Unclassified **DELSA/HEA/WD/HWP(2009)5**

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development **23-Nov-2009**

English text only

DIRECTORATE FOR EMPLOYMENT, LABOUR AND SOCIAL AFFAIRS
HEALTH COMMITTEE

DELSA/HEA/WD/HWP(2009)5
Unclassified

Health Working Papers

OECD HEALTH WORKING PAPERS No. 47

HEALTH CARE QUALITY INDICATORS PROJECT: PATIENT SAFETY INDICATORS REPORT 2009

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JEL Classifications: I19

Cross-country comparisons on patient safety are cautioned given that data presented in this working paper require further research and development.

This working paper has a separate annex with the code DELSA/HEA/WD/HWP(2009)5/ANN.

JT03274823

English text only

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ACKNOWLEDGEMENTS

This paper presents the work of several years of research and development work by the HCQI Expert Group, particularly the members of the Patient Safety Subgroup and the data experts contributing data from the following countries: Australia, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Italy, Ireland, Latvia, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, the United Kingdom and the United States. The authors would like to thank Daniel Tancreadi (University of California, Davis) for statistical analysis, Mark Pearson, Gaetan Lafortune, Ian Brownwood and Niek Klazinga for their contributions and Isabelle Vallard for editorial assistance.

The HCQI Project receives financial support from a grant provided by the Directorate General for Public Health and Consumer Affairs of the European Commission.

SUMMARY

This paper reports on the progress in the research and development of the set of patient safety indicators developed by the Health Care Quality Indicators project. The indicators presented here have been recommended by an expert group for further consideration in international reporting on the quality of care on the key dimension of safety. The indicators have been selected by expert consensus, undergone validity testing and have been tested for comparability. While concern remains related to differences in coding and reporting from administrative hospital databases, the rigour with which the indicator work has been undertaken has resulted in the improved ability of countries to report on the quality of care. The work on the development of the patient safety indicators highlights the technical progress made in constructing measures and the ongoing need for methodological improvements. The indicators reported here should not be considered as making inferences on the state of patient safety in countries, but are intended to raise questions towards improving understanding of the reported differences.

RÉSUMÉ

Ce document présente l'état d'avancement de la recherche et du développement d'un ensemble d'indicateurs en matière de sécurité des patients dans le cadre du projet sur les indicateurs de la qualité des soins (HCQI). Un groupe d'experts a recommandé l'utilisation des indicateurs présentés ici pour les comparaisons internationales sur une dimension clé de la qualité des soins : la sécurité. Les indicateurs ont été sélectionnés par un consensus d'experts, leur validité et leur comparabilité ont été testées. Bien qu'il reste quelques problèmes quant aux différences de codage et de déclaration venant des bases de données administratives hospitalières, la rigueur du travail sur les indicateurs a permis d'améliorer la capacité des pays à rendre compte de la qualité des soins. Le développement des indicateurs de la sécurité des patients met l'accent sur les progrès techniques réalisés dans la construction de mesures et le besoin récurrent d'améliorer la méthodologie. Les indicateurs présentés ici ne doivent pas donner lieu à des conclusions quant à la situation de la sécurité des patients dans les pays, mais visent plutôt à poser des questions pour une meilleure compréhension des différences observées.

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INTRODUCTION

Background

1. The OECD HCQI project identified patient safety as one of the priority areas for internationally comparable quality indicators. Government officials, national experts, academic researchers from participating countries, and the Secretariat have collaborated in the selection, data collection and validation of the recommended indicators. An extended discussion is presented here outlining the research and development for the seven proposed and agreed-upon indicators.

Box 1. History of the patient safety indicators project

In 2004, the OECD Health Care Quality Indicators Project identified patient safety as one of the five core priority areas for the development of quality indicators (along with cardiac care, primary care, mental health care and diabetes care). Using a structured review process, including a comprehensive literature review, clinician panel review, risk adjustment and empirical analysis, an expert panel selected, evaluated and recommended a set of patient safety indicators for comprehensiveness and cohesiveness across the five domains of patient safety: hospital-acquired infections; operative and postoperative complications; sentinel events[1]; obstetrics; and other care-related adverse events. From a total of 59 identified possible indicators, a group of 21 indicators was agreed upon based on their importance and scientific soundness (Millar *et al*, 2004).

In 2006, the first patient safety subgroup expert meeting met to discuss and evaluate the current state of patient safety data systems in OECD countries and potential areas of improvement in order to obtain reliable data for the proposed measures. Adverse events that occur rarely were identified as being somewhat outside the standardised data collection systems. National systems of coding patient safety were identified in OECD countries, although differing versions and adaptations employed in hospital administrative databases were recognised as a key area of development for international data comparability. One of the main outcomes of the meeting was the decision to develop an ICD crosswalk across versions of coding for international harmonisation of data comparability.

A comprehensive technical manual was developed to support the calculation of the 15 patient safety indicators to be collected in national hospital administrative databases. For each of the indicators, the manual provided detailed definitions of the indicators, coding and calculation processes, and a crosswalk from ICD 9 to ICD 10 coding (Drösler, 2008).

[1] While all patient safety indicators refer to events that should occur rarely, sentinel events (including foreign body left in during procedure, transfusion reaction, wrong site surgery, etc.) are those that in theory and practice should never happen and thus whose occurrence should stand as a signal for immediate investigation.

Three years of data collection, indicator development and methodology testing (2007-2009) have included a total participation from 21 countries (Table 1), with monthly teleconference meetings to refine definitions and methodology and yearly meetings of the patient safety expert subgroup to evaluate the validity of the methodology, data reliability and development of the data set. The 2009 data collection included a *revised* technical manual for the calculation of the indicators reflecting refinements and improvements in the methodology (see the Annex).

The long-term objective of the Health Care Quality Indicators project remains to develop a set of internationally comparable indicators that can then be used to raise questions for further exploration of the underlying reasons as to why these differences exist across and within countries. The patient safety indicators (as part of the larger set of quality indicators) represent measures selected for their importance - affect on health, policy relevance and susceptibility to influence by the health care system - and scientific soundness - face validity, content validity and reliability (Mattke *et al*., 2006).

2. Patient Safety Indicators (PSIs) originally published by the US Agency for Healthcare Research and Quality (AHRQ) have been evaluated to explore the potential of international comparison for patient safety and public reporting. Preliminary pilot studies among seven OECD member countries in 2007 (Drösler *et al*, 2009), and sixteen countries in 2008 showed the feasibility of the method. Countries were able to calculate most of the PSIs using their administrative hospital databases. Pilot results demonstrated that relative PSI rates appeared to be highly correlated across countries, although some countries had much lower rates for all PSIs than others.

3. The objectives of the PSI development work are:

1) To investigate the validity of the PSI rates of participating countries.

2) To evaluate the potential impacts on country-specific PSI rates of variation in the distribution of age and gender, length of hospital stay and diagnoses coding practices.

Participating countries

4. During the first three years of indicator development, the following countries (Table 1) participated in the data collection, validity testing and evaluation of the patient safety indicators.

Table 1. Countries participating in the development of the patient safety indicators

	2007	2008	2009
Australia	X		
Belgium		X	X
Canada	X	X	X
Denmark		X	X
Finland		X	X
France		X	X
Germany	X	X	X
Iceland			X
Italy		X	X
Ireland			X
Latvia			X
Netherlands		X	
New Zealand		X	X
Norway		X	X
Portugal		X	X
Singapore		X	X
Spain	X	X	X
Sweden	X	X	X
Switzerland			X
United Kingdom	X	X	X
United States	X	X	X

Methodology

5. A set of 15 patient safety indicators was initially selected for development in 2007. Of these, seven were determined to be ready for data collection and analysis, based on the decision of the OECD's Patient Safety Expert Subgroup in October 2008 (Table 2). The other eight indicators either rely on procedure codes that proved difficult to map across countries (e.g., postoperative respiratory failure, iatrogenic pneumothorax), or they were found to have limited validity in North American studies that distinguished conditions present on admission from hospital-acquired complications (e.g., complications of anaesthesia, decubitus ulcer, postoperative hip fracture).

Table 2: List of patient safety indicators evaluated

Area	Indicator name	AHRQ PSI	Recommended for ongoing evaluation
Hospital-acquired infections	Catheter-related bloodstream infection	PSI 7	X
	Decubitus ulcer	PSI 3	
Operative and post-operative complications	Complications of anaesthesia	PSI 1	
	Postoperative hip fracture	PSI 8	
	Postoperative pulmonary embolism (PE) or deep vein thrombosis (DVT)	PSI 12	X
	Postoperative sepsis	PSI 13	X
	Accidental puncture or laceration	PSI 15	X
	Postoperative respiratory failure	PSI 11	
	Iatrogenic pneumothorax	PSI 6	
Sentinel events	Transfusion reaction	PSI 16	
	Foreign body left in during procedure	PSI 5	X
Obstetrics	Birth trauma - injury to neonate	PSI 17	
	Obstetric trauma – vaginal delivery with instrument	PSI 18	X
	Obstetric trauma – vaginal delivery without instrument	PSI 19	X
	Obstetric trauma - caesarean section	PSI 20	

6. An OECD calculation manual was provided (Annex), which adopted the PSI definitions as published by AHRQ (AHRQ, 2007) for most of the indicators. In addition, the manual provided internationally harmonised code lists in ICD-10 (Quan, 2008) as more than half of the participating countries use ICD-10 (Table 3). Countries were asked to complete an accompanying questionnaire to provide information on the databases and related data collection procedures.

7. Patent safety indicators are largely constructed from secondary diagnoses. The calculation of the numerator builds on secondary diagnosis for most of the indicators. The indicator definitions refer to conditions produced post admission.

8. Nineteen countries performed PSI calculations and delivered their results between February and June 2009. Table 3 shows some key country-related information derived from the questionnaires. Most of the participating countries use a hospital reimbursement system based on Diagnosis Related Groups (DRGs). This information is important as DRGs are based on coded health information. The use of coded health data for reimbursement creates incentives for accurate and complete documentation. However, although many countries use a DRG-based reimbursement system, the mean number of secondary diagnoses among eligible cases varied substantially between 0.87 (Italy, postoperative sepsis – PSI 15) and 7.02 (Belgium, accidental puncture or laceration – PSI 13). Finland reported relatively few secondary diagnoses (0.47) in the 2008 PSI calculation pilot but did not provide any information on the number of secondary diagnoses in 2009. Iceland and Latvia provided only obstetric indicators from registry data, so the number of secondary diagnoses is not relevant for these countries.

Table 3. Country-related key information on medical classifications, documentation and reimbursement

Country	Year	Diagnosis classification	Procedure classification	Mean number of secondary diagnoses, derived from PSI 5	DRG reimbursement
Belgium	2006	ICD-9 CM	ICD-9 CM	6.72	Yes
Canada	2007	ICD-10 CA	CCI	3.11	Yes
Denmark	2008	ICD-10	NOMESCO	2.41	Yes
Finland	2007	ICD-10	NOMESCO	NA	Yes
France	2007	ICD-10	CCAM	NA	Yes
Germany	2007	ICD-10 GM (2007)	OPS 2007	5.31	Yes
Iceland	2007	ICD-10	NOMESCO	NA	Yes
Ireland	2007	ICD-10 AM 4th Edition	ACHI	2.57	Yes
Italy	2007	ICD-9 CM (1997)	ICD-9 CM	1.50	Yes
Latvia	2007	NA	NA	NA	NA
New Zealand	2007	ICD-10 AM	ACHI	3.93	Yes
Norway	2007	ICD-10	NOMESCO	1.90	Yes
Portugal	2007	ICD-9 CM	ICD-9 CM	NA	Yes
Singapore	2007	ICD-9-AM	ICD-9-AM	3.89	Yes
Spain	2007	ICD-9 CM V22 (2004)	ICD-9 CM	3.71	No [1]
Sweden [2]	2007	NA	NA	2.50	NA
Switzerland	2007	ICD-10 WHO 1.3	CHOP (ICD-9-CM)	3.03	Yes (partially)
United Kingdom	2007	ICD-10	OPCS 4.3	2.72	Yes
United States	2006	ICD-9 CM	ICD-9 CM	6.02	Yes

1. Reported that a DRG hospital payment system was in use for 2008 pilot.

2. From earlier data collections in 2007 and 2008, Sweden uses ICD-10, NOMESCO and a DRG system in some parts of the country.

9. The number of cases included from each participating country can be approximated by the denominator of PSI 5 (foreign body left in during procedure). The eligible population for this indicator includes nearly all adult medical and surgical cases (Table 4). A comparison to the hospital discharge numbers reported by the OECD (2009) suggests that most countries used their complete administrative database for PSI calculation with the observed differences largely due to the exclusion of paediatric and obstetric patients from the denominator of PSI 5. Three countries (*e.g.* Germany, USA, and Sweden) used a sample for calculating their PSI rates. Only Denmark reported a slightly higher count in the PSI denominator than the total number of hospital discharges, presumably because these data come from 2008 and 2007, respectively.

Table 4. Country-related information on discharge numbers and average length of stay

Country	Denominator population PSI 5 (in millions)	Estimated annual hospital discharges (in millions, 2007)	Average length of stay (denominator PSI 5)	Average length of stay (2007)
Belgium	1.52	1.83 [1]	8.55	7.2 [1]
Canada	1.52	2.75 [1]	8.14	7.3
Denmark	1.00	0.93	4.49	3.5 [2]
Finland	0.94	1.00	3.60	4.6
Germany	1.27 [3]	18.67	8.76	7.8
Ireland	0.46	0.60	7.30	5.9 [1]
Italy	7.25	8.11 [1]	8.34	6.7 [1]
New Zealand	0.43	0.59	5.51	NA
Norway	0.62	0.82	5.30	5.0
Portugal	NA	1.15	NA	6.8
Singapore	0.24	0.43 [5]	5.91	NA
Spain	3.29	4.78	7.73	6.6 [1]
Sweden	1.26 [3]	1.51	5.05	4.5
Switzerland	0.93	1.26	8.25	7.8
United Kingdom	6.68	7.32	NA	7.2
United States	32.81 [4]	37.74 [2]	4.79	5.5 [6]

1. 2006.

2. 2005.

3. PSI calculations are based on a 10% representative sample of the entire population of hospital discharges.

4. PSI calculations are based on a 20% representative sample of US hospital discharges, extrapolated to the total population.

5. www.moh.gov.sg

6. When the same data set (Nationwide Inpatient Sample) from which PSI rates were derived was also used to estimate mean length of stay in the USA, the value was 4.6 days.

Source: OECD Health Data 2009 (for estimated annual hospital discharges and average length of stay)

10. A comparison of mean length of stay between the PSI calculation data and annually reported OECD data on health care activities shows concordance for most countries. It is expected that the average length of stay is longer among the denominator cases of PSI 5 than the corresponding average extracted from OECD Health Data, as children are excluded from the denominator population of PSI 5. Only Finland and USA report a shorter average length of stay in their PSI 5 data than the data they have submitted for OECD Health Data. This discrepancy for the USA is likely due to the use of a different data source for annual reporting to OECD on average length of stay (*i.e.* the American Hospital Associations voluntary annual survey of hospitals).

Validity

11. Applying general concepts of validation to the field of patient safety measurement, several potential domains of validity can be identified. Some of these domains are easier to evaluate than others; unfortunately, the most challenging domains to evaluate are often the most useful for those who wish to understand the meaning of the data.

12. Content validity addresses the extent to which the content of a measure is consistent with professional knowledge about health care quality and the outcomes of high-quality care. Consensual validation is the most rigorous approach for assessing the content validity of health care quality indicators, because it requires agreement or near-consensus among professionals from different disciplines, different regions, and different practice environments. Ideally, the expert panels convened for consensual validation represent all of the disciplines involved in treating the condition(s) of interest, include at least 8-10 members, and discuss all of the relevant evidence supporting use of the quality indicator.

13. Construct validity addresses the extent to which one purported measure of quality is correlated with other measures with which a high correlation would be expected, according to the conceptual framework underlying quality improvement research. The most common application of this approach, known as convergent validity, is to estimate correlations between measures of the process of care and measures of the outcomes of that care. Process measures include both implicit assessments, in which health professionals review available documents or other evidence to formulate a global assessment of quality, and explicit assessments, which focus on specific evidence-based diagnostic tests or treatments. Explicit process measures are typically preferred, because they are often (but not always) based on randomised controlled trials, which are relatively immune to bias from unmeasured confounders. Another approach to construct validation is to study associations between outcome measures and structural indicators, such as nurse staffing levels and skill mix, which have previously been shown to represent markers of quality. Finally, some authors test the construct that any meaningful adverse outcome should be associated with other adverse outcomes. Applied to patient safety measurement, this construct suggests that in-hospital adverse events should be associated with subsequent mortality, re-admissions, prolonged length of stay, and long-term disability.

14. Criterion validity addresses the extent to which one purported measure of quality is correlated with other, better measures of the same phenomenon. It implies the existence of a "gold standard" that can be used to evaluate less costly – and presumably less accurate – measurement methods. Applied to patient safety measurement, this approach typically involves comparing indicators based on routinely collected administrative data with indicators of the same outcomes based on more complex linked data, in-depth medical record review, physician/nurse interview, patient interview, or even direct observation. Criterion validity may represent the strongest validation approach, but its applicability is often limited by the lack of an accepted "gold standard".

Discussion of the recommended indicators

15. Charts in the following sections do not contain all data displayed in Table 6 (detailed results section below) due to validity concerns. Analysis of data quality revealed documentation patterns with the data that may indicate that some rates from some countries may not have been appropriate for PSI calculation. Even for rare events, zero rates are considered implausible for patient safety events (except sentinel events).

Catheter-related bloodstream infection

Validity

16. Rationale and concerns. As nosocomial infections are often preventable (Eggimann *et al*., 2000), the occurrence of infections in the course of medical care is an important measure of the quality of care. The indicator catheter-related bloodstream infection is supposed to flag cases with a hospital-acquired infection caused by intravenous lines or catheters. Infections related to medical care can be a very serious problem, leading to death in some cases. Often patients experience pain and others discomfort. Currently, WHO Patient Safety promotes the campaign "Clean Care is Safer Care" as it is proven that proper hand hygiene reduces the incidence of catheter-related bloodstream infections (WHO, 2009).

17. Content (consensual) validity. Content validity was addressed in the technical report accompanying the original release of the AHRQ PSIs (AHRQ, 2007). Although panellists' ratings of the "usefulness" of each candidate indicator were used to select the final PSI set, panellists were also asked to rate each indicator on its preventability and its likelihood of being due to medical error. The median rating of this indicator was 7, with indeterminate agreement, on the former dimension, leading to a classification of "acceptable". The median rating was 6, with indeterminate agreement, on the latter dimension, leading to a classification of "unclear". Through similar processes, this PSI was endorsed by the OECD Patient Safety Panel (Millar *et al.,* 2004), but rejected by the SimPatIE (Safety Improvement for Patients in Europe) project as "not suitable for implementation" due to potential casemix bias (Kristensen *et al.,* 2009). A 47-member Delphi panel convened by RAND rated this indicator "low" in importance, although an otherwise identical indicator based on clinical data was rated "moderate" in importance and "close to ready for use" (Farley *et al*., 2008).

18. Construct (convergent, predictive) validity. This indicator rates very highly on predictive validity. Cases from the US Nationwide Inpatient Sample (NIS) that were flagged by this PSI in 2000 had 4.3% excess mortality, 9.6 days of excess hospitalisation, and $38 700 in excess hospital charges, relative to carefully matched controls that were not flagged (Zhan and Miller, 2003). This finding was confirmed in the Veterans Affairs (VA) hospital system, where cases that were flagged by this PSI in 2001 had 2.7% excess mortality, 4.5-9.5 days of excess hospitalisation, and $7 292-13 816 in excess hospital costs, relative to carefully matched controls that were not flagged (Rivard *et al.,* 2008). A more recent replication using 2007 data, corrected for infections that were reported as "present on admission", estimated 16.1 attributable hospital days and $33 118 in attributable hospital costs for the average case (Foster *et al*., 2009). In a commercial claims database from 45 large employers in the USA, each event (aggregating this PSI with postoperative sepsis) was associated not just with 3.1% excess mortality, but also with 7.7% excess readmissions, which added $2 594 to the total attributable cost per event (Encinosa and Hellinger, 2008). A case control analysis from England estimated excess mortality of 5.7% and 11.4 days of excess hospitalisation (Raleigh *et al*., 2008). Finally, the largest reported estimates of these impacts came from a study of children at 38 freestanding paediatric hospitals in the USA in 2006 (i.e., 22.4 hospital days, $172 484 in hospital charges) (Kronman *et al*., 2008).

19. In a study testing construct validity using an implicit process measure of quality (Miller *et al*., 2005), smoothed rates of this PSI among 2 116 hospitals surveyed by the Joint Commission in 1997-1999 were not associated with summary evaluation scores (although a later study of 115 hospitals surveyed in 2002 found a significant association with one patient safety practice subscore on "assessing patient needs") (Thornlow and Merwin, 2009). Indeed, the occurrence of one or more events flagged by this indicator, among 3 594 hospitals that treated Medicare patients in the USA in 2003, was associated with *better* performance on process-of-care measures for three medical conditions and *lower* risk-adjusted mortality for five of six high-risk categories of patients (Isaac and Jha, 2008). Rates of this PSI were inversely associated with adoption of strategic information technology applications among 98 Florida hospitals (Menachemi *et al*., 2007), and with adoption of electronic medical record (EMR) systems among Medicare patients (Parente and McCullough 2009), but not among 66 Georgia hospitals (Culler *et al.,* 2007).

20. A correlational study based on the 1997-2002 Nationwide Inpatient Sample (USA) labelled this indicator as a "canary measure" because it was significantly and consistently associated with at least nine other AHRQ Patient Safety Indicators at the hospital level (Yao *et al*., 2009). For both Medicare and Veterans Health Administration patients, this indicator loaded strongly with two other PSIs (iatrogenic pneumothorax and postoperative DVT/PE) on a common factor (Rosen *et al.,* 2009). Finally, this indicator was significantly associated with re-admission within three months (risk ratio= 1.29), but not within one month (risk ratio=1.00), after adjusting for patient characteristics using 2004 surgical data from seven US states (Friedman *et al.,* 2009). Unadjusted data from England confirm the association between this PSI and re-admission (Bottle and Aylin, 2009).

21. Although children aged less than 15 years were excluded from OECD analyses, data on the validity of this indicator in paediatric populations may still be relevant. Physicians participating in the National Association of Children's Hospitals and Related Institutions' (NACHRI) Pediatric PSI Collaborative reviewed 145 flagged events from 14 hospitals in 2003, using an online tool to assess implicit process of care, and judged 39% to be preventable and only 31% to be clearly non-preventable (Sedman *et al*., 2005; Scanlon *et al.,* 2006). In a follow-up study of 2003-2005 data from 28 children's hospitals (N=285 events), 11% were incorrectly coded and 43% of the remainder were present on admission; only 20-41% of all flagged events were judged to be preventable (Scanlon *et al.,* 2008).

22. *Criterion validity.* No evidence about the criterion validity of this indicator was available before its original release as an AHRQ indicator. It is now known that this indicator has a minor problem due to missing data about timing. Some US data sets now include a "flag" variable denoting whether each diagnosis was present at admission. The percentage of cases flagged by this PSI for whom the event was reported to be a complication of the hospital stay was 65% in California, 65% in New York, 60% in the Rochester, Minnesota area, and 36-44% at the University of Michigan (Houchens *et al*., 2008; Naessens *et al*., 2007; Bahl *et al*., 2008). Hospital-specific rates including infections reported as present on admission were moderately correlated with hospital-specific rates excluding such infections (r=0.91 in California, r=0.88 in New York), especially among coronary artery bypass surgery patients (r=0.99 in California) (Glance *et al*., 2008).

23. The best recent evidence about the positive predictive value (PPV) of this indicator comes from the 47 hospitals participating in the AHRQ PSI Validation Pilot Project (N=191). In this study, 20% of the flagged events were present at admission, 21% lacked clear documentation of an eligible infection, and 4% had an unreported disqualifying comorbid condition (i.e., cancer, severe malnutrition, immunodeficiencies), leaving 55% that were confirmed as iatrogenic complications (Zrelak *et al.,* 2009). All of the confirmed events were attributable to a vascular device, including central venous catheters (74%), peripheral venous catheters, and arterial catheters.

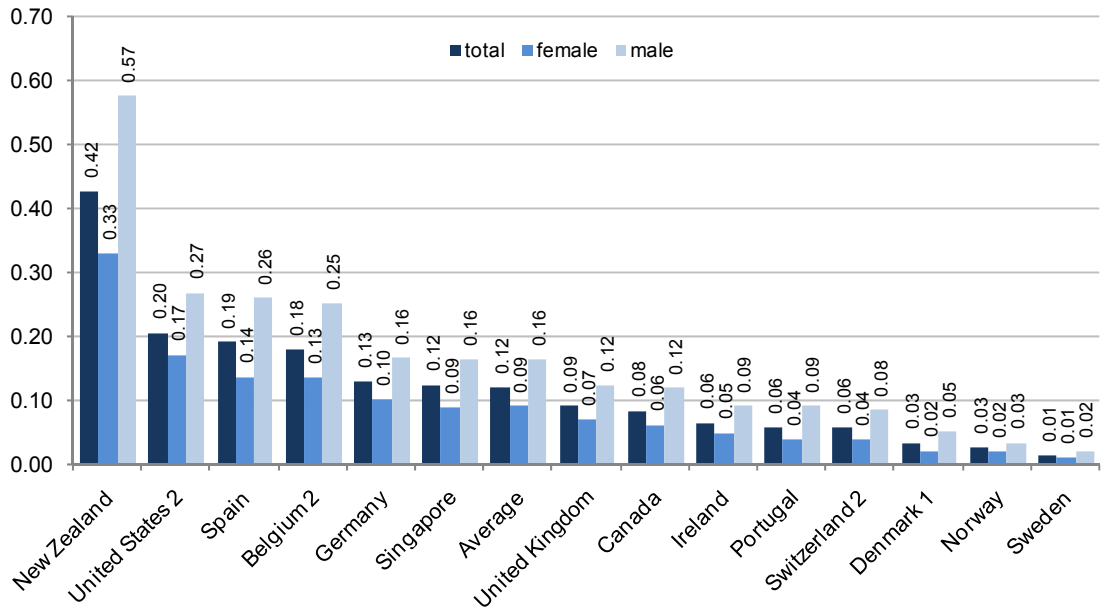
24. A similar review of medical records of 168 cases from 18 English NHS (National Health Service) trusts found that 6% of the flagged events were present at admission and 12% were miscoded, leaving 79% that were confirmed (Bottle and Aylin 2008). Finally, evidence from New York and New Zealand suggests that a significant number of true events may not be ascertained because they occur after hospital discharge; linking 30-day re-admissions in New York increased the overall rate of this PSI from 2.02 to 2.52 per 1 000 eligible discharges; 56% of the post-discharge events were complications of haemodialysis (Gallagher *et* al., 2005a; Stevanovic 2009). One study from 24 US hospitals participating in a patient safety collaborative reported the sensitivity of this PSI as only 9% relative to case ascertainment using National Healthcare Safety Network protocols (N=89); PPV could not be evaluated due to the study design (Stone *et al.,* 2007).

25. In summary, recent evidence on construct validity and criterion validity is moderately supportive of this indicator. A recent change to the ICD-9-CM coding of catheter-associated infections (999.31 = "infection due to central venous catheter") should enhance its criterion validity in countries that use ICD-9-CM, by excluding most of the false positive cases captured by the previous definition. Based on limited information, underreporting is a serious concern. Risk adjustment is recommended for inter-provider comparisons (AHRQ, 2007) to ensure that variation due to different patient populations across institutions is removed.

Findings

26. Reported catheter-related bloodstream infection rates vary across participating OECD countries between 0.01 and 0.4% (Chart 1). Hospital-acquired infections occur far more often in male patients than in females in all countries. Direct adjustment for 5-year age-gender strata did not affect indicator rates or rankings across countries. A correlation between indicator rate and amount of documentation can be found for the indicator (Chart 2, Spearman $r=0.912$, $p<0.0001$). In Belgium and USA the mean number of secondary diagnoses is more than two times greater than in Denmark and Switzerland, which might explain elevated infection rates reported by these countries. Underreporting is likely for countries with low infection rates. The rates represented in the charts below have not been age-sex standardised or adjusted for secondary diagnoses or length of stay.

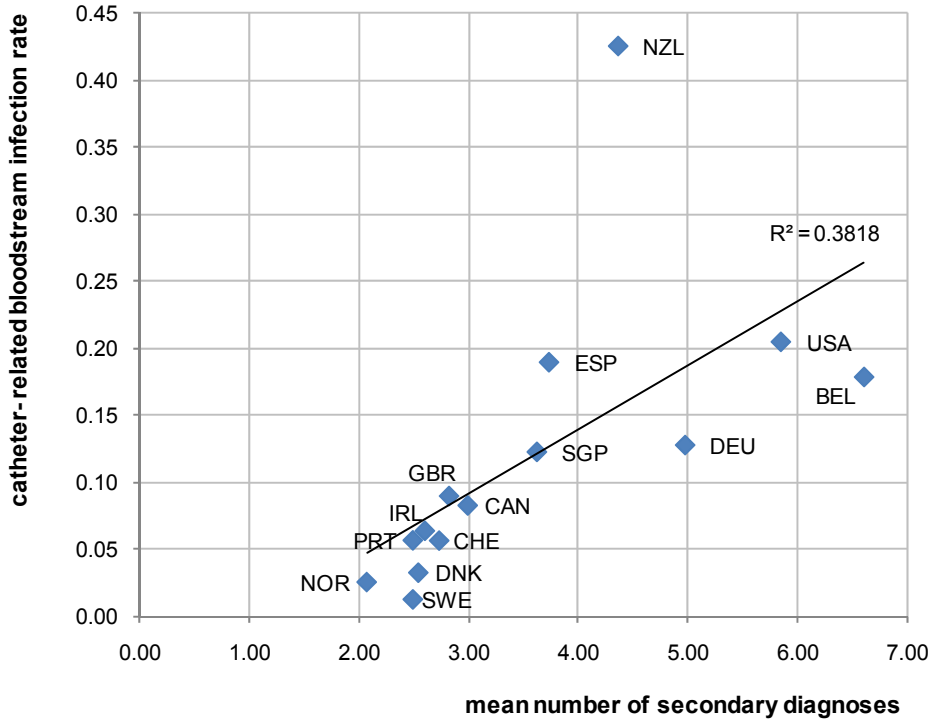
Chart 1. Catheter-related bloodstream infection rates, 2007



1. 2008. 2. 2006

Note: Rates based on hospital administrative databases as reported by countries for the research and development work of the HCQI project.

Chart 2. Catheter-related bloodstream infection rates and mean number of secondary diagnoses, 2007



Note: Rates based on hospital administrative databases as reported by countries for the research and development work of the HCQI project.

Postoperative pulmonary embolism (PE) or deep vein thrombosis (DVT)

Validity

27. Rationale and concerns. The occurrence of postoperative PE/DVT can range from mild symptoms to devastating clinical consequences including pain, respiratory distress, and death. Regarding pulmonary embolism, the mortality rate is less than 8% when detected and correctly treated but about 30% when the condition is unrecognised and not treated (Olin, 2002). Because PE/DVT can cause unnecessary prolongation of hospital stays as well as unnecessary pain, suffering and death, this indicator has important financial and quality improvement implications. This adverse event can be prevented through the appropriate use of anticoagulants and other preventive measures; evidence based guidelines are available (Geerts *et al*., 2004). This indicator based on administrative hospital data was proposed in 1994 (Iezzoni *et al*., 1994) and subsequently further investigated (Miller *et al*., 2001).

28. Content (consensual) validity. Content validity was addressed in the technical report accompanying the original release of the AHRQ PSIs. Although panellists' ratings of the "usefulness" of each candidate indicator were used to select the final PSI set, panellists were also asked to rate each indicator on its preventability and its likelihood of being due to medical error. The median ratings of this indicator on the former dimension from two independent panels were 7 and 6, with indeterminate agreement and disagreement, respectively, leading to classifications of "acceptable" and "unclear", respectively. The median ratings of this indicator on the latter dimension were 6 and 3, with indeterminate agreement, leading to classifications of "unclear" and "unacceptable", respectively.

29. Through similar processes, this PSI was endorsed by the OECD Patient Safety Panel (Millar *et al.,* 2004) and the National Quality Forum (time-limited due to ICD-9-CM changes), but rejected by the SimPatIE (Safety Improvement for Patients in Europe) project as "not suitable for implementation" due to potential casemix bias (Kristensen *et al.,* 2009). A 47-member Delphi panel convened by RAND rated this indicator "moderate" in importance, but lower on validity (i.e., median ratings 8 and 6, respectively) (Farley *et al*., 2008). Over diagnosis through increased ultrasound screening of high-risk but asymptomatic postoperative patients is an emerging concern (Haut *et al*., 2007).

30. Construct (convergent, predictive) validity. This indicator rates very highly on predictive validity. Cases from the NIS that were flagged by this PSI had 6.6% excess mortality, 5.4 days of excess hospitalisation, and $21 700 in excess hospital charges, relative to carefully matched controls that were not flagged (Zhan and Miller, 2003). This finding was confirmed in the Veterans Affairs hospital system, where cases that were flagged by this PSI had 6.1% excess mortality, 4.5-5.5 days of excess hospitalisation, and $7 205-9 064 in excess hospital costs, relative to carefully matched controls that were not flagged (Rivard *et al*., 2008). A more recent replication using 2007 data, corrected for thromboses that were reported as "present on admission", estimated 7.8 attributable hospital days and $18 331 in attributable hospital costs for the average case (Foster *et al*., 2009).

31. In a study testing construct validity using an implicit process measure of quality (Miller *et al*., 2005), smoothed rates of this PSI among 2 116 hospitals surveyed by the Joint Commission in 1997-1999 were marginally (p=0.06) associated with summary evaluation scores, in the expected direction. In addition, hospitals with high smoothed rates of this PSI were less likely to receive favourable accreditation decisions than hospitals with lower rates. For both Medicare and Veterans Health Administration patients, this indicator loaded strongly with two other PSIs (iatrogenic pneumothorax and selected infections due to medical care) on a common factor (Rosen *et al.,* 2009). Finally, this indicator was significantly associated with re-admission within either three months (risk ratio=1.28) or one month (risk ratio=1.25), after adjusting for patient characteristics using 2004 surgical data from seven US states (Friedman *et al.,* 2009).

32. Although children aged less than 15 years were excluded from OECD analyses, data on the validity of this indicator in paediatric populations may still be relevant. Physicians participating in the NACHRI Pediatric PSI Collaborative reviewed 120 flagged events from 14 hospitals, using an online tool to assess implicit process of care, and judged only 28% to be preventable and 49% to be clearly non-preventable (Sedman *et al*., 2005; Scanlon *et al.,* 2006). As a result, this indicator was dropped from the AHRQ Pediatric Quality Indicator module.

33. Historically, this indicator evolved from one of the "flags" in Iezzoni's Complications Screening Program (CSP). Explicit process of care failures in the CSP validation study were relatively frequent among cases flagged on this indicator (72% of major surgery patients, 69% of medical patients), after excluding patients who had DVT/PE at admission, but unflagged controls were not evaluated on the same criteria (Iezzoni ., 1999). Major surgical cases flagged on this indicator and unflagged controls differed marginally (11% versus 4%, p=0.09) on a composite of 17 generic process criteria. Physician reviewers identified potential quality problems in 50% of major surgery patients and 20% of medical patients flagged on this indicator, versus 2% of unflagged controls for each risk group (Weingart *et al*., 2000).

34. At least two older studies assessed the construct validity of the ICD-9-CM codes mapped to this PSI through correlation with structural measures of nurse staffing. Needleman and Buerhaus (Needleman *et al*., 2002) found that nurse staffing was independent of the occurrence of DVT/PE among both major surgical and medical patients from 799 hospitals in 11 states in 1997. However, Kovner and Gergen reported that among 506 community hospitals in the 1993 NIS, having more registered nurse hours and non-RN hours per adjusted patient day were both associated with a lower rate of DVT/PE after major surgery (Kovner and Gergen, 1998). Nurse staffing was not associated with the rate of DVT/PE after invasive vascular procedures. Rates of this PSI were marginally (p=0.06) associated with adoption of clinical information technology applications among 98 Florida hospitals (Menachemi *et al*., 2007), but were not associated with adoption of EMR systems among Medicare patients (Parente and McCullough, 2009) or among 66 Georgia hospitals (Culler *et al.,* 2007).

35. Criterion validity. The original CSP definition of this PSI, which differed slightly from the current AHRQ definition, had an adequate confirmation rate among major surgical cases sampled from FY1994 Medicare inpatient claims from California and Connecticut (i.e., 59% according to coders, 70% according to physicians, 68% according to nurses who relied on physician documentation) (Lawthers *et al*., 2000; Weingart *et al*., 2000; McCarthy *et al*., 2000). Several smaller, older studies also suggested adequate sensitivity and PPV of PE codes among surgical patients, although the sensitivity of DVT codes was notably poorer (Keeler *et al*., 1992; Romano *et al*., 2002; Hawker *et al*., 1997; Best *et al*., 2002). Based on these findings, AHRQ limited this PSI to surgical cases (defined using DRGs).

36. One weakness of this indicator is its inability to distinguish thromboses that were present at admission from thromboses that developed during a hospital stay. Some US data sets now include a "flag" variable denoting whether each diagnosis was present at admission. The percentage of cases flagged by this PSI for whom the event was reported to be a complication of the hospital stay was only 46% in California, 43% in New York, 40% in the Rochester, Minnesota area, and 51-67% at the University of Michigan (Houchens *et al*., 2008; Naessens *et al*., 2007; Bahl *et al*., 2008). Hospital-specific rates including thromboses reported as present on admission were variably correlated with hospital-specific rates excluding such thromboses (r=0.80 in California, r=0.41 in New York), even among coronary artery bypass surgery patients (r=0.63 in California) (Glance *et al*., 2008).

37. The best recent evidence about the PPV of this indicator comes from the 47 hospitals participating in the AHRQ PSI Validation Pilot project (N=155) and the 33 hospitals participating in a parallel benchmarking initiative by the University Health System Consortium (UHC, N=505). In this study, only 13% of the flagged events were present at admission and 8% lacked clear documentation of an

acute venous thrombosis, leaving 79% that were confirmed as iatrogenic complications (White *et al.,* 2009). However, 29% of the confirmed events involved upper extremity, thoracic, or superficial veins (which are not the target for prevention), reducing the overall PPV for clinical purposes to 56% (95% CI, 52-60%). In the 33 teaching hospitals, abstractors also reviewed 517 cases that were not flagged as having this PSI, and found zero false-negatives (sensitivity=100%; 95% CI, 53-100%). A single US teaching hospital (not in the UHC study) separately reported 87% sensitivity and 50% PPV, using the same clinical definition (Henderson *et al.,* 2009), and eight Belgian hospitals reported 54-59% PPV with only one false negative case among 1,392 records reviewed (Gillet *et al.,* 2008). These estimates significantly exceed the sensitivity and PPV estimates of 68% and 29%, respectively, based on 2002-2004 data from the Medicare Patient Safety Monitoring System (Zhan *et al.,* 2007), suggesting that the validity of this indicator may depend on the number of available diagnosis fields (as Medicare data are limited to nine secondary diagnoses).

38. Comparing hospital administrative data from the Department of Veterans Affairs against the National Surgical Quality Improvement Program's clinically abstracted data from 2001, Romano *et al*., (2009) reported a sensitivity of 56% and a PPV of 22%, although the PPV in a more recent review of 112 randomly selected cases from 2004-2007 was 56% (Borzecki *et al.,* 2009). As in the AHRQ PSI Validation Pilot, most of the false positives in the VA were attributable to chronic thromboses that were present at admission, upper extremity thromboses, or superficial lower extremity thromboses that did not require anticoagulation.

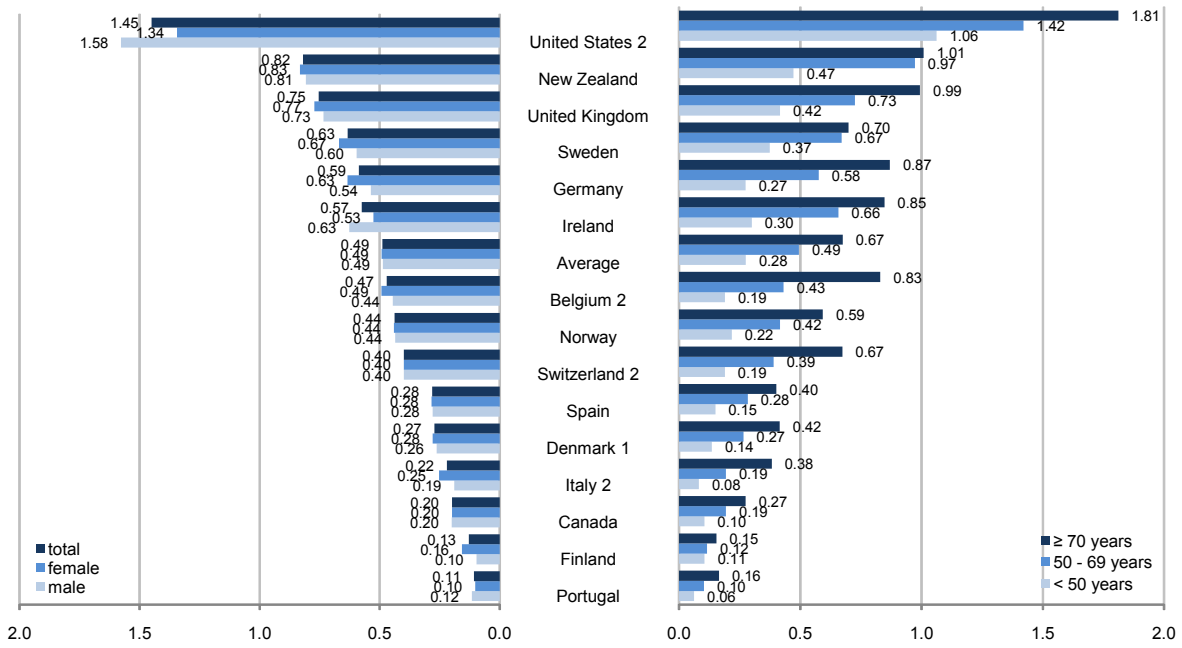
39. Finally, evidence from New York, Denmark, and New Zealand suggests that a significant number of true events may not be ascertained because they occur after hospital discharge; linking 30-day re-admissions in New York increased the overall rate of this PSI from 9.3 to 11.3 per 1,000; 45% of the post-discharge events were pulmonary emboli (Weller *et al.,* 2004; Stevanovic 2009).

40. In summary, recent evidence suggests that this indicator should be used very cautiously for comparing hospital performance unless validated information is available about the timing of the diagnosis and/or the specific veins involved. Recent changes to the ICD-9-CM coding of deep vein thromboses, including new codes specifying superficial, upper extremity, and thoracic thromboses, should enhance criterion validity in countries that use ICD-9-CM, by excluding most of the false positive cases captured by the previous definition. Underreporting does NOT appear to be a problem, based on studies from the USA and Belgium. Over diagnosis through screening of high-risk but asymptomatic postoperative patients is an emerging concern, and may explain the markedly elevated risk of this event at major teaching hospitals and large hospitals (Vartak *et al*., 2008). Risk adjustment is recommended for inter-provider comparisons (AHRQ, 2007) to ensure that variation due to different patient populations across institutions is removed.

Findings

41. Reported postoperative PE/DVT rates vary across participating OECD countries between 0.1 and 1.4% (Chart 3). Most countries report slightly higher rates in females, but the U.S. and Ireland have higher rates in men and a larger gender discrepancy. As expected, rates are higher in patients aged 70 years and older than in younger age groups in all countries (Chart 3). Direct adjustment for 5-year age-gender strata did not materially affect indicator rates across countries, although two countries moved up one rank (and two others moved down one rank to compensate). A statistically significant dependency between indicator rates and amount of administrative documentation, expressed as the mean number of secondary diagnoses, was found and is shown in Chart 4 (Spearman r=0.670, p=0.009). Countries with more coded diagnoses reported higher rates. The rates represented in the charts below have not been age-sex standardised or adjusted for secondary diagnoses or length of stay.

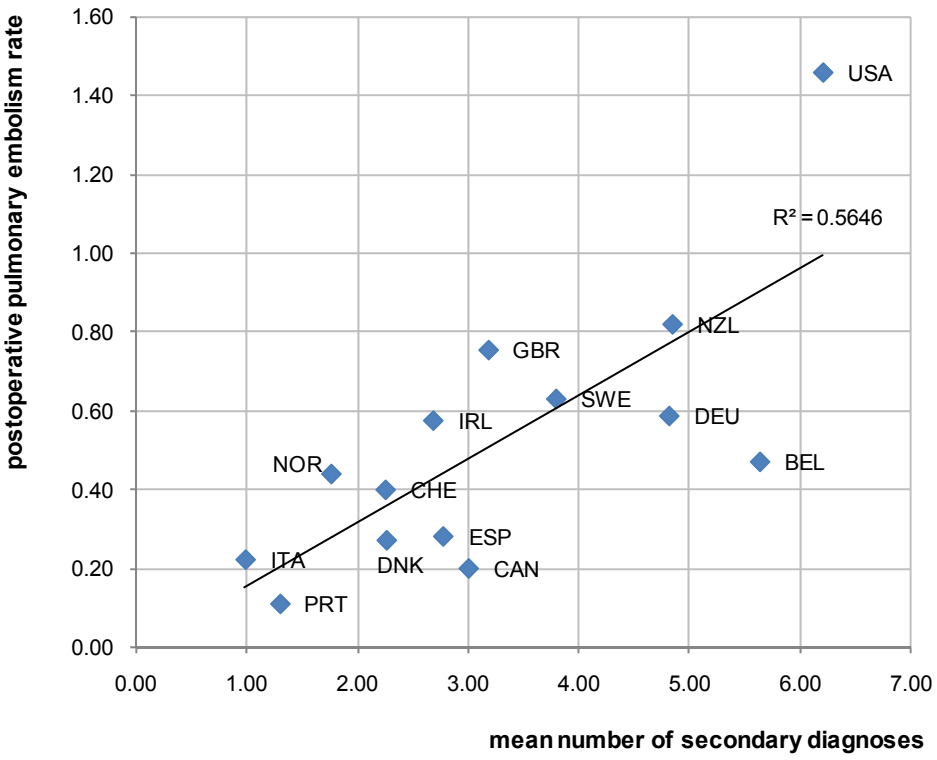
Chart 3. Postoperative pulmonary embolism or deep vein thrombosis, 2007



1. 2008. 2. 2006.

Note: Rates based on hospital administrative databases as reported by countries for the research and development work of the HCQI project.

Chart 4. Postoperative pulmonary embolism and mean number of secondary diagnoses



Note: Rates based on hospital administrative databases as reported by countries for the research and development work of the HCQI project.

Postoperative sepsis

Validity

42. Rationale and concerns. The occurrence of sepsis following surgery is a severe complication with a mortality rate of up to 30%. Many cases of postoperative sepsis can be prevented through the appropriate use of prophylactic antibiotics, good surgical site preparation, careful and sterile surgical techniques and good postoperative care. Sepsis after elective surgery is considered a severe complication. It usually results from less severe infective complications, such as urinary tract infections, pneumonia and wound infection, which should be avoided and/or properly treated. Consequently, this indicator is a plausible patient safety measure. Given the dramatic nature of this complication, it is likely to be reliably coded in administrative data sources, relative to less serious complications (Miller *et al.*, 2004).

43. Content (consensual) validity. Content validity was addressed in a technical report accompanying the original release of the AHRQ PSIs. Although panellists' ratings of the "usefulness" of each candidate indicator were used to select the final PSI set, panellists were also asked to rate each indicator on its preventability and its likelihood of being due to medical error. The median rating of this indicator was 6.5 (with agreement) on the former dimension, and 6 (with indeterminate agreement) on the latter dimension, leading to a classification of "unclear" on both dimensions. Through similar processes, this PSI was endorsed by both the OECD Patient Safety Panel (Millar *et al.,* 2004) and the SimPatIE (Safety Improvement for Patients in Europe) project (Kristensen *et al.,* 2009). A 47-member Delphi panel convened by RAND rated this indicator "moderate" in importance, but lower on validity (i.e., median ratings 8 and 5, respectively) (Farley *et al*., 2008).

44. Construct (convergent, predictive) validity. This indicator rates very highly on predictive validity. Cases from the NIS that were flagged by this PSI had 21.9% excess mortality, 10.9 days of excess hospitalisation, and $57 700 in excess hospital charges, relative to carefully matched controls that were not flagged (Zhan and Miller, 2003). This finding was confirmed in the Veterans Affairs hospital system, where cases that were flagged by this PSI had 30.2% excess mortality, 5.7-18.8 days of excess hospitalisation, and $13 395-31 262 in excess hospital costs, relative to carefully matched controls that were not flagged (Rivard *et al.,* 2008). A more recent replication using 2007 data, corrected for sepsis that was reported as "present on admission", estimated 13.7 attributable hospital days and $39 117 in attributable hospital costs for the average case (Foster *et al*., 2009). In a commercial claims database from 45 large employers in the USA, each event (aggregating this PSI with catheter-related bloodstream infections) was associated not just with 3.1% excess mortality, but also with 7.7% excess readmissions, which added $2 594 to the total attributable cost per event (Encinosa and Hellinger, 2008). A case control analysis from England estimated excess mortality of 27.1% and 15.9 days of excess hospitalisation (Raleigh *et al*., 2008). Finally, the largest reported estimates of these impacts came from a study of children at 38 freestanding paediatric hospitals in the USA in 2006 (i.e., 23.5 hospital days, $261 173 in hospital charges) (Kronman *et al*., 2008). In a study testing construct validity using an implicit process measure of quality (Miller *et al*., 2005), smoothed rates of this PSI among 2 116 hospitals surveyed by the Joint Commission in 1997-1999 were marginally (p=0.10) associated with summary evaluation scores, in the expected direction. For both Medicare and Veterans Health Administration patients, this indicator loaded strongly with two other PSIs (postoperative sepsis and respiratory failure) on a common factor representing perioperative continuity of care (Rosen *et al.,* 2009). Finally, this indicator was significantly associated with re-admission within three months (risk ratio=1.26), but not within one month (risk ratio=0.99), after adjusting for patient characteristics using 2004 surgical data from seven US states (Friedman *et al.,* 2009). Unadjusted data from England confirm the association between this PSI and re-admission (Bottle and Aylin, 2009).

Although children aged less than 15 years were excluded from OECD analyses, data on the validity of this indicators in paediatric populations may still be relevant. In a study of 2003-2005 data from 28 children's hospitals (N=279 events), 20% were incorrectly coded and 40% of the remainder were present on admission; only 12-32% of all flagged events were judged to be preventable (Scanlon *et al.,* 2008).

45. At least one older study assessed the construct validity of the ICD-9-CM codes mapped to this PSI through correlation with structural measures of nurse staffing. Needleman and Buerhaus (Needleman *et al*., 2002) found that nurse staffing was independent of the occurrence of sepsis among both major surgical and medical patients from 799 hospitals in 11 states in 1997. Rates of this PSI were inversely associated with adoption of clinical information technology applications among 98 Florida hospitals (Menachemi *et al*., 2007), but not among 66 Georgia hospitals (Culler *et al.,* 2007).

46. Criterion validity. Several small studies provided limited data about the criterion validity of the ICD-9-CM codes mapped to this indicator before its release. Unfortunately, several of these studies either did not clearly document their ICD-9 definitions (Massanari *et al*., 1987; Belio-Blasco *et al*., 2000) or did not stratify the subgroup of patients with a secondary diagnosis of DVT/PE (Barbour, 1993). In comparison with the VA's National Surgical Quality Improvement Program database from 123 hospitals in 1994-95, in which "systemic sepsis" was defined by a positive blood culture with systemic manifestations of sepsis within 30 days after surgery, ICD-9-CM diagnoses had a sensitivity of 37% and a PPV of 30% (Best *et al*., 2002).

47. This indicator has a minor problem due to missing data about timing. Some US data sets now include a "flag" variable denoting whether each diagnosis was present at admission. The percentage of cases flagged by this PSI for whom the event was reported to be a complication of the hospital stay was 73% in California, 70% in New York, 76% in the Rochester, Minnesota area, and 59-60% at the University of Michigan (Houchens *et al*., 2008; Naessens *et al*., 2007; Bahl *et al*., 2008). Hospital-specific rates including sepsis reported as present on admission were moderately correlated with hospital-specific rates excluding such infections (r=0.72 in California, r=0.82 in New York), especially among coronary artery bypass surgery patients (r=0.93 in California) (Glance *et al*., 2008).

48. The best recent evidence about the PPV of this indicator comes from the 47 hospitals participating in the AHRQ PSI Validation Pilot Project (N=164). In this study, 17% of the flagged events (or precursor infections) were present at admission, and 17% lacked clear documentation of sepsis, bacteraemia, or SIRS (systematic inflammatory response syndrome) with infection, leaving 66% that were confirmed as complications. (However, an additional 25% of flagged cases may have been ineligible because the reviewer perceived the "index" surgery as being non-elective.) The primary site of infection was catheter-related in 24%, lungs in 39%, surgical site in 9%, and urinary tract in 19%. Comparing hospital administrative data from the Department of Veterans Affairs against the National Surgical Quality Improvement Program's clinically abstracted data from 2001, Romano *et al*., (2009) reported a sensitivity of 37%, PPV of 45%, and positive likelihood ratio of 131. Most of the "false positives" were patients with clinical evidence of sepsis, who were treated for presumptive sepsis, but lacked "definitive evidence of infection". A similar review of medical records of 53 cases from 18 English NHS trusts found that 6% of the flagged events were present at admission and 21% were miscoded, leaving 70% that were confirmed (Bottle and Aylin, 2008). Eight Belgian hospitals reported 45% PPV (largely due to overreporting or failure to satisfy clinical criteria for sepsis), with 25 false negative cases among 1 396 records reviewed (98.2% negative predictive value) (Gillet *et al.,* 2008).

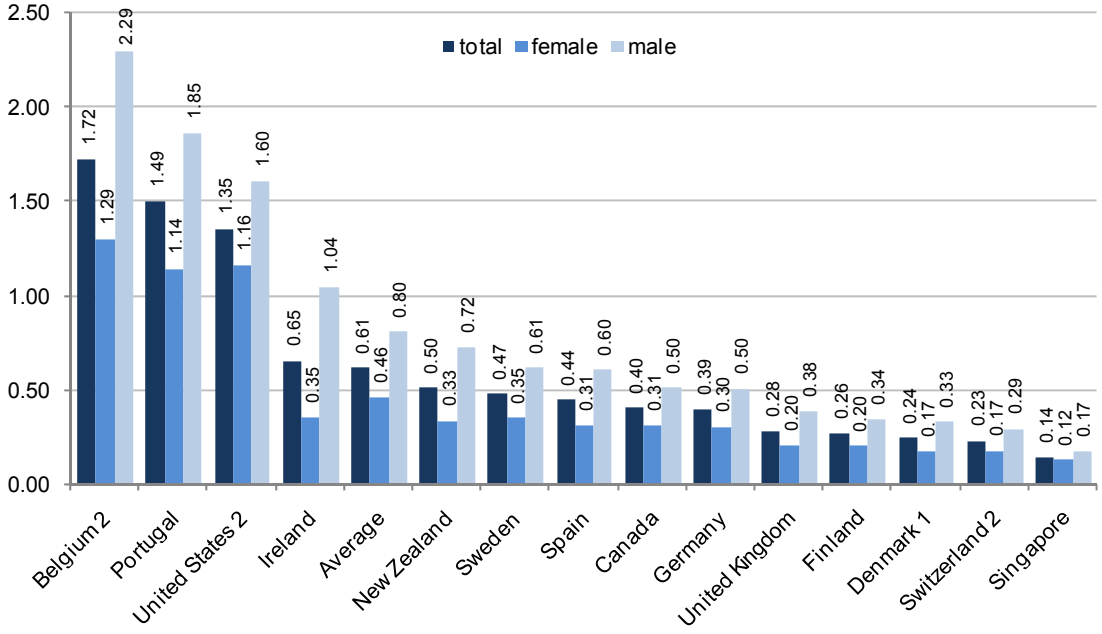
49. In summary, recent evidence on construct validity and criterion validity is somewhat supportive of this indicator, but raises questions about the ability to accurately identify patients for elective surgery. Very little evidence is available on potential underreporting. Risk adjustment is recommended for inter-

provider comparisons (AHRQ, 2007) to ensure that variation due to different patient populations across institutions is removed.

Findings

50. Reported postoperative sepsis rates vary across participating countries between 0.2 and 1.7% (Chart 5); the average is 0.61%. Three countries (Belgium, Portugal, and USA) reported markedly higher sepsis rates than the others. Postoperative sepsis occurs far more often in male patients than in females in all countries. This finding corresponds to the literature (Angus *et al.*, 2001). Direct adjustment for 5-year age-gender strata did not materially affect indicator rates across countries, although three countries moved up one rank (and three others moved down one rank to compensate). A non-significant correlation between indicator rates and amount of documentation was found (Chart 6, Spearman r=0.414, p=0.142), based on the mean number of secondary diagnoses in denominator cases. In Belgium and USA, the mean number of secondary diagnoses is more than two times greater than in Singapore, which might explain elevated infection rates in the first two countries. Underreporting is likely for countries with low infection rates. The rates represented in the charts below have not been age-sex standardised or adjusted for secondary diagnoses or length of stay.

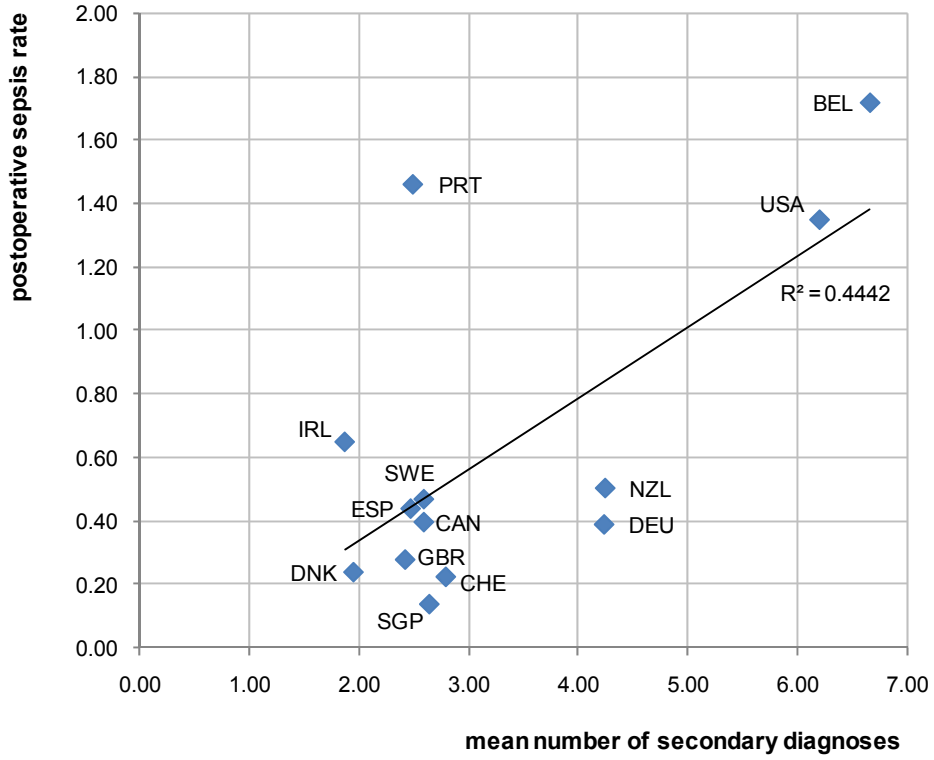
Chart 5. Postoperative sepsis rates, 2007



1. 2008. 2. 2006.

Note: Rates based on hospital administrative databases as reported by countries for the research and development work of the HCQI project.

Chart 6. Postoperative sepsis rates and mean number of secondary diagnoses, 2007



Note: Rates based on hospital administrative databases as reported by countries for the research and development work of the HCQI project.

Accidental puncture or laceration

Validity

51. Rationale and concerns. This indicator captures events related to technical and process limitations of hospital care. While accidental cut, puncture, perforation or laceration during a surgical procedure is a recognised risk, for example of abdominal surgery, elevated rates of such complications may indicate systems problems, such as inadequate training or fatigued health staff. Experts involved in the selection of this indicator stated that some incidents might not be preventable (AHRQ, 2007). The indicator captures surgical as well as medical discharges based on administrative hospital data. They were proposed in 1994 (Iezzoni *et al.*, 1994) and subsequently further investigated (Miller *et al.*, 2001).

52. Content (consensual) validity. Content validity was addressed in the technical report accompanying the original release of the AHRQ PSIs. Although panellists' ratings of the "usefulness" of each candidate indicator were used to select the final PSI set, panellists were also asked to rate each indicator on its preventability and its likelihood of being due to medical error. The median rating of this indicator was 7, with agreement, on the former dimension, leading to a classification of "acceptable". The median rating was 6, with indeterminate agreement, on the latter dimension, leading to a classification of "unclear". Through similar processes, this PSI was endorsed by the OECD Patient Safety Panel (Millar *et al.*, 2004) and the US National Quality Forum, but rejected by the SimPatIE (Safety Improvement for Patients in Europe) project as "not workable for implementation in Europe". A 47-member Delphi panel convened by RAND rated this indicator "low" in importance, although the median rating of 7 would have qualified for endorsement in the AHRQ panel process (Farley *et al.*, 2008).

53. Construct (convergent, predictive) validity. This indicator rates highly on predictive validity. Cases from the NIS that were flagged by this PSI had 2.2% excess mortality, 1.3 days of excess hospitalisation, and $8 300 in excess hospital charges, relative to carefully matched controls that were not flagged (Zhan and Miller, 2003). This finding was confirmed in the Veterans Affairs hospital system, where cases that were flagged by this PSI had 3.2% excess mortality, 1.4-3.1 days of excess hospitalisation, and $3 359-6 880 in excess hospital costs, relative to carefully matched controls that were not flagged (Rivard *et al.,* 2008). A more recent replication using 2007 data, corrected for injuries that were reported as "present on admission", estimated 3.7 attributable hospital days and $12 087 in attributable hospital costs for the average case (Foster *et al*., 2009). In a commercial claims database from 45 large employers in the USA, these events (aggregated with four rarer PSIs) were not associated with either excess mortality or excess readmissions (Encinosa and Hellinger,2008). Finally, the largest reported estimates of these impacts came from a study of children at 38 freestanding paediatric hospitals in the USA in 2006 (i.e., 2.8 hospital days, $34 884 in hospital charges) (Kronman *et al*., 2008).

54. In a study testing construct validity using an implicit process measure of quality (Miller *et al.,* 2005), smoothed rates of this PSI among 2,116 hospitals surveyed by the Joint Commission in 1997-1999 were significantly ($p<0.01$) associated with summary evaluation scores, in the expected direction. For both Medicare and Veterans Health Administration patients, this indicator loaded strongly with three other PSIs (foreign body left in, postoperative haemorrhage or hematoma, and wound dehiscence) on a common factor representing technical complications of care (Rosen *et al.,* 2009). Finally, this indicator was significantly associated with re-admission within either three months (risk ratio=1.29) or one month (risk ratio=1.00), after adjusting for patient characteristics using 2004 surgical data from seven US states (Friedman *et al.,* 2009). Unadjusted data from England confirm the association between this PSI and re-admission (Bottle and Aylin, 2009).

55. Rates of this PSI were inversely associated with adoption of strategic information technology applications among 98 Florida hospitals (Menachemi *et al*., 2007), but not among 66 Georgia hospitals (Culler *et al.,* 2007).

56. Although children aged less than 15 years were excluded from OECD analyses, data on the validity of this indicator in paediatric populations may still be relevant. Physicians participating in the NACHRI Pediatric PSI Collaborative reviewed 119 flagged events from 14 hospitals, using an online tool to assess implicit process of care, and judged 64% to be preventable and only 14% to be clearly non-preventable (Sedman *et al.,* 2005; Scanlon *et al.,* 2006). In a follow-up study of 2003-2005 data from 28 children's hospitals (N=285 events), 9% were incorrectly coded and 7% of the remainder were present on admission; 27-57% of all flagged events were judged to be preventable (Scanlon *et al.,* 2008).

57. Criterion validity. . Several studies that were published before the release of this indicator offered conflicting conclusions about the criterion validity of the underlying ICD-9 codes. For example, a study of laparoscopic cholecystectomy in 18 Ontario hospitals in 1991-95 (Taylor, 1998) found that 95% (99/104) of patients with an ICD-9 code of 998.2 or E870.0 had a confirmed injury to the bile duct or gallbladder (although only 27% were "clinically significant"). A similar study of all cholecystectomies performed in Western Australia between 1988 and 1994 reported that these two codes had a sensitivity of 40% (19/48) and a PPV of 23% (19/84) in identifying bile duct injuries (Valinsky *et al*., 1999). Among 185 total knee replacement patients from 5 Ontario hospitals in 1984-90, Hawker *et al*., (1997) found that the sensitivity and PPV of codes describing "miscellaneous mishaps during or as a direct result of surgery" were 86% (6/7) and 55% (6/11), respectively. Romano *et al*., (2002) identified 19 of 45 chart-confirmed episodes of accidental puncture or laceration using discharge abstracts of diskectomy patients at 30 California hospitals in 1990-91, with only one false positive.

58. This indicator does not appear to have a significant problem due to missing data about timing. Some US data sets now include a "flag" variable denoting whether each diagnosis was present at admission. The percentage of cases flagged by this PSI for whom the event was reported to be a complication of the hospital stay was 87% in California, 87% in New York, 85% in the Rochester, Minnesota area, and 84-91% at the University of Michigan (Houchens *et al*., 2008; Naessens *et al*., 2007; Bahl *et al.,* 2008). Hospital-specific rates including injuries reported as present on admission were highly correlated with hospital-specific rates excluding such injuries (r=0.97 in California, r=0.96 in New York, r=0.95 for CABG patients).

59. The best recent evidence about the PPV of this indicator comes from the 47 hospitals participating in the AHRQ PSI Validation Pilot Project (N=249). In this study, 2% of the flagged events were present at admission, and 7% lacked clear documentation of an accidental puncture or laceration, leaving about 91% (95% CI, 88-94%) that were confirmed as complications. Of these events, 71% occurred in the abdomen or pelvis, 10% in the chest, and 16% in the spine (Utter *et al*., 2009). About 75% of the confirmed injuries were categorised as "potentially consequential", meaning that they would generally require surgical repair. Similarly, the PPV in a recent review of 112 randomly selected cases from the Department of Veterans Affairs in 2004-2007 was 86% (95% CI, 78-92%) (Borzecki *et al.,* 2009).

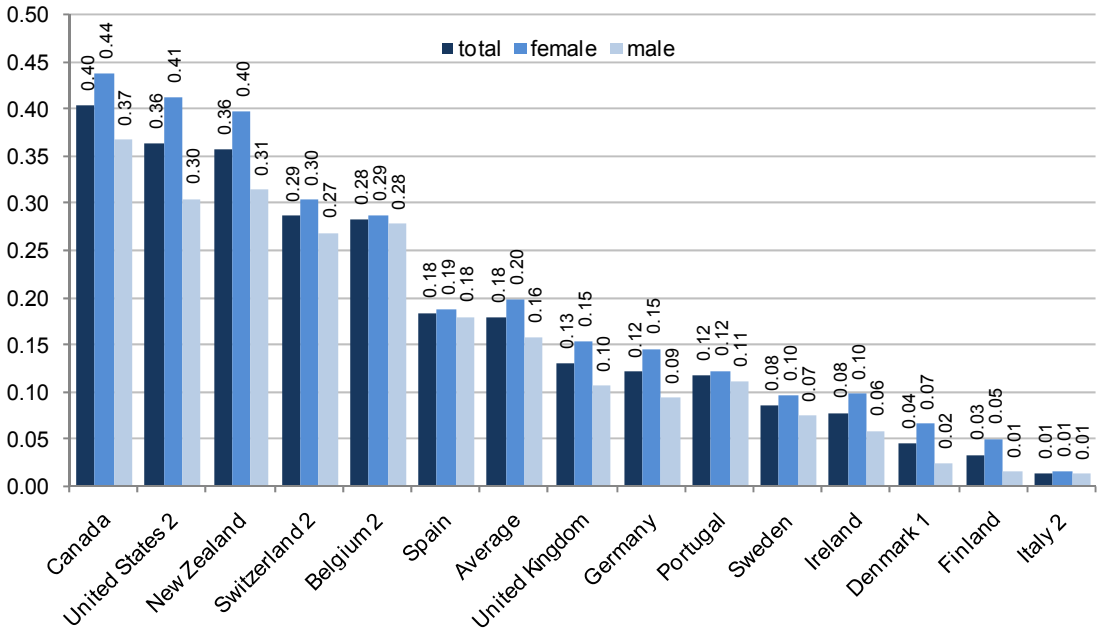
60. There is very limited evidence about the sensitivity of this indicator. Investigators in New York systematically searched their hospital administrative data for procedure codes suggesting repair of iatrogenic injuries, and reported that this PSI may have missed 27% of bladder injuries from hysterectomy, 21% of bowel injuries from cholecystectomy, 47% of abdominal injuries from lysis of adhesions, 54% of abdominal injuries from nephroureterectomy, and 20% of spinal injuries from lumbar surgery (Gallagher *et al*., 2005b). AHRQ is currently evaluating whether these procedure codes can be added to the PSI definition to improve its sensitivity, without compromising its PPV.

61. In summary, recent evidence on construct validity and criterion validity is moderately supportive of this indicator. Based on limited information, underreporting is a valid concern. Risk adjustment is recommended for inter-provider comparisons (AHRQ, 2007) to ensure that variation due to different patient populations across institutions is removed.

Findings

62. Reported accidental puncture or laceration rates vary across participating OECD countries between 0.01 and 0.4% (Chart 7). Gender subgroups show a slight female predominance of rates in all countries. Direct adjustment for 5-year age-gender strata did not materially affect indicator rates across countries, although two countries switched ranks. Underreporting is assumed for countries reporting low rates. Chart 8 supports this assumption and demonstrates how rates of this indicator are correlated with the amount of administrative documentation (Spearman r=0.714, p=0.006); however, not all participating countries provided this additional information. The rates represented in the charts below have not been age-sex standardised or adjusted for secondary diagnoses or length of stay.

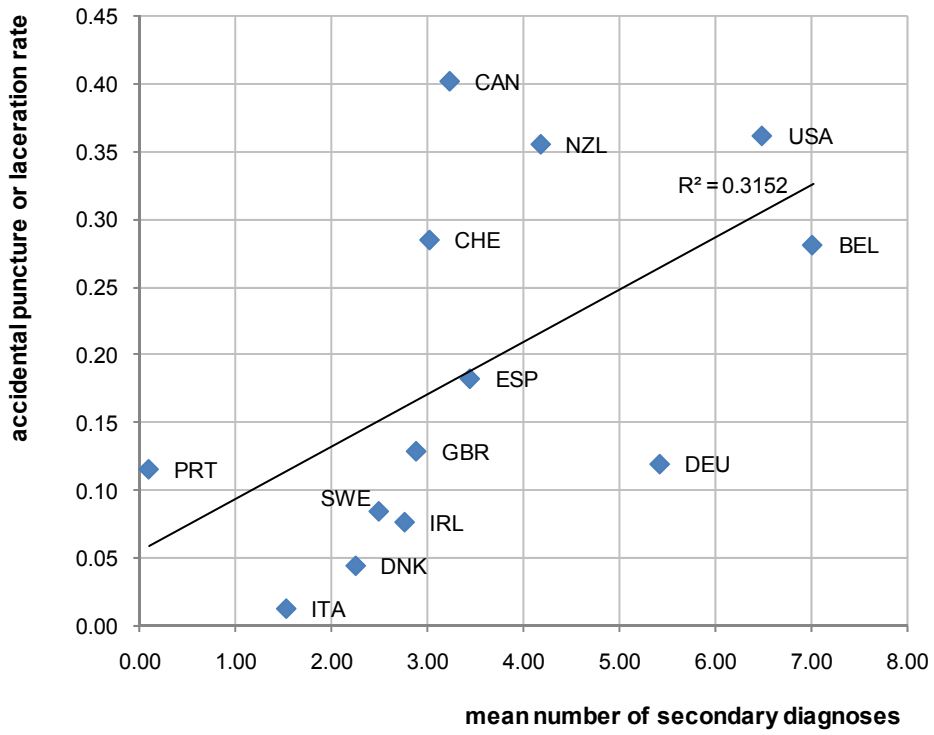
Chart 7. Accidental puncture or laceration rates, 2007



1. 2008. 2. 2006.

Note: Rates based on hospital administrative databases as reported by countries for the research and development work of the HCQI project.

Chart 8. Accidental puncture or laceration rates and mean number of secondary diagnoses



Note: Rates based on hospital administrative databases as reported by countries for the research and development work of the HCQI project.

Foreign body left in during procedure

Validity

63. Rationale and concerns. This indicator captures events related to technical and process limitations of hospital care. Errors relating to the failure to remove surgical instruments at the end of a procedure (*i.e.* needles, knife blades, electrosurgical adaptors, safety pins or sponges) are clinically significant in about 50% of all patients with a 10 % mortality following intra-abdominal surgery (Gonzalez-Ojeda *et al.,* 1999). The true frequency of this adverse event remains unclear as underreporting is assumed. Although this indicator captures a rather infrequent complication, it should be addressed after happening. So called sentinel events might reflect serious process problems. This complication is susceptible to be influenced by the health care system: one study identified risk factors for retained instruments and sponges after surgery, namely emergencies, unplanned changes in procedure and obesity (Gawande *et al.,* 2003). The Joint Commission assesses these events as "reviewable" even when the outcome is not death or major permanent loss of function.

64. The indicator captures surgical as well as medical discharges, based on administrative hospital data. It was proposed in 1994 (Iezzoni *et al.,* 1994) and subsequently further investigated (Miller *et al*.,2001).

65. Content (consensual) validity. Content validity was addressed in the technical report accompanying the original release of the AHRQ PSIs. Although panellists' ratings of the "usefulness" of each candidate indicator were used to select the final PSI set, panellists were also asked to rate each indicator on its preventability and its likelihood of being due to medical error. The median ratings of this indicator on the former dimension from two independent panels were 8 and 7.5, with agreement, leading to classifications of "acceptable" from both panels. The median ratings of this indicator on the latter dimension were 8 and 7, with agreement and indeterminate agreement, respectively, leading to classifications of "acceptable" from both panels. Through similar processes, this PSI was endorsed by the OECD Patient Safety Panel (Millar *et al.* 2004) and the US National Quality Forum, but rejected by the SimPatIE (Safety Improvement for Patients in Europe) project as "not suitable for implementation" due to potential casemix bias (Kristensen *et al.,* 2009). A 47-member Delphi panel convened by RAND rated this indicator "high" in importance, but lower on validity (i.e., median ratings 8 and 6, respectively) (Farley *et al*., 2008).

66. Construct (convergent, predictive) validity. This indicator rates highly on predictive validity. Cases from the NIS that were flagged by this PSI had 2.1% excess mortality, 2.1 days of excess hospitalisation, and $13 300 in excess hospital charges, relative to carefully matched controls that were not flagged (Zhan and Miller, 2003). A more recent replication using 2007 data, corrected for foreign bodies that were reported as "present on admission", estimated 4.5 attributable hospital days and $13 202 in attributable hospital costs for the average case (Foster *et al*., 2009). Finally, the largest reported estimates of these impacts came from a study of children at 38 freestanding paediatric hospitals in the USA in 2006 (i.e., 14.3 hospital days, $144 889 in hospital charges) (Kronman *et al*., 2008).

67. In a study testing construct validity using an implicit process measure of quality (Miller *et al*., 2005), smoothed rates of this PSI among 2 116 hospitals surveyed by the Joint Commission in 1997-1999 were not associated with summary evaluation scores. For both Medicare and Veterans Health Administration patients, this indicator loaded strongly with three other PSIs (accidental puncture or laceration, postoperative haemorrhage or hematoma, and wound dehiscence) on a common factor representing technical complications of care (Rosen *et al.,* 2009). However, unadjusted data from England showed no association between this PSI and readmission (Bottle and Aylin, 2009).

68. Although children aged less than 15 years were excluded from OECD analyses, data on the validity of this indicators in paediatric populations may still be relevant. Physicians participating in the NACHRI Pediatric PSI Collaborative reviewed 45 flagged events from 14 hospitals, using an online tool to assess implicit process of care, and judged 51% to be preventable and only 27% to be clearly non-preventable (Sedman *et al*., 2005; Scanlon *et al.,* 2006). In a follow-up study of 2003-2005 data from 28 children's hospitals (N=72 events), 22% were incorrectly coded and 20% of the remainder were present on admission; 28-50% of all flagged events were judged to be preventable (Scanlon *et al.,* 2008).

69. Criterion validity. No evidence about the criterion validity of this indicator was available before its original release as an AHRQ indicator. This indicator may have a problem due to missing data about timing. Some US data sets now include a "flag" variable denoting whether each diagnosis was present at admission. The percentage of cases flagged by this PSI for whom the event was reported to be a complication of the hospital stay was 64% in California, 76% in New York, 54% in the Rochester, Minnesota area, and 33-80% at the University of Michigan (Houchens *et al*., 2008; Naessens *et al*., 2007; Bahl *et al*., 2008). Hospital-specific rates including foreign bodies reported as present on admission were highly correlated with hospital-specific rates excluding such foreign bodies (r=0.89 in California, r=0.94 in New York).

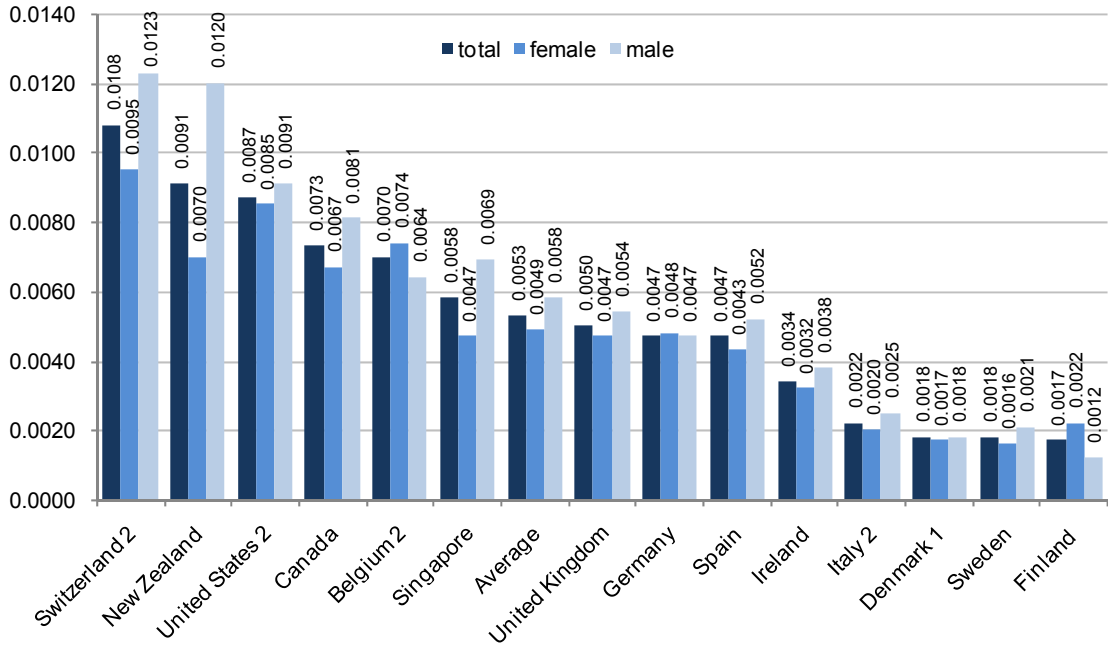
70. A review of medical records of 29 cases from 18 English NHS (National Health Service) trusts found that 10% of the flagged events were present at admission and 38% were miscoded, leaving 52% that were confirmed (Bottle and Aylin, 2008). A validation study in the USA is currently underway. However, recent evidence from New Zealand suggests that a significant number of true events may not be ascertained because they occur after hospital discharge (Stevanovic, 2009).

71. In summary, recent evidence on construct validity and criterion validity is moderately supportive of this indicator. No information on underreporting is currently available. Risk adjustment is not recommended, based on the rarity and sentinel nature of this outcome (AHRQ, 2007).

Findings

72. Reported rates of foreign body left in during procedure vary across participating OECD countries from 2 to 11 cases per 100 000 hospital admissions (Chart 9). Regarding inter-country variability, this indicator varies least across countries among all patient safety indicators. Rather low rates in general reflect the nature of a sentinel event indicator and make scientifically sound interpretations of age or gender subgroup data difficult. Direct adjustment for 5-year age-gender strata did not materially affect indicator rates across countries, although one country moved up two ranks (and two others moved down one rank to compensate). Underreporting is suspected for countries reporting low rates. Chart 10 supports this hypothesis and demonstrates how indicator rates are dependent on the amount of administrative documentation (Spearman r=0.621, p=0.024); however, the relationship is less consistent than for other PSIs. The rates represented in the charts below have not been age-sex standardised or adjusted for secondary diagnoses or length of stay.

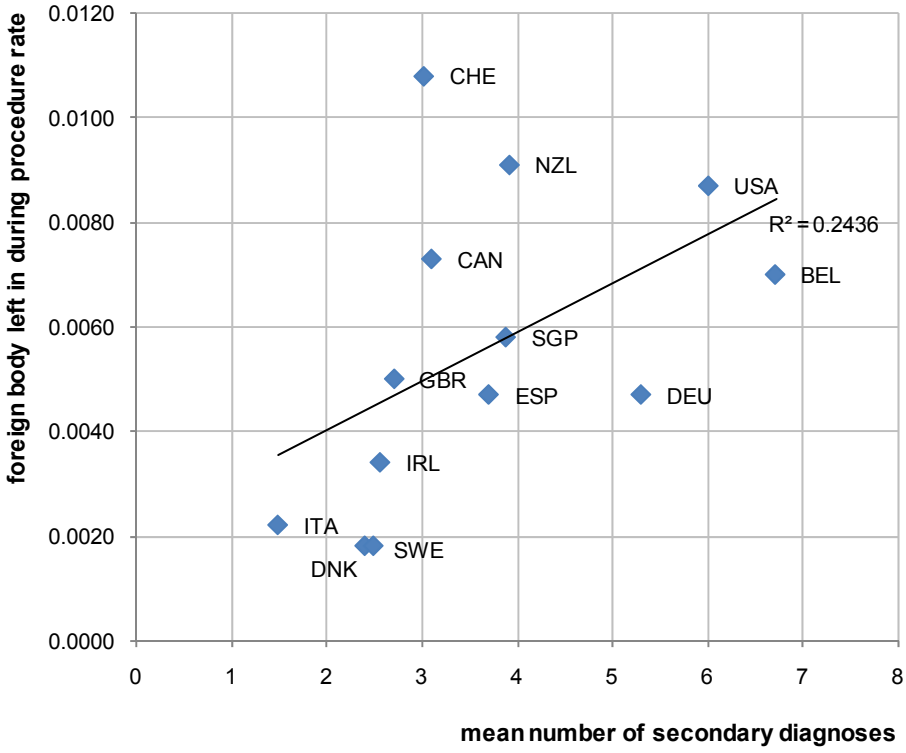
Chart 9. Foreign body left in during procedure rates, 2007



1. 2008. 2. 2006.

Note: Rates based on hospital administrative databases as reported by countries for the research and development work of the HCQI project.

Chart 10. Foreign body left in during procedure and mean number of secondary diagnoses



Note: Rates based on hospital administrative databases as reported by countries for the research and development work of the HCQI project.

Obstetric trauma – vaginal delivery with instrument

Obstetric trauma – vaginal delivery without instrument

Validity

73. *Rationale and concerns*. These indicators are intended to flag cases of potentially preventable trauma (3rd and 4th degree perineal tears) during vaginal delivery. It is estimated that in about 11% of all deliveries perineal trauma associated with subsequent faecal incontinence occurs (Dudding *et al*., 2008). Although risk factors as prolonged labour and no previous deliveries have been identified, precise recommendations for labour management in order to prevent obstetric lacerations remain unclear (Wheeler and Richter, 2007) resulting in an unclear preventability of these indicators. However, the percentage of deliveries involving higher degree lacerations is a useful monitor for the quality of obstetrical care and can assist in reducing the morbidity. Obstetric trauma indicators have been used by the US Joint Commission as well as by different international quality initiatives analysing obstetric data such as "BQS" the German statutory external quality assurance programme. As the risk of a perineal laceration is significantly increased in instrument-assisted labour (vacuum, forceps), rates for this patient population are reported separately.

74. Content (consensual) validity. Content validity was addressed in the technical report accompanying the original release of the AHRQ PSIs. Although panellists' ratings of the "usefulness" of each candidate indicator were used to select the final PSI set, panellists were also asked to rate each indicator on its preventability and its likelihood of being due to medical error. The median rating of this indicator was 7, with agreement, on the former dimension, leading to a classification of "acceptable". The median rating was 5, with disagreement, on the latter dimension, leading to a classification of "unclear". Through similar processes, this PSI was endorsed by both the OECD Patient Safety Panel (Millar *et al.,* 2004) and the SimPatIE (Safety Improvement for Patients in Europe) project (Kristensen *et al.,* 2009). A 47-member Delphi panel convened by RAND rated this indicator "moderate" in importance, but lower on validity (i.e., median ratings 8 and 5, respectively) (Farley *et al*., 2008). A similar indicator was initially implemented by the Joint Commission, which accredits health care organisations in the US, but subsequently withdrawn. The obstetric indicator was withdrawn because of clinical controversy about how often these lacerations are preventable, and whether use of the indicator could inadvertently promote caesarean delivery for questionable clinical indications. Empirically, we found no association between risk-adjusted laceration rates and caesarean rates at the hospital level (unpublished data) in California.

75. Construct (convergent, predictive) validity. This indicator rates moderately on predictive validity. Cases from the NIS that were flagged by this PSI had no excess mortality, but they did have 0.05-0.07 excess hospital days and up to $220 in excess hospital charges, relative to carefully matched controls that were not flagged (Zhan and Miller, 2003). The reported differences in hospital length-of-stay and total charges were small, but statistically significant given the large number of events. A more recent replication using 2007 data, corrected for lacerations that were reported as "present on admission", estimated 0.13-0.14 attributable hospital days and $210-243 in attributable hospital costs for the average case (Foster *et al*., 2009). Finally, a case control analysis from England estimated 0.48-0.56 days of excess hospitalisation (Raleigh *et al*., 2008).

76. In a study testing construct validity using an implicit process measure of quality (Miller *et al*., 2005), smoothed rates of this PSI among 2,116 hospitals surveyed by the Joint Commission in 1997-1999 were positively (counter intuitively) associated (p=0.04) with summary evaluation scores, but only in the subset of women with forceps or vacuum deliveries. Similarly, unadjusted data from England showed no association between this PSI and readmission (Bottle and Aylin, 2009).

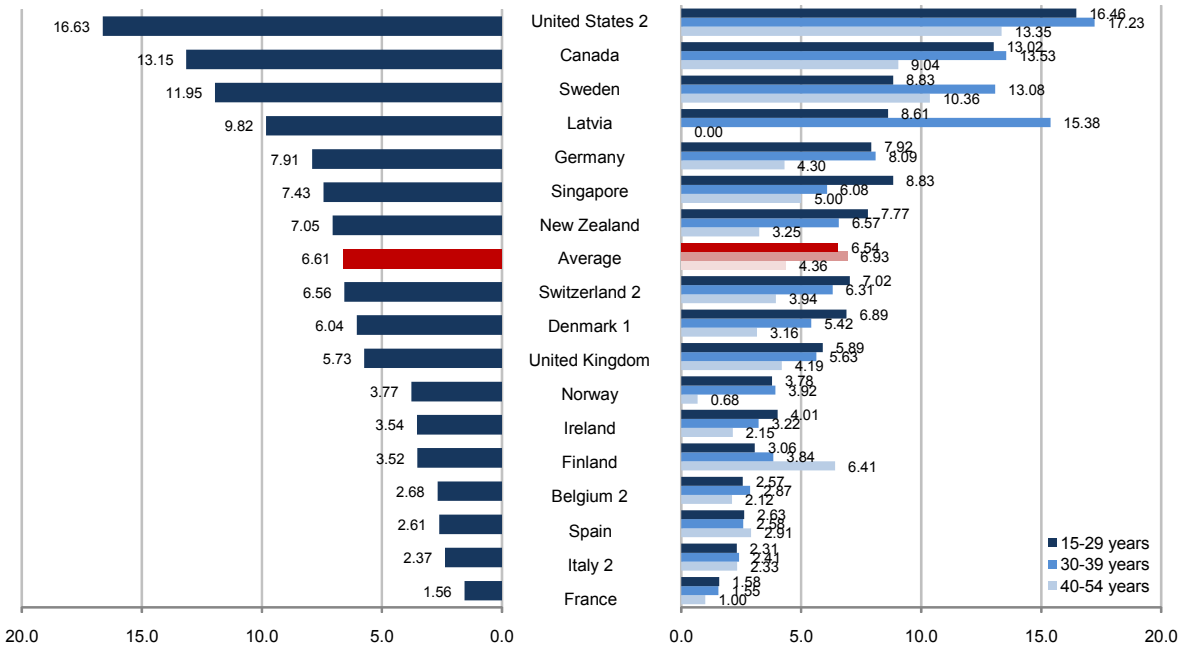
77. Criterion validity. No evidence about the criterion validity of this indicator was available before its release. This indicator is not likely to have a significant problem due to missing data about timing, because the indicator is inherently limited to women who have an in-hospital delivery. The best data about criterion validity come from the California Obstetric Validation Study (Romano *et al*., 2005), which involved a stratified random cluster sample of 1 662 records from 52 hospitals (51% vaginal), of which over 97% were reviewed by an "expert" coder and obstetric nurse abstractor. This PSI demonstrated a sensitivity of 90% (95% CI, 82-96%) and a PPV of 90-95%; adjusting for the complex stratified sampling design increased the sensitivity to 93% (95% CI, 82-97%) but decreased the PPV to 73%. A subsequent study based on a clinical research data set with 393 indicator-positive (3rd/4th degree tears) and 383 indicator-negative vaginal deliveries (Brubaker *et al*., 2007) reported a sensitivity of 77% (95% CI, 72-81%) and a specificity of 99.7% (95% CI, 98.5-99.4%). PPV could not be estimated due to the sampling design, but should be approximately 93% given a typical prevalence of 5%. A similar review of medical records of 955 cases from 18 English NHS (National Health Service) trusts found that none of the flagged events was present at admission and 15% were miscoded, leaving 85% that were confirmed (Bottle and Aylin, 2008).

78. In summary, recent evidence on construct validity of this indicator is inconclusive, but the evidence on criterion validity is quite supportive. Risk adjustment for maternal age and comorbidity is recommended for these indicators (AHRQ, 2007; Grobman *et al*., 2006). To take the individual birth weight of the newborn into account when calculating these indicators would be a desirable risk adjustment approach. As maternal and neonatal data are stored separately in many administrative hospital databases, this methodological improvement is not feasible in most countries.

Findings

79. The rate of obstetric trauma after vaginal delivery with instrument shows rather high variability among countries (Chart 11). Reported rates vary from below 3% (France, Italy, Spain, Belgium) to more than 10% (Sweden, Canada, USA), and the rate of the USA is ten-fold higher than the rate of France. Rates of obstetric trauma after vaginal delivery without instrument (Chart 12) range from 0.2% to 3.8 %. Charts 11 and 12 display corresponding rates by age categories. In most countries, obstetric trauma rates are lower at age 40 years and older, probably due to the fact that in higher age groups, the risk factor of a first delivery is not as frequent as in younger age groups. As two countries (Finland and Sweden) use probably more reliable register data instead of administrative hospital data to report these indicators, validity concerns regarding the obstetric indicators are not as marked as compared to the other patient safety indicators. Direct adjustment for 5-year age-gender strata did not materially affect indicator rates across countries, although two countries moved up one rank (and two others moved down one rank to compensate). Rates of these obstetric indicators were not associated with the mean number of secondary diagnoses at the country level (R^2<2%, p>0.5). Ongoing projects on comparisons of obstetric trauma rates drawn from different data sources will provide information on the validity of these indicators in the near future. The rates represented in the charts below have not been age standardised or adjusted for secondary diagnoses or length of stay.

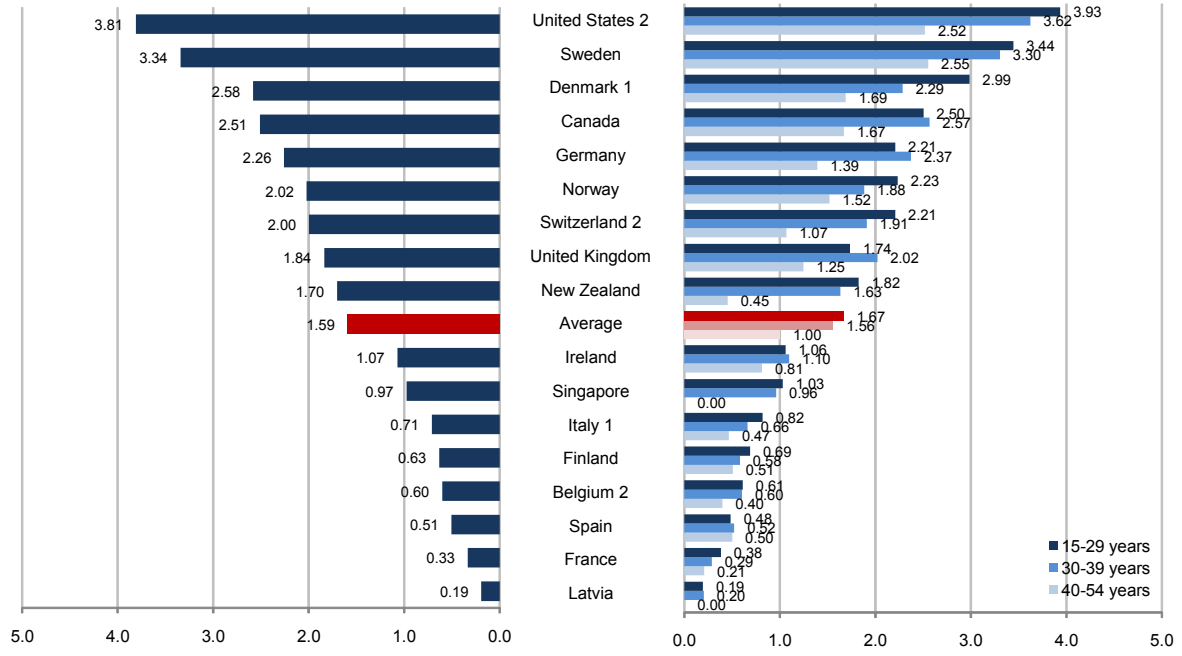
Chart 11. Obstetric trauma after vaginal delivery with instrument



1. 2008. 2. 2006.

Note: Rates based on hospital administrative databases as reported by countries for the research and development work of the HCQI project.

Chart 12. Obstetric trauma after vaginal delivery without instrument



1. 2008. 2. 2006.

Note: Rates based on hospital administrative databases as reported by countries for the research and development work of the HCQI project.

Detailed results

80. Table 6 depicts all reported PSI rates from each country. Empty cells represent missing rates. In one country (Norway), rates of zero (no numerator cases) occurred. PSI rates of zero are suspicious and might reflect under-coding. Table 7 shows minimal and maximal rates for each PSI across all reporting countries, replacing zero rates with the lowest nonzero rate of another country in Table 6 to permit calculation of ratios between the highest and lowest PSI rate. Portugal and Norway contributed most of the minimal values. The ratios between the highest and the lowest rates, representing inter-country variability, were rather high for some PSIs; for example, the ratio was 106 for PSI 7 (catheter-related bloodstream infection). The least variability was found for PSI 5 (foreign body left in during procedure) and obstetric trauma - vaginal delivery with instrument (9.8). Regarding PSI 13 (postoperative sepsis), the reported rates varied between 0.1 and 8.8%.

Table 6. PSI rates (%) reported by 19 countries in 2009

	Foreign body left in during procedure (PSI 5)	Catheter-related blood-stream infection (PSI 7)	Post operative pulmonary embolism or deep vein thrombosis (PSI 12)	Post operative sepsis (PSI 13)	Accidental Puncture or Laceration (PSI 15)	Obstetric trauma – vaginal delivery with instrument (PSI 18)	Obstetric trauma – vaginal delivery without instrument (PSI 19)
Belgium	0.007	0.178	0.470	1.717	0.281	2.682	0.602
Canada	0.007	0.083	0.199	0.398	**0.402**	13.147	2.511
Denmark	0.002	0.033	0.271	0.240	0.045	6.043	2.582
Finland	0.002	**0.004**	0.128	0.264	0.033	3.521	0.633
France						**1.556**	0.338
Germany	0.005	0.128	0.587	0.391	0.120	7.905	2.257
Iceland							**6.681**
Ireland	0.003	0.064	0.575	0.650	0.077	3.537	1.070
Italy	0.002	0.006	0.220	0.144	0.013	2.370	0.710
Latvia						9.821	**0.193**
New Zealand	0.009	**0.425**	0.819	0.505	0.356	7.055	1.704
Norway	**0.000**	0.026	0.438	**8.081**	**0.000**	3.768	2.021
Portugal		0.057	**0.108**	1.493	0.116	1.698	0.632
Singapore	0.006	0.123		**0.140**		7.434	0.975
Spain	0.005	0.189	0.281	0.440	0.183	2.611	0.505
Sweden	0.002	0.013	0.170	0.474	0.085	11.950	3.342
Switzerland	**0.011**	0.056	0.399	0.226	0.285	6.564	1.997
United Kingdom	0.005	0.090	0.754	0.276	0.129	5.731	1.837
United States	0.009	0.205	**1.450**	1.349	0.362	**16.626**	3.811

Note: Rates based on hospital administrative databases as reported by countries for the research and development work of the HCQI project. Minimal and maximal rates printed in bold.

Table 7. Minimum and maximum PSI rates (%) reported by all 18 countries

	N (countries)	Min Rate (%)	Max Rate (%)	Ratio between highest and lowest PSI rate, 16 countries
Foreign body left in during procedure (PSI 5)	15	0.002	0.011	6.0
Catheter-related bloodstream infection (PSI 7)	16	0.004	0.425	106.25
Postoperative pulmonary embolism (PE) or deep vein thrombosis (DVT) (PSI 12)	15	0.108	1.450	13.50
Postoperative sepsis (PSI 13)	16	0.140	8.081	57.73
Accidental Puncture or Laceration (PSI 15)	15	0.013	0.402	31.15
Obstetric trauma - vaginal delivery with instrument (PSI 18)	17	1.556	16.626	10.69
Obstetric trauma - vaginal delivery without instrument (PSI 19)	18	0.193	6.681	34.62

Note: Rates based on hospital administrative databases as reported by countries for the research and development work of the HCQI project.

Administrative reporting

Age and sex adjustment

81. Direct adjustment for age and gender did not materially affect the rates across countries for most indicators.

Secondary diagnoses

82. Thirteen countries reported the average number of secondary diagnoses calculated from the denominator-eligible cases for each PSI; Table 8 shows the corresponding data.

Table 8. Reported averages of secondary diagnoses per PSI

	Foreign body left in during procedure (PSI 5)	Catheter-related bloodstream infection (PSI 7)	Post operative pulmonary embolism (PE) or deep vein thrombosis (DVT) (PSI 12)	Post operative sepsis (PSI 13)	Accidental Puncture or Laceration (PSI 15)	Obstetric trauma – vaginal delivery with instrument (PSI 18)	Obstetric trauma – vaginal delivery w/o instrument (PSI 19)
Belgium	**6.72**	**6.61**	5.63	6.66	**7.02**	4.89	3.75
Canada	3.11	3.00	3.00	2.60	3.24	3.59	2.00
Denmark	2.41	2.55	2.26	1.96	2.26	**6.88**	**6.62**
Germany	5.31	4.98	4.81	4.24	5.43	5.30	3.32
Ireland	2.57	2.61	2.68	1.88	2.77	2.67	1.83
Italy	**1.50**		**0.99**	**0.87**	1.54	**1.79**	1.50
New Zealand	3.93	4.37	4.84	4.25	4.19	3.77	2.20
Norway	1.90	**2.08**	1.76	**7.00**	1.90	2.30	2.00
Portugal		2.50	1.30	2.50	**0.10**		
Singapore	3.89	3.63		2.65		3.85	2.21
Spain	3.71	3.74	2.77	2.48	3.45	3.32	2.79
Sweden	2.50	2.50	3.79	2.60	2.50	2.60	**1.40**
Switzerland	3.03	2.74	2.25	2.80	3.03	4.07	3.09
United Kingdom [1]	2.72	2.83	3.18	2.43	2.89	2.83	1.90
United States	6.02	5.85	**6.20**	6.20	6.50	3.77	2.83

1. Data for the United Kingdom refers to England only.

83. There is currently no valid information on the mean number of secondary diagnoses from Finland, Portugal and Sweden. The United Kingdom reported this information only for England, which contributed most of the cases to the denominator. Age-sex standardised PSI rates were significantly correlated with the mean number of secondary diagnoses across countries for all of the non-obstetric indicators. Among 12 countries that reported the mean number of secondary diagnoses for PSI 15 (accidental puncture or laceration), the Spearman rank correlation coefficient was 0.706 ($p=0.010$). Among 13 countries that reported the mean number of secondary diagnoses for PSI 5 (foreign body left in during procedure), the rank correlation was 0.643 ($p=0.018$). Among 12 countries that reported the mean number of secondary diagnoses for PSI 12 (postoperative PE or DVT), the rank correlation was 0.657 ($p=0.020$). Among 13 countries that reported the mean number of secondary diagnoses for PSI 13 (postoperative sepsis), the rank correlation was 0.643 ($p=0.018$). Among 13 countries that reported the mean number of secondary diagnoses for PSI 7 (catheter-related bloodstream infection), the rank correlation was 0.918 ($p<0.0001$). The corresponding R-squared statistics (proportion of variance explained) ranged from 28% to 52%. Italy, followed by Norway (except PSI 13), reported the lowest mean number of secondary diagnoses among eligible cases, which explains some rather low PSI rates reported by these countries.

84. Based on the consistent country-level association between the mean number of secondary diagnoses (among denominator cases) and rates of all non-obstetric PSIs, it is possible to adjust country-

specific PSI rates for variation in coding intensity. Specifically, an ordinary least squares unweighted regression model was estimated for each PSI using data from all countries that reported both the mean number of secondary diagnoses and the corresponding rate for that PSI. Data from Norway were excluded from the analyses of accidental puncture or laceration, foreign body, and postoperative sepsis, because Norway reported implausibly low (zero) or high rates on these three indicators. The outcome variable in these regression models was a country's age-sex standardised PSI rate; the predictor variable was the mean number of secondary diagnoses among denominator cases. Parameter estimates from these models were used to estimate country-specific residuals, which were then linearly transformed into adjusted PSI rates with the same mean value as the unadjusted but standardised rates. The resulting adjusted PSI rates demonstrate far less variation (measured by the range, maximum-minimum ratio, standard deviation, and coefficient of variation) than unadjusted rates, for all non-obstetric PSIs. Based on the R^2 statistic, 28% to 52% of the observed variation at the country level in PSI rates is attributable to variation in diagnostic coding. Removing this portion of the variation appears to yield more valid country-specific PSI rates.

Length of stay

85. Mean length of stay data among denominator-eligible cases for each indicator were reported by 14 countries. In no case was there a statistically significant association between mean length of stay and the age-sex standardised PSI rate. This finding suggests that international variation in length of stay does not meaningfully contribute to the variation in PSI rates, probably because all participating countries attempted to remove same-day hospital cases in the 2009 cycle of data submission

Year to year reliability

86. To estimate divergence across years, PSI rates reported in the current calculation cycle were compared to rates reported in the 2008 OECD cycle. Most indicators did not significantly change in definition and were used for this analysis. Thirteen of seventeen countries participating in 2008 also participated in 2009 and completely recalculated their PSI rates: Belgium, Canada, Denmark, Finland, Germany, Italy, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, the United Kingdom, and the United States.

87. To assess the reliability of country-specific PSI rates across years, correlation analyses were performed using the 2008 and 2009 rates reported by each country for each PSI. The correlation analyses show high reliability both within countries (Table 9) and within PSIs (Table 10).

88. The year-to-year reliability of PSI rates, based on Pearson's correlation coefficient, was greater than $r=0.94$ ($p \leq 0.01$) for all countries except Portugal. However, the correlation coefficient between Portuguese and US data improved, suggesting that year-to-year reliability was poor simply because of an improvement of the Portuguese data or calculation methods. The correlation coefficient is slightly lower for the United Kingdom than for other countries, probably due to the fact that only data from England were included in last year's calculation.

Table 9. Pearson's correlation coefficients of PSI rates between 2008 and 2009, by participating country

	n (number of PSI rates [%])	Pearson's correlation coefficient	Year of data collection (2008 calculation)	Year of data collection (2009 calculation)
Belgium	7	0.999	2004	2006
Canada	7	1	2006-2007	2007
Denmark	7	1	2007	2008
Finland	7	0.997	2006	2007
Germany	7	0.999	2006	2007
Italy	7	1	2005	2007
New Zealand	7	0.998	2006-2007	2007
Norway	7	0.941	2006	2007
Portugal	6	0.546	2006	2007
Singapore	5	1[2]	2007	2007
Spain	7	0.996	2006	2007
Sweden	7	0.999	2006	2007
United Kingdom	7	0.994	2006-2007	2007
United States	7	1[1]	2006	2006

1.The year-to-year correlation for the USA is close to one, because 2007 data were not yet available from all participating states at the time of this data submission.
2. Singapore used data from the same year of data collection in both calculations and shows a year-to-year correlation close to one.

Table 10. Pearson's correlation coefficients of PSI rates between 2008 and 2009 calculations, by PSI

Indicator name	n (countries)	Pearson's correlation coefficient ($p \leq 0.01$)
Foreign body left in during procedure (PSI 5)	13	0.920
Catheter-related bloodstream infection (PSI 7)	14	0.994
Postoperative pulmonary embolism (PE) or deep vein thrombosis (DVT) (PSI 12)	13	0.821
Postoperative sepsis (PSI 13)	14	0.970
Accidental Puncture or Laceration (PSI 15)	13	0.916
Obstetric trauma – vaginal delivery with instrument (PSI 18)	14	0.996
Obstetric trauma – vaginal delivery without instrument (PSI 19)	14	0.981

89. The year-to-year reliability of PSI 12 (postoperative pulmonary embolism or deep vein thrombosis) was 0.892 ($p \leq 0.01$), which was less than that of the other indicators listed in Table 10.

Conclusions

90. All participating countries performed PSI calculations and contributed data; however, validity concerns arose in the analysis of data from several countries, as discussed above. Criteria to ensure data quality proposed in the last year's project are partially applied: rates of indicators of zero are regarded as invalid (except for the sentinel event indicator transfusion reaction which was not investigated this year) and should not be publicly reported.

91. As several countries did not report average counts of secondary diagnoses, it was not feasible to implement a quality criterion based on the "mean number of secondary diagnoses among denominator cases". As the PSI methodology is based on analyses of secondary diagnoses reported in administrative hospital databases, thorough reporting of the average number of secondary diagnoses together with the corresponding PSI rate will be required in future projects envisaging public reporting.

92. The test-retest analyses suggest excellent reliability for eleven of twelve countries participating in 2008 and 2009 and using data from different collection periods. One country (Portugal) showed poorer year-to-year reliability, probably due to reported difficulties in the data collection and analysis during 2008, with subsequent improvement this year. Similarly, there was good test-to-retest reliability for all tested PSIs except for the postoperative pulmonary embolism or deep vein thrombosis indicator.

93. Standardisation of PSI rates using relatively narrow, five-year age strata proved that international variation in hospitalisation practices and population age structure explains very little of the observed variation in PSI rates. For all of the non obstetric PSIs, the consistent relationship between a country's standardised PSI rate and its mean number of secondary diagnoses is a cause for concern. This finding suggests that some countries have more thorough reporting of secondary diagnoses than others, and that variation in reporting may account for 28-52% of the observed variation in PSI rates. Further analyses are underway to model the impact of underreporting on PSI rates, and to impute corrected PSI rates after adjusting for underreporting. Underreporting does not appear to be an issue for postoperative DVT/PE and obstetric trauma, based on both published literature and empirical analyses of OECD data, although overdiagnosis due to widespread ultrasound screening in some hospitals or areas is an emerging concern for the former PSI.

94. Research and development work on patient safety indicators over the past four years has provided encouraging evidence that system-level patient safety indicators can be calculated from administrative databases by a majority of OECD countries. Although significant advancement in methodology and international comparability has been achieved during this period the requirement remains for ongoing research and development. During 2010-2011, work in this domain will focus on the technical specifications of the existing indicators, impact of different coding practices and classification systems on indicator rates and the potential use of data adjustment methods.

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HEALTH CARE QUALITY INDICATORS PROJECT, PATIENT SAFETY INDICATORS REPORT 2009

ANNEX

Saskia Drösler

Technical Manual for Facilitaing Cross-National Comparisions for Patient Safety Indicators - This document represents a revised and updated version of OECD Technical Paper No. 19 for the set of patient safety indicators calculated for the 2008-2009 data collection of the OECD Health Care Quality Indicators project.

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TABLE OF CONTENTS

INTRODUCTION

1. This technical manual was prepared to assist countries in calculating the Patient Safety Indicators included in the OECD Health Care Quality Indicator data collection for 2008-2009.

2. It provides detailed practical advice on calculating each indicator in a selected set of Patient Safety Indicators (PSI) utilising national hospital administrative databases.

3. The selected indicators are set out in Table 1.

Table 1. Selected patient safety indicators for 2008-2009 HCQI data collection

Area	Indicator name
Hospital-acquired infections	Catheter-related bloodstream infection (PSI 7)
Operative and post-operative complications	Postoperative pulmonary embolism (PE) or deep vein thrombosis (DVT) (PSI 12)
	Postoperative sepsis (PSI 13)
	Accidential puncture or laceration (PSI 15)
Sentinel events	Foreign body left in during procedure (PSI 5)
Obstetrics	Obstetric trauma – vaginal delivery with instrument (PSI 18)
	Obstetric trauma – vaginal delivery without instrument (PSI 19)

4. These indicators are derived from the Quality Indicators developed by the US Agency for Healthcare Research and Quality. AHRQ's Patient Safety Indicators (PSIs) are a set of indicators providing information on potential in hospital complications and adverse events following surgeries, procedures, and childbirth. The PSIs were developed after a comprehensive literature review, analysis of ICD-9-CM codes, clinician panel review, implementation of risk adjustment, and empirical analyses (AHRQ, 2006).

5. For each of these indicators, the manual provides:

- Generic coding and calculation instructions related to national hospital administrative databases,
- Cross walk from ICD 9 to ICD 10 codes for each indicator,
- Detailed definitions for calculation of indicators, and
- Flow charts for visualising the calculation process.

METHODOLOGICAL ISSUES

Introduction

6. The methodology for facilitating internationally comparable Patient Safety Indicators set out in this manual contains two key elements:

- Cross-walk between the key disease classifications
- Detailed process of calculation

7. The Patient Safety Indicators dealt with in this manual are specified according to certain diagnosis and, in some instances, procedure codes. There are currently different medical classifications in use for coding diagnosis; the ICD-9 (International Classification of Diseases) classification which is no longer updated by the World Health Organisation (WHO) is the precursor of the present ICD-10 classification. OECD member countries use ICD-9 (e.g. Spain, USA) as well as ICD-10 (e.g. Australia, Canada, Germany). For that reason this manual contains both versions of the coding system.

8. Usually countries do not use the original version of a classification published by the WHO but modify it according to their needs. Country modifications are still consistent with the WHO version, keeping the structure of the classification tree. In some chapters of the ICD classification the country versions are more extensive than the WHO version while in others they are not. This manual does not cover all the different country versions of the ICD.

9. The technical specifications of diagnosis in this manual are based on the ICD-10-WHO, 2006 and on the ICD-9-CM1. Therefore countries seeking to utilise this manual must ensure that before applying the definitions the defined codes for inclusion or exclusion criteria are currently in use. Otherwise the definitions at hand must be extended to include the subgroups added in the country modifications.

10. For example, Table 2 shows that one three-digit WHO code for decubitus ulcer corresponds to 8 four-digit codes in Canada, 5 four-digit codes in Australia and 50 five-digit German codes. To calculate the numerator for the indicator decubitus ulcer, all country specific subgroups of the listed WHO code L89 must be taken into account.

[1] Definitions in ICD-9-CM are adopted from AHRQ (2003).

Table 2. Examples of country versions

ICD-10 WHO (2006)		ICD-10-CA (Canada, 2006)	ICD-10-AM (Australia, 2006)	ICD-10-GM (Germany, 2006), a 5th digit has to be used to specify the location (10 subgroups)
L89 Decubitus ulcer	**L89.0**	Decubitus ulcer limited to erythema only [redness] without skin breakdown (Stage 1)	Decubitus [pressure] ulcer, stage I	
	L89.1	Decubitus ulcer limited to breakdown of skin (Stage 2)	Decubitus [pressure] ulcer, stage II	Decubitus ulcer Stage 1
	L89.2	Decubitus ulcer with fat layer exposed (Stage 3)	Decubitus [pressure] ulcer, stage III	Decubitus ulcer Stage 2
	L89.3	Decubitus ulcer with depth involving muscle (Stage 4)	Decubitus [pressure] ulcer, stage IV	Decubitus ulcer Stage 3
	L89.4	Decubitus ulcer with depth involving bone (Stage 5)		Decubitus ulcer Stage 4
	L89.5	Decubitus ulcer with joint space involvement (Stage 5)		
	L89.8	Decubitus ulcer with necrosis involving muscle or bone (Stage X)		
	L89.9	Decubitus ulcer without mention of severity	Decubitus [pressure] ulcer, unspecified	Decubitus ulcer, unspecified

11. There are several criteria which are not consistent between countries that may influence the calculated rates of the indicators. These are:

- Coding rules
  - Definition of principal diagnosis
  - Definition of secondary diagnosis
- Use of diagnosis type indicators (e.g. marking of secondary diagnosis as “present at admission”)
- Use of DRG for hospital reimbursement
- Certain administrative case information
  - Admission type (elective, from long-term care, transferred from acute care)
  - Admission weight of neonates

Cross walking from ICD-9 to ICD-10

12. The quantitative relationship between ICD-9 and ICD-10 is not one to one. The ICD-10 is much more extensive than the ICD-9 and structures in the classification trees vary between the two. In a preliminary German project (Drösler *et al.*, 2007), mapping of diagnoses and procedures was performed for each definition of the patient safety indicators (AHRQ 2004). Diagnosis mapping was performed using cross walking tables (DIMDI, 2007) between ICD-9-WHO V6.0 and ICD-10-German Modification 2004 in two steps. Updates of the PSI definitions published by the AHRQ have been appended to the translated version.

13. ICD-10 codes were manually revised after a preliminary crosswalk. Mapped ICD-10 codes with an unclear relationship to the original ICD-9-WHO code were compared to the ICD-9-CM, which is the origin of the AHRQ definitions. ICD-10 codes with correspondence in ICD-9-CM were rejected when the matching ICD-9-CM code had not been selected by the AHRQ. Transferred ICD-10 codes were accepted when the medical concept matched the intention of the AHRQ definition. For example, the ICD-10 code

T80.2 “Infections following infusion, transfusion and therapeutic injection ” was included to the numerator specification of indicator “Catheter-related bloodstream infection ” because it was a mapped result to the corresponding ICD-9-CM-code 999.3 “Complications of medical care, not elsewhere classified: other infection”.

14. Due to the different country versions of the diagnosis classification, for an international project such as the OECD Health Care Quality Indicators project it is necessary to find a common “classification language”. Thus the country specific ICD-10 translations of the indicator definitions have been transformed to the ICD-10-WHO 2006 (WHO, 2006) to serve as the basis for the crosswalk. The ICD-10 codes listed in this manual underwent an international harmonisation process initiated by the International Methodology Consortium for Coded Health Information (IMECCHI) research collaboration (Quan *et al.*, 2008).

Process of Calculation

15. The numerators pertain to subsets of the denominators. Calculate the denominator quantity first. Then apply the numerator definition to the selected denominator data.

Exclusions of Principal Diagnosis

16. Verify the documentation rules for the principal diagnosis (main diagnosis, discharge diagnosis) in use for each country is required to decide how the exclusions of the principal diagnosis should be performed.

Definitions of Principal Diagnosis (PDx)[2]

A. The condition established after evaluation to be chiefly responsible for causing the hospitalisation.

B. The diagnosis that is finally established to be the main reason for the hospital stay; that is demanding the most resources/medical effort over the course of the patients stay.

17. The original AHRQ patient safety manual is based on definition A (Department of Health and Human Services, 2005). For that reason most indicator definitions contain an exclusion rule if the principal diagnosis of the case is equal to a numerator defining ICD code. For these cases it is unlikely that the indicator-defining condition had been acquired during the hospital stay but was pre-existing.

18. In this manual it is assumed that countries using definition B for assignment of principal diagnosis are able to identify the case-related **admission** diagnosis (ADx) in their data sets. In this case patients with admission diagnosis corresponding to the numerator definition of the indicator should be excluded (see left sided flow chart Figure 1. Primary diagnosis algorithm). Furthermore it shall be avoided that countries using definition B for assignment of principal diagnosis miss numerator cases by assigning specific complications as principal diagnosis. If a diagnosis type indicator is in use, data can be properly rearranged (see right sided flow chart Figure 1. Primary diagnosis algorithm).

Secondary diagnosis

19. Patent safety indicators are largely constructed from secondary diagnoses. The calculation of the numerator builds on secondary diagnosis for most of the indicators. The indicator definitions refer to

[2] Adapted from CIHI (2004).

conditions aroused **post admission.** To make sure that all participating countries use the same definition of secondary diagnosis it is presented here:

Definition of Secondary Diagnosis (SDx)[8]

> Comorbid conditions are those conditions for which the patient received treatment and consumed hospital resources in addition to those conditions considered to be the principal, main or discharge diagnosis.

20. Pre-admission conditions without any necessary treatment during the hospital stay do not meet the definition. Pre-admission comorbidities with in-hospital treatment meet the definition of the secondary diagnosis. Countries using diagnosis type indicators have the possibility to distinguish between pre- and post-admission comorbidities. If they perform additional exclusions of numerator cases their calculated rates might be lower than in countries where additional criteria for secondary diagnosis documentation are not in use.

Use of codes for external causes of morbidity and mortality ("E-codes")

21. Several indicators (e.g. Foreign body left in during procedure) build on diagnoses codes from chapter XX of the ICD-10 or the corresponding supplement of the ICD-9 respectively. The WHO designates those codes for additional documentation of external causes of morbidity. The availability of these codes in country modifications of the ICD may vary. Furthermore their use is optional in some countries. Depending on the extent of available e-codes in country modifications indicator rates may vary between countries.

Exclusions of MDC

22. In countries using DRG for hospital reimbursement each case is assigned to a MDC (Major Diagnostic Category) by the grouper software. The MDC assignment relies exclusively on the principal diagnosis of the case (definition A above).The calculation of several indicators (Table 3) requires the exclusion of certain MDCs to ensure that whole populations with high risk for a condition are not counted. For example, MDC 14 (pregnancy, childbirth and puerperium) is excluded from the calculation of indicator Postoperative sepsis. Lists of ICD-10-WHO codes referring to certain MDCs are provided in the Appendix 2 - Code List M[3] for countries using ICD-10 without DRG reimbursement or if the MDC assignment of data is impossible.

Table 3. Indicators with MDC exclusion

MDC	Condition	Indicators
MDC 14	Pregnancy, childbirth and puerperium	Postoperative PE or DVT (PSI 12)
		Postoperative sepsis (PSI 13)
		Accidential puncture or laceration (PSI 15)

Procedure Codes

23. The calculations of three indicators require procedure codes. Those indicators are "Postoperative pulmonary embolism (PE) or deep vein thrombosis (DVT)"and "Obstetric trauma – vaginal delivery with / without instrument". There is no common international medical procedure classification and each country participating in the calculation of the indicators uses a different catalogue for procedure coding. In the

[3] Code lists are adapted from (InEK, 2006 and Commonwealth of Australia, 1998).

project at hand it was not possible to provide a procedure code list for each participating country. The procedure codes from the US ICD-9-CM are listed in this manual because they are part of the original indicator definitions provided by AHRQ. Furthermore, the procedure list provided in this manual shall support countries in adopting corresponding procedures from their classifications in order to perform a precise PSI calculation.

24. Two indicators refer to denominator cases with operative treatment only. Those are:

- Postoperative pulmonary embolism (PE) or deep vein thrombosis (DVT)
- Postoperative sepsis

25. For selection of these cases a comparison between the coded procedures and a list of all operating room procedures available in a country's procedure classification is necessary. For the reasons explained above it is not possible to generate lists of operating room procedures for each country. The following interventional procedures are regarded as operative procedures: Pacemaker Implants, PTCA[4] or endovascular vessel repair. D&C[5] is regarded as an operating room procedure where as a perineal laceration repair during a regular vaginal delivery is not.

Flow Charts

26. For each indicator a flow chart is provided to facilitate the understanding of the indicator definition and the calculation process. For the construction of the flowcharts, definition A of the principal diagnosis ("condition to be chiefly responsible") had been assumed. Countries using definition B ("condition demanding the most resources") for assignment of principal diagnosis are advised to rearrange their data in order to gain comparable results. A proposal for rearrangement is given in the flowchart at Figure 1. Primary diagnosis algorithm.

General Note

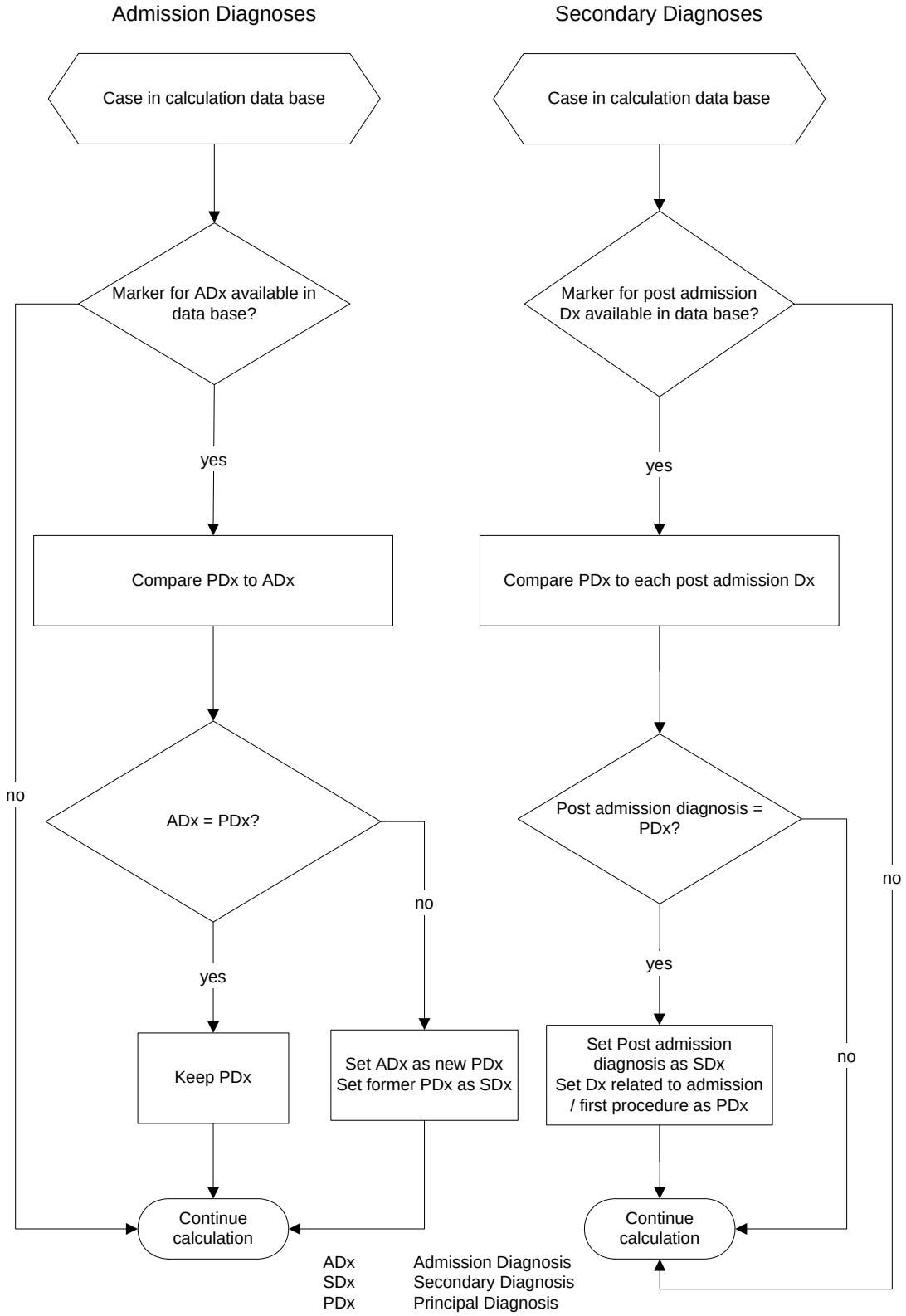
27. Data quality is always a concern in health indicator analysis that can also substantially affect patient safety indicators. In addition to the proposed definitions, a comprehensive review of coding practices, distribution of key data elements and country specific coding standards is strongly recommended for data analysis of these PSIs. Given the nature of the PSIs, small sample size may lead to less precise estimates and requires special attention when reporting these indicators. All of these factors can affect comparability of the PSIs, and need to be addressed when making such comparisons.

[4] Percutaneous Transluminal Coronary Angioplasty, an intervention in cardiology.

[5] Dilation and Curettage, a gynaecological or obstetric treatment.

Figure 1. Primary Diagnosis Algorithm

Algorithms for countries using principal diagnosis definition 2 ("condition demanding the most resources"). Repeat algorithm for each case.



QUICK STEP OVERVIEW OF ESSENTIAL TASKS FOR DATA PREPARATION

1) The following outlines the key steps in preparing data for the calculation of the Patient Safety Indicators.

2) Convert listed ICD codes to your country's version of ICD.

3) Look up in your ICD classification if there are codes available for SIRS (Systemic Inflammatory Response syndrome). If these codes are available add them to the numerator inclusion list of the indicator *Postoperative Sepsis*.

4) Look up the procedure codes in use in your country procedure classification for the following procedures:

    a. "Interruption of Vena Cava"
        i. Add a) to the denominator calculation of indicator *Postoperative pulmonary embolism (PE) or deep vein thrombosis (DVT)*.
    b. "Obstetric Trauma"
        i. Add b) to the numerator calculation of all Obstetric trauma indicators.
    c. "Instrument-Assisted Delivery procedure codes"
        i. Use c) to select the denominator population of indicator Obstetric trauma - vaginal delivery with instrument.

5) Check the definition of principal diagnosis (PDx) applied in your country.

6) If the PDx definition is "the condition to be chiefly responsible" proceed to step 6. If the PDx definition is "the condition demanding the most resources", rearrange the data as shown in the flowchart at Figure 1. Primary diagnosis algorithm.

7) Flag cases with OR (operating room) procedures designated as "surgical". A comprehensive list of OR procedures must be provided by your country. An exemplarily list of OR procedures in ICD-9 CM is provided in Appendix 1 of this manual.

8) Check if your database contains cases treated in psychiatric institutions. Such cases are to be excluded from the calculation, however particular psychiatric cases treated in acute care institutions can be retained.

9) Check to which length of stay (either 0 days or 1 day) same day cases are assigned in your database. Make sure that those cases with a length of stay < 24 hours (or 0 days, if a time stamp is not available in the data) are excluded from the calculation of PSIs 5 and 15. Definitions of PSIs 7 and 13 already contain explicit rules for length of stay exclusions.

10) Apply calculation algorithm to each case as shown in the indicator-related flowcharts.

Table 4. List of minimal case-related data-fields used for indicator calculation

Data fields - Case	Mandatory Information	Possible Variables - Used for QI Calculation
patient ID	x	
patient age	x	years
length of stay	x	days
admission status	x	elective - emergency - birth
admission source		home - from acute care - from long-term care
principal diagnosis	x	
secondary diagnosis		data field should be repeated - number of repetitions depends on the country's definition of the dataset
procedure		data field may repeat - number of repetitions depends on the country's definition of the dataset
date of procedure		dependant on data field procedure

DETAILED DEFINITIONS OF INDICATORS

Catheter-related bloodstream infection, secondary diagnosis field per 100 discharges (PSI 7)

Numerator:

Discharges with selected ICD-codes in any secondary diagnosis field among cases meeting the inclusion and exclusion rules for the denominator.

ICD-9-CM

Discharges with ICD-9-CM code of 999.3 or 996.62 in any secondary diagnosis field.

999.3	Complications of medical care, not elsewhere classified: Other infection
996.62	Infection and inflammatory reaction due to internal prosthetic device, implant, and graft: Due to vascular device, implant and graft

ICD-10-WHO

Discharges with ICD-10-WHO code of T80.2 or T82.7 or T88.0 in any secondary diagnosis field.

T80.2	Infections following infusion, transfusion and therapeutic injection
T82.7	Infection and inflammatory reaction due to other cardiac and vascular devices, implants and grafts
T88.0	Infection following immunization

Denominator:

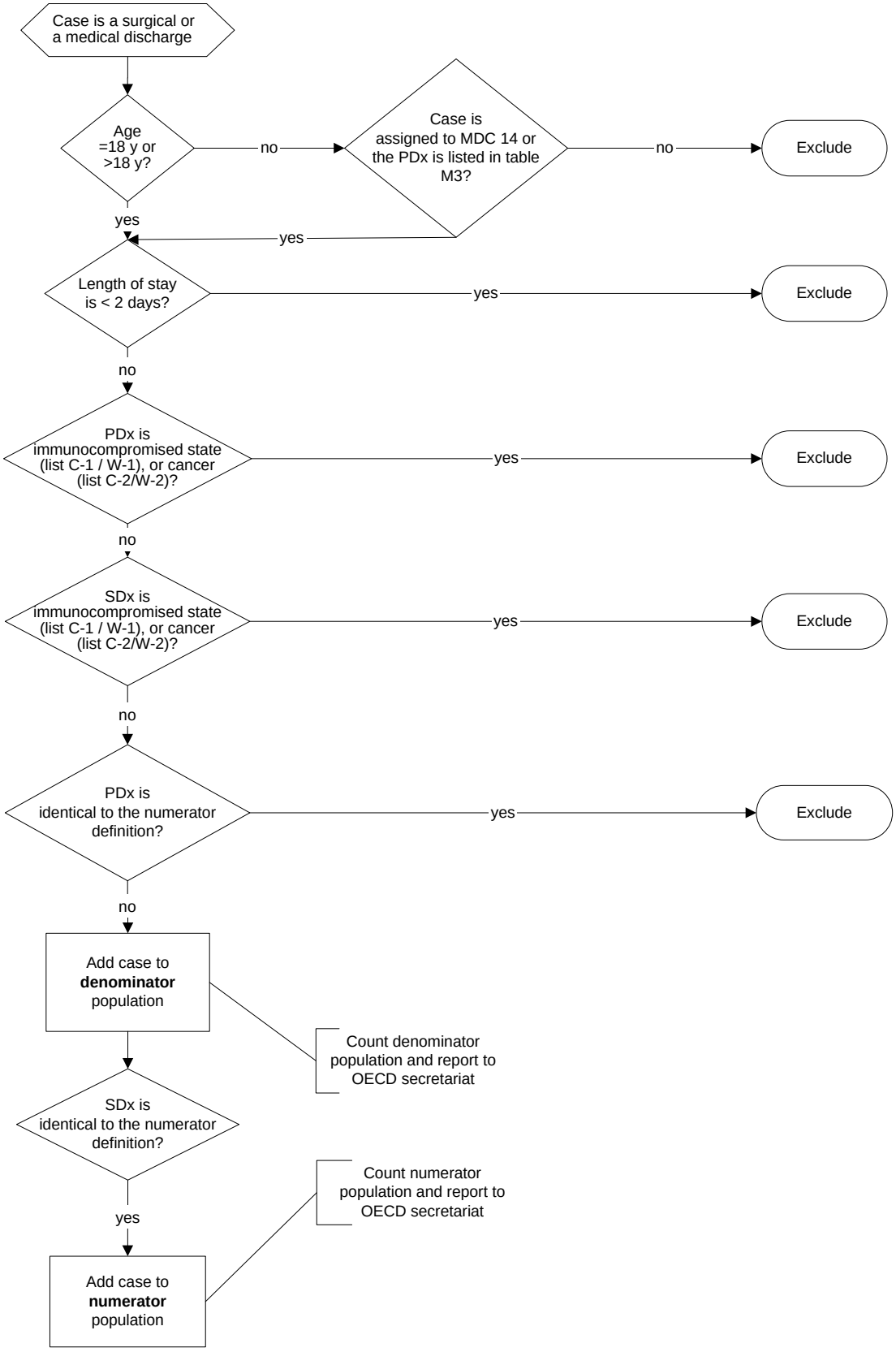
All surgical and medical discharges, 18 years and older **or** MDC 14 (pregnancy, childbirth, and puerperium). Assign a principal diagnosis from Appendix 2 - Code List M-3 if criteria "MDC 14" is not available.

Exclude cases:

- with **ICD-9-CM** code of 999.3 or 996.62 in the principal diagnosis field or secondary diagnosis present on admission, if known
- with **ICD-10-WHO** code of T80.2 or T82.7 or T88.0 in the principal diagnosis field
- with length of stay less than 2 days
- with any code for immunocompromised state or cancer (principal diagnosis or secondary diagnosis)

See Appendix 1 - Code List C-1 for ICD-9-CM immunocompromised state codes
See Appendix 1 - Code List W-1 for ICD-10-WHO immunocompromised state codes
See Appendix 1 - Code List C-2 for ICD-9-CM cancer codes
See Appendix 1 - Code List W-2 for ICD-10-WHO cancer codes

Catheter-Related Bloodstream Infection



Postoperative pulmonary embolism (PE) or deep vein thrombosis (DVT), secondary diagnosis field per 100 discharges (PSI 12)

Numerator:

Discharges among cases meeting the inclusion and exclusion rules for the denominator with ICD codes for deep vein thrombosis or pulmonary embolism in any secondary diagnosis field.

ICD-9-CM Pulmonary Embolism and Deep Vein Thrombosis diagnosis codes:

ICD-9-CM Pulmonary Embolism diagnosis codes:

41511	Iatrogenic pulmonary embolism and infarction
41519	Pulmonary embolism and infarction, other

ICD-9-CM Deep Vein Thrombosis diagnosis codes:

45111	Phlebitis and thrombosis of femoral vein (deep) (superficial)
45119	Phlebitis and thrombophlebitis of deep vessel of lower extremities – other
4512	Phlebitis and thrombophlebitis of lower extremities
45181	Phlebitis and thrombophlebitis of iliac vein
4519	Phlebitis and thrombophlebitis of other sites – of unspecified site
45340	DVT-emblsm lower ext nos (Oct 04)
45341	DVT-emb prox lower ext
45342	DVT-emb distal lower ext
4538	Other venous embolism and thrombosis of other specified veins
4539	Other venous embolism and thrombosis of unspecified site

ICD-10-WHO Pulmonary Embolism and Deep Vein Thrombosis diagnosis codes:

I26.0	Pulmonary embolism with mention of acute cor pulmonale
I26.9	Pulmonary embolism without mention of acute cor pulmonale
I80.1	Phlebitis and thrombophlebitis of femoral vein
I80.2	Phlebitis and thrombophlebitis of other deep vessels of lower extremities
I80.3	Phlebitis and thrombophlebitis of lower extremities, unspecified
I80.8	Phlebitis and thrombophlebitis of other sites
I80.9	Phlebitis and thrombophlebitis of unspecified site
I82.8	Embolism and thrombosis of other specified veins
I82.9	Embolism and thrombosis of unspecified vein

Denominator:

All surgical discharges age 18 and older with a code for an operating room procedure

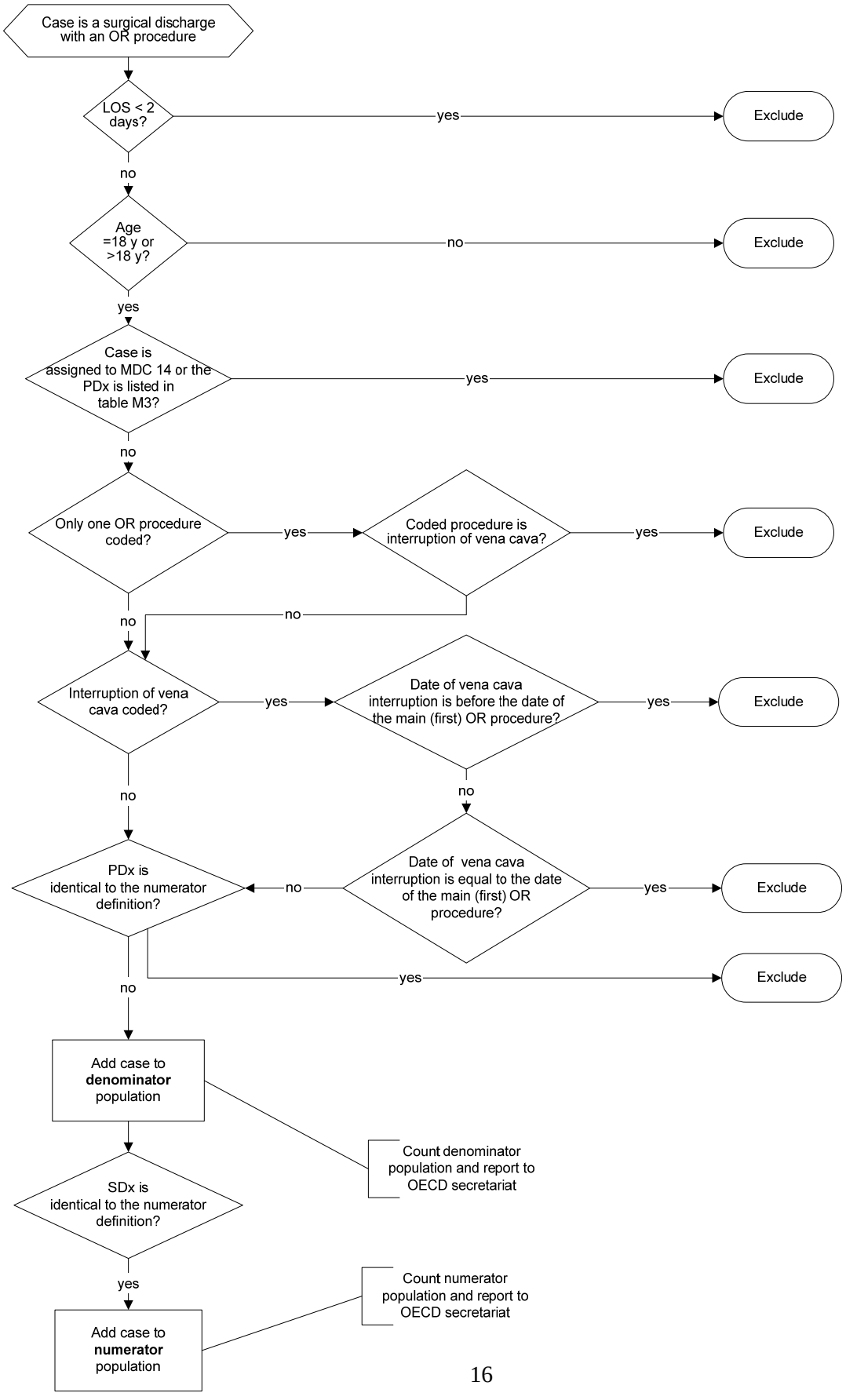
Exclude cases:

- with pre-existing (principal diagnosis or secondary diagnosis present on admission, if known) deep vein thrombosis or pulmonary embolism
- where a procedure for interruption of vena cava is the only operating room procedure
- where a procedure for interruption of vena cava occurs before or on the same day as the first / main operating room procedure. (Note that if day of procedure is not available in the input data file, the rate may be slightly lower than if the information was available)
- MDC 14 (pregnancy, childbirth, and puerperium) or principal diagnosis in Appendix M-3
- with length of stay less than 2 days

ICD-9-CM Interruption of Vena Cava procedure code:

387	Interruption of vena cava

Postoperative Pulmonary Embolism (PE) or Deep Vein Thrombosis (DVT)



Postoperative sepsis, secondary diagnosis field per 100 discharges (PSI 13)

Numerator:

Discharges among cases meeting the inclusion and exclusion rules for the denominator with ICD code for sepsis in any secondary diagnosis field.

ICD-9-CM Sepsis diagnosis codes:

0380	Streptococcal septicaemia
03810	Staphylococcal ependence, unspecified
03811	Staphylococcus aureus septicaemia
03819	Other staphylococcal septicaemia
0382	Pneumococcal ependence (streptococcus pneumoniale ependence)
0383	Septicaemia due to anaerobes
78552	Septic shock
78559	Other shock w/o mention of trauma
9980	Postoperative shock

Septicaemia due to:

03840	Gram-negative organism, unspecified
03841	Hemophilus influenzae
03842	Escherichia coli
03843	Pseudomonas
03844	Serratia
03849	Septicaemia due to other gram-negative organisms
0388	Other specified septicaemias
0389	Unspecified septicaemia
99591	Systemic inflammatory response syndrome due to infectious process w/o organ dysfunction
99592	Systematic inflammatory response syndrome due to infectious process w/organ dysfunction

ICD-10-WHO Sepsis diagnosis codes:

A40.0	Septicaemia due to streptococcus, group a
A40.1	Septicaemia due to streptococcus, group b
A40.2	Septicaemia due to streptococcus, group d
A40.3	Septicaemia due to streptococcus pneumoniae
A40.8	Other streptococcal septicaemia
A40.9	Streptococcal septicaemia, unspecified
A41.0	Septicaemia due to staphylococcus aureus
A41.1	Septicaemia due to other specified staphylococcus
A41.2	Septicaemia due to unspecified staphylococcus
A41.3	Septicaemia due to haemophilus influenzae
A41.4	Septicaemia due to anaerobes
A41.5	Septicaemia due to other gram-negative organisms
A41.8	Other specified septicaemia
A41.9	Septicaemia, unspecified
R57.8	Other shock
T81.1	Shock during or resulting from a procedure, not elsewhere classified

Note: If country version of ICD contains a certain ICD-code for SIRS (Systemic Inflammatory Response syndrome, ICD-10: R65.-) add to numerator inclusion list.

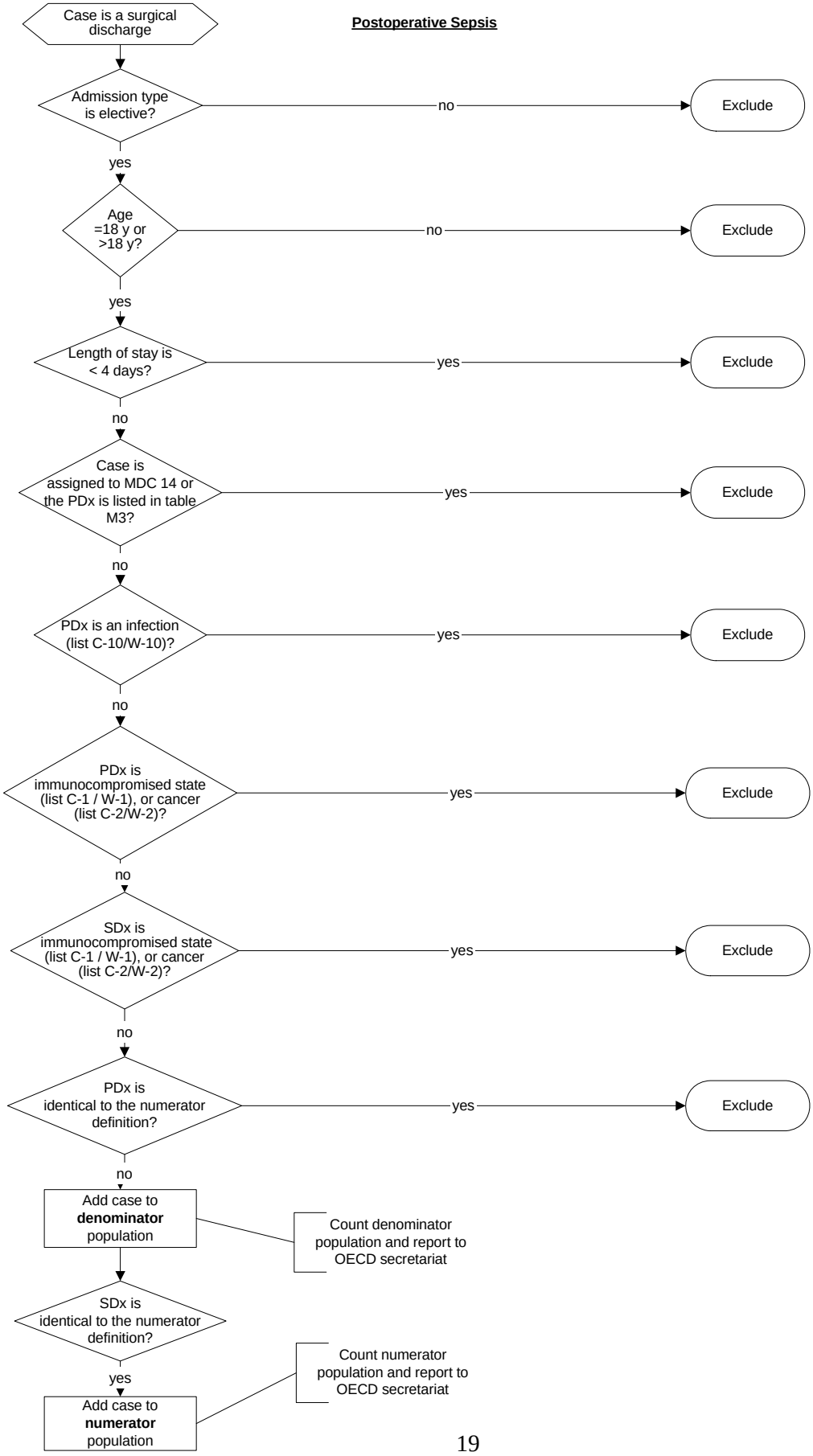
Denominator:

All **elective** (defined by the admission type) surgical discharges age 18 and older with a code for an operating room procedure.

Exclude cases:

- with pre-existing (principal diagnosis or secondary diagnosis present on admission, if known) sepsis or infection
- with a **principal diagnosis of infection**, **or any** code for immunocompromised state, or cancer
- MDC 14 (pregnancy, childbirth, and puerperium) or principal diagnosis in Appendix 2 - Code List M-3
- with length of stay of less than 4 days

See Appendix 1 - Code List C-1 for ICD-9-CM immunocompromised state codes
See Appendix 1 - Code List W-1 for ICD-10-WHO immunocompromised state codes
See Appendix 1 - Code List C-2 for ICD-9-CM cancer codes
See Appendix 1 - Code List W-2 for ICD-10-WHO cancer codes
See Appendix 1 - Code List C-10 for ICD-9-CM infection codes
See Appendix 1 - Code List W-10 for ICD-10-WHO infection codes


Postoperative Sepsis
Case is a surgical discharge
Admission type is elective?
no
Exclude
yes
Age =18 y or >18 y?
no
Exclude
yes
Length of stay is < 4 days?
yes
Exclude
no
Case is assigned to MDC 14 or the PDx is listed in table M3?
yes
Exclude
no
PDx is an infection (list C-10/W-10)?
yes
Exclude
no
PDx is immunocompromised state (list C-1 / W-1), or cancer (list C-2/W-2)?
yes
Exclude
no
SDx is immunocompromised state (list C-1 / W-1), or cancer (list C-2/W-2)?
yes
Exclude
no
PDx is identical to the numerator definition?
yes
Exclude
no
Add case to **denominator** population
Count denominator population and report to OECD secretariat
SDx is identical to the numerator definition?
yes
Count numerator population and report to OECD secretariat
Add case to **numerator** population

Accidental puncture or laceration, secondary diagnosis field per 100 discharges (PSI 15)

Numerator:

Discharges among cases meeting the inclusion and exclusion rules for the denominator with ICD code denoting accidental cut, puncture, perforation or laceration during a procedure in any secondary diagnosis field.

ICD-9-CM Accidental Puncture or Laceration diagnosis codes:
Accidental cut, puncture, perforation, or haemorrhage during medical care.

E8700	Surgical operation
E8701	Infusion or transfusion
E8702	Kidney dialysis or other perfusion
E8703	Injection or vaccination
E8704	Endoscopic examination
E8705	Aspiration of fluid or tissue, puncture, and catheterization
E8706	Heart catheterization
E8707	Administration of enema
E8708	Other specified medical care
E8709	Unspecified medical care
9982	Accidental puncture or laceration during a procedure

ICD-10-WHO Accidental Puncture or Laceration diagnosis codes:

T81.2	Accidental puncture and laceration during a procedure, not elsewhere classified
Y60.0	Unintentional cut, puncture, perforation or haemorrhage during surgical and medical care: during surgical operation
Y60.1	Unintentional cut, puncture, perforation or haemorrhage during surgical and medical care: during infusion or transfusion
Y60.2	Unintentional cut, puncture, perforation or haemorrhage during surgical and medical care: during kidney dialysis or other perfusion
Y60.3	Unintentional cut, puncture, perforation or haemorrhage during surgical and medical care: during injection or immunization
Y60.4	Unintentional cut, puncture, perforation or haemorrhage during surgical and medical care: during endoscopic examination
Y60.5	Unintentional cut, puncture, perforation or haemorrhage during surgical and medical care: during heart catheterization
Y60.6	Unintentional cut, puncture, perforation or haemorrhage during surgical and medical care: during aspiration, puncture and other catheterization
Y60.7	Unintentional cut, puncture, perforation or haemorrhage during surgical and medical care: during administration of enema
Y60.8	Unintentional cut, puncture, perforation or haemorrhage during surgical and medical care: during other surgical and medical care
Y60.9	Unintentional cut, puncture, perforation or haemorrhage during surgical and medical care: during unspecified surgical and medical care

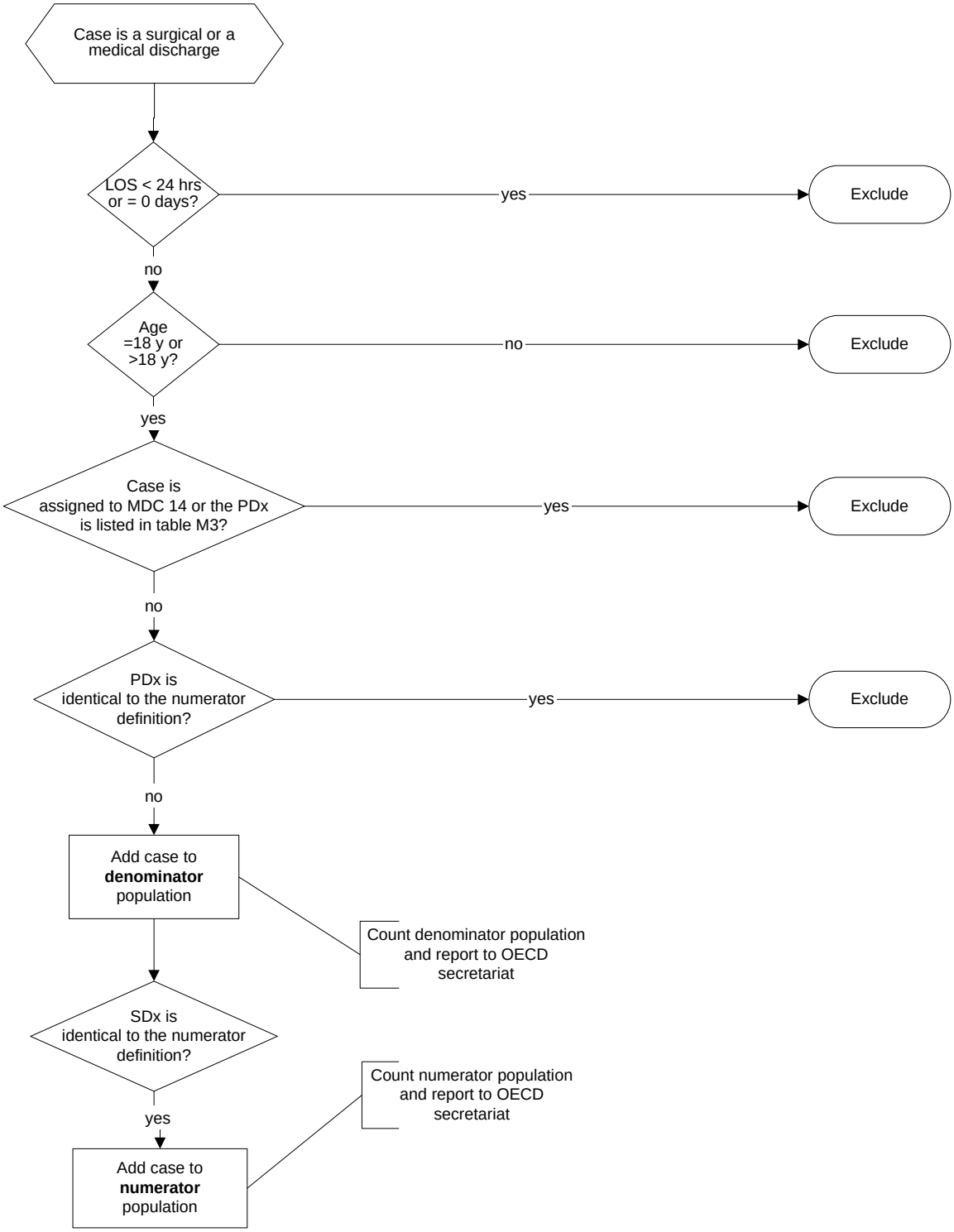
Denominator:

All surgical and medical discharges age 18 years and older.

Exclude cases:

- with ICD-9-CM code denoting technical difficulty (e.g., accidental cut, puncture, perforation, or laceration) in the principal diagnosis field or secondary diagnosis present on admission, if known
- MDC 14 (pregnancy, childbirth, and puerperium) or principal diagnosis in Appendix 2 - Code List M-3
- with a length of stay less than 24 hours (in those countries where a timestamp of admission or discharge is not available cases with a length of stay of 0 days shall be excluded)

Accidential puncture or laceration



Foreign body left in during procedure, secondary diagnosis field per 100 discharges (PSI 5)

Numerator:

Discharges with ICD codes for foreign body left in during procedure in any secondary diagnosis field among cases meeting the inclusion and exclusion rules for the denominator.

ICD-9-CM Foreign Body Left in During Procedure diagnosis codes:

9984	Foreign body accidentally left during a procedure
9987	Acute reactions to foreign substance accidentally left during a procedure

Foreign body left in during:

E8710	Surgical operation
E8711	Infusion or transfusion
E8712	Kidney dialysis or other perfusion
E8713	Injection or vaccination
E8714	Endoscopic examination
E8715	Aspiration of fluid or tissue, puncture, and catheterization
E8716	Heart catheterization
E8717	Removal of catheter or packing
E8718	Other specified procedures
E8719	Unspecified procedure

ICD-10-WHO Foreign Body Left in During Procedure diagnosis codes:

T81.5	Foreign body accidentally left in body cavity or operation wound following a procedure
T81.6	Acute reaction to foreign substance accidentally left during a procedure
Y61.0	Foreign object accidentally left in body during surgical and medical care: During surgical operation
Y61.1	Foreign object accidentally left in body during surgical and medical care: During infusion or transfusion
Y61.2	Foreign object accidentally left in body during surgical and medical care: During kidney dialysis or other perfusion
Y61.3	Foreign object accidentally left in body during surgical and medical care: During injection or immunization
Y61.4	Foreign object accidentally left in body during surgical and medical care: During endoscopic examination
Y61.5	Foreign object accidentally left in body during surgical and medical care: During heart catheterization
Y61.6	Foreign object accidentally left in body during surgical and medical care: During aspiration, puncture and other catheterization
Y61.7	Foreign object accidentally left in body during surgical and medical care: During removal of catheter or packing
Y61.8	Foreign object accidentally left in body during surgical and medical care: During other surgical and medical care
Y61.9	Foreign object accidentally left in body during surgical and medical care: During unspecified surgical and medical care

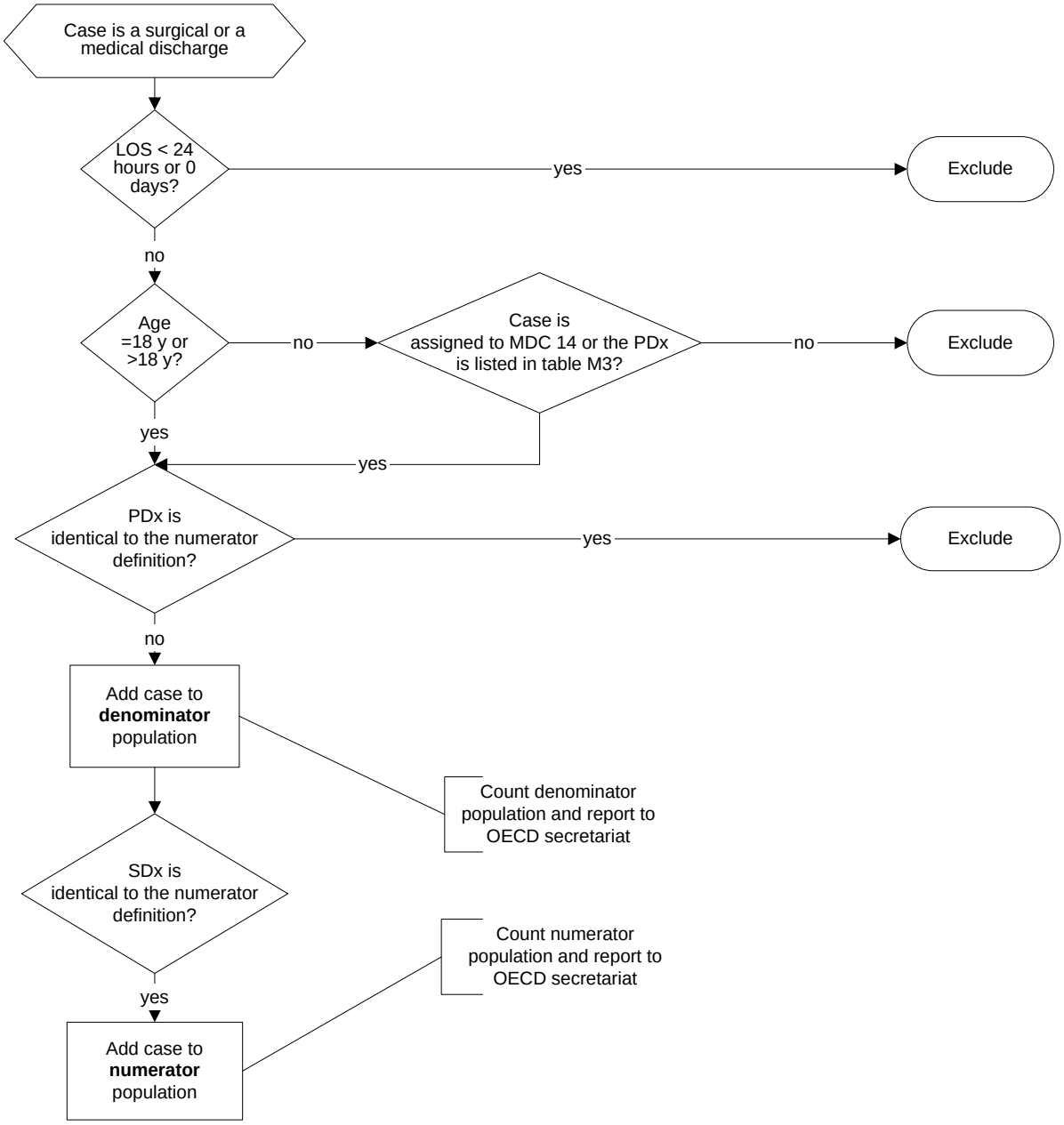
Denominator:

All surgical and medical discharges, 18 years and older **or** MDC 14 (pregnancy, childbirth, and puerperium). Assign a principal diagnosis from Appendix 2 - Code List M-3 if criteria "MDC 14" is not available.

Exclude cases

- with ICD-9-CM codes for foreign body left in during procedure in the principal diagnosis field or secondary diagnosis present on admission, if known.
- with a length of stay less than 24 hours (in those countries where a timestamp of admission or discharge is not available cases with a length of stay of 0 days shall be excluded)

Foreign body left in during procedure



Obstetric trauma – vaginal delivery with instrument, any diagnosis or procedure field per 100 vaginal deliveries (PSI 18)

Numerator[6]:

Discharges among cases meeting the inclusion and exclusion rules for the denominator with ICD-9-CM codes for 3rd and 4th degree obstetric trauma in any diagnosis or procedure field.

ICD-9-CM Obstetric Trauma diagnosis codes:

66420.1,4	Trauma to perineum and vulva during delivery, third degree perineal laceration
66430.1,4	Trauma to perineum and vulva during delivery, fourth degree perineal laceration

ICD-9-CM Obstetric Trauma procedure codes:

7550	Repair of current obstetric lacerations of uterus
7551	Repair of current obstetric lacerations of cervix
7552	Repair of current obstetric lacerations of corpus uteri
7561	Repair of current obstetric lacerations of bladder and urethra
7562	Repair of current obstetric lacerations of rectum and sphincter

ICD-10-WHO Obstetric Trauma diagnosis codes:

O70.2	Third degree perineal laceration during delivery
O70.3	Fourth degree perineal laceration during delivery

Denominator:

All vaginal delivery discharges with any procedure code for instrument-assisted delivery.

ICD-9-CM Instrument-Assisted Delivery procedure codes:

720	Low forceps operation
721	Low forceps operation w/ episiotomy
7221	Mid forceps operation w/ episiotomy
7229	Other mid forceps operation
7231	High forceps operation w/ episiotomy
7239	Other high forceps operation
724	Forceps rotation of fetal head
7251	Partial breech extraction w/ forceps to aftercoming head
7253	Total breech extraction w/ forceps to aftercoming head
726	Forceps application to aftercoming head
7271	Vacuum extraction w/ episiotomy
7279	Vacuum extraction delivery nec
728	Other specified instrumental delivery
729	Unspecified instrumental delivery

6 In contrast to OECD Health Technical Paper No.18 (OECD, 2004) the definition of this numerator had been harmonised to the AHRQ definition.

ICD-9-CM Outcome of delivery codes:

Note: This category is intended for the coding of the outcome of delivery on the mother's record. (Department of Health and Human Services, 2007)

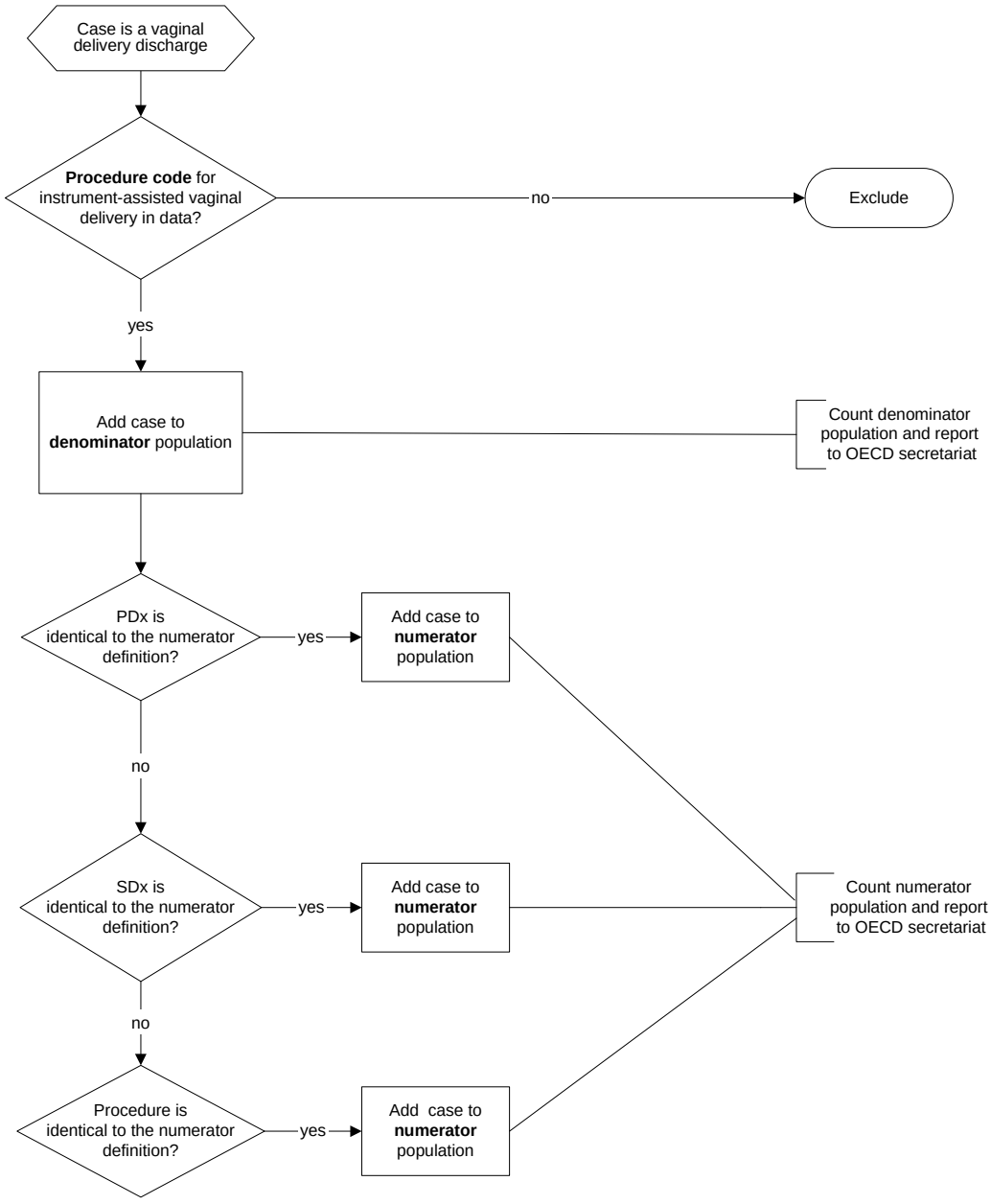
V27.0	Single liveborn
V27.1	Single stillborn
V27.2	Twins, both liveborn
V27.3	Twins, one liveborn and one stillborn
V27.4	Twins, both stillborn
V27.5	Other multiple birth, all liveborn
V27.6	Other multiple birth, some liveborn
V27.7	Other multiple birth, all stillborm
V27.9	Unspecified outcome of delivery

ICD-10-WHO Outcome of delivery codes:

Note: This category is intended for use as an additional code to identify the outcome of delivery on the mother's record. (WHO, 2006)

Z37.0	Single live birth
Z37.1	Single stillbirth
Z37.2	Twins, both liveborn
Z37.3	Twins, one liveborn and one stillborn
Z37.4	Twins, both stillborn
Z37.5	Other multiple births, all liveborn
Z37.6	Other multiple births, some liveborn
Z37.7	Other multiple births, all stillborn
Z37.9	Outcome of delivery, unspecified

Obstetric trauma - Vaginal Delivery with Instrument



Obstetric trauma—vaginal delivery without instrument (PSI 19)

Numerator:

Discharges among cases meeting the inclusion and exclusion rules for the denominator with ICD-9-CM codes for 3rd and 4th degree obstetric trauma in any diagnosis or procedure field.

ICD-9-CM Obstetric Trauma diagnosis codes:

66420.1,4	Trauma to perineum and vulva during delivery, third degree perineal laceration
66430.1,4	Trauma to perineum and vulva during delivery, fourth degree perineal laceration

ICD-9-CM Obstetric Trauma procedure codes:

7550	Repair of current obstetric lacerations of uterus
7551	Repair of current obstetric lacerations of cervix
7552	Repair of current obstetric lacerations of corpus uteri
7561	Repair of current obstetric lacerations of bladder and urethra
7562	Repair of current obstetric lacerations of rectum and sphincter

ICD-10-WHO Obstetric Trauma diagnosis codes:

O70.2	Third degree perineal laceration during delivery
O70.3	Fourth degree perineal laceration during delivery

Denominator:

All vaginal delivery discharge patients.

ICD-9-CM Outcome of delivery codes:

Note: This category is intended for the coding of the outcome of delivery on the mother's record. (Department of Health and Human Services, 2007)

V27.0	Single liveborn
V27.1	Single stillborn
V27.2	Twins, both liveborn
V27.3	Twins, one liveborn and one stillborn
V27.4	Twins, both stillborn
V27.5	Other multiple birth, all liveborn
V27.6	Other multiple birth, some liveborn
V27.7	Other multiple birth, all stillborm
V27.9	Unspecified outcome of delivery

ICD-10-WHO Outcome of delivery codes:

Note: This category is intended for use as an additional code to identify the outcome of delivery on the mother's record. (WHO, 2006)

Z37.0	Single live birth
Z37.1	Single stillbirth
Z37.2	Twins, both liveborn
Z37.3	Twins, one liveborn and one stillborn
Z37.4	Twins, both stillborn
Z37.5	Other multiple births, all liveborn
Z37.6	Other multiple births, some liveborn
Z37.7	Other multiple births, all stillborn
Z37.9	Outcome of delivery, unspecified

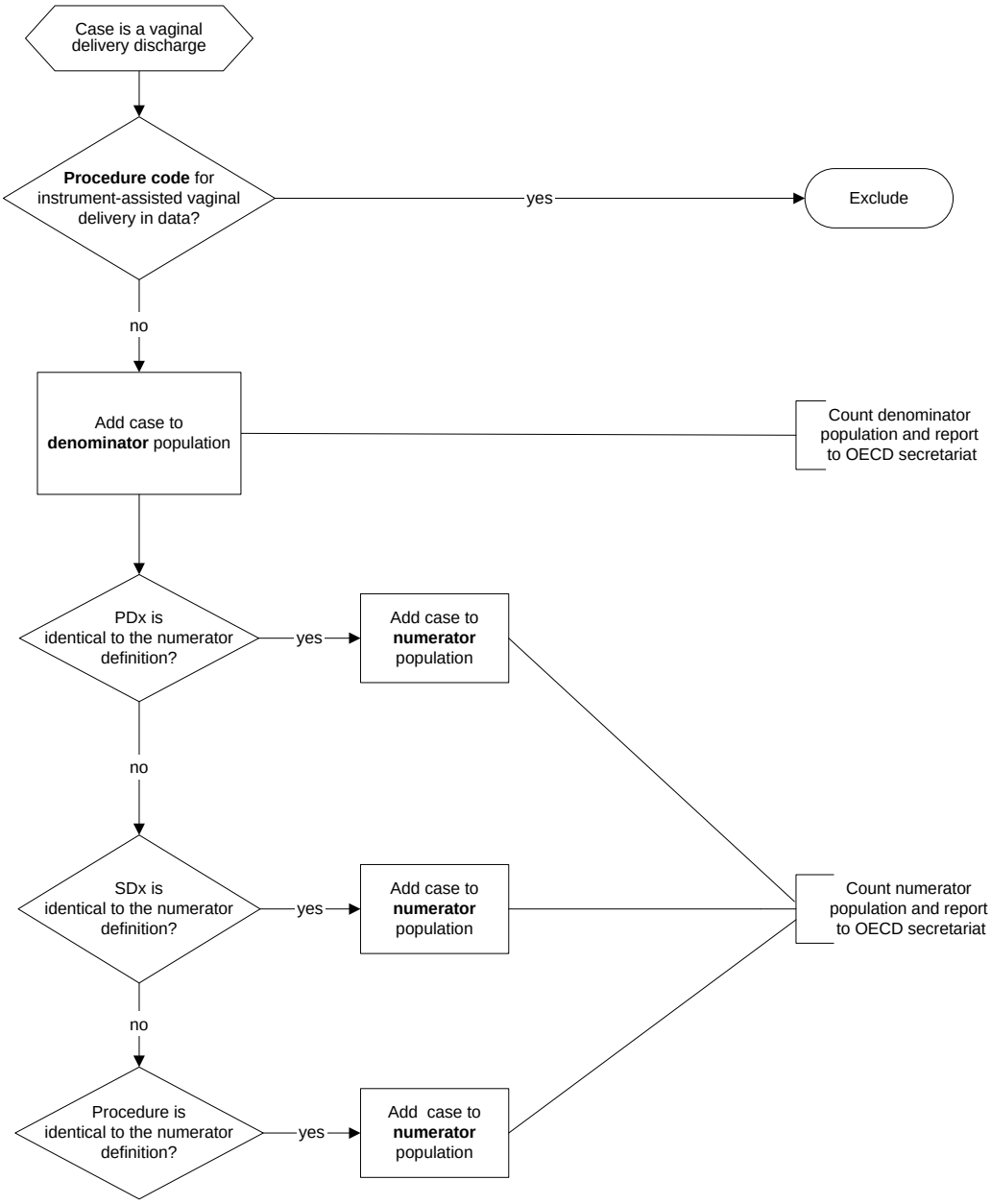
Exclude cases:

- With instrument-assisted delivery.

ICD-9-CM Instrument-Assisted Delivery procedure codes

720	Low forceps operation
721	Low forceps operation w/ episiotomy
7221	Mid forceps operation w/ episiotomy
7229	Other mid forceps operation
7231	High forceps operation w/ episiotomy
7239	Other high forceps operation
724	Forceps rotation of fetal head
7251	Partial breech extraction w/ forceps to aftercoming head
7253	Total breech extraction w/ forceps to aftercoming head
726	Forceps application to aftercoming head
7271	Vacuum extraction w/ episiotomy
7279	Vacuum extraction delivery nec
728	Other specified instrumental delivery
729	Unspecified instrumental delivery

Obstetric trauma - Vaginal Delivery without Instrument



APPENDIX 1. DENOMINATOR CALCULATION CODE LISTS

Code List C: ICD-9-CM codes for denominator calculation (refer to codes below)

App No.	Code List	Indicator	Function
C-1	ICD-9-CM immunocompromised state codes	Catheter-Related Bloodstream Infection Postoperative sepsis	Denominator exclusion, if principal diagnosis or secondary diagnosis
C-2	ICD-9-CM cancer codes	Catheter-Related Bloodstream Infection, Postoperative sepsis	Denominator exclusion, if principal diagnosis or secondary diagnosis
C-10	ICD-9-CM codes for infections	Postoperative sepsis	Denominator exclusion, if principal diagnosis

C-1: ICD-9-CM Immunocompromised States diagnosis codes:

042	HUMAN IMMUNODEFICIENCY VIRUS DISEASE
363	PNEUMOCYSTOSIS
260	KWASHIORKOR OCT05-
261	NUTRITIONAL MARASMUS OCT05-
262	OTH SEVERE MALNUTRITION OCT05-
23873	HI GRDE MYELODYS SYN LES OCT06-
23876	MYELOFI W MYELO METAPLAS OCT06
27900	HYPOGAMMAGLOBULINEM NOS
27901	SELECTIVE IGA IMMUNODEF
27902	SELECTIVE IGM IMMUNODEF
27903	SELECTIVE IG DEFIC NEC
27904	CONG HYPOGAMMAGLOBULINEM
27905	IMMUNODEFIC W HYPER-IGM
27906	COMMON VARIABL IMMUNODEF
27909	HUMORAL IMMUNITY DEF NEC
27910	IMMUNDEF T-CELL DEF NOS
27911	DIGEORGES SYNDROME
27912	WISKOTT-ALDRICH SYNDROME
27913	NEZELOFS SYNDROME
27919	DEFIC CELL IMMUNITY NOS
2792	COMBINED IMMUNITY DEFICIENCY
2793	UNSPECIFIED IMMUNITY DEFICIENCY
2794	AUTOIMMUNE DISEASE, NOT ELSEWHERE CLASSIFIED
2798	OTHER SPECIFIED DISORDERS INVOLVING THE IMMUNE MECHANISM
2799	UNSPECIFIED DISORDER OF IMMUNE MECHANISM
28409	CONST APLASTC ANEMIA NEC OCT06-
2841	PANCYTOPENIA OCT06-
2880	AGRANULOCYTOSIS OCT05-
28800	NEUTROPENIA NOS OCT06-

28801	CONGENITAL NEUTROPENIA OCT06-
28802	CYCLIC NEUTROPENIA OCT06-
28803	DRUG INDUCED NEUTROPENIA OCT06-
28809	NEUTROPENIA NEC OCT06-
2881	FUNCTION DIS NEUTROPHILS OCT05-
2882	GENETIC ANOMALY LEUKOCYT OCT05-
2884	HEMOPHAGOCYTIC SYNDROMES OCT06-
28850	LEUKOCYTOPENIA NOS OCT06-
28851	LYMPHOCYTOPENIA OCT06-
28859	DECREASED WBC COUNT NEC OCT06-
28953	NEUTROPENIC SPLENOMEGALY OCT06-
28983	MYELOFIBROSIS OCT06-
40301	MAL HYP KIDNEY W CHR KID OCT05-
40311	BEN HYP KIDNEY W CHR KID OCT05-
40391	HYP KIDNEY NOS W CHR KID OCT05-
40402	MAL HY HRT/KID W CHR KID OCT05-
40403	MAL HYP HRT/KID W HF/KID OCT05-
40412	BEN HYP HT/KID W CHR KID OCT05-
40413	BEN HYP HT/KID W HF/KID OCT05-
40492	HYP HT/KID NOS W CHR KID OCT05-
40493	HYP HRT/KID NOS W HF/KID OCT05-
5793	INTEST POSTOP NONABSORB OCT05-
585	CHRONIC KIDNEY DISEASE OCT05-
5855	CHRON KIDNEY DIS STAGE V OCT05-
5856	END STAGE RENAL DISEASE OCT05-
9968	COMPLICATIONS OF TRANSPLANTED ORGAN
99680	COMP ORGAN TRANSPLNT NOS
99681	COMPL KIDNEY TRANSPLANT
99682	COMPL LIVER TRANSPLANT
99683	COMPL HEART TRANSPLANT
99684	COMPL LUNG TRANSPLANT
99685	COMPL MARROW TRANSPLANT
99686	COMPL PANCREAS TRANSPLNT
99687	COMP INTESTINE TRANSPLNT
99689	COMP OTH ORGAN TRANSPLNT
V420	KIDNEY REPLACED BY TRANSPLANT
V421	HEART REPLACED BY TRANSPLANT
V426	LUNG REPLACED BY TRANSPLANT
V427	LIVER REPLACED BY TRANSPLANT
V428	OTHER SPECIFIED ORGAN OR TISSUE
V4281	BONE MARROW SPECIFIED BY TRANSPLANT
V4282	PERIPHERAL STEM CELLS REPLACED BY TRANSPLANT
V4283	PANCREAS REPLACED BY TRANSPLANT
V4284	INTESTINES REPLACE BY TRANSPLANT
V4289	OTHER REPLACED BY TRANSPLANT
V451	RENAL DIALYSIS STATUS OCT05-
V560	RENAL DIALYSIS ENCOUNTER OCT05-
V561	FT/ADJ XTRCORP DIAL CATH OCT05-
V562	FIT/ADJ PERIT DIAL CATH OCT05-

C-2: ICD-9-CM cancer codes (includes 4th and 5th digits)

140	Malignant neoplasm of lip	179	Malignant neoplasm of uterus, part unspecified
141	Malignant neoplasm of tongue	180	Malignant neoplasm of cervix uteri
142	Malignant neoplasm of major salivary glands	181	Malignant neoplasm of placenta
143	Malignant neoplasm of gum	182	Malignant neoplasm of body of uterus
144	Malignant neoplasm of floor of mouth	183	Malignant neoplasm of ovary and other uterine adnexa
145	Malignant neoplasm of other and unspecified parts of mouth	184	Malignant neoplasm of other and unspecified female genital organs
146	Malignant neoplasm of oropharynx	185	Malignant neoplasm of prostate
147	Malignant neoplasm of nasopharynx	186	Malignant neoplasm of testes
148	Malignant neoplasm of hypopharynx	187	Malignant neoplasm of penis and other male genital organs
149	Malignant neoplasm of other and ill-defined sites within the lip, oral cavity, and pharynx	188	Malignant neoplasm of bladder
150	Malignant neoplasm of esophagus	189	Malignant neoplasm of kidney and other and unspecified urinary organs
151	Malignant neoplasm of stomach	190	Malignant neoplasm of eye
152	Malignant neoplasm of small intestine, including duodenum	191	Malignant neoplasm of brain
153	Malignant neoplasm of colon	192	Malignant neoplasm of other and unspecified parts of nervous system
154	Malignant neoplasm of rectum, rectosigmoid junction, and anus	193	Malignant neoplasm of thyroid gland
155	Malignant neoplasm of liver and intrahepatic bile ducts	194	Endocrine glands and related structures
156	Malignant neoplasm of gallbladder and extrahepatic bile ducts	195	Malignant neoplasm of other, and ill-defined sites
157	Malignant neoplasm of pancreas	196	Secondary and unspecified malignant neoplasm of lymph nodes
158	Malignant neoplasm of retroperitoneum and peritoneum	197	Secondary malignant neoplasm of respiratory and digestive systems
159	Malignant neoplasm of other and ill-defined sites within the digestive organs and peritoneum	198	Secondary malignant neoplasm of other specified sites
160	Malignant neoplasm of nasal cavities, middle ear, andaccessory sinuses	199	Malignant neoplasm w/o specification of site
161	Malignant neoplasm of larynx	200	Lymphosarcoma and reticulosarcoma
162	Malignant neoplasm of trachea, bronchus, and lung	201	Hodgkin's Disease
163	Malignant neoplasm of pleura	202	Other malignant neoplasms of lymphoid and histiocytic tissues
164	Malignant neoplasm of thymus, heart, and mediastinum	203	Multiple myeloma and immunoproliferative neoplasms
165	Malignant neoplasm of other and ill-defined sites within the respiratory system and intrathoracic organs	204	Lymphoid leukemia

170	Malignant neoplasm of bone and articular cartilage	205	Myeloid leukemia
171	Malignant neoplasm of connective and other soft tissue	206	Monocytic leukemia
172	Malignant melanoma of skin	207	Other specified leukemia
174	Malignant neoplasm of female breast	208	Leukemia of unspecified cell type
175	Malignant neoplasm of male breast	2386	Neoplasm of uncertain behavior of other and unspecified sites and tissues, plasma cells
176	Karposi's Sarcoma	2733	Macroglobulinemia

Personal history of malignant neoplasm:

V1000	Gastrointestinal tract, unspecified	V1049	Other male genital organs
V1001	Tongue	V1050	Urinary organ, unspecified
V1002	Other and unspecified oral cavity and pharynx	V1051	Bladder
V1003	Esophagus	V1052	Kidney
V1004	Stomach	V1053	Renal pelvis
V1005	Large intestine	V1059	Urinary organs, other
V1006	Rectum, rectosigmoid junction, and anus	V1060	Leukemia, unspecified
V1007	Liver	V1061	Lymphoid leukemia
V1009	Other	V1062	Myeloid leukemia
V1011	Bronchus and lung	V1063	Monocytic leukemia
V1012	Trachea	V1069	Leukemia, other
V1020	Respiratory organ, unspecified	V1071	Lymphosarcoma and reticulosarcoma
V1021	Larynx	V1072	Hodgkin's Disease
V1022	Nasal cavities, middle ear, and accessory sinuses	V1079	Other lymphatic and hematopoietic neoplasms, other
V1029	Other respiratory and intrathoracic organs, other	V1081	Bone
V103	Breast	V1082	Malignant melanoma of skin
V1040	Female genital organ, unspecified	V1083	Other malignant neoplasm of skin
V1041	Cervix uteri	V1084	Eye
V1042	Other parts of uterus	V1085	Brain
V1043	Ovary	V1086	Other parts of nervous system
V1044	Other female genital organs	V1087	Thyroid
V1045	Male genital organ, unspecified	V1088	Other endocrine glands and related structures
V1046	Prostate	V1089	Other
V1047	Testes	V109	Unspecified personal history of malignant neoplasm
V1048	Epididymis		

C-10: ICD-9-CM codes for infections

0010	Cholera d/t vib cholerae (Oct 05)	56213	Dvrtcli colon w hmrhg
0011	Cholera d/t vib el tor (Oct 05)	566	Anal & rectal abscess
0019	Cholera nos (Oct 05)	5670	Peritonitis in infec dis
0020	Typhoid fever (Oct 05)	5671	Pneumococcal peritonitis
0021	Paratyphoid fever a (Oct 05)	5672	Suppurat peritonitis nec
0022	Paratyphoid fever b (Oct 05)	56721	Peritonitis (acute) gen (Oct 05)

0023	Paratyphoid fever c (Oct 05)	56722	Peritoneal abscess (Oct 05)
0029	Paratyphoid fever nos (Oct 05)	56723	Spontan bact peritonitis (Oct 05)
0030	Salmonella enteritis (Oct 05)	56729	Suppurat peritonitis nec (Oct 05)
0031	Salmonella septicemia (Oct 05)	56731	Psoas muscle abscess (Oct 05)
00320	Local salmonella inf nos (Oct 05)	56738	Retroperiton abscess nec (Oct 05)
00321	Salmonella meningitis (Oct 05)	56739	Retroperiton infect nec (Oct 05)
00322	Salmonella pneumonia (Oct 05)	56781	Choleperitonitis (Oct 05)
00323	Salmonella arthritis (Oct 05)	56782	Sclerosing mesenteritis (Oct 05)
00324	Salmonella osteomyelitis (Oct 05)	56789	Peritonitis nec (Oct 05)
00329	Local salmonella inf nec (Oct 05)	5679	Peritonitis nos
0038	Salmonella infection nec (Oct 05)	5695	Intestinal abscess
0039	Salmonella infection nos (Oct 05)	56961	Colosty/enterost infectn
0040	Shigella dysenteriae (Oct 05)	5720	Abscess of liver
0041	Shigella flexneri (Oct 05)	5721	Portal pyemia
0042	Shigella boydii (Oct 05)	57400	Cholelith w ac cholecyst
0043	Shigella sonnei (Oct 05)	57401	Cholelith/ac gb inf-obst
0048	Shigella infection nec (Oct 05)	57430	Choledocholith/ac gb inf
0049	Shigellosis nos (Oct 05)	57431	Choledochlith/ac gb-obst
0050	Staph food poisoning (Oct 05)	57460	Gall&bil cal w/ac w/o ob
0051	Botulism (Oct 05)	57461	Gall&bil cal w/ac w obs
0052	Food pois d/t c. Perfrin (Oct 05)	57480	Gal&bil cal w/ac&chr w/o
0053	Food pois: clostrid nec (Oct 05)	57481	Gal&bil cal w/ac&ch w ob
0054	Food pois: v. Parahaem (Oct 05)	5750	Acute cholecystitis
00581	Food poisn d/t v. Vulnif (Oct 05)	57510	Cholecystitis unspec (Oct 05)
00589	Bact food poisoning nec (Oct 05)	57512	Ac&chron cholecystitis (Oct 05)
0059	Food poisoning nos (Oct 05)	5754	Perforation gallbladder
00800	Intest infec e coli nos (Oct 05)	5761	Cholangitis
00801	Int inf e coli entrpath (Oct 05)	5763	Perforation of bile duct
00802	Int inf e coli entrtoxgn (Oct 05)	5770	Acute pancreatitis (Oct 05)
00803	Int inf e coli entrnvsv (Oct 05)	59010	Ac pyelonephritis nos (Oct 05)
00804	Int inf e coli entrhmrg (Oct 05)	59011	Ac pyelonephr w med necr (Oct 05)
00809	Int inf e coli spcf nec (Oct 05)	5902	Renal/perirenal abscess (Oct 05)
0081	Arizona enteritis (Oct 05)	5903	Pyeloureteritis cystica (Oct 05)
0082	Aerobacter enteritis (Oct 05)	59080	Pyelonephritis nos (Oct 05)
0083	Proteus enteritis (Oct 05)	59081	Pyelonephrit in oth dis (Oct 05)
00841	Staphylococc enteritis (Oct 05)	5909	Infection of kidney nos (Oct 05)
00842	Pseudomonas enteritis (Oct 05)	5950	Acute cystitis (Oct 05)
00843	Int infec campylobacter (Oct 05)	5954	Cystitis in oth dis (Oct 05)
00844	Int inf yrsnia entrcltca (Oct 05)	59581	Cystitis cystica (Oct 05)
00845	Int inf clstrdium dfcile (Oct 05)	59589	Cystitis nec (Oct 05)
00846	Intes infec oth anerobes (Oct 05)	5959	Cystitis nos (Oct 05)
00847	Int inf oth grm neg bctr (Oct 05)	5970	Urethral abscess (Oct 05)
00849	Bacterial enteritis nec (Oct 05)	59800	Urethr strict:infect nos (Oct 05)
0085	Bacterial enteritis nos (Oct 05)	59801	Ureth strict:oth infect (Oct 05)
0200	Bubonic plague (Oct 05)	5990	Urin tract infection nos (Oct 05)
0201	Cellulocutaneous plague (Oct 05)	6010	Acute prostatitis (Oct 05)
0202	Septicemic plague (Oct 05)	6012	Abscess of prostate (Oct 05)
0203	Primary pneumonic plague (Oct 05)	6013	Prostatocystitis (Oct 05)
0204	Secondary pneumon plague (Oct 05)	6014	Prostatitis in oth dis (Oct 05)

0205	Pneumonic plague nos (Oct 05)	6018	Prostatitis (Oct 05)
0208	Other types of plague (Oct 05)	6019	Prostatitis nos (Oct 05)
0209	Plague nos (Oct 05)	6031	Infected hydrocele (Oct 05)
0210	Ulceroglandul tularemia (Oct 05)	6040	Orchitis with abscess (Oct 05)
0211	Enteric tularemia (Oct 05)	60490	Orchitis/epididymit nos (Oct 05)
0212	Pulmonary tularemia (Oct 05)	60491	Orchitis in oth disease (Oct 05)
0213	Oculoglandular tularemia (Oct 05)	6071	Balanoposthitis (Oct 05)
0218	Tularemia nec (Oct 05)	6072	Inflam dis, penis nec (Oct 05)
0219	Tularemia nos (Oct 05)	6080	Seminal vesiculitis (Oct 05)
0220	Cutaneous anthrax (Oct 05)	6084	Male gen inflam dis nec (Oct 05)
0221	Pulmonary anthrax (Oct 05)	6110	Inflam disease of breast (Oct 05)
0222	Gastrointestinal anthrax (Oct 05)	6140	Ac salpingo-oophoritis (Oct 05)
0223	Anthrax septicemia (Oct 05)	6141	Chron salpingitis oophoritis (Oct
0228	Other anthrax manifest (Oct 05)	6142	Salpingo-oophoritis nos (Oct 05)
0229	Anthrax nos (Oct 05)	6143	Acute parametritis (Oct 05)
0230	Brucella melitensis (Oct 05)	6144	Chron or unsp cellulitis (Oct 05)
0231	Brucella abortus (Oct 05)	6145	Ac pelv peritonitis-fem (Oct 05)
0232	Brucella suis (Oct 05)	6149	Pid nos (Oct 05)
0233	Brucella canis (Oct 05)	6150	Ac uterine inflammation (Oct 05)
0238	Brucellosis nec (Oct 05)	6159	Uterine inflam dis nos (Oct 05)
0239	Brucellosis nos (Oct 05)	6160	Cervicitis (Oct 05)
024	Glanders (Oct 05)	61610	Vaginitis nos (Oct 05)
025	Melioidosis (Oct 05)	6163	Bartholin's glnd abscess (Oct 05)
0260	Spirillary fever (Oct 05)	6164	Abscess of vulva nec (Oct 05)
0261	Streptobacillary fever (Oct 05)	63400	Spon abor w pel inf-unsp (Oct 05)
0269	Rat-bite fever nos (Oct 05)	63401	Spon abor w pelv inf-inc (Oct 05)
0270	Listeriosis (Oct 05)	63402	Spon abor w pel inf-comp (Oct 05)
0271	Erysipelothrix infection (Oct 05)	63500	Leg abor w pelv inf-unsp (Oct 05)
0272	Pasteurellosis (Oct 05)	63501	Leg abor w pelv inf-inc (Oct 05)
0278	Zoonotic bact dis nec (Oct 05)	63502	Leg abor w pelv inf-comp (Oct 05)
0279	Zoonotic bact dis nos (Oct 05)	63600	Illeg ab w pelv inf-unsp (Oct 05)
0320	Faucial diphtheria (Oct 05)	63601	Illeg ab w pelv inf-inc (Oct 05)
0321	Nasopharynx diphtheria (Oct 05)	63602	Illeg ab w pelv inf-comp (Oct 05)
0322	Ant nasal diphtheria (Oct 05)	63700	Abort nos w pel inf-unsp (Oct 05)
0323	Laryngeal diphtheria (Oct 05)	63701	Abort nos w pel inf-inc (Oct 05)
03281	Conjunctival diphtheria (Oct 05)	63702	Abort nos w pel inf-comp (Oct 05)
03282	Diphtheritic myocarditis (Oct 05)	6380	Attem abort w pelvic inf (Oct 05)
03283	Diphtheritic peritonitis (Oct 05)	6390	Postabortion gu infect (Oct 05)
03284	Diphtheritic cystitis (Oct 05)	64650	Bacteriuria preg-unspec (Oct 05)
03285	Cutaneous diphtheria (Oct 05)	64651	Asym bacteriuria-deliver (Oct 05)
03289	Diphtheria nec (Oct 05)	64652	Asy bacteruria-del w p/p (Oct 05)
0329	Diphtheria nos (Oct 05)	64653	Asy bacteriuria-antepart (Oct 05)
0330	Bordetella pertussis (Oct 05)	64654	Asy bacteriuria-postpart (Oct 05)
0331	Bordetella parapertussis (Oct 05)	64660	Gu infect in preg-unspec (Oct 05)
0338	Whooping cough nec (Oct 05)	64661	Gu infection-delivered (Oct 05)
0339	Whooping cough nos (Oct 05)	64662	Gu infection-deliv w p/p (Oct 05)
0340	Strep sore throat (Oct 05)	64663	Gu infection-antepartum (Oct 05)
0341	Scarlet fever (Oct 05)	64664	Gu infection-postpartum (Oct 05)
035	Erysipelas (Oct 05)	64710	Gonorrhea in preg-unspec (Oct 05)

0360	Meningococcal meningitis (Oct 05)	64711	Gonorrhea-delivered (Oct 05)
0361	Meningococc encephalitis (Oct 05)	64712	Gonorrhea-deliver w p/p (Oct 05)
0362	Meningococcemia (Oct 05)	64713	Gonorrhea-antepartum (Oct 05)
0363	Meningococc adrenal synd (Oct 05)	64714	Gonorrhea-postpartum (Oct 05)
03640	Meningococc carditis nos (Oct 05)	64780	Inf dis in preg nec-unsp (Oct 05)
03641	Meningococc pericarditis (Oct 05)	64781	Infect dis nec-delivered (Oct 05)
03642	Meningococc endocarditis (Oct 05)	64782	Infect dis nec-del w p/p (Oct 05)
03643	Meningococc myocarditis (Oct 05)	64783	Infect dis nec-antepart (Oct 05)
03681	Meningococc optic neurit (Oct 05)	64784	Infect dis nec-postpart (Oct 05)
03682	Meningococc arthropathy (Oct 05)	64790	Infect in preg nos-unsp (Oct 05)
03689	Meningococcal infect nec (Oct 05)	64791	Infect nos-delivered (Oct 05)
0369	Meningococcal infect nos (Oct 05)	64792	Infect nos-deliver w p/p (Oct 05)
037	Tetanus (Oct 05)	64793	Infect nos-antepartum (Oct 05)
0380	Streptococcal septicemia (Oct 05)	64794	Infect nos-postpartum (Oct 05)
03810	Staphylcocc septicem nos (Oct 05)	65840	Amniotic infection-unsp (Oct 05)
03811	Staph aureus septicemia (Oct 05)	65841	Amniotic infection-deliv (Oct 05)
03819	Staphylcocc septicem nec (Oct 05)	65843	Amniotic infect-antepart (Oct 05)
0382	Pneumococcal septicemia (Oct 05)	67000	Major puerp infect-unsp (Oct 05)
0383	Anaerobic septicemia (Oct 05)	67002	Major puerp inf-del p/p (Oct 05)
03840	Gram-neg septicemia nos (Oct 05)	67004	Major puerp inf-postpart (Oct 05)
03841	H. Influenae septicemia (Oct 05)	67500	Infect nipple preg-unsp (Oct 05)
03842	E coli septicemia (Oct 05)	67501	Infect nipple-delivered (Oct 05)
03843	Pseudomonas septicemia (Oct 05)	67502	Infect nipple-del w p/p (Oct 05)
03844	Serratia septicemia (Oct 05)	67503	Infect nipple-antepartum (Oct 05)
03849	Gram-neg septicemia nec (Oct 05)	67504	Infect nipple-postpartum (Oct 05)
0388	Septicemia nec (Oct 05)	67510	Breast abscess preg-unsp (Oct 05)
0389	Septicemia nos (Oct 05)	67511	Breast abscess-delivered (Oct 05)
0390	Cutaneous actinomycosis (Oct 05)	67512	Breast abscess-del w p/p (Oct 05)
0391	Pulmonary actinomycosis (Oct 05)	67513	Breast abscess-antepart (Oct 05)
0392	Abdominal actinomycosis (Oct 05)	67514	Breast abscess-postpart (Oct 05)
0393	Cervicofac actinomycosis (Oct 05)	67580	Breast inf preg nec-unsp (Oct 05)
0394	Madura foot (Oct 05)	67581	Breast infect nec-deliv (Oct 05)
0398	Actinomycosis nec (Oct 05)	67582	Breast inf nec-del w p/p (Oct 05)
0399	Actinomycosis nos (Oct 05)	67583	Breast inf nec-antepart (Oct 05)
0400	Gas gangrene (Oct 05)	67584	Breast inf nec-postpart (Oct 05)
0401	Rhinoscleroma (Oct 05)	67590	Breast inf preg nos-unsp (Oct 05)
0402	Whipple's disease (Oct 05)	67591	Breast infect nos-deliv (Oct 05)
0403	Necrobacillosis (Oct 05)	67592	Breast inf nos-del w p/p (Oct 05)
04081	Tropical pyomyositis (Oct 05)	67593	Breast inf nos-antepart (Oct 05)
04082	Toxic shock syndrome (Oct 05)	67594	Breast inf nos-postpart (Oct 05)
04089	Bacterial diseases nec (Oct 05)	6800	Carbuncle of face (Oct 05)
04100	Streptococcus unspecf (Oct 05)	6801	Carbuncle of neck (Oct 05)
04101	Streptococcus group a (Oct 05)	6802	Carbuncle of trunk (Oct 05)
04102	Streptococcus group b (Oct 05)	6803	Carbuncle of arm (Oct 05)
04103	Streptococcus group c (Oct 05)	6804	Carbuncle of hand (Oct 05)
04104	Enterococcus group d (Oct 05)	6805	Carbuncle of buttock (Oct 05)
04105	Streptococcus group g (Oct 05)	6806	Carbuncle of leg (Oct 05)
04109	Other streptococcus (Oct 05)	6807	Carbuncle of foot (Oct 05)
04110	Staphylococcus unspcfied (Oct 05)	6808	Carbuncle, site nec (Oct 05)

04111	Staphylococcus aureus (Oct 05)	6809	Carbuncle nos (Oct 05)
04119	Other staphylococcus (Oct 05)	68100	Cellulitis, finger nos (Oct 05)
0412	Pneumococcus infect nos (Oct 05)	68101	Felon (Oct 05)
0413	Klebsiella infect nos (Oct 05)	68102	Onychia of finger (Oct 05)
0414	E. Coli infect nos (Oct 05)	68110	Cellulitis, toe nos (Oct 05)
0415	H. Influenzae infect nos (Oct 05)	68111	Onychia of toe (Oct 05)
0416	Proteus infection nos (Oct 05)	6819	Cellulitis of digit nos (Oct 05)
0417	Pseudomonas infect nos (Oct 05)	6820	Cellulitis of face (Oct 05)
04182	Bacteroides fragilis (Oct 05)	6821	Cellulitis of neck (Oct 05)
04183	Clostridium perfringens (Oct 05)	6822	Cellulitis of trunk (Oct 05)
04184	Other anaerobes (Oct 05)	6823	Cellulitis of arm (Oct 05)
04185	Oth gram negatv bacteria (Oct 05)	6824	Cellulitis of hand (Oct 05)
04186	Helicobacter pylori (Oct 05)	6825	Cellulitis of buttock (Oct 05)
04189	Oth specf bacteria (Oct 05)	6826	Cellulitis of leg (Oct 05)
0419	Bacterial infection nos (Oct 05)	6827	Cellulitis of foot (Oct 05)
0980	Acute gc infect lower gu (Oct 05)	6828	Cellulitis, site nec (Oct 05)
09810	Gc (acute) upper gu nos (Oct 05)	6829	Crllulitis, site nos (Oct 05)
09811	Gc cystitis (acute) (Oct 05)	683	Acute lymphadenitis (Oct 05)
09812	Gc prostatitis (acute) (Oct 05)	684	Impetigo (Oct 05)
09813	Gc orchitis (acute) (Oct 05)	68600	Pyoderma nos (Oct 05)
09814	Gc sem vesiculit (acute) (Oct 05)	68601	Pyoderma gangrenosum (Oct 05)
09815	Gc cervicitis (acute) (Oct 05)	68609	Pyoderma other (Oct 05)
09816	Gc endometritis (acute) (Oct 05)	6868	Local skin infection nec (Oct 05)
09817	Acute gc salpingitis (Oct 05)	6869	Local skin infection nos (Oct 05)
09819	Gc (acute) upper gu nec (Oct 05)	69581	Ritter's disease (Oct 05)
0982	Chr gc infect lower gu (Oct 05)	70700	Decubitus ulcer site nos (Oct 05)
09830	Chr gc upper gu nos (Oct 05)	70701	Decubitus ulcer,elbow (Oct 05)
09831	Gc cystitis, chronic (Oct 05)	70702	Decubitus ulcer,up back (Oct 05)
09832	Gc prostatitis, chronic (Oct 05)	70703	Decubitus ulcer,low back (Oct 05)
09833	Gc orchitis, chronic (Oct 05)	70704	Decubitus ulcer,hip (Oct 05)
09834	Gc sem vesiculitis, chr (Oct 05)	70705	Decubitus ulcer,buttock (Oct 05)
09835	Gc cervicitis, chronic (Oct 05)	70706	Decubitus ulcer,ankle (Oct 05)
09836	Gc endometritis, chronic (Oct 05)	70707	Decubitus ulcer,heel (Oct 05)
09837	Gc salpingitis (chronic) (Oct 05)	70709	Decubitus ulcer,site nec (Oct 05)
09839	Chr gc upper gu nec (Oct 05)	71100	Pyogen arthritis-unspec (Oct 05)
09840	Gonococcal conjunctivit (Oct 05)	71101	Pyogen arthritis-shlder (Oct 05)
09841	Gonococcal iridocyclitis (Oct 05)	71102	Pyogen arthritis-up/arm (Oct 05)
09842	Gonococcal endophthalmia (Oct 05)	71103	Pyogen arthritis-forearm (Oct 05)
09843	Gonococcal keratitis (Oct 05)	71104	Pyogen arthritis-hand (Oct 05)
09849	Gonococcal eye nec (Oct 05)	71105	Pyogen arthritis-pelvis (Oct 05)
09850	Gonococcal arthritis (Oct 05)	71106	Pyogen arthritis-l/leg (Oct 05)
09851	Gonococcal synovitis (Oct 05)	71107	Pyogen arthritis-ankle (Oct 05)
09852	Gonococcal bursitis (Oct 05)	71108	Pyogen arthritis nec (Oct 05)
09853	Gonococcal spondylitis (Oct 05)	71109	Pyogen arthritis-mult (Oct 05)
09859	Gc infect joint nec (Oct 05)	71190	Inf arthritis nos-unspec (Oct 05)
0986	Gonococcal infec pharynx (Oct 05)	71191	Inf arthritis nos-shlder (Oct 05)
0987	Gc infect anus & rectum (Oct 05)	71192	Inf arthritis nos-up/arm (Oct 05)
09881	Gonococcal keratosis (Oct 05)	71193	Inf arthrit nos-forearm (Oct 05)
09882	Gonococcal meningitis (Oct 05)	71194	Inf arthrit nos-hand (Oct 05)

09883	Gonococcal pericarditis (Oct 05)	71195	Inf arthrit nos-pelvis (Oct 05)
09884	Gonococcal endocarditis (Oct 05)	71196	Inf arthrit nos-l/leg (Oct 05)
09885	Gonococcal heart dis nec (Oct 05)	71197	Inf arthrit nos-ankle (Oct 05)
09886	Gonococcal peritonitis (Oct 05)	71198	Inf arthrit nos-oth site (Oct 05)
09889	Gonococcal inf site nec (Oct 05)	71199	Inf arthritis nos-mult (Oct 05)
3200	Hemophilus meningitis (Oct 05)	7280	Infective myositis (Oct 05)
3201	Pneumococcal meningitis (Oct 05)	72886	Necrotizing fasciitis (Oct 05)
3202	Streptococcal meningitis (Oct 05)	73000	Ac osteomyelitis-unspec (Oct 05)
3203	Staphylococc meningitis (Oct 05)	73001	Ac osteomyelitis-shlder (Oct 05)
3207	Mening in oth bact dis (Oct 05)	73002	Ac osteomyelitis-up/arm (Oct 05)
32081	Anaerobic meningitis (Oct 05)	73003	Ac osteomyelitis-forearm (Oct 05)
32082	Mningts gram-neg bct nec (Oct 05)	73004	Ac osteomyelitis-hand (Oct 05)
32089	Meningitis oth spcf bact (Oct 05)	73005	Ac osteomyelitis-pelvis (Oct 05)
3209	Bacterial meningitis nos (Oct 05)	73006	Ac osteomyelitis-l/leg (Oct 05)
3229	Meningitis nos (Oct 05)	73007	Ac osteomyelitis-ankle (Oct 05)
3240	Intracranial abscess (Oct 05)	73008	Ac osteomyelitis nec (Oct 05)
3241	Intraspinal abscess (Oct 05)	73009	Ac osteomyelitis-mult (Oct 05)
3249	Cns abscess nos (Oct 05)	73010	Chr osteomyelitis-unsp (Oct 05)
36000	Purulent endophthalm nos (Oct 05)	73011	Chr osteomyelit-shlder (Oct 05)
36001	Acute endophthalmitis (Oct 05)	73012	Chr osteomyelit-up/arm (Oct 05)
36002	Panophthalmitis (Oct 05)	73013	Chr osteomyelit-forearm (Oct 05)
36004	Vitreous abscess (Oct 05)	73014	Chr osteomyelit-hand (Oct 05)
37055	Corneal abscess (Oct 05)	73015	Chr osteomyelit-pelvis (Oct 05)
37200	Acute conjunctivitis nos (Oct 05)	73016	Chr osteomyelit-l/leg (Oct 05)
37203	Mucopur conjunctivit nec (Oct 05)	73017	Chr osteomyelit-ankle (Oct 05)
37204	Pseudomemb conjunctivit (Oct 05)	73018	Chr osteomyelit nec (Oct 05)
37220	Blepharoconjunctivit nos (Oct 05)	73019	Chr osteomyelit-mult (Oct 05)
37221	Angular blepharoconjunct (Oct 05)	73020	Osteomyelitis nos-unspec (Oct 05)
37230	Conjunctivitis nos (Oct 05)	73021	Osteomyelitis nos-shlder (Oct 05)
37300	Blepharitis nos (Oct 05)	73022	Osteomyelitis nos-up/arm (Oct 05)
37301	Ulcerative blepharitis (Oct 05)	73023	Osteomyelit nos-forearm (Oct 05)
37311	Hordeolum externum (Oct 05)	73024	Osteomyelitis nos-hand (Oct 05)
37312	Hordeolum internum (Oct 05)	73025	Osteomyelitis nos-pelvis (Oct 05)
37313	Abscess of eyelid (Oct 05)	73026	Osteomyelitis nos-l/leg (Oct 05)
37500	Dacryoadenitis nos (Oct 05)	73027	Osteomyelitis nos-ankle (Oct 05)
37501	Acute dacryoadenitis (Oct 05)	73028	Osteomyelit nos-oth site (Oct 05)
37530	Dacryocystitis nos (Oct 05)	73029	Osteomyelitis nos-mult (Oct 05)
37531	Acute canaliculitis (Oct 05)	73030	Periostitis-unspec (Oct 05)
37532	Acute dacryocystitis (Oct 05)	73031	Periostitis-shlder (Oct 05)
37600	Acute inflam nos, orbit (Oct 05)	73032	Periostitis-up/arm (Oct 05)
37601	Orbital cellulitis (Oct 05)	73033	Periostitis-forearm (Oct 05)
37602	Orbital periostitis (Oct 05)	73034	Periostitis-hand (Oct 05)
37603	Orbital osteomyelitis (Oct 05)	73035	Periostitis-pelvis (Oct 05)
37604	Tenonitis (Oct 05)	73036	Periostitis-l/leg (Oct 05)
38010	Infec otitis externa nos (Oct 05)	73037	Periostitis-ankle (Oct 05)
38011	Acute infection of pinna (Oct 05)	73038	Periostitis nec (Oct 05)
38012	Acute swimmers' ear (Oct 05)	73039	Periostitis-mult (Oct 05)
38013	Ac infect extern ear nec (Oct 05)	73080	Bone infect nec-unspec (Oct 05)
38014	Malignant otitis externa (Oct 05)	73081	Bone infect nec-shlder (Oct 05)

38150	Eustachian salping nos (Oct 05)	73082	Bone infect nec-up/arm (Oct 05)
38151	Ac eustachian salping (Oct 05)	73083	Bone infect nec-forearm (Oct 05)
38200	Ac supp otitis media nos (Oct 05)	73084	Bone infect nec-hand (Oct 05)
38201	Ac supp om w drum rupt (Oct 05)	73085	Bone infect nec-pelvis (Oct 05)
38202	Ac supp om in oth dis (Oct 05)	73086	Bone infect nec-l/leg (Oct 05)
3821	Chr tubotymp supp otitis media (Oct 05)	73087	Bone infect nec-ankle (Oct 05)
3822	Chr atticoantral supp otitis media(Oct 05)	73088	Bone infect nec-oth site (Oct 05)
3823	Chr supp otitis media nos (Oct 05)	73089	Bone infect nec-mult (Oct 05)
3824	Suppur otitis media nos (Oct 05)	73090	Bone infec nos-unsp site (Oct 05)
3829	Otitis media nos (Oct 05)	73091	Bone infect nos-shlder (Oct 05)
38300	Ac mastoiditis w/o compl (Oct 05)	73092	Bone infect nos-up/arm (Oct 05)
38301	Subperi mastoid abscess (Oct 05)	73093	Bone infect nos-forearm (Oct 05)
38302	Ac mastoiditis-compl nec (Oct 05)	73094	Bone infect nos-hand (Oct 05)
38320	Petrositis nos (Oct 05)	73095	Bone infect nos-pelvis (Oct 05)
38321	Acute petrositis (Oct 05)	73096	Bone infect nos-l/leg (Oct 05)
38400	Acute myringitis nos (Oct 05)	73097	Bone infect nos-ankle (Oct 05)
38630	Labyrinthitis nos (Oct 05)	73098	Bone infect nos-oth site (Oct 05)
38631	Serous labyrinthitis (Oct 05)	73099	Bone infect nos-mult (Oct 05)
38632	Circumscri labyrinthitis (Oct 05)	7713	Tetanus neonatorum (Oct 05)
38633	Suppurativ labyrinthitis (Oct 05)	7714	Omphalitis of newborn (Oct 05)
4200	Ac pericardit in oth dis (Oct 05)	7715	Neonatal infec mastitis (Oct 05)
42090	Acute pericarditis nos (Oct 05)	77181	Nb septicemia sepsis (Oct 05)
42099	Acute pericarditis nec (Oct 05)	77182	Nb urinary tract infectn (Oct 05)
4210	Ac/subac bact endocard (Oct 05)	77183	Bacteremia of newborn (Oct 05)
4211	Ac/subac infect endocard (Oct 05)	77189	Perinatal infection nec (Oct 05)
4219	Ac/subac endocardit nos (Oct 05)	7775	Necrot enterocolitis nb (Oct 05)
42292	Septic myocarditis (Oct 05)	7854	Gangrene (Oct 05)
4610	Ac maxillary sinusitis (Oct 05)	78552	Septic shock (Oct 05)
4611	Ac frontal sinusitis (Oct 05)	7907	Bacteremia (Oct 05)
4612	Ac ethmoidal sinusitis (Oct 05)	9101	Abrasion head-infected (Oct 05)
4613	Ac sphenoidal sinusitis (Oct 05)	9103	Blister head-infected (Oct 05)
4618	Other acute sinusitis (Oct 05)	9105	Insect bite head-infect (Oct 05)
4619	Acute sinusitis nos (Oct 05)	9107	Foreign body head-infect (Oct 05)
462	Acute pharyngitis (Oct 05)	9109	Superf inj head nec-inf (Oct 05)
463	Acute tonsillitis (Oct 05)	9111	Abrasion trunk-infected (Oct 05)
46430	Ac epiglottitis no obstr (Oct 05)	9113	Blister trunk-infected (Oct 05)
46431	Ac epiglottitis w obstr (Oct 05)	9115	Insect bite trunk-infec (Oct 05)
4660	Acute bronchitis (Oct 05)	9117	Foreign body trunk-infec (Oct 05)
475	Peritonsillar abscess (Oct 05)	9119	Superf inj trnk nec-inf (Oct 05)
47822	Parapharyngeal abscess (Oct 05)	9121	Abrasion shldr/arm-infec (Oct 05)
47824	Retropharyngeal abscess (Oct 05)	9123	Blister shoulder/arm-inf (Oct 05)
481	Pneumococcal pneumonia (Oct 05)	9125	Insect bite shld/arm-inf (Oct 05)
4820	K. Pneumoniae pneumonia (Oct 05)	9127	Fb shoulder/arm-infect (Oct 05)
4821	Pseudomonal pneumonia (Oct 05)	9129	Superf inj shldr nec-inf (Oct 05)
4822	H.influenzae pneumonia (Oct 05)	9131	Abrasion forearm-infect (Oct 05)
48230	Streptococcal pneumn nos (Oct 05)	9133	Blister forearm-infected (Oct 05)
48231	Pneumonia strptococcus a (Oct 05)	9135	Insect bite forearm-inf (Oct 05)
48232	Pneumonia strptococcus b (Oct 05)	9137	Foreign body forearm-inf (Oct 05)
48239	Pneumonia oth strep (Oct 05)	9139	Suprf inj forarm nec-inf (Oct 05)

48240	Staphylococcal pneu nos (Oct 05)	9141	Abrasion hand-infected (Oct 05)
48241	Staph aureus pneumonia (Oct 05)	9143	Blister hand-infected (Oct 05)
48249	Staph pneumonia nec (Oct 05)	9145	Insect bite hand-infect (Oct 05)
48281	Pneumonia anaerobes (Oct 05)	9147	Foreign body hand-infect (Oct 05)
48282	Pneumonia e coli (Oct 05)	9149	Superf inj hand nec-inf (Oct 05)
48283	Pneumo oth grm-neg bact (Oct 05)	9151	Abrasion finger-infected (Oct 05)
48284	Legionnaires' disease (Oct 05)	9153	Blister finger-infected (Oct 05)
48289	Pneumonia oth spcf bact (Oct 05)	9155	Insect bite finger-infec (Oct 05)
4829	Bacterial pneumonia nos (Oct 05)	9157	Foreign body finger-inf (Oct 05)
4843	Pneumonia in whooping cough (Oct	9159	Suprf inj finger nec-inf (Oct 05)
4845	Pneumonia in anthrax (Oct 05)	9161	Abrasion hip/leg-infect (Oct 05)
4848	Pneumonia in other inf dis (Oct 05)	9163	Blister hip & leg-infect (Oct 05)
485	Bronchopneumonia org nos (Oct	9165	Insect bite hip/leg-inf (Oct 05)
486	Pneumonia, organism nos (Oct 05)	9167	Foreign bdy hip/leg-inf (Oct 05)
490	Bronchitis nos (Oct 05)	9169	Superf inj leg nec-infec (Oct 05)
49122	Obs chr bronc w ac bronc (Oct 05)	9171	Abrasion foot/toe-infec (Oct 05)
4941	Bronchiectasis w ac exac (Oct 05)	9173	Blister foot & toe-infec (Oct 05)
5100	Empyema with fistula (Oct 05)	9175	Insect bite foot/toe-inf (Oct 05)
5109	Empyema w/o fistula (Oct 05)	9177	Foreign bdy foot/toe-inf (Oct 05)
5111	Bact pleur/effus not tb (Oct 05)	9179	Superf inj foot nec-inf (Oct 05)
5130	Abscess of lung (Oct 05)	9191	Abrasion nec-infected (Oct 05)
5131	Abscess of mediastinum (Oct 05)	9193	Blister nec-infected (Oct 05)
51901	Tracheostomy infection (Oct 05)	9195	Insect bite nec-infected (Oct 05)
5192	Mediastinitis (Oct 05)	9197	Superficial fb nec-infec (Oct 05)
5220	Pulpitis (Oct 05)	9199	Superfic inj nec-infect (Oct 05)
5225	Periapical abscess (Oct 05)	99590	Sirs, nos (Oct 05)
5227	Periapical absc w sinus (Oct 05)	99591	Sirs-infect w/o org dysf (Oct 05)
5230	Acute gingivitis (Oct 05)	99592	Sirs-infect w organ dysf (Oct 05)
5233	Acute periodontitis (Oct 05)	99660	Infect inflamm device implant graft nos (Oct 05)
5264	Inflammation of jaw (Oct 05)	99661	Infect inflamm cardiac device implant graft (Oct 05)
5273	Salivary gland abscess (Oct 05)	99662	Infect inflamm vascular device implant graft (Oct 05)
5283	Cellulitis/abscess mouth (Oct 05)	99663	Infect inflamm nerv device implant graft (Oct 05)
53641	Gastrostomy infection (Oct 05)	99664	Infect inflamm urinary cath (Oct 05)
5400	Ac append w peritonitis	99665	Infect inflamm gu device implant graft (Oct 05)
5401	Abscess of appendix	99666	Infect inflamm joint prosth (Oct 05)
5409	Acute appendicitis nos	99667	Infect inflamm oth orthop device implant graft nos (Oct 05)
541	Appendicitis nos	99669	Infect inflamm oth device implant graft (Oct 05)
542	Other appendicitis	99762	Infection amputat stump (Oct 05)
56201	Dvrtcli sml int w/o hmrg	99851	Infected postop seroma (Oct 05)
56203	Dvrtcli sml int w hmrhg	99859	Other postop infection (Oct 05)
56211	Dvrtcli colon w/o hmrhg	9993	Infec compl med care nec (Oct 05)

Code List W: ICD-10-WHO codes for denominator calculation (refer to codes below)

App No.	Code List	Indicator	Function
W-1	ICD-10-WHO immunocompromised state codes	Catheter-Related Bloodstream Infection, Postoperative sepsis	Denominator exclusion, if principal diagnosis or secondary diagnosis
W-2	ICD-10-WHO cancer codes	Catheter-Related Bloodstream Infection, Postoperative sepsis	Denominator exclusion, if principal diagnosis or secondary diagnosis
W-10	ICD-10-WHO codes for infections	Postoperative sepsis	Denominator exclusion, if principal diagnosis

W-1 ICD-10-WHO immunocompromised state codes

B20.0	HIV disease resulting in mycobacterial infection
B20.1	HIV disease resulting in other bacterial infections
B20.2	HIV disease resulting in cytomegaloviral disease
B20.3	HIV disease resulting in other viral infections
B20.4	HIV disease resulting in candidiasis
B20.5	HIV disease resulting in other mycoses
B20.6	HIV disease resulting in Pneumocystis carinii pneumonia
B20.7	HIV disease resulting in multiple infections
B20.8	HIV disease resulting in other infectious and parasitic diseases
B20.9	HIV disease resulting in unspecified infectious or parasitic disease
B21.0	HIV disease resulting in Kaposi's sarcoma
B21.1	HIV disease resulting in Burkitt's lymphoma
B21.2	HIV disease resulting in other types of non-Hodgkin's lymphoma
B21.3	HIV disease resulting in other malignant neoplasms of lymphoid, haematopoietic and related tissue
B21.7	HIV disease resulting in multiple malignant neoplasms
B21.8	HIV disease resulting in other malignant neoplasms
B21.9	HIV disease resulting in unspecified malignant neoplasm
B22.0	HIV disease resulting in encephalopathy
B22.1	HIV disease resulting in lymphoid interstitial pneumonitis
B22.2	HIV disease resulting in wasting syndrome
B22.7	HIV disease resulting in multiple diseases classified elsewhere
B23.1	HIV disease resulting in (persistent) generalized lymphadenopathy
B23.2	HIV disease resulting in haematological and immunological abnormalities, not elsewhere classified
B23.8	HIV disease resulting in other specified conditions
B24	Unspecified human immunodeficiency virus [HIV] disease
B59	Pneumocystosis
D47.1	Chronic myeloproliferative disease
D70	Agranulocytosis
D71	Functional disorders of polymorphonuclear neutrophils
D72.0	Genetic anomalies of leukocytes
D80.0	Hereditary hypogammaglobulinaemia
D80.1	Nonfamilial hypogammaglobulinaemia

D80.2	Selective deficiency of immunoglobulin A [IgA]
D80.3	Selective deficiency of immunoglobulin G [IgG] subclasses
D80.4	Selective deficiency of immunoglobulin M [IgM]
D80.5	Immunodeficiency with increased immunoglobulin M [IgM]
D80.6	Antibody deficiency with near-normal immunoglobulins or with hyperimmunoglobulinaemia
D80.7	Transient hypogammaglobulinaemia of infancy
D80.8	Other immunodeficiencies with predominantly antibody defects
D80.9	Immunodeficiency with predominantly antibody defects, unspecified
D81.0	Severe combined immunodeficiency [SCID] with reticular dysgenesis
D81.1	Severe combined immunodeficiency [SCID] with low T- and B-cell numbers
D81.2	Severe combined immunodeficiency [SCID] with low or normal B-cell numbers
D81.3	Adenosine deaminase [ADA] deficiency
D81.4	Nezelof's syndrome
D81.5	Purine nucleoside phosphorylase [PNP] deficiency
D81.6	Major histocompatibility complex class I deficiency
D81.7	Major histocompatibility complex class II deficiency
D81.8	Other combined immunodeficiencies
D81.9	Combined immunodeficiency, unspecified
D82.0	Wiskott-Aldrich syndrome
D82.1	Di George's syndrome
D82.2	Immunodeficiency with short-limbed stature
D82.3	Immunodeficiency following hereditary defective response to Epstein-Barr virus
D82.4	Hyperimmunoglobulin E [IgE] syndrome
D82.8	Immunodeficiency associated with other specified major defects
D82.9	Immunodeficiency associated with major defect, unspecified
D83.0	Common variable immunodeficiency with predominant abnormalities of B-cell numbers and function
D83.1	Common variable immunodeficiency with predominant immunoregulatory T-cell disorders
D83.2	Common variable immunodeficiency with autoantibodies to B- or T-cells
D83.8	Other common variable immunodeficiencies
D83.9	Common variable immunodeficiency, unspecified
D84.0	Lymphocyte function antigen-1 [LFA-1] defect
D84.1	Defects in the complement system
D84.8	Other specified immunodeficiencies
D84.9	Immunodeficiency, unspecified
D89.8	Other specified disorders involving the immune mechanism, not elsewhere classified
D89.9	Disorder involving the immune mechanism, unspecified
E40	Kwashiorkor
E41	Nutritional marasmus
E42	Marasmic kwashiorkor
E43	Unspecified severe protein-energy malnutrition
I12.0	Hypertensive renal disease with renal failure
I13.1	Hypertensive heart and renal disease with renal failure
I13.2	Hypertensive heart and renal disease with both (congestive) heart failure and renal failure
K91.2	Postsurgical malabsorption, not elsewhere classified
N18.0	End-stage renal disease
N18.8	Other chronic renal failure

T86.0	Bone-marrow transplant rejection
T86.1	Kidney transplant failure and rejection
T86.2	Heart transplant failure and rejection
T86.3	Heart-lung transplant failure and rejection
T86.4	Liver transplant failure and rejection
T86.8	Failure and rejection of other transplanted organs and tissues
T86.9	Failure and rejection of unspecified transplanted organ and tissue
Y83.0	Surgical Operation with transplant of whole organ or tissue
Z49.0	Preparatory care for dialysis
Z49.1	Extracorporeal dialysis
Z49.2	Other dialysis
Z94.0	Kidney transplant status
Z94.1	Heart transplant status
Z94.2	Lung transplant status
Z94.3	Heart and lungs transplant status
Z94.4	Liver transplant status
Z94.8	Other transplanted organ and tissue status
Z94.9	Transplanted organ and tissue status, unspecified

W-2 ICD-10-WHO cancer codes

C00.0	Malignant neoplasm: External upper lip
C00.1	Malignant neoplasm: External lower lip
C00.2	Malignant neoplasm: External lip, unspecified
C00.3	Malignant neoplasm: Upper lip, inner aspect
C00.4	Malignant neoplasm: Lower lip, inner aspect
C00.5	Malignant neoplasm: Lip, unspecified, inner aspect
C00.6	Malignant neoplasm: Commissure of lip
C00.8	Malignant neoplasm: Overlapping lesion of lip
C00.9	Malignant neoplasm: Lip, unspecified
C01	Malignant neoplasm of base of tongue
C02.0	Malignant neoplasm: Dorsal surface of tongue
C02.1	Malignant neoplasm: Border of tongue
C02.2	Malignant neoplasm: Ventral surface of tongue
C02.3	Malignant neoplasm: Anterior two-thirds of tongue, part unspecified
C02.4	Malignant neoplasm: Lingual tonsil
C02.8	Malignant neoplasm: Overlapping lesion of tongue
C02.9	Malignant neoplasm: Tongue, unspecified
C03.0	Malignant neoplasm: Upper gum
C03.1	Malignant neoplasm: Lower gum
C03.9	Malignant neoplasm: Gum, unspecified
C04.0	Malignant neoplasm: Anterior floor of mouth
C04.1	Malignant neoplasm: Lateral floor of mouth
C04.8	Malignant neoplasm: Overlapping lesion of floor of mouth
C04.9	Malignant neoplasm: Floor of mouth, unspecified
C05.0	Malignant neoplasm: Hard palate
C05.1	Malignant neoplasm: Soft palate
C05.2	Malignant neoplasm: Uvula
C05.8	Malignant neoplasm: Overlapping lesion of palate

C05.9	Malignant neoplasm: Palate, unspecified
C06.0	Malignant neoplasm: Cheek mucosa
C06.1	Malignant neoplasm: Vestibule of mouth
C06.2	Malignant neoplasm: Retromolar area
C06.8	Malignant neoplasm: Overlapping lesion of other and unspecified parts of mouth
C06.9	Malignant neoplasm: Mouth, unspecified
C07	Malignant neoplasm of parotid gland
C08.0	Malignant neoplasm: Submandibular gland
C08.1	Malignant neoplasm: Sublingual gland
C08.8	Malignant neoplasm: Overlapping lesion of major salivary glands
C08.9	Malignant neoplasm: Major salivary gland, unspecified
C09.0	Malignant neoplasm: Tonsillar fossa
C09.1	Malignant neoplasm: Tonsillar pillar (anterior)(posterior)
C09.8	Malignant neoplasm: Overlapping lesion of tonsil
C09.9	Malignant neoplasm: Tonsil, unspecified
C10.0	Malignant neoplasm: Vallecula
C10.1	Malignant neoplasm: Anterior surface of epiglottis
C10.2	Malignant neoplasm: Lateral wall of oropharynx
C10.3	Malignant neoplasm: Posterior wall of oropharynx
C10.4	Malignant neoplasm: Branchial cleft
C10.8	Malignant neoplasm: Overlapping lesion of oropharynx
C10.9	Malignant neoplasm: Oropharynx, unspecified
C11.0	Malignant neoplasm: Superior wall of nasopharynx
C11.1	Malignant neoplasm: Posterior wall of nasopharynx
C11.2	Malignant neoplasm: Lateral wall of nasopharynx
C11.3	Malignant neoplasm: Anterior wall of nasopharynx
C11.8	Malignant neoplasm: Overlapping lesion of nasopharynx
C11.9	Malignant neoplasm: Nasopharynx, unspecified
C12	Malignant neoplasm of piriform sinus
C13.0	Malignant neoplasm: Postcricoid region
C13.1	Malignant neoplasm: Aryepiglottic fold, hypopharyngeal aspect
C13.2	Malignant neoplasm: Posterior wall of hypopharynx
C13.8	Malignant neoplasm: Overlapping lesion of hypopharynx
C13.9	Malignant neoplasm: Hypopharynx, unspecified
C14.0	Malignant neoplasm: Pharynx, unspecified
C14.2	Malignant neoplasm: Waldeyer's ring
C14.8	Malignant neoplasm: Overlapping lesion of lip, oral cavity and pharynx
C15.0	Malignant neoplasm: Cervical part of oesophagus
C15.1	Malignant neoplasm: Thoracic part of oesophagus
C15.2	Malignant neoplasm: Abdominal part of oesophagus
C15.3	Malignant neoplasm: Upper third of oesophagus
C15.4	Malignant neoplasm: Middle third of oesophagus
C15.5	Malignant neoplasm: Lower third of oesophagus
C15.8	Malignant neoplasm: Overlapping lesion of oesophagus
C15.9	Malignant neoplasm: Oesophagus, unspecified
C16.0	Malignant neoplasm: Cardia
C16.1	Malignant neoplasm: Fundus of stomach
C16.2	Malignant neoplasm: Body of stomach

C16.3	Malignant neoplasm: Pyloric antrum
C16.4	Malignant neoplasm: Pylorus
C16.5	Malignant neoplasm: Lesser curvature of stomach, unspecified
C16.6	Malignant neoplasm: Greater curvature of stomach, unspecified
C16.8	Malignant neoplasm: Overlapping lesion of stomach
C16.9	Malignant neoplasm: Stomach, unspecified
C17.0	Malignant neoplasm: Duodenum
C17.1	Malignant neoplasm: Jejunum
C17.2	Malignant neoplasm: Ileum
C17.3	Malignant neoplasm: Meckel's diverticulum
C17.8	Malignant neoplasm: Overlapping lesion of small intestine
C17.9	Malignant neoplasm: Small intestine, unspecified
C18.0	Malignant neoplasm: Caecum
C18.1	Malignant neoplasm: Appendix
C18.2	Malignant neoplasm: Ascending colon
C18.3	Malignant neoplasm: Hepatic flexure
C18.4	Malignant neoplasm: Transverse colon
C18.5	Malignant neoplasm: Splenic flexure
C18.6	Malignant neoplasm: Descending colon
C18.7	Malignant neoplasm: Sigmoid colon
C18.8	Malignant neoplasm: Overlapping lesion of colon
C18.9	Malignant neoplasm: Colon, unspecified
C19	Malignant neoplasm of rectosigmoid junction
C20	Malignant neoplasm of rectum
C21.0	Malignant neoplasm: Anus, unspecified
C21.1	Malignant neoplasm: Anal canal
C21.2	Malignant neoplasm: Cloacogenic zone
C21.8	Malignant neoplasm: Overlapping lesion of rectum, anus and anal canal
C22.0	Malignant neoplasm: Liver cell carcinoma
C22.1	Malignant neoplasm: Intrahepatic bile duct carcinoma
C22.2	Malignant neoplasm: Hepatoblastoma
C22.3	Malignant neoplasm: Angiosarcoma of liver
C22.4	Malignant neoplasm: Other sarcomas of liver
C22.7	Malignant neoplasm: Other specified carcinomas of liver
C22.9	Malignant neoplasm: Liver, unspecified
C23	Malignant neoplasm of gallbladder
C24.0	Malignant neoplasm: Extrahepatic bile duct
C24.1	Malignant neoplasm: Ampulla of Vater
C24.8	Malignant neoplasm: Overlapping lesion of biliary tract
C24.9	Malignant neoplasm: Biliary tract, unspecified
C25.0	Malignant neoplasm: Head of pancreas
C25.1	Malignant neoplasm: Body of pancreas
C25.2	Malignant neoplasm: Tail of pancreas
C25.3	Malignant neoplasm: Pancreatic duct
C25.4	Malignant neoplasm: Endocrine pancreas
C25.7	Malignant neoplasm: Other parts of pancreas
C25.8	Malignant neoplasm: Overlapping lesion of pancreas
C25.9	Malignant neoplasm: Pancreas, unspecified

C26.0	Malignant neoplasm: Intestinal tract, part unspecified
C26.1	Malignant neoplasm: Spleen
C26.8	Malignant neoplasm: Overlapping lesion of digestive system
C26.9	Malignant neoplasm: Ill-defined sites within the digestive system
C30.0	Malignant neoplasm: Nasal cavity
C30.1	Malignant neoplasm: Middle ear
C31.0	Malignant neoplasm: Maxillary sinus
C31.1	Malignant neoplasm: Ethmoidal sinus
C31.2	Malignant neoplasm: Frontal sinus
C31.3	Malignant neoplasm: Sphenoidal sinus
C31.8	Malignant neoplasm: Overlapping lesion of accessory sinuses
C31.9	Malignant neoplasm: Accessory sinus, unspecified
C32.0	Malignant neoplasm: Glottis
C32.1	Malignant neoplasm: Supraglottis
C32.2	Malignant neoplasm: Subglottis
C32.3	Malignant neoplasm: Laryngeal cartilage
C32.8	Malignant neoplasm: Overlapping lesion of larynx
C32.9	Malignant neoplasm: Larynx, unspecified
C33	Malignant neoplasm of trachea
C34.0	Malignant neoplasm: Main bronchus
C34.1	Malignant neoplasm: Upper lobe, bronchus or lung
C34.2	Malignant neoplasm: Middle lobe, bronchus or lung
C34.3	Malignant neoplasm: Lower lobe, bronchus or lung
C34.8	Malignant neoplasm: Overlapping lesion of bronchus and lung
C34.9	Malignant neoplasm: Bronchus or lung, unspecified
C37	Malignant neoplasm of thymus
C38.0	Malignant neoplasm: Heart
C38.1	Malignant neoplasm: Anterior mediastinum
C38.2	Malignant neoplasm: Posterior mediastinum
C38.3	Malignant neoplasm: Mediastinum, part unspecified
C38.4	Malignant neoplasm: Pleura
C38.8	Malignant neoplasm: Overlapping lesion of heart, mediastinum and pleura
C39.0	Malignant neoplasm: Upper respiratory tract, part unspecified
C39.8	Malignant neoplasm: Overlapping lesion of respiratory and intrathoracic organs
C39.9	Malignant neoplasm: Ill-defined sites within the respiratory system
C40.0	Malignant neoplasm: Scapula and long bones of upper limb
C40.1	Malignant neoplasm: Short bones of upper limb
C40.2	Malignant neoplasm: Long bones of lower limb
C40.3	Malignant neoplasm: Short bones of lower limb
C40.8	Malignant neoplasm: Overlapping lesion of bone and articular cartilage of limbs
C40.9	Malignant neoplasm: Bone and articular cartilage of limb, unspecified
C41.0	Malignant neoplasm: Bones of skull and face
C41.1	Malignant neoplasm: Mandible
C41.2	Malignant neoplasm: Vertebral column
C41.3	Malignant neoplasm: Ribs, sternum and clavicle
C41.4	Malignant neoplasm: Pelvic bones, sacrum and coccyx
C41.8	Malignant neoplasm: Overlapping lesion of bone and articular cartilage
C41.9	Malignant neoplasm: Bone and articular cartilage, unspecified

C43.0	Malignant neoplasm: Malignant melanoma of lip
C43.1	Malignant neoplasm: Malignant melanoma of eyelid, including canthus
C43.2	Malignant neoplasm: Malignant melanoma of ear and external auricular canal
C43.3	Malignant neoplasm: Malignant melanoma of other and unspecified parts of face
C43.4	Malignant neoplasm: Malignant melanoma of scalp and neck
C43.5	Malignant neoplasm: Malignant melanoma of trunk
C43.6	Malignant neoplasm: Malignant melanoma of upper limb, including shoulder
C43.7	Malignant neoplasm: Malignant melanoma of lower limb, including hip
C43.8	Malignant neoplasm: Overlapping malignant melanoma of skin
C43.9	Malignant neoplasm: Malignant melanoma of skin, unspecified
C45.0	Mesothelioma of pleura
C45.1	Mesothelioma of peritoneum
C45.2	Mesothelioma of pericardium
C45.7	Mesothelioma of other sites
C45.9	Mesothelioma, unspecified
C46.0	Kaposi's sarcoma of skin
C46.1	Kaposi's sarcoma of soft tissue
C46.2	Kaposi's sarcoma of palate
C46.3	Kaposi's sarcoma of lymph nodes
C46.7	Kaposi's sarcoma of other sites
C46.8	Kaposi's sarcoma of multiple organs
C46.9	Kaposi's sarcoma, unspecified
C47.0	Malignant neoplasm: Peripheral nerves of head, face and neck
C47.1	Malignant neoplasm: Peripheral nerves of upper limb, including shoulder
C47.2	Malignant neoplasm: Peripheral nerves of lower limb, including hip
C47.3	Malignant neoplasm: Peripheral nerves of thorax
C47.4	Malignant neoplasm: Peripheral nerves of abdomen
C47.5	Malignant neoplasm: Peripheral nerves of pelvis
C47.6	Malignant neoplasm: Peripheral nerves of trunk, unspecified
C47.8	Malignant neoplasm: Overlapping lesion of peripheral nerves and autonomic nervous system
C47.9	Malignant neoplasm: Peripheral nerves and autonomic nervous system, unspecified
C48.0	Malignant neoplasm: Retroperitoneum
C48.1	Malignant neoplasm: Specified parts of peritoneum
C48.2	Malignant neoplasm: Peritoneum, unspecified
C48.8	Malignant neoplasm: Overlapping lesion of retroperitoneum and peritoneum
C49.0	Malignant neoplasm: Connective and soft tissue of head, face and neck
C49.1	Malignant neoplasm: Connective and soft tissue of upper limb, including shoulder
C49.2	Malignant neoplasm: Connective and soft tissue of lower limb, including hip
C49.3	Malignant neoplasm: Connective and soft tissue of thorax
C49.4	Malignant neoplasm: Connective and soft tissue of abdomen
C49.5	Malignant neoplasm: Connective and soft tissue of pelvis
C49.6	Malignant neoplasm: Connective and soft tissue of trunk, unspecified
C49.8	Malignant neoplasm: Overlapping lesion of connective and soft tissue
C49.9	Malignant neoplasm: Connective and soft tissue, unspecified
C50.0	Malignant neoplasm: Nipple and areola
C50.1	Malignant neoplasm: Central portion of breast
C50.2	Malignant neoplasm: Upper-inner quadrant of breast

C50.3	Malignant neoplasm: Lower-inner quadrant of breast
C50.4	Malignant neoplasm: Upper-outer quadrant of breast
C50.5	Malignant neoplasm: Lower-outer quadrant of breast
C50.6	Malignant neoplasm: Axillary tail of breast
C50.8	Malignant neoplasm: Overlapping lesion of breast
C50.9	Malignant neoplasm: Breast, unspecified
C51.0	Malignant neoplasm: Labium majus
C51.1	Malignant neoplasm: Labium minus
C51.2	Malignant neoplasm: Clitoris
C51.8	Malignant neoplasm: Overlapping lesion of vulva
C51.9	Malignant neoplasm: Vulva, unspecified
C52	Malignant neoplasm of vagina
C53.0	Malignant neoplasm: Endocervix
C53.1	Malignant neoplasm: Exocervix
C53.8	Malignant neoplasm: Overlapping lesion of cervix uteri
C53.9	Malignant neoplasm: Cervix uteri, unspecified
C54.0	Malignant neoplasm: Isthmus uteri
C54.1	Malignant neoplasm: Endometrium
C54.2	Malignant neoplasm: Myometrium
C54.3	Malignant neoplasm: Fundus uteri
C54.8	Malignant neoplasm: Overlapping lesion of corpus uteri
C54.9	Malignant neoplasm: Corpus uteri, unspecified
C55	Malignant neoplasm of uterus, part unspecified
C56	Malignant neoplasm of ovary
C57.0	Malignant neoplasm: Fallopian tube
C57.1	Malignant neoplasm: Broad ligament
C57.2	Malignant neoplasm: Round ligament
C57.3	Malignant neoplasm: Parametrium
C57.4	Malignant neoplasm: Uterine adnexa, unspecified
C57.7	Malignant neoplasm: Other specified female genital organs
C57.8	Malignant neoplasm: Overlapping lesion of female genital organs
C57.9	Malignant neoplasm: Female genital organ, unspecified
C58	Malignant neoplasm of placenta
C60.0	Malignant neoplasm: Prepuce
C60.1	Malignant neoplasm: Glans penis
C60.2	Malignant neoplasm: Body of penis
C60.8	Malignant neoplasm: Overlapping lesion of penis
C60.9	Malignant neoplasm: Penis, unspecified
C61	Malignant neoplasm of prostate
C62.0	Malignant neoplasm: Undescended testis
C62.1	Malignant neoplasm: Descended testis
C62.9	Malignant neoplasm: Testis, unspecified
C63.0	Malignant neoplasm: Epididymis
C63.1	Malignant neoplasm: Spermatic cord
C63.2	Malignant neoplasm: Scrotum
C63.7	Malignant neoplasm: Other specified male genital organs
C63.8	Malignant neoplasm: Overlapping lesion of male genital organs
C63.9	Malignant neoplasm: Male genital organ, unspecified

C64	Malignant neoplasm of kidney, except renal pelvis
C65	Malignant neoplasm of renal pelvis
C66	Malignant neoplasm of ureter
C67.0	Malignant neoplasm: Trigone of bladder
C67.1	Malignant neoplasm: Dome of bladder
C67.2	Malignant neoplasm: Lateral wall of bladder
C67.3	Malignant neoplasm: Anterior wall of bladder
C67.4	Malignant neoplasm: Posterior wall of bladder
C67.5	Malignant neoplasm: Bladder neck
C67.6	Malignant neoplasm: Ureteric orifice
C67.7	Malignant neoplasm: Urachus
C67.8	Malignant neoplasm: Overlapping lesion of bladder
C67.9	Malignant neoplasm: Bladder, unspecified
C68.0	Malignant neoplasm: Urethra
C68.1	Malignant neoplasm: Paraurethral gland
C68.8	Malignant neoplasm: Overlapping lesion of urinary organs
C68.9	Malignant neoplasm: Urinary organ, unspecified
C69.0	Malignant neoplasm: Conjunctiva
C69.1	Malignant neoplasm: Cornea
C69.2	Malignant neoplasm: Retina
C69.3	Malignant neoplasm: Choroid
C69.4	Malignant neoplasm: Ciliary body
C69.5	Malignant neoplasm: Lacrimal gland and duct
C69.6	Malignant neoplasm: Orbit
C69.8	Malignant neoplasm: Overlapping lesion of eye and adnexa
C69.9	Malignant neoplasm: Eye, unspecified
C70.0	Malignant neoplasm: Cerebral meninges
C70.1	Malignant neoplasm: Spinal meninges
C70.9	Malignant neoplasm: Meninges, unspecified
C71.0	Malignant neoplasm: Cerebrum, except lobes and ventricles
C71.1	Malignant neoplasm: Frontal lobe
C71.2	Malignant neoplasm: Temporal lobe
C71.3	Malignant neoplasm: Parietal lobe
C71.4	Malignant neoplasm: Occipital lobe
C71.5	Malignant neoplasm: Cerebral ventricle
C71.6	Malignant neoplasm: Cerebellum
C71.7	Malignant neoplasm: Brain stem
C71.8	Malignant neoplasm: Overlapping lesion of brain
C71.9	Malignant neoplasm: Brain, unspecified
C72.0	Malignant neoplasm: Spinal cord
C72.1	Malignant neoplasm: Cauda equina
C72.2	Malignant neoplasm: Olfactory nerve
C72.3	Malignant neoplasm: Optic nerve
C72.4	Malignant neoplasm: Acoustic nerve
C72.5	Malignant neoplasm: Other and unspecified cranial nerves
C72.8	Malignant neoplasm: Overlapping lesion of brain and other parts of central nervous system
C72.9	Malignant neoplasm: Central nervous system, unspecified

C73	Malignant neoplasm of thyroid gland
C74.0	Malignant neoplasm: Cortex of adrenal gland
C74.1	Malignant neoplasm: Medulla of adrenal gland
C74.9	Malignant neoplasm: Adrenal gland, unspecified
C75.0	Malignant neoplasm: Parathyroid gland
C75.1	Malignant neoplasm: Pituitary gland
C75.2	Malignant neoplasm: Craniopharyngeal duct
C75.3	Malignant neoplasm: Pineal gland
C75.4	Malignant neoplasm: Carotid body
C75.5	Malignant neoplasm: Aortic body and other paraganglia
C75.8	Malignant neoplasm: Pluriglandular involvement, unspecified
C75.9	Malignant neoplasm: Endocrine gland, unspecified
C76.0	Malignant neoplasm of other and ill-defined sites: Head, face and neck
C76.1	Malignant neoplasm of other and ill-defined sites: Thorax
C76.2	Malignant neoplasm of other and ill-defined sites: Abdomen
C76.3	Malignant neoplasm of other and ill-defined sites: Pelvis
C76.4	Malignant neoplasm of other and ill-defined sites: Upper limb
C76.5	Malignant neoplasm of other and ill-defined sites: Lower limb
C76.7	Malignant neoplasm of other and ill-defined sites: Other ill-defined sites
C76.8	Malignant neoplasm of other and ill-defined sites: Overlapping lesion of other and ill-defined sites
C77.0	Secondary and unspecified malignant neoplasm: Lymph nodes of head, face and neck
C77.1	Secondary and unspecified malignant neoplasm: Intrathoracic lymph nodes
C77.2	Secondary and unspecified malignant neoplasm: Intra-abdominal lymph nodes
C77.3	Secondary and unspecified malignant neoplasm: Axillary and upper limb lymph nodes
C77.4	Secondary and unspecified malignant neoplasm: Inguinal and lower limb lymph nodes
C77.5	Secondary and unspecified malignant neoplasm: Intrapelvic lymph nodes
C77.8	Secondary and unspecified malignant neoplasm: Lymph nodes of multiple regions
C77.9	Secondary and unspecified malignant neoplasm: Lymph node, unspecified
C78.0	Secondary malignant neoplasm of lung
C78.1	Secondary malignant neoplasm of mediastinum
C78.2	Secondary malignant neoplasm of pleura
C78.3	Secondary malignant neoplasm of other and unspecified respiratory organs
C78.4	Secondary malignant neoplasm of small intestine
C78.5	Secondary malignant neoplasm of large intestine and rectum
C78.6	Secondary malignant neoplasm of retroperitoneum and peritoneum
C78.7	Secondary malignant neoplasm of liver
C78.8	Secondary malignant neoplasm of other and unspecified digestive organs
C79.0	Secondary malignant neoplasm of kidney and renal pelvis
C79.1	Secondary malignant neoplasm of bladder and other and unspecified urinary organs
C79.2	Secondary malignant neoplasm of skin
C79.3	Secondary malignant neoplasm of brain and cerebral meninges
C79.4	Secondary malignant neoplasm of other and unspecified parts of nervous system
C79.5	Secondary malignant neoplasm of bone and bone marrow
C79.6	Secondary malignant neoplasm of ovary
C79.7	Secondary malignant neoplasm of adrenal gland

C79.8	Secondary malignant neoplasm of other specified sites
C80	Malignant neoplasm without specification of site
C81.0	Hodgkin's disease: Lymphocytic predominance
C81.1	Hodgkin's disease: Nodular sclerosis
C81.2	Hodgkin's disease: Mixed cellularity
C81.3	Hodgkin's disease: Lymphocytic depletion
C81.7	Hodgkin's disease: Other Hodgkin's disease
C81.9	Hodgkin's disease: Hodgkin's disease, unspecified
C82.0	Non-Hodgkin's lymphoma: Small cleaved cell, follicular
C82.1	Non-Hodgkin's lymphoma: Mixed small cleaved and large cell, follicular
C82.2	Non-Hodgkin's lymphoma: Large cell, follicular
C82.7	Other types of follicular non-Hodgkin's lymphoma
C82.9	Follicular non-Hodgkin's lymphoma, unspecified
C83.0	Non-Hodgkin's lymphoma: Small cell (diffuse)
C83.1	Non-Hodgkin's lymphoma: Small cleaved cell (diffuse)
C83.2	Non-Hodgkin's lymphoma: Mixed small and large cell (diffuse)
C83.3	Non-Hodgkin's lymphoma: Large cell (diffuse)
C83.4	Non-Hodgkin's lymphoma: Immunoblastic (diffuse)
C83.5	Non-Hodgkin's lymphoma: Lymphoblastic (diffuse)
C83.6	Non-Hodgkin's lymphoma: Undifferentiated (diffuse)
C83.7	Burkitt's tumour
C83.8	Other types of diffuse non-Hodgkin's lymphoma
C83.9	Diffuse non-Hodgkin's lymphoma, unspecified
C84.0	Mycosis fungoides
C84.1	Sezary's disease
C84.2	T-zone lymphoma
C84.3	Lymphoepithelioid lymphoma
C84.4	Peripheral T-cell lymphoma
C84.5	Other and unspecified T-cell lymphomas
C85.0	Lymphosarcoma
C85.1	B-cell lymphoma, unspecified
C85.7	Other specified types of non-Hodgkin's lymphoma
C85.9	Non-Hodgkin's lymphoma, unspecified type
C88.0	Waldenstr¸m's macroglobulinaemia
C90.0	Multiple myeloma
C90.1	Plasma cell leukaemia
C90.2	Plasmacytoma, extramedullary
C91.0	Acute lymphoblastic leukaemia
C91.1	Chronic lymphocytic leukaemia
C91.2	Subacute lymphocytic leukaemia
C91.3	Prolymphocytic leukaemia
C91.4	Hairy-cell leukaemia
C91.5	Adult T-cell leukaemia
C91.7	Other lymphoid leukaemia
C91.9	Lymphoid leukaemia, unspecified
C92.0	Acute myeloid leukaemia
C92.1	Chronic myeloid leukaemia
C92.2	Subacute myeloid leukaemia

C92.3	Myeloid sarcoma
C92.4	Acute promyelocytic leukaemia
C92.5	Acute myelomonocytic leukaemia
C92.7	Other myeloid leukaemia
C92.9	Myeloid leukaemia, unspecified
C93.0	Acute monocytic leukaemia
C93.1	Chronic monocytic leukaemia
C93.2	Subacute monocytic leukaemia
C93.7	Other monocytic leukaemia
C93.9	Monocytic leukaemia, unspecified
C94.0	Acute erythraemia and erythroleukaemia
C94.1	Chronic erythraemia
C94.2	Acute megakaryoblastic leukaemia
C94.3	Mast cell leukaemia
C94.4	Acute panmyelosis
C94.5	Acute myelofibrosis
C94.7	Other specified leukaemias
C95.0	Acute leukaemia of unspecified cell type
C95.1	Chronic leukaemia of unspecified cell type
C95.2	Subacute leukaemia of unspecified cell type
C95.7	Other leukaemia of unspecified cell type
C95.9	Leukaemia, unspecified
C96.0	Letterer-Siwe disease
C96.1	Malignant histiocytosis
C96.2	Malignant mast cell tumour
C96.3	True histiocytic lymphoma
C96.7	Other specified malignant neoplasms of lymphoid, haematopoietic and related tissue
C96.9	Malignant neoplasm of lymphoid, haematopoietic and related tissue, unspecified
C97	Malignant neoplasms of independent (primary) multiple sites
Z85.0	Personal history of malignant neoplasm of digestive organs
Z85.1	Personal history of malignant neoplasm of trachea, bronchus and lung
Z85.2	Personal history of malignant neoplasm of other respiratory and intrathoracic organs
Z85.3	Personal history of malignant neoplasm of breast
Z85.4	Personal history of malignant neoplasm of genital organs
Z85.5	Personal history of malignant neoplasm of urinary tract
Z85.6	Personal history of leukaemia
Z85.7	Personal history of other malignant neoplasms of lymphoid, haematopoietic and related tissues
Z85.8	Personal history of malignant neoplasms of other organs and systems
Z85.9	Personal history of malignant neoplasm, unspecified

W-10 ICD-10-WHO codes for infections

A00.0	Cholera due to Vibrio cholerae 01, biovar cholerae
A00.1	Cholera due to Vibrio cholerae 01, biovar eltor
A00.9	Cholera, unspecified
A01.0	Typhoid fever
A01.1	Paratyphoid fever A
A01.2	Paratyphoid fever B
A01.3	Paratyphoid fever C

A01.4	Paratyphoid fever, unspecified
A02.0	Salmonella enteritis
A02.1	Salmonella septicaemia
A02.2	Localized salmonella infections
A02.8	Other specified salmonella infections
A02.9	Salmonella infection, unspecified
A03.0	Shigellosis due to Shigella dysenteriae
A03.1	Shigellosis due to Shigella flexneri
A03.2	Shigellosis due to Shigella boydii
A03.3	Shigellosis due to Shigella sonnei
A03.8	Other shigellosis
A03.9	Shigellosis, unspecified
A04.0	Enteropathogenic Escherichia coli infection
A04.1	Enterotoxigenic Escherichia coli infection
A04.2	Enteroinvasive Escherichia coli infection
A04.3	Enterohaemorrhagic Escherichia coli infection
A04.4	Other intestinal Escherichia coli infections
A04.5	Campylobacter enteritis
A04.6	Enteritis due to Yersinia enterocolitica
A04.7	Enterocolitis due to Clostridium difficile
A04.8	Other specified bacterial intestinal infections
A04.9	Bacterial intestinal infection, unspecified
A05.0	Foodborne staphylococcal intoxication
A05.1	Botulism
A05.2	Foodborne Clostridium perfringens [Clostridium welchii] intoxication
A05.3	Foodborne Vibrio parahaemolyticus intoxication
A05.4	Foodborne Bacillus cereus intoxication
A05.8	Other specified bacterial foodborne intoxications
A05.9	Bacterial foodborne intoxication, unspecified
A20.0	Bubonic plague
A20.1	Cellulocutaneous plague
A20.2	Pneumonic plague
A20.3	Plague meningitis
A20.7	Septicaemic plague
A20.8	Other forms of plague
A20.9	Plague, unspecified
A21.0	Ulceroglandular tularaemia
A21.1	Oculoglandular tularaemia
A21.2	Pulmonary tularaemia
A21.3	Gastrointestinal tularaemia
A21.7	Generalized tularaemia
A21.8	Other forms of tularaemia
A21.9	Tularaemia, unspecified
A22.0	Cutaneous anthrax
A22.1	Pulmonary anthrax
A22.2	Gastrointestinal anthrax
A22.7	Anthrax septicaemia
A22.8	Other forms of anthrax
A22.9	Anthrax, unspecified

A23.0	Brucellosis due to Brucella melitensis
A23.1	Brucellosis due to Brucella abortus
A23.2	Brucellosis due to Brucella suis
A23.3	Brucellosis due to Brucella canis
A23.8	Other brucellosis
A23.9	Brucellosis, unspecified
A24.0	Glanders
A24.1	Acute and fulminating melioidosis
A24.2	Subacute and chronic melioidosis
A24.3	Other melioidosis
A24.4	Melioidosis, unspecified
A25.0	Spirillosis
A25.1	Streptobacillosis
A25.9	Rat-bite fever, unspecified
A26.0	Cutaneous erysipeloid
A26.7	Erysipelothrix septicaemia
A26.8	Other forms of erysipeloid
A26.9	Erysipeloid, unspecified
A28.0	Pasteurellosis
A28.1	Cat-scratch disease
A28.2	Extraintestinal yersiniosis
A28.8	Other specified zoonotic bacterial diseases, not elsewhere classified
A28.9	Zoonotic bacterial disease, unspecified
A32.0	Cutaneous listeriosis
A32.1	Listerial meningitis and meningoencephalitis
A32.7	Listerial septicaemia
A32.8	Other forms of listeriosis
A32.9	Listeriosis, unspecified
A33	Tetanus neonatorum
A34	Obstetrical tetanus
A35	Other tetanus
A36.0	Pharyngeal diphtheria
A36.1	Nasopharyngeal diphtheria
A36.2	Laryngeal diphtheria
A36.3	Cutaneous diphtheria
A36.8	Other diphtheria
A36.9	Diphtheria, unspecified
A37.0	Whooping cough due to Bordetella pertussis
A37.1	Whooping cough due to Bordetella parapertussis
A37.8	Whooping cough due to other Bordetella species
A37.9	Whooping cough, unspecified
A38	Scarlet fever
A39.0	Meningococcal meningitis
A39.1	Waterhouse-Friderichsen syndrome
A39.2	Acute meningococcaemia
A39.3	Chronic meningococcaemia
A39.4	Meningococcaemia, unspecified
A39.5	Meningococcal heart disease
A39.8	Other meningococcal infections

A39.9	Meningococcal infection, unspecified
A40.0	Septicaemia due to streptococcus, group A
A40.1	Septicaemia due to streptococcus, group B
A40.2	Septicaemia due to streptococcus, group D
A40.3	Septicaemia due to Streptococcus pneumoniae
A40.8	Other streptococcal septicaemia
A40.9	Streptococcal septicaemia, unspecified
A41.0	Septicaemia due to Staphylococcus aureus
A41.1	Septicaemia due to other specified staphylococcus
A41.2	Septicaemia due to unspecified staphylococcus
A41.3	Septicaemia due to Haemophilus influenzae
A41.4	Septicaemia due to anaerobes
A41.5	Septicaemia due to other Gram-negative organisms
A41.8	Other specified septicaemia
A41.9	Septicaemia, unspecified
A42.0	Pulmonary actinomycosis
A42.1	Abdominal actinomycosis
A42.2	Cervicofacial actinomycosis
A42.7	Actinomycotic septicaemia
A42.8	Other forms of actinomycosis
A42.9	Actinomycosis, unspecified
A43.0	Pulmonary nocardiosis
A43.1	Cutaneous nocardiosis
A43.8	Other forms of nocardiosis
A43.9	Nocardiosis, unspecified
A46	Erysipelas
A48.0	Gas gangrene
A48.1	Legionnaires' disease
A48.2	Nonpneumonic Legionnaires' disease [Pontiac fever]
A48.3	Toxic shock syndrome
A48.4	Brazilian purpuric fever
A48.8	Other specified bacterial diseases
A49.0	Staphylococcal infection, unspecified
A49.1	Streptococcal infection, unspecified
A49.2	Haemophilus influenzae infection, unspecified
A49.3	Mycoplasma infection, unspecified
A49.8	Other bacterial infections of unspecified site
A49.9	Bacterial infection, unspecified
A54.0	Gonococcal infection of lower genitourinary tract without periurethral or accessory gland abscess
A54.1	Gonococcal infection of lower genitourinary tract with periurethral and accessory gland abscess
A54.2	Gonococcal pelviperitonitis and other gonococcal genitourinary infections
A54.3	Gonococcal infection of eye
A54.4	Gonococcal infection of musculoskeletal system
A54.5	Gonococcal pharyngitis
A54.6	Gonococcal infection of anus and rectum
A54.8	Other gonococcal infections
A54.9	Gonococcal infection, unspecified

B95.0	Streptococcus, group A, as the cause of diseases classified to other chapters
B95.1	Streptococcus, group B, as the cause of diseases classified to other chapters
B95.2	Streptococcus, group D, as the cause of diseases classified to other chapters
B95.3	Streptococcus pneumoniae as the cause of diseases classified to other chapters
B95.4	Other streptococcus as the cause of diseases classified to other chapters
B95.5	Unspecified streptococcus as the cause of diseases classified to other chapters
B95.6	Staphylococcus aureus as the cause of diseases classified to other chapters
B95.7	Other staphylococcus as the cause of diseases classified to other chapters
B95.8	Unspecified staphylococcus as the cause of diseases classified to other chapters
B96.0	Mycoplasma pneumoniae [M. pneumoniae] as the cause of diseases classified to other chapters
B96.1	Klebsiella pneumoniae [K. pneumoniae] as the cause of diseases classified to other chapters
B96.2	Escherichia coli [E. coli] as the cause of diseases classified to other chapters
B96.3	Haemophilus influenzae [H. influenzae] as the cause of diseases classified to other chapters
B96.4	Proteus (mirabilis)(morganii) as the cause of diseases classified to other chapters
B96.5	Pseudomonas (aeruginosa)(mallei)(pseudomallei) as the cause of diseases classified to other chapters
B96.6	Bacillus fragilis [B. fragilis] as the cause of diseases classified to other chapters
B96.7	Clostridium perfringens [C. perfringens] as the cause of diseases classified to other chapters
B96.8	Other specified bacterial agents as the cause of diseases classified to other chapters
D73.3	Abscess of spleen
E32.1	Abscess of thymus
G00.0	Haemophilus meningitis
G00.1	Pneumococcal meningitis
G00.2	Streptococcal meningitis
G00.3	Staphylococcal meningitis
G00.8	Other bacterial meningitis
G00.9	Bacterial meningitis, unspecified
G03.8	Meningitis due to other specified causes
G03.9	Meningitis, unspecified
G04.2	Bacterial meningoencephalitis and meningomyelitis, not elsewhere classified
G06.0	Intracranial abscess and granuloma
G06.1	Intraspinal abscess and granuloma
G06.2	Extradural and subdural abscess, unspecified
G07	Intracranial and intraspinal abscess and granuloma in diseases classified elsewhere
H00.0	Hordeolum and other deep inflammation of eyelid
H01.0	Blepharitis
H01.8	Other specified inflammation of eyelid
H04.0	Dacryoadenitis
H04.3	Acute and unspecified inflammation of lacrimal passages
H04.4	Chronic inflammation of lacrimal passages
H05.0	Acute inflammation of orbit
H10.0	Mucopurulent conjunctivitis
H10.2	Other acute conjunctivitis
H10.3	Acute conjunctivitis, unspecified
H10.5	Blepharoconjunctivitis
H10.8	Other conjunctivitis
H10.9	Conjunctivitis, unspecified
H13.1	Conjunctivitis in infectious and parasitic diseases classified elsewhere

H44.0	Purulent endophthalmitis
H60.0	Abscess of external ear
H60.1	Cellulitis of external ear
H60.2	Malignant otitis externa
H60.3	Other infective otitis externa
H60.9	Otitis externa, unspecified
H66.0	Acute suppurative otitis media
H66.1	Chronic tubotympanic suppurative otitis media
H66.2	Chronic atticoantral suppurative otitis media
H66.3	Other chronic suppurative otitis media
H66.4	Suppurative otitis media, unspecified
H66.9	Otitis media, unspecified
H68.0	Eustachian salpingitis
H70.0	Acute mastoiditis
H70.2	Petrositis
H73.0	Acute myringitis
H83.0	Labyrinthitis
I30.1	Infective pericarditis
I30.8	Other forms of acute pericarditis
I30.9	Acute pericarditis, unspecified
I32.0	Pericarditis in bacterial diseases classified elsewhere
I33.0	Acute and subacute infective endocarditis
I33.9	Acute endocarditis, unspecified
I40.0	Infective myocarditis
J01.0	Acute maxillary sinusitis
J01.1	Acute frontal sinusitis
J01.2	Acute ethmoidal sinusitis
J01.3	Acute sphenoidal sinusitis
J01.4	Acute pansinusitis
J01.8	Other acute sinusitis
J01.9	Acute sinusitis, unspecified
J02.0	Streptococcal pharyngitis
J02.8	Acute pharyngitis due to other specified organisms
J02.9	Acute pharyngitis, unspecified
J03.0	Streptococcal tonsillitis
J03.8	Acute tonsillitis due to other specified organisms
J03.9	Acute tonsillitis, unspecified
J05.1	Acute epiglottitis
J13	Pneumonia due to Streptococcus pneumoniae
J14	Pneumonia due to Haemophilus influenzae
J15.0	Pneumonia due to Klebsiella pneumoniae
J15.1	Pneumonia due to Pseudomonas
J15.2	Pneumonia due to staphylococcus
J15.3	Pneumonia due to streptococcus, group B
J15.4	Pneumonia due to other streptococci
J15.5	Pneumonia due to Escherichia coli
J15.6	Pneumonia due to other aerobic Gram-negative bacteria
J15.7	Pneumonia due to Mycoplasma pneumoniae
J15.8	Other bacterial pneumonia

J15.9	Bacterial pneumonia, unspecified
J17.0	Pneumonia in bacterial diseases classified elsewhere
J18.0	Bronchopneumonia, unspecified
J18.1	Lobar pneumonia, unspecified
J18.8	Other pneumonia, organism unspecified
J20.0	Acute bronchitis due to Mycoplasma pneumoniae
J20.1	Acute bronchitis due to Haemophilus influenzae
J20.2	Acute bronchitis due to streptococcus
J34.0	Abscess, furuncle and carbuncle of nose
J36	Peritonsillar abscess
J39.0	Retropharyngeal and parapharyngeal abscess
J39.1	Other abscess of pharynx
J40	Bronchitis, not specified as acute or chronic
J44.0	Chronic obstructive pulmonary disease with acute lower respiratory infection
J85.0	Gangrene and necrosis of lung
J85.1	Abscess of lung with pneumonia
J85.2	Abscess of lung without pneumonia
J85.3	Abscess of mediastinum
J86.0	Pyothorax with fistula
J86.9	Pyothorax without fistula
J90	Pleural effusion, not elsewhere classified
J98.5	Diseases of mediastinum, not elsewhere classified
K04.0	Pulpitis
K04.6	Periapical abscess with sinus
K04.7	Periapical abscess without sinus
K05.0	Acute gingivitis
K05.2	Acute periodontitis
K10.2	Inflammatory conditions of jaws
K11.3	Abscess of salivary gland
K12.2	Cellulitis and abscess of mouth
K35.0	Acute appendicitis with generalized peritonitis
K35.1	Acute appendicitis with peritoneal abscess
K35.9	Acute appendicitis, unspecified
K36	Other appendicitis
K37	Unspecified appendicitis
K57.0	Diverticular disease of small intestine with perforation and abscess
K57.1	Diverticular disease of small intestine without perforation or abscess
K57.2	Diverticular disease of large intestine with perforation and abscess
K57.3	Diverticular disease of large intestine without perforation or abscess
K57.4	Diverticular disease of both small and large intestine with perforation and abscess
K57.5	Diverticular disease of both small and large intestine without perforation or abscess
K57.8	Diverticular disease of intestine, part unspecified, with perforation and abscess
K57.9	Diverticular disease of intestine, part unspecified, without perforation or abscess
K61.0	Anal abscess
K61.1	Rectal abscess
K61.2	Anorectal abscess
K61.3	Ischiorectal abscess
K61.4	Intrasphincteric abscess
K63.0	Abscess of intestine

K65.0	Acute peritonitis
K65.8	Other peritonitis
K65.9	Peritonitis, unspecified
K67.1	Gonococcal peritonitis
K75.0	Abscess of liver
K75.1	Phlebitis of portal vein
K80.0	Calculus of gallbladder with acute cholecystitis
K80.3	Calculus of bile duct with cholangitis
K80.4	Calculus of bile duct with cholecystitis
K81.0	Acute cholecystitis
K81.8	Other cholecystitis
K81.9	Cholecystitis, unspecified
K82.2	Perforation of gallbladder
K83.0	Cholangitis
K83.2	Perforation of bile duct
K85.0	Idiopathic acute pancreatitis
K85.1	Biliary acute pancreatitis
K85.2	Alcohol-induced acute pancreatitis
K85.3	Drug-induced acute pancreatitis
K85.8	Other acute pancreatitis
K85.9	Acute pancreatitis, unspecified
L00	Staphylococcal scalded skin syndrome
L01.0	Impetigo [any organism] [any site]
L01.1	Impetiginization of other dermatoses
L02.0	Cutaneous abscess, furuncle and carbuncle of face
L02.1	Cutaneous abscess, furuncle and carbuncle of neck
L02.2	Cutaneous abscess, furuncle and carbuncle of trunk
L02.3	Cutaneous abscess, furuncle and carbuncle of buttock
L02.4	Cutaneous abscess, furuncle and carbuncle of limb
L02.8	Cutaneous abscess, furuncle and carbuncle of other sites
L02.9	Cutaneous abscess, furuncle and carbuncle, unspecified
L03.0	Cellulitis of finger and toe
L03.1	Cellulitis of other parts of limb
L03.2	Cellulitis of face
L03.3	Cellulitis of trunk
L03.8	Cellulitis of other sites
L03.9	Cellulitis, unspecified
L04.0	Acute lymphadenitis of face, head and neck
L04.1	Acute lymphadenitis of trunk
L04.2	Acute lymphadenitis of upper limb
L04.3	Acute lymphadenitis of lower limb
L04.8	Acute lymphadenitis of other sites
L04.9	Acute lymphadenitis, unspecified
L05.0	Pilonidal cyst with abscess
L08.0	Pyoderma
L08.8	Other specified local infections of skin and subcutaneous tissue
L08.9	Local infection of skin and subcutaneous tissue, unspecified
L30.3	Infective dermatitis
M00.0	Staphylococcal arthritis and polyarthritis

M00.1	Pneumococcal arthritis and polyarthritis
M00.2	Other streptococcal arthritis and polyarthritis
M00.8	Arthritis and polyarthritis due to other specified bacterial agents
M00.9	Pyogenic arthritis, unspecified
M03.0	Postmeningococcal arthritis
M03.1	Postinfective arthropathy in syphilis
M03.2	Other postinfectious arthropathies in diseases classified elsewhere
M03.6	Reactive arthropathy in other diseases classified elsewhere
M46.2	Osteomyelitis of vertebra
M60.0	Infective myositis
M63.0	Myositis in bacterial diseases classified elsewhere
M72..6	Necrotizing fasciitis
M73.0	Gonococcal bursitis
M86.0	Acute haematogenous osteomyelitis
M86.1	Other acute osteomyelitis
M86.2	Subacute osteomyelitis
M86.3	Chronic multifocal osteomyelitis
M86.4	Chronic osteomyelitis with draining sinus
M86.5	Other chronic haematogenous osteomyelitis
M86.6	Other chronic osteomyelitis
M86.8	Other osteomyelitis
M86.9	Osteomyelitis, unspecified
M90.1	Periostitis in other infectious diseases classified elsewhere
N10	Acute tubulo-interstitial nephritis
N12	Tubulo-interstitial nephritis, not specified as acute or chronic
N13.6	Pyonephrosis
N15.1	Renal and perinephric abscess
N30.0	Acute cystitis
N30.8	Other cystitis
N30.9	Cystitis, unspecified
N34.0	Urethral abscess
N39.0	Urinary tract infection, site not specified
N41.0	Acute prostatitis
N41.2	Abscess of prostate
N41.3	Prostatocystitis
N41.8	Other inflammatory diseases of prostate
N41.9	Inflammatory disease of prostate, unspecified
N43.1	Infected hydrocele
N45.0	Orchitis, epididymitis and epididymo-orchitis with abscess
N45.9	Orchitis, epididymitis and epididymo-orchitis without abscess
N48.1	Balanoposthitis
N48.2	Other inflammatory disorders of penis
N49.0	Inflammatory disorders of seminal vesicle
N49.1	Inflammatory disorders of spermatic cord, tunica vaginalis and vas deferens
N49.2	Inflammatory disorders of scrotum
N49.8	Inflammatory disorders of other specified male genital organs
N49.9	Inflammatory disorder of unspecified male genital organ
N51.0	Disorders of prostate in diseases classified elsewhere
N51.1	Disorders of testis and epididymis in diseases classified elsewhere

N61	Inflammatory disorders of breast
N70.0	Acute salpingitis and oophoritis
N70.1	Chronic salpingitis and oophoritis
N70.9	Salpingitis and oophoritis, unspecified
N71.0	Acute inflammatory disease of uterus
N71.9	Inflammatory disease of uterus, unspecified
N72	Inflammatory disease of cervix uteri
N73.0	Acute parametritis and pelvic cellulitis
N73.1	Chronic parametritis and pelvic cellulitis
N73.2	Unspecified parametritis and pelvic cellulitis
N73.3	Female acute pelvic peritonitis
N73.5	Female pelvic peritonitis, unspecified
N73.9	Female pelvic inflammatory disease, unspecified
N75.1	Abscess of Bartholin's gland
N76.0	Acute vaginitis
N76.1	Subacute and chronic vaginitis
N76.2	Acute vulvitis
N76.3	Subacute and chronic vulvitis
N76.4	Abscess of vulva
N76.8	Other specified inflammation of vagina and vulva
O03.0	Spontaneous abortion, incomplete, complicated by genital tract and pelvic infection
O03.5	Spontaneous abortion, complete or unspecified, complicated by genital tract and pelvic infection
O04.0	Medical abortion, incomplete, complicated by genital tract and pelvic infection
O04.5	Medical abortion, complete or unspecified, complicated by genital tract and pelvic infection
O05.0	Other abortion, incomplete, complicated by genital tract and pelvic infection
O05.5	Other abortion, complete or unspecified, complicated by genital tract and pelvic infection
O06.0	Unspecified abortion, incomplete, complicated by genital tract and pelvic infection
O06.5	Unspecified abortion, complete or unspecified, complicated by genital tract and pelvic infection
O07.0	Failed medical abortion, complicated by genital tract and pelvic infection
O07.5	Other and unspecified failed attempted abortion, complicated by genital tract and pelvic infection
O08.0	Genital tract and pelvic infection following abortion and ectopic and molar pregnancy
O23.0	Infections of kidney in pregnancy
O23.1	Infections of bladder in pregnancy
O23.2	Infections of urethra in pregnancy
O23.3	Infections of other parts of urinary tract in pregnancy
O23.4	Unspecified infection of urinary tract in pregnancy
O23.5	Infections of the genital tract in pregnancy
O23.9	Other and unspecified genitourinary tract infection in pregnancy
O41.1	Infection of amniotic sac and membranes
O86.1	Other infection of genital tract following delivery
O86.2	Urinary tract infection following delivery
O86.3	Other genitourinary tract infections following delivery
O86.4	Pyrexia of unknown origin following delivery
O91.0	Infection of nipple associated with childbirth
O91.1	Abscess of breast associated with childbirth
O91.2	Nonpurulent mastitis associated with childbirth

O98.2	Gonorrhoea complicating pregnancy, childbirth and the puerperium
O98.8	Other maternal infectious and parasitic diseases complicating pregnancy, childbirth and the puerperium
O98.9	Unspecified maternal infectious or parasitic disease complicating pregnancy, childbirth and the puerperium
P36.0	Sepsis of newborn due to streptococcus, group B
P36.1	Sepsis of newborn due to other and unspecified streptococci
P36.2	Sepsis of newborn due to Staphylococcus aureus
P36.3	Sepsis of newborn due to other and unspecified staphylococci
P36.4	Sepsis of newborn due to Escherichia coli
P36.5	Sepsis of newborn due to anaerobes
P36.8	Other bacterial sepsis of newborn
P36.9	Bacterial sepsis of newborn, unspecified
P38	Omphalitis of newborn with or without mild haemorrhage
P39.0	Neonatal infective mastitis
P39.2	Intra-amniotic infection of fetus, not elsewhere classified
P39.3	Neonatal urinary tract infection
P39.4	Neonatal skin infection
P39.8	Other specified infections specific to the perinatal period
P39.9	Infection specific to the perinatal period, unspecified
P77	Necrotizing enterocolitis of fetus and newborn
R02	Gangrene, not elsewhere classified
R57.8	Other shock
T80.2	Infections following infusion, transfusion and therapeutic injection
T81.4	Infection following a procedure, not elsewhere classified
T82.6	Infection and inflammatory reaction due to cardiac valve prosthesis
T82.7	Infection and inflammatory reaction due to other cardiac and vascular devices, implants and grafts
T83.5	Infection and inflammatory reaction due to prosthetic device, implant and graft in urinary system
T83.6	Infection and inflammatory reaction due to prosthetic device, implant and graft in genital tract
T84.5	Infection and inflammatory reaction due to internal joint prosthesis
T84.6	Infection and inflammatory reaction due to internal fixation device [any site]
T84.7	Infection and inflammatory reaction due to other internal orthopaedic prosthetic devices, implants and grafts
T84.9	Unspecified complication of internal orthopaedic prosthetic device, implant and graft
T85.7	Infection and inflammatory reaction due to other internal prosthetic devices, implants and grafts
T87.4	Infection of amputation stump
T88.0	Infection following immunization

Code List P: ICD-9-CM Procedure codes for assignment of operative discharges (denominators in PSIs 12 and 13)[7]

[7] Procedure code list adopetd from Agency for Healthcare Research and Quality, PSI Technical Specifications, Version 3.2, March 2008 Patient Safety Indicators Download. AHRQ Quality Indicators. March 2007. Agency for Healthcare Research and Quality, Rockville, MD. http://www.qualityindicators.ahrq.gov/psi_download.htm

0044	PROC-VESSEL BIFURCATION OCT06-
0050	IMPL CRT PACEMAKER SYS
0051	IMPL CRT DEFIBRILLAT SYS
0052	IMP/REP LEAD LF VEN SYS
0053	IMP/REP CRT PACEMAKR GEN
0054	IMP/REP CRT DEFIB GENAT
0056	INS/REP IMPL SENSOR LEAD OCT06-
0057	IMP/REP SUBCUE CARD DEV OCT06-
0061	PERC ANGIO PRECEREB VES (OCT 04)
0062	PERC ANGIO INTRACRAN VES (OCT 04)
0066	PTCA OR CORONARY ATHER OCT05-
0070	REV HIP REPL-ACETAB/FEM OCT05-
0071	REV HIP REPL-ACETAB COMP OCT05-
0072	REV HIP REPL-FEM COMP OCT05-
0073	REV HIP REPL-LINER/HEAD OCT05-
0074	HIP REPL SURF-METAL/POLY OCT05-
0075	HIP REP SURF-METAL/METAL OCT05-
0076	HIP REP SURF-CERMC/CERMC OCT05-
0077	HIP REPL SURF-CERMC/POLY OCT06-
0080	REV KNEE REPLACEMT-TOTAL OCT05-
0081	REV KNEE REPL-TIBIA COMP OCT05-
0082	REV KNEE REPL-FEMUR COMP OCT05-
0083	REV KNEE REPLACE-PATELLA OCT05-
0084	REV KNEE REPL-TIBIA LIN OCT05-
0085	RESRF HIPTOTAL-ACET/FEM OCT06-
0086	RESRF HIPPART-FEM HEAD OCT06-
0087	RESRF HIPPART-ACETABLUM OCT06-
0112	OPEN CEREB MENINGES BX
0114	OPEN BRAIN BIOPSY
0115	SKULL BIOPSY
0118	OTHER BRAIN DX PROCEDURE
0119	OTHER SKULL DX PROCEDURE
0121	CRANIAL SINUS I & D
0122	REMOV INTRACRAN STIMULAT
0123	REOPEN CRANIOTOMY SITE
0124	OTHER CRANIOTOMY
0125	OTHER CRANIECTOMY
0126	INS CATH-CRANIAL CAVITY OCT05-
0127	REM CATH-CRANIAL CAVITY OCT05-
0128	INTRACEREB CTH-BURR HOLE OCT06-
0131	INCISE CEREBRAL MENINGES
0132	LOBOTOMY & TRACTOTOMY
0139	OTHER BRAIN INCISION
0141	THALAMUS OPERATIONS
0142	GLOBUS PALLIDUS OPS
0151	EX CEREB MENINGEAL LES
0152	HEMISPHERECTOMY
0153	BRAIN LOBECTOMY
0159	OTHER BRAIN EXCISION
016	EXCISE SKULL LESION
0201	LINEAR CRANIECTOMY
0202	ELEVATE SKULL FX FRAGMNT
0203	SKULL FLAP FORMATION
0204	BONE GRAFT TO SKULL
0205	SKULL PLATE INSERTION
0206	CRANIAL OSTEOPLASTY NEC
0207	SKULL PLATE REMOVAL
0211	SIMPLE SUTURE OF DURA
0212	BRAIN MENINGE REPAIR NEC
0213	MENINGE VESSEL LIGATION
0214	CHOROID PLEXECTOMY
022	VENTRICULOSTOMY
0231	VENTRICL SHUNT-HEAD/NECK
0232	VENTRI SHUNT-CIRCULA SYS
0233	VENTRICL SHUNT-THORAX
0234	VENTRICL SHUNT-ABDOMEN
0235	VENTRI SHUNT-UNINARY SYS
0239	OTHER VENTRICULAR SHUNT
0242	REPLACE VENTRICLE SHUNT
0243	REMOVE VENTRICLE SHUNT
0291	LYSIS CORTICAL ADHESION
0292	BRAIN REPAIR
0293	IMPLANT BRAIN STIMULATOR
0294	INSERT/REPLAC SKULL TONG
0299	SKULL & BRAIN OP NEC
0301	REMOVAL FB SPINAL CANAL
0302	REOPEN LAMINECTOMY SITE
0309	SPINAL CANAL EXPLOR NEC
031	INTRASPIN NERVE ROOT DIV
0321	PERCUTANEOUS CHORDOTOMY
0329	OTHER CHORDOTOMY

0332	SPINAL CORD/MENINGES BX
0339	OTHER SPINAL DX PROC
034	EXCIS SPINAL CORD LESION
0351	SPINE MENINGOCELE REPAIR
0352	MYELOMENINGOCEL REPAIR
0353	VERTEBRAL FX REPAIR
0359	SPINAL STRUCT REPAIR NEC
036	SPINAL CORD ADHESIOLYSIS
0371	SUBARACH-PERITON SHUNT
0372	SUBARACH-URETERAL SHUNT
0379	OTH SPINAL THECAL SHUNT
0393	INSERT SPINAL STIMULATOR
0394	REMOVE SPINAL STIMULATOR
0397	REVISE SPINE THECA SHUNT
0398	REMOVE SPINE THECA SHUNT
0399	SPINE CANAL STRUC OP NEC
0401	EXCISION ACOUSTC NEUROMA
0402	TRIGEMINAL NERV DIVISION
0403	PERIPH NERVE DIV NEC
0404	PERIPH NERVE INCIS NEC
0405	GASSERIAN GANGLIONECTOMY
0406	PERIPH GANGLIONECT NEC
0407	PERIPH NERV EXCISION NEC
0412	OPEN PERIPH NERVE BIOPSY
0419	PERIPH NERVE DX PROC NEC
043	PERIPHERAL NERVE SUTURE
0441	DECOMPRESS TRIGEM ROOT
0442	CRAN NERV ROOT DECOM NEC
0443	CARPAL TUNNEL RELEASE
0444	TARSAL TUNNEL RELEASE
0449	PER NERVE ADHESIOLYS NEC
045	PERIPHERAL NERVE GRAFT
046	PERIPH NERVE TRANSPOSIT
0471	HYPOGLOSS-FACIAL ANASTOM
0472	ACCESSORY-FACIAL ANASTOM
0473	ACCESS-HYPOGLOSS ANASTOM
0474	PERIPH NERV ANASTOM NEC
0475	POSTOP REVIS PER NERV OP
0476	LATE REPAIR PER NERV INJ
0479	OTHER NEUROPLASTY
0491	NEURECTASIS
0492	IMPLANT PERIPH STIMULAT
0493	REMOVE PERIPH STIMULATOR
0499	PERIPHERAL NERVE OPS NEC
050	SYMPATH NERVE DIVISION
0511	SYMPATHETIC NERVE BIOPSY
0519	SYMPATH NRV DX PROC NEC
0521	SPHENOPALATIN GANGLIONEC
0522	CERVICAL SYMPATHECTOMY
0523	LUMBAR SYMPATHECTOMY
0524	PRESACRAL SYMPATHECTOMY
0525	PERIART SYMPATHECTOMY
0529	OTHER SYMPATHECTOMY
0581	SYMPATHETIC NERVE REPAIR
0589	SYMPATHETIC NERVE OP NEC
059	OTHER NERVOUS SYSTEM OPS
0602	REOPEN THYROID FIELD WND
0609	INCIS THYROID FIELD NEC
0612	OPEN THYROID GLAND BX
0613	PARATHYROID BIOPSY
0619	THYR/PARATHY DX PROC NEC
062	UNILAT THYROID LOBECTOMY
0631	EXCISION THYROID LESION
0639	PART THYROIDECTOMY NEC
064	COMPLETE THYROIDECTOMY
0650	SUBSTERN THYROIDECT NOS
0651	PART SUBSTERN THYROIDECT
0652	TOT SUBSTERN THYROIDECT
066	LINGUAL THYROID EXCISION
067	THYROGLOSS DUCT EXCISION
0681	TOTAL PARATHYROIDECTOMY
0689	OTHER PARATHYROIDECTOMY
0691	THYROID ISTHMUS DIVISION
0692	THYROID VESSEL LIGATION
0693	THYROID SUTURE
0694	THYROID REIMPLANTATION
0695	PARATHYROID REIMPLANT
0698	OTHER THYROID OPERATIONS
0699	OTHER PARATHYROID OPS
0700	ADRENAL EXPLORATION NOS
0701	UNILAT ADRENAL EXPLORAT
0702	BILAT ADRENAL EXPLORAT
0712	OPEN ADRENAL GLAND BX
0713	TRANSFRONT PITUITARY BX
0714	TRANSPHEN PITUITARY BX
0715	PITUITARY BIOPSY NOS
0716	THYMUS BIOPSY
0717	PINEAL BIOPSY
0719	ENDOCRINE DX PROC NEC
0721	ADRENAL LESION EXCISION
0722	UNILATERAL ADRENALECTOMY
0729	PART ADRENALECTOMY NEC
073	BILATERAL ADRENALECTOMY
0741	ADRENAL INCISION
0742	ADRENAL NERVE DIVISION
0743	ADRENAL VESSEL LIGATION
0744	ADRENAL REPAIR
0745	ADRENAL REIMPLANTATION
0749	ADRENAL OPERATION NEC
0751	PINEAL FIELD EXPLORATION
0752	PINEAL GLAND INCISION
0753	PARTIAL PINEALECTOMY

0754	TOTAL PINEALECTOMY
0759	PINEAL OPERATION NEC
0761	EXC PITUIT LES-TRANSFRON
0762	EXC PITUIT LES-TRANSPHEN
0763	PART EXCIS PITUITARY NOS
0764	TOT EXC PITUIT-TRANSFRON
0765	TOT EXC PITUIT-TRANSPHEN
0768	TOTAL EXC PITUITARY NEC
0769	TOTAL EXC PITUITARY NOS
0771	PITUITARY FOSSA EXPLORAT
0772	PITUITARY GLAND INCISION
0779	PITUITARY OPERATION NEC
0780	THYMECTOMY NOS
0781	PART EXCISION OF THYMUS
0782	TOTAL EXCISION OF THYMUS
0791	THYMUS FIELD EXPLORATION
0792	INCISION OF THYMUS
0793	REPAIR OF THYMUS
0794	THYMUS TRANSPLANTATION
0799	THYMUS OPERATION NEC
0811	EYELID BIOPSY
0820	REMOVE EYELID LESION NOS
0821	CHALAZION EXCISION
0822	EXCISE MINOR LES LID NEC
0823	EXC MAJ LES LID PRT-THIC
0824	EXC MAJ LES LID FUL-THIC
0825	DESTRUCTION LID LESION
0831	PTOSIS REP-FRONT MUS SUT
0832	PTOSIS REP-FRON MUS SLNG
0833	PTOSIS REP-LEVAT MUS ADV
0834	PTOSIS REP-LEVAT MUS NEC
0835	PTOS REP-TARSAL TECHNIQ
0836	BLEPHAROPTOS REPAIR NEC
0837	REDUC OVERCORRECT PTOSIS
0838	CORRECT LID RETRACTION
0841	THERMOCAUT/ENTROPION REP
0842	SUTURE ENTROPION REPAIR
0843	WEDG RESEC ENTROPION REP
0844	LID RECONS ENTROPION REP
0849	ENTROPION/ECTROP REP NEC
0851	CANTHOTOMY
0852	BLEPHARORRHAPHY
0859	ADJUST LID POSITION NEC
0861	LID RECONST W SKIN GRAFT
0862	LID RECONST W MUC GRAFT
0863	LID RECONST W HAIR GRAFT
0864	LID RECON-TARSOCONJ FLAP
0869	LID RECONSTR W GRAFT NEC
0870	LID RECONSTRUCTION NOS
0871	LID MARG RECON-PART THIC
0872	LID RECONS-PART THIC NEC
0873	LID MARG RECONS FUL THIC
0874	LID RECONST-FUL THIC NEC
0891	ELECTROSURG LID EPILAT
0892	CRYOSURG LID EPILATION
0893	EYELID EPILATION NEC
0899	EYELID OPERATION NEC
090	LACRIMAL GLAND INCISION
0911	LACRIMAL GLAND BIOPSY
0912	LACRIMAL SAC BIOPSY
0919	LACRIMAL SYS DX PROC NEC
0920	EXC LACRIMAL GLAND NOS
0921	EXCIS LES LACRIMAL GLAND
0922	PART DACRYOADENECT NEC
0923	TOTAL DACRYOADENECTOMY
093	OTHER LACRIMAL GLAND OPS
0941	LACRIMAL PUNCTUM PROBE
0942	LAC CANALICULI PROBE
0943	NASOLACRIMAL DUCT PROBE
0944	NASOLAC DUCT INTUBAT
0949	LAC PASSAGE MANIP NEC
0951	LAC PUNCTUM INCISION
0952	LAC CANALICULI INCISION
0953	LACRIMAL SAC INCISION
0959	LACRIM PASSAGE INCIS NEC
096	LACRIM SAC/PASSAGE EXCIS
0971	CORRECT EVERTED PUNCTUM
0972	PUNCTUM REPAIR NEC
0973	CANALICULUS REPAIR
0981	DACRYOCYSTORHINOSTOMY
0982	CONJUNCTIVOCYSTORHINOST
0983	CONJUNCTIVORHINOS W TUBE
0991	LAC PUNCTUM OBLITERATION
0999	LACRIMAL SYSTEM OP NEC
100	INCISE/REMOV CONJUNCT FB
101	CONJUNCTIVA INCISION NEC
1021	CONJUNCTIVAL BIOPSY
1029	CONJUNCTIVA DX PROC NEC
1031	EXCISE CONJUNCTIV LESION
1032	DESTRUCT CONJUNC LES NEC
1033	OTH CONJUNC DESTRUC PROC
1041	SYMBLEPH REP W FREE GRFT
1042	GRAFT CONJUNC CUL-DE-SAC
1043	CONJUN CUL-DE-SAC RX NEC
1044	CONJUNC FREE GRAFT NEC
1049	CONJUNCTIVOPLASTY NEC
105	CONJUNC/LID ADHESIOLYSIS
106	REPAIR CONJUNCT LACERAT
1091	SUBCONJUNCTIVAL INJECT
1099	CONJUNCTIVAL OP NEC
110	MAGNET REMOVAL CORNEA FB
111	CORNEAL INCISION

1121	CORNEAL SCRAPE FOR SMEAR
1122	CORNEAL BIOPSY
1129	CORNEAL DX PROC NEC
1131	PTERYGIUM TRANSPOSITION
1132	PTERYG EXC W CORNEA GRFT
1139	PTERYGIUM EXCISION NEC
1141	MECH REMOV CORNEA EPITH
1142	THERMOCAUT CORNEA LESION
1143	CRYOTHERAP CORNEA LESION
1149	DESTRUCT CORNEA LES NEC
1151	SUTURE CORNEA LACERATION
1152	REP CORNEA POSTOP DEHISC
1153	RX CORNEA LAC W CONJ FLP
1159	CORNEAL REPAIR NEC
1160	CORNEAL TRANSPLANT NOS
1161	LAM KERATPLAST W AUTGRFT
1162	LAMELLAR KERATOPLAST NEC
1163	PERF KERATOPL W AUTOGRFT
1164	PERFORAT KERATOPLAST NEC
1169	CORNEAL TRANSPLANT NEC
1171	KERATOMILEUSIS
1172	KERATOPHAKIA
1173	KERATOPROSTHESIS
1174	THERMOKERATOPLASTY
1175	RADIAL KERATOTOMY
1176	EPIKERATOPHAKIA
1179	CORNEA RECONSTRUCT NEC
1191	CORNEAL TATTOOING
1192	REMOVE CORNEAL IMPLANT
1199	CORNEAL OPERATION NEC
1200	REMOV ANT SEGMNT FB NOS
1201	MAGNET REMOV ANT SEG FB
1202	NONMAG REMOV ANT SEG FB
1211	IRIDOTOMY W TRANSFIXION
1212	IRIDOTOMY NEC
1213	PROLAPSED IRIS EXCISION
1214	IRIDECTOMY NEC
1221	DX ASPIRAT-ANT CHAMBER
1222	IRIS BIOPSY
1229	ANT SEGMENT DX PROC NEC
1231	GONIOSYNECHIAE LYSIS
1232	ANT SYNECHIA LYSIS NEC
1233	POST SYNECHIAE LYSIS
1234	CORNEOVITREAL ADHESIOLYS
1235	COREOPLASTY
1239	IRIDOPLASTY NEC
1240	REMOV ANT SEGMNT LES NOS
1241	NONEXC DESTRUC IRIS LES
1242	EXCISION OF IRIS LESION
1243	NONEXC DESTR CIL BOD LES
1244	EXCISE CILIARY BODY LES

1251	GONIOPUNCTURE
1252	GONIOTOMY
1253	GONIOTOMY W GONIOPUNCTUR
1254	TRABECULOTOMY AB EXTERNO
1255	CYCLODIALYSIS
1259	FACILIT INTRAOC CIRC NEC
1261	TREPHIN SCLERA W IRIDECT
1262	THERMCAUT SCLER W IRIDEC
1263	IRIDENCLEISIS/IRIDOTASIS
1264	TRABECULECTOM AB EXTERNO
1265	SCLER FISTULIZ W IRIDECT
1266	POSTOP REVIS SCL FISTUL
1269	SCLER FISTULIZING OP NEC
1271	CYCLODIATHERMY
1272	CYCLOCRYOTHERAPY
1273	CYCLOPHOTOCOAGULATION
1274	CIL BODY DIMINUTION NOS
1279	GLAUCOMA PROCEDURE NEC
1281	SUTURE SCLERAL LACER
1282	SCLERAL FISTULA REPAIR
1283	REVIS ANT SEG OP WND NEC
1284	DESTRUCT SCLERAL LESION
1285	REPAIR STAPHYLOM W GRAFT
1286	REP SCLER STAPHYLOMA NEC
1287	GRAFT REINFORCE SCLERA
1288	SCLERA REINFORCEMENT NEC
1289	SCLERAL OPERATION NEC
1291	THERAPEUT EVAC ANT CHAMB
1292	ANTERIOR CHAMBER INJECT
1293	REMOV EPITHEL DOWNGROWTH
1297	IRIS OPERATION NEC
1298	CILIARY BODY OP NEC
1299	ANTERIOR CHAMBER OP NEC
1300	REMOVE FB LENS NOS
1301	MAGNET REMOVE FB LENS
1302	NONMAGNET REMOVE FB LENS
1311	TEMP-INF INTRCAP LENS EX
1319	INTRACAPSUL LENS EXT NEC
132	LINEAR EXTRACAP LENS EXT
133	SIMPL ASPIR LENS EXTRACT
1341	CATARAC PHACOEMULS/ASPIR
1342	POST CATARAC FRAG/ASPIR
1343	CATARACT FRAG/ASPIR NEC
1351	TEMP-INF XTRACAP LENS EX
1359	EXTRACAP LENS EXTRAC NEC
1361	EXTRACAP LENS EXTRAC NEC
1362	EXTRACAP LENS EXTRAC NEC
1363	EXTRACAP LENS EXTRAC NEC
1364	AFTER-CATAR DISCISSION
1365	AFTER-CATARACT EXCISION
1366	AFTER CATAR FRAGMNTATION

1369	CATARACT EXTRACTION NEC
1370	INSERT PSEUDOPHAKOS NOS
1371	INSERT LENS AT CATAR EXT
1372	SECONDARY INSERT LENS
138	IMPLANTED LENS REMOVAL
139	OTHER OPERATIONS ON LENS
1390	OPERATION ON LENS NEC OCT06-
1391	IMPL INTRAOC TELESC PROS OCT06-
1400	REMOV POST SEGMNT FB NOS
1401	MAGNET REMOV POST SEG FB
1402	NONMAG REMOV POST SEG FB
1411	DIAGNOST VITREOUS ASPIR
1419	DX PROC POST SEG NEC
1421	CHORIORET LES DIATHERMY
1422	CHORIORETIN LES CRYOTHER
1426	CHORIORET LES RADIOTHER
1427	CHORIORET LES RAD IMPLAN
1429	CHORIORET LES DESTR NEC
1431	RETINAL TEAR DIATHERMY
1432	RETINAL TEAR CRYOTHERAPY
1439	RETINAL TEAR REPAIR NEC
1441	SCLERAL BUCKLE W IMPLANT
1449	SCLERAL BUCKLING NEC
1451	DETACH RETINA-DIATHERMY
1452	DETACH RETINA-CRYOTHERAP
1453	DETACH RETINA XENON COAG
1454	DETACH RETINA LASER COAG
1455	DETACH RET PHOTOCOAG NOS
1459	REPAIR RETINA DETACH NEC
146	REMOV PROS MAT POST SEG
1471	ANTERIOR REMOV VITREOUS
1472	VITREOUS REMOVAL NEC
1473	ANTERIOR MECHAN VITRECT
1474	MECH VITRECTOMY NEC
1475	VITREOUS SUBSTITUT INJEC
1479	VITREOUS OPERATION NEC
149	OTHER POST SEGMENT OPS
1501	EXTRAOC MUSC-TEND BIOPSY
1509	EXTRAOC MUSC DX PROC NEC
1511	ONE EXTRAOC MUS RECESS
1512	1 EXTRAOC MUSCL ADVANCE
1513	1 EXTRAOC MUSCL RESECT
1519	XTRAOC MUS OP/DETACH NEC
1521	LENGTHEN 1 EXTRAOC MUSC
1522	SHORTEN 1 EXTRAOC MUSC
1529	OP ON 1 EXTRAOC MUSC NEC
153	TEMP DETACH >1 XTROC MUS
154	OTH OP ON >L EXTRAOC MUS
155	EXTRAOCUL MUS TRANSPOSIT
156	REVIS EXTRAOC MUSC SURG
157	EXTRAOC MUSC INJ REPAIR
159	OTH EXTRAOC MUS-TEND OP
1601	ORBITOTOMY W BONE FLAP
1602	ORBITOTOMY W IMPLANT
1609	ORBITOTOMY NEC
161	REMOVE PENETRAT FB EYE
1622	DIAGNOSTIC ASP OF ORBIT
1623	EYEBALL & ORBIT BIOPSY
1629	EYEBAL/ORBIT DX PROC NEC
1631	EYE EVISC W SYNCH IMPLAN
1639	EYEBALL EVISCERATION NEC
1641	EYE ENUC/IMPLAN/MUSC ATT
1642	EYE ENUC W IMPLANT NEC
1649	EYEBALL ENUCLEATION NEC
1651	RADICAL ORBITOMAXILLECT
1652	ORBIT EXENT W BONE REMOV
1659	ORBITAL EXENTERATION NEC
1661	2NDRY OCULAR IMP INSERT
1662	REVIS/REINSERT OCUL IMP
1663	REVIS ENUC SOCKET W GRFT
1664	ENUC SOCKET REVIS NEC
1665	2NDRY EXENT CAVITY GRAFT
1666	REVIS EXENTER CAVITY NEC
1669	2ND OP POST EYE REM NEC
1671	REMOVE OCULAR IMPLANT
1672	REMOVE ORBITAL IMPLANT
1681	REPAIR OF ORBITAL WOUND
1682	REPAIR EYEBALL RUPTURE
1689	EYE/ORBIT INJ REPAIR NEC
1692	EXCISION ORBITAL LESION
1693	EXCISION EYE LESION NOS
1698	OPERATION ON ORBIT NEC
1699	OPERATION ON EYEBALL NEC
1821	PREAURICULAR SINUS EXCIS
1831	RAD EXCIS EXT EAR LES
1839	EXCIS EXTERNAL EAR NEC
185	CORRECTION PROMINENT EAR
186	EXT AUDIT CANAL RECONSTR
1871	CONSTRUCTION EAR AURICLE
1872	REATTACH AMPUTATED EAR
1879	PLASTIC REP EXT EAR NEC
189	OTHER EXT EAR OPERATIONS
190	STAPES MOBILIZATION
1911	STAPEDECT W REPLAC INCUS
1919	STAPEDECTOMY NEC
1921	REV STAPDEC W INCUS REPL
1929	STAPEDECTOMY REVIS NEC
193	OSSICULAR CHAIN OP NEC
194	MYRINGOPLASTY
1952	TYPE 2 TYMPANOPLASTY
1953	TYPE 3 TYMPANOPLASTY

1954	TYPE 4 TYMPANOPLASTY
1955	TYPE 5 TYMPANOPLASTY
196	TYMPANOPLASTY REVISION
199	MIDDLE EAR REPAIR NEC
2001	MYRINGOTOMY W INTUBATION
2021	MASTOID INCISION
2022	PETRUS PYRAM AIR CEL INC
2023	MIDDLE EAR INCISION
2032	MID & INNER EAR BIOPSY
2039	MID/IN EAR DX PROC NEC
2041	SIMPLE MASTOIDECTOMY
2042	RADICAL MASTOIDECTOMY
2049	MASTOIDECTOMY NEC
2051	EXCISE MIDDLE EAR LESION
2059	MIDDLE EAR EXCISION NEC
2061	INNER EAR FENESTRATION
2062	REVIS INNER EAR FENESTRA
2071	ENDOLYMPHATIC SHUNT
2072	INNER EAR INJECTION
2079	INC/EXC/DESTR IN EAR NEC
2091	TYMPANOSYMPATHECTOMY
2092	MASTOIDECTOMY REVISION
2093	REPAIR OVAL/ROUND WINDOW
2095	ELECMAG HEAR DEV IMPLANT
2096	IMPLT COCHLEAR PROST NOS
2097	IMP/REP SCHAN COCH PROS
2098	IMP/REP MCHAN COCHL PROS
2099	MID-INNER EAR OPS NEC
2104	ETHMOID ART LIGAT-EPIST
2105	MAX ART LIG FOR EPISTAX
2106	EXT CAROT ART LIG-EPIST
2107	NASAL SEPT GRFT-EPISTAX
2109	EPISTAXIS CONTROL NEC
214	RESECTION OF NOSE
215	SUBMUC NASAL SEPT RESECT
2161	DIATHER/CRYO TURBINECTOM
2162	TURBINATE FRACTURE
2169	TURBINECTOMY NEC
2172	OPEN REDUCTION NASAL FX
2182	NASAL FISTULA CLOSURE
2183	TOT NASAL RECONSTRUCTION
2184	REVISION RHINOPLASTY
2185	AUGMENTATION RHINOPLASTY
2186	LIMITED RHINOPLASTY
2187	RHINOPLASTY NEC
2188	SEPTOPLASTY NEC
2189	NASAL REPAIR NEC
2199	NASAL OPERATION NEC
2212	OPEN BIOPSY NASAL SINUS
2231	RADICAL MAXILLARY ANTROT
2239	EXT MAXILLARY ANTROT NEC

2241	FRONTAL SINUSOTOMY
2242	FRONTAL SINUSECTOMY
2250	SINUSOTOMY NOS
2251	ETHMOIDOTOMY
2252	SPHENOIDOTOMY
2253	MULTIPLE SINUS INCISION
2260	SINUSECTOMY NOS
2261	C-LUC EXC MAX SINUS LES
2262	EXC MAX SINUS LESION NEC
2263	ETHMOIDECTOMY
2264	SPHENOIDECTOMY
2271	NASAL SINUS FISTULA CLOS
2279	NASAL SINUS REPAIR NEC
229	OTHER NASAL SINUS OPS
242	GINGIVOPLASTY
244	EXC OF DENTAL LES OF JAW
245	ALVEOLOPLASTY
2502	OPEN BIOPSY OF TONGUE
251	DESTRUCTION TONGUE LES
252	PARTIAL GLOSSECTOMY
253	COMPLETE GLOSSECTOMY
254	RADICAL GLOSSECTOMY
2559	REPAIR OF TONGUE NEC
2594	OTHER GLOSSOTOMY
2599	TONGUE OPERATION NEC
2612	OPEN BX SALIV GLAND/DUCT
2621	SALIVARY CYST MARSUPIAL
2629	SALIV LESION EXCIS NEC
2630	SIALOADENECTOMY NOS
2631	PARTIAL SIALOADENECTOMY
2632	COMPLETE SIALOADENECTOMY
2641	SUTURE OF SALIV GLND LAC
2642	SALIVARY FISTULA CLOSURE
2649	SALIVARY REPAIR NEC
2699	SALIVARY OPERATION NEC
270	DRAIN FACE & MOUTH FLOOR
271	INCISION OF PALATE
2721	BONY PALATE BIOPSY
2722	UVULA AND SOFT PALATE BX
2731	LOC EXC BONY PALATE LES
2732	WIDE EXC BONY PALATE LES
2742	WIDE EXCISION OF LIP LES
2743	EXCISION OF LIP LES NEC
2749	EXCISION OF MOUTH NEC
2753	CLOSURE OF MOUTH FISTULA
2754	REPAIR OF CLEFT LIP
2755	FULL-THICK GRFT TO MOUTH
2756	SKIN GRAFT TO MOUTH NEC
2757	PEDICLE ATTACH TO MOUTH
2759	MOUTH REPAIR NEC
2761	SUTURE OF PALATE LACERAT

2762	CLEFT PALATE CORRECTION
2763	REVIS CLEFT PALAT REPAIR
2769	OTH PLASTIC REPAIR PALAT
2771	INCISION OF UVULA
2772	EXCISION OF UVULA
2773	REPAIR OF UVULA
2779	OTHER UVULA OPERATIONS
2792	MOUTH INCISION NOS
2799	ORAL CAVITY OPS NEC
280	PERITONSILLAR I & D
2811	TONSIL&ADENOID BIOPSY
2819	TONSIL&ADENOID DX OP NEC
282	TONSILLECTOMY
283	TONSILLECTOMY/ADENOIDEC
284	EXCISION OF TONSIL TAG
285	EXCISION LINGUAL TONSIL
286	ADENOIDECTOMY
287	HEMORR CONTRL POST T & A
2891	INCIS TO REMOV TONSIL FB
2892	EXCIS TONSIL/ADENOID LES
2899	TONSIL/ADENOID OPS NEC
290	PHARYNGOTOMY
292	EXC BRANCHIAL CLEFT CYST
293	EXC BRANCHIAL CLEFT CYST
2931	CRICOPHARYNGEAL MYOTOMY
2932	PHARYNGEAL DIVERTICULEC
2933	PHARYNGECTOMY
2939	EXCIS/DESTR LES PHAR NEC
294	PLASTIC OP ON PHARYNX
2951	SUTURE OF PHARYNGEAL LAC
2952	CLOS BRANCH CLEFT FISTUL
2953	CLOS PHARYNX FISTULA NEC
2954	LYSIS PHARYNGEAL ADHES
2959	PHARYNGEAL REPAIR NEC
2992	DIVIS GLOSSOPHARYNG NERV
2999	PHARYNGEAL OPERATION NEC
3001	LARYNX CYST MARSUPIALIZ
3009	DESTRUCT LARYNX LES NEC
301	HEMILARYNGECTOMY
3021	EPIGLOTTIDECTOMY
3022	VOCAL CORDECTOMY
3029	OTHER PART LARYNGECTOMY
303	COMPLETE LARYNGECTOMY
304	RADICAL LARYNGECTOMY
3121	MEDIASTINAL TRACHEOSTOMY
3129	OTHER PERM TRACHEOSTOMY
313	INCIS LARYNX TRACHEA NEC
3145	OPN BX LARYNX OR TRACHEA
315	LOCAL DESTRUC TRACH LES
3161	SUTURE OF LARYNGEAL LAC
3162	LARYNGEAL FISTULA CLOS
3163	LARYNGOSTOMY REVISION
3164	LARYNGEAL FX REPAIR
3169	OTHER LARYNGEAL REPAIR
3171	SUTURE OF TRACHEAL LACER
3172	CLOSURE OF TRACHEOSTOMY
3173	TRACHEA FISTULA CLOS NEC
3174	REVISION OF TRACHEOSTOMY
3175	TRACHEAL RECONSTRUCTION
3179	OTHER TRACHEAL REPAIR
3191	LARYNGEAL NERV DIVISION
3192	LYSIS TRACH/LARYNX ADHES
3198	OTH LARYNGEAL OPERATION
3199	OTHER TRACHEAL OPERATION
320	OTHER TRACHEAL OPERATION
3209	OTHER DESTRUC BRONC LES
321	OTHER BRONCHIAL EXCISION
3221	EMPHYSEMA BLEB PLICATION
3222	LUNG VOL REDUCTION SURG
3223	OPEN ABLTN LUNG LES/TISS OCT06-
3224	PERC ABLTN LUNG LES/TISS OCT06-
3225	THOR ABLTN LUNG LES/TISS OCT06-
3226	ABLTN LUNG TISS NEC/NOS OCT06-
3229	DESTROY LOC LUNG LES NEC
323	SEGMENTAL LUNG RESECTION
324	LOBECTOMY OF LUNG
325	COMPLETE PNEUMONECTOMY
326	RAD DISSEC THORAC STRUCT
329	OTHER EXCISION OF LUNG
330	INCISION OF BRONCHUS
331	INCISION OF LUNG
3325	OPEN BRONCHIAL BIOPSY
3327	CLOS ENDOSCOPIC LUNG BX
3328	OPEN LUNG BIOPSY
3329	BRONCH/LUNG DX PROC NEC
3334	THORACOPLASTY
3339	SURG COLLAPS OF LUNG NEC
3341	BRONCHIAL LACERAT SUTURE
3342	BRONCHIAL FISTULA CLOS
3343	LUNG LACERATION CLOSURE
3348	BRONCHIAL REPAIR NEC
3349	LUNG REPAIR NEC
335	LUNG REPAIR NEC
3350	LUNG TRANSPLANT NOS
3351	UNILAT LUNG TRANSPLANT
3352	BILAT LUNG TRANSPLANT
336	COMB HEART/LUNG TRANSPLA
3392	BRONCHIAL LIGATION

3393	PUNCTURE OF LUNG
3398	BRONCHIAL OPERATION NEC
3399	LUNG OPERATION NEC
3402	EXPLORATORY THORACOTOMY
3403	REOPEN THORACOTOMY SITE
341	INCISION OF MEDIASTINUM
3421	TRANSPLEURA THORACOSCOPY
3422	MEDIASTINOSCOPY
3426	OPEN MEDIASTINAL BIOPSY
3427	BIOPSY OF DIAPHRAGM
3428	DX PROCEDURE THORAX NEC
3429	DX PROC MEDIASTINUM NEC
343	DESTRUCT MEDIASTIN LES
344	DESTRUCT CHEST WALL LES
3451	DECORTICATION OF LUNG
3459	OTHER PLEURAL EXCISION
346	SCARIFICATION OF PLEURA
3473	CLOS THORACIC FISTUL NEC
3474	PECTUS DEFORMITY REPAIR
3479	OTHER CHEST WALL REPAIR
3481	EXCISE DIAPHRAGM LESION
3482	SUTURE DIAPHRAGM LACERAT
3483	CLOSE DIAPHRAGM FISTULA
3484	OTHER DIAPHRAGM REPAIR
3485	IMPLANT DIAPHRA PACEMAKE
3489	DIAPHRAGM OPERATION NEC
3493	REPAIR OF PLEURA
3499	THORACIC OPERATION NEC
3500	CLOSED VALVOTOMY NOS
3501	CLOSED AORTIC VALVOTOMY
3502	CLOSED MITRAL VALVOTOMY
3503	CLOSED PULMON VALVOTOMY
3504	CLOSED TRICUSP VALVOTOMY
3510	OPEN VALVULOPLASTY NOS
3511	OPN AORTIC VALVULOPLASTY
3512	OPN MITRAL VALVULOPLASTY
3513	OPN PULMON VALVULOPLASTY
3514	OPN TRICUS VALVULOPLASTY
3520	REPLACE HEART VALVE NOS
3521	REPLACE AORT VALV-TISSUE
3522	REPLACE AORTIC VALVE NEC
3523	REPLACE MITR VALV-TISSUE
3524	REPLACE MITRAL VALVE NEC
3525	REPLACE PULM VALV-TISSUE
3526	REPLACE PULMON VALVE NEC
3527	REPLACE TRIC VALV-TISSUE
3528	REPLACE TRICUSP VALV NEC
3531	PAPILLARY MUSCLE OPS
3532	CHORDAE TENDINEAE OPS
3533	ANNULOPLASTY
3534	INFUNDIBULECTOMY
3535	TRABECUL CARNEAE CORD OP
3539	TISS ADJ TO VALV OPS NEC
3542	CREATE SEPTAL DEFECT
3550	PROSTH REP HRT SEPTA NOS
3551	PROS REP ATRIAL DEF-OPN
3552	PROS REPAIR ATRIA DEF-CL
3553	PROST REPAIR VENTRIC DEF
3554	PROS REP ENDOCAR CUSHION
3555	PROS REP VENTRC DEF-CLOS OCT06-
3560	GRFT REPAIR HRT SEPT NOS
3561	GRAFT REPAIR ATRIAL DEF
3562	GRAFT REPAIR VENTRIC DEF
3563	GRFT REP ENDOCAR CUSHION
3570	HEART SEPTA REPAIR NOS
3571	ATRIA SEPTA DEF REP NEC
3572	VENTR SEPTA DEF REP NEC
3573	ENDOCAR CUSHION REP NEC
3581	TOT REPAIR TETRAL FALLOT
3582	TOTAL REPAIR OF TAPVC
3583	TOT REP TRUNCUS ARTERIOS
3584	TOT COR TRANSPOS GRT VES
3591	INTERAT VEN RETRN TRANSP
3592	CONDUIT RT VENT-PUL ART
3593	CONDUIT LEFT VENTR-AORTA
3594	CONDUIT ARTIUM-PULM ART
3595	HEART REPAIR REVISION
3596	PERC HEART VALVULOPLASTY
3598	OTHER HEART SEPTA OPS
3599	OTHER HEART VALVE OPS
3600	OTHER HEART VALVE OPS
3601	PTCA-1 VES/ATH W/O AGENT
3602	PTCA-1 VES/ATH W AGENT
3603	OPEN CORONRY ANGIOPLASTY
3605	PTCA-MULTIPLE VESSEL/ATH
3609	REM OF COR ART OBSTR NEC
3610	AORTOCORONARY BYPASS NOS
3611	AORTOCOR BYPAS-1 COR ART
3612	AORTOCOR BYPAS-2 COR ART
3613	AORTOCOR BYPAS-3 COR ART
3614	AORTCOR BYPAS-4+ COR ART
3615	1 INT MAM-COR ART BYPASS
3616	2 INT MAM-COR ART BYPASS
3617	ABD-CORON ARTERY BYPASS
3619	HRT REVAS BYPS ANAS NEC
362	ARTERIAL IMPLANT REVASC
363	ARTERIAL IMPLANT REVASC
3631	OPEN CHEST TRANS REVASC
3632	OTH TRANSMYO REVASCULAR
3633	ENDO TRANSMYO REVASCULAR OCT06-

3634	PERC TRANSMYO REVASCULAR OCT06-
3639	OTH HEART REVASCULAR
3691	CORON VESS ANEURYSM REP
3699	HEART VESSEL OP NEC
3710	INCISION OF HEART NOS
3711	CARDIOTOMY
3712	PERICARDIOTOMY
3724	PERICARDIAL BIOPSY
3731	PERICARDIECTOMY
3732	HEART ANEURYSM EXCISION
3733	EXC/DEST HRT LESION OPEN
3734	EXC/DEST HRT LES OTHER
3735	PARTIAL VENTRICULECTOMY
374	HEART & PERICARD REPAIR
3741	IMPL CARDIAC SUPPORT DEV OCT05-
3749	HEART/PERICARD REPR NEC OCT05-
375	HEART & PERICARD REPAIR
3751	HEART TRANSPLANTATION OCT03-
3752	IMPLANT TOT REP HRT SYS
3753	REPL/REP THORAC UNIT HRT
3754	REPL/REP OTH TOT HRT SYS
3761	PULSATION BALLOON IMPLAN
3762	IMPLANT HRT ASST SYS NEC
3763	REPLACE HRT ASSIST SYST
3764	REMOVE HEART ASSIST SYS
3765	IMP EXT PUL HRT ASST SYS
3766	IMP IMP PUL HRT ASST SYS
3767	IMP CARDIOMYOSTIMUL SYS
3774	INT OR REPL LEAD EPICAR
3775	REVISION OF LEAD
3776	REPL TV ATRI-VENT LEAD
3777	REMOVAL OF LEAD W/O REPL
3779	REVIS OR RELOCATE POCKET
3780	INT OR REPL PERM PACEMKR
3785	REPL PACEM W 1-CHAM, NON
3786	REPL PACEM 1-CHAM, RATE
3787	REPL PACEM W DUAL-CHAM
3789	REVISE OR REMOVE PACEMAK
3790	INS LEFT ATR APPEND DEV (OCT 04)
3791	OPN CHEST CARDIAC MASSAG
3794	IMPLT/REPL CARDDEFIB TOT
3795	IMPLT CARDIODEFIB LEADS
3796	IMPLT CARDIODEFIB GENATR
3797	REPL CARDIODEFIB LEADS
3798	REPL CARDIODEFIB GENRATR
3799	OTHER HEART/PERICARD OPS

3800	INCISION OF VESSEL NOS
3801	INTRACRAN VESSEL INCIS
3802	HEAD/NECK VES INCIS NEC
3803	UPPER LIMB VESSEL INCIS
3804	INCISION OF AORTA
3805	THORACIC VESSEL INC NEC
3806	ABDOMEN ARTERY INCISION
3807	ABDOMINAL VEIN INCISION
3808	LOWER LIMB ARTERY INCIS
3809	LOWER LIMB VEIN INCISION
3810	ENDARTERECTOMY NOS
3811	INTRACRAN ENDARTERECTOMY
3812	HEAD & NECK ENDARTER NEC
3813	UPPER LIMB ENDARTERECTOM
3814	ENDARTERECTOMY OF AORTA
3815	THORACIC ENDARTERECTOMY
3816	ABDOMINAL ENDARTERECTOMY
3818	LOWER LIMB ENDARTERECT
3821	BLOOD VESSEL BIOPSY
3829	BLOOD VESSEL DX PROC NEC
3830	VESSEL RESECT/ANAST NOS
3831	INTRACRAN VES RESEC-ANAS
3832	HEAD/NECK VES RESEC-ANAS
3833	ARM VESSEL RESECT/ANAST
3834	AORTA RESECTION & ANAST
3835	THOR VESSEL RESECT/ANAST
3836	ABD VESSEL RESECT/ANAST
3837	ABD VEIN RESECT & ANAST
3838	LEG ARTERY RESECT/ANAST
3839	LEG VEIN RESECT/ANASTOM
3840	VESSEL RESECT/REPLAC NOS
3841	INTRACRAN VES RESEC-REPL
3842	HEAD/NECK VES RESEC-REPL
3843	ARM VES RESECT W REPLACE
3844	RESECT ABDM AORTA W REPL
3845	RESECT THORAC VES W REPL
3846	ABD ARTERY RESEC W REPLA
3847	ABD VEIN RESECT W REPLAC
3848	LEG ARTERY RESEC W REPLA
3849	LEG VEIN RESECT W REPLAC
3850	VARICOSE V LIG-STRIP NOS
3851	INTCRAN VAR V LIG-STRIP
3852	HEAD/NECK VAR V LIG-STR
3853	ARM VARICOSE V LIG-STRIP
3855	THORAC VAR V LIG-STRIP
3857	ABD VARICOS V LIGA-STRIP
3859	LEG VARICOS V LIGA-STRIP
3860	EXCISION OF VESSEL NOS
3861	INTRACRAN VESSEL EXCIS
3862	HEAD/NECK VESSEL EXCIS
3863	ARM VESSEL EXCISION

3864	EXCISION OF AORTA
3865	THORACIC VESSEL EXCISION
3866	ABDOMINAL ARTERY EXCIS
3867	ABDOMINAL VEIN EXCISION
3868	LEG ARTERY EXCISION
3869	LEG VEIN EXCISION
387	INTERRUPTION VENA CAVA
3880	SURG VESSEL OCCLUS NEC
3881	OCCLUS INTRACRAN VES NEC
3882	OCCLUS HEAD/NECK VES NEC
3883	OCCLUDE ARM VESSEL NEC
3884	OCCLUDE AORTA NEC
3885	OCCLUDE THORACIC VES NEC
3886	OCCLUDE ABD ARTERY NEC
3887	OCCLUDE ABD VEIN NEC
3888	OCCLUDE LEG ARTERY NEC
3889	OCCLUDE LEG VEIN NEC
390	SYSTEMIC-PULM ART SHUNT
391	INTRA-ABD VENOUS SHUNT
3921	CAVAL-PULMON ART ANASTOM
3922	AORTA-SUBCLV-CAROT BYPAS
3923	INTRATHORACIC SHUNT NEC
3924	AORTA-RENAL BYPASS
3925	AORTA-ILIAC-FEMOR BYPASS
3926	INTRA-ABDOMIN SHUNT NEC
3927	DIALYSIS ARTERIOVENOSTOM
3928	EXTRACRAN-INTRACR BYPASS
3929	VASC SHUNT & BYPASS NEC
3930	SUTURE OF VESSEL NOS
3931	SUTURE OF ARTERY
3932	SUTURE OF VEIN
3941	POSTOP VASC OP HEM CONTR
3942	REVIS REN DIALYSIS SHUNT
3943	REMOV REN DIALYSIS SHUNT
3949	VASC PROC REVISION NEC
3950	ANGIO/ATH NON-CORO VES
3951	CLIPPING OF ANEURYSM
3952	ANEURYSM REPAIR NEC
3953	ARTERIOVEN FISTULA REP
3954	RE-ENTRY OPERATION
3955	REIMPLAN ABERR RENAL VES
3956	REPAIR VESS W TIS PATCH
3957	REP VESS W SYNTH PATCH
3958	REPAIR VESS W PATCH NOS
3959	REPAIR OF VESSEL NEC
397	PER CARDIOPULMON BYPASS
3971	ENDO IMPL GRFT ABD AORTA
3972	ENDOVASC REPAIR HEAD VES
3973	ENDO IMP GRFT THOR AORTA OCT05-
3974	ENDO REM OBS HD/NECK VES OCT06-
3979	ENDO REPAIR OTHER VESSEL
398	VASCULAR BODY OPERATIONS
3991	FREEING OF VESSEL
3992	VEIN INJECT-SCLEROS AGNT
3993	INSERT VES-TO-VES CANNUL
3994	REPLAC VES-TO-VES CANNUL
3998	HEMORRHAGE CONTROL NOS
3999	VESSEL OPERATION NEC
400	INCIS LYMPHATIC STRUCTUR
4011	LYMPHATIC STRUCT BIOPSY
4019	LYMPHATIC DIAG PROC NEC
4021	EXCIS DEEP CERVICAL NODE
4022	EXCISE INT MAMMARY NODE
4023	EXCISE AXILLARY NODE
4024	EXCISE INGUINAL NODE
4029	SIMP EXC LYMPH STRUC NEC
403	REGIONAL LYMPH NODE EXC
4040	RAD NECK DISSECTION NOS
4041	UNILAT RAD NECK DISSECT
4042	BILAT RAD NECK DISSECT
4050	RAD NODE DISSECTION NOS
4051	RAD DISSEC AXILLARY NODE
4052	RAD DISSEC PERIAORT NODE
4053	RAD DISSECT ILIAC NODES
4054	RADICAL GROIN DISSECTION
4059	RAD NODE DISSECTION NEC
4061	THORAC DUCT CANNULATION
4062	THORACIC DUCT FISTULIZAT
4063	CLOSE THORACIC DUCT FIST
4064	LIGATE THORACIC DUCT
4069	THORACIC DUCT OP NEC
409	LYMPH STRUCTURE OP NEC
410	BONE MARROW TRNSPLNT
4100	BONE MARROW TRNSPLNT NOS
4101	AUTO BONE MT W/O PURG
4102	ALO BONE MARROW TRNSPLNT
4103	ALLOGRFT BONE MARROW NOS
4104	AUTO HEM STEM CT W/O PUR
4105	ALLO HEM STEM CT W/O PUR
4106	CORD BLD STEM CELL TRANS
4107	AUTO HEM STEM CT W PURG
4108	ALLO HEM STEM CT W PURG
4109	AUTO BONE MT W PURGING
412	SPLENOTOMY
4133	OPEN SPLEEN BIOPSY
4141	SPLENIC CYST MARSUPIAL
4142	EXC SPLENIC LESION/TISS
4143	PARTIAL SPLENECTOMY
415	TOTAL SPLENECTOMY
4193	EXC OF ACCESSORY SPLEEN

4194	SPLEEN TRANSPLANTATION
4195	REPAIR OF SPLEEN
4199	SPLEEN OPERATION NEC
4201	ESOPHAGEAL WEB INCISION
4209	ESOPHAGEAL INCISION NEC
4210	ESOPHAGOSTOMY NOS
4211	CERVICAL ESOPHAGOSTOMY
4212	ESOPH POUCH EXTERIORIZAT
4219	EXT FISTULIZAT ESOPH NEC
4221	ESOPHAGOSCOPY BY INCIS
4225	OPEN BIOPSY OF ESOPHAGUS
4231	LOC EXCIS ESOPH DIVERTIC
4232	LOCAL EXCIS ESOPHAG NEC
4239	DESTRUCT ESOPHAG LES NEC
4240	ESOPHAGECTOMY NOS
4241	PARTIAL ESOPHAGECTOMY
4242	TOTAL ESOPHAGECTOMY
4251	THORAC ESOPHAGOESOPHAGOS
4252	THORAC ESOPHAGOGASTROST
4253	THORAC SM BOWEL INTERPOS
4254	THORAC ESOPHAGOENTER NEC
4255	THORAC LG BOWEL INTERPOS
4256	THORAC ESOPHAGOCOLOS NEC
4258	THORAC INTERPOSITION NEC
4259	THORAC ESOPHAG ANAST NEC
4261	STERN ESOPHAGOESOPHAGOST
4262	STERN ESOPHAGOGASTROSTOM
4263	STERN SM BOWEL INTERPOS
4264	STERN ESOPHAGOENTER NEC
4265	STERN LG BOWEL INTERPOS
4266	STERN ESOPHAGOCOLOS NEC
4268	STERN INTERPOSITION NEC
4269	STERN ESOPHAG ANAST NEC
427	ESOPHAGOMYOTOMY
4282	SUTURE ESOPHAGEAL LACER
4283	ESOPHAGOSTOMY CLOSURE
4284	ESOPH FISTULA REPAIR NEC
4285	ESOPHAG STRICTURE REPAIR
4286	PROD SUBQ TUNNEL NO ANAS
4287	ESOPHAGEAL GRAFT NEC
4289	ESOPHAGEAL REPAIR NEC
4291	LIGATION ESOPH VARIX
430	GASTROTOMY
431	GASTROTOMY
432	OTHER GASTROSTOMY
433	PYLOROMYOTOMY
4342	LOCAL GASTR EXCISION NEC
4349	LOCAL GASTR DESTRUCT NEC
435	PROXIMAL GASTRECTOMY
436	DISTAL GASTRECTOMY
437	PART GASTREC W JEJ ANAST
4381	PART GAST W JEJ TRANSPOS
4389	PARTIAL GASTRECTOMY NEC
4391	TOT GAST W INTES INTERPO
4399	TOTAL GASTRECTOMY NEC
4400	VAGOTOMY NOS
4401	TRUNCAL VAGOTOMY
4402	HIGHLY SELECT VAGOTOMY
4403	SELECTIVE VAGOTOMY NEC
4411	TRANSABDOMIN GASTROSCOPY
4415	OPEN GASTRIC BIOPSY
442	GASTRIC DIAGNOS PROC NEC
4421	DILATE PYLORUS, INCISION
4429	OTHER PYLOROPLASTY
4431	HIGH GASTRIC BYPASS
4432	PERCU GASTROJEJUNOSTOMY
4438	LAP GASTROENTEROSTOMY (OCT 04)
4439	GASTROENTEROSTOMY NEC
4440	SUTURE PEPTIC ULCER NOS
4441	SUT GASTRIC ULCER SITE
4442	SUTURE DUODEN ULCER SITE
445	REVISION GASTRIC ANASTOM
4461	SUTURE GASTRIC LACERAT
4463	CLOSE GASTRIC FISTUL NEC
4464	GASTROPEXY
4465	ESOPHAGOGASTROPLASTY
4466	CREAT ESOPHAGASTR SPHINC
4467	LAP CREAT ESOPH SPHINCT (OCT 04)
4468	LAPAROSCOP GASTROPLSTY (OCT 04)
4469	GASTRIC REPAIR NEC
4491	LIGATE GASTRIC VARICES
4492	INTRAOP GASTRIC MANIPUL
4495	LAP GASTRIC RESTRIC PROC (OCT 04)
4496	LAP REV GAST RESTRI PROC (OCT 04)
4497	LAP REM GAST RESTRIC DEV (OCT 04)
4498	ADJUST GAST RESTRICT DEV (OCT 04)
4499	GASTRIC OPERATION NEC
4500	INTESTINAL INCISION NOS
4501	DUODENAL INCISION
4502	SMALL BOWEL INCISION NEC
4503	LARGE BOWEL INCISION
4511	TRANSAB SM BOWEL ENDOSC
4515	OPEN SMALL BOWEL BIOPSY
4521	TRANSAB LG BOWEL ENDOSC
4526	OPEN LARGE BOWEL BIOPSY

4531	OTH EXCISE DUODENUM LES
4532	DESTRUCT DUODEN LES NEC
4533	LOCAL EXCIS SM BOWEL NEC
4534	DESTR SM BOWEL LES NEC
4541	EXCISE LG INTESTINE LES
4549	DESTRUC LG BOWEL LES NEC
4550	INTEST SEG ISOLAT NOS
4551	SM BOWEL SEGMENT ISOLAT
4552	LG BOWEL SEGMENT ISOLAT
4561	MULT SEG SM BOWEL EXCIS
4562	PART SM BOWEL RESECT NEC
4563	TOTAL REMOVAL SM BOWEL
4571	MULT SEG LG BOWEL EXCIS
4572	CECECTOMY
4573	RIGHT HEMICOLECTOMY
4574	TRANSVERSE COLON RESECT
4575	LEFT HEMICOLECTOMY
4576	SIGMOIDECTOMY
4579	PART LG BOWEL EXCIS NEC
458	TOT INTRA-ABD COLECTOMY
4590	INTESTINAL ANASTOM NOS
4591	SM-TO-SM BOWEL ANASTOM
4592	SM BOWEL-RECT STUMP ANAS
4593	SMALL-TO-LARGE BOWEL NEC
4594	LG-TO-LG BOWEL ANASTOM
4595	ANAL ANASTOMOSIS
4601	SM BOWEL EXTERIORIZATION
4602	RESECT EXT SEG SM BOWEL
4603	LG BOWEL EXTERIORIZATION
4604	RESECT EXT SEG LG BOWEL
4610	COLOSTOMY NOS
4611	TEMPORARY COLOSTOMY
4612	TEMPORARY COLOSTOMY
4613	PERMANENT COLOSTOMY
4620	ILEOSTOMY NOS
4621	TEMPORARY ILEOSTOMY
4622	CONTINENT ILEOSTOMY
4623	PERMANENT ILEOSTOMY NEC
4640	INTEST STOMA REVIS NOS
4641	SM BOWEL STOMA REVISION
4642	PERICOLOST HERNIA REPAIR
4643	LG BOWEL STOMA REVIS NEC
4650	INTEST STOMA CLOSURE NOS
4651	SM BOWEL STOMA CLOSURE
4652	LG BOWEL STOMA CLOSURE
4660	INTESTINAL FIXATION NOS
4661	SM BOWEL-ABD WALL FIXAT
4662	SMALL BOWEL FIXATION NEC
4663	LG BOWEL-ABD WALL FIXAT
4664	LARGE BOWEL FIXATION NEC
4671	DUODENAL LACERAT SUTURE
4672	DUODENAL FISTULA CLOSURE
4673	SMALL BOWEL SUTURE NEC
4674	CLOSE SM BOWEL FIST NEC
4675	SUTURE LG BOWEL LACERAT
4676	CLOSE LG BOWEL FISTULA
4679	REPAIR OF INTESTINE NEC
4680	INTRA-AB BOWEL MANIP NOS
4681	INTRA-ABD SM BOWEL MANIP
4682	INTRA-ABD LG BOWEL MANIP
4691	MYOTOMY OF SIGMOID COLON
4692	MYOTOMY OF COLON NEC
4693	REVISE SM BOWEL ANASTOM
4694	REVISE LG BOWEL ANASTOM
4697	TRANSPLANT OF INTESTINE
4699	INTESTINAL OP NEC
470	INTESTINAL OP NEC
4701	LAP APPENDECTOMY
4709	OTHER APPENDECTOMY
471	OTHER APPENDECTOMY
4711	LAP INCID APPENDECTOMY
4719	OTHER INCID APPENDECTOMY
472	DRAIN APPENDICEAL ABSC
4791	APPENDICOSTOMY
4792	CLOSE APPENDICEAL FISTUL
4799	APPENDICEAL OPS NEC
480	PROCTOTOMY
481	PROCTOSTOMY
4821	TRANSAB PROCTOSIGMOIDOSC
4825	OPEN RECTAL BIOPSY
4835	LOCAL EXCIS RECTAL LES
4841	SOAVE SUBMUC RECT RESECT
4849	PULL-THRU RECT RESEC NEC
485	ABD-PERINEAL RECT RESECT
4861	TRANSSAC RECTOSIGMOIDECT
4862	ANT RECT RESECT W COLOST
4863	ANTERIOR RECT RESECT NEC
4864	POSTERIOR RECT RESECTION
4865	DUHAMEL RECTAL RESECTION
4866	DUHAMEL RECTAL RESECTION
4869	RECTAL RESECTION NEC
4871	SUTURE OF RECTAL LACER
4872	CLOSURE OF PROCTOSTOMY
4873	CLOSE RECTAL FIST NEC
4874	RECTORECTOSTOMY
4875	ABDOMINAL PROCTOPEXY
4876	PROCTOPEXY NEC
4879	REPAIR OF RECTUM NEC
4881	PERIRECTAL INCISION
4882	PERIRECTAL EXCISION
4891	INCIS RECTAL STRICTURE
4892	ANORECTAL MYOMECTOMY

4893	REPAIR PERIRECT FISTULA
4899	RECTAL PERIRECT OP NEC
4901	INCIS PERIANAL ABSCESS
4902	PERIANAL INCISION NEC
4904	PERIANAL EXCISION NEC
4911	ANAL FISTULOTOMY
4912	ANAL FISTULECTOMY
493	ANAL/PERIAN DX PROC NEC
4939	OTHER DESTRUC ANUS LES
4944	HEMORRHOID CRYOTHERAPY
4945	HEMORRHOID LIGATION
4946	HEMORRHOIDECTOMY
4949	HEMORRHOID PROCEDURE NEC
4951	LEFT LAT SPHINCTEROTOMY
4952	POST SPHINCTEROTOMY
4959	ANAL SPHINCTEROTOMY NEC
496	EXCISION OF ANUS
4971	SUTURE ANAL LACERATION
4972	ANAL CERCLAGE
4973	CLOSURE OF ANAL FISTULA
4974	GRACILIS MUSC TRANSPLAN
4975	IMPL OR REV ART ANAL SPH
4976	REMOV ART ANAL SPHINCTER
4979	ANAL SPHINCT REPAIR NEC
4991	INCISION OF ANAL SEPTUM
4992	INSERT SUBQ ANAL STIMUL
4993	ANAL INCISION NEC
4994	REDUCTION ANAL PROLAPSE
4995	CONTROL ANAL HEMORRHAGE
4999	ANAL OPERATION NEC
500	HEPATOTOMY
5012	OPEN LIVER BIOPSY
5019	HEPATIC DX PROC NEC
5021	MARSUPIALIZAT LIVER LES
5022	PARTIAL HEPATECTOMY
5023	OPN ABLTN LIVER LES/TISS OCT06-
5024	PERC ABLTN LIVER LES/TIS OCT06-
5025	LAP ABLTN LIVER LES/TISS OCT06-
5026	ABLTN LIVER LES/TISS NEC OCT06-
5029	DESTRUC HEPATIC LES NEC
503	HEPATIC LOBECTOMY
504	TOTAL HEPATECTOMY
5051	AUXILIARY LIVER TRANSPL
5059	LIVER TRANSPLANT NEC
5061	CLOSURE LIVER LACERAT
5069	LIVER REPAIR NEC
5102	TROCAR CHOLECYSTOSTOMY
5103	CHOLECYSTOSTOMY NEC
5104	CHOLECYSTOTOMY NEC

5113	OPEN BILIARY TRACT BX
5119	BILIARY TR DX PROC NEC
5121	OTH PART CHOLECYSTECTOMY
5122	CHOLECYSTECTOMY
5123	LAPAROSCOPIC CHOLECYSTEC
5124	LAP PART CHOLECYSTECTOMY
5131	GB-TO-HEPAT DUCT ANAST
5132	GB-TO-INTESTINE ANASTOM
5133	GB-TO-PANCREAS ANASTOM
5134	GB-TO-STOMACH ANASTOMOS
5135	GALLBLADDER ANASTOM NEC
5136	CHOLEDOCHOENTEROSTOMY
5137	HEPATIC DUCT-GI ANASTOM
5139	BILE DUCT ANASTOMOS NEC
5141	CDE FOR CALCULUS REMOV
5142	CDE FOR OBSTRUCTION NEC
5143	CHOLEDOCHOHEPAT INTUBAT
5149	INCIS OBSTR BILE DUC NEC
5151	COMMON DUCT EXPLORATION
5159	BILE DUCT INCISION NEC
5161	EXCIS CYST DUCT REMNANT
5162	EXCIS AMPULLA OF VATER
5163	COMMON DUCT EXCIS NEC
5169	BILE DUCT EXCISION NEC
5171	SIMPLE SUT-COMMON DUCT
5172	CHOLEDOCHOPLASTY
5179	BILE DUCT REPAIR NEC
5181	SPHINCTER OF ODDI DILAT
5182	PANCREAT SPHINCTEROTOM
5183	PANCREAT SPHINCTEROPLAS
5189	SPHINCT OF ODDI OP NEC
5191	REPAIR GB LACERATION
5192	CLOSURE CHOLECYSTOSTOMY
5193	CLOS BILIARY FISTUL NEC
5194	REVIS BILE TRACT ANASTOM
5195	REMOVE BILE DUCT PROSTH
5199	BILIARY TRACT OP NEC
5201	CATH DRAIN-PANCREAT CYST
5209	PANCREATOTOMY NEC
5212	OPEN PANCREATIC BIOPSY
5219	PANCREATIC DX PROC NEC
522	PANCREATIC DX PROC NEC
5222	OTHER DESTRU PANCREA LES
523	PANCREAT CYST MARSUPIALI
524	INT DRAIN PANCREAT CYST
5251	PROXIMAL PANCREATECTOMY
5252	DISTAL PANCREATECTOMY
5253	RAD SUBTOT PANCREATECTOM
5259	PARTIAL PANCREATECT NEC
526	TOTAL PANCREATECTOMY
527	RAD PANCREATICODUODENECT

5280	PANCREAT TRANSPLANT NOS
5281	REIMPLANT PANCREATIC TIS
5282	PANCREATIC HOMOTRANSPLAN
5283	PANCREATIC HETEROTRANSPL
5291	TRNSPLNT ISLETS LANG NOS
5292	CANNULATION PANCREA DUC
5295	PANCREATIC REPAIR NEC
5296	PANCREATIC ANASTOMOSIS
5299	PANCREATIC OPERATION NEC
5300	UNILAT ING HERN REP NOS
5301	REPAIR DIRECT ING HERNIA
5302	REPAIR INDIR ING HERNIA
5303	DIR ING HERNIA REP-GRAFT
5304	IND ING HERNIA REP-GRAFT
5305	ING HERNIA REP-GRAFT NOS
5310	BILAT ING HERNIA REP NOS
5311	BILAT DIR ING HERN REP
5312	BILAT IND ING HERN REP
5313	BIL DIR/IND ING HRN REP
5314	BIL DIR ING HRN REP-GRFT
5315	BIL IND ING HRN REP-GRFT
5316	BIL DIR/IND ING HERN-PRO
5317	BIL ING HRN REP-GRFT NOS
5321	UNIL FEMOR HRN REP-GRFT
5329	UNIL FEMOR HERN REP NEC
5331	BIL FEM HERN REPAIR-GRFT
5339	BIL FEM HERN REPAIR NEC
5341	UMBIL HERNIA REPAIR-GRFT
5349	UMBIL HERNIA REPAIR NEC
5351	INCISIONAL HERNIA REPAIR
5359	ABD WALL HERN REPAIR NEC
5361	INCIS HERNIA REPAIR-GRFT
5369	ABD HERN REPAIR-GRFT NEC
537	ABD REPAIR-DIAPHR HERNIA
5380	THOR REP-DIAPH HERN NOS
5381	DIAPHRAGMATIC PLICATION
5382	PARASTERN HERNIA REPAIR
539	OTHER HERNIA REPAIR
540	ABDOMINAL WALL INCISION
5411	EXPLORATORY LAPAROTOMY
5412	REOPEN RECENT LAP SITE
5419	LAPAROTOMY NEC
5421	LAPAROSCOPY
5422	ABDOMINAL WALL BIOPSY
5423	PERITONEAL BIOPSY
5429	ABD REGION DX PROC NEC
543	DESTRUCT ABD WALL LESION
544	DESTRUCT PERITONEAL TISS
545	DESTRUCT PERITONEAL TISS
5451	LAP PERITON ADHESIOLYSIS
5459	OTH PERITON ADHESIOLYSIS

5461	RECLOSE POST OP DISRUPT
5462	DELAYED CLOS ABD WOUND
5463	ABD WALL SUTURE NEC
5464	PERITONEAL SUTURE
5471	REPAIR OF GASTROSCHISIS
5472	ABDOMEN WALL REPAIR NEC
5473	PERITONEAL REPAIR NEC
5474	OMENTAL REPAIR NEC
5475	MESENTERIC REPAIR NEC
5492	REMOVE FB FROM PERITON
5493	CREATE CUTANPERITON FIST
5494	CREAT PERITONEOVAS SHUNT
5495	PERITONEAL INCISION
5501	NEPHROTOMY
5502	NEPHROSTOMY
5503	PERCU NEPHROSTM W/O FRAG
5504	PERCU NEPHROSTMY W FRAG
5511	PYELOTOMY
5512	PYELOSTOMY
5524	OPEN RENAL BIOPSY
5529	RENAL DIAGNOST PROC NEC
5531	RENAL LES MARSUPIALIZAT
5532	OPN ABLTN RENAL LES/TISS OCT06-
5533	PERC ABLTN RENL LES/TISS OCT06-
5534	LAP ABLTN RENAL LES/TISS OCT06-
5535	ABLTN RENAL LES/TISS NEC OCT06-
5539	LOC DESTR RENAL LES NEC
554	PARTIAL NEPHRECTOMY
5551	NEPHROURETERECTOMY
5552	SOLITARY KIDNEY NEPHRECT
5553	REJECTED KIDNEY NEPHRECT
5554	BILATERAL NEPHRECTOMY
5561	RENAL AUTOTRANSPLANT
5569	KIDNEY TRANSPLANT NEC
557	NEPHROPEXY
5581	SUTURE KIDNEY LACERATION
5582	CLOSE NEPHROST & PYELOST
5583	CLOSE RENAL FISTULA NEC
5584	REDUCE RENAL PEDICL TORS
5585	SYMPHYSIOTOMY
5586	RENAL ANASTOMOSIS
5587	CORRECT URETEROPELV JUNC
5589	RENAL REPAIR NEC
5591	RENAL DECAPSULATION
5597	IMPLANT MECHANIC KIDNEY
5598	REMOV MECHANICAL KIDNEY
5599	RENAL OPERATION NEC

560	TU REMOV URETER OBSTRUCT
561	URETERAL MEATOTOMY
562	URETEROTOMY
5634	OPEN URETERAL BIOPSY
5639	URETERAL DX PROCEDUR NEC
5640	URETERECTOMY NOS
5641	PARTIAL URETERECTOMY
5642	TOTAL URETERECTOMY
5651	FORM CUTAN ILEOURETEROST
5652	REVIS CUTAN ILEOURETEROS
5661	FORM CUTAN URETEROSTOMY
5662	REVIS CUTAN URETEROS NEC
5671	URIN DIVERSION TO BOWEL
5672	REVIS URETEROENTEROSTOMY
5673	NEPHROCYSTANASTOMOSI NOS
5674	URETERONEOCYSTOSTOMY
5675	TRANSURETEROURETEROSTOMY
5679	URETERAL ANASTOMOSIS NEC
5681	INTRALUM URETE ADHESIOLY
5682	SUTURE URETERAL LACERAT
5683	URETEROSTOMY CLOSURE
5684	CLOSE URETER FISTULA NEC
5685	URETEROPEXY
5686	REMOVE URETERAL LIGATURE
5689	REPAIR OF URETER NEC
5692	IMPLANT URETERAL STIMUL
5693	REPLACE URETERAL STIMUL
5694	REMOVE URETERAL STIMULAT
5695	LIGATION OF URETER
5699	URETERAL OPERATION NEC
5712	CYSTOTOMY & ADHESIOLYSIS
5718	OTHER SUPRAPU CYSTOSTOMY
5719	CYSTOTOMY NEC
5721	VESICOSTOMY
5722	REVISE CLO VESICOSTOMY
5733	CLOS TRANSURETH BLADD BX
5734	OPEN BLADDER BIOPSY
5739	BLADDER DIAGNOS PROC NEC
5741	TU ADHESIOLYSIS BLADDER
5749	TU DESTRUC BLADD LES NEC
5751	EXCISION OF URACHUS
5759	BLADDER LES DESTRUCT NEC
576	PARTIAL CYSTECTOMY
5771	RADICAL CYSTECTOMY
5779	TOTAL CYSTECTOMY NEC
5781	SUTURE BLADDER LACERAT
5782	CYSTOSTOMY CLOSURE
5783	ENTEROVESICO FIST REPAIR
5784	VESIC FISTULA REPAIR NEC
5785	CYSTOURETHROPLASTY
5786	BLADDER EXSTROPHY REPAIR

5787	BLADDER RECONSTRUCTION
5788	BLADDER ANASTOMOSIS NEC
5789	BLADDER REPAIR NEC
5791	BLADDER SPHINCTEROTOMY
5793	CONTROL BLADD HEMORRHAGE
5796	IMPLANT BLADDER STIMULAT
5797	REPLACE BLADDER STIMULAT
5798	REMOVE BLADDER STIMULAT
5799	BLADDER OPERATION NEC
580	URETHROTOMY
581	URETHRAL MEATOTOMY
5841	SUTURE URETHRAL LACERAT
5842	URETHROSTOMY CLOSURE
5843	CLOSE URETH FISTULA NEC
5844	URETHRAL REANASTOMOSIS
5845	HYPO-EPISPADIUS REPAIR
5846	URETH RECONSTRUCTION NEC
5847	URETHRAL MEATOPLASTY
5849	URETHRAL REPAIR NEC
585	URETH STRICTURE RELEASE
5891	PERIURETHRAL INCISION
5892	PERIURETHRAL EXCISION
5893	IMPLT ARTF URIN SPHINCT
5899	URETH/PERIURETH OP NEC
5900	RETROPERIT DISSECT NOS
5901	RETROPERIT DISSECT NOS
5902	PERIREN ADHESIOLYS NEC
5903	LAP LYS PERIREN/URET ADH
5909	PERIREN/URETER INCIS NEC
5911	OTH LYS PERIVES ADHESIO
5912	LAP LYS PERIVESURETH ADH
5919	PERIVESICAL INCISION NEC
5921	PERIREN/URETERAL BIOPSY
5929	PERIREN/URET DX PROC NEC
593	URETHROVES JUNCT PLICAT
594	SUPRAPUBIC SLING OP
595	RETROPUBIC URETH SUSPENS
596	PARAURETHRAL SUSPENSION
5971	LEVATOR MUSC SUSPENSION
5979	URIN INCONTIN REPAIR NEC
5991	PERIREN/VESICLE EXCISION
5992	PERIREN/VESICLE OP NEC
600	INCISION OF PROSTATE
6012	OPEN PROSTATIC BIOPSY
6014	OPEN SEMINAL VESICLES BX
6015	PERIPROSTATIC BIOPSY
6018	PROSTATIC DX PROCED NEC
6019	SEMIN VES DX PROCED NEC
602	SEMIN VES DX PROCED NEC
6021	TRANSURETH PROSTATECTOMY
6029	OTH TRANSURETH PROSTATEC

603	SUPRAPUBIC PROSTATECTOMY
604	RETROPUBIC PROSTATECTOMY
605	RADICAL PROSTATECTOMY
6061	LOS EXCIS PROSTATIC LES
6062	PERINEAL PROSTATECTOMY
6069	PROSTATECTOMY NEC
6072	SEMINAL VESICLE INCISION
6073	SEMINAL VESICLE EXCISION
6079	SEMINAL VESICLE OP NEC
6081	PERIPROSTATIC INCISION
6082	PERIPROSTATIC EXCISION
6093	REPAIR OF PROSTATE
6094	CONTROL PROSTATE HEMORR
6095	TRANS BAL DIL PROS URETH
6096	TU DESTR PROSTATE BY MT
6097	OTH TU DESTR PROS - RT
6099	PROSTATIC OPERATION NEC
612	EXCISION OF HYDROCELE
6142	SCROTAL FISTULA REPAIR
6149	SCROTUM/TUNIC REPAIR NEC
6192	EXCISION TUNICA LES NEC
6199	SCROTUM & TUNICA OP NEC
620	INCISION OF TESTES
6212	OPEN TESTICULAR BIOPSY
6219	TESTES DX PROCEDURE NEC
622	TESTICULAR LES DESTRUCT
623	UNILATERAL ORCHIECTOMY
6241	REMOVE BOTH TESTES
6242	REMOVE SOLITARY TESTIS
625	ORCHIOPEXY
6261	SUTURE TESTICULAR LACER
6269	TESTICULAR REPAIR NEC
627	INSERT TESTICULAR PROSTH
6299	TESTICULAR OPERATION NEC
6309	SPERMAT CORD/VAS DX NEC
631	EXC SPERMATIC VARICOCELE
632	EXCISE EPIDIDYMIS CYST
633	EXCISE CORD/EPID LES NEC
634	EPIDIDYMECTOMY
6351	SUTURE CORD & EPID LACER
6353	TRANSPLANT SPERMAT CORD
6359	CORD & EPIDID REPAIR NEC
6381	SUTURE VAS & EPIDID LAC
6382	POSTOP VAS RECONSTRUCT
6383	EPIDIDYMOVASOSTOMY
6385	REMOV VAS DEFERENS VALVE
6389	VAS & EPIDIDY REPAIR NEC
6392	EPIDIDYMOTOMY
6393	SPERMATIC CORD INCISION
6394	SPERM CORD ADHESIOLYSIS
6395	INSERT VALVE IN VAS DEF
6399	CORD/EPID/VAS OPS NEC
640	CIRCUMCISION
6411	PENILE BIOPSY
642	LOCAL EXCIS PENILE LES
643	AMPUTATION OF PENIS
6441	SUTURE PENILE LACERATION
6442	RELEASE OF CHORDEE
6443	CONSTRUCTION OF PENIS
6444	RECONSTRUCTION OF PENIS
6445	REPLANTATION OF PENIS
6449	PENILE REPAIR NEC
645	SEX TRANSFORMAT OP NEC
6492	INCISION OF PENIS
6493	DIVISION OF PENILE ADHES
6495	INS NONINFL PENIS PROSTH
6496	REMOVE INT PENILE PROSTH
6497	INS INFLATE PENIS PROSTH
6498	PENILE OPERATION NEC
6499	MALE GENITAL OP NEC
650	MALE GENITAL OP NEC
6501	LAPAROSCOPIC OOPHOROTOMY
6509	OTHER OOPHOROTOMY
6511	OVARIAN ASPIRAT BIOPSY
6512	OVARIAN BIOPSY NEC
6513	LAP BIOPSY OF OVARY
6514	OTH LAP DX PROC OVARIES
6519	OVARIAN DX PROCEDURE NEC
6521	OVARIAN CYST MARSUPIALIZ
6522	OVARIAN WEDGE RESECTION
6523	LAP MARSUP OVARIAN CYST
6524	LAP WEDGE RESECT OVARY
6525	OTH LAP LOC EXC DEST OVA
6529	LOCAL DESTR OVA LES NEC
653	LOCAL DESTR OVA LES NEC
6531	LAP UNILAT OOPHORECTOMY
6539	OTH UNILAT OOPHORECTOMY
654	OTH UNILAT OOPHORECTOMY
6541	LAP UNI SALPINGO-OOPHOR
6549	OTH UNI SALPINGO-OOPHOR
6551	OTH REMOVE BOTH OVARIES
6552	OTH REMOVE REMAIN OVARY
6553	LAP REMOVE BOTH OVARIES
6554	LAP REMOVE REMAIN OVARY
6561	OTH REMOVE OVARIES/TUBES
6562	OTH REMOVE REM OVA/TUBE
6563	LAP REMOVE OVARIES/TUBES
6564	LAP REMOVE REM OVA/TUBE
6571	OTH SIMPLE SUTURE OVARY
6572	OTH REIMPLANT OF OVARY
6573	OTH SALPINGO-OOPHOROPLAS
6574	LAP SIMPLE SUTURE OVARY

6575	LAP REIMPLANT OF OVARY
6576	LAP SALPINGO-OOPHOROPLAS
6579	REPAIR OF OVARY NEC
658	REPAIR OF OVARY NEC
6581	LAP ADHESIOLYS OVA/TUBE
6589	ADHESIOLYSIS OVARY/TUBE
6591	ASPIRATION OF OVARY
6592	TRANSPLANTATION OF OVARY
6593	MANUAL RUPT OVARIAN CYST
6594	OVARIAN DENERVATION
6595	OVARIAN TORSION RELEASE
6599	OVARIAN OPERATION NEC
660	OVARIAN OPERATION NEC
6601	SALPINGOTOMY
6602	SALPINGOSTOMY
6611	FALLOPIAN TUBE BIOPSY
6619	FALLOP TUBE DX PROC NEC
6621	BILAT ENDOSC CRUSH TUBE
6622	BILAT ENDOSC DIVIS TUBE
6629	BILAT ENDOS OCC TUBE NEC
6631	BILAT TUBAL CRUSHING NEC
6632	BILAT TUBAL DIVISION NEC
6639	BILAT TUBAL DESTRUCT NEC
664	TOTAL UNILAT SALPINGECT
6651	REMOVE BOTH FALLOP TUBES
6652	REMOVE SOLITARY FAL TUBE
6661	DESTROY FALLOP TUBE LES
6662	REMOV TUBE & ECTOP PREG
6663	BILAT PART SALPINGEC NOS
6669	PARTIAL SALPINGECTOM NEC
6671	SIMPL SUTURE FALLOP TUBE
6672	SALPINGO-OOPHOROSTOMY
6673	SALPINGO-SALPINGOSTOMY
6674	SALPINGO-UTEROSTOMY
6679	FALLOP TUBE REPAIR NEC
6692	UNILAT FALLOP TUBE DESTR
6693	IMPL FALLOP TUBE PROSTH
6694	REMOV FALLOP TUBE PROSTH
6695	BLOW THERAPEUT INTO TUBE
6696	FALLOPIAN TUBE DILATION
6697	BURY FIMBRIAE IN UTERUS
6699	FALLOPIAN TUBE OP NEC
6711	ENDOCERVICAL BIOPSY
6712	CERVICAL BIOPSY NEC
6719	CERVICAL DX PROCEDUR NEC
672	CONIZATION OF CERVIX
6731	CERVICAL CYST MARSUPIAL
6732	CERVICAL LES CAUTERIZAT
6733	CERVICAL LES CRYOTHERAPY
6739	CERVICAL LES DESTRUC NEC
674	AMPUTATION OF CERVIX

675	AMPUTATION OF CERVIX
6751	TRANSAB CERCLAGE CERVIX
6759	OTH REP INT CERVICAL OS
6761	SUTURE CERVICAL LACERAT
6762	CERVICAL FISTULA REPAIR
6769	CERVICAL REPAIR NEC
680	HYSTEROTOMY
6813	OPEN UTERINE BIOPSY
6814	OPEN UTERINE LIGAMENT BX
6815	CLOS UTERINE LIGAMENT BX
6816	CLOSED UTERINE BIOPSY
6819	UTERUS/ADNEX DX PROC NEC
6821	ENDOMET SYNECHIAE DIVIS
6822	INCISION UTERINE SEPTUM
6823	ENDOMETRIAL ABLATION
6829	UTERINE LES DESTRUCT NEC
683	UTERINE LES DESTRUCT NEC
6831	LAP SCERVIC HYSTERECTOMY
6839	OTH SUBTOT ABD HYSTERECT OCT03-
684	TOTAL ABD HYSTERECTOMY
6841	LAP TOTAL ABDOMINAL HYST OCT06-
6849	TOTAL ABD HYST NEC/NOS OCT06-
685	VAGINAL HYSTERECTOMY
6851	LAP AST VAG HYSTERECTOMY
6859	VAG HYSTERECTOMY NEC/NOS
686	RADICAL ABD HYSTERECTOMY
6861	LAP RADICAL ABDOMNL HYST OCT06-
6869	RADICAL ABD HYST NEC/NOS OCT06-
687	RADICAL VAG HYSTERECTOMY
6871	LAP RADICAL VAGINAL HYST OCT06-
6879	RADICAL VAG HYST NEC/NOS OCT06-
688	PELVIC EVISCERATION
689	HYSTERECTOMY NEC/NOS
6901	D & C FOR PREG TERMINAT
6902	D & C POST DELIVERY
6909	D & C NEC
6911	D & C NEC
6919	DESTRUC UTER SUPPORT NEC
6921	INTERPOSIT OP UTERIN LIG
6922	UTERINE SUSPENSION NEC
6923	VAG REPAIR INVERS UTERUS
6929	UTERUS/ADNEXA REPAIR NEC
693	PARACERV UTERINE DENERV
6941	SUTURE UTERINE LACERAT
6942	CLOSURE UTERINE FISTULA

6949	UTERINE REPAIR NEC
6951	ASPIRAT CURET-PREG TERMI
6952	ASPIRAT CURET-POST DELIV
6995	INCISION OF CERVIX
6997	REMOVE PENETRAT CERV FB
6998	UTERINE SUPPORT OP NEC
6999	UTERINE OPERATION NEC
7012	CULDOTOMY
7013	INTRALUM VAG ADHESIOLYS
7014	VAGINOTOMY NEC
7023	CUL-DE-SAC BIOPSY
7024	VAGINAL BIOPSY
7029	VAGIN/CUL-DE-SAC DX NEC
7031	HYMENECTOMY
7032	EXCIS CUL-DE-SAC LESION
7033	EXCISION VAGINAL LESION
704	VAGINAL OBLITERATION
7050	CYSTOCEL/RECTOCEL REPAIR
7051	CYSTOCELE REPAIR
7052	RECTOCELE REPAIR
7061	VAGINAL CONSTRUCTION
7062	VAGINAL RECONSTRUCTION
7071	SUTURE VAGINA LACERATION
7072	REPAIR COLOVAGIN FISTULA
7073	REPAIR RECTOVAG FISTULA
7074	REP VAGINOENT FISTUL NEC
7075	REPAIR VAG FISTULA NEC
7076	HYMENORRHAPHY
7077	VAGINAL SUSPENS & FIXAT
7079	VAGINAL REPAIR NEC
708	VAGINAL VAULT OBLITERAT
7091	VAGINAL OPERATION NEC
7092	CUL-DE-SAC OPERATION NEC
7101	VULVAR ADHESIOLYSIS
7109	INCIS VULVA/PERINEUM NEC
7111	VULVAR BIOPSY
7119	VULVAR DIAGNOS PROC NEC
7122	INCISE BARTHOLIN"S GLAND
7123	BARTHOLIN GLAND MARSUP
7124	DESTRUC BARTHOLIN GLAND
7129	BARTHOLIN"S GLAND OP NEC
713	LOCAL VULVAR EXCIS NEC
714	OPERATIONS ON CLITORIS
715	RADICAL VULVECTOMY
7161	UNILATERAL VULVECTOMY
7162	BILATERAL VULVECTOMY
7171	SUTURE VULVAR LACERATION
7172	REPAIR VULVAR FISTULA
7179	VULVAR/PERIN REPAIR NEC
718	OTHER VULVAR OPERATIONS
719	OTHER FEMALE GENITAL OPS

7394	PUBIOTOMY TO ASSIST DEL
7399	OPS ASSISTING DELIV NEC
740	CLASSICAL C-SECTION
741	LOW CERVICAL C-SECTION
742	EXTRAPERITONEAL C-SECT
743	REM EXTRATUB ECTOP PREG
744	CESAREAN SECTION NEC
7491	HYSTEROTOMY TO TERMIN PG
7499	CESAREAN SECTION NOS
7536	CORRECTION FETAL DEFECT
7550	REPAIR OB LAC UTERUS NOS
7551	REPAIR OB LACERAT CERVIX
7552	REPAIR OB LAC CORP UTERI
7561	REPAIR OB LAC BLAD/URETH
7593	SURG CORR INVERT UTERUS
7599	OBSTETRIC OPERATION NEC
7601	FACIAL BONE SEQUESTRECT
7609	FACIAL BONE INCISION NEC
7611	FACIAL BONE BIOPSY
7619	FACIAL BONE DX PROC NEC
762	DESTRUCT FACIAL BONE LES
7631	PARTIAL MANDIBULECTOMY
7639	PART FACIAL OSTECTOM NEC
7641	TOT MANDIBULEC W RECONST
7642	TOTAL MANDIBULECTOMY NEC
7643	MANDIBULAR RECONST NEC
7644	TOT FACE OSTECT W RECONS
7645	TOT FACE BONE OSTECT NEC
7646	FACIAL BONE RECONSTR NEC
765	TEMPOROMAND ARTHROPLASTY
7661	CL OSTEOPLASTY MAND RAMI
7662	OPEN OSTEOPLAS MAND RAMI
7663	OSTEOPLASTY MANDIBLE BDY
7664	MAND ORTHOGNATHIC OP NEC
7665	SEG OSTEOPLASTY MAXILLA
7666	TOT OSTEOPLASTY MAXILLA
7667	REDUCTION GENIOPLASTY
7668	AUGMENTATION GENIOPLASTY
7669	FACIAL BONE REPAIR NEC
7670	REDUCTION FACIAL FX NOS
7672	OPN REDUCT MALAR/ZYGO FX
7674	OPEN REDUCT MAXILLARY FX
7676	OPEN REDUCT MANDIBLE FX
7677	OPEN REDUCT ALVEOLAR FX
7679	OPEN REDUCT FACE FX NEC
7691	BONE GRAFT TO FACE BONE
7692	SYN IMPLANT TO FACE BONE
7694	OPEN REDUCT TM DISLOCAT
7697	REMOVE INT FIX FACE BONE
7699	FACIAL BONE/JNT OP NEC
7700	SEQUESTRECTOMY NOS

7701	CHEST CAGE SEQUESTREC
7702	HUMERUS SEQUESTRECTOMY
7703	RADIUS & ULNA SEQUESTREC
7704	METACARP/CARP SEQUESTREC
7705	FEMORAL SEQUESTRECTOMY
7706	PATELLAR SEQUESTRECTOMY
7707	TIBIA/FIBULA SEQUESTREC
7708	METATAR/TAR SEQUESTREC
7709	SEQUESTRECTOMY NEC
7710	OTHER BONE INCISION NOS
7711	OTHER CHEST CAGE INCIS
7712	OTHER HUMERUS INCISION
7713	OTHER RADIUS/ULNA INCIS
7714	OTH METACARP/CARP INCIS
7715	OTHER FEMORAL INCISION
7716	OTHER PATELLAR INCISION
7717	OTHER TIBIA/FIBULA INCIS
7718	OTH METATARS/TARS INCIS
7719	BONE INCIS W/O DIV NEC
7720	WEDGE OSTEOTOMY NOS
7721	CHEST CAGE WEDG OSTEOTOM
7722	HUMERUS WEDGE OSTEOTOMY
7723	RADIUS/ULNA WEDG OSTEOTO
7724	METACAR/CAR WEDG OSTEOTO
7725	FEMORAL WEDGE OSTEOTOMY
7726	PATELLAR WEDGE OSTEOTOMY
7727	TIBIA/FIBUL WEDG OSTEOT
7728	METATAR/TAR WEDG OSTEOT
7729	WEDGE OSTEOTOMY NEC
7730	OTHER BONE DIVISION NOS
7731	CHEST CAGE BONE DIV NEC
7732	HUMERUS DIVISION NEC
7733	RADIUS/ULNA DIVISION NEC
7734	METACAR/CAR DIVISION NEC
7735	FEMORAL DIVISION NEC
7736	PATELLAR DIVISION NEC
7737	TIBIA/FIBULA DIV NEC
7738	METATAR/TAR DIVISION NEC
7739	BONE DIVISION NEC
7740	BONE BIOPSY NOS
7741	CHEST CAGE BONE BIOPSY
7742	HUMERUS BIOPSY
7743	RADIUS & ULNA BIOPSY
7744	METACARPAL/CARPAL BIOPSY
7745	FEMORAL BIOPSY
7746	PATELLAR BIOPSY
7747	TIBIA & FIBULA BIOPSY
7748	METATARSAL/TARSAL BIOPSY
7749	BONE BIOPSY NEC
7751	BUNIONECT/SFT/OSTEOTOMY
7752	BUNIONECT/SFT/ARTHRODES
7753	OTH BUNIONECT W SFT CORR
7754	EXC CORRECT BUNIONETTE
7756	REPAIR OF HAMMER TOE
7757	REPAIR OF CLAW TOE
7758	OTH EXC, FUS, REPAIR TOE
7759	BUNIONECTOMY NEC
7760	LOC EXC BONE LESION NOS
7761	EXC CHEST CAGE BONE LES
7762	LOC EXC BONE LES HUMERUS
7763	LOC EXC LES RADIUS/ULNA
7764	LOC EXC LES METACAR/CAR
7765	LOC EXC BONE LES FEMUR
7766	LOC EXC BONE LES PATELLA
7767	LOC EXC LES TIBIA/FIBULA
7768	LOC EXC LES METATAR/TAR
7769	LOC EXC BONE LESION NEC
7770	EXCISE BONE FOR GRFT NOS
7771	EX CHEST CAGE BONE-GFT
7772	EXCISE HUMERUS FOR GRAFT
7773	EXCIS RADIUS/ULNA-GRAFT
7774	EXCIS METACAR/CAR-GRAFT
7775	EXCISE FEMUR FOR GRAFT
7776	EXCISE PATELLA FOR GRAFT
7777	EXCISE TIB/FIB FOR GRAFT
7778	EXCIS METATAR/TAR-GRAFT
7779	EXCISE BONE FOR GFT NEC
7780	OTH PART OSTECTOMY NOS
7781	OTH CHEST CAGE OSTECTOMY
7782	PARTIAL HUMERECTOMY NEC
7783	PART OSTECT-RADIUS/ULNA
7784	PART OSTECT-METACAR/CAR
7785	PART OSTECTOMY-FEMUR
7786	PARTIAL PATELLECTOMY
7787	PART OSTECT-TIBIA/FIBULA
7788	PART OSTECT-METATAR/TAR
7789	PARTIAL OSTECTOMY NEC
7790	TOTAL OSTECTOMY NOS
7791	TOT CHEST CAGE OSTECTOMY
7792	TOTAL OSTECTOMY-HUMERUS
7793	TOT OSTECT-RADIUS/ULNA
7794	TOT OSTECT-METACARP/CARP
7795	TOT OSTECTOMY-FEMUR
7796	TOTAL PATELLECTOMY
7797	TOT OSTECT-TIBIA/FIBULA
7798	TOT OSTECT-METATARS/TARS
7799	TOTAL OSTECTOMY NEC
7800	BONE GRAFT NOS
7801	BONE GRAFT TO CHEST CAGE
7802	BONE GRAFT TO HUMERUS
7803	BONE GRAFT-RADIUS/ULNA
7804	BONE GRFT TO METACAR/CAR

7805	BONE GRAFT TO FEMUR
7806	BONE GRAFT TO PATELLA
7807	BONE GRAFT-TIBIA/FIBULA
7808	BONE GRAFT-METATAR/TAR
7809	BONE GRAFT NEC
7810	APPLIC EXT FIX DEV NOS
7811	APPL EXT FIX-CHEST CAGE
7812	APPLIC EXT FIX-HUMERUS
7813	APPL EXT FIX-RADIUS/ULNA
7814	APPL EXT FIX-METACAR/CAR
7815	APPLIC EXT FIX DEV-FEMUR
7816	APPL EXT FIX DEV-PATELLA
7817	APPL EXT FIX-TIB/FIBULA
7818	APPL EXT FIX-METATAR/TAR
7819	APPLIC EXT FIX DEV NEC
7820	LIMB SHORTEN PROC NOS
7822	LIMB SHORT PROC-HUMERUS
7823	LIMB SHORTEN-RADIUS/ULNA
7824	LIMB SHORTEN-METACAR/CAR
7825	LIMB SHORT PROC-FEMUR
7827	LIMB SHORTEN-TIB/FIBULA
7828	LIMB SHORTEN-METATAR/TAR
7829	LIMB SHORTEN PROC NEC
7830	LIMB LENGTHEN PROC NOS
7831	LIMB LENGTHEN PROC NOS
7832	LIMB LENGTH PROC-HUMERUS
7833	LIMB LENGTH-RADIUS/ULNA
7834	LIMB LENGTH-METACAR/CAR
7835	LIMB LENGTH PROC-FEMUR
7837	LIMB LENGTHEN-TIB/FIBULA
7838	LIMB LENGTHN-METATAR/TAR
7839	LIMB LENGTHEN PROC NEC
7840	OTH BONE REPAIR/PLAST OP
7841	OTH CHEST CAGE REP/PLAST
7842	OTH HUMERUS REPAIR/PLAST
7843	OTH RAD/ULN REPAIR/PLAST
7844	OTH METAC/CARP REP/PLAST
7845	OTH FEMUR REPAIR/PLASTIC
7846	OTH PATELLA REPAIR/PLAST
7847	OTH TIB/FIB REPAIR/PLAST
7848	OTH META/TAR REPA/PLAST
7849	OTH BONE REPA/PLAST NEC
7850	INT FIX W/O FX REDUC NOS
7851	INT FIXATION-CHEST CAGE
7852	INT FIXATION-HUMERUS
7853	INT FIXATION-RADIUS/ULNA
7854	INT FIXATION-METACAR/CAR
7855	INTERNAL FIXATION-FEMUR
7856	INTERNAL FIX-PATELLA
7857	INT FIXATION-TIBIA/FIBUL
7858	INT FIXATION-METATAR/TAR
7859	INT FIX-NO FX REDUCT NEC
7860	REMOVE IMP DEVICE NOS
7861	REMOV IMP DEV-CHEST CAGE
7862	REMOVE IMPL DEV-HUMERUS
7863	REMOV IMP DEV-RADIUS/ULN
7864	REMOV IMP DEV-METAC/CARP
7865	REMOVE IMP DEVICE-FEMUR
7866	REMOV IMP DEVICE-PATELLA
7867	REMOV IMP DEV-TIB/FIBULA
7868	REMOVE IMP DEV-METAT/TAR
7869	REMOVE IMPL DEVICE NEC
7870	OSTEOCLASIS NOS
7871	OSTEOCLASIS-CHEST CAGE
7872	OSTEOCLASIS-HUMERUS
7873	OSTEOCLASIS-RADIUS/ULNA
7874	OSTEOCLASIS-METACAR/CAR
7875	OSTEOCLASIS-FEMUR
7876	OSTEOCLASIS-PATELLA
7877	OSTEOCLASIS-TIBIA/FIBULA
7878	OSTEOCLASIS-METATAR/TAR
7879	OSTEOCLASIS NEC
7880	OTHER BONE DX PROC NOS
7881	OTH DX PROCED-CHEST CAGE
7882	OTH DX PROCED-HUMERUS
7883	OTH DX PROC-RADIUS/ULNA
7884	OTH DX PROC-METACAR/CAR
7885	OTH DX PROCED-FEMUR
7886	OTH DX PROCED-PATELLA
7887	OTH DX PROC-TIBIA/FIBULA
7888	OTH DX PROC-METATAR/TAR
7889	OTHER BONE DX PROC NEC
7890	INSERT BONE STIMUL NOS
7891	INSERT BONE STIMUL-CHEST
7892	INSERT BONE STIM-HUMERUS
7893	INSER BONE STIM-RAD/ULNA
7894	INSER BONE STIM-META/CAR
7895	INSERT BONE STIM-FEMUR
7896	INSERT BONE STIM-PATELLA
7897	INSER BONE STIM-TIB/FIB
7898	INSER BONE STIM-META/TAR
7899	INSERT BONE STIMUL NEC
7910	CL FX REDUC-INT FIX NOS
7911	CLOS RED-INT FIX HUMERUS
7912	CL RED-INT FIX RAD/ULNA
7913	CL RED-INT FIX METAC/CAR
7914	CLOSE RED-INT FIX FINGER
7915	CLOSED RED-INT FIX FEMUR
7916	CL RED-INT FIX TIB/FIBU
7917	CL RED-INT FIX METAT/TAR
7918	CLOSE RED-INT FIX TOE FX
7919	CL FX REDUC-INT FIX NEC

7920	OPEN FX REDUCTION NOS
7921	OPEN REDUC-HUMERUS FX
7922	OPEN REDUC-RADIUS/ULN FX
7923	OPEN REDUC-METAC/CAR FX
7924	OPEN REDUCTION-FINGER FX
7925	OPEN REDUCTION-FEMUR FX
7926	OPEN REDUC-TIBIA/FIB FX
7927	OPEN REDUC-METAT/TARS FX
7928	OPEN REDUCTION-TOE FX
7929	OPEN FX REDUCTION NEC
7930	OPN FX RED W INT FIX NOS
7931	OPEN RED-INT FIX HUMERUS
7932	OP RED-INT FIX RAD/ULNA
7933	OP RED-INT FIX METAC/CAR
7934	OPEN RED-INT FIX FINGER
7935	OPEN REDUC-INT FIX FEMUR
7936	OP RED-INT FIX TIB/FIBUL
7937	OP RED-INT FIX METAT/TAR
7938	OPEN REDUCT-INT FIX TOE
7939	OPN FX RED W INT FIX NEC
7940	CLS REDUC-SEP EPIPHY NOS
7941	CLOSE RED-HUMERUS EPIPHY
7942	CLS RED-RADIUS/UL EPIPHY
7945	CLOSE REDUC-FEMUR EPIPHY
7946	CLS RED-TIBIA/FIB EPIPHY
7949	CLS REDUC-SEP EPIPHY NEC
7950	OPEN RED-SEP EPIPHY NOS
7951	OPN RED-SEP EPIPHY-HUMER
7952	OP RED-RADIUS/ULN EPIPHY
7955	OPN RED-SEP EPIPHY-FEMUR
7956	OP RED-TIBIA/FIB EPIPHYS
7959	OPEN RED-SEP EPIPHY NEC
7960	OPEN FX SITE DEBRIDE NOS
7961	DEBRID OPEN FX-HUMERUS
7962	DEBRID OPN FX-RADIUS/ULN
7963	DEBRID OPN FX-METAC/CAR
7964	DEBRID OPN FX-FINGER
7965	DEBRID OPN FX-FEMUR
7966	DEBRID OPN FX-TIBIA/FIB
7967	DEBRID OPN FX-METAT/TAR
7968	DEBRID OPN FX-TOE
7969	OPEN FX SITE DEBRIDE NEC
7980	OPEN REDUC-DISLOCAT NOS
7981	OPN REDUC DISLOC-SHOULDR
7982	OPEN REDUC-ELBOW DISLOC
7983	OPEN REDUC-WRIST DISLOC
7984	OPN REDUC DISLOC-HAND
7985	OPEN REDUC-HIP DISLOCAT
7986	OPEN REDUC-KNEE DISLOCAT
7987	OPEN REDUC-ANKLE DISLOC
7988	OPN REDUC DISLOC-FT/TOE

7989	OPEN REDUC-DISLOCAT NEC
7990	UNSPEC OP BONE INJ NOS
7991	HUMERUS INJURY OP NOS
7992	RADIUS/ULNA INJ OP NOS
7993	METACARP/CARP INJ OP NOS
7994	FINGER INJURY OP NOS
7995	FEMUR INJURY OP NOS
7996	TIBIA/FIBULA INJ OP NOS
7997	METATARS/TARS INJ OP NOS
7998	TOE INJURY OPERATION NOS
7999	UNSPEC OP-BONE INJ NEC
8000	ARTHROT & PROS REMOV NOS
8001	ARTHROT/PROS REMOV-SHLDR
8002	ARTHROT/PROS REMOV-ELBOW
8003	ARTHROT/PROS REMOV-WRIST
8004	ARTHROT/PROS REMOV-HAND
8005	ARTHROT/PROS REMOV-HIP
8006	ARTHROT/PROS REMOV-KNEE
8007	ARTHROT/PROS REMOV-ANKLE
8008	ARTHROT/PROS REMOV-FOOT
8009	ARTHROT & PROS REMOV NEC
8010	OTHER ARTHROTOMY NOS
8011	OTH ARTHROTOMY-SHOULDER
8012	OTH ARTHROTOMY-ELBOW
8013	OTH ARTHROTOMY-WRIST
8014	OTH ARTHROTOMY-HAND/FNGR
8015	OTH ARTHROTOMY-HIP
8016	OTH ARTHROTOMY-KNEE
8017	OTH ARTHROTOMY-ANKLE
8018	OTH ARTHROTOMY-FOOT/TOE
8019	OTHER ARTHROTOMY NEC
8020	ARTHROSCOPY NOS
8021	SHOULDER ARTHROSCOPY
8022	ELBOW ARTHROSCOPY
8023	WRIST ARTHROSCOPY
8024	HAND & FINGER ARTHROSCOP
8025	HIP ARTHROSCOPY
8026	KNEE ARTHROSCOPY
8027	ANKLE ARTHROSCOPY
8028	FOOT & TOE ARTHROSCOPY
8029	ARTHROSCOPY NEC
8040	JT STRUCTUR DIVISION NOS
8041	SHOULDER STRUCT DIVISION
8042	ELBOW STRUCTURE DIVISION
8043	WRIST STRUCTURE DIVISION
8044	HAND JOINT STRUCT DIVIS
8045	HIP STRUCTURE DIVISION
8046	KNEE STRUCTURE DIVISION
8047	ANKLE STRUCTURE DIVISION
8048	FOOT JOINT STRUCT DIVIS
8049	JT STRUCTUR DIVISION NEC

805	JT STRUCTUR DIVISION NEC
8050	EXC/DEST INTVRT DISC NOS
8051	EXCISION INTERVERT DISC
8059	OTH EXC/DEST INTVRT DISC
806	EXCIS KNEE SEMILUN CARTL
8070	SYNOVECTOMY-SITE NOS
8071	SHOULDER SYNOVECTOMY
8072	ELBOW SYNOVECTOMY
8073	WRIST SYNOVECTOMY
8074	HAND SYNOVECTOMY
8075	HIP SYNOVECTOMY
8076	KNEE SYNOVECTOMY
8077	ANKLE SYNOVECTOMY
8078	FOOT SYNOVECTOMY
8079	SYNOVECTOMY-SITE NEC
8080	DESTRUCT JOINT LES NOS
8081	DESTRUC-SHOULDER LES NEC
8082	DESTRUC-ELBOW LESION NEC
8083	DESTRUC-WRIST LESION NEC
8084	DESTRUC-HAND JT LES NEC
8085	DESTRUCT-HIP LESION NEC
8086	DESTRUCT-KNEE LESION NEC
8087	DESTRUC-ANKLE LESION NEC
8088	DESTRUC-FOOT JT LES NEC
8089	DESTRUCT JOINT LES NEC
8090	EXCISION OF JOINT NOS
8091	EXCISION OF SHOULDER NEC
8092	EXCISION OF ELBOW NEC
8093	EXCISION OF WRIST NEC
8094	EXCISION HAND JOINT NEC
8095	EXCISION OF HIP NEC
8096	EXCISION OF KNEE NEC
8097	EXCISION OF ANKLE NEC
8098	EXCISION FOOT JOINT NEC
8099	EXCISION OF JOINT NEC
8100	SPINAL FUSION NOS
8101	ATLAS-AXIS FUSION
8102	OTHER CERVICAL FUS ANT
8103	OTHER CERVICAL FUS POST
8104	DORSAL/DORSOLUM FUS ANT
8105	DORSAL/DORSOLUM FUS POST
8106	LUMBAR/LUMBOSAC FUS ANT
8107	LUMBAR/LUMBOSAC FUS LAT
8108	LUMBAR/LUMBOSAC FUS POST
8109	LUMBAR/LUMBOSAC FUS POST
8111	ANKLE FUSION
8112	TRIPLE ARTHRODESIS
8113	SUBTALAR FUSION
8114	MIDTARSAL FUSION
8115	TARSOMETATARSAL FUSION
8116	METATARSOPHALANGEAL FUS
8117	OTHER FUSION OF FOOT
8118	OTHER FUSION OF FOOT
8120	ARTHRODESIS NOS
8121	ARTHRODESIS OF HIP
8122	ARTHRODESIS OF KNEE
8123	ARTHRODESIS OF SHOULDER
8124	ARTHRODESIS OF ELBOW
8125	CARPORADIAL FUSION
8126	METACARPOCARPAL FUSION
8127	METACARPOPHALANGEAL FUS
8128	INTERPHALANGEAL FUSION
8129	ARTHRODESIS NEC
8130	SPINAL REFUSION NOS
8131	REFUSION OF ATLAS-AXIS
8132	REFUSION OF OTH CERV ANT
8133	REFUS OF OTH CERV POST
8134	REFUSION OF DORSAL ANT
8135	REFUSION OF DORSAL POST
8136	REFUSION OF LUMBAR ANT
8137	REFUSION OF LUMBAR LAT
8138	REFUSION OF LUMBAR POST
8139	REFUSION OF SPINE NEC
8140	REPAIR OF HIP, NEC
8141	REPAIR OF HIP, NEC
8142	FIVE-IN-ONE KNEE REPAIR
8143	TRIAD KNEE REPAIR
8144	PATELLAR STABILIZATION
8145	CRUCIATE LIG REPAIR NEC
8146	COLLATERL LIG REPAIR NEC
8147	OTHER REPAIR OF KNEE
8148	OTHER REPAIR OF KNEE
8149	OTHER REPAIR OF ANKLE
8151	TOTAL HIP REPLACEMENT
8152	PARTIAL HIP REPLACEMENT
8153	REVISE HIP REPLACEMENT
8154	TOTAL KNEE REPLACEMENT
8155	REVISE KNEE REPLACEMENT
8156	TOTAL ANKLE REPLACEMENT
8157	REPL JOINT OF FOOT, TOE
8159	REV JT REPL LOW EXT NEC
8161	360 SPINAL FUSION
8162	FUS/REFUS 2-3 VERTEBRAE
8163	FUS/REFUS 4-8 VERTEBRAE
8164	FUS/REFUS 9 VERTEBRAE
8165	VERTEBROPLASTY (OCT 04)
8166	KYPHOPLASTY (OCT 04)
8169	OTH HIP REPAIR JAN80--SEP89 OCT05-
8171	ARTHROPLAS METACARP WIT
8172	ARTHROPLASTY METACAR W/O
8173	TOTAL WRIST REPLACEMENT

8174	ARTHROPLASTY CARPAL WIT
8175	ARTHROPLASTY CARPAL W/O
8179	OTH REPAIR HAN/FIN/WRIS
8180	TOTAL SHOULDER REPLACE
8181	PARTIAL SHOULDER REPLACE
8182	REP RECUR SHLDER DISLOC
8183	SHOULDER ARTHROPLAST NEC
8184	TOTAL ELBOW REPLACEMENT
8185	ELBOW ARTHROPLASTY NEC
8186	ELBOW ARTHROPLASTY NEC
8187	ELBOW ARTHROPLASTY NEC
8193	SUTUR CAPSUL/LIGAMEN ARM
8194	SUTURE CAPSUL/LIG ANK/FT
8195	SUTUR CAPSUL/LIG LEG NEC
8196	OTHER REPAIR OF JOINT
8197	REV JT REPL UPPER EXTREM
8198	OTHER JOINT DX PROCEDURE
8199	JOINT STRUCTURE OP NEC
8201	EXPLOR TEND SHEATH-HAND
8202	MYOTOMY OF HAND
8203	BURSOTOMY OF HAND
8209	INC SOFT TISSUE HAND NEC
8211	TENOTOMY OF HAND
8212	FASCIOTOMY OF HAND
8219	DIV SOFT TISSUE HAND NEC
8221	EXC LES TEND SHEATH HAND
8222	EXCISION HAND MUSCLE LES
8229	EXC LES SFT TISS HND NEC
8231	BURSECTOMY OF HAND
8232	EXCIS HAND TEND FOR GRFT
8233	HAND TENONECTOMY NEC
8234	EXC HND MUS/FAS FOR GRFT
8235	HAND FASCIECTOMY NEC
8236	OTHER MYECTOMY OF HAND
8239	HAND SOFT TISSUE EXC NEC
8241	SUTURE TENDN SHEATH HAND
8242	DELAY SUT FLEX TEND HAND
8243	DELAY SUT HAND TEND NEC
8244	SUTUR FLEX TEND HAND NEC
8245	SUTURE HAND TENDON NEC
8246	SUTURE HAND MUSCLE/FASC
8251	HAND TENDON ADVANCEMENT
8252	HAND TENDON RECESSION
8253	HAND TENDON REATTACHMENT
8254	HAND MUSCLE REATTACHMENT
8255	CHNG HND MUS/TEN LNG NEC
8256	TRANSPLANT HAND TEND NEC
8257	TRANSPOSIT HAND TEND NEC
8258	TRANSPLANT HAND MUSC NEC
8259	TRANSPOSIT HAND MUSC NEC
8261	POLLICIZATION OPERATION

8269	THUMB RECONSTRUCTION NEC
8271	HAND TEND PULLEY RECONST
8272	PLAST OP HND-MUS/FAS GRF
8279	PLAST OP HAND W GRFT NEC
8281	TRANSFER OF FINGER
8282	REPAIR OF CLEFT HAND
8283	REPAIR OF MACRODACTYLY
8284	REPAIR OF MALLET FINGER
8285	OTHER TENODESIS OF HAND
8286	OTHER TENOPLASTY OF HAND
8289	HAND PLASTIC OP NEC
8291	LYSIS OF HAND ADHESIONS
8299	HAND MUS/TEN/FAS/OPS NEC
8301	TENDON SHEATH EXPLORAT
8302	MYOTOMY
8303	BURSOTOMY
8309	SOFT TISSUE INCISION NEC
8311	ACHILLOTENOTOMY
8312	ADDUCTOR TENOTOMY OF HIP
8313	OTHER TENOTOMY
8314	FASCIOTOMY
8319	SOFT TISSUE DIVISION NEC
8321	SOFT TISSUE BIOPSY
8329	SOFT TISSUE DX PROC NEC
8331	EXCIS LES TENDON SHEATH
8332	EXCIS LESION OF MUSCLE
8339	EXC LES SOFT TISSUE NEC
8341	TENDON EXCISION FOR GRFT
8342	OTHER TENONECTOMY
8343	MUSC/FASC EXCIS FOR GRFT
8344	OTHER FASCIECTOMY
8345	OTHER MYECTOMY
8349	OTHER SOFT TISSUE EXCIS
835	BURSECTOMY
8361	TENDON SHEATH SUTURE
8362	DELAYED TENDON SUTURE
8363	ROTATOR CUFF REPAIR
8364	OTHER SUTURE OF TENDON
8365	OTHER MUSCLE/FASC SUTURE
8371	TENDON ADVANCEMENT
8372	TENDON RECESSION
8373	TENDON REATTACHMENT
8374	MUSCLE REATTACHMENT
8375	TENDON TRNSFR/TRANSPLANT
8376	OTHER TENDON TRANSPOSIT
8377	MUSCLE TRNSFR/TRANSPLANT
8379	OTHER MUSCLE TRANSPOSIT
8381	TENDON GRAFT
8382	MUSCLE OR FASCIA GRAFT
8383	TENDON PULLEY RECONSTRUC
8384	CLUBFOOT RELEASE NEC

8385	MUSC/TEND LNG CHANGE NEC
8386	QUADRICEPSPLASTY
8387	OTHER PLASTIC OPS MUSCLE
8388	OTHER PLASTIC OPS TENDON
8389	OTHER PLASTIC OPS FASCIA
8391	ADHESIOLYSIS MUS/TEN/FAS
8392	INSERT SKEL MUSC STIMULA
8393	REMOV SKEL MUSC STIMULAT
8399	MUS/TEN/FAS/BUR OP NEC
8400	UPPER LIMB AMPUTAT NOS
8401	FINGER AMPUTATION
8402	THUMB AMPUTATION
8403	AMPUTATION THROUGH HAND
8404	DISARTICULATION OF WRIST
8405	AMPUTATION THRU FOREARM
8406	DISARTICULATION OF ELBOW
8407	AMPUTATION THRU HUMERUS
8408	SHOULDER DISARTICULATION
8409	FOREQUARTER AMPUTATION
8410	LOWER LIMB AMPUTAT NOS
8411	TOE AMPUTATION
8412	AMPUTATION THROUGH FOOT
8413	DISARTICULATION OF ANKLE
8414	AMPUTAT THROUGH MALLEOLI
8415	BELOW KNEE AMPUTAT NEC
8416	DISARTICULATION OF KNEE
8417	ABOVE KNEE AMPUTATION
8418	DISARTICULATION OF HIP
8419	HINDQUARTER AMPUTATION
8421	THUMB REATTACHMENT
8422	FINGER REATTACHMENT
8423	FOREARM/WRIST/HAND REATT
8424	UPPER ARM REATTACHMENT
8425	TOE REATTACHMENT
8426	FOOT REATTACHMENT
8427	LOWER LEG/ANKLE REATTACH
8428	THIGH REATTACHMENT
8429	REATTACHMENT NEC
843	AMPUTATION STUMP REVIS
8440	IMPLNT/FIT PROS LIMB NOS
8444	IMPLANT ARM PROSTHESIS
8448	IMPLANT LEG PROSTHESIS
8458	IMP INTRSPINE DECOMP DEV OCT05-
8459	INSERT OTH SPIN DEVICE
8460	INSERT DISC PROS NOS (OCT 04)
8461	INS PART DISC PROS CERV (OCT 04)
8462	INS TOT DISC PROST CERV (OCT 04)
8463	INS SPIN DISC PROS THOR (OCT 04)
8464	INS PART DISC PROS LUMB (OCT 04)
8465	INS TOTL DISC PROS LUMB (OCT 04)
8466	REVISE DISC PROST CERV (OCT 04)
8467	REVISE DISC PROST THORA (OCT 04)
8468	REVISE DISC PROSTH LUMB (OCT 04)
8469	REVISE DISC PROSTH NOS (OCT 04)
8472	APP EXT FIX DEV-RING SYS OCT05-
8473	APP HYBRID EXT FIX DEV OCT05-
8491	AMPUTATION NOS
8492	SEPARAT EQUAL JOIN TWIN
8493	SEPARAT UNEQUL JOIN TWIN
8499	MUSCULOSKELETAL OP NEC
8512	OPEN BREAST BIOPSY
8520	BREAST TISSU DESTRUC NOS
8521	LOCAL EXCIS BREAST LES
8522	QUADRANT RESECT BREAST
8523	SUBTOTAL MASTECTOMY
8524	EXC ECTOPIC BREAST TISSU
8525	EXCISION OF NIPPLE
8531	UNILAT REDUCT MAMMOPLAST
8532	BILAT REDUCT MAMMOPLASTY
8533	UNIL SUBQ MAMMECT-IMPLNT
8534	UNILAT SUBQ MAMMECT NEC
8535	BIL SUBQ MAMMECT-IMPLANT
8536	BILAT SUBQ MAMMECTOM NEC
8541	UNILAT SIMPLE MASTECTOMY
8542	BILAT SIMPLE MASTECTOMY
8543	UNILAT EXTEN SIMP MASTEC
8544	BILAT EXTEND SIMP MASTEC
8545	UNILAT RADICAL MASTECTOM
8546	BILAT RADICAL MASTECTOMY
8547	UNIL EXT RAD MASTECTOMY
8548	BIL EXTEN RAD MASTECTOMY
8550	AUGMENT MAMMOPLASTY NOS
8553	UNILAT BREAST IMPLANT
8554	BILATERAL BREAST IMPLANT
856	MASTOPEXY
857	TOTAL BREAST RECONSTRUCT
8582	BREAST SPLIT-THICK GRAFT
8583	BREAST FULL-THICK GRAFT
8584	BREAST PEDICLE GRAFT
8585	BREAST MUSCLE FLAP GRAFT
8586	TRANSPOSITION OF NIPPLE
8587	NIPPLE REPAIR NEC
8589	MAMMOPLASTY NEC
8593	BREAST IMPLANT REVISION
8594	BREAST IMPLANT REMOVAL

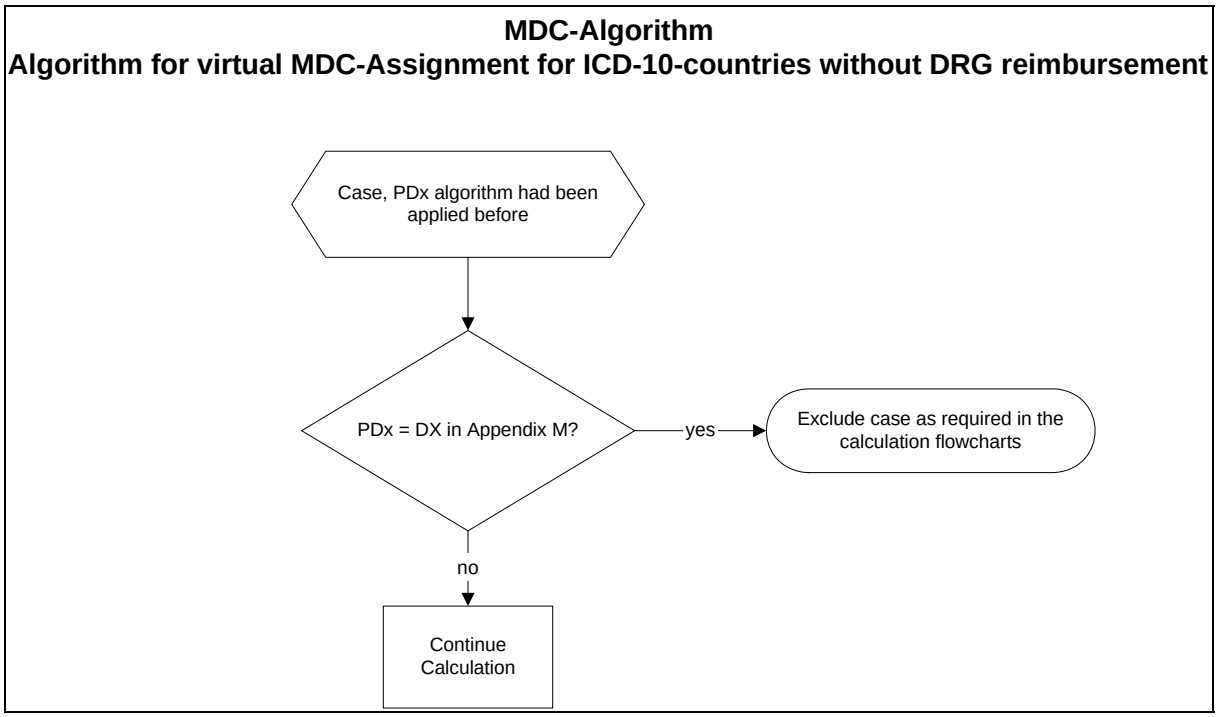
8595	INSER BREAST TISSU EXPAN
8596	REMOV BREAST TISSU EXPAN
8599	BREAST OPERATION NEC
8606	INSERT INFUSION PUMP
8621	EXCISION OF PILONID CYST
8622	EXC WOUND DEBRIDEMENT
8625	DERMABRASION
864	RADICAL EXCIS SKIN LES
8660	FREE SKIN GRAFT NOS
8661	FULL-THICK HAND SKIN GRF
8662	HAND SKIN GRAFT NEC
8663	FULL-THICK SKIN GRFT NEC
8665	HETEROGRAFT TO SKIN
8666	HOMOGRAFT TO SKIN
8667	DERMAL REGENER GRAFT
8669	FREE SKIN GRAFT NEC
8670	PEDICLE GRAFT/FLAP NOS
8671	CUT & PREP PEDICLE GRAFT
8672	PEDICLE GRAFT ADVANCEMEN
8673	ATTACH PEDICLE TO HAND
8674	ATTACH PEDICLE GRAFT NEC

8675	REVISION OF PEDICLE GRFT
8681	REPAIR FACIAL WEAKNESS
8682	FACIAL RHYTIDECTOMY
8683	SIZE REDUCT PLASTIC OP
8684	RELAXATION OF SCAR
8685	SYNDACTYLY CORRECTION
8686	ONYCHOPLASTY
8689	SKIN REPAIR & PLASTY NEC
8691	SKIN EXCISION FOR GRAFT
8693	INSERT TISSUE EXPANDER
8694	INS/REPL SINGLE PUL GEN (OCT 04)
8695	INS/REPL DUAL PULSE GEN (OCT 04)
8696	INSERT/REPL OTH NEUROST (OCT 04)
8697	INS/REP 1 PUL GEN OCT05-
8698	INS/REP 2 PUL GEN OCT05-
8753	INTRAOPER CHOLANGIOGRAM
9504	ANESTHETIZED EYE EXAM

APPENDIX 2. VIRTUAL MDC-ASSIGNMENT

Code lists in ICD-10-WHO for simulation of MDC assignment, see separate excel file.

- M-3 Code list for MDC-14 (Postoperative PE or DVT, Postoperative sepsis, Accidental puncture or laceration)



Code lists are adapted from:

- German Diagnosis Related Groups, Version 2006. Definitionshandbuch. Institut für das Entgeltsystem im Krankenhaus gGmbH (InEK), Siegburg, Germany, and
- Australian Refined Diagnosis Related Groups V 4.1. Definitions Manual, Vol. 1-3. Commonwealth of Australia 1998App.

M-3 Code list for MDC-14 (Postop PE or DVT, Postop sepsis, Accidental puncture or laceration)

ICD-10 WHO	Title	MDC
A34	Obstetrical tetanus	14
F53.0	Mild mental and behavioural disorders associated with the puerperium, not elsewhere classified	14
F53.1	Severe mental and behavioural disorders associated with the puerperium, not elsewhere classified	14
F53.8	Other mental and behavioural disorders associated with the puerperium, not elsewhere classified	14
F53.9	Puerperal mental disorder, unspecified	14
O00.0	Abdominal pregnancy	14
O00.1	Tubal pregnancy	14
O00.2	Ovarian pregnancy	14
O00.8	Other ectopic pregnancy	14
O00.9	Ectopic pregnancy, unspecified	14
O01.0	Classical hydatidiform mole	14
O01.1	Incomplete and partial hydatidiform mole	14
O01.9	Hydatidiform mole, unspecified	14
O02.0	Blighted ovum and nonhydatidiform mole	14
O02.1	Missed abortion	14
O02.8	Other specified abnormal products of conception	14
O02.9	Abnormal product of conception, unspecified	14
O03.0	Spontaneous abortion, incomplete, complicated by genital tract and pelvic infection	14
O03.1	Spontaneous abortion, incomplete, complicated by delayed or excessive haemorrhage	14
O03.2	Spontaneous abortion, incomplete, complicated by embolism	14
O03.3	Spontaenous abortion, incomplete, with other and unspecified complications	14
O03.4	Spontaneous abortion, incomplete, without complication	14
O03.5	Spontaneous abortion, complete or unspecified, complicated by genital tract and pelvic infection	14
O03.6	Spontaneous abortion, complete or unspecified, complicated by delayed or excessive haemorrhage	14
O03.7	Spontaneous abortion, complete or unspecified, complicated by embolism	14
O03.8	Spontaneous abortion, complete or unspecified, with other and unspecified complications	14
O03.9	Spontaneous abortion, complete or unspecified, without complication	14
O04.0	Medical abortion, incomplete, complicated by genital tract and pelvic infection	14
O04.1	Medical abortion, incomplete, complicated by delayed or excessive haemorrhage	14
O04.2	Medical abortion, incomplete, complicated by embolism	14
O04.3	Medical abortion, incomplete, with other and unspecified complications	14
O04.4	Medical abortion, incomplete, without complication	14
O04.5	Medical abortion, complete or unspecified, complicated by genital tract and pelvic infection	14
O04.6	Medical abortion, complete or unspecified, complicated by delayed or excessive haemorrhage	14
O04.7	Medical abortion, complete or unspecified, complicated by embolism	14
O04.8	Medical abortion, complete or unspecified, with other and unspecified complications	14
O04.9	Medical abortion, complete or unspecified, without complication	14
O05.0	Other abortion, incomplete, complicated by genital tract and pelvic infection	14
O05.1	Other abortion, incomplete, complicated by delayed or excessive haemorrhage	14

O05.2	Other abortion, incomplete, complicated by embolism	14
O05.3	Other abortion, incomplete, with other and unspecified complications	14
O05.4	Other abortion, incomplete, without complication	14
O05.5	Other abortion, complete or unspecified, complicated by genital tract and pelvic infection	14
O05.6	Other abortion, complete or unspecified, complicated by delayed or excessive haemorrhage	14
O05.7	Other abortion, complete or unspecified, complicated by embolism	14
O05.8	Other abortion, complete or unspecified, with other and unspecified complications	14
O05.9	Other abortion, complete or unspecified, without complication	14
O06.0	Unspecified abortion, incomplete, complicated by genital tract and pelvic infection	14
O06.1	Unspecified abortion, incomplete, complicated by delayed or excessive haemorrhage	14
O06.2	Unspecified abortion, incomplete, complicated by embolism	14
O06.3	Unspecified abortion, incomplete, with other and unspecified complications	14
O06.4	Unspecified abortion, incomplete, without complication	14
O06.5	Unspecified abortion, complete or unspecified, complicated by genital tract and pelvic infection	14
O06.6	Unspecified abortion, complete or unspecified, complicated by delayed or excessive haemorrhage	14
O06.7	Unspecified abortion, complete or unspecified, complicated by embolism	14
O06.8	Unspecified abortion, complete or unspecified, with other and unspecified complications	14
O06.9	Unspecified abortion, complete or unspecified, without complication	14
O07.0	Failed medical abortion, complicated by genital tract and pelvic infection	14
O07.1	Failed medical abortion, complicated by delayed or excessive haemorrhage	14
O07.2	Failed medical abortion, complicated by embolism	14
O07.3	Failed medical abortion, with other and unspecified complications	14
O07.4	Failed medical abortion, without complication	14
O07.5	Other and unspecified failed attempted abortion, complicated by genital tract and pelvic infection	14
O07.6	Other and unspecified failed attempted abortion, complicated by delayed or excessive haemorrhage	14
O07.7	Other and unspecified failed attempted abortion, complicated by embolism	14
O07.8	Other and unspecified failed attempted abortion, with other and unspecified complications	14
O07.9	Other and unspecified failed attempted abortion, without complication	14
O08.0	Genital tract and pelvic infection following abortion and ectopic and molar pregnancy	14
O08.1	Delayed or excessive haemorrhage following abortion and ectopic and molar pregnancy	14
O08.2	Embolism following abortion and ectopic and molar pregnancy	14
O08.3	Shock following abortion and ectopic and molar pregnancy	14
O08.4	Renal failure following abortion and ectopic and molar pregnancy	14
O08.5	Metabolic disorders following abortion and ectopic and molar pregnancy	14
O08.6	Damage to pelvic organs and tissues following abortion and ectopic and molar pregnancy	14
O08.7	Other venous complications following abortion and ectopic and molar pregnancy	14
O08.8	Other complications following abortion and ectopic and molar pregnancy	14
O08.9	Complication following abortion and ectopic and molar pregnancy, unspecified	14
O10.0	Pre-existing essential hypertension complicating pregnancy, childbirth and the puerperium	14

O10.1	Pre-existing hypertensive heart disease complicating pregnancy, childbirth and the puerperium	14
O10.2	Pre-existing hypertensive renal disease complicating pregnancy, childbirth and the puerperium	14
O10.3	Pre-existing hypertensive heart and renal disease complicating pregnancy, childbirth and the puerperium	14
O10.4	Pre-existing secondary hypertension complicating pregnancy, childbirth and the puerperium	14
O10.9	Unspecified pre-existing hypertension complicating pregnancy, childbirth and the puerperium	14
O11	Pre-existing hypertensive disorder with superimposed proteinuria	14
O12.0	Gestational oedema	14
O12.1	Gestational proteinuria	14
O12.2	Gestational oedema with proteinuria	14
O13	Gestational [pregnancy-induced] hypertension without significant proteinuria	14
O14.0	Moderate pre-eclampsia	14
O14.1	Severe pre-eclampsia	14
O14.9	Pre-eclampsia, unspecified	14
O15.0	Eclampsia in pregnancy	14
O15.1	Eclampsia in labour	14
O15.2	Eclampsia in the puerperium	14
O15.9	Eclampsia, unspecified as to time period	14
O16	Unspecified maternal hypertension	14
O20.0	Threatened abortion	14
O20.8	Other haemorrhage in early pregnancy	14
O20.9	Haemorrhage in early pregnancy, unspecified	14
O21.0	Mild hyperemesis gravidarum	14
O21.1	Hyperemesis gravidarum with metabolic disturbance	14
O21.2	Late vomiting of pregnancy	14
O21.8	Other vomiting complicating pregnancy	14
O21.9	Vomiting of pregnancy, unspecified	14
O22.0	Varicose veins of lower extremity in pregnancy	14
O22.1	Genital varices in pregnancy	14
O22.2	Superficial thrombophlebitis in pregnancy	14
O22.3	Deep phlebothrombosis in pregnancy	14
O22.4	Haemorrhoids in pregnancy	14
O22.5	Cerebral venous thrombosis in pregnancy	14
O22.8	Other venous complications in pregnancy	14
O22.9	Venous complication in pregnancy, unspecified	14
O23.0	Infections of kidney in pregnancy	14
O23.1	Infections of bladder in pregnancy	14
O23.2	Infections of urethra in pregnancy	14
O23.3	Infections of other parts of urinary tract in pregnancy	14
O23.4	Unspecified infection of urinary tract in pregnancy	14
O23.5	Infections of the genital tract in pregnancy	14
O23.9	Other and unspecified genitourinary tract infection in pregnancy	14
O24.0	Diabetes mellitus in pregnancy: Pre-existing diabetes mellitus, insulin-dependent	14
O24.1	Diabetes mellitus in pregnancy: Pre-existing diabetes mellitus, non-insulin-dependent	14
O24.2	Diabetes mellitus in pregnancy: Pre-existing malnutrition-related diabetes mellitus	14
O24.3	Diabetes mellitus in pregnancy: Pre-existing diabetes mellitus, unspecified	14

O24.4	Diabetes mellitus arising in pregnancy	14
O24.9	Diabetes mellitus in pregnancy, unspecified	14
O25	Malnutrition in pregnancy	14
O26.0	Excessive weight gain in pregnancy	14
O26.1	Low weight gain in pregnancy	14
O26.2	Pregnancy care of habitual aborter	14
O26.3	Retained intrauterine contraceptive device in pregnancy	14
O26.4	Herpes gestationis	14
O26.5	Maternal hypotension syndrome	14
O26.6	Liver disorders in pregnancy, childbirth and the puerperium	14
O26.7	Subluxation of symphysis (pubis) in pregnancy, childbirth and the puerperium	14
O26.8	Other specified pregnancy-related conditions	14
O26.9	Pregnancy-related condition, unspecified	14
O28.0	Abnormal haematological finding on antenatal screening of mother	14
O28.1	Abnormal biochemical finding on antenatal screening of mother	14
O28.2	Abnormal cytological finding on antenatal screening of mother	14
O28.3	Abnormal ultrasonic finding on antenatal screening of mother	14
O28.4	Abnormal radiological finding on antenatal screening of mother	14
O28.5	Abnormal chromosomal and genetic finding on antenatal screening of mother	14
O28.8	Other abnormal findings on antenatal screening of mother	14
O28.9	Abnormal finding on antenatal screening of mother, unspecified	14
O29.0	Pulmonary complications of anaesthesia during pregnancy	14
O29.1	Cardiac complications of anaesthesia during pregnancy	14
O29.2	Central nervous system complications of anaesthesia during pregnancy	14
O29.3	Toxic reaction to local anaesthesia during pregnancy	14
O29.4	Spinal and epidural anaesthesia-induced headache during pregnancy	14
O29.5	Other complications of spinal and epidural anaesthesia during pregnancy	14
O29.6	Failed or difficult intubation during pregnancy	14
O29.8	Other complications of anaesthesia during pregnancy	14
O29.9	Complication of anaesthesia during pregnancy, unspecified	14
O30.0	Twin pregnancy	14
O30.1	Triplet pregnancy	14
O30.2	Quadruplet pregnancy	14
O30.8	Other multiple gestation	14
O30.9	Multiple gestation, unspecified	14
O31.0	Papyraceous fetus	14
O31.1	Continuing pregnancy after abortion of one fetus or more	14
O31.2	Continuing pregnancy after intrauterine death of one fetus or more	14
O31.8	Other complications specific to multiple gestation	14
O32.0	Maternal care for unstable lie	14
O32.1	Maternal care for breech presentation	14
O32.2	Maternal care for transverse and oblique lie	14
O32.3	Maternal care for face, brow and chin presentation	14
O32.4	Maternal care for high head at term	14
O32.5	Maternal care for multiple gestation with malpresentation of one fetus or more	14
O32.6	Maternal care for compound presentation	14
O32.8	Maternal care for other malpresentation of fetus	14
O32.9	Maternal care for malpresentation of fetus, unspecified	14
O33.0	Maternal care for disproportion due to deformity of maternal pelvic bones	14
O33.1	Maternal care for disproportion due to generally contracted pelvis	14

O33.2	Maternal care for disproportion due to inlet contraction of pelvis	14
O33.3	Maternal care for disproportion due to outlet contraction of pelvis	14
O33.4	Maternal care for disproportion of mixed maternal and fetal origin	14
O33.5	Maternal care for disproportion due to unusually large fetus	14
O33.6	Maternal care for disproportion due to hydrocephalic fetus	14
O33.7	Maternal care for disproportion due to other fetal deformities	14
O33.8	Maternal care for disproportion of other origin	14
O33.9	Maternal care for disproportion, unspecified	14
O34.0	Maternal care for congenital malformation of uterus	14
O34.1	Maternal care for tumour of corpus uteri	14
O34.2	Maternal care due to uterine scar from previous surgery	14
O34.3	Maternal care for cervical incompetence	14
O34.4	Maternal care for other abnormalities of cervix	14
O34.5	Maternal care for other abnormalities of gravid uterus	14
O34.6	Maternal care for abnormality of vagina	14
O34.7	Maternal care for abnormality of vulva and perineum	14
O34.8	Maternal care for other abnormalities of pelvic organs	14
O34.9	Maternal care for abnormality of pelvic organ, unspecified	14
O35.0	Maternal care for (suspected) central nervous system malformation in fetus	14
O35.1	Maternal care for (suspected) chromosomal abnormality in fetus	14
O35.2	Maternal care for (suspected) hereditary disease in fetus	14
O35.3	Maternal care for (suspected) damage to fetus from viral disease in mother	14
O35.4	Maternal care for (suspected) damage to fetus from alcohol	14
O35.5	Maternal care for (suspected) damage to fetus by drugs	14
O35.6	Maternal care for (suspected) damage to fetus by radiation	14
O35.7	Maternal care for (suspected) damage to fetus by other medical procedures	14
O35.8	Maternal care for other (suspected) fetal abnormality and damage	14
O35.9	Maternal care for (suspected) fetal abnormality and damage, unspecified	14
O36.0	Maternal care for rhesus isoimmunization	14
O36.1	Maternal care for other isoimmunization	14
O36.2	Maternal care for hydrops fetalis	14
O36.3	Maternal care for signs of fetal hypoxia	14
O36.4	Maternal care for intrauterine death	14
O36.5	Maternal care for poor fetal growth	14
O36.6	Maternal care for excessive fetal growth	14
O36.7	Maternal care for viable fetus in abdominal pregnancy	14
O36.8	Maternal care for other specified fetal problems	14
O36.9	Maternal care for fetal problem, unspecified	14
O40	Polyhydramnios	14
O41.0	Oligohydramnios	14
O41.1	Infection of amniotic sac and membranes	14
O41.8	Other specified disorders of amniotic fluid and membranes	14
O41.9	Disorder of amniotic fluid and membranes, unspecified	14
O42.0	Premature rupture of membranes, onset of labour within 24 hours	14
O42.1	Premature rupture of membranes, onset of labour after 24 hours	14
O42.2	Premature rupture of membranes, labour delayed by therapy	14
O42.9	Premature rupture of membranes, unspecified	14
O43.0	Placental transfusion syndromes	14
O43.1	Malformation of placenta	14
O43.8	Other placental disorders	14

O43.9	Placental disorder, unspecified	14
O44.0	Placenta praevia specified as without haemorrhage	14
O44.1	Placenta praevia with haemorrhage	14
O45.0	Premature separation of placenta with coagulation defect	14
O45.8	Other premature separation of placenta	14
O45.9	Premature separation of placenta, unspecified	14
O46.0	Antepartum haemorrhage with coagulation defect	14
O46.8	Other antepartum haemorrhage	14
O46.9	Antepartum haemorrhage, unspecified	14
O47.0	False labour before 37 completed weeks of gestation	14
O47.1	False labour at or after 37 completed weeks of gestation	14
O47.9	False labour, unspecified	14
O48	Prolonged pregnancy	14
O60.0	Preterm labour without delivery	14
O60.1	Preterm labour with preterm delivery	14
O60.2	Preterm labour with term delivery	14
O61.0	Failed medical induction of labour	14
O61.1	Failed instrumental induction of labour	14
O61.8	Other failed induction of labour	14
O61.9	Failed induction of labour, unspecified	14
O62.0	Primary inadequate contractions	14
O62.1	Secondary uterine inertia	14
O62.2	Other uterine inertia	14
O62.3	Precipitate labour	14
O62.4	Hypertonic, incoordinate, and prolonged uterine contractions	14
O62.8	Other abnormalities of forces of labour	14
O62.9	Abnormality of forces of labour, unspecified	14
O63.0	Prolonged first stage (of labour)	14
O63.1	Prolonged second stage (of labour)	14
O63.2	Delayed delivery of second twin, triplet, etc.	14
O63.9	Long labour, unspecified	14
O64.0	Obstructed labour due to incomplete rotation of fetal head	14
O64.1	Obstructed labour due to breech presentation	14
O64.2	Obstructed labour due to face presentation	14
O64.3	Obstructed labour due to brow presentation	14
O64.4	Obstructed labour due to shoulder presentation	14
O64.5	Obstructed labour due to compound presentation	14
O64.8	Obstructed labour due to other malposition and malpresentation	14
O64.9	Obstructed labour due to malposition and malpresentation, unspecified	14
O65.0	Obstructed labour due to deformed pelvis	14
O65.1	Obstructed labour due to generally contracted pelvis	14
O65.2	Obstructed labour due to pelvic inlet contraction	14
O65.3	Obstructed labour due to pelvic outlet and mid-cavity contraction	14
O65.4	Obstructed labour due to fetopelvic disproportion, unspecified	14
O65.5	Obstructed labour due to abnormality of maternal pelvic organs	14
O65.8	Obstructed labour due to other maternal pelvic abnormalities	14
O65.9	Obstructed labour due to maternal pelvic abnormality, unspecified	14
O66.0	Obstructed labour due to shoulder dystocia	14
O66.1	Obstructed labour due to locked twins	14
O66.2	Obstructed labour due to unusually large fetus	14

O66.3	Obstructed labour due to other abnormalities of fetus	14
O66.4	Failed trial of labour, unspecified	14
O66.5	Failed application of vacuum extractor and forceps, unspecified	14
O66.8	Other specified obstructed labour	14
O66.9	Obstructed labour, unspecified	14
O67.0	Intrapartum haemorrhage with coagulation defect	14
O67.8	Other intrapartum haemorrhage	14
O67.9	Intrapartum haemorrhage, unspecified	14
O68.0	Labour and delivery complicated by fetal heart rate anomaly	14
O68.1	Labour and delivery complicated by meconium in amniotic fluid	14
O68.2	Labour and delivery complicated by fetal heart rate anomaly with meconium in amniotic fluid	14
O68.3	Labour and delivery complicated by biochemical evidence of fetal stress	14
O68.8	Labour and delivery complicated by other evidence of fetal stress	14
O68.9	Labour and delivery complicated by fetal stress, unspecified	14
O69.0	Labour and delivery complicated by prolapse of cord	14
O69.1	Labour and delivery complicated by cord around neck, with compression	14
O69.2	Labour and delivery complicated by other cord entanglement	14
O69.3	Labour and delivery complicated by short cord	14
O69.4	Labour and delivery complicated by vasa praevia	14
O69.5	Labour and delivery complicated by vascular lesion of cord	14
O69.8	Labour and delivery complicated by other cord complications	14
O69.9	Labour and delivery complicated by cord complication, unspecified	14
O70.0	First degree perineal laceration during delivery	14
O70.1	Second degree perineal laceration during delivery	14
O70.2	Third degree perineal laceration during delivery	14
O70.3	Fourth degree perineal laceration during delivery	14
O70.9	Perineal laceration during delivery, unspecified	14
O71.0	Rupture of uterus before onset of labour	14
O71.1	Rupture of uterus during labour	14
O71.2	Postpartum inversion of uterus	14
O71.3	Obstetric laceration of cervix	14
O71.4	Obstetric high vaginal laceration alone	14
O71.5	Other obstetric injury to pelvic organs	14
O71.6	Obstetric damage to pelvic joints and ligaments	14
O71.7	Obstetric haematoma of pelvis	14
O71.8	Other specified obstetric trauma	14
O71.9	Obstetric trauma, unspecified	14
O72.0	Third-stage haemorrhage	14
O72.1	Other immediate postpartum haemorrhage	14
O72.2	Delayed and secondary postpartum haemorrhage	14
O72.3	Postpartum coagulation defects	14
O73.0	Retained placenta without haemorrhage	14
O73.1	Retained portions of placenta and membranes, without haemorrhage	14
O74.0	Aspiration pneumonitis due to anaesthesia during labour and delivery	14
O74.1	Other pulmonary complications of anaesthesia during labour and delivery	14
O74.2	Cardiac complications of anaesthesia during labour and delivery	14
O74.3	Central nervous system complications of anaesthesia during labour and delivery	14
O74.4	Toxic reaction to local anaesthesia during labour and delivery	14
O74.5	Spinal and epidural anaesthesia-induced headache during labour and delivery	14

O74.6	Other complications of spinal and epidural anaesthesia during labour and delivery	14
O74.7	Failed or difficult intubation during labour and delivery	14
O74.8	Other complications of anaesthesia during labour and delivery	14
O74.9	Complication of anaesthesia during labour and delivery, unspecified	14
O75.0	Maternal distress during labour and delivery	14
O75.1	Shock during or following labour and delivery	14
O75.2	Pyrexia during labour, not elsewhere classified	14
O75.3	Other infection during labour	14
O75.4	Other complications of obstetric surgery and procedures	14
O75.5	Delayed delivery after artificial rupture of membranes	14
O75.6	Delayed delivery after spontaneous or unspecified rupture of membranes	14
O75.7	Vaginal delivery following previous caesarean section	14
O75.8	Other specified complications of labour and delivery	14
O75.9	Complication of labour and delivery, unspecified	14
O80.0	Spontaneous vertex delivery	14
O80.1	Spontaneous breech delivery	14
O80.8	Other single spontaneous delivery	14
O80.9	Single spontaneous delivery, unspecified	14
O81.0	Low forceps delivery	14
O81.1	Mid-cavity forceps delivery	14
O81.2	Mid-cavity forceps with rotation	14
O81.3	Other and unspecified forceps delivery	14
O81.4	Vacuum extractor delivery	14
O81.5	Delivery by combination of forceps and vacuum extractor	14
O82.0	Delivery by elective caesarean section	14
O82.1	Delivery by emergency caesarean section	14
O82.2	Delivery by caesarean hysterectomy	14
O82.8	Other single delivery by caesarean section	14
O82.9	Delivery by caesarean section, unspecified	14
O85	Puerperal sepsis	14
O86.0	Infection of obstetric surgical wound	14
O86.1	Other infection of genital tract following delivery	14
O86.2	Urinary tract infection following delivery	14
O86.3	Other genitourinary tract infections following delivery	14
O86.4	Pyrexia of unknown origin following delivery	14
O86.8	Other specified puerperal infections	14
O87.0	Superficial thrombophlebitis in the puerperium	14
O87.1	Deep phlebothrombosis in the puerperium	14
O87.2	Haemorrhoids in the puerperium	14
O87.3	Cerebral venous thrombosis in the puerperium	14
O87.8	Other venous complications in the puerperium	14
O87.9	Venous complication in the puerperium, unspecified	14
O88.0	Obstetric air embolism	14
O88.1	Amniotic fluid embolism	14
O88.2	Obstetric blood-clot embolism	14
O88.3	Obstetric pyaemic and septic embolism	14
O88.8	Other obstetric embolism	14
O89.0	Pulmonary complications of anaesthesia during the puerperium	14
O89.1	Cardiac complications of anaesthesia during the puerperium	14
O89.2	Central nervous system complications of anaesthesia during the puerperium	14

O89.3	Toxic reaction to local anaesthesia during the puerperium	14
O89.4	Spinal and epidural anaesthesia-induced headache during the puerperium	14
O89.5	Other complications of spinal and epidural anaesthesia during the puerperium	14
O89.6	Failed or difficult intubation during the puerperium	14
O89.8	Other complications of anaesthesia during the puerperium	14
O89.9	Complication of anaesthesia during the puerperium, unspecified	14
O90.0	Disruption of caesarean section wound	14
O90.1	Disruption of perineal obstetric wound	14
O90.2	Haematoma of obstetric wound	14
O90.3	Cardiomyopathy in the puerperium	14
O90.4	Postpartum acute renal failure	14
O90.5	Postpartum thyroiditis	14
O90.8	Other complications of the puerperium, not elsewhere classified	14
O90.9	Complication of the puerperium, unspecified	14
O91.0	Infection of nipple associated with childbirth	14
O91.1	Abscess of breast associated with childbirth	14
O91.2	Nonpurulent mastitis associated with childbirth	14
O92.0	Retracted nipple associated with childbirth	14
O92.1	Cracked nipple associated with childbirth	14
O92.2	Other and unspecified disorders of breast associated with childbirth	14
O92.3	Agalactia	14
O92.4	Hypogalactia	14
O92.5	Suppressed lactation	14
O92.6	Galactorrhoea	14
O92.7	Other and unspecified disorders of lactation	14
O94	Sequelae of complication of pregnancy, childbirth and the puerperium	14
O95	Obstetric death of unspecified cause	14
O96	Death from any obstetric cause occurring more than 42 days but less than one year after delivery	14
O97	Death from sequelae of direct obstetric causes	14
O98.0	Tuberculosis complicating pregnancy, childbirth and the puerperium	14
O98.1	Syphilis complicating pregnancy, childbirth and the puerperium	14
O98.2	Gonorrhoea complicating pregnancy, childbirth and the puerperium	14
O98.3	Other infections with a predominantly sexual mode of transmission complicating pregnancy, childbirth and the puerperium	14
O98.4	Viral hepatitis complicating pregnancy, childbirth and the puerperium	14
O98.5	Other viral diseases complicating pregnancy, childbirth and the puerperium	14
O98.6	Protozoal diseases complicating pregnancy, childbirth and the puerperium	14
O98.8	Other maternal infectious and parasitic diseases complicating pregnancy, childbirth and the puerperium	14
O98.9	Unspecified maternal infectious or parasitic disease complicating pregnancy, childbirth and the puerperium	14
O99.0	Anaemia complicating pregnancy, childbirth and the puerperium	14
O99.1	Other diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism complicating pregnancy, childbirth and the puerperium	14
O99.2	Endocrine, nutritional and metabolic diseases complicating pregnancy, childbirth and the puerperium	14
O99.3	Mental disorders and diseases of the nervous system complicating pregnancy, childbirth and the puerperium	14

O99.4	Diseases of the circulatory system complicating pregnancy, childbirth and the puerperium	14
O99.5	Diseases of the respiratory system complicating pregnancy, childbirth and the puerperium	14
O99.6	Diseases of the digestive system complicating pregnancy, childbirth and the puerperium	14
O99.7	Diseases of the skin and subcutaneous tissue complicating pregnancy, childbirth and the puerperium	14
O99.8	Other specified diseases and conditions complicating pregnancy, childbirth and the puerperium	14
Z32.0	Pregnancy, not (yet) confirmed	14
Z32.1	Pregnancy confirmed	14
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Z34.0	Supervision of normal first pregnancy	14
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Z34.9	Supervision of normal pregnancy, unspecified	14
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Z35.1	Supervision of pregnancy with history of abortive outcome	14
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Z36.0	Antenatal screening for chromosomal anomalies	14
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Z36.8	Other antenatal screening	14
Z36.9	Antenatal screening, unspecified	14
Z37.0	Single live birth	14
Z37.1	Single stillbirth	14
Z37.2	Twins, both liveborn	14
Z37.3	Twins, one liveborn and one stillborn	14
Z37.4	Twins, both stillborn	14
Z37.5	Other multiple births, all liveborn	14
Z37.6	Other multiple births, some liveborn	14
Z37.7	Other multiple births, all stillborn	14
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Z39.0	Care and examination immediately after delivery	14
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Z64.0	Problems related to unwanted pregnancy	14

SUMMARY OF REVISIONS

The following revisions to the former version (OECD Technical Paper 19) of this manual were introduced subsequent to an initial pilot calculation of the indicators by several participating countries:

Manual

The list of Patient Safety Indicators specified has been reduced to the 7 indicators endorsed by the OECD HCQI Expert Group in Paris on October 23 2008.

The title of PSI 7 ("Selected infections due to medical care") is changed to "Catheter-Related Bloodstream Infection". The title of PSI 15 ("Technical difficulty with procedure") is changed to "Accidential Puncture or Laceration"

For PSIs 5 and 15 a note was added that hospital discharges with a length of stay less than 24 hours (or 0 days if timestamps are not available) shall be excluded from the denominator population.

For PSI 12 a note was added that hospital discharges with a length of stay less than 2 days shall be excluded from the denominator population.

Appendices

- Code Lists:
  - Code lists are limited to those needed for calculation of the PSIs listed in this manual
  - In Appendix 1 a code list with operation room procedures in ICD-9 CM is added
- Questionnaire:
  - Use of electronic list functions to facilitate answers in the section referring to administrative databases.
  - After the experiences of the 2008 pilot calculation supplementary questions have been included in relation to:
    - denominator population related numbers of average length of stay for all indicators
    - denominator-related average number of secondary diagnoses for all indicators
    - optional: distribution of the coded numerator events in relation to their position in the database
  - All countries were asked to provide age (5 year age cohorts) and/or sex stratified data for each of the indicators.

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