USA EU CHINA LATAM RUSSIA JAPAN

Ipsos Medical Devices & Diagnostics Pulse Survey

June 2019

OPHTHALMOLOGY

Ipsos MD&D Pulse Survey

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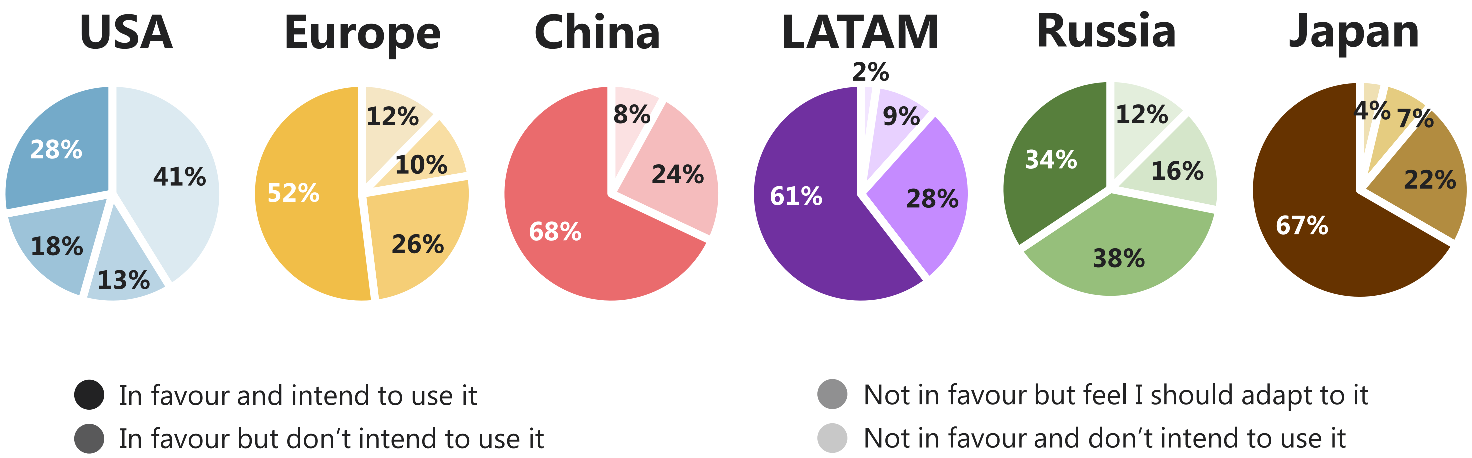
What are ophthalmologists' attitudes towards robotic surgery?

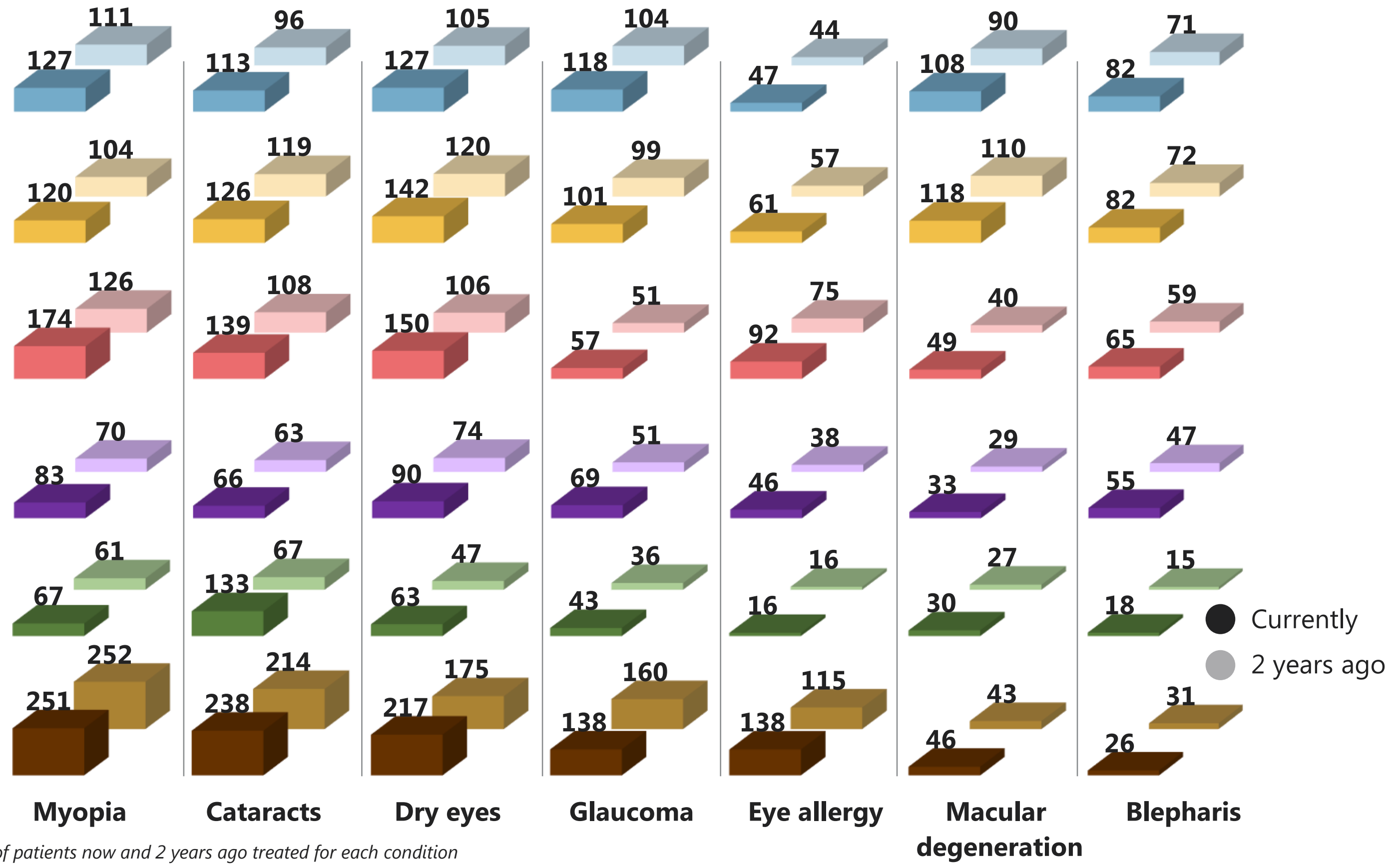
China and Japan lead the way in favorability and intent to use robotic techniques; LATAM is not far behind; USA and Russia are most conservative with many being not in favour or having no intention to use (USA), or not in favor but feel they ought to use it (Russia).



Q1 % of ophthalmologists selecting each option

Past & present case loads of various conditions?

Patient load is currently dominated by myopia, cataracts and dry eyes with particularly high patient loads in Japan and China; high growth expected for myopia in China, cataracts in China & Russia & dry eyes in China & Japan.



Q2 No. of patients now and 2 years ago treated for each condition

N=402 Ophthalmologists from 11 selected markets were invited at random to take part in a **5-minute survey consisting of 10 structured questions (fielded in local languages).**
All data were collected via an online survey over a 5-day period in April 2019.

Base: (Ophthalmologists): USA n=68, Europe n=179 (UK n=36, FR n=35, DE n=35, ES n=38 IT n=35), China n=50, LATAM n=43 (Mexico n=27, Brazil n=16), Russia (n=32), Japan (n=30)

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Treatment for glaucoma

Eye drops are by far the most common treatment for glaucoma especially in Japan and USA. In China, however, trabeculectomy (30%) has a relatively high uptake, reducing the use of eye drops.

	USA	Europe	China	LATAM	Russia	Japan
Drainage tubes	8%	9%	12%	15%	6%	4%
Eye drops	84%	79%	44%	77%	76%	93%
Laser surgery	18%	15%	21%	13%	24%	6%
Minimally-invasive glaucoma surgery (MIGS)	10%	11%	14%	10%	18%	3%
Oral medication	5%	8%	15%	8%	14%	5%
Trabeculectomy	9%	15%	30%	16%	16%	8%

% of Respondents picking each treatment

Treatment for myopia

Eyeglasses and then contact lenses are the popular choice for treatment of myopia – contact lenses are particularly widely used in Russia. More preventative methods such as Ortho-K, modifying lenses and Atropine are most popular in China.

	USA	Europe	China	LATAM	Russia	Japan
Laser	9%	14%	24%	23%	29%	7%
Orthokeratology	0%	4%	11%	3%	7%	2%
Peripheral defocus modifying contact lenses	2%	5%	13%	3%	5%	1%
Contact lenses	32%	37%	20%	31%	49%	32%
Eyeglasses	75%	78%	43%	60%	60%	66%
Atropine	1%	4%	9%	3%	4%	1%

% of Respondents picking each treatment

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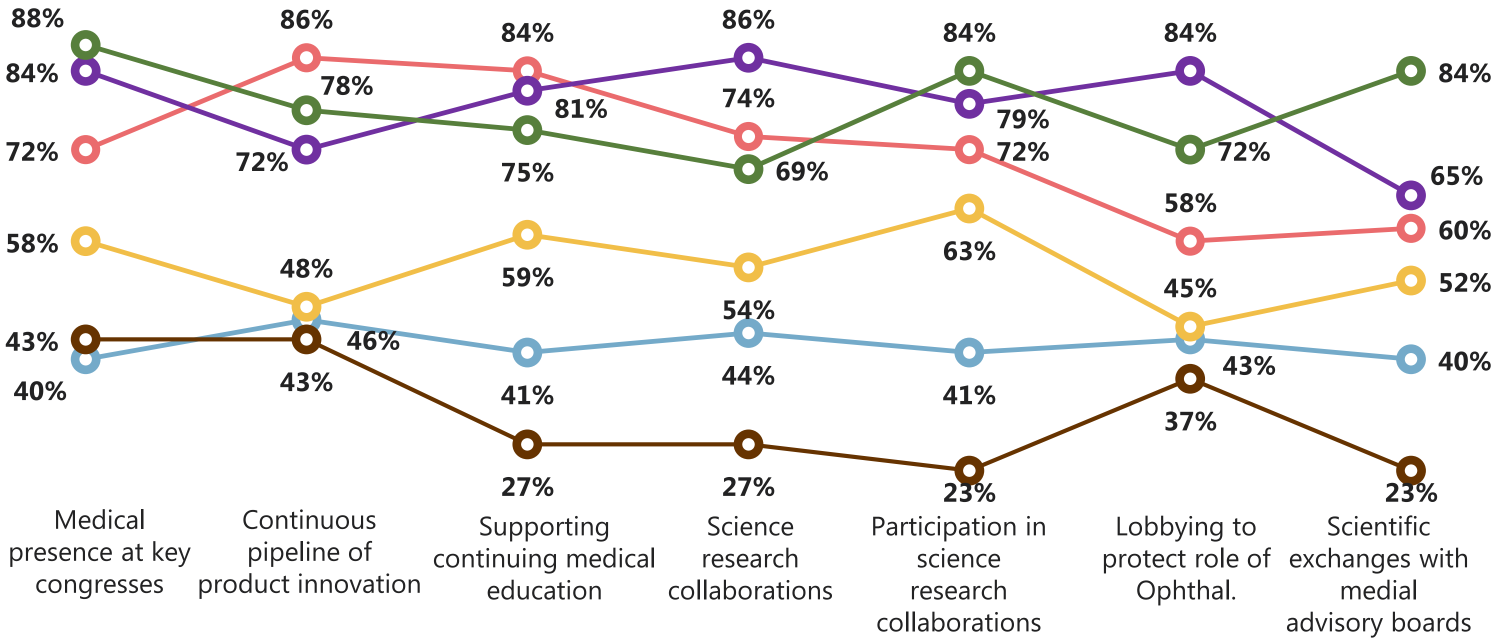
Importance of manufacturer-led scientific initiatives

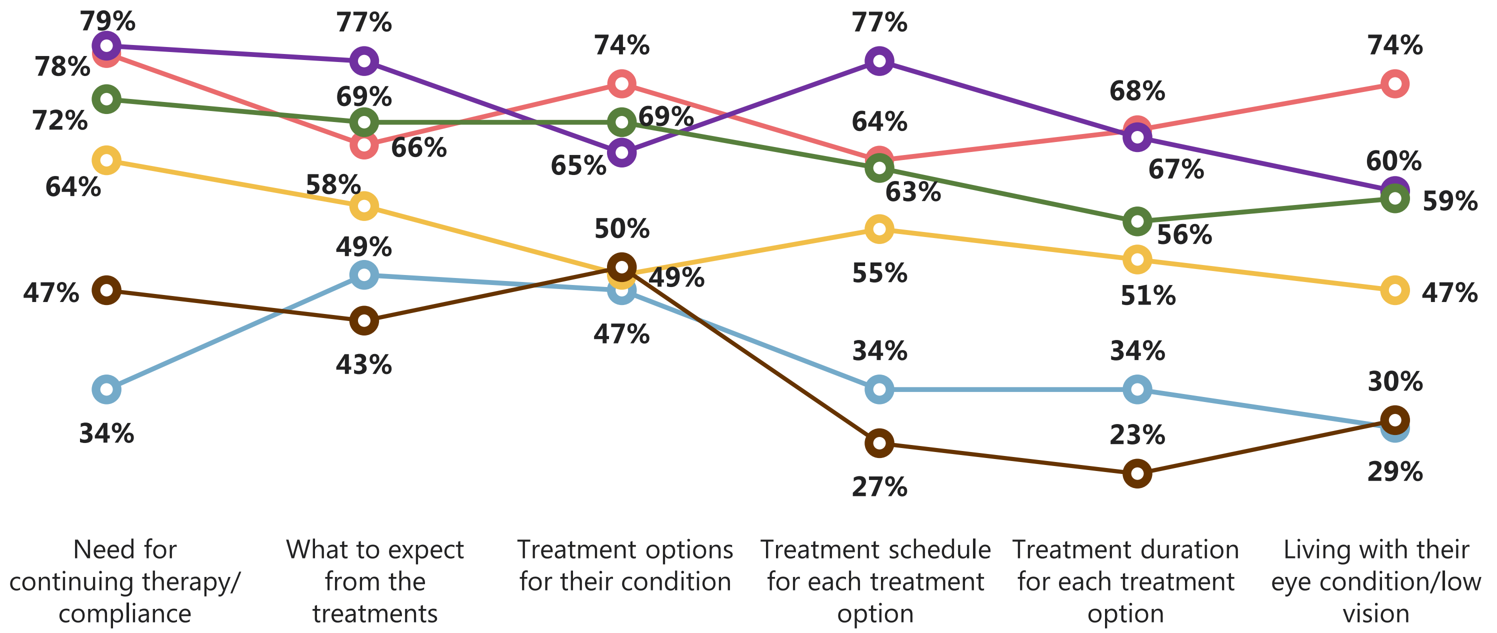
Overall LATAM, Russia & China most appreciate manufacturer-led initiatives – more so than in EU, Japan or the USA; medical presence at key congresses and continuous pipeline innovation are seen as most important.



% of ophthalmologists who rate each initiative as 6 or 7 out of 7 – highly value the initiative

Helpfulness of each topic for patient information material

The most important topics to include in patient information materials are the need for continuing therapy, and what to expect from the treatment. In LATAM, treatment schedule is particularly important (not in other markets) and in China, living with their eye condition and treatment options stand out as highly important.



% of ophthalmologists who rate each topic as 6 or 7 out of 7 – highly value the topic

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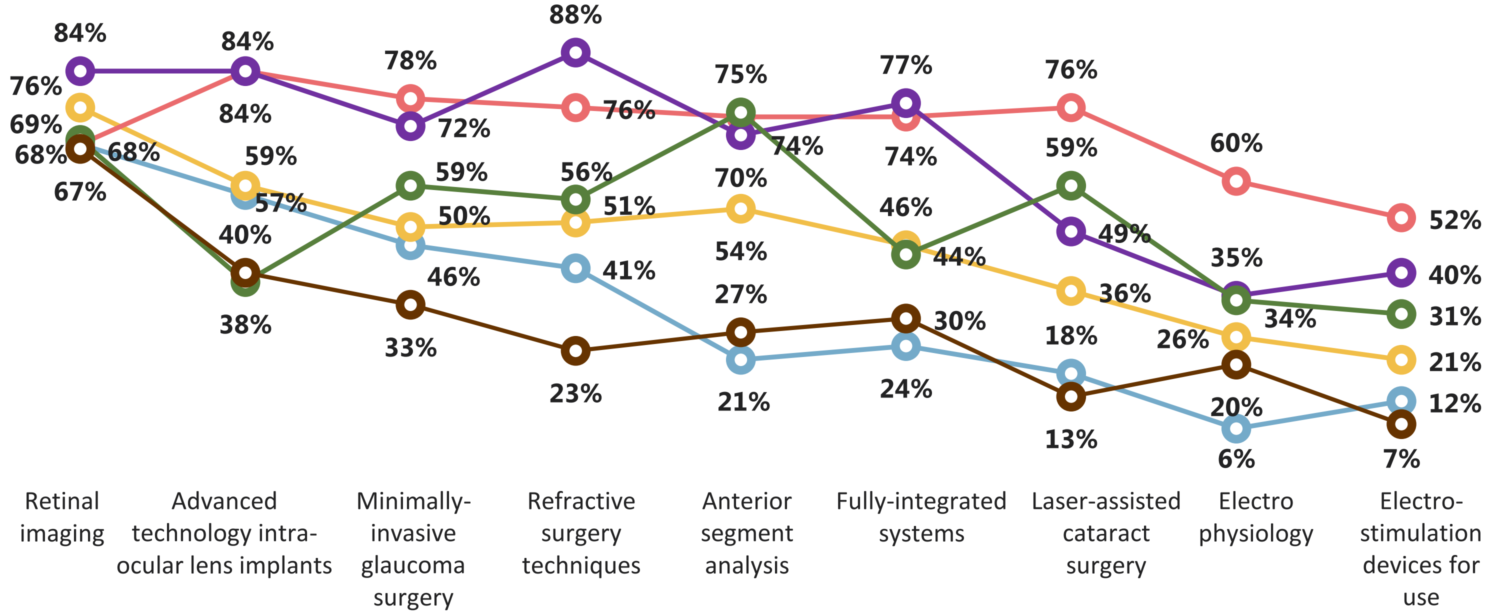
Impact of recent trends

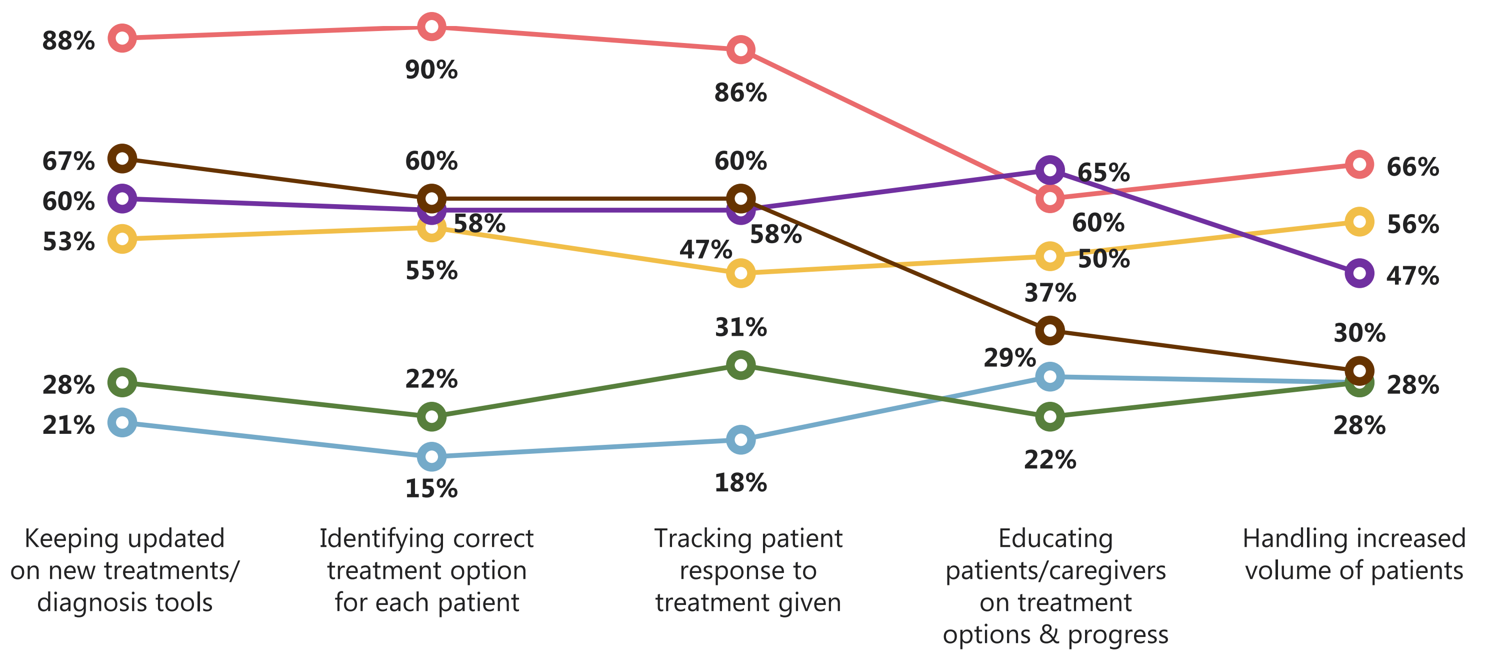
Retinal imaging has had the highest overall impact across the countries; in China, IOL technology has been more impactful, in LATAM refractive surgery techniques and in Russia anterior segment analysis.



% of ophthalmologists who rate each trend as 6 or 7 out of 7 – highly impactful

Severity of each challenge faced in daily practice

Keeping updated with new treatments/tools, identifying the correct treatment option for each patient and tracking patient response to treatment are the top three challenges faced by ophthalmologists in China and Japan. In LATAM & USA, education of patients/caregivers is regarded as the greatest challenge.



% of ophthalmologists who rate each challenge as 6 or 7 out of 7 – highly challenging

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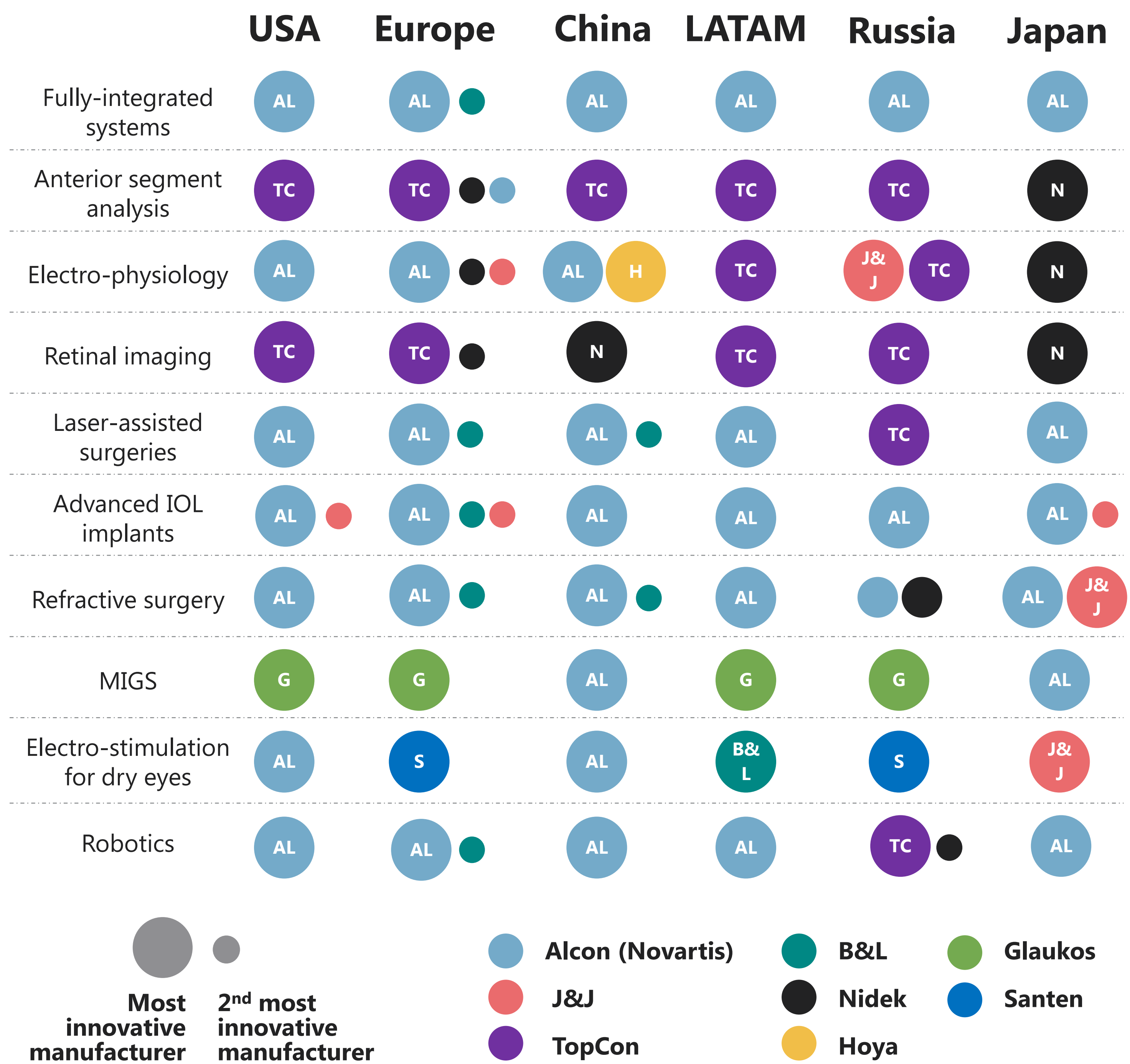
Who is the most innovative manufacturer in each of the following ophthalmology technologies?

Alcon (Novartis) has a strong reputation for fully-integrated systems, laser, advanced IOL and robotics; TopCon is well known for anterior segment analysis and retinal imaging and Glaukos for MIGs.



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What is next in ophthalmology?

Ophthalmologists expect to see improvements to existing technologies, such as glaucoma treatments, laser cataract surgery and longer-acting Anti-VEGF. They also anticipate new treatment options for retinal diseases, gene therapies and new drugs for wet-AMD. 1 in 5 expect robotics and use of AI to be better integrated to diagnosis & treatment.

Improvements to current treatment options

New/advanced treatment for glaucoma
Advancement in laser cataract surgery
Longer-acting anti-VEGF therapy
Accommodative IOL technology

38% Overall

USA 47% | EU 39% | CHINA 44%
LATAM 30% | RUSSIA 28% | JAPAN 27%

New treatment options

Development of new treatment for retinal diseases
Development of gene therapies to prevent diseases
New drugs for treatment of wet AMD

28% Overall

USA 28% | EU 30% | CHINA 6%
LATAM 35% | RUSSIA 41% | JAPAN 30%

Robotic surgery/AI

Robotic-assisted surgery,
Use of AI to complement physician's clinical management of patients such as diagnosis, operating virtual clinic, analyzing test results

19% Overall

USA 12% | EU 22% | CHINA 28%
LATAM 9% | RUSSIA 16% | JAPAN 27%

Minimally-invasive

Less invasive glaucoma procedures
Better efficacy
Adaptive optics

4% Overall

CHINA 14% | LATAM 5%

Better imaging

Improvement in ocular Imaging
Intra-operative OCT imaging
Multimodal imaging

4% Overall

EU 6% | LATAM 5% | JAPAN 7%

Better instruments/tools

Reduce device trauma
Quicker and effective surgery
Reduce post-op stress

4% Overall

CHINA 16% | LATAM 7%

% of respondents

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Expertise plus execution to deliver **results**

Ipsos' Healthcare team partners with pharmaceutical, biotech, medical device and technology organisations to inspire better healthcare.

From strategic research & consulting through commercial execution

- Assess portfolio & asset opportunities.
- Demonstrate value & create market access.
- Bring products to market faster & more successfully.
- Gain insight to drive better commercial performance.
- Leverage commercial infrastructure.
- Better communicate with & understand customers.

For more information on MD&D market research and data from this survey, please contact us at:

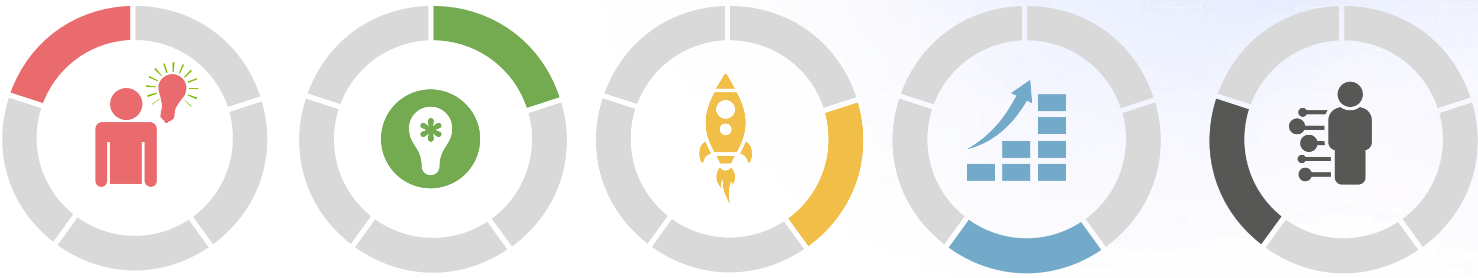
medtech@ipsos.com

Or visit our microsite:

www.ipsos-medtech.com

Expertise across the product lifecycle

Operating in over 50 countries, our 1000+ healthcare experts support key business decisions for our clients throughout the commercial lifecycle – from early-stage strategy, through to product launch and performance optimisation. We do this through a uniquely integrated combination of therapeutic, market, analytical and commercial expertise, as well as gold standard, proprietary real-world evidence.



Early development | **Late development** | **Launch** | **Post-launch** | **Portfolio management**

Early development

Market mapping/ landscaping
- Assessment of unmet needs
- Regulatory environment
- Competitor landscape
- Current practice
- Patient pathways

Opportunity assessment & Identification
- Market sizing & forecasting
- Market segmentation

Late development

New product design & development
- Innovation workshops with R&D, marketing & customers to generate new ideas
- Fine-tuning existing concepts

Concept testing
- Pricing & value assessment
- Human factors/ usability testing
- Conjoint analysis of best features/ value per feature

Launch

Launch strategy
- Message/positioning testing
- Price optimisation
- Value proposition /story refinement
- Engagement strategies
- Preferred marketing channels
- Target identification

Post-launch

Brand health tracking
- Advertising and messaging effectiveness
- Brand equity
- Sales force effectiveness
- Awareness & usage

Customer experience/ satisfaction
- Customer loyalty
- Value optimisation strategies

Portfolio management

Next-gen/upgrade strategies
- Assessment of unmet needs
- Identification of gaps in a portfolio

Portfolio (merger) management
- Optimisation of existing portfolio
- Risk of cannibalisation of new product design or merging of two company portfolios
- Rebranding effect in case of company mergers

How can SERMO RealTime benefit my business?

- SERMO RealTime (a digital HCP-only rapid research tool) provides a valuable add-on to traditional research methods to gather almost instant and affordable insights in today's fast-paced environment.

- SERMO RealTime can be used for multiple purposes, including:
    - refining an upcoming study design
    - supporting ongoing business decisions
    - checking on brand messaging and/or visuals
    - tracking market trends
    - analysing general sentiment pre- and post-campaign
    - supporting a workshop discussion

How does it work?

- Questionnaires can be scripted & launched in 24-48 hrs (upper band for translations).
- Depending on the target sample respondent & size, surveys can be in field for 1-5 days **76% of all pulse surveys complete in under 5 hours.**
- Questions are fielded online to a global panel of 1.8 million HCPs, covering 40+ specialities from 30 countries, including: US, Europe (15 markets), Mexico, Brazil, Argentina, Turkey, Russia and APAC (seven markets).
- Target lists can also be uploaded and panel matched.
- Raw data is provided instantly in Excel, and in one to three days in PowerPoint.
- Surveys can have up to **10 questions** with two optional screener questions.

***SERMO** - A leading global social network for physicians, where close to 800,000 fully-verified and licensed physicians from more than 150 countries talk real-world medicine, review what peers think of different treatment options - including ratings and comments on prescription drugs - collectively solve cases, respond to healthcare polls and earn honorarium from surveys. In 17 years, SERMO has become the world's largest healthcare professional (HCP) polling company. The SERMO research network is comprised of 1.8 million HCPs and includes 40 percent of the US physician population. Most of the 700,000 surveys SERMO conducts annually are among specialist physicians – over 70 percent of physician members are specialists.*