontinence requiring a first reoperation for device removal and then a third operation for persistent bleeding due to arterial injury of the vaginal wound. |
|  | Complication of operated site not related to technical skill (postoperative adhesive bowel occlusion, thrombosis, occlusion or stenosis of vascular surgical site) | NP | Readmission for an acute pericarditis two weeks after pacemaker surgery |
|  | Post operative sepsis | U | Readmission 7 days after a planned cesarean for acute pyelonephritis due to E. Coli (P) |
|  | Post operative venous thrombosis and pulmonary embolism | U | Pulmonary embolism four weeks after hysterectomy for cervical cancer; no prophylaxis after discharge despite obesity and malignant pathology (P ) |
|  | Other complications outside operative site | U | Post operative urinary retention after orthopedic surgery requiring several days of catheterization (P) |

Abbreviations: AE: adverse event; P: preventable; NP: not preventable; U: undetermined preventability

aThe reviewer might override the a priori rating if he justified his choice. In case of a priori undetermined preventability, the reviewer used all available chart information to classify as far as possible the event as preventable or not. All events rated as undetermined preventability were discussed by the team on the basis of the reviewer summary to reach a consensus (preventable or not); cases remaining of undetermined preventability were all reviewed by the supervisor and then discussed again.

bCould be rated as not preventable if an active infection was present before surgery (open traumatic wound or old wound with retained devitalized tissue , perforated viscera) or in case of severe immunosuppression, in clean-contaminated wounds (e.g. surgery on gastro intestinal tract).

Appendix B. Screening criteria applied to charts and the proportion of charts positive for each criterion

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| --- | --- | --- | --- | --- |
|  | **Medical stays n=605** | | **Surgical stays n=402** | |
| **Criterion** | **Positive (%)** | **With AE (% left col.)** | **Positive (%)** | **With AE (% left col.)** |
| Unplanned admission during the 6 months before index admission (for reasons related to the index admission) | 77 (13) | 14 (18) | 46 (11) | 14 (30) |  |  |
| Unplanned readmission within 6 months after the index admission (for reasons related to the index admission) | 53 (9) | 11 (21) | 17 (4) | 13 (76) |  |  |
| Unplanned transfer from general care to intensive care or  to another acute care hospital | 2 | 2 | 0 | 0 |  |  |
| Unexpected death | 12 | 4 | 2 | 2 |  |  |
| Hospital incurred unintentional patient injury (i.e. injury due to fall, pneumothorax during subclavian catheterization, etc.) | 0 | 0 | 0 | 0 |  |  |
| Adverse drug reaction or drug error | 16 (3) | 11 (69) | 3 | 0 |  |  |
| Unplanned removal, injury, or repair of organ or structure  during surgery, invasive procedure, or vaginal delivery | 0 | 0 | 2 | 2 |  |  |
| Unplanned return to the operating room | 1 | 0 | 3 | 3 |  |  |
| Hospital acquired infection or sepsis | 6 (1) | 5 | 4 | 0 |  |  |
| Length of stay > percentile 90 for patients< 70 y. or > percentile 95 for others | 16 (3) | 3 | 16 (4) | 6 (38) |  |  |
| Unplanned blood transfusion (> 3 units ) or reaction to a transfusion | 5 | 1 | 16 (4) | 16 (100) |  |  |
| Cardiac or respiratory arrest, or low Apgar score (<4) | 0 | 0 | 0 | 0 |  |  |
| Myocardial infarction or heart failure during the stay not present on admission | 1 | 0 | 2 | 0 |  |  |
| Hospital acquired deep vein thrombosis or pulmonary embolism | 0 | 0 | 2 | 2 |  |  |
| Development of a neurological alteration absent at admission, but present at the time of discharge | 0 | 0 | 1 | 1 |  |  |
| Fever ≥38,5 on or prior discharge day | 0 | 0 | 0 | 0 |  |  |
| Hospital acquired decubitus ulcer | 2 | 2 | 1 | 1 |  |  |
| Patient or family dissatisfaction with care received documented  in the medical record, or documentation of claim or litigation | 0 | 0 | 0 | 0 |  |  |
| Any other undesirable outcomes (not covered by any of the  other criteria) | 10 (2) | 2 | 23 (6) | 12 (52) |  |  |
| *Total* | *201 (33)* | *55 (27)* | *138 (34)* | *72 (52)* |  |  |

AE : adverse event

Appendix C. Quality criteria required by medical recordsa,b

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| The medical record includes all the stays in the different departments |
| There is at least one of the following admission procedure related documents:  - Letter of referring physician  - Emergency structured observation describing reason for admission, assessment, diagnosis, intervention planned and delivered in emergency setting. |
| Admission clinical exam includes all the following data :  - Symptoms present  - Co-morbidities and other risk factors  - Drug allergy  - Admission diagnoses  - Management plan |
| Following medication prescription components are identified:  - Prescribing physician  - Dates of beginning and end  - Doses and frequency |
| Follow up  - There is at least one medical visit note, dated and signed  - Discharge summary contains information on disease evolution |
| Discharge summary |
| Discharge medication prescription, containing all following components  - Prescribing physician  - Doses and frequency  - Duration |
| Operation record for all operations performed in the operating room |
| Anaesthesia record for all general or loco regional anaesthesia including  - Pre anaesthesia visit  - Charting during anaesthesia  - Vital signs monitoring in post anaesthetic care unit |
| Transfusion record including  - Transfusion indication  - Transfused blood component  - Vital signs during transfusion  - Transfusion outcome (clinical and/or laboratory improvement)  - Transfusions side effects |
| Pathological report for all biopsies or cytology samples |

aHospital archives and electronic health records containing all inpatient data including medical data, nursing data, laboratory tests, x rays and pathology laboratory reports. Reports from ambulatory visits not available. Many documents created by image scanning of paper based health record. All quality criteria are required.

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