

GYNECOLOGY

Prolapse and continence surgery in countries of the Organization for Economic Cooperation and Development in 2012

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OBJECTIVE: The purpose of this study was to report the rates and types of pelvic organ prolapse (POP) and female continence surgery performed in member countries of the Organization for Economic Co-operation and Development (OECD) in 2012.

STUDY DESIGN: The published health outcome data sources of the 34 OECD countries were contacted for data on POP and female continence interventions from 2010-2012. In nonresponding countries, data were sought from national or insurer databases. Extracted data were entered into an age-specific *International Classification of Disease*, edition 10 (ICD-10)—compliant Excel spreadsheet by 2 authors independently in English-speaking countries and a single author in non-English-speaking countries. Data were collated centrally and discrepancies were resolved by mutual agreement.

RESULTS: We report on 684,250 POP and 410,352 continence procedures that were performed in 15 OECD countries in 2012. POP procedures (median rate, 1.38/1000 women; range, 0.51–2.55 prolapse procedures/1000 women) were performed 1.8 times more frequently than continence procedures (median rate, 0.75/1000 women; range, 0.46–1.65 continence procedures/1000 women). Repairs of the anterior vaginal compartment represented 54% of POP procedures; posterior repairs represented 43% of the procedures, and

apical compartment repairs represented 20% of POP procedures. Median rate of graft usage was 15.7% of anterior vaginal repairs (range, 3.3–25.6%) and 8.5% (range, 3.2–17%) of posterior vaginal repairs. Apical compartment repairs were repaired vaginally at a median rate of 70% (range, 35–95%). Sacral colpopexy represented a median rate of 17% (range, 5–65%) of apical repairs; 61% of sacral colpopexies were performed minimally invasively. Between 2010 and 2012, there was a 3.7% median reduction in transvaginal grafts, a 4.0% reduction in midurethral slings, and a 25% increase in sacral colpopexies that were performed per 1000 women. Midurethral slings represented 82% of female continence surgeries.

CONCLUSION: The 5-fold variation in the rate of prolapse interventions within OECD countries needs further evaluation. The significant heterogeneity (>10 times) in the rates at which individual POP procedures are performed indicates a lack of uniformity in the delivery of care to women with POP and demands the development of uniform guidelines for the surgical management of prolapse. In contrast, the midurethral slings were the standard female continence surgery performed throughout OECD countries in 2012.

Key words: continence surgery, graft, Organization for Economic Cooperation and Development, prolapse surgery

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Female pelvic floor dysfunction, which includes pelvic organ prolapse (POP) and urinary incontinence, impedes an individual's quality of life and represents a major financial health burden for the community. Recently, de Boer et al¹ estimated that 20.2% of Dutch women will have undergone continence or POP surgery by the age of 85 years; Wu et al² estimated a similar

EDITORS' ★ CHOICE

rate of intervention in women in the United States. Smith et al³ reported that, by 85 years of age, 19% of women in Western Australia had undergone POP surgery, and similar rates have been reported in Danish women.⁴ Although significant variation exists in the

estimated lifetime risk of surgery for POP and/or continence surgery in different countries, direct comparisons of rates and types of interventions have not been undertaken. The Organization for Economic Cooperation and Development (OECD) facilitates international comparisons of health interventions in member countries and reports data on key surgical procedures⁵; however, no data are available on POP and continence surgeries. Thus, the aim of this report is to use the OECD contact details to allow direct comparisons on the types and rates of POP and continence surgery undertaken in OECD countries.

FIGURE 1

The number and ratio of prolapse and continence procedures performed in OECD countries—2012

Country	POP Procedures N	Continence Procedures N	Ratio Pop/continence procedures
Australia	26280	11219	2.34
Canada	23929	20950	1.14
Denmark	4945	1386	3.57
England	37492	15037	2.49
France	50469	47467	1.06
Germany	88196	21600	4.08
Holland [†]	14749	5529	2.67
Ireland	1667	1742	0.96
Israel	3434	3130	1.10
New Zealand	2428	1248	1.95
Portugal	3893	4364	0.89
Spain	14224	11218	1.27
Sweden	9484	3634	2.61
Switzerland	2060	1828	1.13
USA (FDA 2010)	401000*	260000	1.54
Total	684250	410352	

FDA, Food and Drug Administration; OECD, Organization for Economic Cooperation and Development; POP, pelvic organ prolapse.

[†]Holland data relates to 2011; *Estimate calculated on 300,000 women undergoing 1.33 POP procedures per surgical intervention. The 1.33 multiplier is based on 21,830 women (Denmark, 4117 women; Holland, 11,368 women; and Sweden, 6345 women) who underwent 29,178 POP procedures in 2012. MarketScan data demonstrated 32,800 women in the United States underwent 45,402 POP procedures (multiplier, 1.39). Conservatively, we elected to use the smaller multiplier.

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METHODS

To extrapolate data on female POP and continence surgery performed in 2012 throughout the 34 member countries of the OECD, we contacted each of the OECD-listed government health department sources in writing and by electronic mail in September 2013.⁶ If data on 2012 were not available, the latest year of available data was used. Data from 2010 to the end of 2012 were extracted if available. If no response was received within a month, a second electronic query was sent. In non-English-speaking countries, we enlisted the expertise of local colleagues to assist in communication and data extraction. We also contacted colleagues in nonresponding countries to determine whether these data could be accessed directly from the health department, national databases, or insurance companies.

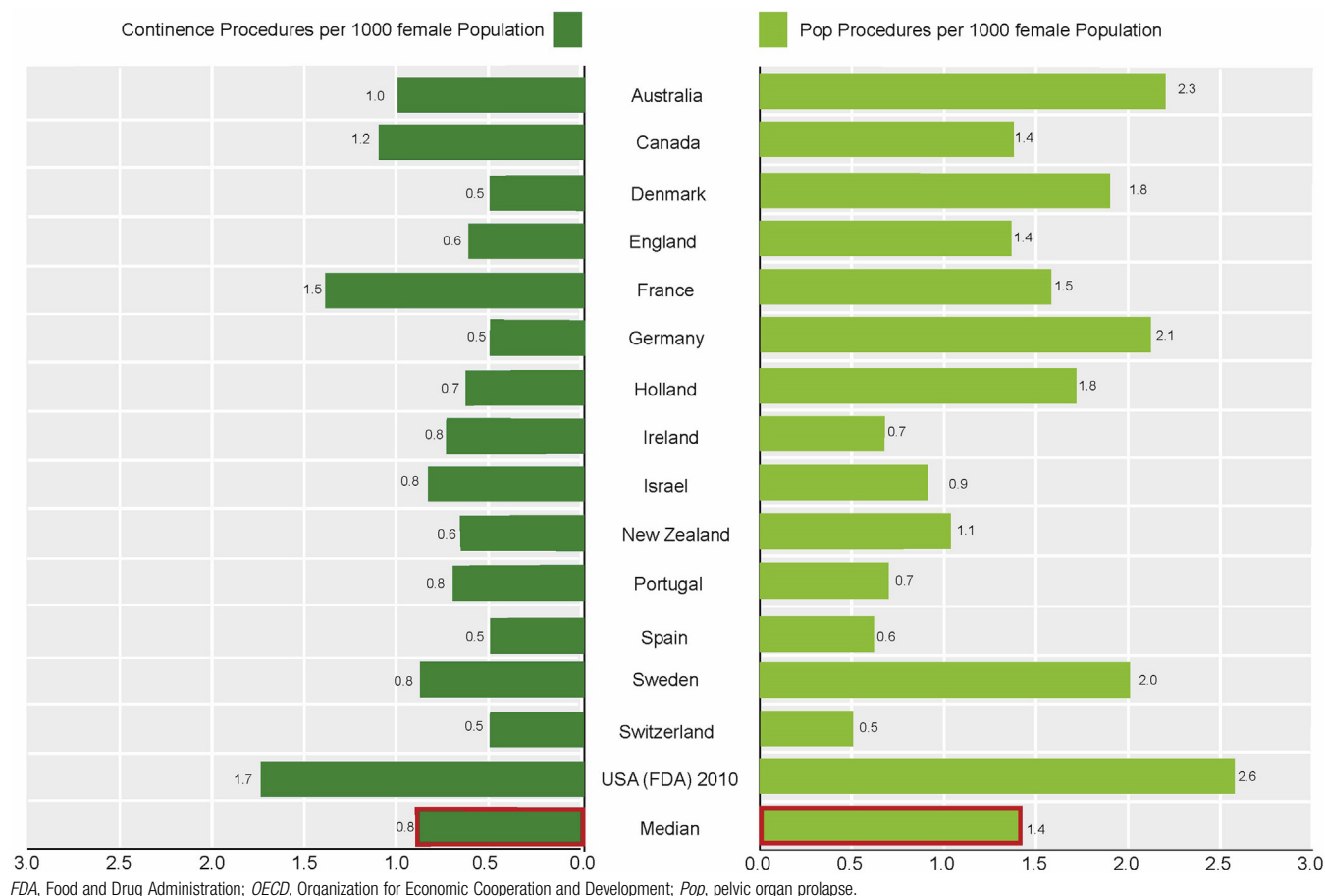
We retrieved data from OECD sources in Australia, Canada, England, France, Germany, Ireland, Israel, New Zealand, Portugal, Switzerland, and Spain. Data were retrieved from national or health insurer's databases in Holland, Denmark, Sweden, and the United States, which totaled 15 responses from 34 OECD countries.

Supplementary Table 1 (Appendix) describes the various coding systems used in the 15 OECD countries, the data source that the percentage of the population the data represents, the accessibility of the data, and the rates of private insurance.

To ensure consistency and transparency with data recording, we

FIGURE 2

Prolapse and continence procedures per 1000 women in OECD countries—2012



FDA, Food and Drug Administration; OECD, Organization for Economic Cooperation and Development; POP, pelvic organ prolapse.

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developed an *International Classification of Disease*, edition 10 (ICD-10)—compliant Excel spreadsheet (Microsoft Corporation, Redmond, WA) that was used for extracting data. Where possible, data were extracted in OECD, age-specific groups that included 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, and ≥ 80 years and allowed age-related and population prevalence data to be calculated.⁷

Supplementary Tables 2 and 3 describe the allocation of the various procedure codes for each country to our modified ICD-10 descriptor that forms the reporting basis. Procedural code descriptors include all interventions, irrespective of the service being provided as an inpatient or outpatient. No descriptor included reference to practice guidelines or algorithm of management.

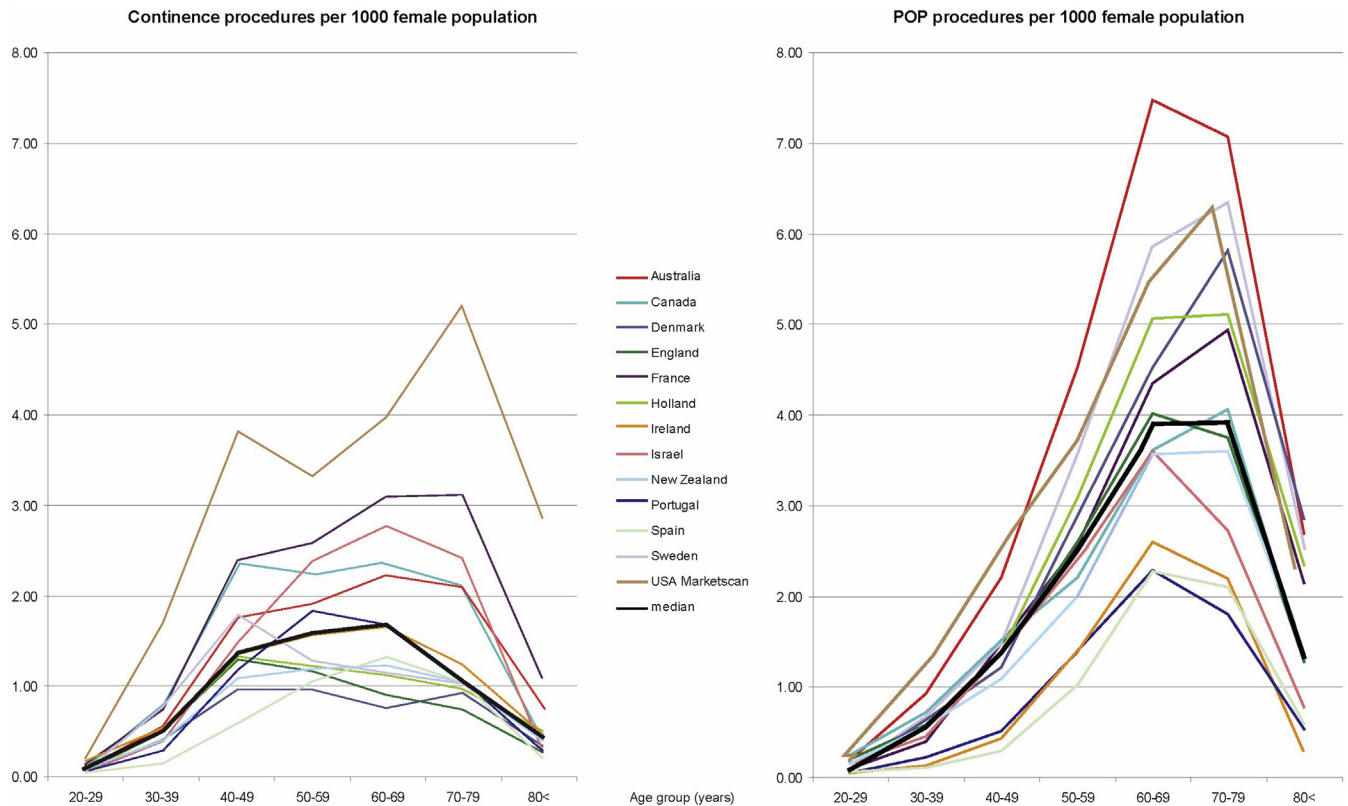
We attempted to extract not only procedures performed but also the number of women who underwent POP or continence surgery. In English-speaking countries, 2 authors independently extracted the data and entered it onto the ICD-10—compliant spreadsheets. In non-English-speaking countries, a native-speaking coauthor extracted the data and completed the ICD-10—compliant spreadsheet. The data sets were then collated centrally and checked by the lead authors. Discrepancies were resolved by mutual agreement.

No single accessible US source of data for POP and continence interventions is currently available. For the US analysis, we used 2 sources of data to allow us to reflect most accurately the actual status of POP and continence surgery. The

2011 Food and Drug Administration (FDA) estimate of the number of women who underwent POP and continence procedures in 2010 was used as a reliable national source.⁸ These data were used for comparisons on national rates of POP and continence interventions. More detailed data were extracted from the MarketScan Commercial Claims and Encounters database and Medicare Supplemental and Coordination of Benefits database (2012; Truven Health Analytics, Sacramento, CA).⁹ Individuals who were included in these databases were those with commercial, employment-based insurance (such as employees, their spouses, dependents, and retirees). This database included 53 million Americans in 2011,² represents approximately one-sixth of the

FIGURE 3

Age distribution of prolapse and continence interventions per 1000 women in OECD countries—2012



OECD, Organization for Economic Cooperation and Development; POP, pelvic organ prolapse.

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population, and was used for comparisons of specific surgical interventions and age-related calculations. Changes in transvaginal graft, sacral colpopexy, and midurethral slings that were undertaken between 2010 and 2012 were evaluated in countries that provided multiple years of data. Local ethics committee approval (reference no. 2014.21.127) was obtained on Feb. 2, 2014. Statistical analysis was performed with SPSS software (version 22; SPSS Inc, Chicago, IL). The median and range have been reported because of the asymmetric distribution of the data. A Spearman's rank-order correlation was run to determine the relationship between private health insurance and the number of POP and continence procedures.

RESULTS

We report on 684,250 POP procedures and 410,352 continence procedures

that were performed in 15 OECD countries in 2012 (Figure 1). POP procedures were performed at a median rate of 1.38 per 1000 women (range, 0.51–2.55) and were performed 1.84 times more frequently than continence procedures, which were undertaken at a median rate of 0.75 per 1000 women (range, 0.46–1.65; Figure 2). Only 3 countries reported on rates at which women underwent prolapse surgery (Figure 1), and they demonstrated that 1.33 prolapse procedures are performed at each prolapse surgery. From this, we can calculate that women underwent prolapse surgery 1.4 times more frequently than continence surgery in OECD countries.

Interestingly, there was a moderately strong, positive correlation between rates of private health insurance and the number of POP and continence procedures per 1000 women, which was statistically significant ($r_s = 0.615$; $P = .025$).

Figure 3 shows age-specific data that were provided by 13 of the 15 countries, with the exception of Germany and Switzerland. Although significant variation exists in the rate of interventions between countries, the median rate of continence surgery peaks at 1.3 procedures per 1000 women in the fifth decade and remains relatively constant until the seventh decade. The rate of prolapse procedures also demonstrates significant variation between countries and the median rate peaks at 3.9 procedures per 1000 women in the seventh and eighth decades.

As seen in Figure 4, 13 of the 15 countries provided data on the various sites of POP interventions (anterior, posterior, or apical); however, Holland and Canada coding did not distinguish between anterior and posterior vaginal repairs; therefore, only apical data were included from these countries in this

analysis. Anterior vaginal repairs represented 54% of all POP procedures; posterior repairs represented 43% of all POP procedures, and apical compartment repairs (abdominal or vaginal approach) represented 20% of all POP procedures.

Nine of the 15 countries provided data on graft usage in the anterior and posterior vaginal repairs (Figure 5). The median rate of graft usage was 15.7% in the anterior vaginal compartment that ranged from 3.3% in England to 25.6% in Germany. Median rate of graft usage was 8.5% in the posterior vaginal compartment that ranged from 3.2% in Denmark and England to 17.0% in Spain.

Figure 6 shows that, in the 11 countries that provided data on apical compartment repairs, the repairs were repaired vaginally at a median rate of 70% (range, 35% in France to 95% in Sweden), and sacral colpopexy represented a median rate of 17% (range, 5% Sweden to 65% in France) of apical repairs. Data were insufficient to differentiate between types of vaginal apical procedures that were performed. Sacral colpopexy represented a median rate of 3.3% of all prolapse procedures and ranged from 0.3% in Denmark to a high of 33% in France (Figure 7). Nine countries provided data on the route of sacral colpopexy with a median rate of 60.8% of interventions performed minimally invasively (laparoscopic or robotically), which ranged from 33% in Canada to a high of 94% in Denmark (Figure 8).

As seen in Figure 9, midurethral slings remain the most frequently performed female continence surgery, with a median rate of 82.4% of continence interventions that ranged from 63.6% in France to 97.8% in Sweden. Other continence surgery includes pubovaginal slings, Stamey needle suspensions, Botox injections, sacral nerve stimulators, and reconstructive bladder interventions that accounted for a median rate of 10.6% of continence interventions that ranged from 1.3% in Holland to 34.3% in France.

Nine countries provided 2010 and 2012 data; during that time, there was a 25.5% increase in the median number

FIGURE 4

Distribution of POP surgery between the anterior, posterior and apical compartments in OECD countries—2012

Country	Anterior repairs/ All POP procedures	Posterior repairs/ All POP procedures	Apical repairs/ All POP procedures
Australia	53.9% 14157/26280	53.8% 14134/26280	26.4% 6944/26280
Canada	NA	NA	20.3% 4861/23929
Denmark	50.3% 2487/4945	35.9% 1775/4945	12.5% 616/4945
England	54.7% 20510/37492	43.0% 16137/37492	18.9% 7085/37492
France	40.2% 20304/50469	40.0% 20196/50469	51.3% 25881/50469
Germany	42.3% 37351/88196	33.2% 29255/88196	24.5% 21590/88196
Holland*	NA	NA	20.7% 3056/14749
Ireland	59.9% 999/1667	48.2% 804/1667	17.0% 284/1667
Israel	40.9% 1404/3434	54.3% 1865/3434	22.7% 778/3434
New Zealand	50.3% 1221/2428	45.15% 1094/2428	15.4% 373/2428
Portugal	64.0% 2493/3893	48.3% 1882/3893	NA
Spain	70.7% 10054/14224	30.6% 4346/14224	14.4% 2043/14224
Sweden	63.8% 6047/9484	38.1% 3614/8484	17.8% 1690/9484
Switzerland	59.3% 1221/2060	46.5% 957/2060	17.0% 351/2060
USA†	39.6% 17967/45402	38.4% 17454/45402	41.1% 18659/45402
Median (range)	53.9 (39.6-70.7)%	43.0 (30.6-53.8)%	19.6 (12.5-51.3)%

Total percentages for each country are >100% because >1 POP procedure is described in some procedure descriptors.

NA, not available; OECD, Organization for Economic Cooperation and Development; POP, pelvic organ prolapse.

*2011 data; †MarketScan data.

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of sacral colpopexies performed that ranged from a decrease in use in Denmark of 26% to a 133% increase in

Germany (Figure 7). Of these 9 countries, 6 countries also provided data on the change of graft implantation at

FIGURE 5

Percentage of anterior and posterior compartment vaginal repairs that used grafts in OECD countries—2012

Country	% grafts /anterior vaginal repair	% grafts /posterior vaginal repairs
Canada	6.8 % 1173 / 17153	
Denmark	3.7 % 93 / 2487	3.2 % 56 / 1775
England	3.3 % 679 / 20510	3.4 % 551 / 16137
Germany	25.6 % 9570 / 37351	16.8 % 4921 / 29255
Israel	18.4 % 259 / 1404	10.7 % 200 / 1865
Spain	17.4 % 1746 / 10054	17 % 738 / 4346
Sweden	10.8 % 651 / 6047	8.5 % 306 / 3614
Switzerland	15.7 % 192 / 1221	6.6 % 63 / 957
USA (MarketScan)	15.6 % 5528 / 35421	
Median (range)*	15.7 % (3.3-25.6)	8.5 % (3.2-17)

OECD, Organization for Economic Cooperation and Development.

*Canada and the United States were excluded from median calculations.

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vaginal surgery from 2010-2012. The median reduction in graft implantation at vaginal prolapse surgery was 3.7% and ranged from an increase of 55% in Sweden to a 48% reduction in the United States (Figure 10).

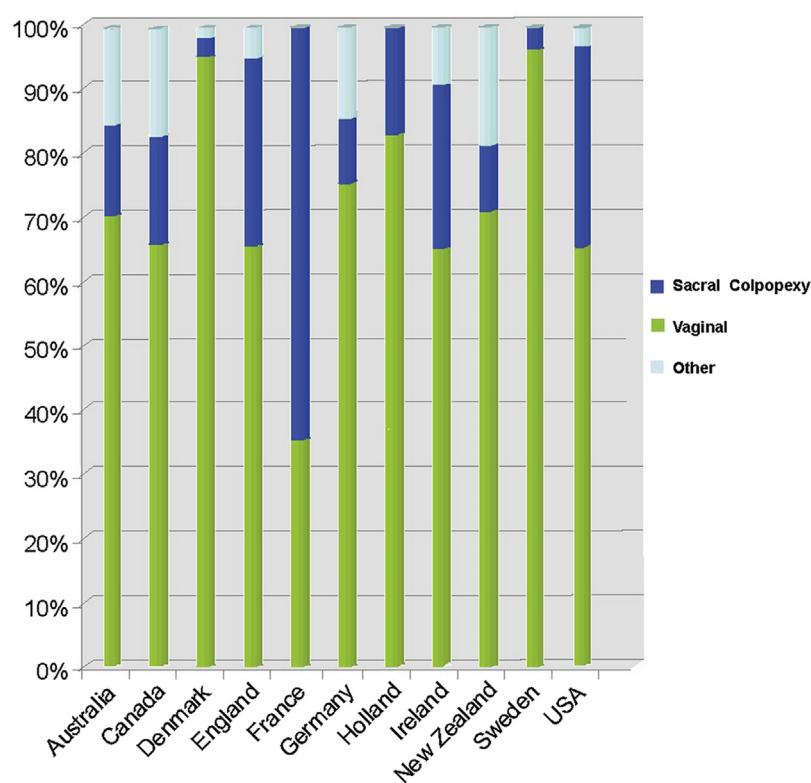
COMMENTS

Surgical interventions for POP and female continence issues are common in OECD countries and are undertaken at a median rate of 2.13 per 1000 women. To place this in perspective, the median rate of hysterectomy in OECD countries in 2008 was 1.79 per 1000 women.⁵ Very significant variations exist in the rates of interventions for POP and continence surgeries within the OECD countries. An American woman is 5 times more likely to undergo a POP procedure and more than 3 times more likely to undergo continence surgery than a Swiss woman. Although this significant variation in the rate of prolapse and continence surgeries within OECD countries is interesting, up to 3 variations in the rates of other surgical procedures (such as hysterectomy, prostatectomy and hip replacements) in OECD countries have been reported previously.⁵

It is concerning that there is such a significant variation in the types of interventions that are performed. Transvaginal mesh grafts were used nearly 8 times more frequently for anterior compartment prolapse in Germany (26%) than in England (3.3%). Sacral colpopexy was used for apical compartment repair 13 times more frequently in France (66%) than in Sweden (5%). A variety of factors may influence this variation that includes artifactual inaccuracies in data entry within countries and difficulties in comparing coding systems across countries. Within countries, a variety of factors such as parity, obesity, and rates of cesarean deliveries may have influence on the prevalence of pelvic floor dysfunction. We demonstrated a moderately strong correlation between the rates of POP and continence interventions and rates of private health insurance. Finally, the lack of consensus regarding evidence guidelines for the surgical management of prolapse may also contribute to the wide

FIGURE 6

Distribution of apical suspending prolapse procedures in OECD countries—2012



OECD, Organization for Economic Cooperation and Development.

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variations in the rate of individual surgical interventions that were reported. Although significant variation exists in the rates of POP and continence surgery in OECD countries, it is currently not possible to determine a correct or optimal rate of interventions. The development of consensus evidence-based guidelines for POP and continence surgery would be challenging; a wide variety of factors must be considered. However, such guidelines may serve to reduce the variation in the rates of different interventions that are performed.¹⁰

Information on rates at which women undergo POP surgery is described poorly, with most of the data relating to the number of POP procedures that are performed. We calculated that women underwent POP surgery 1.4 times more frequently than continence surgery in OECD countries in 2012. This ratio of women who underwent POP and continence surgery is a little lower than the 1.8 ratio reported by Browne et al¹¹ in the United States in 1997 but significantly higher than the ratio of 1.15 (300,000 POP/260,000 continence) estimated by the FDA in 2010.⁸

Anterior compartment prolapse surgeries were the most frequent POP surgery performed in OECD countries in 2012 and represented a median rate of 54% of all POP surgeries, with the posterior compartment being repaired in 43% and apical repairs in 20%. The distribution of the site of POP surgeries reflects the distribution of POP on examination where anterior compartment prolapse is the most common finding and apical prolapse is the least common.^{12,13}

In anterior compartment surgery, grafts were used in 15.7% of cases and 8.5% of posterior compartment prolapse surgery; the median rate of transvaginal graft use per 1000 women decreased by 3.7% from 2010-2012. During the same time period, we saw a 25.5% increase in sacral colpopexy performed. The largest reduction in transvaginal graft usage occurred in the United States with a 47% reduction during that time. Given the FDA transvaginal mesh

FIGURE 7

Comparison of the rate of sacral colpopexy per 1000 women between 2010 and 2012 in OECD countries

Country	2010			2012			2010-2012
	Sacral Colpopexy no	No. women million	Sacral Colpopexy /1000 women	Sacral colpopexy no	No. women million	Sacral Colpopexy /1000 women	% Change Sacral colpopexy /1000 Women
Australia	723	10.75	0.067	882	11.40	0.077	15.01
Canada	807	17.57	0.046	847	17.57	0.048	4.96
Denmark	23	2.80	0.008	17	2.82	0.006	-26.64
France	15610	32.44	0.481	16742	32.86	0.511	6.23
Germany	808	41.67	0.019	1875	41.66	0.045	132.13
Holland ^a	274	8.39	0.033	360	8.43	0.043	30.79
Ireland	51	2.28	0.022	70	2.32	0.030	34.94
Sweden	55	4.71	0.012	70	4.77	0.015	25.55
USA ^b	3985	18.57	0.215	6000	21.10	0.284	32.54
Median	723	10.75	0.0327	847	11.40	0.0482	25.55

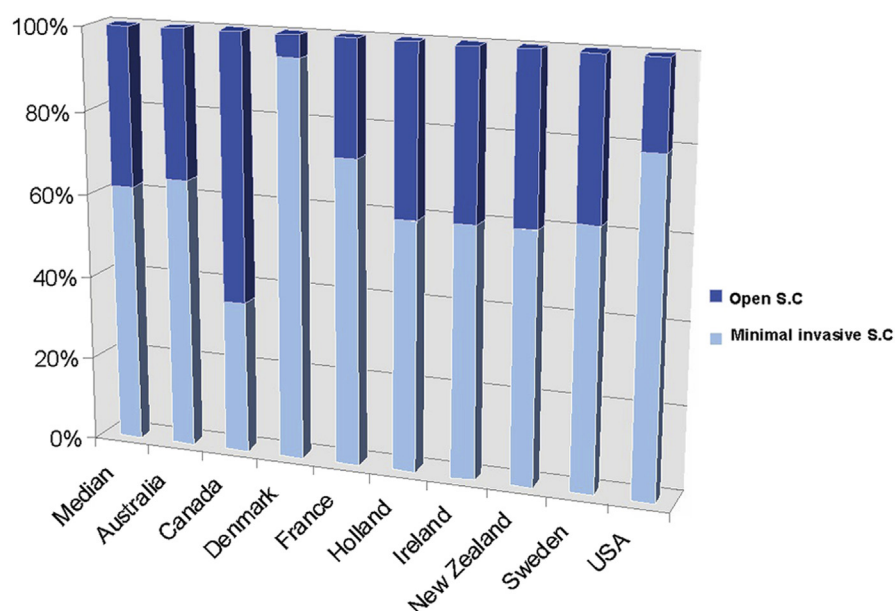
OECD, Organization for Economic Cooperation and Development.

^a2010 and 2011 data; ^bMarketScan data.

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FIGURE 8

Sacral colpopexy performed as open or minimally invasive approach in OECD countries—2012

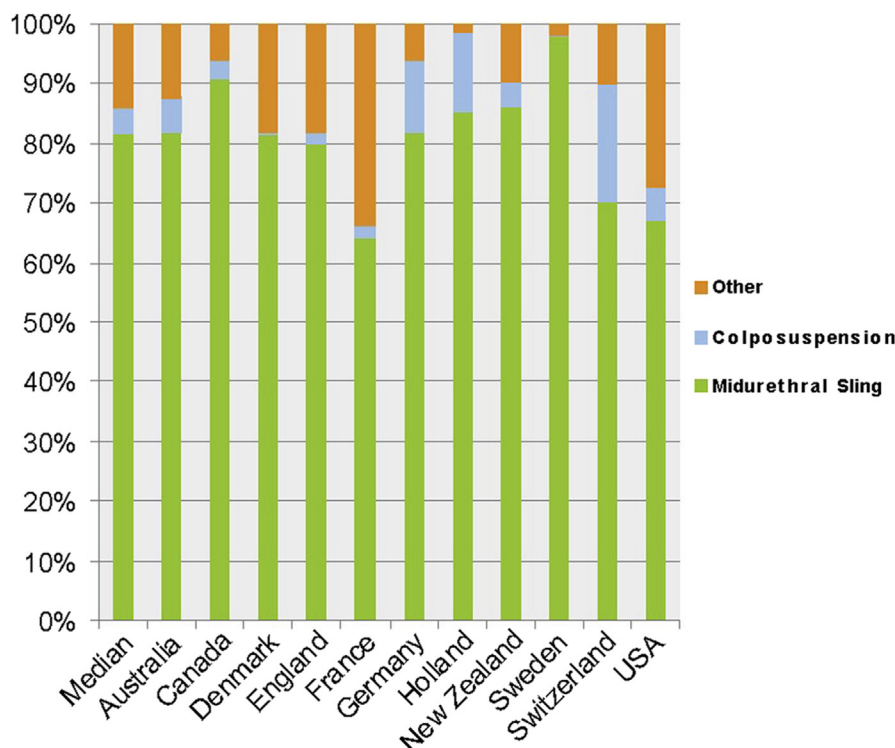


OECD, Organization for Economic Cooperation and Development; SC, sacral colpopexy.

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FIGURE 9

Female continence surgeries in OECD countries—2012



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alert issued in 2011, the subsequent removal of some transvaginal meshes from the market and the resulting widely publicized litigation, health care providers anticipated a more dramatic decrease in transvaginal graft usage. However, because our data did not differentiate between different types of grafts, we may have seen a reduction in mesh usage that was offset by an increase in the use of biologic grafts that we have not been able to identify. In the first available snapshot of change in POP surgeries after the 2011 FDA transvaginal mesh safety update, at the University of Pittsburgh Medical Center, transvaginal mesh as a proportion of all POP cases decreased from 30% in 2008 to 2% in 2011, with minimally invasive sacral colpopexy increasing from only 5% of cases to nearly 33% during the same time period.¹⁴ These figures suggest that the swing away from transvaginal grafts and towards sacral colpopexy may have been underway before our study period

of 2010–2012. This conclusion is supported by Rogo-Gupta et al¹⁵ who found that mesh usage peaked in 2006 at 32.1% of prolapse surgery in the United States and decreased to 27.5% by 2010. Our data concentrate on the current date, not reported time period of 2010 to 2012, and we look forward to repeating this review in 2 years to further evaluate these trends.

Finally, we demonstrated that, although midurethral slings remain the preferred female continence intervention, there was a median reduction of 3.9% in number per 1000 women undertaken from 2010–2012 in OECD countries (Figure 11). The largest reduction was seen in the United States (30% reduction); perhaps this relates to consumer concerns relating to widely advertised adverse effects that are related to transvaginal mesh at prolapse surgery.

We recognize that the generalizability of the outcomes is limited by the data that represent only 15 of the 34 OECD

countries. However as described, we explored many avenues to include countries, and the official OECD reports on the 10 principal surgical procedures includes only data from 19 member countries, which suggests a reasonable response from a non-OECD-sanctioned review. Other limitations of this study are inherent to all studies that compare international data and include inaccuracies of data entry at a local level and difficulty in reconciling multiple different coding systems. For example, ICD-9 coding does not account for sacral colpopexy nor is there a specific code for midurethral slings. ICD-10 Australian modification coding does not differentiate between vaginal repairs with and without grafts. The Current Procedural Terminology codes that are used in the United States does not allow a clear distinction between vaginal graft use in anterior and or posterior vaginal repairs nor does the Canadian Classification of Health Interventions coding that is used in Canada allow vaginal repairs to be allocated clearly to either the anterior and or posterior repairs. Our equal allocation to anterior and posterior repair in both these situations may not reflect clinical practice and serves to homogenize the data. The United States Current Procedural Terminology continence code 57288 was coded as midurethral slings and may also include pubovaginal slings and, as such, would represent a slight overestimation of midurethral slings. Finally, MarketScan data in the United States represents only 16% of the population and may not reflect accurately the rate and type of interventions that are performed on older or uninsured Americans. However, this is the most detailed dataset available for evaluation.

We have attempted to limit inaccuracies by accessing data from government sources, as described by the OECD. In some nonresponding countries, we also accessed a number of national databases that have documented high rates of accuracy that reflect the surgical workload in their respective countries. For transparency, we have described the allocation of codes from each

FIGURE 10

Comparison of the rate of transvaginal grafts per 1000 women between 2010 and 2012 in OECD countries

Country	2010			2012			2010-2012 % Change
	Trans-vaginal graft procedures	Female population million	Trans-vaginal grafts / 1000 women	Trans-vaginal graft procedures	Female population million	Trans-vaginal graft /1000 women	
Canada	1874	17.20	0.11	1524	17.60	0.09	-20.40
Denmark	184	2.80	0.07	186	2.82	0.07	0.33
Germany	15723	41.67	0.38	14491	41.66	0.35	-7.81
Holland*	2183	8.39	0.26	2235	84.30	0.27	1.92
Israel	388	3.85	0.10	461	3.99	0.12	14.58
Sweden	1135	4.71	0.24	1783	4.77	0.37	54.97
USA [†]	9314	18.58	0.50	5528	21.10	0.26	-47.75
Median	1504.5		0.18	1653.5		0.19	-3.74

OECD, Organization for Economic Cooperation and Development.

*Holland 2010 and 2011; [†]MarketScan data.

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country to our ICD-10—like spreadsheet and excluded countries from calculations where primary coding data was not specific. As described in [Supplementary Tables 2 and 3](#), we actively sought to underestimate procedures that were performed when coding irregularities lacked clarity.

POP and continence procedures are frequently performed operations; however,

greater than 5-fold variation in the rate of interventions within OECD countries requires further evaluation. Also, the significant heterogeneity (>10 times) in the rates at which individual POP procedures are performed indicates a lack of uniformity in the delivery of care to women with POP and demands the development of agreed guidelines for the surgical management of prolapse. In contrast, the midurethral slings

were the standard female continence surgery that was performed throughout OECD countries in 2012. Standardization of health coding throughout the world would improve comparability of health care delivery.

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FIGURE 11

Comparison of the rate of midurethral slings per 1000 women between 2010 and 2012 in OECD countries

Country	2010			2012			2010-2012 % change
	MUS (no)	Female population million	MUS/1000 women	MUS (no)	Female population million	MUS/1000 women	
Australia	9029	11.09	0.81	9240	11.40	0.81	-0.46
Canada	21906	17.57	1.25	19147	17.57	1.09	-12.59
Denmark	1315	27.98	0.47	1126	2.82	0.40	-15.01
France	31180	32.45	0.96	30230	32.76	0.92	-3.97
Holland ^a	3683	8.39	0.44	4715	8.43	0.56	27.44
Sweden	2584	4.71	0.55	3510	4.77	0.74	34.00
USA ^b	36831	18.58	1.98	29488	21.10	1.40	-29.52
Median			0.81			0.81	-3.97

MUS, midurethral sling; OECD, Organization for Economic Cooperation and Development.

^a2010 and 2011 data; ^bMarketScan data.

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APPENDIX

SUPPLEMENTARY TABLE 1

Countries, coding system, and percentage of procedures the data represent

Country	Procedure data sources	Procedure coding system	Data accuracy	Publicly accessible	Percentage of private insurance ¹⁰
Australia 2010-12	Australian Institute of Health and Welfare (AIHW) National Hospital Morbidity Database	<i>International Classification of Disease</i> , 10th ed—Australian modification, 7th ed	Almost 100% ¹⁶	Yes	52.5
Canada 2010-13	Canadian Institute for Health Information (CIHI)	Canadian Classification of Health Interventions (CCI)	100% ⁶	No	68.0
Denmark 2010-12	The Danish Urogynaecological Database (DugaBase)	NOMESCO Classification of Surgical Procedures (NCSP) 1.15 ed	90% ¹⁷	No	20.8
England 2012	Health & Social Care Information Centre (hscic) NHS England-Hospital Episode Statistics	Operation procedures Codes (OPCS-4)	90% ¹⁸	Yes	—
France 2010-12	<i>Groupes homogènes malades</i> (GHM); French DRG system database	Classification Commune Des Actes Médicaux (CCAM)	93% ¹⁸	Yes	96.1
Germany 2010-12	Institut für das Entgeltsystem im Krankenhaus (INEK) G-DRG Browser 2010 and 2012 (§21 KHEntG)	Operationen-und Prozedurenschlüssel (OPS)	100% ⁶	Yes	31.9
Holland 2010-11	KIWA Prismat	International Classification Procedures in Medicine, Dutch Extension (ICPM-DE)	—	No	89.0
Ireland 2010-12	Economic and Social Research Institute (ESRI)	<i>International Classification of Disease</i> , 10th ed—Australian modification, 6th ed	82% ⁶	No	47.5
Israel 2010-12	Israel Ministry of Health, National Hospital Discharge Database	<i>International Classification of Disease</i> , 9th ed—clinical modification	90% ⁶	No	80.0
New Zealand 2012	Ministry of Health, National Minimum Dataset (NMDS)	<i>International Classification of Disease</i> , 10th ed—Australian modification, 6th ed	Almost 100% ⁶	No	30.8
Portugal 2010-2012	Administração Central do Sistema de Saúde (ACSS)	<i>International Classification of Disease</i> , 9th ed—clinical modification	Almost 100% ⁶	No	19.8
Spain 2010-2012	Ministerio de Sanidad, Política Social e Igualdad (MSSSI)	<i>International Classification of Disease</i> , 9th ed—clinical modification	All public and 36% private ⁶	Yes	13.4
Sweden 2010-12	Swedish National Quality Register of Gynecological Surgery (Gynop)	NOMESCO Classification of Surgical Procedures (NCSP) 1.14	95% ¹⁹	No	—

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(continued)

SUPPLEMENTARY TABLE 1

Countries, coding system, and percentage of procedures the data represent (continued)

Country	Procedure data sources	Procedure coding system	Data accuracy	Publicly accessible	Percentage of private insurance ¹⁰
Switzerland 2012	Bundesamt für Statistik (Swiss Federal Statistical Office)	Classification Suisse des Interventions Chirurgicales (CHOP)	100% mandatory reporting	Yes	29.5
United States 2010	Food and Drug Administration (FDA)		Estimate by Food and Drug Administration	Yes	60.6
United States 2010-12	Market Scan	Current Procedural Terminology (CPT)-4	Represents 16% population	No	—

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SUPPLEMENTARY TABLE 2

Standardized allocation of surgical item numbers for each country into ICD, 10th ed descriptors

Coding system	ICD, 10th ed, Australian modification Australia, Ireland, New Zealand	ICD, 9th ed, clinical modification Holland, Israel, Portugal, Spain	Classification Commune Des ActesMe'dicaux France	Operationen-und Prozedurenschlüssel Germany	Canadian Classification of Health Interventions Canada	Nordic Medico-Statistical Committee Denmark	Operation Procedures Codes—4 Sweden	Current Procedural Terminology—4 England	Classification Suisse des Interventions Chirurgicales US MarketScan Switzerland	International Classification Procedures in Medicine, Dutch extension Holland
Prolapse procedures										
Anterior vaginal repair	35570-00 35573-00	70.51 70.54 53	JLCA007 JLCA005	5-704.0 5-704.01		KLEF00 KLEF00A	LEF00 LEF00+ ZXL 10 ^a	P22.1 ^a P22.2 ^a P23.1 P23.2 ^a P23.6	57240 57260 ^a 57265 ^a 57285	56832 70.5 70.51 70.54 70.50 70.53
Anterior repair without graft		70.51 ^a		5-704.0 ^a		KLEF00*	LEF00 ^a LEF00+ ZXL 10	P23.2 ^a	57240 ^a 57260 ^a 57265 ^a 57285 ^a Minus 57267 ^b	70.51 ^a
Anterior repair with graft		70.54 ^a		5-704.01 ^a		KLEF00A ^a	LEF00+ ZXL 10	P23.6 ^a	57267 ^b	70.54 ^a
Posterior vaginal repair	35571-00 35573-00	70.52 70.55 70.50 70.53	JLCA004 JLCA005	5-704.1 5-704.11		KLEF03 KLEF03A	LEF03 LEF03+ ZXL 10	P22.1 P22.3 P23.1 P23.3 P23.7	45560 57250 57260 ^a 57265 ^a	56831 70.5 ^a 70.50 ^a 70.52.00 ^a 70.52.99 70.53 ^a 70.55
Posterior repair without graft		70.52 ^a		5-704.1 ^a		KLEF03 ^a	LEF03 ^a	P23.3 ^a	45560 ^a 57250 ^a 57260 ^a 57265 ^a minus 57267 ^b	70.52.00 70.52.99 ^a
Posterior repair with mesh		70.55 ^a		5-704.11 ^a		KLEF03A ^a	LEF03+ ZXL 10	P23.7 ^a	57267 ^b	70.55 ^a
Anterior & posterior vaginal repair	35573-00 ^a		JLCA005						57260 57265	37263 37264 37265 37381 37383 ^c 56833 57040 57041

Haya. Prolapse and continence surgery in OECD countries in 2012. Am J Obstet Gynecol 2015.

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SUPPLEMENTARY TABLE 2

Standardized allocation of surgical item numbers for each country into ICD, 10th ed descriptors (continued)

Coding system	ICD, 10th ed, Australian modification Australia, Ireland, New Zealand	ICD, 9th ed, clinical modification Holland, Israel, Portugal, Spain	Classification Commune Des Actes Me'dicaux France	Operationen-und Prozedurenschlüssel Germany	Canadian Classification of Health Interventions Canada	Nordic Medico-Statistical Committee Denmark	Sweden	Operation Procedures Codes—4 England	Current Procedural Terminology—4 US MarketScan	Classification Suisse des Interventions Chirurgicales Switzerland	International Classification Procedures in Medicine, Dutch extension Holland
Anterior & posterior repair without graft		70.50 ^a			1RS80CR 1RS80CRXXA 1RS80CRXXB 1RS80CRXXE 1RS80CRXXG 1RS80CRXXK 1RS80CRXXQ			P23.1 ^a	57260 57265 ^a	70.5 70.50 ^a	
Anterior and posterior repair with graft		70.53 ^a			1RS80CRXXL 1RS80CRXXN					70.53 ^a	
Vaginal apical procedure with mesh		70.78 70.93		5-707.31	1RS74CRXXN	KLEF40A KLEF53A	LEF50+ ZXL10; LEF53+ ZXL10; LEF96+ ZXL10	P24.6		70.78	
Vaginal apical	35568-00 35577-00	70.77 70.92	JLDA002	5-704.41 apical fixation with mesh 5-704.51 cervical fixation with mesh	1RS74CRXXA 1RM74CA	KLEF40 KLEF53B KLEF53 KLEF00B	LEF40 LEF50 LEF53	P22.1 P22.2 P23.3 P23.8 ^a P23.9 ^a P23.4 P24.4 P24.7 Q54.6	57265 ^a 57268 57282 57283 58400 58410	70.77	37264 37385 37386
Abdominal vault suspension	35595-00 35595-01 35684-00 35684-01	69.22	JKDC015	5-693 5-707.1	1RS74DA 1RS74LA 1RM74DA 1RM74LA	KLEF41, KLEF41A KLEF97 KLEF51 KLEF51A	LCW96 LCW97	P24.1 P24.3 P24.8 P24.9 Q541 Q54.2	57270	69.22	56930 56931 56939

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SUPPLEMENTARY TABLE 2

Standardized allocation of surgical item numbers for each country into ICD, 10th ed descriptors (continued)

Coding system	ICD, 10th ed, Australian modification Australia, Ireland, New Zealand	ICD, 9th ed, clinical modification Holland, Israel, Portugal, Spain	Classification Commune Des ActesMe'dicaux France	Operationen-und Prozedurenschlüssel Germany	Canadian Classification of Health Interventions Canada	Nordic Medico-Statistical Committee Denmark	Sweden	Operation Procedures Codes—4 England	Current Procedural Terminology—4 US MarketScan	Classification Suisse des Interventions Chirurgicales Switzerland	International Classification Procedures in Medicine, Dutch extension Holland
Sacral colpopexy								P24.2 P24.5 Q54.4 Q54.5			
Sacral colpopexy open	35597-01		JKDA003	5-704.41 5-704.51	1RS74LAXXA 1RS74LAXXN	KLEF50A			57280		37381 37382
Sacral colpopexy minimal invasive	35597-00		JKDC001 JLDC015	5-704.42 5-704.52	1RS74DAXXN	KLEF51A			57425		37384 37383
Vaginal obliteration	35578-00	70.80			1RS51	KLEF23 KLEF20	LEF23, LEF20	P18.1 P18.2 P18.8 P18.9	57120	70.80	
Other prolapsed procedures	35565-00 35637-04	70.61 70.62 70.63 70.79		5-704.x 5-704.y 5-707.x	1RS80DA 1RS80DAXXN 1RS80LAXXA 1RS80LAXXE 1RS80LAXXG 1RS80LAXXL 1RS80LAXXN 1RS80LAXXQ 1RW80LA 1RW80LAW4 1RW80LAXXB1 RW80LAXXE 1RW80LAXG 1RW84LAXA 1RW84LAXE 1RW84LAXG	KLEF96 KLEF10 KLDC-in combination with prolapse	LEF96; KLEF10, KLDC13	P21.8 P21.9 P22.8 P22.9 P23.5 P23.8 P23.9; P25.8 P25.9 P32.4 P32.5 P32.5 P32.6 P32.7 P32.8 P32.9	56810 57210 57230 57284 57295 57296 57423 57426	70.79.10 70.79.99 70.79	57057 57068 57069 56832 56831 56833 37265

Haya. Prolapse and continence surgery in OECD countries in 2012. Am J Obstet Gynecol 2015.

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SUPPLEMENTARY TABLE 2

Standardized allocation of surgical item numbers for each country into ICD, 10th ed descriptors (continued)

Coding system	ICD, 10th ed, Australian modification Australia, Ireland, New Zealand	ICD, 9th ed, clinical modification Holland, Israel, Portugal, Spain	Classification Commune Des Actes Me'dicaux France	Operationen-und Prozedurenschlüssel Germany	Canadian Classification of Health Interventions Canada	Nordic Medico-Statistical Committee Denmark	Operation Procedures Codes—4 Sweden	Current Procedural Terminology—4 England	US MarketScan	Classification Suisse des Interventions Chirurgicales Switzerland	International Classification Procedures in Medicine, Dutch extension Holland
Continence procedures											
Midurethral sling	35599-00	59.79	Jddb007 Jddb005	5-593.20	1PL74AFXXN 1PL74ALXXN 1PL74CRXXN 1PL74DAXXN 1PL74LAXXN 1PL74LAXXQ	KLEG10 KLEG13 KKDG43	LEG10, LEG13	M53.3 M53.6	57288	59.73.11 59.73.12	37346 37347
Colposuspension	37044-00 37044-01	59.6 59.5	JDDA002	5-595.1 5-595. 2	1PL74DA 1PL74DAXXN 1PL74DAXXL 1PL74LA 1PL74LANW 1PL74LAXXA 1PL74LAXXK	KKDG00 KKDG01 KKDG21	KDG20 KKDG21	M51.1 M51.2 M51.8 M52.2 M52.3	51840 51841 58152 58267 58293 51992 51990	59.50 59.6	37348 37349
Pubovaginal sling	37042-00	59.4		5-593.20	1PL74AFXXA 1PL74AFXXK 1PL74AFXXL 1PL74AFXXQ 1PL74ALXXA 1PL74ALXXK	KKDG30 KKDG31 KKDG40 KKDG41	LEG 96	M52.1			
Bulking agents	37339-00	59.72	JELE001	5-596.0x 5-596.0	1PL80BAFH 1PL80BAW01 1PL80BAW2	KKDV20 KKDV22	KDV20, KDV22,	M56.3 M56.8	51715	59.72	
Sacral nerve stimulator	90359-00	57.96 57.97 57.98	AHLA003						64561 ^d 64581 ^d 64590 ^d	57.96 57.97 57.98	36262

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(continued)

SUPPLEMENTARY TABLE 2

Standardized allocation of surgical item numbers for each country into ICD, 10th ed descriptors (continued)

	ICD, 10th ed, Australian modification	ICD, 9th ed, clinical modification	Classification Commune Des ActesMe'dicaux	Operationen-und Prozedurenschlüssel	Canadian Classification of Health Interventions	Nordic Medico-Statistical Committee		Operation Procedures Codes—4	Current Procedural Terminology—4	Classification Suisse des Interventions Chirurgicales	International Classification Procedures in Medicine, Dutch extension
Coding system	Australia, Ireland, New Zealand	Holland, Israel, Portugal, Spain	France	Germany	Canada	Denmark	Sweden	England	US MarketScan	Switzerland	Holland
Other continence procedure	37372-00; 37043-00; 37340-00; 37044-02; 35599-01	59.3 59.71 70.95	JDDA008 JRPA001 JRGA001 JRGA002 JEFA002	5-595.3	1PL74CR 1PL74CRXXK	KKLEG96 KKDG50 KKDG01	LEG00, KDG96; KDG97	M52.4 M52.8 M53.1 M53.4 M53.5 M53.7 M53.8 M53.9 M54.2 M55.2-7	57287 51845 57220 53500 57289 64585 ^d 64595 ^d	59.7 59.71	37345
Fistula	37029-00; 37029-01, 37333, 35596-01	58.43 58.75	JESA003 JDSA002 JDSA006	5-706.3-4 5-706.41 5-582	1PM86GH 1PM86MH 1PM86MHXXE 1PM86MHXXG 1PM86RB 1PM86RBXXE 1PM86RBXXG 1RS86MB 1RS86MBW3 1RS86MBXXE	KLEE 20	LEE20	P25.1 P25.2 P25.4	51900 51920 57330 57320 57310 57311	57.84.10 57.84.11 57.84.13 58.43	37334
Botox	No specific code		JDLE900	5-579.62	1PM35BA-L7						

ICD, International Classification of Disease.

^a These procedures were counted only once in procedures performed; ^b Descriptor includes vaginal anterior and or posterior compartment graft: this descriptor allowed identification of vaginal grafts when coded in combination with other codes; however, it was not included in the calculation of the total number of procedures to minimize overestimation of numbers as compared with most countries that coded only once for vaginal graft utilization; ^c Dutch descriptor included anterior and/or posterior repair: this was allocated as one repair and may represent an underestimation of procedure performed; ^d These procedures were counted only once in a single surgical episode.

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SUPPLEMENTARY TABLE 3

Surgical item number descriptors

Source	Code description
<i>International Classification of Disease, 10th ed, Australian modification</i>	
35565-00	Vaginal reconstruction
35568-00	Number sacrospinous colpopexy
35570-00	Number anterior repairs (repair of anterior vaginal compartment, vaginal approach)
35571-00	Number posterior repairs (repair of posterior vaginal compartment, vaginal approach)
35573-00	Number anterior and posterior repair (vaginal approach)
35577-00	Repair of pelvic floor prolapse (Manchester)
35578-00	Vaginal obliteration
35595-00	Laparoscopic vaginal vault suspension (with fixation of ligaments- laparoscopic pelvic floor repair)
35595-01	Abdominal pelvic floor repair
35596-01	Repair of vesicovaginal fistula vaginal approach
35597-00	Number laparoscopic sacral colpopexy
35597-01	Sacral colpopexy
35599-00	Sling procedure for stress incontinence
35599-01	Revision of sling procedure for stress incontinence
35637-04	Laparoscopic ventrosuspension
35684-00	Other laparoscopic uterine suspension
35684-01	Uterine suspension
37029-00	Closure of vesicovaginal fistula by laparoscopic approach
37029-01	Closure of vesicovaginal fistula by abdominal approach
37043-00	Transvaginal needle suspension for stress incontinence
37044-01	Number of colposuspension Burch (retropubic procedure for stress incontinence, female)
37044-02	Revision of retropubic procedure for stress incontinence, female
37333-00	Closure of urethrovaginal fistula
37339-00	Number of bladder neck bulking agents females (injection of paraurethral bulk for stress incontinence)
37340-00	Division of urethral sling after previous stress incontinence procedure
37372-00	Excision of urethral diverticulum
90359-00	Number of sacral nerve stimulator
90435-00	Other laparoscopic repair of uterus (suspension procedures)
<i>International Classification of Disease, 9th ed, code</i>	
57.96	Implantation of electronic bladder stimulator
57.97	Replacement of electronic bladder stimulator
57.98	Removal of electronic bladder stimulator
58.43	Closure of other fistula of urethra
59.3	Plication of urethrovesical junction Kelly operation on urethra

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(continued)

SUPPLEMENTARY TABLE 3

Surgical item number descriptors (continued)

Source	Code description
59.4	Suprapubic sling operation
59.5	Retropubic urethral suspension
59.6	Paraurethral suspension
59.71	Levator muscle operation for urethrovesical suspension
59.72	Injection of implant into urethra and/or bladder neck
59.79	Other repair of urinary stress incontinence (tension-free vaginal tape)
69.22	Other uterine suspension hysteropexy Manchester operation plication of uterine ligament
70.5	Repair of cystocele and rectocele
70.51	Repair of cystocele
70.52	Repair of rectocele
70.53	Repair of cystocele and rectocele with graft or prosthesis
70.54	Repair of cystocele with graft or prosthesis
70.55	Repair of rectocele with graft or prosthesis
70.61	Vaginal construction
70.62	Vaginal reconstruction
70.63	Vaginal construction with graft or prosthesis
70.77	Vaginal suspension and fixation
70.78	Vaginal suspension and fixation with graft or prosthesis
70.79	Other repair of vagina
70.8	Vaginal obliteration
70.92	Other operations on cul-de-sac obliteration of cul-de-sac; repair of vaginal enterocele
70.93	Other operations on cul-de-sac with graft or prosthesis; repair of vaginal enterocele
70.94	Repair of vaginal enterocele with graft or prosthesis
70.95	Use additional code for biologic substance
Classification Commune Des Actes Médicaux	
AHLA003	Sacral nerve stimulator
JDDA002	Burch
JDDA008	Raz or Pereira or Stamey procedures
Jddb005	Transobturator tape
Jddb007	Retropubic tape
JDLE900	Female endoscopic administration of botulinum toxin into bladder wall
JDSA002	Closure of vesicovaginal fistula by abdominal approach
JDSA006	Repair of vesicovaginal fistula vaginal approach
JEFA002	Excision of urethral diverticulum
JELE001	Injection of paraurethral bulk for stress incontinence, female
JESA003	Closure of urethrovaginal fistula
JKDA003	Abdominal sacral hysteropexy
JKDC001	Laparoscopic sacral hysteropexy

SUPPLEMENTARY TABLE 3

Surgical item number descriptors (continued)

Source	Code description
JKDC015	Anterior laparoscopic hysteropexy
JLCA004	Posterior vaginal repair
JLCA005	Anterior and posterior vaginal repair
JLCA007	Anterior vaginal repair
JLDA002	Sacrospinous colpopexy
JLDC015	Laparoscopic sacral fixation of the vault
JRGA001	Vaginal tape revision
JRGA002	Abdominal tape revision
JRPA001	Vaginal tape revision
Operationen-und Prozedurenschlüssel	
5-579.62	Transurethral application of Botox
5-582	Excision of urethral diverticulum
5-593.20	Sling procedure for stress incontinence
5-595.1	Burch
5-595.2	Colposuspension and lateral repair
5-595.3	Paraurethral needle suspension
5-596.0	Paraurethral injection
5-596.0x	Paraurethral injection: other
5-599.00	Revision alloplastic material
5-693	Hysteropexy
5-704	Other codes: prolapse
5-704.0	Anterior repair without mesh
5-704.01	Anterior repair with mesh
5-704.1	Posterior repair without mesh
5-704.11	Posterior repair with mesh
5-704.41	Apical fixation with mesh
5-704.42	Laparoscopic vaginal vault suspension
5-704.43	Vaginal vault suspension, Amreich-Richter operation
5-704.51	Cervical fixation with mesh
5-704.52	Laparoscopic cervical suspension
5-704.x	Vaginal repairs: others
5-704.y	Vaginal repairs: others
5-706.3	Closure of urethrovaginal fistula
5-706.40	Closure of vesicovaginal fistula by abdominal approach
5-706.41	Repair of vesicovaginal fistula vaginal approach
5-707.x	Other codes-prolapse
5-707.1	Douglas-repair
5-707.31	Vaginal enterocele repair with mesh

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(continued)

SUPPLEMENTARY TABLE 3

Surgical item number descriptors (continued)

Source	Code description
Canadian Classification of Health Interventions	
1PL74AFXXA	Fixation, bladder neck combined per orifice (vaginal) and open (abdominal) approach using autograft (eg, fascia lata)
1PL74AFXXK	Fixation, bladder neck combined per orifice (vaginal) and open (abdominal) approach using homograft (eg, donor fascia lata sling); includes pubovaginal sling operation (eg, McGuire)
1PL74AFXXL	Fixation, bladder neck combined per orifice (vaginal) and percutaneous approach using xenograft (eg, Surgisis, SIS [small intestine mucosa])
1PL74AFXXN	Fixation, bladder neck combined per orifice (vaginal) and open (abdominal) using synthetic tissue (eg, tension-free vaginal tape, Monarc, SPARC)
1PL74AFXXQ	Fixation, bladder neck combined per orifice (vaginal) and open (abdominal) using combined sources of tissue (eg, graft and synthetic tissue)
1PL74ALXXK	Fixation, bladder neck combined per orifice (vaginal) and open (abdominal) using homograft (eg, donor fascia lata sling)
1PL74ALXXL	Fixation, bladder neck combined per orifice (vaginal) and percutaneous approach using xenograft (eg, Surgisis, SIS [small intestine mucosa])
1PL74ALXXN	Fixation, bladder neck combined per orifice (vaginal) and percutaneous approach using synthetic tissue (eg, tension-free vaginal tape, Monarc, SPARC)
1PL74CR	Fixation, bladder neck per orifice (vaginal) approach with incision using sutures only (to elevate bladder neck)
1PL74CRXXK	Fixation, bladder neck per orifice (vaginal) approach with incision using homograft (eg, donor fascia lata sling)
1PL74CRXXN	Fixation, bladder neck per orifice (vaginal) approach with incision using synthetic tissue (eg, tension-free vaginal tape, Monarc, SPARC)
1PL74DA	Fixation, bladder neck endoscopic (laparoscopic; retropubic) approach using sutures only (to elevate bladder neck)
1PL74DAXXL	Fixation, bladder neck endoscopic (laparoscopic; retropubic) approach using xenograft (eg, Surgisis, SIS [small intestine mucosa])
1PL74DAXXN	Fixation, bladder neck endoscopic (laparoscopic; retropubic) approach using synthetic tissue (eg, tension-free vaginal tape, Monarc, SPARC)
1PL74LA	Fixation, bladder neck open (retropubic, perineal) approach using sutures only (to elevate bladder neck): Burch/Colposuspension/Marshall-MarchettiKranz (MMK)/vaginal obturator shelf
1PL74LANW	Fixation, bladder neck open (retropubic, perineal) approach using suture technique with (titanium) screw: includes Burch/Colposuspension/Marshall-MarchettiKranz (MMK)/vaginal obturator shelf
1PL74LAXXA	Fixation, bladder neck open (retropubic, perineal) approach using autograft (eg, fascia lata sling, rectus fascia)
1PL74LAXXK	Fixation, bladder neck open (retropubic, perineal) approach using homograft (eg, donor fascia lata sling)
1PL74LAXXL	Fixation, bladder neck combined per orifice (vaginal) and percutaneous approach using xenograft (eg, Surgisis, SIS [small intestine mucosa])
1PL74LAXXN	Fixation, bladder neck combined per orifice open (retropubic, perineal) approach using synthetic tissue (eg, tension-free vaginal tape, Monarc, SPARC)
1PL74LAXXQ	Fixation, bladder neck combined per orifice open (retropubic, perineal) approach using combined sources of tissue (eg, graft and synthetic tissue)
1PL80BAFH	Repair, bladder neck using endoscopic per orifice approach with biodegradable material (eg, dextranomer microspheres [Deflux])
1PL80BAW0	Repair, bladder neck with other synthetic material (eg, silicone, macroplastique)
1PL80BAW2	Repair, bladder neck using endoscopic per orifice approach with collagen

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SUPPLEMENTARY TABLE 3

Surgical item number descriptors (continued)

Source	Code description
1PM35 BA-L7	Pharmacotherapy (local), bladder endoscopic per orifice approach, using bacterial toxin (eg, botulinum toxin or Botox)
1PM86GH	Therapeutic interventions on the bladder closure of fistula, bladder fistula terminating in genital tract
1PM86MH	Therapeutic interventions on the bladder closure of fistula, bladder fistula terminating in genital tract
1PM86MHXXE	Therapeutic interventions on the bladder closure of fistula terminating in genital tract, local flap closure
1PM86MHXXG	Therapeutic interventions on the bladder closure of fistula terminating in genital tract, pedicled flap closure
1PM86RB	Therapeutic interventions on the bladder closure of fistula, bladder fistula terminating in genital tract
1PM86RBXXE	Therapeutic interventions on the bladder closure of fistula, bladder fistula terminating in genital tract-local flap closure
1PM86RBXXG	Therapeutic interventions on the bladder closure of fistula, bladder fistula terminating in genital tract-pedicled flap closure
1RM74CA	Fixation, uterus and surrounding structures using transvaginal approach
1RM74DA	Fixation, uterus and surrounding structures using endoscopic (laparoscopic) approach
1RM74LA	Fixation, uterus and surrounding structures using open approach
1RM74LAXXN	Fixation, uterus and surrounding structures using open approach and synthetic material (mesh)
1RS51	Occlusion, vagina
1RS74CR	Fixation, vagina (vaginal) approach with incision using sutures only
1RS74CRXXA	Fixation, vagina (vaginal) approach with incision using full thickness autograft (eg, fascia)
1RS74CRXXN	Fixation, vagina (vaginal) approach with incision using synthetic tissue (eg, mesh)
1RS74DA	Fixation, vagina (laparoscopic) approach using sutures only
1RS74DAXXN	Fixation, vagina (laparoscopic) approach using synthetic tissue (eg, mesh)
1RS74LA	Fixation, vagina open (abdominal) approach using sutures only
1RS74LAXXA	Fixation, vagina open (abdominal) approach using full-thickness autograft (eg, fascia)
1RS74LAXXN	Fixation, vagina open (abdominal) approach using synthetic tissue (eg, mesh)
1RS80CR	Repair, vagina (vaginal) approach with incision using sutures only
1RS80CRXXA	Repair, vagina (vaginal) approach with incision using full-thickness (skin) autograft (eg, perirectal fascia)
1RS80CRXXB	Repair, vagina (vaginal) approach with incision using split thickness (skin) autograft
1RS80CRXXE	Repair, vagina (vaginal) approach with incision using local flap (eg, Z Y skin plasty)
1RS80CRXXG	Repair, vagina (vaginal) approach with incision using pedicled flap (levator ani muscle)
1RS80CRXXK	Repair, vagina (vaginal) approach with incision using homograft (eg, donor fascia)
1RS80CRXXL	Repair, vagina (vaginal) approach with incision using xenograft (eg, porcine mesh)
1RS80CRXXN	Repair, vagina (vaginal) approach with incision using synthetic material
1RS80CRXXQ	Repair, vagina (vaginal) approach with incision using combined sources of tissue
1RS80DA	Repair, vagina (laparoscopic) approach using sutures only
1RS80DAXXN	Repair, vagina (laparoscopic) approach using synthetic material
1RS80LA	Repair, vagina open (retropubic) approach using sutures only
1RS80LAXXA	Repair, vagina open (retropubic) approach using full thickness (skin) autograft (eg, perirectal fascia)
1RS80LAXXE	Repair, vagina open (retropubic) approach using local flap (eg, Z Y skin plasty)
1RS80LAXXG	Repair, vagina open (retropubic) approach using pedicled flap (levator ani muscle)

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SUPPLEMENTARY TABLE 3

Surgical item number descriptors (continued)

Source	Code description
1RS80LAXXL	Repair, vagina open (retropubic) approach using xenograft (eg, porcine mesh)
1RS80LAXXN	Repair, vagina open (retropubic) approach using synthetic material
1RS80LAXXQ	Repair, vagina open (retropubic) approach using combined sources of tissue
1RS86MB	Closure of fistula, vagina for fistula terminating at skin (vaginal, perineal) and simple apposition (suturing) for closure
1RS86MBW3	Closure of fistula, vagina for fistula terminating at skin (vaginal, perineal) and fibrin (glue)
1RS86MBXXE	Closure of fistula, vagina for fistula terminating at skin (vaginal, perineal) and local flap repair
1RW80LA	Repair, vulva using open approach and no tissue (≥ 15 years old)
1RW80LAW4	Repair, vulva using open approach and glue
1RW80LAXXB	Repair, vulva using open approach and split thickness (skin) autograft (≥ 15 years old)
1RW80LAXXE	Repair, vulva using open approach and local flap (≥ 15 years old)
1RW80LAXXG	Construction or reconstruction, vulva using open approach and pedicled distant flap
1RW84LAXXA	Construction or reconstruction, vulva using open approach and full-thickness graft
1RW84LAXXE	Construction or reconstruction, vulva using open approach and local flap (≥ 15 years old)
1RW84LAXXG	Construction or reconstruction, vulva using open approach and pedicled distant flap
Nordic Medico-Statistical Committee (K added to the Danish codes)	
KDG 00	Retropubic suspension of urethra Suture of periurethral tissue to vaginal wall. Eponym: Marshall-Marchetti-Krantz
KKDG 01	Percutaneous endoscopic retropubic suspension of urethra
GGG20	Abdominal colposuspension. Eponym: Burch
KKDG21	Percutaneous endoscopic colposuspension; includes preperitoneal colposuspension using laparoscope
KKDG30	Suprapubic sling urethrocystopexy
KKDG31	Percutaneous endoscopic suprapubic sling urethrocystopexy
KKDG40	Suprapubic urethrocystopexy with use of suture, staples, or tissue glue
KKDG41	Percutaneous endoscopic suprapubic urethrocystopexy with use of suture, staples, or tissue glue
KKDG43	Transobturator sling urethrocystopexy with transvaginal approach
KKDG50	Transabdominal plastic repair of pelvic floor for urinary incontinence
KDG96	Other operation on urethra or bladder neck for incontinence
KDG97	Other percutaneous endoscopic operation on urethra or bladder neck for incontinence
KKDV20	Submucous urethral injection
KKDV 22	Transluminal endoscopic submucous urethral injection
KLEG96	Other vaginal operation for incontinence
LCW 96	Other operation on uterus and uterine ligaments
LCW 97	Other laparoscopic operation on uterus and uterine ligaments
KLDC	Excision of cervix uteri in combination with International Classification of Disease, 10th ed, DN81 "prolapse"
KLEE10	Repair of vagina using graft or flap
LEE20	Closure of urovaginal fistula using graft or flap

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SUPPLEMENTARY TABLE 3

Surgical item number descriptors (continued)

Source	Code description
KLEF00	Anterior repair without mesh
KLEF00A	Anterior repair with mesh
KLEF00B	Manchester operation
KLEF03	Posterior repair without mesh
KLEF03A	Posterior repair with mesh
KLEF20	Partial colpocleisis
KLEF23	Complete colpocleisis
KLEF40	Vaginal operation for enterocele
KLEF40A	Vaginal operation for enterocele with mesh
KLEF41	Laparoscopic repair of enterocele
KLEF41A	Laparoscopic repair of enterocele with mesh
KLEF50A	Abdominal apical colpopexy after previous hysterectomy with mesh
KLEF51A	Laparoscopic colpopexy after previous hysterectomy with mesh
KLEF53	Vaginal colpopexy after previous hysterectomy
KLEF53A	Vaginal colpopexy after previous hysterectomy with mesh
KLEF53B	Vaginal sacrospinous colpopexy
KLEF96	Other operation for prolapse of uterus or vaginal vault
KLEF97	Other laparoscopic operation for prolapse of uterus or vaginal vault
LEG00	Vaginal urethrocystorrhaphy. Eponym: Kelly, Kennedy
KLEG10	Vaginal urethrocystopexy with use of sling
KLEG13	Vaginal transobturator urethropexy
ZXL 00	Use of absorbable mesh in surgery (additional code used in Sweden)
ZXL 10	Use of nonabsorbable mesh in surgery (additional code used in Sweden)
Current Procedural Terminology—4	
45560	Repair of rectocele
51715	Endoscopic injection of implant material into the submucosal tissues of the urethra and/or bladder neck
51840	Burch procedure
51841	Vesicourethropexy (Burch), secondary repair
51845	Needle abdominovaginal vesical neck suspension,(eg, Stamey, Raz, modified Pereyra)
51900	Closure of vesicovaginal fistula (abdominal)
51920	Closure of vesicouterine fistula
51990	Laparoscopy, surgical; urethral suspension for stress incontinence (eg, fascia or synthetic)
51992	Laparoscopy, surgical; sling operation for stress incontinence (eg, fascia or synthetic)
53500	Urethrolisis, transvaginal, secondary, open, including cystourethroscopy
56810	Perineoplasty (plastic repair of perineum)
57120	Colpocleisis
57200	Colporrhaphy, suture of injury of vagina (nonobstetric)

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SUPPLEMENTARY TABLE 3

Surgical item number descriptors (continued)

Source	Code description
57210	Colpoperineorrhaphy, suture of injury of vagina and/or perineum (nonobstetric)
57220	Plastic operation on urethral sphincter, vaginal approach (eg, Kelly urethral plication)
57230	Plastic repair of urethrocele
57240	Anterior colporrhaphy, repair of cystocele with or without repair of urethrocele
57250	Posterior colporrhaphy, repair of rectocele with or without perineorrhaphy
57260	Combined anteroposterior colporrhaphy
57265	Combined anteroposterior colporrhaphy; with enterocele repair
57267	Insertion of mesh or other prosthesis for repair of pelvic floor defect, each site (anterior, posterior compartment), vaginal approach (list separately in addition to code for primary procedure)
57268	Repair of enterocele, vaginal approach (separate procedure)
57270	Repair of enterocele, abdominal approach (separate procedure)
57280	Colpopexy, abdominal approach
57282	Colpopexy, vaginal; extraperitoneal approach (sacrospinous, iliococcygeus)
57283	Colpopexy, vaginal; intraperitoneal approach (uterosacral, levator myorrhaphy)
57284	Paravaginal defect repair; open approach
57285	Paravaginal defect repair; vaginal approach
57287	Removal or revision of sling
57288	Sling operation for stress incontinence (eg, fascia or synthetic)
57289	Pereyra procedure, including anterior colporrhaphy
57295	Revision (including removal) of prosthetic vaginal graft (vaginal approach)
57296	Revision (including removal) of prosthetic vaginal graft (abdominal approach)
57310	Closure of a urethrovaginal fistula
57311	Closure of urethrovaginal fistula with bulbocavernosus transplant
57320	Closure of vesicovaginal fistula (vaginal)
57330	Closure of vesicovaginal fistula (transvesical, vaginal)
57423	Laparoscopic paravaginal defect repair
57425	Laparoscopy, surgical, colpopexy (suspension of vaginal apex)
57426	Laparoscopy revision (including removal) of prosthetic vaginal graft
58152	Total abdominal hysterectomy with colpo-urethropexy (eg, Marshall-Marchetti-Krantz, Burch)
58267	Vaginal hysterectomy, for uterus 250 g or less; with colpo-urethrocystopexy (Marshall-Marchetti Krantz type, Pereyra type)
58293	Total vaginal hysterectomy, for uterus >250 g; with colpo-urethrocystopexy (Marshall-Marchetti-Krantz type, Pereyra type)
58400	Uterine suspension, with or without shortening of round ligaments
58410	Uterine suspension, with or without shortening of round ligaments, with presacral sympathectomy
64561	Percutaneous implantation of neurostimulator electrodes; sacral nerve (transforaminal placement)
64581	Incision for implantation of neurostimulator electrodes; sacral nerve (transforaminal placement)
64585	Revision or removal of peripheral neurostimulator electrodes
64590	Incision and subcutaneous placement of peripheral neurostimulator pulse generator or receiver
64595	Revision or removal of peripheral pulse generator or receiver

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SUPPLEMENTARY TABLE 3

Surgical item number descriptors (continued)

Source	Code description
Classification Suisse des Interventions Chirurgicales	
57.96	Implantation of electronic bladder stimulator
57.97	Replacement of electronic bladder stimulator
57.98	Removal of electronic bladder stimulator
58.43	Closure of urethrovaginal fistula
59.5	Retropubic urethral suspension
59.6	Colposuspension, Pereyra
59.7	Other interventions of stress incontinence
59.71	Levator muscle operation for urethrovesical suspension
59.72	Injection of implant into urethra and/or bladder neck
69.22	Other uterine suspension hysteropexy Manchester operation; plication of uterine ligament
70.5	Repair of cystocele and rectocele
70.51	Repair of cystocele
70.53	Repair of rectocele
70.54	Repair of cystocele with graft or prosthesis
70.55	Repair of rectocele with graft or prosthesis
70.77	Vaginal suspension and fixation
70.78	Vaginal suspension and fixation with graft or prosthesis
70.79	Other repair of vagina
70.8	Vaginal obliteration Le Fort
57.84.10	Repair of vesicovaginal fistula—open
57.84.11	Repair of vesicovaginal fistula—vaginal
58.26.7	Vaginal hysterectomy; with colpo-urethrocystopexy (Marshall-Marchetti-Krantz type, Pereyra type, with or without endoscopic control)
57.84.13	Repair of vesicovaginal fistula-laparoscopy
57.84.99	Repair of other fistula of vagina—other
59.73.11	Tension-free vaginal tape
59.73.12	Tension-free vaginal tape—obturator
70.52.00	Posterior repair vaginal approach
70.52.99	Posterior repair vaginal approach
70.79.10	Other prolapse repair
70.79.99	Other repair of the vagina
International Classification Procedures in Medicine, Dutch Extension	
36262	Sacral nerve stimulator
37263	Repair of anterior and posterior vaginal compartment, vaginal approach
37264	Manchester (with anterior/posterior repair)

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SUPPLEMENTARY TABLE 3

Surgical item number descriptors (continued)

Source	Code description
37265	Vaginal hysterectomy with anterior/posterior repair
37334	Closure of vesicovaginal fistula
37345	Endoscopic incontinence procedure with anterior/posterior repair
37346	Tension-free vaginal tape
37347	Tension-free vaginal tape with anterior/posterior repair
37348	Burch procedure for stress incontinence
37349	Burch procedure for stress incontinence, with repair
37381	Abdominal sacrocolpopexy with vaginal repair
37382	Abdominal sacral colpopexy
37383	Laparoscopic sacral colpopexy with vaginal repair
37384	Laparoscopic sacral colpopexy
37385	Sacrospinous colpopexy with vaginal repair
37386	Sacrospinous colpopexy
56831	Abdominal hysterectomy with anterior repair
56832	Abdominal hysterectomy with posterior repair
56833	Abdominal hysterectomy with anterior and posterior repair
56930	Other laparoscopic uterine suspension
56931	Abdominal pelvic floor repair
56939	Repair of uterine suspension tissue
57040	Repair of anterior vaginal compartment, vaginal approach
57041	Repair of posterior vaginal compartment, vaginal approach
57057	Vaginal reconstruction
57068	Vaginal reconstruction, repair
57069	Vaginal reconstruction

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