

INTERNATIONAL CONTACT LENS PRESCRIBING IN 2019

We report on the prescribing trends highlighted by our 19th global survey including more than 20,000 fits.

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Since the turn of the century, we have presented annual overviews of contact lens prescribing trends in *Contact Lens Spectrum*. The work was initiated to help eyecare practitioners who are active in contact lenses to benchmark their fitting habits against their peers as well as to provide context to researchers in the field working on next-generation products. The database of lens fits collected over this period now exceeds 400,000, and the information has been collected across 71 markets.

In each targeted market, we supply survey forms and request that practitioners complete generic information about the first 10 contact lens fits conducted after receipt. This fundamental approach has remained unchanged since the first survey was conducted in the United Kingdom in 1996, with only minor changes to the form to account for new products becoming available on the market. For example, an option for “antimycopia” (now termed “myopia control”) lenses was introduced in the 2011 survey to allow us to track developments in that area.

The distribution of the survey form varies. Some markets continue to use paper forms with a reply-paid envelope; others distribute and collect the same form via e-mail or a web-based questionnaire. The work is coordinated in each market by national coordinators who are listed as co-authors of this paper.

The survey forms request information about the age

and sex of each contact lens patient fitted in addition to data about the material, design, replacement frequency, and wearing modality of the fitted lenses; anticipated weekly usage; and care system type. Each fit is weighted based on the estimated annualized number of fits for each practitioner. The data are finally collated at both the University of Manchester in the United Kingdom and at the University of Waterloo in Canada.

KEY WEARER INFORMATION

In 2019, data for 100 or more fits were received from each of 25 markets (Table 1), with information captured for 20,746 lens fits in total. As in previous years, the mean age at fitting was in the early 30s (32.8 ± 14.9 years), and two-thirds of those fitted were female. Figure 1 shows the distribution of average age and the proportion of females fitted. At fitting, contact lens patients tend to be older in western Europe and in other developed markets (e.g., the average age at fitting was greater than 39 years in Denmark and Switzerland) and younger in developing and/or Asian markets (younger than 30 years on average in Japan, Mexico, Israel, and the Philippines).

Women accounted for more than 55% of lens fits in every market and reached 70% or more of lens fits in France, Portugal, the Philippines, Finland, and Taiwan. Thirty-nine percent of all recorded fits were considered “new fits,” as distinct from “refits.” This value, which perhaps indicates the health of the contact lens market,



has remained very similar throughout the lifetime of this survey work. Most patients (87%) were prescribed contact lenses for “full-time” wear, which is defined as four or more days per week.

Table 2 shows the major categories of lens types prescribed. GP lenses were supplied in 13% of fits (broken down into 10% of fits with conventional lenses and 3% with orthokeratology [OK]).

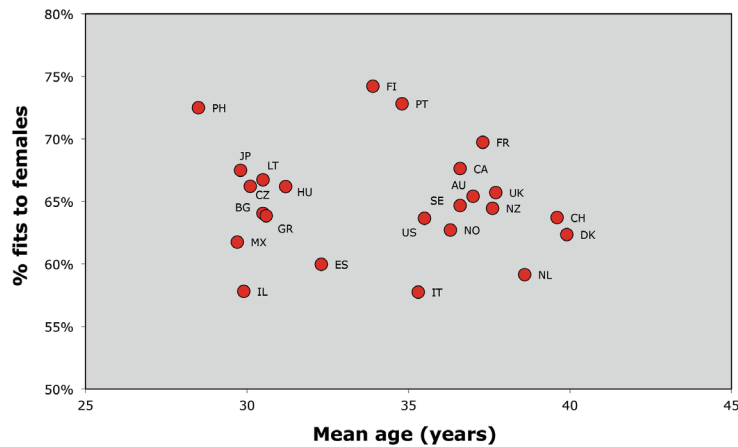


Figure 1. The mean age and the proportion of females fitted in the 25 markets reported in the 2019 survey.

DEMOGRAPHIC INFORMATION FOR ALL SURVEYED MARKETS

TABLE 1

Country	Total fits	Mean ± SD age	% female	% new fits	% part time (≤ 3 days)
Australia (AU)	502	37.0 ± 17.4	65%	35%	23%
Bulgaria (BG)	430	30.5 ± 10.7	64%	37%	8%
Canada (CA)	2,745	36.6 ± 16.6	68%	39%	23%
Switzerland (CH)	146	39.6 ± 16.4	64%	35%	7%
Czech Republic (CZ)	300	30.1 ± 14.3	66%	55%	30%
Denmark (DK)	340	39.9 ± 16.9	62%	27%	3%
Spain (ES)	553	32.3 ± 15.6	60%	52%	18%
Finland (FI)	531	33.9 ± 13.8	74%	38%	29%
France (FR)	261	37.3 ± 17.6	70%	39%	6%
Greece (GR)	904	30.6 ± 10.9	64%	23%	11%
Hungary (HU)	136	31.2 ± 13.9	66%	64%	3%
Israel (IL)	388	29.9 ± 11.8	58%	34%	8%
Italy (IT)	520	35.3 ± 16.8	58%	50%	12%
Japan (JP)	3,711	29.8 ± 15.5	67%	45%	13%
Lithuania (LT)	551	30.5 ± 9.9	67%	23%	20%
Mexico (MX)	3,052	29.7 ± 11.3	62%	45%	1%
Netherlands (NL)	488	38.6 ± 18.1	59%	28%	3%
Norway (NO)	534	36.3 ± 17.0	63%	31%	8%
New Zealand (NZ)	465	37.6 ± 17.1	64%	39%	24%
Philippines (PH)	1,506	28.5 ± 9.1	72%	32%	5%
Portugal (PT)	114	34.8 ± 15.5	73%	52%	12%
Sweden (SE)	735	36.6 ± 14.9	65%	29%	10%
Taiwan (TW)	600	30.2 ± 10.8	85%	28%	0%
United Kingdom (UK)	1,036	37.7 ± 17.4	66%	54%	31%
United States (US)	198	35.5 ± 15.6	64%	30%	7%
OVERALL	20,746	32.8 ± 14.9	66%	39%	13%

OK fitting was significantly higher than average in the Netherlands, Hungary, and France. For soft lenses, nearly 50% more silicone hydrogel daily disposables are prescribed overall compared to their traditional hydrogel equivalent. This discrepancy is even greater for reusable lenses (a four-fold difference). Soft lenses for extended wear were prescribed in 7% of cases.

Figure 2 shows the changes since 1997 for six major categories of contact lenses. Several clear trends are evident over this time period. Standard GP lenses have diminished from the high teens in percentage terms to about 10% of fits, although this is complemented by an increasing number of OK fits.

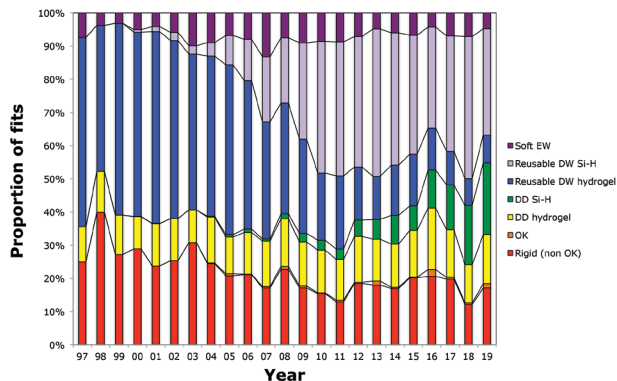


Figure 2. Summary of lens fits for all reporting markets from 1997 to 2019. EW = extended wear; DW = daily wear; Si-H = silicone hydrogel; DD = daily disposable; OK = orthokeratology.

BREAKDOWN OF ALL LENS FITS INTO SEVEN KEY CATEGORIES OF LENSES

TABLE 2

Country	Rigid (non-OK)	OK	DD hydrogel	DD SiHy	Reusable DW hydrogel	Reusable DW SiHy	Soft EW
AU	10%	3%	13%	35%	5%	30%	5%
BG	11%	0%	2%	9%	13%	61%	4%
CA	2%	2%	11%	33%	11%	37%	4%
CH	37%	5%	2%	27%	11%	17%	2%
CZ	5%	0%	5%	29%	7%	49%	4%
DK	10%	0%	47%	16%	3%	15%	10%
ES	11%	6%	8%	22%	12%	36%	4%
FI	3%	0%	3%	44%	1%	39%	10%
FR	27%	25%	1%	16%	3%	25%	1%
GR	1%	0%	16%	18%	21%	42%	2%
HU	9%	30%	1%	19%	14%	26%	2%
IL	4%	0%	31%	22%	13%	28%	2%
IT	15%	3%	18%	22%	11%	29%	1%
JP	12%	0%	29%	22%	12%	24%	0%
LT	3%	0%	4%	29%	0%	27%	37%
MX	12%	0%	5%	2%	8%	52%	22%
NL	27%	15%	7%	11%	6%	33%	0%
NO	11%	0%	25%	19%	4%	23%	18%
NZ	16%	4%	7%	36%	4%	32%	1%
PH	1%	0%	7%	6%	7%	63%	15%
PT	4%	0%	12%	19%	10%	55%	1%
SE	18%	1%	11%	24%	8%	33%	5%
TW	7%	5%	33%	6%	46%	4%	1%
UK	5%	0%	15%	43%	2%	33%	1%
US	17%	0%	8%	36%	4%	35%	1%
OVERALL	10%	3%	13%	22%	9%	35%	7%

SEE TABLE 1 for country abbreviations. OK = orthokeratology DD = daily disposable DW = daily wear EW = extended wear



The proportion of traditional hydrogel daily disposable lens fits has remained approximately the same for the past 20 years; this has, of course, been supplemented by additional silicone hydrogel daily disposables over the past decade. Lenses manufactured in these newer silicone hydrogel materials have been the more widely fitted form of daily disposable lenses for three consecutive years.

There has been a more dramatic change in reusable lenses; traditional hydrogel materials accounted for more than 50% of all lens fits 20 years ago compared to fewer than 10% in 2019.

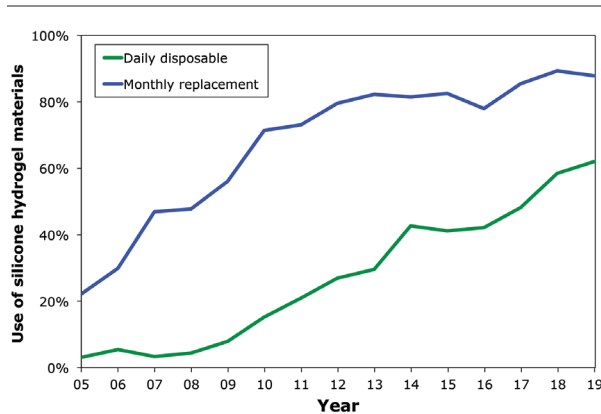


Figure 3. Prescribing of silicone hydrogel lenses for nine markets reporting at least 15 years of consecutive data (AU, CA, CZ, JP, NL, NO, NZ, UK, US).

GP LENSES

Altogether, GP lenses (including standard, scleral, and OK lenses) accounted for 14% of new fits (Table 3). Japan has continued to see a decline in its use of GP lenses, reaching only 4% of new fits in 2019 compared to more than 20% in 2003.

Scleral lenses account for 14% of all GP lenses fitted.

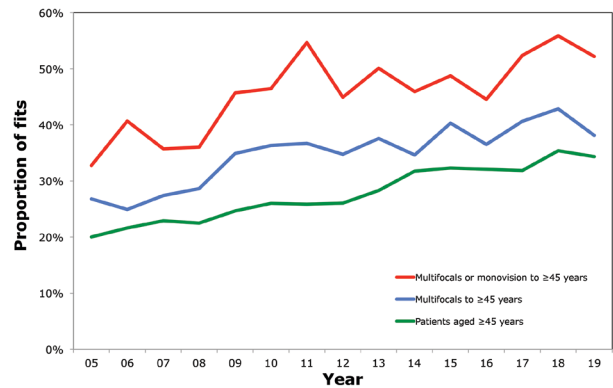


Figure 4. Prescribing of multifocal lenses (blue line) and combined multifocal/monovision lenses (red line) when presbyopes are fitted. Also shown is the proportion of contact lens fits to people aged 45 years and over (green line). Data for the nine markets for which at least 15 years of consecutive prescribing data was reported (AU, CA, CZ, JP, NL, NO, NZ, UK, US).

DETAILED INFORMATION FOR ALL PRESCRIBED GP LENSES ONLY FOR MARKETS REPORTING > 35 GP LENS FITS

	AU	CA	CH	DK	ES	FR	IT	JP	MX	NL	NO	NZ	SE	TW	UK	OVERALL
Rigid lenses for new fits	10%	6%	54%	13%	19%	66%	14%	4%	17%	48%	10%	26%	11%	18%	1%	14%
Rigid lenses for refits	13%	4%	34%	9%	13%	39%	21%	19%	8%	39%	13%	21%	25%	4%	10%	13%
Scleral	11%	0%	24%	26%	18%	3%	13%	0%	3%	19%	55%	0%	45%	0%	10%	14%
PMMA	0%	0%	0%	20%	9%	0%	0%	1%	7%	1%	0%	0%	1%	0%	0%	2%
Low Dk (< 40)	0%	0%	13%	0%	10%	0%	11%	10%	20%	1%	7%	0%	8%	0%	7%	6%
Mid Dk (40-90)	9%	25%	26%	9%	23%	2%	40%	24%	10%	20%	10%	5%	6%	26%	43%	15%
High Dk (> 90)	80%	74%	37%	45%	39%	96%	37%	64%	60%	59%	29%	95%	41%	74%	40%	63%
Sphere	38%	10%	27%	44%	23%	35%	29%	78%	71%	13%	57%	18%	38%	28%	57%	41%
Toric	4%	3%	37%	23%	11%	3%	22%	2%	9%	16%	29%	7%	37%	30%	5%	12%
Multifocal	0%	3%	11%	3%	1%	6%	10%	11%	1%	15%	4%	1%	3%	2%	15%	8%
Monovision	8%	2%	11%	1%	0%	0%	0%	2%	1%	9%	0%	5%	6%	0%	3%	3%
Ortho-k	21%	50%	11%	2%	38%	48%	17%	0%	0%	36%	2%	21%	3%	40%	5%	24%
Myopia control	25%	15%	3%	5%	16%	0%	0%	0%	2%	12%	6%	48%	2%	0%	7%	5%
Other	4%	17%	0%	21%	12%	8%	22%	7%	17%	0%	3%	0%	11%	0%	9%	8%
Planned replacement	22%	16%	32%	88%	76%	99%	80%	21%	94%	59%	33%	33%	99%	100%	43%	72%
Extended wear	9%	55%	7%	3%	56%	0%	7%	0%	61%	28%	2%	40%	0%	3%	5%	17%

SEE TABLE 1 for country abbreviations. PMMA = polymethylmethacrylate

TABLE 3 MATERIALS DESIGN

Among corneal GP lenses, high-Dk (greater than 90) was the most commonly prescribed material. Spherical designs were the most widely prescribed, with OK lenses the next most popular, accounting for 24% of GP lens fits. Approximately three-quarters of GP lenses are prescribed on a planned replacement basis.

SOFT LENSES

Soft lenses made up 87% of contact lens fits (Table 4). Taking a closer look at nine markets for which we have 15 years of consecutive data, silicone hydrogels represent 72% of all soft lenses prescribed over this time period; this material type dominates the reusable lens category in particular (Figure 3), reaching a plateau of around 80% of fits in 2013. The proportion of silicone hydrogels used for daily disposable lenses continues to rise and is currently at 62% (Figure 3).

Spherical, toric, and multifocal lenses accounted for 51%, 28%, and 13% of soft lenses prescribed, respec-

tively. Multifocal lens prescribing has increased from approximately 25% of lenses fitted to presbyopes in 2005 to around 40% in 2019 (Figure 4). In addition, 10% to 15% of this group are prescribed monovision lenses; this would suggest that close to half of presbyopes, when fitted with soft contact lenses, receive a distance-only correction. In general, the fraction of presbyopes within the pool of fitted contact lens patients has increased from 20% to 35% of all fits over the past 15 years.

Myopia control lenses account for 1% of soft lens fits, although this percentage is substantially higher in Australia (8%) and Spain (6%). These values increase significantly when we evaluate contact lens fits only to people aged 17 years and younger. For example, the overall proportion of myopia control lenses rises to 6% for this age group.

Significantly, for the first time in this work (and a quarter of a century after their launch), daily disposables now represent the most widely prescribed soft lens replacement interval at 45% of fits, followed by monthly

DETAILED INFORMATION FOR ALL PRESCRIBED SOFT LENSES FOR MARKETS REPORTING > 100 SOFT LENS FITS

	AU	BG	CA	CZ	DK	ES	FI	FR	GR	HU	IL	IT	HU	IL	IT
Soft lenses for new fits	90%	86%	94%	95%	87%	81%	97%	34%	98%	37%	99%	86%	61%	93%	82%
Soft lenses for refits	87%	91%	96%	95%	91%	87%	97%	61%	98%	68%	94%	79%	67%	93%	82%
Low water content (< 40%)	1%	0%	2%	1%	10%	1%	1%	1%	3%	1%	2%	1%	0%	3%	1%
Mid water content (40-60%)	15%	17%	10%	3%	28%	8%	2%	8%	7%	1%	14%	18%	3%	10%	17%
High water content (> 60%)	5%	1%	13%	9%	24%	18%	2%	1%	28%	23%	30%	16%	8%	27%	15%
Silicone hydrogel	78%	82%	76%	86%	38%	73%	95%	89%	62%	75%	53%	64%	88%	60%	66%
Sphere	36%	68%	41%	48%	32%	41%	44%	27%	67%	31%	52%	35%	44%	46%	31%
Toric	22%	15%	32%	39%	23%	31%	32%	29%	20%	27%	33%	43%	19%	34%	39%
Cosmetic tint	0%	0%	1%	1%	3%	0%	0%	0%	2%	12%	2%	0%	0%	1%	1%
Multifocal	21%	17%	16%	13%	19%	20%	18%	40%	11%	30%	8%	18%	37%	19%	27%
Monovision	12%	0%	8%	0%	21%	1%	7%	3%	0%	0%	4%	0%	37%	19%	27%
Myopia control	8%	0%	2%	0%	1%	6%	0%	1%	0%	0%	0%	5%	0%	0%	2%
Other	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%
Daily	58%	12%	48%	38%	78%	38%	54%	38%	35%	33%	56%	50%	37%	48%	46%
1-2 weekly	11%	7%	8%	14%	6%	5%	1%	17%	10%	2%	19%	7%	1%	19%	10%
Monthly	29%	76%	39%	46%	13%	52%	45%	42%	55%	65%	23%	39%	62%	30%	40%
3-6 monthly	1%	3%	4%	1%	3%	5%	0%	0%	0%	0%	1%	4%	0%	2%	3%
Annually	0%	3%	2%	1%	0%	0%	0%	2%	0%	0%	1%	0%	0%	1%	1%
Unplanned	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Extended wear	6%	5%	4%	5%	11%	5%	10%	2%	2%	3%	2%	1%	3%	4%	1%
EW with silicone hydrogels	100%	83%	80%	100%	99%	71%	100%	100%	77%	100%	100%	100%	100%	62%	100%
MPS	98%	92%	85%	92%	67%	93%	95%	81%	96%	95%	87%	73%	87%	84%	79%
Presbyopes multi/mono	41%/24%	55%/0%	42%/20%	59%/0%	26%/32%	70%/4%	71%/14%	82%/9%	59%/1%	58%/3%	41%/13%	47%/0%	78%/17%	63%/12%	71%/2%

See Table 1 for country abbreviations. **EW** = extended wear **MPS** = multipurpose solution



lenses at 39%. Denmark is once again the market in which daily disposables are most commonly prescribed (78% of all soft lens fits), with Norway and the United Kingdom also registering fitting rates greater than 60%. The extended wear modality was prescribed in 9% of soft lens fits, with silicone hydrogels being used in 82% of these fits. Multipurpose solutions were prescribed for use alongside 89% of reusable soft lenses. **CLS**

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JP	LT	MX	NL	NO	NZ	PH	PT	SE	TW	UK	US	OVERALL
96%	100%	83%	52%	90%	74%	98%	100%	89%	82%	99%	66%	87%
81%	96%	92%	61%	87%	79%	99%	93%	75%	96%	90%	89%	87%
8%	0%	1%	4%	8%	2%	2%	0%	2%	60%	2%	0%	4%
8%	6%	2%	15%	11%	8%	11%	18%	8%	1%	5%	8%	9%
31%	1%	17%	4%	22%	5%	4%	4%	15%	27%	11%	6%	16%
53%	93%	81%	77%	59%	86%	83%	78%	76%	11%	81%	85%	72%
76%	85%	47%	36%	40%	46%	72%	35%	35%	33%	39%	52%	51%
17%	7%	42%	23%	37%	27%	22%	35%	47%	25%	30%	27%	28%
2%	4%	7%	0%	0%	0%	1%	0%	0%	37%	1%	1%	2%
4%	5%	2%	26%	18%	12%	5%	29%	13%	5%	22%	15%	13%
1%	0%	1%	13%	2%	12%	0%	1%	4%	0%	8%	4%	4%
0%	0%	0%	1%	3%	2%	1%	0%	0%	0%	1%	0%	1%
0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
59%	55%	10%	31%	62%	54%	16%	32%	46%	44%	62%	53%	45%
39%	6%	19%	2%	3%	9%	1%	2%	7%	7%	4%	17%	13%
1%	40%	63%	48%	34%	34%	73%	66%	47%	45%	33%	30%	39%
0%	0%	6%	17%	0%	1%	6%	0%	0%	4%	0%	0%	3%
0%	0%	1%	1%	0%	0%	3%	0%	0%	0%	0%	0%	1%
1%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
0%	38%	25%	1%	21%	1%	16%	1%	7%	1%	1%	1%	9%
100%	97%	75%	100%	89%	80%	53%	100%	100%	40%	95%	100%	82%
80%	74%	99%	78%	78%	91%	94%	96%	94%	98%	96%	94%	89%
24%/2%	28%/0%	17%/3%	51%/21%	47%/6%	27%/26%	38%/8%	59%/3%	36%/16%	10%/0%	48%/18%	31%/13%	44%/14%

The final row indicates the proportion of multifocal and monovision lenses prescribed when patients were over 45 years of age.

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