

INTERNATIONAL CONTACT LENS PRESCRIBING IN 2021

We report on the trends in prescribing highlighted by our 21st global survey.

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This article marks our 21st consecutive annual analysis of contact lens prescribing around the world. The intent of this program of work is to inform eyecare professionals, clinical researchers, and the contact lens industry about the types of contact lenses prescribed in clinical practice. We hope that this provides each sector of the industry with useful data: practitioners can benchmark their own clinical practice to that of their peers; researchers can appreciate the market relevance of their work; and industry is able to reflect on prevailing trends.

The longevity of the work and the regular contribution of colleagues across many countries ensures that the total dataset collected is robust and a reliable indicator of global fitting trends. Each year, national coordinators approach contact lens prescribers in their market and endeavor to ensure that their group reflects standard local contact lens practice rather than specialty contact lens work. The type of professional varies by country, as contact lenses can be fit by optometrists, opticians, and/or ophthalmologists depending on jurisdiction. Surveys are generally sent as a simple form—either on paper or electronically—although data may also be provided via an online questionnaire in some markets.

Participants provide generic information about up to 10 contact lens fits conducted after receipt of the survey form. This includes data on age and sex of each patient

and descriptors of the lens material, design, replacement frequency, wearing modality, anticipated weekly usage, and care system prescribed. By examining the dates of the reported lens fits, a weighting system is employed to reflect the volume of fits undertaken by each respondent.

KEY WEARER INFORMATION

In 2021, information for 100 or more fits was reported for 28 countries, amounting to 14,393 fits (Table 1). The overall number of fits reported remains low, perhaps still reflecting disrupted, COVID-affected working practices over the past two years.

Age at fitting was 33.1 ± 15.4 (mean \pm standard deviation) years. Sixty-four percent of lenses were prescribed to females, and “new fits” (those to patients with no recent contact lens experience) represented 36% of all lens fits. These values are similar to previous years. Around 88% of lenses were prescribed to be worn at least four days per week.

Table 2 shows the major lens categories prescribed. Overall, regular GP lenses accounted for 11% of lens fits, ranging from low single-digit figures in a number of markets to higher proportions in the Netherlands and Colombia. Figure 1 shows the proportion of rigid lens fits (of all fits) from 2017 to 2021 for markets where at least 1,000 contact lens fits have been reported. Again, the Netherlands features strongly, along with France. GP lens fitting also accounted for more than 20% of fits in

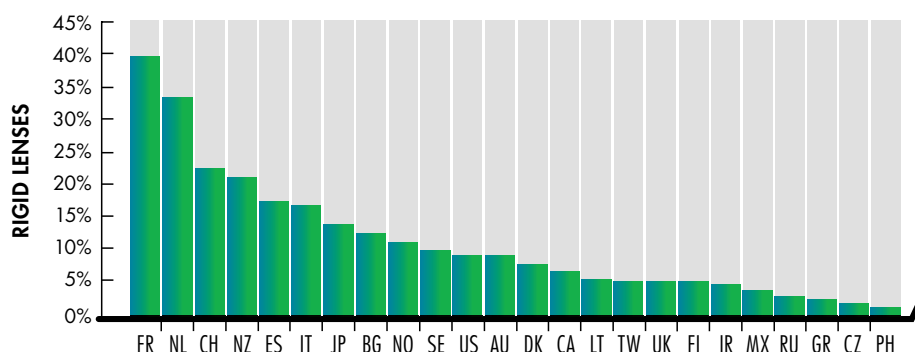


Figure 1. The proportion of GP lens prescribing 2017 to 2021 for markets reporting at least 1,000 fits. See Table 1 for country abbreviations. NZ = New Zealand.

Switzerland and New Zealand over this period.

For 2021, orthokeratology lenses accounted for 3% of all lens fits, and 86% of all lens fits were with soft lenses, including 3% of extended wear fits, with the remain-

der split equally between daily disposable and reusable lenses. It is notable that silicone hydrogel materials are more dominant in the reusable category (four of five fits) compared with daily disposables (two-thirds).

DEMOGRAPHIC INFORMATION FOR ALL SURVEYED MARKETS

TABLE 1

Country	Total fits	Mean ± SD age	% female	% new fits	% part time (≤ 3 days)
Argentina (AR)	290	37.3 ± 16.8	64%	36%	2%
Austria (AT)	110	36.0 ± 16.0	62%	35%	4%
Australia (AU)	293	37.1 ± 18.9	61%	34%	21%
Bulgaria (BG)	330	28.8 ± 10.3	63%	51%	7%
Canada (CA)	2,226	36.9 ± 16.6	68%	35%	22%
Switzerland (CH)	118	40.9 ± 16.4	56%	29%	25%
China (CN)*	130	26.8 ± 9.5	71%	23%	10%
Colombia (CO)	306	31.9 ± 13.9	61%	40%	1%
Czech Republic (CZ)	137	30.9 ± 15.6	63%	68%	19%
Germany (DE)	100	37.2 ± 16.1	57%	49%	0%
Denmark (DK)	198	38.5 ± 16.4	67%	30%	4%
Spain (ES)	354	33.6 ± 14.8	51%	56%	7%
France (FR)	335	38.5 ± 17.5	68%	40%	6%
Greece (GR)	716	30.1 ± 9.7	62%	14%	3%
Hungary (HU)	137	29.7 ± 13.8	60%	33%	6%
Israel (IL)	585	30.1 ± 12.2	34%	23%	2%
Italy (IT)	560	31.0 ± 15.4	59%	59%	4%
Japan (JP)	3,275	29.6 ± 15.5	66%	46%	13%
Lithuania (LT)	403	31.2 ± 11.4	67%	16%	18%
Netherlands (NL)	247	40.9 ± 19.1	59%	40%	6%
Norway (NO)	127	36.7 ± 16.7	65%	38%	5%
Philippines (PH)	932	30.3 ± 10.3	76%	33%	4%
Portugal (PT)	248	32.9 ± 14.7	67%	45%	3%
Sweden (SE)	324	39.2 ± 15.4	56%	19%	9%
Singapore (SG)	182	28.3 ± 11.8	61%	17%	23%
Taiwan (TW)	329	31.4 ± 10.4	80%	30%	0%
United Kingdom (UK)	968	36.0 ± 16.7	65%	56%	24%
United States (US)	433	36.4 ± 16.3	61%	28%	10%
OVERALL	14,393	33.1 ± 15.4	64%	36%	12%

* Data for retail outlets only are shown.

GP LENSES

Details for GP lenses are shown for markets reporting at least 35 GP fits (Table 3). Scleral lenses represent a significant minority of fits, with corneal rigid lenses making up 78% of GP fits. Scleral lenses are especially popular in the Netherlands, which has a long history of high-quality GP lens manufacturing. Standard spherical lens designs make up only 38% of GP lenses, with

significant contributions from toric, orthokeratology, and myopia control lenses. About two in three GP lenses is prescribed on a planned replacement basis.

SOFT LENSES

Soft lenses account for 86% of contact lens fits reported in 2021 (Table 4). Most lenses prescribed are silicone hydrogel materials (74% of all soft lenses), with low-

BREAKDOWN OF ALL LENS FITS INTO SEVEN KEY CATEGORIES OF LENSES

Country	Rigid (non-OK)	OK	DD hydrogel	DD SiHy	Reusable DW hydrogel	Reusable DW SiHy	Soft EW
AR	5%	0%	2%	3%	22%	57%	11%
AT	29%	4%	8%	6%	31%	22%	0%
AU	18%	2%	6%	45%	4%	19%	7%
BG	8%	0%	2%	13%	4%	69%	4%
CA	7%	1%	7%	39%	3%	42%	1%
CH	20%	2%	9%	21%	22%	21%	5%
CN	6%	5%	32%	3%	41%	7%	6%
CO	48%	0%	0%	4%	5%	41%	2%
CZ	1%	0%	3%	18%	3%	72%	2%
DE	32%	7%	4%	15%	25%	15%	2%
DK	13%	1%	27%	20%	3%	26%	10%
ES	14%	19%	4%	15%	7%	41%	1%
FR	31%	11%	2%	21%	2%	33%	0%
GR	1%	0%	5%	8%	25%	55%	5%
HU	6%	49%	2%	15%	0%	26%	2%
IL	3%	0%	21%	30%	10%	35%	1%
IT	14%	4%	8%	38%	4%	31%	1%
JP	11%	0%	28%	26%	11%	24%	0%
LT	1%	0%	5%	33%	0%	32%	29%
NL	50%	7%	1%	9%	4%	27%	2%
NO	11%	1%	16%	32%	5%	25%	10%
PH	4%	0%	2%	34%	3%	54%	2%
PT	21%	0%	15%	14%	13%	36%	0%
SE	9%	1%	14%	16%	11%	43%	5%
SG	6%	2%	38%	15%	11%	19%	9%
TW	7%	0%	43%	6%	38%	6%	0%
UK	7%	1%	12%	42%	1%	35%	2%
US	20%	0%	9%	27%	5%	37%	3%
OVERALL	11%	3%	13%	28%	9%	33%	3%

TABLE 2

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

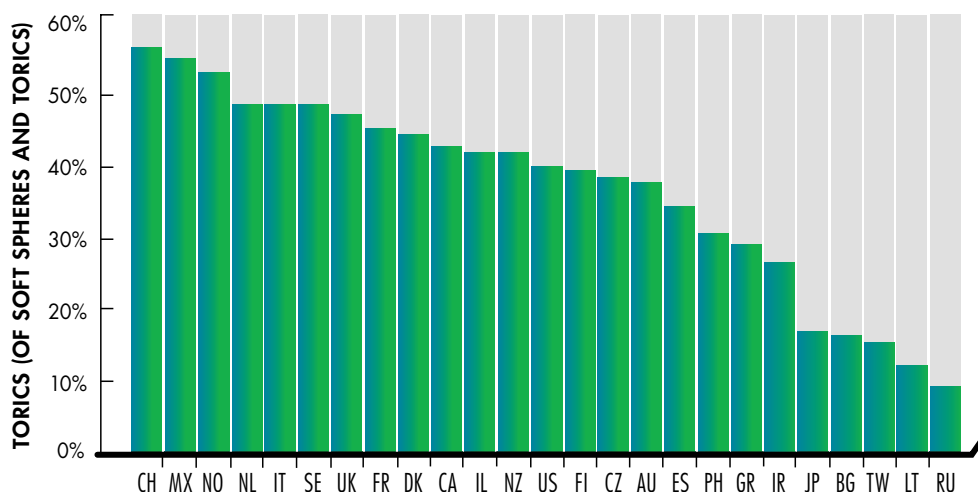


Figure 2. Toric lens fits (as a proportion of spherical and toric lens fits only) 2017 to 2021 for markets reporting at least 1,000 fits. See Table 1 for country abbreviations.

mid-, and high-water hydrogels accounting for 2%, 9%, and 15% of soft lenses, respectively. Spherical fits (i.e., two spherical lenses prescribed) represent fewer than half of soft lens fits (45%), with toric fits (i.e., one or two toric lenses prescribed) accounting for one in three fits.

Multifocals and monovision made up 14% and 3% of all soft lens fits, respectively, increasing to 49% and 11% of lenses when those prescribed to presbyopes only are considered. Use of contact lenses for myopia control accounted for just about 2% of soft lens fits.

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

TABLE 3

	AU	BG	CA	CH	CO	DE	ES	FR	IT	JP	NL	PH	SE	UK	US	OVERALL
Rigid lenses for new fits	21%	8%	7%	30%	46%	36%	24%	42%	16%	4%	44%	6%	10%	9%	26%	15%
Rigid lenses for refits	18%	9%	7%	22%	49%	41%	44%	42%	22%	16%	65%	3%	11%	7%	19%	14%
Scleral	22%	0%	0%	22%	1%	11%	30%	22%	10%	0%	46%	63%	63%	6%	38%	22%
PMMA	0%	0%	0%	0%	29%	0%	0%	0%	0%	0%	0%	24%	0%	0%	4%	2%
Low Dk (< 40)	5%	4%	1%	9%	0%	8%	1%	1%	5%	11%	0%	2%	3%	3%	1%	3%
Mid Dk (40-90)	5%	0%	22%	30%	21%	43%	10%	1%	23%	28%	29%	7%	20%	26%	13%	17%
High Dk (> 90)	69%	96%	77%	39%	49%	38%	59%	77%	62%	61%	25%	5%	13%	65%	45%	57%
Sphere	22%	96%	17%	30%	44%	35%	35%	40%	22%	77%	28%	71%	49%	15%	36%	38%
Toric	24%	0%	7%	19%	51%	34%	0%	5%	9%	1%	43%	13%	41%	14%	28%	16%
Multifocal	1%	4%	13%	14%	1%	7%	2%	8%	4%	16%	8%	6%	0%	6%	8%	7%
Monovision	0%	0%	3%	2%	0%	0%	0%	0%	0%	1%	5%	0%	0%	5%	14%	3%
Ortho-k	8%	0%	8%	10%	0%	17%	58%	27%	22%	1%	12%	2%	10%	7%	0%	19%
Myopia control	34%	0%	51%	16%	1%	4%	0%	3%	5%	1%	1%	3%	0%	41%	6%	10%
Other	11%	0%	1%	10%	3%	4%	4%	16%	38%	3%	3%	4%	0%	12%	8%	7%
Planned replacement	24%	100%	53%	54%	96%	52%	67%	100%	46%	26%	47%	90%	80%	77%	83%	67%
Extended wear	20%	0%	33%	25%	1%	0%	61%	11%	1%	1%	12%	39%	1%	24%	2%	22%

SEE TABLE 1 for country abbreviations. PMMA = polymethylmethacrylate

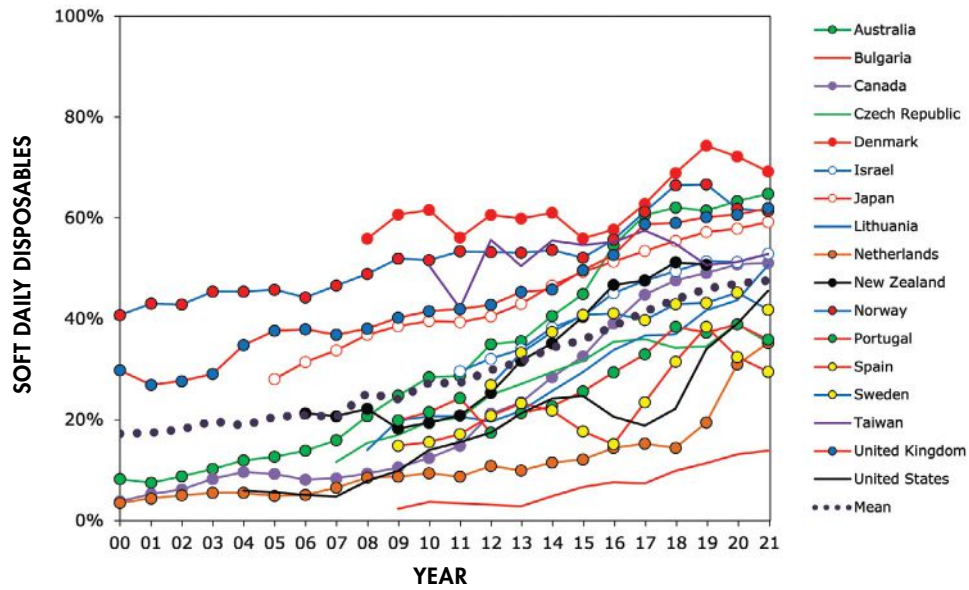


Figure 3. Daily disposable prescribing since 2000 for 17 markets. Data points are three-year moving averages.

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

REPLACEMENT DESIGN MATERIALS

TABLE 4

	AR	AU	BG	CA	CN	CO	CZ	DK	ES	FR	GR	HU
Soft lenses for new fits	94%	79%	92%	93%	85%	54%	99%	72%	76%	58%	99%	41%
Soft lenses for refits	91%	82%	91%	93%	90%	51%	99%	91%	56%	58%	99%	42%
Low water content (< 40%)	12%	1%	0%	1%	14%	1%	0%	1%	0%	3%	1%	0%
Mid water content (40-60%)	3%	3%	6%	4%	7%	2%	4%	19%	1%	2%	3%	0%
High water content (> 60%)	13%	9%	1%	5%	67%	7%	1%	19%	14%	1%	28%	4%
Silicone hydrogel	72%	87%	93%	89%	12%	89%	94%	61%	85%	94%	68%	96%
Sphere	36%	37%	74%	34%	50%	34%	36%	45%	32%	30%	61%	37%
Toric	42%	22%	16%	37%	21%	37%	43%	25%	23%	29%	30%	18%
Cosmetic tint	2%	1%	0%	1%	20%	3%	0%	3%	0%	0%	1%	0%
Multifocal	14%	22%	10%	21%	8%	16%	20%	19%	26%	40%	8%	45%
Monovision	4%	13%	0%	4%	1%	5%	0%	7%	1%	0%	0%	0%
Myopia control	0%	4%	0%	3%	0%	1%	0%	0%	18%	0%	0%	0%
Other	3%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%
Daily	5%	69%	17%	51%	42%	8%	22%	62%	28%	39%	14%	39%
1- to 2-week	5%	9%	10%	7%	5%	1%	4%	3%	1%	14%	29%	9%
Monthly	67%	19%	69%	42%	13%	71%	71%	31%	66%	43%	55%	52%
3- to 6-month	8%	0%	3%	0%	23%	16%	0%	3%	5%	2%	0%	0%
Annually	11%	0%	1%	0%	15%	3%	2%	0%	0%	2%	0%	0%
Unplanned	3%	3%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Extended wear	11%	9%	5%	1%	6%	3%	2%	11%	2%	1%	5%	5%
EW with silicone hydrogels	95%	100%	80%	45%	10%	100%	81%	100%	73%	100%	58%	100%
MPS solutions	93%	95%	98%	74%	100%	97%	99%	85%	98%	81%	93%	97%
Presbyopes multi/mono	33%/9%	44%/25%	63%/0%	55%/11%	84%/0%	55%/16%	83%/0%	44%/20%	79%/0%	82%/0%	65%/1%	95%/1%

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

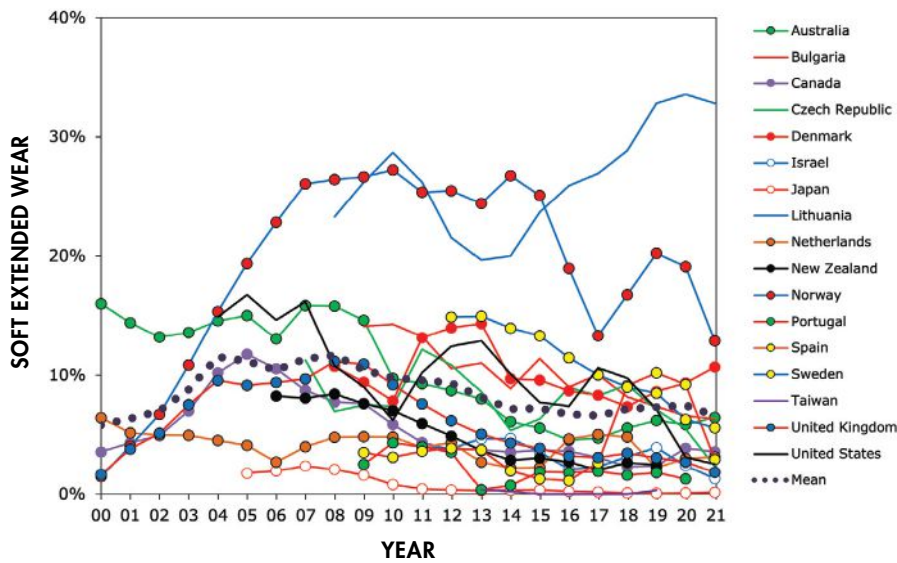


Figure 4. Extended wear prescribing since 2000 for 17 markets. Data points are three-year moving averages.

Many markets show a toric lens fitting rate of more than 40% when only toric and spherical lens fits are evaluated (Figure 2). This value is considered to be the “correct” proportion for toric lenses given that this is the fraction of a population who have 0.75DC or greater of astigmatism in at least one eye. Some markets—Japan, Bulgaria, Taiwan, Lithuania, and Russia—had significantly lower rates of toric lens prescribing. Various reasons are likely to account for this difference but may include the training and attitudes of the prescribing eyecare professionals in these countries.

IL	IT	JP	LT	NL	NO	PH	PT	SE	SG	TW	UK	US	OVERALL
97%	84%	96%	99%	56%	89%	94%	77%	90%	62%	92%	91%	74%	85%
98%	78%	84%	99%	35%	87%	97%	80%	89%	99%	93%	93%	81%	86%
0%	0%	0%	1%	3%	0%	0%	1%	1%	6%	59%	1%	2%	2%
30%	9%	13%	6%	5%	19%	3%	14%	14%	4%	4%	4%	6%	9%
3%	6%	30%	0%	4%	8%	2%	21%	15%	49%	24%	9%	9%	15%
67%	85%	57%	93%	87%	73%	95%	64%	70%	41%	13%	86%	83%	74%
38%	34%	73%	76%	18%	27%	48%	30%	32%	44%	70%	31%	42%	45%
51%	30%	18%	14%	56%	35%	41%	42%	34%	28%	15%	45%	31%	32%
1%	0%	2%	3%	4%	0%	4%	1%	1%	24%	3%	1%	6%	3%
6%	27%	5%	6%	13%	30%	6%	18%	24%	3%	10%	17%	14%	14%
3%	0%	1%	0%	2%	7%	0%	2%	9%	1%	0%	4%	7%	3%
1%	9%	0%	0%	6%	1%	1%	7%	0%	0%	0%	1%	0%	2%
0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	2%	0%	1%	0%
53%	56%	61%	54%	25%	62%	38%	37%	36%	64%	53%	60%	46%	49%
11%	4%	38%	5%	20%	5%	0%	3%	7%	9%	6%	5%	17%	13%
34%	38%	1%	40%	47%	32%	60%	60%	56%	25%	40%	35%	36%	34%
1%	2%	0%	1%	7%	0%	1%	0%	2%	2%	0%	0%	0%	2%
1%	0%	0%	0%	1%	1%	1%	0%	0%	1%	1%	0%	0%	1%
0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1%	1%	0%	30%	3%	12%	2%	0%	6%	10%	0%	2%	3%	4%
94%	75%	40%	96%	100%	100%	71%	•	100%	49%	•	100%	55%	81%
97%	75%	81%	78%	74%	93%	95%	82%	84%	67%	98%	99%	94%	89%
32%/18%	90%/0%	29%/1%	32%/0%	41%/6%	59%/18%	42%/3%	72%/8%	44%/16%	12%/8%	47%/0%	49%/8%	39%/21%	49%/11%

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



Daily disposable lenses are prescribed to 49% of patients. There is considerable variation in this metric between markets; Figure 3 shows the rates of daily disposable fitting for 17 markets that have long histories of contributing to this annual survey. It is apparent that the prescribing of daily disposables has doubled since the start of this century. In general, countries have incrementally increased their usage of daily disposables over this period, with the exception of Australia, which has seen a significant shift from 8% of fits in 2000 to more than 60% in 2021.

Extended wear of contact lenses continues to represent a minority of soft contact lens fits, with only 4% in 2021. Again, this varies among markets and over time. Figure 4 shows that the rate of extended wear prescribing in 2021 has returned to that at the start of this century; this segment had seen a significant increase between 2003 and 2007, which coincided with the start of the wider uptake of silicone hydrogel lens materials. There are two national outliers for the use of extended wear contact lenses—Lithuania and Norway, although the latter has seen a reduction in use to more typical levels recently. **CLS**

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