

## International Variation in Artificial Urinary Sphincter Use

**Introduction and Objectives:** The artificial urinary sphincter (AUS) is considered an excellent option for stress urinary incontinence (SUI). We analyzed international trends in AUS use.

**Materials and Methods:** We conducted a retrospective review of data derived from patient information forms (PIFs) sent to American Medical Systems. There were 86,140 unique cases from March 1975 through December 2008, including all indications (radical prostatectomy, urethral surgery, trauma or radical pelvic surgery, SUI surgery, neurogenic disease, or other unspecified).

**Results:** AUS use increased worldwide from 1975 (90 procedures) through 2008 (4818 procedures). In 2008, patients with post-prostatectomy incontinence (PPI) accounted for 61% (2907/4751) of AUS use compared to 12% (8/66) in 1975. AUS annual implant rates in women were much lower than in men, decreasing from 298 procedures in 1990 to 67 in 2008. AUS implants in the United States for males alone accounted for the majority (62%, 2995/4818) of worldwide AUS use in 2008. Conversely, AUS use has recently started declining in other areas, including South America and Canada. Frequency of AUS surgery varied dramatically from less than 0.01 per 100,000 population in Brazil to 0.99 in the United States. The proportion of revisions to initial implants fell to about 50% in 1984 and has remained fairly steady through 2008. Of surgeons performing AUS implants in 2008, case volumes in and outside of the United States were similarly low: 56% in the United States and 52% outside the United States performed only one AUS implant, while 76% in the United States and 73% outside the United States did fewer than three.

**Conclusion:** AUS use has continued to increase internationally over the study period, especially for PPI. However, AUS use exhibits considerable regional variation, and the majority of surgeons performed very low annual case volumes of implants.

Table. Annual AUS case volume by regional standardized utilization rate (per 100,000 inhabitants)

| AUS Case Volume per 100,000 Population |                 |                        |                             |                 |                        |                             |
|--|-----------------|------------------------|-----------------------------|-----------------|------------------------|-----------------------------|
|  | 2005            |                        |                             | 2008            |                        |                             |
|  | AUS Case Volume | Population in Millions | AUS Case Volume per 100,000 | AUS Case Volume | Population in Millions | AUS Case Volume per 100,000 |
| United States                          | 2781            | 296.5                  | 0.94                        | 3010            | 304.5                  | 0.99                        |
| Canada                                 | 173             | 32.2                   | 0.54                        | 91              | 33.3                   | 0.27                        |
| France                                 | 281             | 60.7                   | 0.46                        | 322             | 62.0                   | 0.52                        |
| Germany                                | 304             | 82.5                   | 0.37                        | 381             | 82.2                   | 0.46                        |
| United Kingdom                         | 123             | 60.1                   | 0.20                        | 181             | 61.3                   | 0.30                        |
| Spain                                  | 80              | 43.5                   | 0.18                        | 130             | 46.5                   | 0.28                        |
| Italy                                  | 51              | 58.7                   | 0.09                        | 108             | 59.9                   | 0.18                        |
| Brazil                                 | 103             | 184.2                  | 0.06                        | 2               | 195.1                  | <0.01                       |
| Australia                              | 5               | 20.4                   | 0.02                        | 9               | 21.3                   | 0.04                        |
| New Zealand                            | 21              | 4.1                    | 0.51                        | 11              | 4.3                    | 0.26                        |
| South Africa                           | 35              | 46.9                   | 0.07                        | 23              | 48.3                   | 0.05                        |
| South Korea                            | 11              | 48.3                   | 0.02                        | 33              | 48.6                   | 0.07                        |