



FINAL REPORT ON WORK PACKAGE II

# Comparing activities and performance of the hospital sector in Europe: how many surgical procedures performed as inpatient and day cases?

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## 1. INTRODUCTION

1. The hospital sector remains the largest single component of health spending in OECD and EU countries, accounting for around one third of total health expenditure. Hospitals provide a wide range of diagnostic and therapeutic services for people with diverse health problems, requiring more or less intensive and complex interventions. Advances in medical technologies over the past few decades have substantially extended the capacity to diagnose and treat diseases and injuries in hospitals. At the same time, progress in the development of less invasive surgical interventions and better anaesthetics have enabled shorter lengths of stay in hospitals and the expansion of same-day surgery in hospitals or in other health care facilities (e.g., specialised ambulatory surgery centres).

2. Given their importance in total health spending, policy makers have deployed a wide range of tools over the past two decades to control hospital spending and to promote efficiency gains. These tools have commonly included changing incentives through new pricing and reimbursement schemes and/or setting overall limitations on hospital budgets. The development of same-day surgery in hospitals or outside hospitals has also been generally encouraged as a way to reduce cost by avoiding unnecessary hospitalisations.

3. Reflecting both progress in medical technologies and cost-containment efforts, the number of hospital beds per capita has declined in most European countries over the past two decades, along with a reduction in average length of stay (OECD and EC, 2012). Although these changes have occurred in most countries, the scope and speed of these evolutions have not been uniform, and there remain wide variations across countries in the overall level of hospital resources and activities, the average length of stay in hospitals and the share of patients treated on a same-day basis (as day cases and outpatient cases).

4. The OECD and Eurostat have, for many years, collected data on surgical procedures as part of their broader data collection on health care activities. The results from this data collection generally show that the volume and type of surgical procedures performed in hospitals have evolved over time. While several types of surgical interventions are growing rapidly due to population ageing and the growing use of certain interventions to improve functioning among people at older ages (e.g., cataract surgery, hip and knee replacement), other interventions are declining as they are replaced by newer and better techniques (e.g., coronary bypass surgery coronary has been replaced by angioplasty as the preferred method for treating most patients suffering from heart attack, appendectomy rate has declined because of better diagnosis and a greater use of pharmacological treatment). Nonetheless, there remain large variations in surgical activity rates across European countries. Some of these variations reflect merely data comparability limitations, given the challenges and difficulties of collecting comparable data on surgical procedures. However, some of the variations appear to reflect real and important differences in surgical activity rates, although in several cases variations seem to be narrowing over time.

5. A large and growing body of research on medical practice variations has found that variations in surgical activity rates often do not seem to be related to differences in needs, but rather to differences in clinical practices and supply-side factors (e.g., number of hospital beds or operating theatres, number of surgeons). Such medical practice variations can be observed not only *across* countries, but also *within* countries (e.g., Dartmouth Atlas of Health Care, 2012; NHS, 2011). These variations may involve *over-use* (or inappropriate use) of certain surgical interventions in the sense that some interventions may be performed on patients for which scientific evidence suggests that the risks outweigh the expected benefits or *under-use* of certain interventions that may be medically recommended but not provided for patients with certain conditions. Such medical practice variations raise important issues about efficiency and equity in health service delivery.

6. This project has two complementary objectives. The first objective is methodological. This project aims to improve the comparability of data on surgical procedures available across European and non-European OECD countries by testing some methodological improvements to promote greater consistency in data reporting. The results from this methodological work is designed to serve in defining the specifications for the data collection on surgical procedures in the planned extension of the OECD, Eurostat and WHO-Europe joint questionnaire on non-monetary health care statistics in 2013. This first objective of improving data comparability is also a critical step to enable any meaningful analysis of variations in surgical activity rates across countries. The second objective is more analytical. This project analyses the results of the data collection on surgical procedure rates in terms of variations across countries and trends over time. It examines whether there appears to be any convergence over time in clinical practice patterns across countries, including in the use of same-day surgeries for cataracts and other interventions. The analysis duly takes into account any persisting data comparability limitations. Where possible, it looks at possible factors that might explain variations in surgical activity rates across countries, such as differences in population structure, the incidence/prevalence of different conditions, and the impact of different payment and reimbursement methods. The first results from this analysis were presented in *Health at a Glance: Europe 2012* (released in November 2012)

7. This report is structured around three sections. The next section (section 2) describes briefly the main challenges in collecting comparable data on surgical procedures at the international level, and the approach used under this project to address some important comparability limitations. The following section (section 3) analyses the results from the implementation of the new data collection guidelines and specifications that were tested under this project. It reviews first the extent to which the new guidelines have been implemented in different European and non-European OECD countries, presents the data that have been collected for the complete shortlist of procedures, and then analyses in further detail the results for several surgical procedures, focussing on European countries only. The final section (section 4) summarises the main conclusions and recommendations arising from the project, first on the methodological work about how to improve the comparability of data on surgical procedures, and second on the analytical work about the degree of variations in surgical activity rates across countries and further data collection and research work that may be required to explain some of the unexplained variations.

8. Annex 1 provides the name of National Data Correspondents and Eurostat and WHO-Europe colleagues who were involved in the discussion around the guidelines for this project and in supplying the data and metadata. Annex 2 summarises the results of the comparison of the previous OECD, Eurostat, WHO-Europe data collections on the aggregate number of surgical procedures, and explains the reasons that have motivated the decision to at least temporarily discontinue this data collection. Annex 3 provides the shortlist of surgical procedures that have been used for the OECD data collection in 2011 and 2012, whose results are reviewed in this report. Annex 4 compares the results from the 2012 OECD and Eurostat data collection on the set of surgical procedures that were overlapping the two data collections, along with the results of the follow-up work carried out with National Focal Points for the new joint data collection on this topic in late 2012 to resolve any inconsistencies in the data submitted to the two organisations. The resolution of such data inconsistency is an important step towards in achieving greater consistency in the data available at the international level and a necessary step also towards the implementation of a joint data collection on these variables starting in 2013.

## 2. BACKGROUND AND APPROACH TO THE PROJECT

### 2.1 Background

9. The OECD, Eurostat and WHO-Europe have been collecting data on surgical procedures for many years as part of their broader data collection on health care statistics, and the three organisations are planning to integrate the data collection on this topic into the OECD/Eurostat/WHO-Europe joint questionnaire in 2013. Collecting data on surgical procedures at the international level is challenging and difficult for three main reasons:

1. *Lack of international classification of procedures:* The first reason is that there is no international classification of procedures available and implemented across countries that would facilitate consistent data reporting based on the same chapters and coding system. While the International Classification of Diseases (ICD) can be used for international data collection on mortality or hospital morbidity, there is no equivalent in terms of an international classification of procedures.<sup>1</sup> Countries used their own national classification system to record procedures performed in their hospital systems or other settings. In the absence of an international classification of procedures, the OECD and Eurostat have used the ICD-9-CM classification as a reference for countries to map their national codes with this classification system. ICD-9-CM is not however an international classification system, but rather a system that has been developed and used in the United States.<sup>2</sup> It has also been adopted in some European countries, although countries such as Ireland have now changed their classification system from the ICD-9-CM American system to the ICD-10-AM Australian system. The lack of an international classification for procedures has two main implications for data collection: 1) there is no common definition of the overall scope (or universe) of procedures (some national classification systems may focus mainly or exclusively on surgical procedures, while others include diagnostic procedures, rehabilitative procedures and other procedures); and 2) there are differences in the structure, grouping and number of codes available for recording different procedures (the “granularity” of national classification systems), which can have a major impact on data reporting.
2. *Differences in methods to count procedures:* The second reason which makes it difficult to collect comparable data on surgical procedures across countries is that there are different methods to count and report the same procedures. At least three different methods can be used to count surgical procedures: 1) a count of all procedures that are registered on the hospital discharge record; 2) a count of only the main procedure (excluding any secondary procedures) and 3) a count of the number of patients who have received a given procedure during their hospital stay. A count of all procedures (without any restriction) may result in a much higher number of procedures reported than a count based only on the main procedure or on the number of patients treated, depending on the “granularity” of the national classification system used (e.g., a coronary angioplasty with the insertion of a stent is counted as two separate procedures in ICD-9-CM, while it is counted as only one procedure in several

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<sup>1</sup> Some work has been undertaken to develop an international classification of procedures under the auspices of the WHO Family of International Classifications (WHO-FIC), but it is not clear when this work will be completed.

<sup>2</sup> The addition of the acronym “CM” means Clinical Modification. The United States is planning to replace its ICD-9-CM classification system by an ICD-10-CM system as of October 2014.

other national classification system<sup>3</sup>). A count based on the main procedure will provide in most cases a number equal or close to a count based on the number of patients receiving the operation, except if the operation is not recorded as the main procedure).

3. *Differences in data coverage for same-day surgeries:* The third reason why it is difficult to collect comparable data on surgical procedures is that there are differences in data coverage across countries, particularly for same-day surgeries (which do not require any overnight stay in hospital). The data collection of the OECD and Eurostat have traditionally included a breakdown between inpatient cases and day cases, but the definition and coverage of day cases in national data submissions often lacked clarity and consistency. In many countries, the coverage was limited to the number of patients formally admitted to hospitals and discharged the same day (i.e., the formal definition of “day cases” in the System of Health Accounts manual), while in other countries, the data also included patients treated as “out-patient cases” (non-admitted) in hospitals or even outside hospitals (in clinics or specialised ambulatory surgery centres).

10. Up until 2010, the OECD and Eurostat annual data collection on surgical procedures included both a collection of aggregated data on the total number of procedures and more disaggregated data for a selected shortlist of procedures, while the WHO-Europe data collection focussed mainly on the aggregate number<sup>4</sup>:

- The aggregated data collection aimed to collect the sum of all types of surgical procedures performed as inpatient cases and day cases.
- The disaggregated data collection included a shortlist of surgical procedures selected mainly based on the criteria of high-volume and/or high-cost, including a breakdown between in-patient and day cases where relevant/applicable.<sup>5</sup>

11. A comparison of the OECD, Eurostat and WHO-Europe data collection on the aggregate number of surgical procedures showed wide inconsistencies in national data submissions to the three international organisations (Annex 2). Some of these discrepancies in national submissions can be explained by differences in the proposed scope and definition of the data collection. The definition for the Eurostat data collection was much broader than the OECD and WHO-Europe data collection in that it included not only surgical procedures, but also diagnostic procedures, rehabilitative procedures and other medical interventions. For most countries, this resulted in a much greater number of procedures submitted to Eurostat than to the OECD or WHO-Europe, although there were exceptions. Following a review of the

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<sup>3</sup> The change in the classification system in Ireland in 2005 (from the ICD-9-CM American system to ICD-10-AM Australian system) provides a striking example of the impact that a given classification system might have on data reporting, if all procedures are counted. In ICD-9-CM, a coronary angioplasty involving the insertion of a stent (which happens in most cases to keep the artery open) is coded as two separate procedures (codes 36.01 and 36.06), while in ICD-10-AM, it is coded as a single procedure only. This explains why reported angioplasty rates fell by nearly half in Ireland following the implementation of the ICD-10-AM classification system in 2005. By implication, this means that countries that are still using the ICD-9-CM classification are reporting rates of angioplasties almost two times greater than those using the ICD-10-AM classification, even without any real difference in activity rates, if all procedures are reported without any caveat/limitation. The same is also true for cataract surgery.

<sup>4</sup> The WHO-Europe data collection also included two specific procedures related to reproductive health (abortions and caesarean sections).

<sup>5</sup> Annex 3 provides a summary of the shortlist used in the 2011 and 2012 OECD data collection. The shortlist from Eurostat includes some additional procedures that were recommended in the HDP2 project.

results from this data collection, the three international organisations agreed to discontinue their data collection on the aggregate number of surgical procedures until further progress has been achieved in the development and implementation of an international classification of procedures to promote greater consistency in data reporting across countries. This decision was consistent also with the conclusion from the Hospital Data Project 2 (HDP2 project) which did not recommend the collection of an exhaustive list for the same reason (EC, 2008a).

## 2.2 Project approach and method

12. The project involved seven steps:

- Develop guidelines to address important comparability limitations in the data on surgical procedures, taking into account the work under previous projects such as the HDP2 project
- Discuss and agree on these revised guidelines with National Data Correspondents
- Collect data and metadata based as much as possible on these new guidelines
- Evaluate the results from the new data collection based on the new guidelines, and review these results with National Data Correspondents
- Analyse the results from the revised data collection for the shortlist of procedures (including the share of “day cases” for surgical interventions that can be carried out without any hospitalisation)
- Discuss the implications of the results from the new data collection guidelines with Eurostat and WHO-Europe in the context of the planned extension of the joint questionnaire on non-monetary health care statistics in 2013
- Compare the results of the 2012 OECD and Eurostat data collections for selected procedures to assess the consistency of national data submissions to the two international organisations and resolve any data inconsistencies in collaboration with National Data Correspondents.

13. The first step in the project was to develop appropriate guidelines to address two important limitations in the comparability of data on surgical procedures, namely: 1) differences in counting methods; and 2) differences in data coverage (particularly for same-day surgeries). The preparation of these guidelines took into account the OECD previous experience with data collections on surgical procedures (including a review of the previous approach of collecting data based on a count of all procedures without any restriction) as well as the results from previous relevant projects such as HDP2 (EC, 2008a). The HDP2 project recommended that international data collection at the European and broader level should be based on a count of all procedures, but with the important caveat that only one procedure code per procedure category should be counted to avoid any double-counting arising from the different “granularity” of national classification systems. It did not recommend a count based on the main procedure for two reasons: first, because the practice of recording a “main” procedure only exists in about half of European countries; and second, because this may result in an under-reporting of certain procedures if these are not recorded as the “main” procedure.<sup>6</sup>

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<sup>6</sup> The HDP2 project compared the results of a data collection based on the proposed counting method of all procedures but with no more than one procedure code per procedure category with a count of the main procedure, although the data were only available for a few countries. The comparison showed that for most procedures, there was little difference between the two methods, which implies that the procedures on the HDP2 shortlist usually are recorded as the main procedure. But there were some exceptions, notably



14. Regarding the data coverage for same-day surgeries, the HDP2 project recognised that there were ambiguities and inconsistencies in the definition and coverage of “day cases” and “outpatient cases” in national data submissions, and also collected some metadata information on the extent to which countries were able to report such day cases and outpatient cases. But in the end, it recommended that regular data collection should be limited to day care in hospitals, because the project focussed on hospital activities and because of the limitations in many countries to report outpatient cases in hospitals or outside hospitals.

15. Taking into account this previous work, the OECD Secretariat proposed the following two changes in the guidelines and specifications for its data collection on surgical procedures to improve data comparability:

- 1) Counting method: Following the HDP2 project, the proposed method for counting procedures was based on a count of all procedures, but with no more than one procedure code per procedure category to avoid double-counting depending on the classification system used in different countries. The guidelines also offered another option to countries to report the number of patients receiving one of the selected surgical procedures during their hospital stay, on the basis that this method should provide equal (or almost equal) results as the first proposed method;
- 2) Data coverage for same-day surgery: The proposal was made to pilot test a further breakdown in the data collection between “day cases” (admitted patients) and “outpatient cases” (non-admitted patients) in hospitals and outside hospitals to clarify the scope of the current data submissions and assess the feasibility of expanding the data collection to outpatient cases. This finer breakdown was proposed only for a few interventions where the share of same-day surgery is high (e.g., cataract surgery and tonsillectomy).

16. These two proposals for revising the guidelines for the data collection were described in a paper prepared for the OECD Health Data National Correspondents held on 4-5 November 2010.<sup>7</sup>

17. The second step in the project was to discuss the acceptability and feasibility of implementing these proposed amendments to the data collection with OECD Health Data National Correspondents. At the meeting of National Data Correspondents in November 2010, there was general support to the proposed change in the guidelines regarding the counting method and the proposed attempt to extend the data collection on same-day surgery to cover outpatient cases where possible. Some countries noted however that they would not be able to provide data on surgeries performed outside hospitals. Other National Data Correspondents mentioned that within their country, hospitals may be counting and reporting procedures differently, so it is difficult to produce consistent data even at a national level. Still, there was general agreement that efforts should be made to follow as much as possible the new proposed guidelines to improve the comparability of data reported at the international level.

18. The third step in the project was to collect the data and metadata based on the new guidelines and data collection specifications. The first round of data and metadata collection was carried out between December 2010 and March 2011, as part of the broader 2011 OECD data collection on health care activities statistics. Following national data submissions, there was an intensive period of data review validation to resolve as much as possible any data anomalies or gaps in the metadata supplied by countries.

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procedures that are often performed together with other procedures; in these cases, a counting of the main procedure only under-estimated the number of procedures which are not recorded as the main procedure.

<sup>7</sup> The paper was entitled “Developmental work to improve data on surgical procedures”, and is available on the OECD OLIS system under the code DELSA/HEA/HD(2010)5.

Despite the best efforts to address these gaps, some information gaps remained in the metadata provided by countries (e.g., on the specific counting method or the data coverage).

19. The fourth step was to evaluate the results from the revised guidelines and data collection specifications, and to share these results with National Data Correspondents, and to promote further progress in the implementation of these new guidelines and specifications. The OECD Secretariat prepared a paper in September 2011 providing a progress report on the two methodological changes that had been undertaken under this project to improve the comparability of data on surgical procedures for discussion at the OECD Health Data Correspondents meeting held on 3-4 October 2011.<sup>8</sup> The progress report noted that several countries had revised their counting method to make it consistent with the proposed method, resulting in improvements in data comparability. However, it also noted that some countries were still reporting their data based on the “old” method of reporting all procedures without any restriction, and some countries did not provide sufficient information to determine precisely their counting method. All countries were encouraged to adopt the proposed counting method for the next round of the data collection and to provide sufficient metadata information to document the method used.

20. Regarding the pilot data collection introducing a finer breakdown of same-day surgeries, the progress report indicated that a dozen of countries provided useful information on the coverage of “day cases” in their national data submissions and the extent to which it was possible to supply data on “outpatient cases” in hospitals and outside hospitals. The results from this pilot data collection confirmed that there are substantial variations across countries in the recording of same-day surgeries for cataracts and other operations, and the extent to which these are recorded as “day cases” or “outpatient cases”. There are also variations in the ability of countries to report activities outside hospitals. While the dominant approach in some countries appears to be to formally admit patients as “day cases” in hospitals for cataract operations, in other countries, many (if not most) patients are treated as “outpatient cases” in hospitals or outside hospitals.

21. National Data Correspondents agreed to pursue these two methodological changes in the 2012 data collection, to promote further harmonisation in the counting method and extend further the number of countries participating in the extended data collection on same-day surgery where possible.

22. The fifth step in the process involved analysing the results from the 2011 and 2012 OECD data collections for the shortlist of surgical procedures to describe and analyse variations in surgical activity rates across countries and over time, including the expansion of same-day surgery for interventions such as cataract operations and tonsillectomy. The first results from this analysis for some procedures were presented in the *Health at a Glance: Europe 2012* (OECD and EC, 2012). The next section of this report provides further analysis of the data collected for the entire shortlist of procedures.

23. The sixth step in the project was to discuss the results from these methodological improvements with Eurostat and WHO-Europe, as part of the broader discussion to extend the OECD/Eurostat/WHO-Europe joint questionnaire on non-monetary health care statistics to include surgical procedures in 2013. The OECD organised several trilateral meetings with Eurostat and WHO-Europe in 2011 and 2012 to discuss the results from this methodological work and the implications for the data collection specifications for the joint questionnaire. The three international organisations agreed to incorporate the two methodological improvements introduced and tested under this project. It was agreed that the extension of the data collection on same-day surgery to cover outpatient cases would only relate to two procedures (cataract surgery and tonsillectomy). There was also agreement on the harmonisation of other aspects of the data collection on surgical procedures, including the shortlist of procedures that would be collected

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<sup>8</sup> The paper, entitled “Developmental work to improve the comparability of data on surgical procedures: Progress report”, is available on the OECD OLIS system under the code DELSA/HEA/HD(2011)2.

jointly by the three organisations and the harmonisation of the specific ICD-9-CM codes that would be provided as a reference to assist countries in this data collection. Progress reports of the proposed approach for the extension of the joint questionnaire were provided during the meeting of OECD Health Data National Correspondents in 2011 and 2012.<sup>9</sup> National Data Correspondents generally approved the proposed approach and specifications for the joint data collection on surgical procedures.

24. The seventh step in the project was to compare the results from the 2012 OECD and Eurostat data collection on the current shortlist of procedures overlapping the two data collections, in order to promote greater consistency in data available at the international level and to pave the way for the extension of the joint data collection on surgical procedures in 2013. The OECD and Eurostat sent comparison files to the designated National Focal Points for this new part of the joint questionnaire in November 2012, and asked them to address any data inconsistencies in light of the definition and data collection specifications that have been agreed upon for the joint data collection. Most countries submitted their response in December 2012. Annex 4 summarises the results of this recent effort to achieve greater consistency in the data reported to the OECD and Eurostat.

### **3. PROJECT RESULTS**

25. This section presents the results from the 2011 and 2012 OECD data collections on surgical procedures following the introduction of the methodological changes to improve data comparability. It begins by reviewing the extent to which countries changed their data submissions according to the new proposed guidelines, and the impact of the implementation of these changes on the data reported. It then goes on to analyse the results from the data collection by examining variations in surgical activity rates across countries and over time, noting where required any persisting data comparability limitations.

#### **3.1 Assessment of changes in national data submissions**

26. The following two subsections reviews the extent to which the new proposed guidelines related to the counting method of procedures and clarifying and extending the data coverage on same-day surgery for certain interventions have been implemented by countries in national data submissions. This review is based on an assessment of the data and metadata that was gathered as part of the 2011 and 2012 OECD data collections.

##### **3.1.1 Counting of procedures**

27. The first methodological change that was introduced in the 2011 data collection and pursued in 2012 was to modify the proposed counting method from a count of all procedures without any restriction, to a count of only one procedure per procedure category to avoid any double-counting depending on the national classification used. The guidelines also allowed countries to report data based on a count of the number of patients receiving one of the selected procedures.

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<sup>9</sup> These progress reports were presented in the 2011 paper entitled “Joint Questionnaire on non-monetary health care statistics: Summary record from recent meeting of OECD, Eurostat and WHO (European Office)” (available on the OECD OLIS system under the code DELSA/HEA/HD(2011)3) and the 2012 paper “Extension of joint questionnaire on non-monetary health care statistics” (available under the code DELSA/HEA/HD(2012)3).

28. Table 1 shows that a majority of OECD countries in Europe and outside Europe have revised their counting method based on one of these two methods for counting procedures. Out of the 32 OECD countries that supplied data, 17 countries provided data consistent with one of the two proposed methods. Among the other countries, 6 continued to provide data based on a count of the main procedure only. This may possibly result in a slight under-estimation of the number of procedures if (and only if) these procedures have not been recorded as the main procedure (based on the earlier work from the HDP2 project, this tends to be rare and the procedures on the shortlist are usually recorded as the main procedure). The main comparability limitations are with the 2 countries that are continuing to report their data based on a count of all procedures without any restriction (Germany and Slovenia). This is also the case in Belgium for certain procedures such as cataract surgery, coronary angioplasty and coronary bypass. These three procedures are likely to be most affected by this difference in counting method, resulting in a large over-estimation in the number of procedures supplied by these three countries compared with other countries. For the remaining 7 countries, not enough metadata information was provided to determine precisely whether the counting method was consistent or not with the proposed counting methods.

**Table 1. Methods for counting procedures in the 2012 OECD data collection**

	Counting of procedures	Impact on data comparability
Australia	<b>Only one code</b> is reported per procedure category. Data for 2000-01 to 2009-10 were calculated/revised based on a new methodology, using ' <b>count distinct</b> ' to ensure that counts for multiple procedures on the same patient in that episode were not duplicated.	
Austria	<b>Only one code</b> is reported per procedure category. For example, if a single PTCA is performed AND a coronary stenting is recorded, this is counted only once in the PTCA data. However, if the same procedure is performed more than one time during the same hospital stay, this is counted as more than one procedures (for example, if a PTCA is performed two times during a hospital stay, it is counted two times).	
Belgium	Count is based on number of <b>hospital stays (patients)</b> where at least one of the procedures with the corresponding code has been carried out. If the same procedure has been performed several times during the same stay, it has been entered only once. In certain cases, for the same stay, several types of procedures have been registered, and the same type of procedure can be recorded several times (e.g. 36.06 and 36.01, 36.06, 36.03).	Over-estimation for certain procedures
Canada	Starting in 1999/2000, count for each procedure category is based on the number of <b>abstracts/patients</b> that have at least one procedure of the selected category listed on the abstract.	
Chile	<b>Only one code</b> is reported per procedure category for each patient (e.g. a cataract surgery performed on the two eyes is counted as one procedure).	
Czech Rep.	<b>Cataract surgery: Only one code</b> per procedure is counted (removal and insertion of lens is counted as one procedure only). <b>Percutaneous coronary interventions: Only one code</b> per procedure is counted (an angioplasty with the placement of a stent is counted as one procedure). <b>CABG: Only one procedure</b> is counted (e.g., in the case of combined procedures such as Aortocoronary bypasses + valve), <b>Hip/knee replacement:</b> Number of <b>hospitalisations</b> during which a total or partial hip/knee replacement or revision of the hip/knee replacement was performed.	
Denmark	<b>Only one code</b> is reported per procedure category for each patient.	
Estonia	One patient by <b>main procedure</b> per discharge is counted.	Possible slight under-estimation
Finland	<b>Only one code</b> per procedure category is counted for each patient.	
France	Count based on the number of <b>short-term stays</b> involving such procedures.	
Germany	<b>All operations and procedures</b> are counted in the DRG statistics (including several operations and procedures per patient).	Large over-estimation
Greece	?	
Hungary	<b>Only one code</b> is reported per procedure category for each patient. <b>Cataract surgery:</b> a cataract surgery on both eyes is considered as a <b>single surgical procedure</b> . <b>CABG and PCI:</b> A PTCA or bypass intervention performed on several coronary branches is considered as a <b>single surgical procedure</b> .	

	Counting of procedures	Impact on data comparability
Iceland	Up to 2008 data have been limited to <b>main surgery</b> and not all surgery. From 2009 onwards, the following principles are used to count surgeries: (1) All procedures per stay are counted, not only main. (2) If there is more than one procedure code for the same stay (patient) from the same group of procedures, <b>only one code</b> is counted. If those codes come from separate procedure groups then both are counted (one for each group). (3) If a patient has more than one stay within the year and has the same codes on both occasions then both are counted.	
Ireland	<b>Only one code</b> per procedure category for each patient is reported.	
Israel	Count based on the number of <b>discharges</b> from hospitals who had at least one procedure.	
Italy	Only <b>main surgical procedures</b> are reported (only first code).	Possible slight under-estimation
Japan	Data not available.	
Korea	<b>Only one code</b> per procedure category for each patient is counted. (Example: In the case of cataract surgery, the removal and insertion of a lens is counted as one procedure).	
Luxembourg	Only <b>main procedures</b> are reported.	Possible slight under-estimation
Mexico	?	
Netherlands	Only <b>main surgical procedures</b> are reported. During one admission of a patient, more than one surgical procedure may have been performed. The most important of those procedures performed is recorded during the hospital admission (i.e. principal procedure).	Possible slight under-estimation
New Zealand	Count based on the number of <b>discharges</b> for a performed procedure.	
Norway	?	
Poland	<u>Percutaneous coronary interventions</u> : for a PCI including a coronary stenting, <b>only one procedure</b> is reported. <u>Cataract surgeries</u> : the removal and insertion of a lens are counted as <b>one procedure only</b> .	
Portugal	?	
Slovak Rep.	?	
Slovenia	<b>All operations and procedures</b> are counted. Data may contain <b>up to 20 procedures</b> . If more than one procedure per patient is recorded, then they are all counted.	Large over-estimation
Spain	Number of <b>patients</b> from Uniform Hospital Minimum Data Set (UHMDS). ( <b>Only one code</b> is reported per procedure category for each patient.)	
Sweden	?	
Switzerland	Only <b>main procedures</b> are reported.	Possible slight under-estimation
Turkey	Data not available (except caesarean sections).	
United Kingdom	England and Wales count only one procedure per episode; this would be the primary/principal or <b>main procedure</b> . In the case of PTCAs, the angioplasty (if the main procedure) would be counted and the stent not counted.	Possible slight under-estimation
United States	The US provides the number of " <b>any-listed</b> " <b>procedures counting method</b> . "Any-listed" procedures are defined as the procedures that occur at least once in any of the four procedure code categories recorded on the discharge record. An "any-listed" procedure is only counted once regardless of the number of times the procedure is mentioned on the discharge record. Please be advised that the "any-listed" procedure definition contrasts with the traditional United States definition used by NHDS of "all-listed" procedures. "All-listed" procedures are defined as the total count of occurrences of the procedure code on each discharge record. <u>PCI</u> : To reflect the proper estimate of Percutaneous coronary interventions (PTCA) and stenting, US analysis used the ICD-9-CM 36.0 and 36.06 code instead of solely use 36.0. <u>CABG</u> : The estimates present the number of <b>patients</b> who receive such procedures, not the number of coronary procedures. (Coronary bypass patients can receive more than one bypass procedure in a single surgery.)	

Source: OECD Health Data 2012

29. Table 2 assesses the impact of the changes in the counting method in a subgroup of 8 countries that changed their method to make it more consistent with the proposed new methods, for those procedures where one might expect the biggest impact depending on the national classification used (cataract surgery, coronary angioplasty and coronary bypass). Most of these countries followed the proposed new method of counting no more than one procedure per procedure category, and one (Spain) followed the method of

counting the number of patients. The two others went from a count of all procedures to a count of the main procedure.

30. In three countries (Australia, Canada and Israel), the difference between the data submissions based on the “old” method (a count of all procedures) and the new method is fairly small (no more than 10% for any procedure<sup>10</sup>). This suggests that any previous “double-counting” of procedures in each procedure category was fairly limited, so the change in counting method had only a limited impact on the numbers reported. In Iceland, the implementation of the new counting method resulted in a significant decrease in the number of angioplasty (as might be expected if more than one procedure was previously reported for these interventions), while it didn’t have any significant impact on the number of coronary bypass. In Ireland and Spain, the change in the counting method led to a sharp reduction in the number of procedures reported, with the number of cataract surgery, angioplasty and coronary bypass being cut down by about half. For angioplasty, this can be explained by the fact that stenting (which occurs in a majority of coronary angioplasties) is no longer reported as additional procedures. Similarly, for cataract surgery, this likely reflects that there is no more double-counting of the removal of the lens and the insertion of the artificial lens. In Estonia and Italy as well, the change from a count of all procedures to only the main procedure has led to a sharp reduction in the number of cataract surgery, angioplasty and coronary bypass, as there is no more double-counting of procedures in the same procedure category.

**Table 2. Impact of revisions in counting method (selected surgical procedures)**

Country	Change in counting method	% change between the previous and the new counting method					
		Year	Cataract surgery			PTCA	CABG
			Total	In-patient	Day cases		
Australia	From "all" to "one per category"	2008/07	5%	1%	6%	1%	-1%
Canada	From "all" to "one per category"	2007	0%	-4%	0%	-9%	-5%
Estonia	From "all" to "main"	2008	-22%	-57%	-21%	-47%	-112%
Iceland	From "all" to "one per category"	2009/08	-	-	-	-16%	1%
Ireland	From "all" to "one per category"	2008	-92%	-96%	-91%	-102%	-90%
Israel	From "all" to "one per category"	2008	3%	-3%	5%	-3%	-3%
Italy	From "all" to "main"	2007	-103%	-117%	-100%	-199%	-174%
Spain	From "all" to "patients"	2008	-118%	-100%	-119%	-82%	-67%

<sup>10</sup> In Australia, the comparison of the data collection results between the “old” and the “new” method is not for the same year, which prevents a truly direct comparison. The data for the “old” method relate to 2007 while the data for the new method relate to 2008.

### 3.1.2 *Extension of data collection on day surgery*

31. More than a dozen of countries submitted data and metadata for the pilot data collection seeking to clarify the definition and coverage of “day cases” and to extend the data collection to “outpatient cases” (patients not formally admitted) in hospitals and outside hospitals, for a few surgical procedures (cataract surgery and tonsillectomy).

32. Table 3 provides a summary of the results of this pilot data collection in relation to cataract surgery. It raises a number of important points concerning variations across countries in the mode of delivery of same-day surgeries for cataracts and the ability of countries to report data on these different modes of delivery:

1. Four countries (Austria, Germany, New Zealand and Slovenia) explicitly noted that they are not able to report data on outpatient cases in hospitals and outside hospitals, so the data reported on “day cases” likely underestimate greatly the real number of same-day cataract surgeries.
2. In one country (Ireland), no outpatient cases have been reported, because virtually all cataract procedures are performed in hospitals as inpatient or day cases.<sup>11</sup>
3. In the remaining eight countries that have reported some outpatient cases, there are interesting variations in how patients receiving a cataract surgery in hospitals are registered (as day cases or outpatient cases; columns 1 and 2). Some countries formally admit all or most patients as “day cases” (e.g., Estonia and Finland), while in other countries (Czech Republic, Hungary and Luxembourg), many if not most patients are treated as “outpatient cases” (not admitted). It is not clear on what basis such a distinction is made, but the omission of outpatient cases in these countries would greatly under-estimate the number of same-day surgery. One country (Finland) is able to report outpatient cases in hospitals, but unable to report outpatient cases outside hospitals. In those countries that are able to report these activities outside hospitals, outpatient cases outside hospitals account for a relatively small share of the overall number of same-day surgeries in some countries (Estonia, Luxembourg and Netherlands), but in the Czech Republic and Hungary, they represent between one-third and one-half of all same-day surgeries for cataracts (columns 3 and 4).
4. It is also interesting to note differences in the data reporting of “day cases” in the regular data collection when no additional column is provided for countries to report any outpatient cases (columns 4 and 5). In most countries, the data submission is based on the official (narrow) definition of day cases as patients admitted in hospitals. However, there are two notable exceptions. The Czech Republic reports all same-day cataract surgeries, including “day cases” in hospitals, outpatient cases in hospitals and outpatient cases outside hospitals. In the United States, the data source (a survey) does not allow a specific distinction between interventions in hospitals and in ambulatory settings, so all interventions carried out as day cases or outpatient cases in hospitals or outside hospitals have been reported as “day cases”.

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<sup>11</sup> A specific issue regarding Ireland is that the hospital data only include public hospitals, resulting in some underestimation (it is estimated that over 10% of all hospital activity in Ireland is undertaken in private hospitals).

**Table 3. Results of the pilot data collection on day cases, cataract surgery, 12 OECD countries**

	Day cases in hospital	Outpatient cases in hospital	Outpatient cases outside hospital	Total (day and out- patient cases)	Total (day cases reported in regular data collection)	Rate (per 100000 pop.)	Comments
	1	2	3	4=1+2+3	5	6	
Austria (2010)	27596	..	..	27596	27596	328.9	<u>Outpatient cases in and outside hospitals</u> : data not available.
Czech Republic (2010)	381	43862	43223	87466	87466	831.5	<u>Day cases</u> : number of hospitalised persons. <u>Outpatient cases in hospitals</u> : number of same-day cataract surgeries performed in inpatient health establishments. <u>Outpatient cases outside hospitals</u> : number of same-day cataract surgeries performed in outpatient health establishments.
Estonia (2010)	9665	166	1443	11274	9665	721.2	
Finland (2010)	43087	493	..	43580	43087	803.4	<u>Outpatient care</u> relates to public hospitals only. No data is available on activities outside hospitals.
Germany (2010)	8054	..	..	8054	8054	9.8	<u>Day cases</u> : number of surgical procedures performed at hospital for patients admitted with the intention of discharging on the same day. <u>Outpatient cases in and outside hospitals</u> : data not available.
Hungary (2009)	16363	4835	11528	32726	16363	163.3	
Ireland (2010)	7821	0	0	7821	7821	174.8	Data relate to public hospitals only. Virtually all these procedures are done on an inpatient or day case in-hospital basis only. <u>Day cases</u> : patients formally admitted with the intention of being discharged on the same day, and then in fact discharged as scheduled (i.e. excl. deaths and emergency transfers) on the same day. All other patients, including those who are admitted or discharged as emergencies on the same day, are considered <u>inpatients</u> .
Israel (2010)	22379		10245	32624	22379	293.6	<u>Day cases</u> include hospital discharges on the day of admission as well as in hospital outpatient clinics. <u>Outpatient cases outside hospitals</u> include operations in community clinics and not in hospital surgical clinics.
Luxembourg (2010)	1134	799	224	2157	1134	236.9	
Netherlands (2008)	151000	30000	5000	186000	142420	866	Two different sources used for both data collections. Data reported in the pilot are preliminary. <u>Outpatient cases outside hospitals</u> : care in (specialised) independent treatment centres (ZBCs) that provide selective non-acute treatments, covered by basic health insurance, for admissions shorter than 24hours. <u>Day cases</u> (pilot) also cover some daypatients outside hospitals, whereas day cases (regular data collection) do not include these outside hospital cases (appr. 17000 cataracts).
New Zealand (2010)	13655	..	..	13655	13655	312.8	Data based on publicly funded hospital events. <u>Outpatient cases in and outside hospitals</u> : data not available. <u>Distinction between day cases and outpatients</u> in NZ: '3 hour admission rule'. If patients are treated for > 3 hours or have a General Anaesthetic, they are admitted and recorded on NMDS (National Minimum Data Set). Otherwise events (outpatients and emergency department events) are captured by NNPAC (National Non-Admitted Patient Collection). Clinical data on diagnoses and procedures are not captured by NNPAC.
Slovenia (2010)	124	..	..	124	124	6.1	<u>Day cases</u> : patients admitted to hospital and discharged the same day. <u>Outpatient cases in and outside hospitals</u> : data not available.
United States (2006)	5640145		..	5640145	5640145	1889.9	<u>Day cases</u> cover procedures performed in ambulatory (outpatient) surgery centers, both hospital-based and freestanding center's general operating rooms, dedicated ambulatory surgery rooms, and other specialised rooms.



### 3.2 Analysing the data: Summary results for shortlist of procedures

33. This section analyses the results from the 2012 OECD data collection on surgical procedures, focussing on European countries only.

34. Tables 4 and 5 show the summary results of the OECD data collection for the complete shortlist of procedures. The first table presents those procedures which are only collected for inpatient cases while the second table shows the results for the set of procedures which include a breakdown between inpatient and day cases.

35. Most countries are able to provide data for the complete shortlist of procedures, often with a time series allowing an analysis of trends over time (see the next subsections). However, some countries (Czech Republic, Greece, Poland and Slovak Republic) have only provided data for a subset of procedures.

36. Table 4 shows the variations across countries in activity rates for the procedures that are collected for inpatient cases only in 2010 (or the latest year available). It indicates that variations across countries are smaller for some procedures than others. For example, the variation is much less pronounced for appendectomy (a difference of 2.3 times between the highest rate in Austria and the lowest rate in Poland) than for coronary angioplasty (a difference of 7 times between the highest rate in Germany and the lowest rate in Poland) or for coronary bypass (a difference also of 7 times between the highest rate in Belgium and Germany and the lowest rate in Spain). However, as discussed in the previous section, the coronary angioplasty and coronary bypass rates are over-estimated in countries such as Germany and Belgium because they are based on a count of all procedures whereas in most other countries only one procedure per procedure category is counted. If one excludes these countries from the comparisons because of these comparability limitations, the variations across countries is reduced substantially: the highest rate of angioplasty in Austria is 2.8 times higher than in Poland whereas the highest rate of coronary bypass in Denmark is 4.2 times higher than in Spain.

37. Some procedures provide alternative treatments for the same condition, so it is important to consider them together to gain insights on clinical treatment patterns of these conditions in different countries. For example, coronary angioplasty and coronary bypass are two alternative treatments for heart attacks (acute myocardial infarction). Similarly, breast conserving surgery and mastectomy are two alternative surgical treatments for breast cancer. The next subsections analyses variations in the use of these different treatments and the evolution over time of clinical practices in different countries.

38. Among the procedures in Table 5 that are often performed as same-day surgery, the overall rate of cataract surgery (including both inpatient and day cases) is by far the highest in nearly all countries, and so is the share of operations carried out as day cases.<sup>12</sup> In Nordic countries, nearly all cataract surgeries are carried out as day cases, and this is also the case in the Netherlands and the United Kingdom (section 3.3 provides further analysis of trends in different countries).

39. Tonsillectomy is also performed in most cases as same-day surgery in some countries (Belgium, Finland, the Netherlands and Norway), although the share of day cases remains much lower in other countries. There are also large variations in the share of day cases for cholecystectomy (laparoscopic or non-laparoscopic) and inguinal and femoral hernia, suggesting that there is room in many countries to increase further the share of same-day surgery to achieve efficiency gains and reduce per intervention.

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<sup>12</sup> The only countries where cataract surgery is apparently not the highest volume procedure among the shortlist collected are those that are unable to report outpatient cases, and where “day cases” represent presumably a very small part only of same-day surgery, resulting in large under-estimation (Germany and Slovenia).

**Table 4. Selected surgical procedures, inpatient cases per 100,000 population, European countries, 2010 (or nearest year)**

	Coronary angioplasty (PTCA and stenting)	Coronary bypass	Appendectomy	Hip replacement	Knee replacement	Hysterectomy (vaginal only) <sup>1</sup>	Breast-conserving surgery <sup>1</sup>	Mastectomy <sup>1</sup>	Prostatectomy (transurethral) <sup>2</sup>	Prostatectomy (excluding transurethral) <sup>2</sup>	Caesarean section <sup>3</sup>
Austria	239.9	47.3	172.3	249.1	200.6	106.9	216.5	48.5	167.7	71.5	282.0
Belgium <sup>4</sup>	469.3	124.5	138.1	245.0	177.6	141.3	154.2	85.1	188.8	99.1	197.3
Czech Rep.	205.1	53.3	..	162.7	111.5	..	..	..	..	..	224.9
Denmark	158.0	74.0	105.3	225.4	174.7	52.1	131.0	84.5	124.9	35.9	211.0
Estonia	182.2	47.2	151.8	84.5	..	242.5	65.0	45.5	85.3	79.2	203.5
Finland	132.4	56.7	118.8	199.1	187.0	243.2	134.9	101.4	130.2	61.9	160.9
France	197.4	28.3	134.6	224.7	124.0	..	173.5	61.7	183.3	95.4	202.9
Germany <sup>4</sup>	624.4	115.5	150.5	295.0	213.1	177.6	231.8	69.4	196.7	85.0	314.0
Greece	177.0	..	122.2	169.5	..	..	..	..	223.3	..	..
Hungary	172.2	32.3	93.3	99.4	45.2	34.9	131.3	49.9	82.4	34.4	325.2
Iceland	198.0	59.2	146.6	172.6	131.6	58.3	100.8	79.9	102.1	37.8	157.6
Ireland	89.7	21.6	157.9	121.5	44.2	44.4	52.0	39.1	49.6	19.1	261.1
Italy	130.7	31.4	78.1	146.9	97.7	64.5	138.9	52.3	119.0	93.3	383.6
Luxembourg	197.2	51.6	133.5	207.6	155.4	232.0	50.2	33.9	..	26.3	293.0
Netherlands	170.1	57.6	99.0	213.3	127.6	78.7	95.0	94.2	139.3	30.3	148.4
Norway	238.3	61.6	118.7	242.4	84.1	200.9	114.0	81.7	172.4	55.4	168.0
Poland	86.9	43.4	74.2	63.2	..	166.6	..	36.4	..	..	260.3
Portugal	118.1	39.7	97.4	87.8	61.7	42.5	125.9	52.4	45.2	51.1	330.0
Slovak Rep.	..	28.5	104.0	74.4	..	94.3	152.1	33.6	..	19.9	270.2
Slovenia <sup>4</sup>	193.0	59.6	115.3	159.3	85.5	93.8	78.4	53.1	67.4	75.3	191.0
Spain	135.8	17.4	110.9	97.0	104.4	52.0	89.4	45.5	75.6	69.4	255.1
Sweden	179.7	42.5	118.1	210.4	125.3	41.5	80.8	56.5	123.1	61.4	168.0
Switzerland	164.1	29.8	141.4	265.5	211.9	123.1	160.5	58.2	217.7	..	328.0
United Kingdom	93.8	37.2	87.8	181.2	141.5	26.9	72.8	64.9	90.4	18.7	239.9

Note: Some of the variations across countries are due to different classification systems and counting methods.

1. Procedures per 100,000 females

2. Procedures per 100,000 males

3. Procedures per 1,000 live births

4. In Belgium, Germany and Slovenia, differences in counting method result in a large over-estimation for certain procedures (e.g., coronary angioplasty and coronary bypass).

Source: OECD Health Data 2012

**Table 5. Selected surgical procedures, total and day cases per 100,000 population, European countries, 2010 (or nearest year)**

	Cataract surgery			Tonsillectomy			Cholecystectomy (laparoscopic and non-laparoscopic)			of which laparoscopic cholecystectomy			Inguinal and femoral hernia		
	total	day cases	% day cases	total	day cases	% day cases	total	day cases	% day cases	total	day cases	% day cases	total	day cases	% day cases
Austria	1001.9	328.9	32.8	122.6	0.2	0.2	225.1	0.1	0.0	190.5	0.0	0.0	179.2	5.4	3.0
Belgium	1912.9	1786.2	93.4	233.4	158.2	67.8	206.5	4.1	2.0	182.2	4.1	2.2	251.0	63.4	25.3
Czech Republic	919.5	831.5	90.4	..	..	..	..	..	..	..	..	..	..	..	..
Denmark	906.4	890.1	98.2	116.6	31.0	26.6	138.8	60.5	43.6	125.3	59.6	47.6	201.1	145.4	72.3
Estonia	724.2	721.2	99.6	..	..	..	233.0	3.7	1.6	220.9	3.7	1.7	144.1	34.2	23.7
Finland	811.8	803.4	99.0	151.5	101.3	66.8	142.7	36.1	25.3	122.3	35.6	29.1	202.3	126.0	62.3
France	1037.8	831.4	80.1	105.1	21.0	20.0	188.9	2.9	1.6	164.3	2.9	1.8	..	..	..
Germany	188.1	9.8	5.2	156.7	0.2	0.1	235.8	0.1	0.0	188.1	0.0	0.0	223.7	0.7	0.3
Greece	1068.4			155.7			367.3			..			339.1		
Hungary	682.8	163.3	23.9	147.8	0.0	0.0	241.0	0.0	0.0	197.0	0.0	0.0	171.3	9.3	5.4
Iceland	651.0	609.4	93.6	191.0	..	..	..	..	..	..	..	..	..	..	..
Ireland	196.2	174.8	89.1	85.2	1.3	1.5	106.6	13.0	12.2	94.7	12.8	13.5	83.2	35.2	42.3
Italy	305.8	261.1	85.4	69.9	17.0	24.3	173.8	2.2	1.3	152.0	2.2	1.4	271.3	123.7	45.6
Luxembourg	707.5	236.9	33.5	224.3	15.9	7.1	148.3	0.0	0.0	..	..	..	194.1	45.3	23.4
Netherlands	879.6	867.7	98.7	240.7	163.7	68.0	150.1	7.0	4.6	132.8	7.0	5.2	184.7	125.8	68.1
Norway	461.8	447.1	96.8	192.0	101.7	53.0	90.7	23.9	26.4	83.1	23.6	28.4	142.4	99.2	69.6
Poland	277.8	48.2	17.4	..	..	..	165.0	0.2	0.1	..	..	..	131.9	6.6	5.0
Portugal	1390.2	1276.9	91.9	78.7	27.4	34.8	152.9	7.5	4.9	118.1	7.4	6.2	183.9	63.6	34.6
Slovak Republic	245.4	41.3	16.8	..	12.4	..	..	..	..	..	10.0	..	..	..	..
Slovenia	85.2	6.1	7.1	47.0	0.0	0.1	224.0	0.0	0.0	195.9	0.0	0.0	197.0	15.5	7.9
Spain	576.5	552.7	95.9	59.8	15.9	26.6	161.1	6.5	4.0	127.2	6.3	4.9	192.3	71.7	37.3
Sweden	621.3	605.0	97.4	83.3	34.8	41.8	137.6	23.4	17.0	110.2	22.6	20.5	168.5	121.9	72.4
Switzerland	421.4	335.2	79.6	120.1	12.0	10.0	161.9	1.1	0.7	148.3	1.1	0.7	243.8	19.5	8.0
United Kingdom	616.9	604.9	98.1	92.5	31.2	33.7	125.0	33.6	26.8	106.4	31.5	29.6	152.0	94.8	62.3

Note: Some of the variations across countries are due to different classification systems, counting methods and data coverage.

Source: OECD Health Data 2012

40. The following sections provide further analysis of cross-country variations and trends over time for most of the procedures on the shortlist.

### 3.3 Cataract surgery

41. As indicated in Table 5, cataract surgery has now become the most frequent surgical procedure in most European countries due to population ageing and the increase use of this intervention among elderly people.

42. Cataract surgery consists in removing the lens of the eye because of the presence of cataracts which are partially or completely clouding the lens, and replacing it with an artificial lens. The operation began to change from an inpatient to a same-day surgery in the 1980s in some European countries such as Sweden (Henning *et al.*, 1985), with the movement then spreading to other European countries at different speed. From a medical perspective, a cataract surgery using modern techniques should not normally require an hospitalisation. However, in some specific cases (for example, if general anesthesia is required or there are severe comorbidities), an hospital stay may be required (Lundström *et al.*, 2012). Cataract surgery is performed more often in women than men (around 60% versus 40%), because it is related to age and women live longer (Lundström *et al.*, 2012).

43. In 2010, the reported number of cataract surgeries per 100 000 population ranged from a low of less than 200 in Slovenia, Cyprus, Germany and Ireland, to over 1000 in Belgium, Portugal, France, Austria in 2010 (Figure 1). However, the rates in countries such as Slovenia and Germany are most likely under-estimated as they only include a small share of same-day surgery performed as “day cases” and do not include all the operations that may be carried out as outpatient cases (non-admitted patients) in hospitals or in other settings. Conversely, the very high rate in Belgium most likely reflects a large over-estimation due to the registration of more than one procedure per surgery.<sup>13</sup>

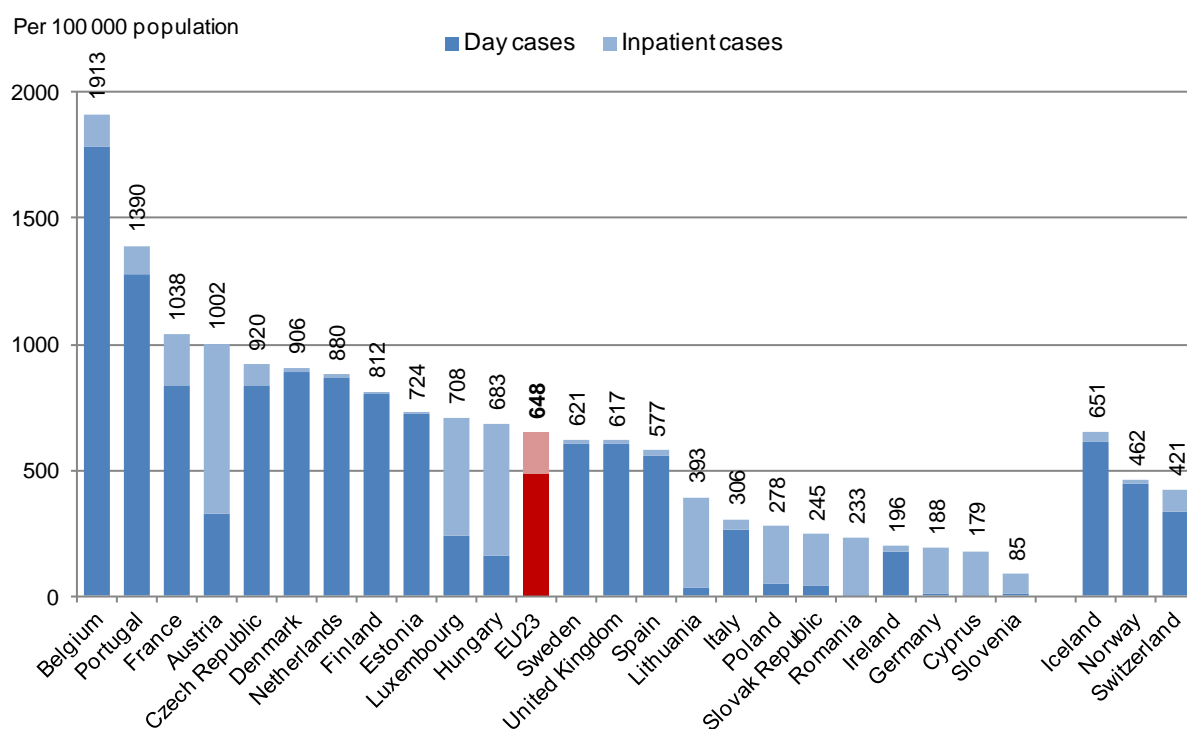
44. Rates of cataract surgeries carried out as inpatient cases are low in most countries, with the exception of countries such as Austria, Hungary and Luxembourg where they continue to be relatively high. The rate of inpatient cases in Austria (673 per 100 000 population) is nearly 4 times greater than in Germany (178 per 100 000 population), and 11 times greater than in Switzerland (61 per 100 000). The comparability of data on same-day surgery for cataracts is limited due to differences in registering practices (the practice of formally admitting patients as “day cases” or not) and the ability of countries to report outpatient cases in hospitals or outside hospitals. With the exception of the Czech Republic, France, Hungary and Luxembourg for which outpatient cases are included in the data presented in Figure 1, the data for other countries do not include these outpatient cases according to the metadata provided by countries, explaining the apparently low rates of same-day surgery in several countries (e.g., Slovenia and Germany).

45. Cataract surgery rates are also under-estimated to a certain extent in Denmark, Ireland, the Netherlands and the United Kingdom, because the data only include operations carried out in public hospitals. In Ireland, it is estimated that over 10% of all hospital activity is undertaken in private hospitals. The data for Spain only partially cover activities in private hospitals.

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<sup>13</sup> The data submitted by Belgium to Eurostat is about two-times lower than the data submitted to the OECD, suggesting a large double-counting in the data submission to the OECD.

**Figure 1. Number of cataract surgeries, day cases and inpatient cases, per 100 000 population, 2010 (or nearest year)**



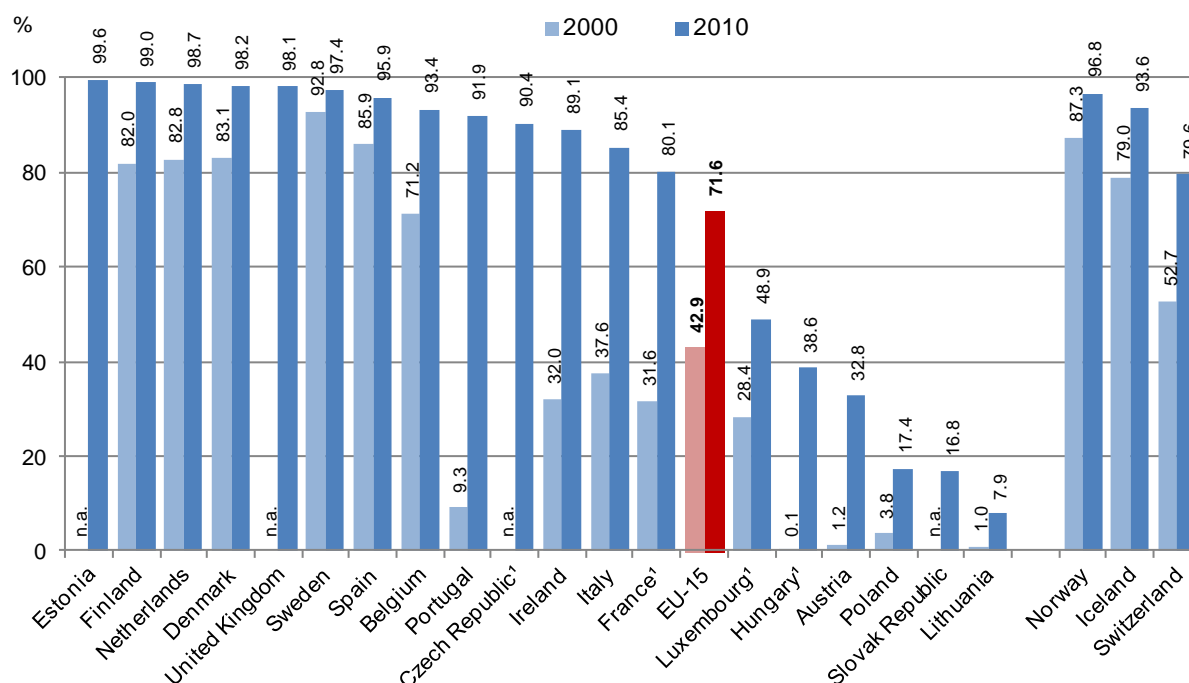
Note: Some of the variations across countries are due to different classification systems and counting methods, and differences in the data coverage for day cases.

Source: OECD Health Data 2012; Eurostat Statistics Database.

46. Over 90% of all cataract surgeries are performed on a same-day basis in about half of the countries for which data is available (Figure 2). However, the share of day surgery is still relatively low in some countries, such as Lithuania, the Slovak Republic, Poland, Austria and Hungary. This may merely reflect limitations in data coverage of outpatient activities in hospitals or outside hospitals, as is clearly the case in some other countries. But it has also been suggested that the low rates of same-day surgery for cataracts and other interventions may be explained by more advantageous reimbursement for inpatient stays, national regulations, obstacles to changing individual practices of surgeons and anaesthetists, and clinical practice tradition (Castoro *et al.*, 2007).

47. Looking at trends over the past decade, the number of cataract surgeries performed on a same-day basis has grown very rapidly in some countries such as Portugal, catching up to the high rates already observed in 2000 in Nordic countries, the Netherlands and Spain. In Portugal, the share of cataract surgeries performed as day cases rose from less 10% in 2000 to over 90% in 2010. In France, this share also increased from about 30% in 2000 to 80% in 2010. In Luxembourg, the number of cataract surgeries carried out as day cases and outpatient cases (in or outside hospitals) also rose rapidly, although they still account for only about half of all cataract surgeries. Similarly, there has been a strong rise in the share of day cases in Hungary and Austria, but there is still a lot of room to increase further the share of day cases in these two countries.

Figure 2. Share of cataract surgeries performed as day cases, 2000 and 2010 (or nearest year)



1. Data for the Czech Republic, France, Luxembourg and Hungary include outpatient cases in hospitals and outside hospitals.

Source: OECD Health Data 2012; Eurostat Statistics Database.

48. In Sweden where nearly all cataract surgeries have been performed for many years as a day surgery, there is evidence that the operation is now performed on patients suffering from less severe vision problems compared to ten years ago or so. This raises the issue of how the needs of these patients should be prioritised relative to other patient groups (Swedish Association of Local Authorities and Regions and National Board of Health and Welfare, 2010). The European Registry of Quality Outcomes for Cataract and Refractive Surgery recently developed evidence-based guidelines to improve treatment and standards of care for cataract surgery (Lundström *et al.*, 2012).

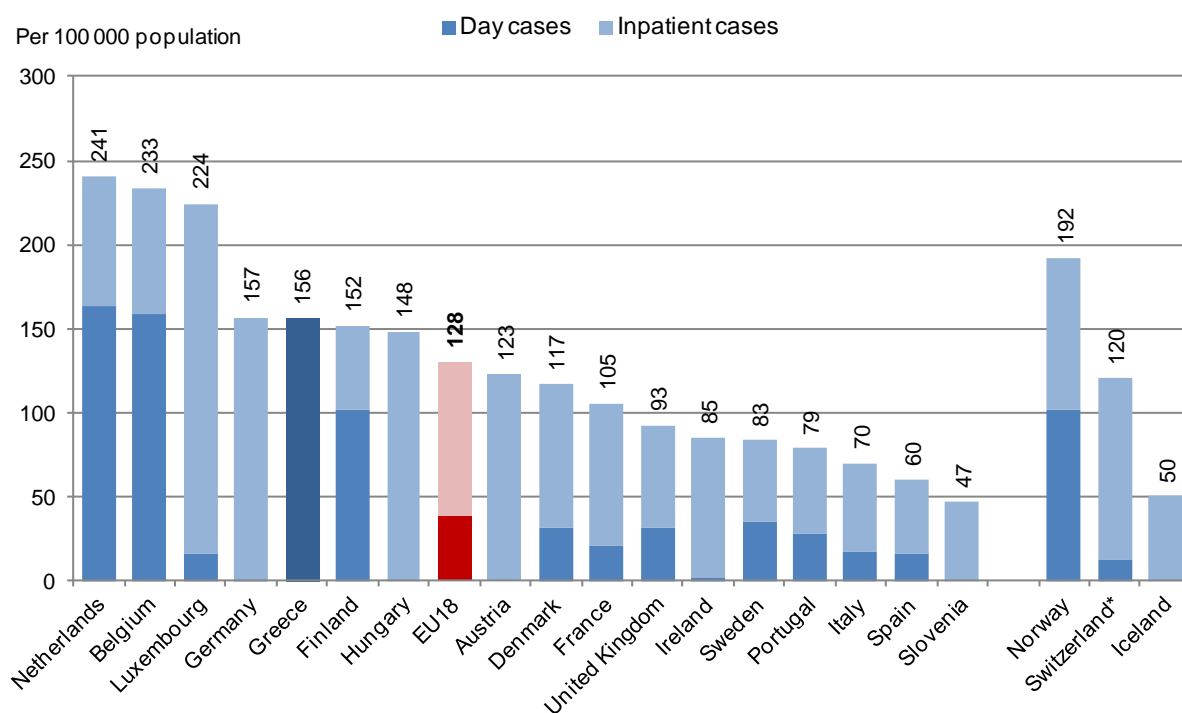
### 3.4 Tonsillectomy

49. Tonsillectomy -- the removal of tonsils (glands at the back of the throat) – is one of the most frequent surgical procedures on children. This procedure is usually performed on children suffering from repeated or chronic infections of the tonsils or suffering from breathing problems or obstructive sleep apnea due to large tonsils. Although the operation is performed under general anesthesia, it is carried out mainly as a same-day surgery in many countries, with children returning home the same day.

50. Figure 3 shows that the tonsillectomy rate in 2010 was highest in the Netherlands, Belgium and Luxembourg, with rates nearly two times greater than the average across EU countries. It was the lowest in Slovenia, Spain and Italy.

51. In Belgium, tonsillectomies are very common among young children aged 1 to 4, and many tonsillectomies are performed to address sleep apnea. It has been suggested that higher screening rates for children at risk of sudden infant death syndrome (SIDS) may lead to higher detection rate of sleep apnea among young children, in turn resulting in higher tonsillectomy rate (EC, 2008a).

**Figure 3. Number of tonsillectomies, day cases and inpatient cases, per 100 000 population, 2010 (or nearest year)**

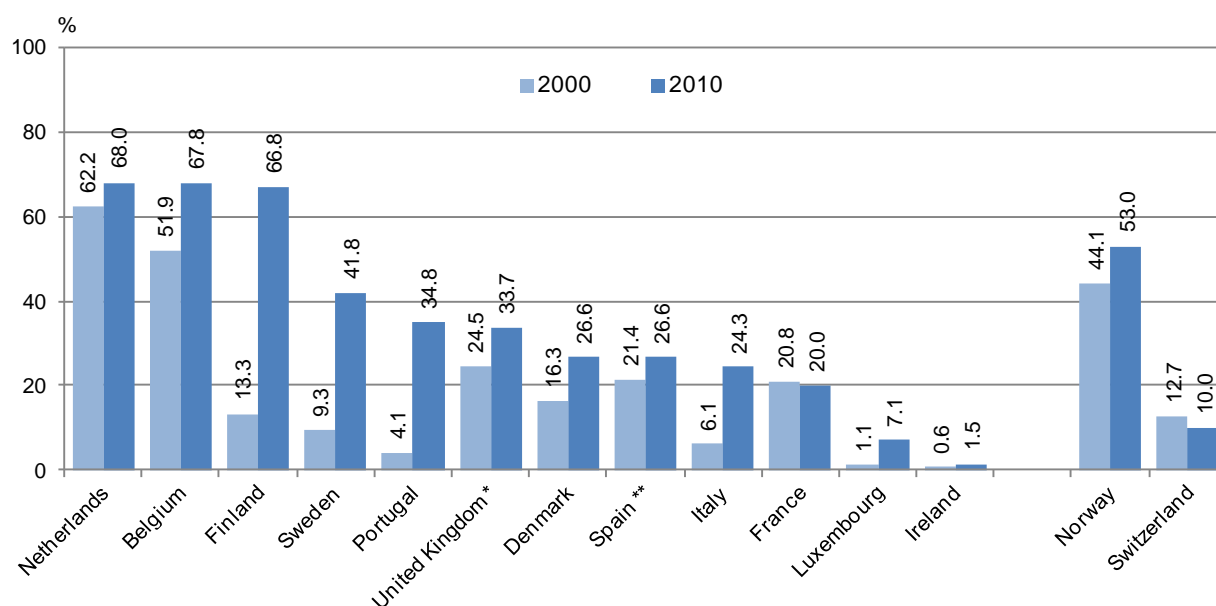


Source: OECD Health Data 2012; Eurostat Statistics Database.

52. About two-thirds of tonsillectomies in Belgium and the Netherlands are performed as day surgery. This is also the case in Finland. The share of day surgery is much lower in other countries, including in Luxembourg where less than ten percent of all tonsillectomies are performed as same-day surgery. In Austria, Germany, Hungary and Slovenia, the reported share of day surgery is even lower with virtually all tonsillectomies involving at least one overnight stay in hospital. These large differences in the share of same-day surgery may reflect differences in the perceived risks of postoperative complications, or simply reflect clinical traditions of keeping children for at least one night in hospital after the operation. It should also be kept in mind that the number of day surgery for tonsillectomy is likely under-reported in many countries, as is the case for cataract surgery and other same-day surgeries.

53. Over the past decade, the share of tonsillectomies performed as day surgery has grown rapidly in a number of countries such as Finland, Sweden and Portugal (Figure 4). In Finland, the share of tonsillectomy performed as day surgery rose from 13% in 2000 to 67% in 2010, converging to the rates observed in Belgium and the Netherlands. In Denmark also, the share of same-day surgery increased over the past decade, but much less than in Finland or Sweden. Similarly, while the rate of day surgery increased in Spain, it didn't rise as much as in Portugal. In France, there was no increase in the share of day surgery for tonsillectomy between 2000 and 2010; at 20% only, this share remains much lower than in several other European countries. In Luxembourg, the share of same-day surgery increased from nearly zero percent in 2000 to 7% in 2010, but this also remains well below neighbouring countries, indicating a lot of room for further growth in day surgery.

**Figure 4. Share of tonsillectomies carried out as day cases, 2000 and 2010 (or nearest year)**



\* Data for the United Kingdom are for 2007-2010.

\*\* Data for Spain are for 2004-2010

Source: OECD Health Data 2012; Eurostat Statistics Database.

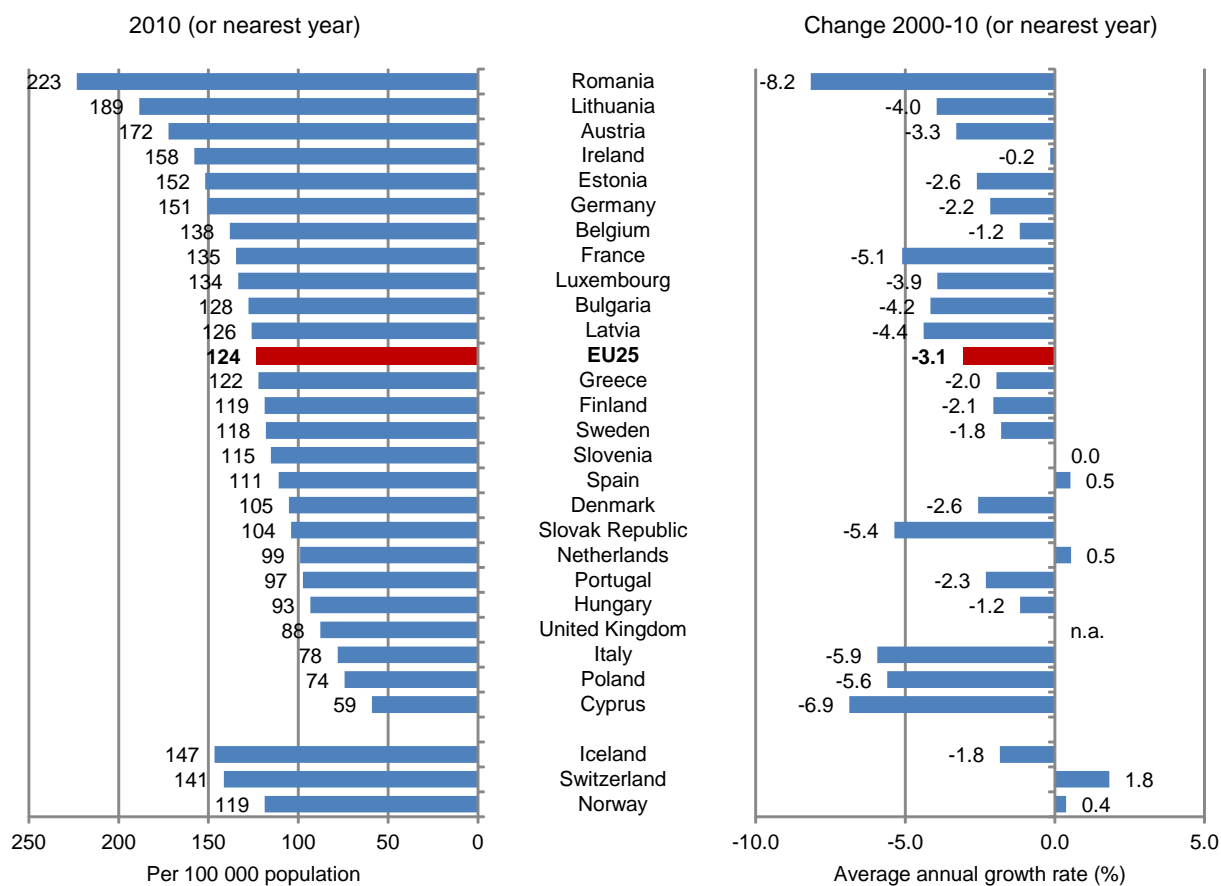
### 3.5 Appendectomy

54. An appendectomy involves the surgical removal of the appendix. This procedure is normally performed as an emergency procedure, when the patient is suffering from acute appendicitis. The pattern of age-specific rates of appendectomy is fairly similar across countries. Appendectomy rates increase from birth to reach a peak among children and adolescents age 10-19 (McPherson *et al.*, forthcoming).

55. Figure 5 shows that rates of appendectomy in 2010 are highest in Romania, Lithuania and Austria, while they were the lowest in Cyprus, Poland and Italy. Appendectomy rates decreased in most countries over the past decade, with a few exceptions (notably Switzerland). This decline might be explained in part by technological diffusion that allows physicians to rule out false positive cases of inflamed appendix with more precision (McPherson *et al.*, forthcoming). On average across EU countries, appendectomy rates came down by 3% per year between 2000 and 2010. The reduction was particularly marked in Romania which had the highest rate in 2000; despite this rapid decline, Romania continues to have the highest rate in 2010. There was also a marked reduction in countries such as Cyprus, Poland and Italy which already had low rates in 2000, resulting in these three countries having the lowest rates in 2010.



**Figure 5. Appendectomy per 100 000 population, 2010 and change between 2000 and 2010**

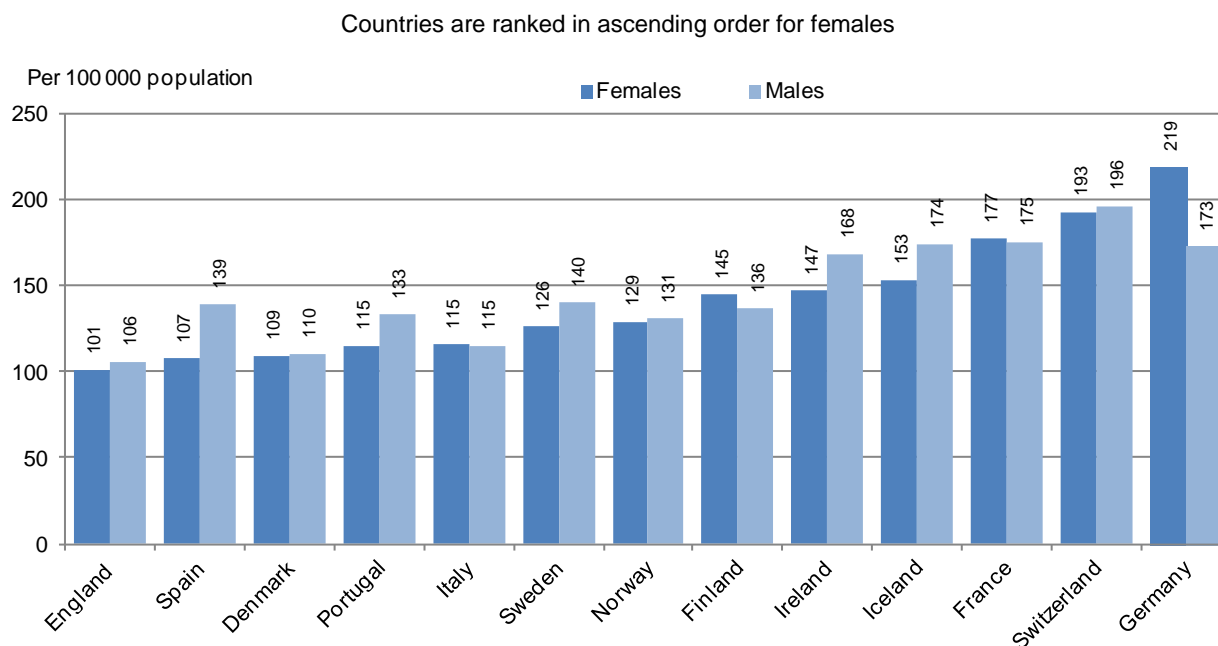


Source: OECD Health Data 2012; Eurostat Statistics Database.

56. The reduction in appendectomy rates may be partly due to a reduction in the number and share of the population under age 20 in many European countries. Variations in the population structure across countries may also explain partly the cross-country variations in appendectomy rates.

57. McPherson and colleagues (forthcoming) have collected more disaggregated data by age and sex for a number of European countries around the year 2008, allowing the calculation of age-standardised rates. Age-standardised rates are shown in Figure 6. Among the 13 countries for which data are available, Germany and Switzerland had the highest age-standardised rates while the United Kingdom (England) has the lowest rates. The age-standardisation does not have any significant impact on the country ranking, but it reduces to a certain extent the cross-country variations.

**Figure 6. Age-standardised rates of appendectomy per 100 000 population, selected European countries, 2008**



Note: Data have been age-standardised based on  
 Source: National datasets (see Appendix 2).

58. McPherson and colleagues (forthcoming) have argued that the scale of variation in appendectomy rates across countries is consistent with plausible differences in the incidence of this condition in each population, but it may also be due to considerable national variation in diagnostic reliability as well.

### 3.6 Cardiac procedures (coronary artery bypass graft and angioplasty)

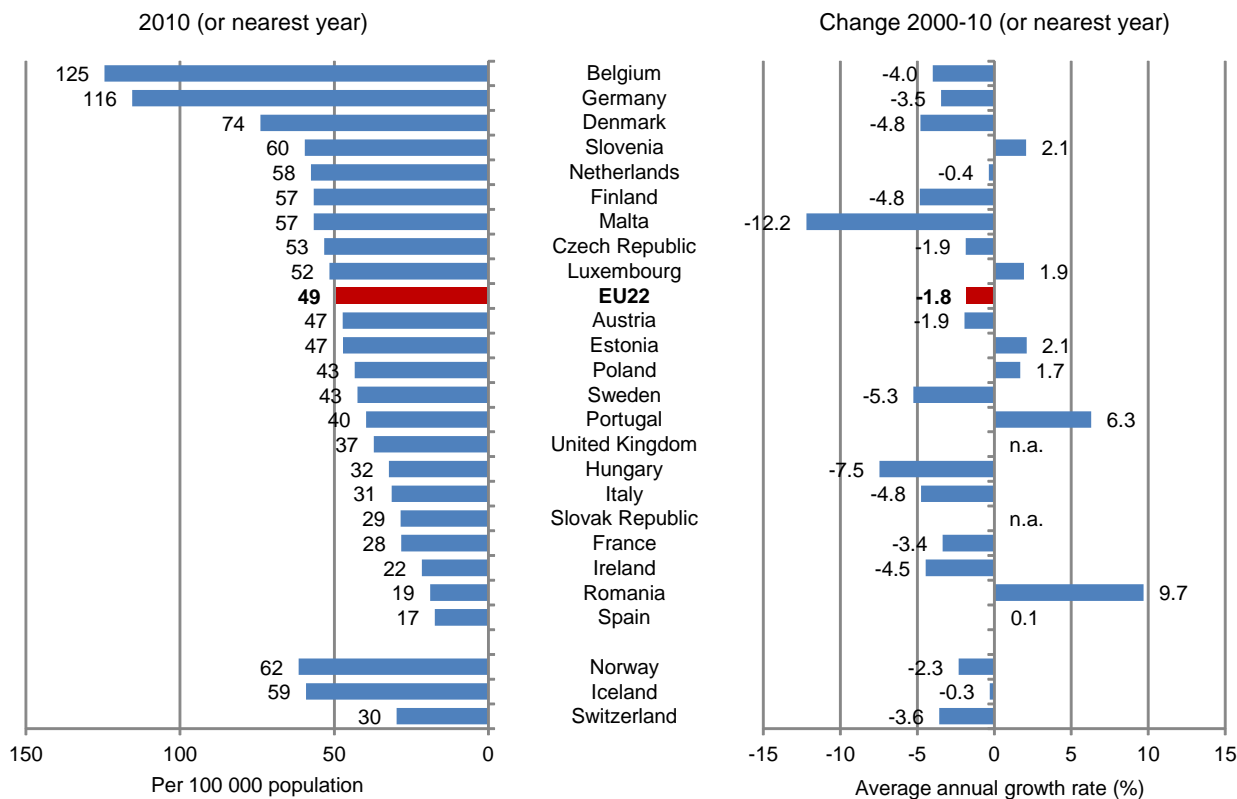
59. Heart diseases are a leading cause of hospitalisation and death in European countries (OECD, 2012). Coronary artery bypass graft (CABG) and angioplasty (PTCA for percutaneous transluminal coronary angioplasty) are two revascularisation procedures that have revolutionised the treatment of ischemic heart diseases in recent decades. Coronary angioplasty involves the use of a minimally invasive technique to re-open the obstructed coronary arteries rather than an open-chest bypass surgery. The placement of a stent to keep the artery open accompanies the majority of angioplasties.

60. There is considerable variation across countries in the use of coronary bypass surgery and angioplasty (Figure 7 and Figure 8). Germany and Belgium have the highest rates of both coronary bypass and angioplasty in 2010, although the rates in these two countries are overestimated because they are based on a count of all procedures rather than based of only one procedure per procedure category or a count of patients (see Table 1 above). This also explains the relatively high rate for Slovenia. In these three countries, the angioplasty rate would likely be cut down by about half if they were reporting only one procedure per procedure category or reporting the number of patients receiving the procedure, as other countries do. The coronary bypass rate would also be significantly reduced (see Table 2).

61. Another, but less important reason for the high rate of both coronary angioplasty and bypass surgery in Belgium is that a sizeable number of non-residents receive these treatments in Belgian hospitals.

In 2006, 2.5% of people who received an angioplasty as inpatient in Belgium were non-residents, while this proportion reached about 4% for bypass surgery (EC, 2008a).

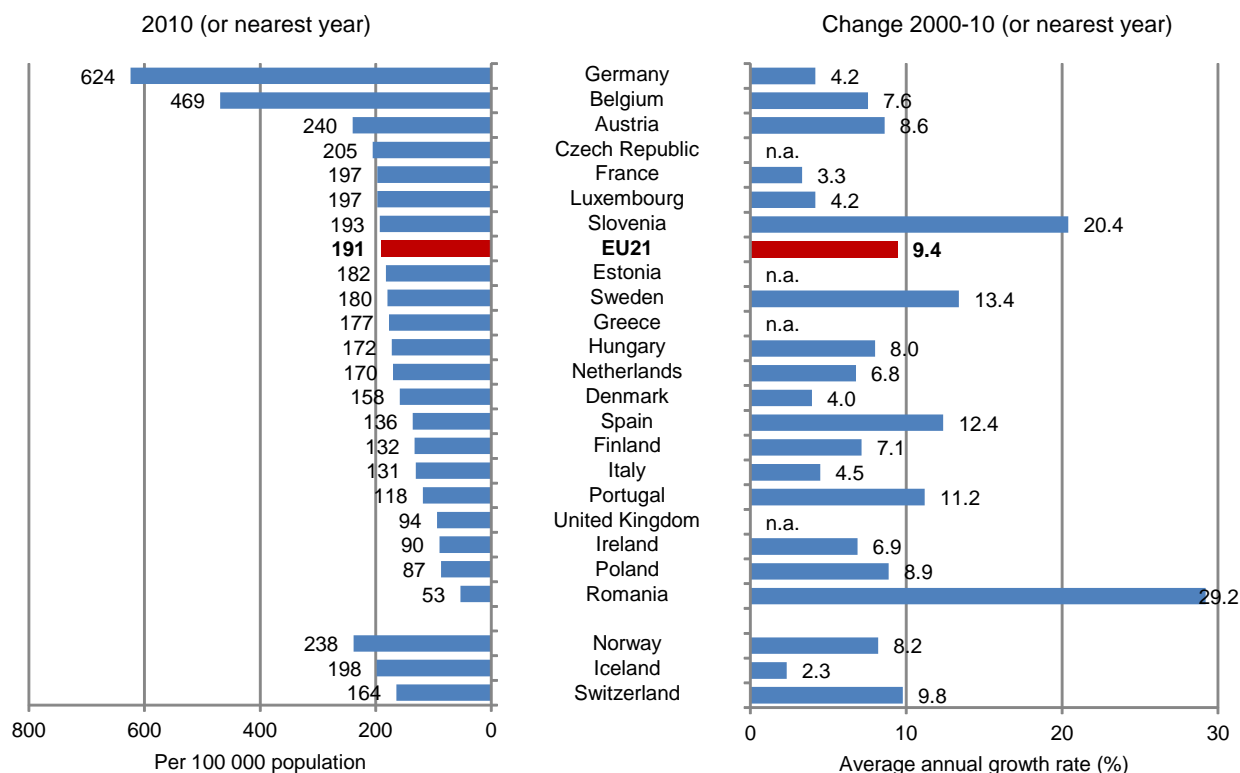
**Figure 7. Coronary bypass per 100 000 population, 2010 and change between 2000 and 2010**



Note: Some of the variations across countries are due to different classification systems and counting methods. In Germany, Belgium and Slovenia, a count of all procedures results in a large over-estimation compared with the data from other countries which is based on a count of only one procedure per procedure category or the number of patients receiving the intervention.

Source: OECD Health Data 2012; Eurostat Statistics Database.

**Figure 8. Coronary angioplasty per 100 000 population, 2010 and change between 2000 and 2010**

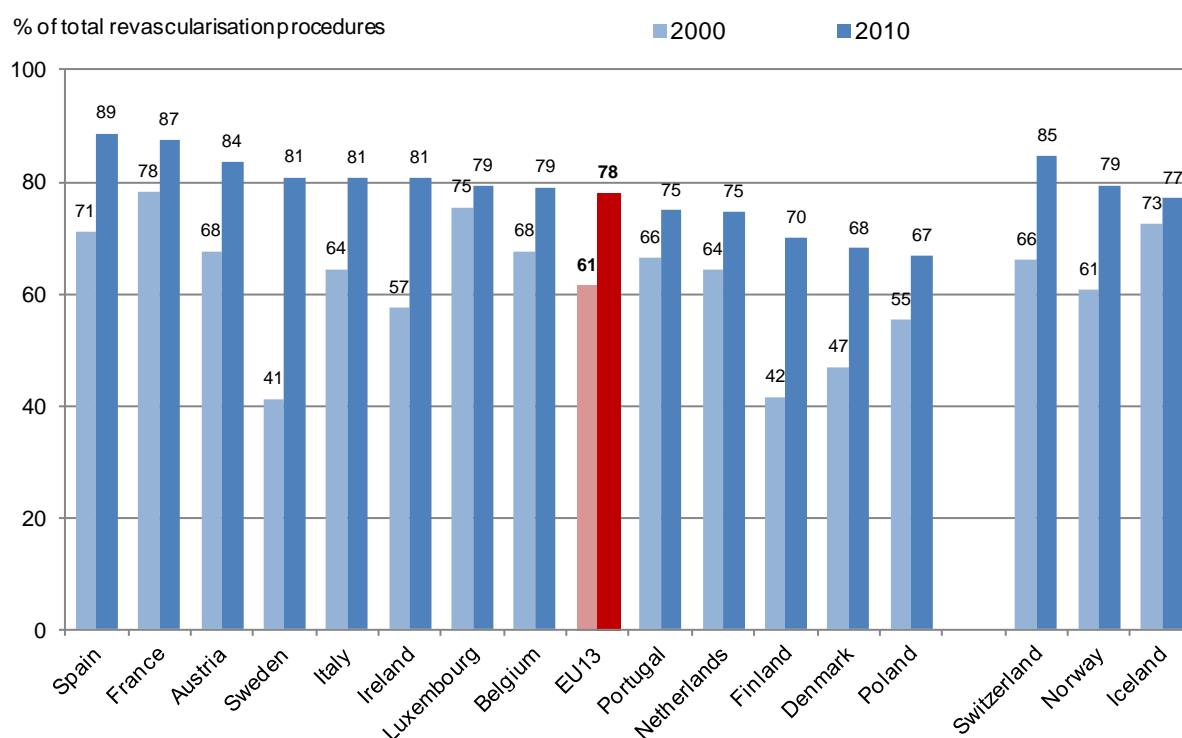


Note: Some of the variations across countries are due to different classification systems and counting methods. In Germany, Belgium and Slovenia, a count of all procedures results in a large over-estimation compared with the data from other countries which is based on a count of only one procedure per procedure category or the number of patients receiving the intervention.

Source: OECD Health Data 2012; Eurostat Statistics Database.

62. The use of angioplasty has increased rapidly since 1990 in all European countries, overtaking coronary bypass surgery as the preferred method of revascularisation around the mid-1990s – about the same time that the first published trials of the efficacy of coronary stenting began to appear (Moïse, 2003). In most European countries, angioplasty now accounts for at least 75% of all revascularisations (Figure 9). In Spain and France, it reaches almost 90%. The EU average is close to 80%, up from 60% in 2000. Countries such as Romania, Spain and Sweden, which had low rates of angioplasty in 2000, have witnessed high annual growth rates since then. Whilst variation in the use of angioplasty persists, the degree of variation has diminished over the past decade, as many countries have caught up with the early adopters of this technology. Still, the share of angioplasty in the total number of revascularisation procedures remains relatively low in Poland, Denmark and Finland.

**Figure 9. Coronary angioplasty as a share of all revascularisation procedures, 2000 and 2010 (or nearest year)**



Note: Revascularisation procedures include coronary bypass and angioplasty.

Source: OECD Health Data 2012.

63. Coronary angioplasty has expanded surgical treatment options to wider sections of the patient population, although a UK study found that approximately 30% of all angioplasty procedures are a direct substitute for bypass surgery (McGuire *et al.*, 2010). Angioplasty is not a perfect substitute since bypass surgery is still the preferred method for treating patients with multiple-vessel obstructions, diabetes and other conditions (Taggart, 2009).

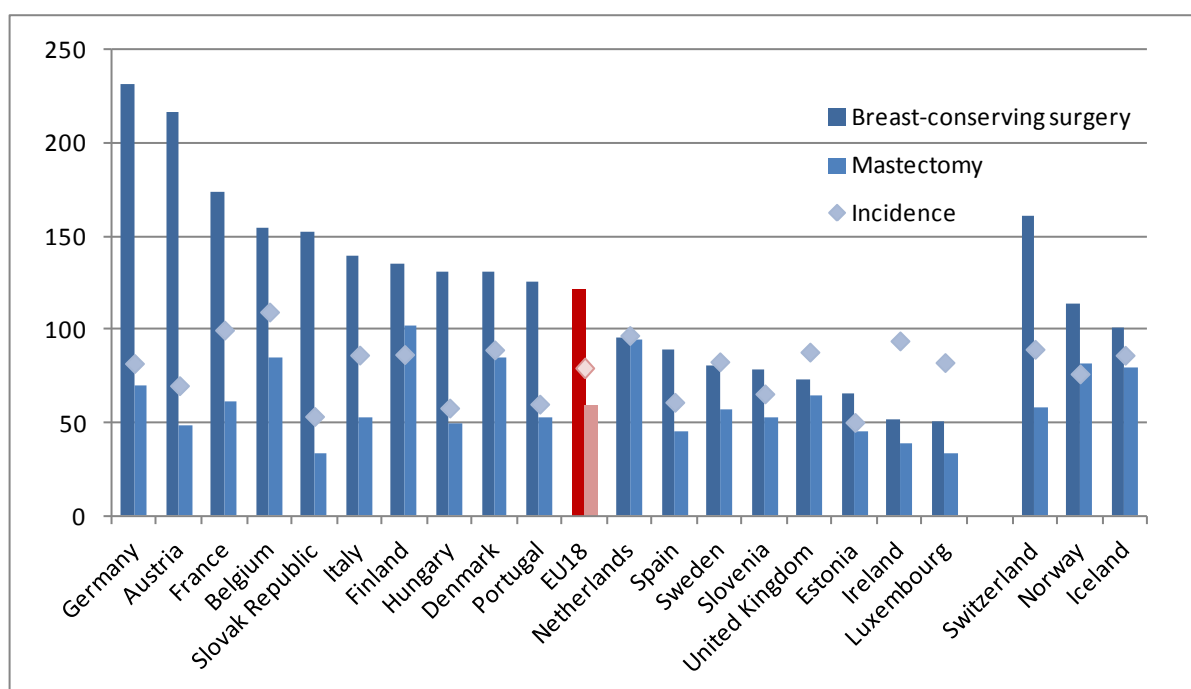
64. A coronary angioplasty is an expensive intervention, but it is much less costly than a coronary bypass surgery because it is less invasive. The estimated price of an angioplasty on average across European countries was about EUR 5 900 in 2009 compared with EUR 15 300 for a coronary bypass. Hence, for patients who would otherwise have received bypass surgery, the introduction of angioplasty has not only improved outcomes but has also decreased costs. However, because of the expansion of surgical interventions, overall costs have risen.

### 3.7 Surgery for breast cancer (breast conserving surgery and mastectomy)

65. Breast cancer is the most common cancer site among women across European countries, and there has been an increase in measured incidence rates of breast cancer over the past decade (OECD and EC, 2012). Besides radiotherapy and chemotherapy, breast conserving surgery and mastectomy (the removal of all of the breast tissue) are two surgical options that can be used in the treatment of breast cancer. Decisions about the choice of surgery depend on many factors, including the stage of the cancer.

66. Figure 10 shows the use of these two surgical treatment methods in European countries in 2010, along with the incidence rates (in 2008, the latest year for which data is available across all countries). These data need to be interpreted with care, as patients' cancer stages may vary across countries. The data show that in all countries, breast conserving surgeries are undertaken more often than the more aggressive treatment option of mastectomy, with the exception of the Netherlands where the rate is about equal for both procedures. Breast conserving surgery rates are highest in Germany, Austria, France, Belgium and Switzerland, whereas mastectomy rates are highest in Finland, the Netherlands, Belgium, Denmark, Norway and Iceland.

**Figure 10. Breast conserving surgery, mastectomy and incidence, per 100 000 women, 2010 (or nearest year)**

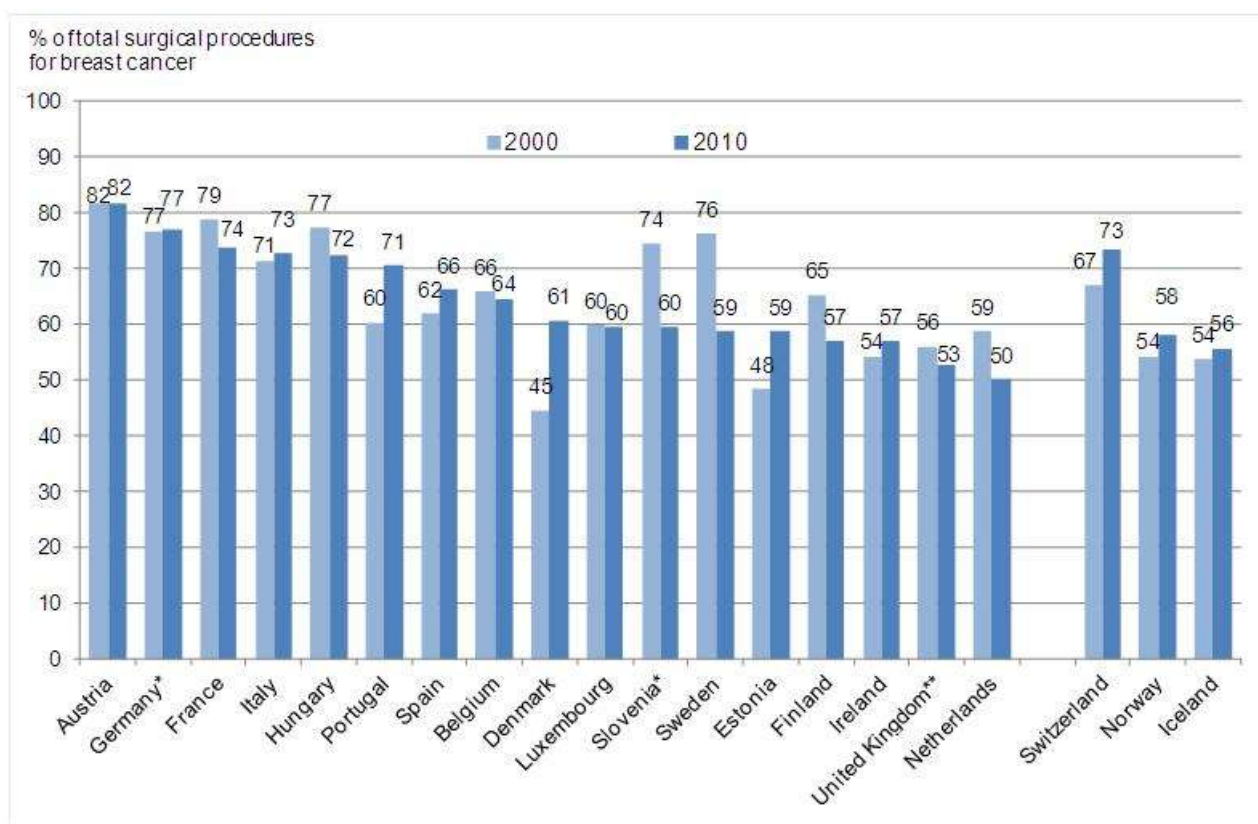


Note: Incidence rates are for 2008 (the latest year for which data is available across all countries).

Source: OECD Health Data 2012.

67. Breast conserving surgery accounted for over 70% of all surgical treatments of breast cancer in several European countries in 2010. Over the past decade, changes in the relative use of breast conserving surgery and mastectomy varied across countries (Figure 11). In some countries, the share of breast conserving surgery remained relatively stable and at a high level (e.g., in Austria, Germany, France, Italy and Switzerland). In other countries, the share of breast conserving surgery increased significantly during the past decade (e.g., Portugal, Spain and Denmark), whereas in other countries this share decreased (e.g., Slovenia, Sweden and Finland). In the Netherlands, the number of women receiving breast conserving surgery decreased between 2000 and 2010 while the number receiving the more aggressive treatment of mastectomy increased, so that by 2010 about 50% of women received each type of treatment.

**Figure 11. Breast conserving surgery in total surgical procedures for breast cancer, 2000 and 2010 (or nearest year)**



\* Data for Germany and Slovenia are for 2005-2010.

\*\* Data for the United Kingdom are for 2007-2010.

Source: OECD Health Data 2012.

68. The level of compliance with national clinical guidelines is one way of assessing whether evidence-based care is provided in breast cancer treatment, although there are differences in clinical guidelines across countries. In the Netherlands, according to the cancer registries, 85% of patients received optimal combined treatment (combined surgery, chemotherapy and radiotherapy) for breast cancer between 2005 and 2007. There may also be variations in clinical practice within countries. In Italy, there is some evidence that a more aggressive approach to breast cancer treatment is taken in the south compared with the north (OECD, forthcoming).

### 3.8 Caesarean section

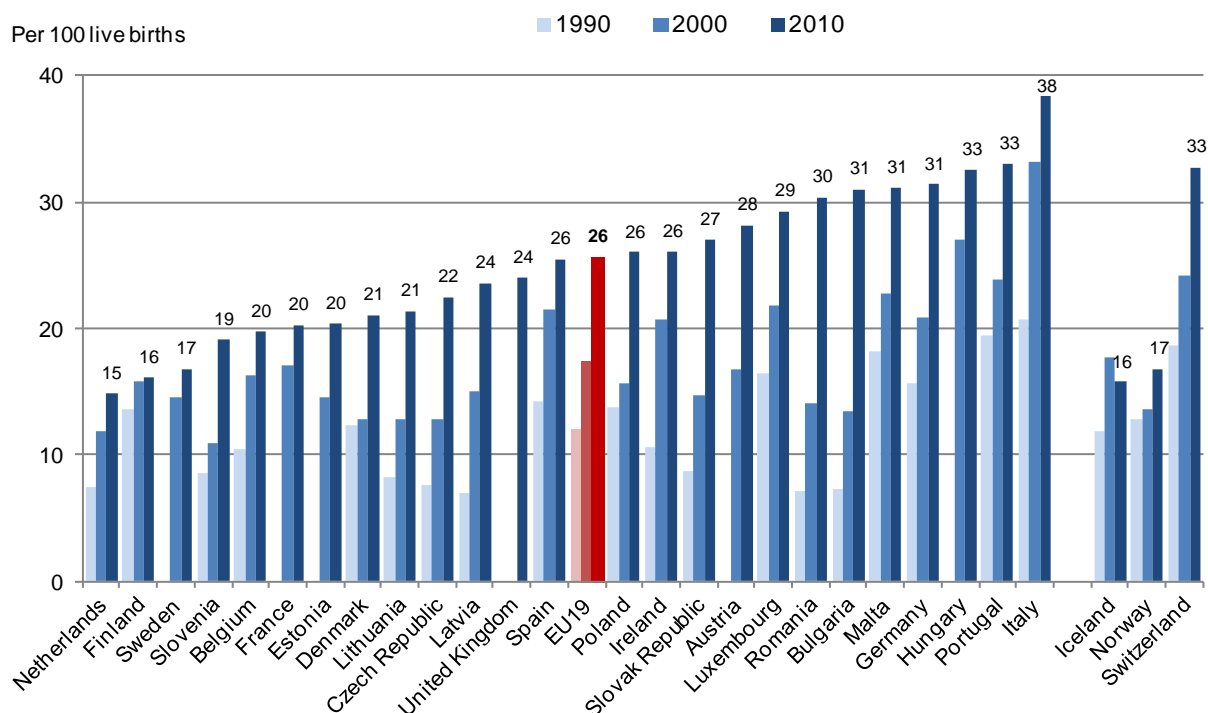
69. Rates of caesarean delivery as a percentage of all live births have increased in all European countries in recent decades, although in a few countries the rates have stabilised or decreased slightly over the past decade. Reasons for the increase include reductions in the risk of caesarean delivery, malpractice liability concerns, scheduling convenience for both physicians and patients, and changes in the physician-patient relationship, among others. Nonetheless, caesareans that are not medically required continue to result in increased maternal mortality, maternal and infant morbidity, and increased complications for subsequent deliveries (Minkoff and Chervenak, 2003; Bewley and Cockburn, 2002; Villar *et al.*, 2006). A caesarean section also involves much greater financial cost (the average cost associated with a caesarean

section is at least two times greater than a normal delivery in many European countries; Koechlin *et al.*, 2010).

70. The World Health Organisation suggested back in 1985 that caesarean sections should not account for more than 15% of all deliveries (WHO, 1985). There is evidence that when caesarean section rates rise substantially above 15%, risks to reproductive health outcomes may begin to outweigh benefits (Betrán *et al.*, 2007).

71. In 2010, caesarean section rates were the lowest in the Netherlands at 15% of all live births, followed by Nordic countries (Finland, Iceland, Norway and Sweden) at 16%-17% (in Denmark, the rate was slightly higher at 21%). In the Netherlands, home births are a common option for women with low-risk pregnancies, and 30% of all births occurred at home in 2004 (Euro-Peristat, 2008). The rate in the Netherlands is less than half the rate in Italy, Portugal and Hungary. The average rate across EU countries was 26% in 2010, up from 12% in 1990 and 17% in 2000 (Figure 12).

**Figure 12. Caesarean sections per 100 live births, 1990, 2000 and 2010 (or nearest year)**



Source: OECD Health Data 2012; WHO European Health for All Database.

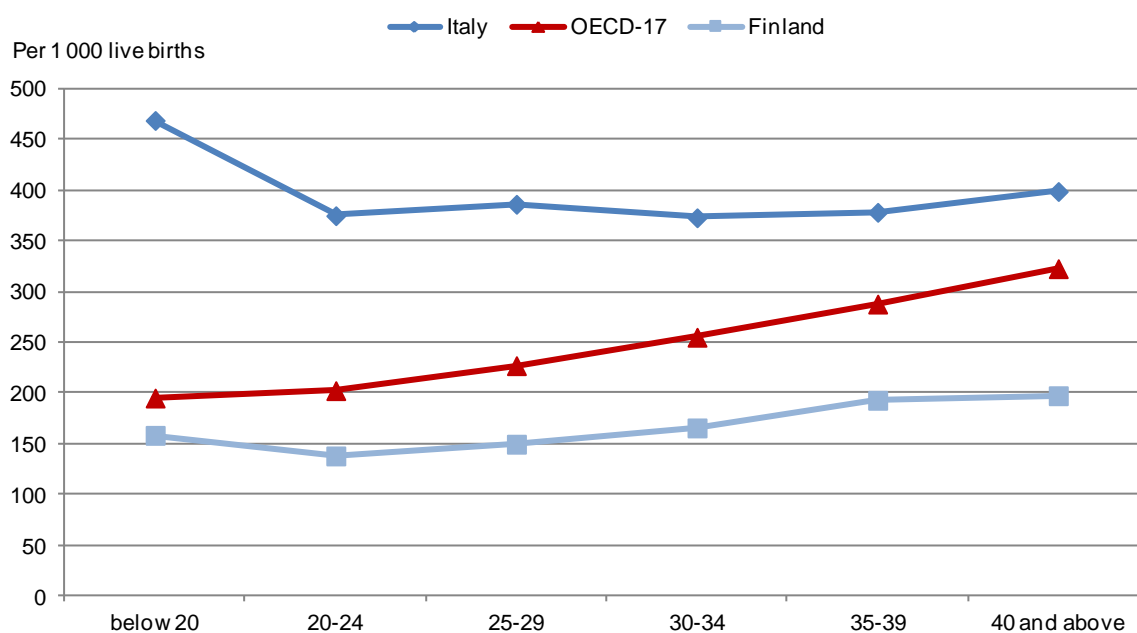
72. Caesarean rates have increased rapidly over the past two decades in most European countries. The increase temporarily slowed during the 1990s in some countries such as Slovenia and Denmark, as a result of changes in obstetrical practice (including trial of normal labor and delivery after a woman has had a previous caesarean to reduce the number of repeat caesareans). But caesarean rates soon resumed their upward trend, due in part to reports of complications from trial of labour and continued changes in patient preferences. Other trends, such as increases in first births among older women and the rise in multiple births resulting from assisted reproduction, also contributed to the global rise in caesarean deliveries. The growth rate since 2000 has been particularly rapid in Denmark, the Czech Republic, Poland and the Slovak



Republic. Iceland is the only country that has slightly reversed the trend of rising caesarean rates since 2000, while the rate in Finland has been stable.

73. McPherson and colleagues (forthcoming) have been able to collect age-specific rates of caesarean sections for 17 OECD countries in Europe and outside Europe around 2008. Countries shown in Figure 13 highlight the highest (Italy), lowest (Finland) and average rates among this group of 17 countries. Rates among the European countries included in that study are consistently higher for Italy and Switzerland, and lower for the Nordic countries. In most countries, caesarean rates tend to increase as a woman ages, but there are exceptions. In Italy, Germany, Portugal and Spain, the rate is almost constant during a woman's lifetime.

**Figure 13. Age-specific rates of caesarean sections per 1 000 live births, 2008 or latest year available**



Source: McPherson et al. (forthcoming).

74. The country ranking of caesarean sections based on the age-standardised rates calculated by McPherson and colleagues among the 17 countries included in that study is similar to the crude rates shown in Figure 3.7 (McPherson *et al.*, forthcoming).

### 3.9 Hip and knee replacement

75. Significant advancements in surgical treatment have provided effective options to reduce the pain and disability associated with certain musculoskeletal conditions. Joint replacement surgery (hip and knee replacement) is considered the most effective intervention for severe osteoarthritis, reducing pain and disability and restoring some patients to near normal function. Hip replacement is a surgical procedure in which the hip joint is replaced by a prosthetic implant; it is generally conducted to relieve arthritis pain or treat severe physical joint damage following hip fracture. Knee replacement is a surgical procedure to replace the weight-bearing surfaces of the knee joint to relieve the pain and disability of osteoarthritis.

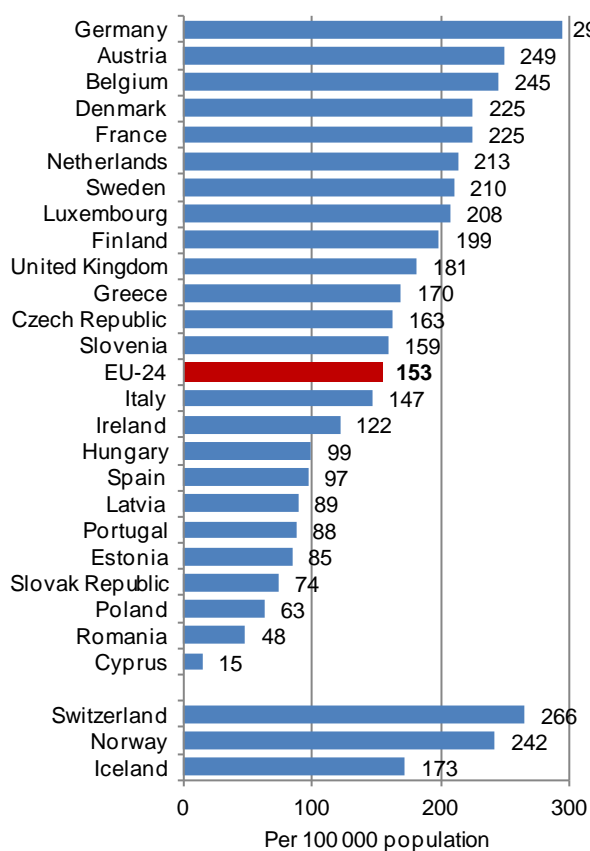
76. Osteoarthritis is one of the ten most disabling diseases in developed countries. Worldwide estimates are that 9.6% of men and 18.0% of women aged over 60 years have symptomatic osteoarthritis,

including moderate and severe forms (WHO, 2010a). Age is the strongest predictor of the development and progression of osteoarthritis. It is more common in women, increasing after the age of 50 especially in the hand and knee. Other risk factors include obesity, physical inactivity, smoking, excess alcohol and injuries (EC, 2008b). While joint replacement surgery is mainly carried out among people aged 60 and over, it can also be performed among people at younger ages.

77. There are wide variations in hip and knee replacement rates across countries. Austria, Belgium, Germany and Switzerland have the highest rates of hip replacement (Figure 14). These countries also have the highest rates of knee replacement, along with Finland (Figure 15). Differences in population structure may explain part of these variations across countries, and age-standardisation reduces to some extent the variations across countries. Nonetheless, large differences remain and the country ranking does not change in any significant way following age standardisation (McPherson *et al.*, forthcoming).

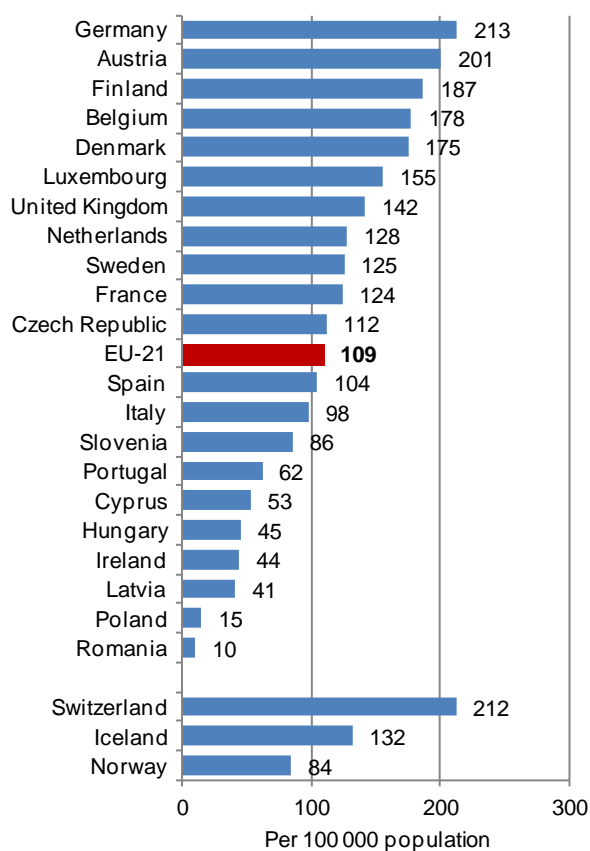
78. Beyond different population structures, a number of other reasons may explain cross-country variations in the rate of hip and knee replacement: i) differences in the prevalence of osteoarthritis problems; ii) differences in the capacity to deliver and pay for these expensive procedures; iii) differences in clinical treatment guidelines and practices. The comparability of the data is also limited for two reasons. First, some countries only include total hip replacement (*e.g.*, Estonia) while most also include partial replacement. Similarly, certain countries only include initial knee replacement while others also include revisions. Second, differences in data coverage can also have an impact on data completeness and comparability. In Ireland for example, the data only include activities in publicly-funded hospitals (it is estimated that over 10% of all hospital activity is undertaken in private hospitals).

**Figure 14. Hip replacement surgery, per 100 000 population, 2010 or nearest year**



Source: OECD Health Data 2012; Eurostat Statistics Database.

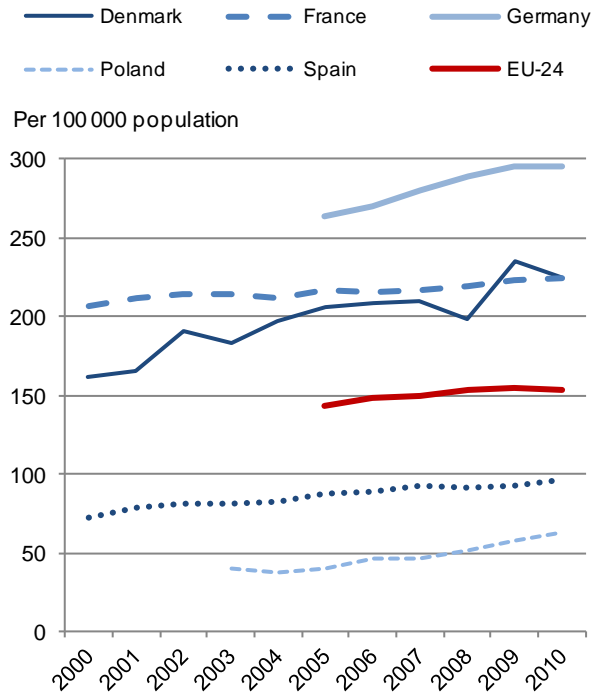
**Figure 15. Knee replacement surgery, per 100 000 population, 2010 or nearest year**



Source: OECD Health Data 2012; Eurostat Statistics Database.

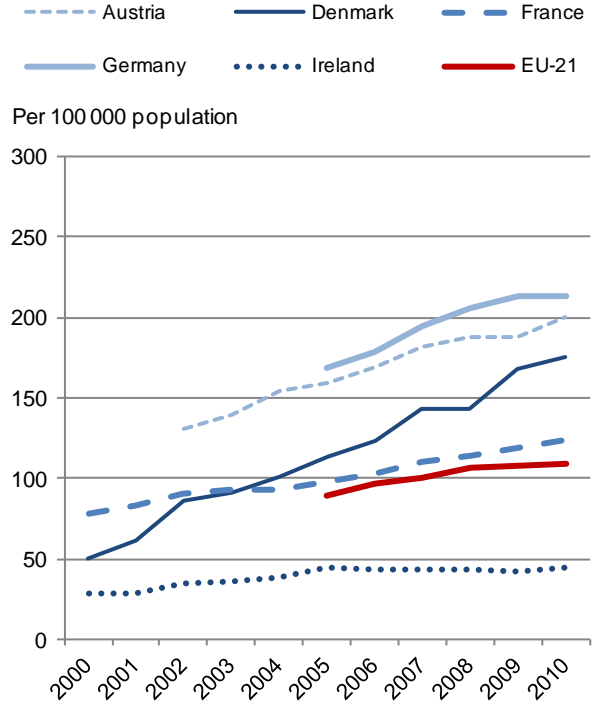
79. The rate of hip and knee replacement has increased over the past ten years in many European countries, due to population ageing and the growing prevalence of obesity, the main risk factor for osteoarthritis beyond age and sex (Figures 16 and 17). In Denmark, the hip replacement rate increased by 40% between 2000 and 2010, while knee replacement more than tripled. Similarly, in Spain, the hip replacement rate increased by 25% and knee replacement more than doubled during the past decade. The growth rate for both interventions was somewhat slower in France, but still the hip replacement rate increased by nearly 10% while knee replacement rose by 60% between 2000 and 2010.

**Figure 16. Trend in hip replacement surgery, 2000-10, selected countries**



Source: OECD Health Data 2012; Eurostat Statistics Database.

**Figure 17. Trend in knee replacement surgery, 2000-10, selected countries**



Source: OECD Health Data 2012; Eurostat Statistics Database.

#### 4. CONCLUSIONS AND RECOMMENDATIONS

80. This project had two complementary objectives: first, a methodological objective to develop and test two important changes in the data collection specifications on surgical procedures to improve data comparability; and second, to analyse variations across countries and over time in surgical activity rates, including trends towards the expansion of day surgery.

81. The methodological part of the project was designed to achieve progress on two issues that have been limiting the comparability of data on surgical procedures across countries: 1) differences in counting method; and 2) differences in the definition and coverage of day surgery. It was not within the scope of this project to address another important issue to promote more consistent reporting of data on surgical procedures across countries, which is the lack of an international standard classification of procedures. Work has been undertaken to develop such an international classification of procedures under the auspices of the WHO Family of International Classifications (WHO-FIC). This developmental work is complex and will require a lot of efforts, but the development and implementation of such an international classification of procedures would greatly help international data collection on procedures.

82. This project has achieved substantial progress in harmonising the counting method that countries are using to report their data on surgical procedures. Most countries have now moved from the “old” method of reporting all procedure codes without any restriction to the new recommended method of reporting either only one procedure per procedure category or the number of patients receiving the procedure. Some countries report the main procedure only; this may lead to some under-estimation if the procedures on the shortlist are not registered as the main procedure, but this can be expected to be quite rare (as documented by the previous HDP2 project). The main persisting problem relates to those countries that are continuing to report their data based on the “old” method of counting all the procedures without any restriction (Belgium in certain cases, Germany and Slovenia). This counting method can lead to a large over-estimation in the data reported, in particular for certain procedures such as cataract surgery, coronary angioplasty and coronary bypass where more than one procedure codes can be reported depending on the national classification system. These countries should be encouraged to change their counting method to make it more consistent with the approach used in other countries. The incorporation of the proposed counting method that was implemented in this project in the OECD/Eurostat/WHO-Europe joint questionnaire on non-monetary health care statistics in 2013 should promote further harmonisation of this important methodological issue across European countries and non-European OECD countries.

83. A proper monitoring of the development of day surgery in different countries should be based, ideally, on a full coverage of activities in hospitals and in other settings (e.g., in clinics or specialised ambulatory surgery centres). The OECD and Eurostat data collections have traditionally included a breakdown between inpatient cases and day cases, with day cases usually defined as patients admitted to the hospital and discharged the same day. While covering part of the day surgery activities, such a data collection did not explicitly covered all the day surgeries that may be carried out as outpatient cases (non-admitted patients) in hospitals and in other settings. To address this gap, this project has tested the feasibility to broaden the data coverage and reporting of outpatient cases in hospitals and in other settings for a few surgical interventions that are now carried mainly without an overnight stay in hospital (e.g., cataract surgery). The results from this pilot data collection confirmed that many countries are still only able to report data on day cases in hospitals and unable to report data on outpatient cases. But among those

countries that are able to report data on outpatient cases, the collection of these data are crucial to properly document the development of day for operations such as cataracts. The pilot data collection also helped to clarify the definition of “day cases” in the regular data submissions, and that some countries were already including such outpatient cases under their reporting of day cases. Recognising both the current limitations in the ability of many countries to report data on outpatient cases and the value of collecting these data in a clearly-defined way where possible, the OECD, Eurostat and WHO-Europe have agreed to collect data on outpatient cases for two surgical procedures (e.g., cataract surgery and tonsillectomy) that are performed to a large extent as day surgery in their joint questionnaire on non-monetary health care statistics in 2013.

84. The analytical part of the project showed that there are substantial variations across European countries in surgical activity rates for the procedures that are regularly collected, as well as in the share of day surgery for those interventions that can be performed without any overnight stay in hospital. Some of these variations are due to persisting data comparability issues in some countries and data coverage of day surgery as noted above. But even after taking into account these data comparability limitations, the analysis of procedure rates for inpatient cases (which are not hampered by the under-reporting of day surgery) shows that there are a lot of variations among the group of countries for which the data appear to be fairly comparable. Depending on the procedure, the variations are more or less pronounced. For example, the variation is less pronounced for appendectomy (with a difference of 2.3 times between the country with the highest rate and the country with the lowest rate) than for caesarean section (a difference of 2.6 times), hip replacement (a difference of 4.7 times) or knee replacement (a difference of 4.8 times, if one excludes the outlier with the lowest rate). Differences in population structure may explain partly these variations in rates, and additional data collected under a related OECD project reveals that age-standardisation may reduce to some extent these variations, but it does not change in any significant way the country ranking (McPherson *et al.*, forthcoming). Other supply-side or demand-side factors must explain variations in surgical activity rates for the different procedures.

85. Among the procedures that are often performed as day surgery, the number and rate of cataract surgery is by far the highest in nearly all countries, and so is the share of operations carried out without any overnight stay in hospitals (Table 5). From a medical perspective, a cataract surgery using modern techniques should not normally require an hospitalisation. In Nordic countries, nearly all cataract surgeries have, for many years, been carried out as day surgery (and recorded either as “day cases” or “outpatient cases”, depending on the administrative procedures). The share of same-day surgery for cataracts is also close to 100% in the Netherlands and the United Kingdom. In other countries, the share of same-day surgery has increased over the past decade, but still a relatively large number of operations are carried out with an hospitalisation, indicating that there is room for further progress. There are also large variations in the use of day surgery for tonsillectomy (the removal of tonsils, which is the most frequent procedure performed on children). In some countries (Belgium, Finland, Netherlands and Norway), tonsillectomy is carried out mainly as a day surgery with children returning home the same day, but in several other countries the share of day surgery remains very low. These variations in clinical practice may reflect different appreciation of possible risks of complications after the operation, but they may also simply reflect traditions. Promoting further innovations in health care delivery may help to achieve efficiency gains and reduce the cost per intervention without any negative impact on patient safety and outcomes.

86. Variations in surgical activity rates across countries and in the development of day surgery raise important questions about the appropriateness, efficiency and equity in health care provision. For example, the trends towards increasing rates of caesarean sections in many (but not all) European countries are raising issues about the appropriateness of some of these operations, and on the impact and safety for mothers and babies when such interventions may not be medically required.

87. The analysis of variations in surgical activity rates in this paper has been limited to variations *across* countries because the regular OECD and Eurostat data collection does not go down to the

subnational level. However, a large body of evidence, initially coming from the United States but increasingly available from a number of European countries, shows that there are also large variations in surgical activity rates and clinical practice *within* countries, at the regional level, hospital level or individual clinician level. The OECD has undertaken a project to describe and analyse in greater depth some of the variations within countries in clinical practice for procedures such as coronary angioplasty and coronary bypass, knee replacement, and caesarean section. This project, which involves a dozen of European and non-European countries, will examine possible demand-side factors, supply-side factors and health system characteristics that might explain clinical practice variations within countries, and will explore policy options that countries might consider to reduce unwarranted variations and improve resource allocation.

88. The methodological and analytical work carried out in this project has played a very useful role in preparing the extension of the OECD/Eurostat/WHO-Europe joint questionnaire on non-monetary health care statistics to include surgical procedures and other health care activities starting in 2013. It has helped in making difficult decisions on the data collection specifications that will be implemented in the joint questionnaire, to promote data comparability and relevancy of the data collected for comparative analysis.

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## ANNEX 2: COMPARISON OF 2010 RESULTS FROM OECD, EUROSTAT AND WHO-EUROPE DATA COLLECTIONS ON AGGREGATE NUMBER OF ALL SURGICAL PROCEDURES

89. Until 2010, the OECD, Eurostat and WHO-Europe were collecting data separately on the total aggregate number of surgical procedures, including a breakdown between in-patient cases and day cases for the OECD and Eurostat data collection (the WHO-Europe data collection only included in-patient cases).

90. The following definitions were used for this data collection:

- OECD definition: The sum of all types of surgical interventions (invasive) performed as in-patient cases and day cases. Only the main procedure performed on a patient during an hospital stay should be reported.
- Eurostat definition: Procedures are all types of medical interventions with the intention of achieving a result in the care of persons with health problem. Inclusion: diagnostic procedures, therapeutic procedures, surgical procedures, rehabilitation procedures.
- WHO-Europe definition: Same definition as OECD, but focussing only on in-patient cases. All invasive therapies performed as in-patient surgery, where in-patient surgery is defined as a surgical operation or procedure that is performed with an overnight stay in an in-patient institution (OECD Health Data 2000).

91. The Eurostat definition was broader than the OECD and WHO-Europe definition as it included not only surgical procedures, but also diagnostic procedures, other therapeutic procedures and rehabilitation procedures.

92. Regardless of whether the data collection focuses only on surgical procedures or whether it also covers other types of procedures, a fundamental challenge in any international data collection on the aggregate number of procedures is that there is no international classification of (surgical) procedures which would allow a consistent definition of the scope of procedures that should be included or excluded and a consistent reporting across countries.

93. The review of the sources and methods underlying the data submitted to the OECD for this data collection indicated that there were at least three factors seriously limiting the comparability of data on the total number of surgical procedures. First, there were differences in the definition of “surgical procedures”: while most countries were reporting only invasive procedures, some countries also included other procedures, such as non-invasive operations, diagnostic procedures or therapeutic procedures (e.g., respiratory therapy). Second, differences in the counting method: while several countries reported only the main surgical procedure during an hospital stay, other countries report either all procedures recorded or up to a certain number of procedures per patient (in countries where there is a maximum number of procedures that can be recorded). Third, differences in the coverage of settings: while most countries reported only procedures in hospital, some countries also included those performed in the ambulatory sector.



94. In preparing the extension of the OECD/Eurostat/WHO-Europe joint questionnaire on non-monetary health care statistics, the three organisations compared the results of their data collection on the aggregate number of surgical procedures. The results from this comparison are shown in the Table below.

95. As expected given the definitions, there were greater consistency in the data submitted to the OECD and Who-Europe, compared with the data submitted to Eurostat. In several countries, the data submitted to the OECD (for inpatient cases) were identical to the data submitted to WHO-Europe. However, this was not the case for a majority of countries. In most cases, the data supplied to the OECD was much lower than the data supplied to WHO-Europe. This may be due perhaps to the specification in the old OECD definition used at that time that only the main procedure should be reported. It may also have been due to differences in the coverage of procedures or coverage of settings. In most cases, the numbers submitted to Eurostat were logically higher than those submitted to the OECD or WHO-Europe given the broader coverage of procedures. But surprisingly, this was not the case for all countries, as some countries submitted low numbers to Eurostat than to OECD or WHO-Europe (e.g., Germany for day cases, Sweden and the United Kingdom for inpatient cases).

96. Recognising the difficulties in promoting consistent data reporting across countries in the absence of an international classification of procedures, the three organisations decided to discontinue their data collection on the aggregate number of (surgical) procedures and to focus their work on improving the data collection on a selected shortlist of well-defined procedures.

**Table A2.1: Total surgical procedures: comparison between OECD, Eurostat and WHO-Europe data (last available year)**

Total surgical procedures: comparison between OECD, Eurostat and WHO-Europe data for the latest common year												
		Total number of surgical procedures						Difference in %				
		OECD			Eurostat			WHO	OECD/ESTAT		OECD/WHO	WHO/ESTAT
		In-patient	Day case	Total	In-patient	Day case	Total	In-patient	In-patient	Day case	In-patient	In-patient
Austria	2008			1,163,465	4,549,073			1,163,465				
Belgium	2007	651,744	543,428	1,195,172	6,244,114	2,074,425	8,318,539	921,881	-90%	-74%	-29%	-85%
Czech Republic	2007	669,545						862,531			-22%	
Denmark	2007	415,040	404,694	819,734	531,164	740,887	1,272,051	531,146	-22%	-45%	-22%	0%
Estonia	2008	87,998	44,663	132,661	399,889	46,257	446,146	87,998	-78%	-3%	0%	-78%
Finland	2008	335,236	215,608	550,844	550,844	184,976	735,820	550,764	-39%	17%	-39%	0%
France	..											
Germany	2008	5,425,693	1,808,747	7,234,440	41,348,869	443,961	41,792,830	5,425,693	-87%	307%	0%	-87%
Greece	2006	731,900						731,900			0%	
Hungary	2008	729,915	88,353	818,268				1,256,126			-42%	
Iceland	2007							11,248				
Ireland	2008	143,453	98,819	242,272	1,046,492	966,482	2,012,974	143,453	-86%	-90%	0%	-86%
Israel	2008	359,747	143,920	503,666				473,801			-24%	
Italy	2007	2,979,280	1,610,009	4,589,289	6,162,460	3,062,621	9,225,081	2,966,309	-52%	-47%	0%	-52%
Luxembourg	2007	57,096	38,497	95,593								
Netherlands	2007	651,335	664,031	1,315,366	865,000	1,097,000	1,962,000	651,000	-25%	-39%	0%	-25%
Norway	..											
Poland	2007	4,455,277	805,351	5,260,628	16,029,769	1,821,290	17,851,059		-72%	-56%		
Portugal	2007	621,528	188,427	809,955				809,955			-23%	
Slovak Republic	2008							26,675				
Slovenia	2008	86,185	18,275	104,460				159,697			-46%	
Spain	2008	2,262,880	1,259,261	3,522,141	10,523,990	2,860,008	13,383,998	2,262,880	-78%	-56%	0%	-78%
Sweden	2007	671,461			428,534	1,085,769	1,514,303	632,922	57%		6%	48%
Switzerland	2007	962,136	174,507	1,136,643	960,476	174,085	1,134,561	514,864	0%	0%	87%	-46%
Turkey	2008	6,081,471						6,081,471			0%	
United Kingdom	2007	4,406,428	5,248,580	9,655,008	4,027,923	5,734,170	9,762,093	4,978,511	9%	-8%	-11%	24%

Source: OECD Health Data 2010; WHO-Europe HFA, extracted on 22 Feb. 2011; Eurostat data provided on 18 June 2010.

### ANNEX 3. OECD DATA COLLECTION ON SHORTLIST OF PROCEDURES IN 2011 AND 2012

<b>Surgical procedures</b>	<b>ICD-9-CM Codes<sup>1</sup> (1996)</b>	<b>In-patient cases</b>	<b>Day cases</b>
Cataract surgery	13.1-13.7	✓	✓
Tonsillectomy with or without adenoidectomy	28.2-28.3	✓	✓
Percutaneous transluminal coronary angioplasty (PTCA and stenting)	36.0	✓	
Coronary bypass	36.1	✓	
Appendectomy	47.0	✓	
Cholecystectomy	51.2	✓	✓
of which Laparoscopic cholecystectomy	51.23	✓	✓
Inguinal and femoral hernia	53.0-53.3	✓	✓
Prostatectomy (transurethral)	60.2	✓	
Prostatectomy (excluding transurethral)	60.3-60.6	✓	
Hysterectomy (vaginal only)	68.5	✓	
Caesarean section	74.0-74.2, 74.4, 74.99	✓	
Hip replacement	81.51-81.53	✓	
Knee replacement	81.54-81.55	✓	
Breast conserving surgery	85.2	✓	
Mastectomy	85.4	✓	

1. Countries are asked to map their national classification codes to the ICD-9-CM codes.

#### **ANNEX 4: COMPARISON OF 2012 RESULTS FROM OECD AND EUROSTAT DATA COLLECTION FOR SELECTED SURGICAL PROCEDURES, AND RESOLUTION OF DATA INCONSISTENCY IN COLLABORATION WITH NATIONAL FOCAL POINTS**

97. The preparation of the extension of the OECD/Eurostat/WHO-Europe joint questionnaire on non-monetary health care statistics to cover surgical procedures and other health care activities included several steps: 1) agreement on the overall scope and content of the data collection, including the selection of the shortlist of procedures that would be collected jointly; 2) agreement on the data collection specifications (including the harmonisation of the ICD-9-CM codes provided to countries to assist them in their data submission, the proposed counting method, and the proposed data coverage for day surgery); and 3) comparing and reconciling any data inconsistencies between the existing datasets for the same (or similar) variables that had been collected separately until 2012 by the three international organisations.

98. This Annex reports on this last step, which was the final step in harmonising the data collection results of the three international organisations before the launch of the extended OECD/Eurostat/WHO-Europe joint questionnaire on non-monetary health care statistics in 2013. The three organisations worked together in the Fall 2012 to prepare a series of tables comparing the national data submissions for those variables that were collected by at least two of the three organisations. In the area of surgical procedures, the comparisons included mainly the results from the 2012 OECD and Eurostat data collection, given that WHO-Europe was only collecting one procedure on the commonly-agreed shortlist (caesarean section). The comparison files were sent to national focal points in early November 2012, and most of them responded on what dataset should be used by December 2012.

99. The following tables show, for each country, the results from the 2012 OECD data collection and Eurostat data collection for the 17 procedures (and one subgroup) that were collected separately by the two organisations in 2012 and which will be included in the joint questionnaire. The last column indicates the dataset that the national focal points recommended should be used for the purpose of the joint questionnaire, in light of the proposed definitions and data collection specifications.

100. A number of reasons can explain the variations between the 2012 OECD dataset and the Eurostat dataset: 1) differences in the counting method used by countries (a count of all procedures without any restriction, a count of no more than one procedure per procedure category, a count of the main procedure or a count of the number of patients receiving the procedure); 2) differences in the scope of the data collection for certain procedures (e.g., the OECD data collection only included vaginal hysterectomy while the Eurostat collection also included abdominal hysterectomy); and 3) differences in data coverage for day surgery.

101. This effort to reconcile data inconsistencies between the OECD and the Eurostat dataset is an important step to allow more consistent reporting of data across these two international databases and more comparable data for analysis of variations in surgical activity rates and clinical practice across countries.

## Austria 2010

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	84061	84061	84061
	Inpatient cases	56465	56465	56465
	Day cases	27596	27596	27596
2. Tonsillectomy	Total	10288	..	..
	Inpatient cases	10268	10288	10288
	Day cases	20	..	..
3. Transluminal coronary angioplasty	Total	..	..	..
	Inpatient cases	20125	20125	20125
	Day cases	..	..	..
4. Coronary artery bypass graft	Total	..	..	..
	Inpatient cases	3967	3967	3967
	Day cases	..	..	..
5. Stem cell transplantation	Total	415	..	..
	Inpatient cases	..	425	425
	Day cases	..	..	..
6. Appendectomy	Total	..	..	..
	Inpatient cases	14457	14457	14457
	Day cases	..	..	..
7. Cholecystectomy	Total	18883	..	..
	Inpatient cases	18878	18883	18883
	Day cases	5	..	..
7.a Of which Laparoscopic cholecystectomy	Total	15983	..	..
	Inpatient cases	15979	15983	15983
	Day cases	4	..	..
8. Repair of inguinal hernia	Total	15038	15038	15038
	Inpatient cases	14585	14585	14585
	Day cases	453	453	453
9. Transplantation of kidney	Total	408	..	..
	Inpatient cases	..	412	412
	Day cases	..	..	..
10. Transurethral prostatectomy	Total	..	..	..
	Inpatient cases	6854	6854	6854
	Day cases	..	..	..
11. Open prostatectomy	Total	..	..	..
	Inpatient cases	2923	2923	2923
	Day cases	..	..	..
12. Hysterectomy	Total	..	..	..
	Inpatient cases	4598	10218	10218
	Day cases	..	..	..
13. Caesarean section	Total	..	..	..
	Inpatient cases	22243	22243	22243
	Day cases	..	..	..
14. Hip replacement	Total	..	..	..
	Inpatient cases	20898	22624	22624

	Day cases	..	..	..
15. Total knee replacement	Total	..	..	..
	Inpatient cases	16833	16833	16833
	Day cases	..	..	..
16. Partial excision of mammary gland	Total	..	9317	9317
	Inpatient cases	9317	9109	9109
	Day cases	..	208	208
17. Total mastectomy	Total	..	..	..
	Inpatient cases	2088	2088	2088
	Day cases	..	..	..

## Belgium 2008

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	204868	103393	(to come)
	Inpatient cases	13566	7104	
	Day cases	191302	96289	
2. Tonsillectomy	Total	24993	24991	
	Inpatient cases	8048	8057	
	Day cases	16945	16934	
3. Transluminal coronary angioplasty	Total	..	25436	
	Inpatient cases	50266	23362	
	Day cases	..	2074	
4. Coronary artery bypass graft	Total	..	7795	
	Inpatient cases	13337	7793	
	Day cases	..	2	
5. Stem cell transplantation	Total	801	801	
	Inpatient cases	..	796	
	Day cases	..	5	
6. Appendectomy	Total	..	15871	
	Inpatient cases	14793	15804	
	Day cases	..	67	
7. Cholecystectomy	Total	22118	22043	
	Inpatient cases	21678	21603	
	Day cases	440	440	
7.a Of which Laparoscopic cholecystectomy	Total	19510	19510	
	Inpatient cases	19074	19074	
	Day cases	436	436	
8. Repair of inguinal hernia	Total	26882	25592	
	Inpatient cases	20091	19069	
	Day cases	6791	6523	
9. Transplantation of kidney	Total	487	491	
	Inpatient cases	..	491	
	Day cases	..	0	
10. Transurethral prostatectomy	Total	..	9934	
	Inpatient cases	9906	9906	

	Day cases	..	28
11. Open prostatectomy	Total	..	5217
	Inpatient cases	5199	5192
	Day cases	..	25
12. Hysterectomy	Total	..	15383
	Inpatient cases	7720	15365
	Day cases	..	18
13. Caesarean section	Total	..	24992
	Inpatient cases	24943	24933
	Day cases	..	59
14. Hip replacement	Total	..	26241
	Inpatient cases	26243	26233
	Day cases	..	8
15. Total knee replacement	Total	..	17767
	Inpatient cases	19026	17756
	Day cases	..	11
16. Partial excision of mammary gland	Total	..	11731
	Inpatient cases	8426	8295
	Day cases	..	3436
17. Total mastectomy	Total	..	5231
	Inpatient cases	4648	5074
	Day cases	..	157

## Czech Republic 2010

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	96729	53506	96729
	Inpatient cases	9263	9263	9263
	Day cases	381	44243	381
	Outpatient cases	87085	..	87085
2. Tonsillectomy	Total	..	..	..
	Inpatient cases	..	..	..
	Day cases	..	..	..
3. Transluminal coronary angioplasty	Total	..	..	..
	Inpatient cases	21573	21573	21573
	Day cases	..	..	..
4. Coronary artery bypass graft	Total	..	5605	..
	Inpatient cases	5605	5605	5605
	Day cases	..	0	..
5. Stem cell transplantation	Total	578	578	578
	Inpatient cases	..	578	..
	Day cases	..	0	..
6. Appendectomy	Total	..	..	..
	Inpatient cases	..	..	..
	Day cases	..	..	..

7. Cholecystectomy	Total	..	..	..
	Inpatient cases	..	..	..
	Day cases	..	..	..
7.a Of which Laparoscopic cholecystectomy	Total	..	..	..
	Inpatient cases	..	..	..
	Day cases	..	..	..
8. Repair of inguinal hernia	Total	..	..	..
	Inpatient cases	..	..	..
	Day cases	..	..	..
9. Transplantation of kidney	Total	347	347	347
	Inpatient cases	..	347	..
	Day cases	..	0	..
10. Transurethral prostatectomy	Total	..	..	..
	Inpatient cases	..	..	..
	Day cases	..	..	..
11. Open prostatectomy	Total	..	..	..
	Inpatient cases	..	..	..
	Day cases	..	..	..
12. Hysterectomy	Total	..	..	..
	Inpatient cases	..	..	..
	Day cases	..	..	..
13. Caesarean section	Total	..	26345	..
	Inpatient cases	26345	26345	26345
	Day cases	..	0	..
14. Hip replacement	Total	..	17114	..
	Inpatient cases	17114	17114	17114
	Day cases	..	0	..
15. Total knee replacement	Total	..	11734	..
	Inpatient cases	11734	11734	11734
	Day cases	..	0	..
16. Partial excision of mammary gland	Total	..	..	..
	Inpatient cases	..	..	..
	Day cases	..	..	..
17. Total mastectomy	Total	..	..	..
	Inpatient cases	..	..	..
	Day cases	..	..	..

## Denmark 2010

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	50282	..	(to come)
	Inpatient cases	903	..	
	Day cases	49379	..	
2. Tonsillectomy	Total	6467	..	
	Inpatient cases	4749	..	
	Day cases	1718	..	

3. Transluminal coronary angioplasty	Total	..	..
	Inpatient cases	8765	..
	Day cases	..	..
4. Coronary artery bypass graft	Total	..	..
	Inpatient cases	4106	..
	Day cases	..	..
5. Stem cell transplantation	Total	257	..
	Inpatient cases	..	..
	Day cases	..	..
6. Appendectomy	Total	..	..
	Inpatient cases	5842	..
	Day cases	..	..
7. Cholecystectomy	Total	7698	..
	Inpatient cases	4340	..
	Day cases	3358	..
7.a Of which Laparoscopic cholecystectomy	Total	6954	..
	Inpatient cases	3645	..
	Day cases	3309	..
8. Repair of inguinal hernia	Total	11159	..
	Inpatient cases	3095	..
	Day cases	8064	..
9. Transplantation of kidney	Total	255	..
	Inpatient cases	..	..
	Day cases	..	..
10. Transurethral prostatectomy	Total	..	..
	Inpatient cases	3434	..
	Day cases	..	..
11. Open prostatectomy	Total	..	..
	Inpatient cases	988	..
	Day cases	..	..
12. Hysterectomy	Total	..	..
	Inpatient cases	1458	..
	Day cases	..	..
13. Caesarean section	Total	..	..
	Inpatient cases	13461	..
	Day cases	..	..
14. Hip replacement	Total	..	..
	Inpatient cases	12507	..
	Day cases	..	..
15. Total knee replacement	Total	..	..
	Inpatient cases	9692	..
	Day cases	..	..
16. Partial excision of mammary gland	Total	..	..
	Inpatient cases	3666	..
	Day cases	..	..
17. Total mastectomy	Total	..	..
	Inpatient cases	2365	..
	Day cases	..	..



## Estonia 2010

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	11313	9770	11313
	Inpatient cases	39	67	39
	Day cases	9665	9703	9665
	Outpatient cases	1609	..	1609
2. Tonsillectomy	Total	..	9489	..
	Inpatient cases	..	5516	..
	Day cases	..	3973	..
3. Transluminal coronary angioplasty	Total	..	..	..
	Inpatient cases	2441	3827	2441
	Day cases	..	..	..
4. Coronary artery bypass graft	Total	..	..	..
	Inpatient cases	632	1356	632
	Day cases	..	..	..
5. Stem cell transplantation	Total	..	..	..
	Inpatient cases	..	..	..
	Day cases	..	..	..
6. Appendectomy	Total	..	2264	..
	Inpatient cases	2034	2244	2034
	Day cases	..	20	..
7. Cholecystectomy	Total	3122	3387	3122
	Inpatient cases	3073	3336	3073
	Day cases	49	51	49
7.a Of which Laparoscopic cholecystectomy	Total	2960	3043	2960
	Inpatient cases	2911	2992	2911
	Day cases	49	51	49
8. Repair of inguinal hernia	Total	1931	1989	1931
	Inpatient cases	1473	1527	1473
	Day cases	458	462	458
9. Transplantation of kidney	Total	35	35	35
	Inpatient cases	..	35	..
	Day cases	..	0	..
10. Transurethral prostatectomy	Total	..	580	..
	Inpatient cases	527	580	527
	Day cases	..	0	..
11. Open prostatectomy	Total	..	490	..
	Inpatient cases	489	490	489
	Day cases	..	0	..
12. Hysterectomy	Total	..	1924	..
	Inpatient cases	1752	1922	1752
	Day cases	..	2	..
13. Caesarean section	Total	..	3244	..
	Inpatient cases	3218	3244	3218
	Day cases	..	0	..
14. Hip replacement	Total	..	..	..
	Inpatient cases	1132	1173	1132
	Day cases	..	..	..

15. Total knee replacement	Total	..	..	..
	Inpatient cases	..	..	..
	Day cases	..	..	..
16. Partial excision of mammary gland	Total	..	493	..
	Inpatient cases	470	490	470
	Day cases	..	3	..
17. Total mastectomy	Total	..	342	..
	Inpatient cases	329	342	329
	Day cases	..	0	..

## Finland 2010

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	44035	86585	(to come)
	Inpatient cases	455	43750	
	Day cases	43087	42835	
	Outpatient cases	493		
2. Tonsillectomy	Total	8247	9776	
	Inpatient cases	2695	6037	
	Day cases	5431	3739	
	Outpatient cases	121		
3. Transluminal coronary angioplasty	Total	..	3571	
	Inpatient cases	7102	3564	
	Day cases	..	7	
4. Coronary artery bypass graft	Total	..	..	
	Inpatient cases	3040	201	
	Day cases	..	..	
5. Stem cell transplantation	Total	333	..	
	Inpatient cases	..	171	
	Day cases	..	..	
6. Appendectomy	Total	..	6364	
	Inpatient cases	6374	6347	
	Day cases	..	17	
7. Cholecystectomy	Total	7652	9431	
	Inpatient cases	5718	7631	
	Day cases	1934	1800	
7.a Of which Laparoscopic cholecystectomy	Total	6562	8344	
	Inpatient cases	4654	6562	
	Day cases	1908	1782	
8. Repair of inguinal hernia	Total	10851	16949	
	Inpatient cases	4092	10623	
	Day cases	6759	6326	
9. Transplantation of kidney	Total	175	..	
	Inpatient cases	..	148	
	Day cases	..	..	
10. Transurethral prostatectomy	Total	..	3668	

	Inpatient cases	3426	3493
	Day cases	..	175
11. Open prostatectomy	Total	..	..
	Inpatient cases	1630	1039
	Day cases	..	..
12. Hysterectomy	Total	..	5565
	Inpatient cases	6643	5550
	Day cases	..	15
13. Caesarean section	Total	..	..
	Inpatient cases	9844	8959
	Day cases	..	..
14. Hip replacement	Total	..	11776
	Inpatient cases	10676	11770
	Day cases	..	6
15. Total knee replacement	Total	..	7992
	Inpatient cases	10029	7986
	Day cases	..	6
16. Partial excision of mammary gland	Total	..	4347
	Inpatient cases	3684	3427
	Day cases	..	920
17. Total mastectomy	Total	..	2883
	Inpatient cases	2769	2782
	Day cases	..	101

## France 2010

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	673262	673262	673262
	Inpatient cases	133937	133937	133937
	Day cases	539325	539325	539325
2. Tonsillectomy	Total	68180	68180	68180
	Inpatient cases	54554	54554	54554
	Day cases	13626	13626	13626
3. Transluminal coronary angioplasty	Total	..	128801	128801
	Inpatient cases	128074	128074	128074
	Day cases	..	727	727
4. Coronary artery bypass graft	Total	..	..	..
	Inpatient cases	18383	18383	19460
	Day cases	..	..	..
5. Stem cell transplantation	Total	4718	4732	4732
	Inpatient cases	..	4636	4636
	Day cases	..	96	96
6. Appendectomy	Total	..	..	..
	Inpatient cases	87322	87322	87322
	Day cases	..	..	..
7. Cholecystectomy	Total	122561	122561	122561

	Inpatient cases	120651	120651	120651
	Day cases	1910	1910	1910
7.a Of which Laparoscopic cholecystectomy	Total	106570	106570	106570
	Inpatient cases	104662	104662	104662
	Day cases	1908	1908	1908
8. Repair of inguinal hernia	Total	..	152747	152747
	Inpatient cases	..	101705	101705
	Day cases	..	51042	51042
9. Transplantation of kidney	Total	2892	..	2892
	Inpatient cases	..	2767	2767
	Day cases	..	..	..
10. Transurethral prostatectomy	Total	..	..	..
	Inpatient cases	57548	57548	57548
	Day cases	..	..	..
11. Open prostatectomy	Total	..	..	..
	Inpatient cases	29956	29956	29956
	Day cases	..	..	..
12. Hysterectomy	Total	..	..	..
	Inpatient cases	..	69053	69053
	Day cases	..	..	..
13. Caesarean section	Total	..	..	..
	Inpatient cases	168664	168664	168664
	Day cases	..	..	..
14. Hip replacement	Total	..	..	..
	Inpatient cases	145796	145796	145796
	Day cases	..	..	..
15. Total knee replacement	Total	..	..	..
	Inpatient cases	80462	80462	80462
	Day cases	..	..	..
16. Partial excision of mammary gland	Total	..	69114	69114
	Inpatient cases	58052	58052	58052
	Day cases	..	11062	11062
17. Total mastectomy	Total	..	..	..
	Inpatient cases	20664	20664	20664
	Day cases	..	..	..

## Germany 2010

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	153832	153832	153832
	Inpatient cases	145778	145778	145778
	Day cases	8054	8054	8054
2. Tonsillectomy	Total	128133	128133	128133
	Inpatient cases	127988	127988	127988
	Day cases	145	145	145
3. Transluminal coronary angioplasty	Total	..	512349	512349

	Inpatient cases	510646	508626	508626
	Day cases	..	3723	3723
4. Coronary artery bypass graft	Total	..	94545	94545
	Inpatient cases	94456	94456	94456
	Day cases	..	89	89
5. Stem cell transplantation	Total	5343	6425	6425
	Inpatient cases	..	6423	6423
	Day cases	..	2	2
6. Appendectomy	Total	..	140760	140760
	Inpatient cases	123097	140713	140713
	Day cases	..	47	47
7. Cholecystectomy	Total	192825	192825	192825
	Inpatient cases	192774	192774	192774
	Day cases	51	51	51
7.a Of which Laparoscopic cholecystectomy	Total	153806	153806	153806
	Inpatient cases	153787	153787	153787
	Day cases	19	19	19
8. Repair of inguinal hernia	Total	182932	176693	176693
	Inpatient cases	182323	176096	176096
	Day cases	609	597	597
9. Transplantation of kidney	Total	2937	2908	2908
	Inpatient cases	..	2906	2906
	Day cases	..	2	2
10. Transurethral prostatectomy	Total	..	78908	78908
	Inpatient cases	78902	78902	78902
	Day cases	..	6	6
11. Open prostatectomy	Total	..	34111	34111
	Inpatient cases	34111	34111	34111
	Day cases	..	0	0
12. Hysterectomy	Total	..	144183	144183
	Inpatient cases	74005	144170	144170
	Day cases	..	13	13
13. Caesarean section	Total	..	..	..
	Inpatient cases	209441	209441	209441
	Day cases	..	..	..
14. Hip replacement	Total	..	241537	241537
	Inpatient cases	241252	241453	241453
	Day cases	..	84	84
15. Total knee replacement	Total	..	170050	170050
	Inpatient cases	174232	170050	170050
	Day cases	..	0	0
16. Partial excision of mammary gland	Total	..	97014	97014
	Inpatient cases	96593	96593	96593
	Day cases	..	421	421
17. Total mastectomy	Total	..	28927	28927
	Inpatient cases	28911	28911	28911
	Day cases	..	16	16

## Hungary 2009

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	68430	85299	85278
	Inpatient cases	52067	68435	68466
	Day cases	16363	16864	16812
2. Tonsillectomy	Total	14813	15445	15423
	Inpatient cases	14813	15445	15423
	Day cases	0	0	0
3. Transluminal coronary angioplasty	Total	..	18152	17576
	Inpatient cases	17257	18144	17568
	Day cases	..	8	8
4. Coronary artery bypass graft	Total	..	8572	4047
	Inpatient cases	3233	8572	4047
	Day cases	..	0	0
5. Stem cell transplantation	Total	327	375	369
	Inpatient cases	..	375	369
	Day cases	..	0	0
6. Appendectomy	Total	..	9662	9330
	Inpatient cases	9353	9662	9330
	Day cases	..	0	0
7. Cholecystectomy	Total	24151	25426	24353
	Inpatient cases	24151	25426	24353
	Day cases	0	0	0
7.a Of which Laparoscopic cholecystectomy	Total	19740	20204	19926
	Inpatient cases	19740	20204	19926
	Day cases	0	0	0
8. Repair of inguinal hernia	Total	17173	25558	25422
	Inpatient cases	16244	24171	24039
	Day cases	929	1387	1383
9. Transplantation of kidney	Total	261	267	203
	Inpatient cases	..	267	203
	Day cases	..	0	0
10. Transurethral prostatectomy	Total	..	4027	3953
	Inpatient cases	3920	4026	3952
	Day cases	..	1	1
11. Open prostatectomy	Total	..	1652	1593
	Inpatient cases	1638	1652	1593
	Day cases	..	0	0
12. Hysterectomy	Total	..	9694	9489
	Inpatient cases	1837	9694	9489
	Day cases	..	0	0
13. Caesarean section	Total	..	30643	30548
	Inpatient cases	30189	30643	30548
	Day cases	..	0	0
14. Hip replacement	Total	..	10736	10043
	Inpatient cases	9965	10736	10043
	Day cases	..	0	0
15. Total knee replacement	Total	..	4347	4123

	Inpatient cases	4526	4347	4123
	Day cases	..	0	0
16. Partial excision of mammary gland	Total	..	7649	7624
	Inpatient cases	6908	7063	7039
	Day cases	..	586	585
17. Total mastectomy	Total	..	2675	2643
	Inpatient cases	2626	2675	2643
	Day cases	..	0	0

## Ireland 2009

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	9093	8286	8286
	Inpatient cases	1856	1854	1854
	Day cases	7237	6432	6432
2. Tonsillectomy	Total	4098	4098	4098
	Inpatient cases	4039	4039	4039
	Day cases	59	59	59
3. Transluminal coronary angioplasty	Total	..	4571	4571
	Inpatient cases	3633	3720	3720
	Day cases	..	851	851
4. Coronary artery bypass graft	Total	..	2018	..
	Inpatient cases	1047	2018	1047
	Day cases	..	0	..
5. Stem cell transplantation	Total	176	176	176
	Inpatient cases	..	162	162
	Day cases	..	14	14
6. Appendectomy	Total	..	7121	7121
	Inpatient cases	7047	7104	7104
	Day cases	..	17	17
7. Cholecystectomy	Total	4836	4843	4843
	Inpatient cases	4505	4512	4512
	Day cases	331	331	331
7.a Of which Laparoscopic cholecystectomy	Total	4288	4288	4288
	Inpatient cases	3963	3963	3963
	Day cases	325	325	325
8. Repair of inguinal hernia	Total	3712	3554	3554
	Inpatient cases	2345	2231	2231
	Day cases	1367	1323	1323
9. Transplantation of kidney	Total	172	171	172
	Inpatient cases	..	171	..
	Day cases	..	0	..
10. Transurethral prostatectomy	Total	..	1221	..
	Inpatient cases	1178	1216	1178
	Day cases	..	5	..
11. Open prostatectomy	Total	..	325	..

	Inpatient cases	356	324	356
	Day cases	..	1	..
12. Hysterectomy	Total	..	2979	2979
	Inpatient cases	974	2977	2977
	Day cases	..	2	2
13. Caesarean section	Total	..	19070	19582
	Inpatient cases	18766	19070	..
	Day cases	..	0	..
14. Hip replacement	Total	..	5270	..
	Inpatient cases	5221	5270	5221
	Day cases	..	0	..
15. Total knee replacement	Total	..	1685	1685
	Inpatient cases	1866	1685	1685
	Day cases	..	0	0
16. Partial excision of mammary gland	Total	..	2858	2858
	Inpatient cases	1404	1403	1403
	Day cases	..	1455	1455
17. Total mastectomy	Total	..	1006	1006
	Inpatient cases	980	982	982
	Day cases	..	24	24

## Iceland 2009

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	..	..	..
	Inpatient cases	27	29	29
	Day cases	..	..	..
2. Tonsillectomy	Total	..	..	..
	Inpatient cases	160	160	160
	Day cases	..	..	..
3. Transluminal coronary angioplasty	Total	..	..	..
	Inpatient cases	632	632	632
	Day cases	..	..	..
4. Coronary artery bypass graft	Total	..	..	..
	Inpatient cases	189	182	182
	Day cases	..	..	..
5. Stem cell transplantation	Total	30	..	..
	Inpatient cases	..	..	..
	Day cases	..	..	..
6. Appendectomy	Total	..	..	..
	Inpatient cases	468	467	467
	Day cases	..	..	..
7. Cholecystectomy	Total	..	..	..
	Inpatient cases	551	551	551
	Day cases	..	..	..
7.a Of which Laparoscopic cholecystectomy	Total	..	..	..



	Inpatient cases	527	527	527
	Day cases	..	..	..
8. Repair of inguinal hernia	Total	..	..	..
	Inpatient cases	92	86	86
	Day cases	..	..	..
9. Transplantation of kidney	Total	10	..	..
	Inpatient cases	..	7	7
	Day cases	..	..	..
10. Transurethral prostatectomy	Total	..	..	..
	Inpatient cases	165	167	167
	Day cases	..	..	..
11. Open prostatectomy	Total	..	..	..
	Inpatient cases	61	61	61
	Day cases	..	..	..
12. Hysterectomy	Total	..	..	..
	Inpatient cases	92	436	436
	Day cases	..	..	..
13. Caesarean section	Total	..	..	..
	Inpatient cases	792	792	792
	Day cases	..	..	..
14. Hip replacement	Total	..	..	..
	Inpatient cases	551	551	551
	Day cases	..	..	..
15. Total knee replacement	Total	..	..	..
	Inpatient cases	420	291	291
	Day cases	..	..	..
16. Partial excision of mammary gland	Total	..	..	..
	Inpatient cases	159	152	152
	Day cases	..	..	..
17. Total mastectomy	Total	..	..	..
	Inpatient cases	126	126	126
	Day cases	..	..	..

## Italy 2009

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	184043	185080	185080
	Inpatient cases	26893	27360	27360
	Day cases	157150	157720	157720
2. Tonsillectomy	Total	42103	42298	42298
	Inpatient cases	31875	32006	32006
	Day cases	10228	10292	10292
3. Transluminal coronary angioplasty	Total	..	61449	61449
	Inpatient cases	78658	60606	60606
	Day cases	..	843	843
4. Coronary artery bypass graft	Total	..	18888	18888

	Inpatient cases	18887	18887	18887
	Day cases	..	1	1
5. Stem cell transplantation	Total	4913	4322	4322
	Inpatient cases	..	4150	4150
	Day cases	..	172	172
6. Appendectomy	Total	..	47423	47423
	Inpatient cases	47003	47309	47309
	Day cases	..	114	114
7. Cholecystectomy	Total	104643	104209	104209
	Inpatient cases	103297	102871	102871
	Day cases	1346	1338	1338
7.a Of which Laparoscopic cholecystectomy	Total	91476	91476	91476
	Inpatient cases	90166	90166	90166
	Day cases	1310	1310	1310
8. Repair of inguinal hernia	Total	163289	158023	158023
	Inpatient cases	88816	84863	84863
	Day cases	74473	73160	73160
9. Transplantation of kidney	Total	1650	1707	1707
	Inpatient cases	..	1704	1704
	Day cases	..	3	3
10. Transurethral prostatectomy	Total	..	34908	34908
	Inpatient cases	34759	34772	34772
	Day cases	..	136	136
11. Open prostatectomy	Total	..	27349	27349
	Inpatient cases	27249	27255	27255
	Day cases	..	94	94
12. Hysterectomy	Total	..	57737	57737
	Inpatient cases	19980	57590	57590
	Day cases	..	147	147
13. Caesarean section	Total	..	216625	216625
	Inpatient cases	216597	216604	216604
	Day cases	..	21	21
14. Hip replacement	Total	..	90295	90295
	Inpatient cases	88429	90277	90277
	Day cases	..	18	18
15. Total knee replacement	Total	..	56275	56275
	Inpatient cases	58808	56234	56234
	Day cases	..	41	41
16. Partial excision of mammary gland	Total	..	66885	66885
	Inpatient cases	43011	42926	42926
	Day cases	..	23959	23959
17. Total mastectomy	Total	..	19110	19110
	Inpatient cases	16200	18421	18421
	Day cases	..	689	689

## Luxembourg 2010

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	4410	3386	4410
	Inpatient cases	2253	2256	2253
	Day cases	1134	1130	1134
	Outpatient cases	1023	..	1023
2. Tonsillectomy	Total	1074	1074	1074
	Inpatient cases	998	997	998
	Day cases	76	77	76
3. Transluminal coronary angioplasty	Total	..	..	
	Inpatient cases	944	949	944
	Day cases	..	..	
4. Coronary artery bypass graft	Total	..	..	
	Inpatient cases	247	247	247
	Day cases	..	..	
5. Stem cell transplantation	Total	..	..	
	Inpatient cases	..	7	7
	Day cases	..	..	
6. Appendectomy	Total	..	..	
	Inpatient cases	639	639	
	Day cases	..	..	639
7. Cholecystectomy	Total	710	..	710
	Inpatient cases	710	709	710
	Day cases	0	..	0
7.a Of which Laparoscopic cholecystectomy	Total	..	..	
	Inpatient cases	..	..	
	Day cases	..	..	
8. Repair of inguinal hernia	Total	929	929	929
	Inpatient cases	712	711	712
	Day cases	217	218	217
9. Transplantation of kidney	Total	15	..	
	Inpatient cases	..	0	0
	Day cases	..	..	
10. Transurethral prostatectomy	Total	..	..	
	Inpatient cases	..	..	
	Day cases	..	..	
11. Open prostatectomy	Total	..	..	
	Inpatient cases	63	63	63
	Day cases	..	..	
12. Hysterectomy	Total	..	..	
	Inpatient cases	555	595	595
	Day cases	..	..	
13. Caesarean section	Total	..	..	
	Inpatient cases	1675	1675	1675
	Day cases	..	..	
14. Hip replacement	Total	..	..	
	Inpatient cases	994	875	994
	Day cases	..	..	

15. Total knee replacement	Total	..	..	
	Inpatient cases	744	744	744
	Day cases	..	..	
16. Partial excision of mammary gland	Total	..	153	153
	Inpatient cases	120	121	121
	Day cases	..	32	32
17. Total mastectomy	Total	..	..	
	Inpatient cases	81	81	81
	Day cases	..	..	

## Netherlands 2009

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	145397	146100	146100
	Inpatient cases	1960	2100	2100
	Day cases	143437	144000	144000
2. Tonsillectomy	Total	39789	39900	39900
	Inpatient cases	12731	12800	12800
	Day cases	27058	27100	27100
3. Transluminal coronary angioplasty	Total	..	38250	38250
	Inpatient cases	28126	28100	28100
	Day cases	..	10150	10150
4. Coronary artery bypass graft	Total	..	9530	9530
	Inpatient cases	9526	9530	9530
	Day cases	..	0	0
5. Stem cell transplantation	Total	607	610	610
	Inpatient cases	..	610	610
	Day cases	..	0	0
6. Appendectomy	Total	..	16430	16430
	Inpatient cases	16360	16400	16400
	Day cases	..	30	30
7. Cholecystectomy	Total	24808	24850	24850
	Inpatient cases	23656	23700	23700
	Day cases	1152	1150	1150
7.a Of which Laparoscopic cholecystectomy	Total	21952	21950	21950
	Inpatient cases	20803	20800	20800
	Day cases	1149	1150	1150
8. Repair of inguinal hernia	Total	30536	28120	28120
	Inpatient cases	9746	8620	8620
	Day cases	20790	19500	19500
9. Transplantation of kidney	Total	814	810	810
	Inpatient cases	..	810	810
	Day cases	..	0	0
10. Transurethral prostatectomy	Total	..	11400	11400
	Inpatient cases	11396	11400	11400
	Day cases	..	0	0

11. Open prostatectomy	Total	..	2500	2500
	Inpatient cases	2482	2500	2500
	Day cases	..	0	0
12. Hysterectomy	Total	..	14500	14500
	Inpatient cases	6569	14500	14500
	Day cases	..	0	0
13. Caesarean section	Total	..	27400	27400
	Inpatient cases	27446	27400	27400
	Day cases	..	0	0
14. Hip replacement	Total	..	34100	34100
	Inpatient cases	35257	34100	34100
	Day cases	..	0	0
15. Total knee replacement	Total	..	18500	18500
	Inpatient cases	21091	18500	18500
	Day cases	..	0	0
16. Partial excision of mammary gland	Total	..	13600	13600
	Inpatient cases	7933	7840	7840
	Day cases	..	5760	5760
17. Total mastectomy	Total	..	7870	7870
	Inpatient cases	7869	7870	7870
	Day cases	..	0	0

## Norway 2009

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire (to come)
1. Cataract surgery	Total	22297	..	(to come)
	Inpatient cases	707	..	
	Day cases	21590	..	
2. Tonsillectomy	Total	9269	..	
	Inpatient cases	4356	..	
	Day cases	4913	..	
3. Transluminal coronary angioplasty	Total	..	..	
	Inpatient cases	11509	..	
	Day cases	..	..	
4. Coronary artery bypass graft	Total	..	..	
	Inpatient cases	2974	..	
	Day cases	..	..	
5. Stem cell transplantation	Total	..	..	
	Inpatient cases	..	..	
	Day cases	..	..	
6. Appendectomy	Total	..	..	
	Inpatient cases	5733	..	
	Day cases	..	..	
7. Cholecystectomy	Total	4381	..	
	Inpatient cases	3225	..	
	Day cases	1156	..	

7.a Of which Laparoscopic cholecystectomy	Total	4014	..
	Inpatient cases	2873	..
	Day cases	1141	..
8. Repair of inguinal hernia	Total	6878	..
	Inpatient cases	2088	..
	Day cases	4790	..
9. Transplantation of kidney	Total	303	..
	Inpatient cases	..	..
	Day cases	..	..
10. Transurethral prostatectomy	Total	..	..
	Inpatient cases	4156	..
	Day cases	..	..
11. Open prostatectomy	Total	..	..
	Inpatient cases	1336	..
	Day cases	..	..
12. Hysterectomy	Total	..	..
	Inpatient cases	4858	..
	Day cases	..	..
13. Caesarean section	Total	..	..
	Inpatient cases	10257	..
	Day cases	..	..
14. Hip replacement	Total	..	..
	Inpatient cases	11704	..
	Day cases	..	..
15. Total knee replacement	Total	..	..
	Inpatient cases	4062	..
	Day cases	..	..
16. Partial excision of mammary gland	Total	..	..
	Inpatient cases	2757	..
	Day cases	..	..
17. Total mastectomy	Total	..	..
	Inpatient cases	1975	..
	Day cases	..	..

## Poland 2010

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	106084	..	
	Inpatient cases	87672	87672	87672
	Day cases	18412	18412	18412
2. Tonsillectomy	Total	..	..	..
	Inpatient cases	..	23843	23843
	Day cases	..	588	588
3. Transluminal coronary angioplasty	Total	..	..	..
	Inpatient cases	33168	33168	33168
	Day cases	..	301	301

4. Coronary artery bypass graft	Total	..	..	..
	Inpatient cases	16557	16557	16557
	Day cases	..	10	10
5. Stem cell transplantation	Total	944	..	..
	Inpatient cases	..	691	691
	Day cases	..	3	3
6. Appendectomy	Total	..	..	..
	Inpatient cases	28349	28349	28349
	Day cases	..	33	33
7. Cholecystectomy	Total	63022	..	..
	Inpatient cases	62943	62943	62943
	Day cases	79	79	79
7.a Of which Laparoscopic cholecystectomy	Total	..	..	..
	Inpatient cases	..	45746	45746
	Day cases	..	59	59
8. Repair of inguinal hernia	Total	50353	..	..
	Inpatient cases	47832	47832	47832
	Day cases	2521	2521	2521
9. Transplantation of kidney	Total	884	..	..
	Inpatient cases	..	703	703
	Day cases	..	1	1
10. Transurethral prostatectomy	Total	..	..	..
	Inpatient cases	..	8116	8116
	Day cases	..	59	59
11. Open prostatectomy	Total	..	..	..
	Inpatient cases	..	3615	3615
	Day cases	..	114	114
12. Hysterectomy	Total	..	..	..
	Inpatient cases	32897	32897	32897
	Day cases	..	69	69
13. Caesarean section	Total	..	..	..
	Inpatient cases	107595	107595	107595
	Day cases	..	58	58
14. Hip replacement	Total	..	..	..
	Inpatient cases	24135	24135	24135
	Day cases	..	13	13
15. Total knee replacement	Total	..	..	..
	Inpatient cases	..	6475	6475
	Day cases	..	3	3
16. Partial excision of mammary gland	Total	..	..	..
	Inpatient cases	..	7098	7098
	Day cases	..	1840	1840
17. Total mastectomy	Total	..	..	..
	Inpatient cases	7183	7183	7183
	Day cases	..	239	239

## Portugal 2009

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire  (to come)
1. Cataract surgery	Total	147809	283993	
	Inpatient cases	12043	148116	
	Day cases	135766	135877	
2. Tonsillectomy	Total	8372	11298	
	Inpatient cases	5455	8380	
	Day cases	2917	2918	
3. Transluminal coronary angioplasty	Total	..	2544	
	Inpatient cases	12562	2429	
	Day cases	..	115	
4. Coronary artery bypass graft	Total	..	4220	
	Inpatient cases	4219	4219	
	Day cases	..	1	
5. Stem cell transplantation	Total	423	407	
	Inpatient cases	..	406	
	Day cases	..	1	
6. Appendectomy	Total	..	11496	
	Inpatient cases	10353	11470	
	Day cases	..	26	
7. Cholecystectomy	Total	16255	16984	
	Inpatient cases	15454	16189	
	Day cases	801	795	
7.a Of which Laparoscopic cholecystectomy	Total	12561	13344	
	Inpatient cases	11778	12561	
	Day cases	783	783	
8. Repair of inguinal hernia	Total	19548	25095	
	Inpatient cases	12785	18526	
	Day cases	6763	6569	
9. Transplantation of kidney	Total	595	578	
	Inpatient cases	..	578	
	Day cases	..	0	
10. Transurethral prostatectomy	Total	..	2327	
	Inpatient cases	2327	2327	
	Day cases	..	0	
11. Open prostatectomy	Total	..	2644	
	Inpatient cases	2627	2627	
	Day cases	..	17	
12. Hysterectomy	Total	..	11013	
	Inpatient cases	2330	11002	
	Day cases	..	11	
13. Caesarean section	Total	..	27179	
	Inpatient cases	27175	27175	
	Day cases	..	4	
14. Hip replacement	Total	..	9336	
	Inpatient cases	9333	9333	
	Day cases	..	3	
15. Total knee replacement	Total	..	6190	



	Inpatient cases	6555	6190
	Day cases	..	0
16. Partial excision of mammary gland	Total	..	8842
	Inpatient cases	6906	6839
	Day cases	..	2003
17. Total mastectomy	Total	..	3156
	Inpatient cases	2876	3083
	Day cases	..	73

## Slovak Republic 2010

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	13323	..	13323
	Inpatient cases	11082	11114	11082
	Day cases	2241	..	2241
2. Tonsillectomy	Total	..	..	..
	Inpatient cases	..	..	..
	Day cases	676	..	676
3. Transluminal coronary angioplasty	Total	..	..	..
	Inpatient cases	..	..	..
	Day cases	..	..	..
4. Coronary artery bypass graft	Total	..	..	..
	Inpatient cases	1546	1571	1546
	Day cases	..	..	..
5. Stem cell transplantation	Total	168	..	168
	Inpatient cases	..	..	..
	Day cases	..	..	..
6. Appendectomy	Total	..	..	..
	Inpatient cases	5648	5654	5648
	Day cases	..	..	..
7. Cholecystectomy	Total	..	..	..
	Inpatient cases	..	..	..
	Day cases	..	..	..
7.a Of which Laparoscopic cholecystectomy	Total	..	..	..
	Inpatient cases	..	..	..
	Day cases	541	..	541
8. Repair of inguinal hernia	Total	..	..	..
	Inpatient cases	9107	9137	9107
	Day cases	..	..	..
9. Transplantation of kidney	Total	169	..	169
	Inpatient cases	..	..	..
	Day cases	..	..	..
10. Transurethral prostatectomy	Total	..	..	..
	Inpatient cases	..	..	..
	Day cases	..	..	..

11. Open prostatectomy	Total	..	..	..
	Inpatient cases	526	526	526
	Day cases	..	..	..
12. Hysterectomy	Total	..	..	..
	Inpatient cases	2631	8238	2631
	Day cases	..	..	..
13. Caesarean section	Total	..	..	..
	Inpatient cases	..	15765	..
	Day cases	..	..	..
14. Hip replacement	Total	..	..	..
	Inpatient cases	4039	4045	4039
	Day cases	..	..	..
15. Total knee replacement	Total	..	..	..
	Inpatient cases	..	..	..
	Day cases	..	..	..
16. Partial excision of mammary gland	Total	..	..	..
	Inpatient cases	4244	1838	4244
	Day cases	..	..	..
17. Total mastectomy	Total	..	..	..
	Inpatient cases	939	947	939
	Day cases	..	..	..

## Slovenia 2010

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	1745	1679	1679
	Inpatient cases	1621	1555	1555
	Day cases	124	124	124
2. Tonsillectomy	Total	962	962	962
	Inpatient cases	961	961	961
	Day cases	1	1	1
3. Transluminal coronary angioplasty	Total	..	3885	3885
	Inpatient cases	3954	3884	3884
	Day cases	..	1	1
4. Coronary artery bypass graft	Total	..	1220	1220
	Inpatient cases	1220	1220	1220
	Day cases	..	0	0
5. Stem cell transplantation	Total	2	0	0
	Inpatient cases	..	0	0
	Day cases	..	0	0
6. Appendectomy	Total	..	0	0
	Inpatient cases	2362	0	0
	Day cases	..	0	0
7. Cholecystectomy	Total	4589	3898	3898
	Inpatient cases	4589	3898	3898
	Day cases	0	0	0

7.a Of which Laparoscopic cholecystectomy	Total	4014	691	691
	Inpatient cases	4014	691	691
	Day cases	0	0	0
8. Repair of inguinal hernia	Total	4035	36	36
	Inpatient cases	3717	35	35
	Day cases	318	1	1
9. Transplantation of kidney	Total	49	49	49
	Inpatient cases	..	49	49
	Day cases	..	0	0
10. Transurethral prostatectomy	Total	..	685	685
	Inpatient cases	684	684	684
	Day cases	..	1	1
11. Open prostatectomy	Total	..	764	764
	Inpatient cases	764	764	764
	Day cases	..	0	0
12. Hysterectomy	Total	..	249	249
	Inpatient cases	970	249	249
	Day cases	..	0	0
13. Caesarean section	Total	..	721	721
	Inpatient cases	4233	721	721
	Day cases	..	0	0
14. Hip replacement	Total	..	2410	2410
	Inpatient cases	3264	1548	1548
	Day cases	..	862	862
15. Total knee replacement	Total	..	1669	1669
	Inpatient cases	1751	1669	1669
	Day cases	..	0	0
16. Partial excision of mammary gland	Total	..	849	849
	Inpatient cases	811	802	802
	Day cases	..	47	47
17. Total mastectomy	Total	..	549	549
	Inpatient cases	549	549	549
	Day cases	..	0	0

## Spain 2010

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	265601	595660	265601
	Inpatient cases	10957	22199	10957
	Day cases	254644	573461	254644
2. Tonsillectomy	Total	27569	27981	27569
	Inpatient cases	20246	20579	20246
	Day cases	7323	7402	7323
3. Transluminal coronary angioplasty	Total	..	57630	..
	Inpatient cases	62549	54163	62549
	Day cases	..	3467	..

4. Coronary artery bypass graft	Total	..	14103	..
	Inpatient cases	8027	14093	8027
	Day cases	..	10	..
5. Stem cell transplantation	Total	2546	2644	2546
	Inpatient cases	..	2631	..
	Day cases	..	13	..
6. Appendectomy	Total	..	51763	..
	Inpatient cases	51088	51591	51088
	Day cases	..	172	..
7. Cholecystectomy	Total	74224	75034	74224
	Inpatient cases	71243	71898	71243
	Day cases	2981	3136	2981
7.a Of which Laparoscopic cholecystectomy	Total	58610	59340	58610
	Inpatient cases	55723	56336	55723
	Day cases	2887	3004	2887
8. Repair of inguinal hernia	Total	88617	86484	88617
	Inpatient cases	55587	53482	55587
	Day cases	33030	33002	33030
9. Transplantation of kidney	Total	2225	2233	2225
	Inpatient cases	..	2195	..
	Day cases	..	38	..
10. Transurethral prostatectomy	Total	..	17886	..
	Inpatient cases	17152	17651	17152
	Day cases	..	235	..
11. Open prostatectomy	Total	..	15993	..
	Inpatient cases	15761	15937	15761
	Day cases	..	56	..
12. Hysterectomy	Total	..	37526	..
	Inpatient cases	12158	37332	12158
	Day cases	..	194	..
13. Caesarean section	Total	..	106856	..
	Inpatient cases	122704	106760	122704
	Day cases	..	96	..
14. Hip replacement	Total	..	46253	..
	Inpatient cases	44699	46189	44699
	Day cases	..	64	..
15. Total knee replacement	Total	..	47342	..
	Inpatient cases	48120	47253	48120
	Day cases	..	89	..
16. Partial excision of mammary gland	Total	..	34954	..
	Inpatient cases	20888	22492	20888
	Day cases	..	12462	..
17. Total mastectomy	Total	..	13121	..
	Inpatient cases	10632	12666	10632
	Day cases	..	455	..

## Sweden 2009

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	56297	66195	66195
	Inpatient cases	1650	1772	1772
	Day cases	54647	64423	64423
2. Tonsillectomy	Total	9242	8821	8821
	Inpatient cases	5734	5656	5656
	Day cases	3508	3165	3165
3. Transluminal coronary angioplasty	Total	..	16607	16607
	Inpatient cases	16317	15965	15965
	Day cases	..	642	642
4. Coronary artery bypass graft	Total	..	3911	3911
	Inpatient cases	4187	3906	3906
	Day cases	..	5	5
5. Stem cell transplantation	Total	23	633	633
	Inpatient cases	..	556	556
	Day cases	..	77	77
6. Appendectomy	Total	..	10634	10634
	Inpatient cases	10634	10287	10287
	Day cases	..	347	347
7. Cholecystectomy	Total	12560	12554	12554
	Inpatient cases	10688	10504	10504
	Day cases	1872	2050	2050
7.a Of which Laparoscopic cholecystectomy	Total	9996	10001	10001
	Inpatient cases	8273	8111	8111
	Day cases	1723	1890	1890
8. Repair of inguinal hernia	Total	15415	15696	15696
	Inpatient cases	4202	3841	3841
	Day cases	11213	11855	11855
9. Transplantation of kidney	Total	392	394	394
	Inpatient cases	..	392	392
	Day cases	..	2	2
10. Transurethral prostatectomy	Total	..	5844	5844
	Inpatient cases	5555	5531	5531
	Day cases	..	313	313
11. Open prostatectomy	Total	..	2854	2854
	Inpatient cases	2853	2849	2849
	Day cases	..	5	5
12. Hysterectomy	Total	..	8580	8580
	Inpatient cases	1901	8464	8464
	Day cases	..	116	116
13. Caesarean section	Total	..	18929	18929
	Inpatient cases	19157	18910	18910
	Day cases	..	19	19
14. Hip replacement	Total	..	22072	22072
	Inpatient cases	19907	21787	21787
	Day cases	..	285	285
15. Total knee replacement	Total	..	11829	11829

	Inpatient cases	11798	11593	11593
	Day cases	..	236	236
16. Partial excision of mammary gland	Total	..	6329	6329
	Inpatient cases	3464	3142	3142
	Day cases	..	3187	3187
17. Total mastectomy	Total	..	4324	4324
	Inpatient cases	2590	3975	3975
	Day cases	..	349	349

## Switzerland 2008

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	32227	33472	33472
	Inpatient cases	6590	7625	7625
	Day cases	25637	25847	25847
2. Tonsillectomy	Total	9186	10083	10083
	Inpatient cases	8271	8969	8969
	Day cases	915	1114	1114
3. Transluminal coronary angioplasty	Total	..	14952	14952
	Inpatient cases	10755	14376	14376
	Day cases	..	576	576
4. Coronary artery bypass graft	Total	..	3781	3781
	Inpatient cases	2651	3774	3774
	Day cases	..	7	7
5. Stem cell transplantation	Total	168	459	459
	Inpatient cases	..	454	454
	Day cases	..	5	5
6. Appendectomy	Total	..	13640	13640
	Inpatient cases	10855	13617	13617
	Day cases	..	23	23
7. Cholecystectomy	Total	12383	14855	14855
	Inpatient cases	12296	14762	14762
	Day cases	87	93	93
7.a Of which Laparoscopic cholecystectomy	Total	11341	12459	12459
	Inpatient cases	11260	12372	12372
	Day cases	81	87	87
8. Repair of inguinal hernia	Total	18643	19380	19380
	Inpatient cases	17152	17878	17878
	Day cases	1491	1502	1502
9. Transplantation of kidney	Total	286	291	291
	Inpatient cases	..	291	291
	Day cases	..	0	0
10. Transurethral prostatectomy	Total	..	9506	9506
	Inpatient cases	8525	9384	9384
	Day cases	..	122	122
11. Open prostatectomy	Total	..	3230	3230

	Inpatient cases	3059	3224	3224
	Day cases	..	6	6
12. Hysterectomy	Total	..	11244	11244
	Inpatient cases	5202	11224	11224
	Day cases	..	20	20
13. Caesarean section	Total	..	24939	24939
	Inpatient cases	24690	24932	24932
	Day cases	..	7	7
14. Hip replacement	Total	..	22335	22335
	Inpatient cases	21523	22331	22331
	Day cases	..	4	4
15. Total knee replacement	Total	..	13456	13456
	Inpatient cases	14384	13451	13451
	Day cases	..	5	5
16. Partial excision of mammary gland	Total	..	6534	6534
	Inpatient cases	5622	6065	6065
	Day cases	..	469	469
17. Total mastectomy	Total	..	2950	2950
	Inpatient cases	2368	2887	2887
	Day cases	..	63	63

## United Kingdom 2010

		OECD 2012 data collection	Eurostat 2012 data collection	Data to be used for new joint questionnaire
1. Cataract surgery	Total	383898	417099	417099
	Inpatient cases	7474	8666	8666
	Day cases	376424	408433	408433
2. Tonsillectomy	Total	57570	59018	59018
	Inpatient cases	38168	39033	39033
	Day cases	19402	19985	19985
3. Transluminal coronary angioplasty	Total	..	75944	75944
	Inpatient cases	58370	59620	59620
	Day cases	..	16324	16324
4. Coronary artery bypass graft	Total	..	19162	19162
	Inpatient cases	23142	19126	19126
	Day cases	..	36	36
5. Stem cell transplantation	Total	3240	3167	3167
	Inpatient cases	..	2948	2948
	Day cases	..	219	219
6. Appendectomy	Total	..	57225	57225
	Inpatient cases	54658	56707	56707
	Day cases	..	518	518
7. Cholecystectomy	Total	77820	79229	79229
	Inpatient cases	56941	58219	58219
	Day cases	20879	21010	21010

7.a Of which Laparoscopic cholecystectomy	Total	66237	59396	59396
	Inpatient cases	46624	40227	40227
	Day cases	19613	19169	19169
8. Repair of inguinal hernia	Total	94620	84269	84269
	Inpatient cases	35646	31606	31606
	Day cases	58974	52663	52663
9. Transplantation of kidney	Total	2715	2281	2281
	Inpatient cases	..	2278	2278
	Day cases	..	3	3
10. Transurethral prostatectomy	Total	..	29385	29385
	Inpatient cases	27692	28542	28542
	Day cases	..	843	843
11. Open prostatectomy	Total	..	5760	5760
	Inpatient cases	5724	5714	5714
	Day cases	..	46	46
12. Hysterectomy	Total	..	56242	56242
	Inpatient cases	8507	55997	55997
	Day cases	..	245	245
13. Caesarean section	Total	..	176557	176557
	Inpatient cases	193691	176266	176266
	Day cases	..	291	291
14. Hip replacement	Total	..	107298	107298
	Inpatient cases	112743	107114	107114
	Day cases	..	184	184
15. Total knee replacement	Total	..	84417	84417
	Inpatient cases	88040	84192	84192
	Day cases	..	225	225
16. Partial excision of mammary gland	Total	..	47985	47985
	Inpatient cases	23025	23240	23240
	Day cases	..	24745	24745
17. Total mastectomy	Total	..	21602	21602
	Inpatient cases	20526	20715	20715
	Day cases	..	887	887