Appendix 1

Bayesian networks to identify potential high-risk multimorbidity and intervention clusters in inpatients: an explorative data mining study
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Description of diagnosis/multimorbidity clusters (coded according to the German modification of the International Classification of Diseases, 10th revision [ICD-10])


D5 [S06.0] Concussion — [S06.5] Traumatic subdural hemorrhage — [X59.9] Other and unspecified accident — [S01.0] Open wound of the hairy scalp — [S00.05] Superficial injury of the hairy scalp

D6 [R57.2] Septic shock — [R65.1] Systemic inflammatory response syndrome of infectious origin with organ complications — [A41.9] Sepsis, not further described — [R65.0] Systemic inflammatory response syndrome — [A41.51] Sepsis by other gram-negative pathogens, *Escherichia coli*


D8 [T83.5] Infection and inflammatory reaction through prosthesis, implant or transplant in the urinary tract — [Y82.8] Incidents caused by medical devices and products — [T84.0] Mechanical complication of a joint endoprosthesis

D9 [Z21] Asymptomatic HIV Infection — [U61.9] Number of CD4+ cells not further specified — [U60.1] HIV disease, category A


D11 [I50.14] Cardiac insufficiency, NYHA IV — [I50.01] Secondary right heart insufficiency — [I11.00] Hypertensive heart disease with (congestive) heart failure

D12 [M48.06] Spinal stenosis, lumbar region — [G55.3] Compression of nerve roots and nerve plexus in other diseases of the spine and the back — [M43.16] Spondylolisthesis, lumbar region

D13 [U80.4] *Escherichia, Klebsiella* and *Proteus*, ESBL resistance — [B96.2] *Escherichia coli* and other Enterobacteriacea as cause of diseases classified in other chapters — [N39.0] Urinary tract infection, localisation not described in detail

D14 [J18.9] Pneumonia — [U69.00] Elsewhere classified hospital-acquired pneumonia in patients 18 years of age and older — [J69.0] Pneumonia due to food or vomit

D15 [D70.11] Agranulocytosis and neutropenia, critical phase 10 days to less than 20 days — [D61.10] Aplastic anemia due to cytostatic therapy — [D69.58] Purpura and other hemorrhagic diatheses, other secondary thrombocytopenia not referred to as transfusion refractory


D17 [G30.1] Alzheimer's disease with late onset — [F00.1] Dementia in Alzheimer’s disease with late onset (type 1)

D18 [J34.3] Other diseases of the nose and paranasal sinuses, hypertrophy of the nasal concha — [J34.2] Nasal septum deviation

D19 [I34.0] Mitral valve insufficiency — [I36.1] Non-rheumatic tricuspid valve insufficiency

D20 [G30.9] Dementia in Alzheimer’s disease, not further described — [F00.9] Dementia in Alzheimer’s disease, not further described

D21 [N77.1] Vaginitis, vulvitis or vulvovaginitis in infectious and parasitic diseases classified elsewhere — [B37.3] Candidiasis

D22 [S02.3] Fracture of the orbital floor — [S02.4] Fracture of the zygomatic bone and the upper jaw

D23 [N18.5] Chronic kidney disease, stage 5 — [Z99.2] Long-term dependence on dialysis for renal failure

D24 [J96.11] Chronic respiratory insufficiency, not classified elsewhere (hypercapnic) — [J96.10] Chronic respiratory insufficiency, not classified elsewhere (hypoxic)
D25 [O09.5] Pregnancy duration, 34 to 36 completed weeks – [O60.1] Premature spontaneous contractions with premature delivery

D26 [J96.00] Acute respiratory insufficiency, type I – [J96.01] Acute respiratory insufficiency, type II


D28 [O23.5] Infections of the genital tract during pregnancy – [B96.0] Mycoplasma and Ureaplasma as causes of diseases classified in other chapters


D30 [O30.0] Twin pregnancy – [Z37.2] Twins, both born alive

D31 [C34.1] Malignant neoplasm of the bronchi and lungs, upper lobe (bronchus) – [C77.1] Secondary and unspecified malignant neoplasm of lymph nodes, intrathoracic lymph nodes

D32 [G55.1] Compression of nerve roots and nerve plexus in intervertebral disc damage – [M51.1] Lumbar and other disc damage with radiculopathy

Description of intervention clusters (coded according to the Swiss classification of medical interventions [CHOP])


I6 [37.34.22] Localisations in ablation procedures for tachyarrhythmias, AV nodes – [37.34.11] Ablation in tachyarrhythmia, conventional radiofrequency ablation – [37.34.21] Localisations in ablation procedures for tachyarrhythmias, right atrium – [37.34.12] Ablation in tachyarrhythmia, cooled radiofrequency ablation – [37.34.14] Excision or destruction of other lesion or tissue of the heart, other access, ablation using three-dimensional mapping – [37.34.24] Localisations in ablation procedures for tachyarrhythmias, left atrium – [37.34.1B] Ablation in tachyarrhythmia using three-dimensional mapping techniques with measurement of contact pressure – [88.72.24] Echocardiography, transesophageal, with contrast medium – [37.90.21] Transseptal catheter puncture


I12 [93.57.12] Continuous suction treatment with vacuum sealing, 8 days and longer – [86.88.59] Installation or replacement of a vacuum sealing system, on skin and subcutis or other localisations – [93.57.11] Continuous suction treatment with vacuum sealing, up to 7 days


I15 [00.94.10] Monitoring of the recurrence nerve in another operation – [00.94.30] Intraoperative neurophysiological monitoring, up to 4 hours – [00.94.17] Monitoring of the facial nerve in another operation


I17 [57.49.12] Other transurethral resection of urinary bladder lesion or tissue – [57.0X.99] Transurethral drainage of the urinary bladder, others

I18 [04.81.12] Injection of aesthetic and analgesic to peripheral nerves, for pain therapy, with imaging techniques (BV) – [93.A3.11] Postoperative acute pain therapy, more than 48 hours

I19 [47.01] Appendectomy, laparoscopic – [00.9A.14] Use of a linear staple suture device, laparoscopic or thoracoscopic

I20 [40.23.11] Excision of an axillary lymph node, with radionuclide marking or dye marking (sentinel lymphnodectomy) – [40.19.20] Intraoperative probe measurement of radionuclide marking during sentinel lymphnodectomy

I21 [74.1X.10] Depth of cervical caesarean section, primary – [00.99.10] Reoperation

I22 [01.24.21] Drill hole preparation of the calotte as access – [01.31.10] Incision on the meninges to empty a subdural hematoma (hygroma)

I23 [69.09] Dilatation and curettage at the uterus, others – [68.12.11] Diagnostic hysteroscopy