Four regional multinational societies release a joint position paper on multiuse phacoemulsification supplies

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The "reduce, reuse, and recycle" slogan became popular in the 1970s with the passage of the Resource Conservation and Recovery Act. In medicine, it is critical that we are able to safely transition to the reuse and multiuse of items in the most frequency performed procedures. In this EyeSustain Update, we feature David F. Chang, MD, co-founder and chair of the EyeSustain Advisory Board, discussing the new position paper advocating for multiuse phacoemulsification cassettes.

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The four regional multinational societies of cataract and refractive surgeons have jointly endorsed a position paper[1] on the importance of multiuse phacoemulsification cassettes to safely reduce unnecessary surgical waste and carbon emissions. Identifying this as a major unmet need in cataract surgery, the position paper calls on industry to prioritize development of multiuse supply options for every phacoemulsification machine platform and for regulatory agencies to facilitate review and approval of these products.

This is the first time that the American Society of Cataract and Refractive Surgery (ASCRS), the European Society of Cataract and Refractive Surgeons (ESCRS), the Asia-Pacific Association of Cataract and Refractive Surgeons (APACRS), and the Latin American Society of Cataract and Refractive Surgery (LATAMSCRS) have collaborated on a joint position paper—in this case speaking to industry and policy makers with a unified voice on behalf of cataract surgeons worldwide. The paper was developed in conjunction with EyeSustain, a global coalition of 55 ophthalmology societies collaborating to advance sustainability in eyecare through education, research, innovation, and advocacy.

This position paper is an evidence-based review of the global phacoemulsification cassette market, global survey data on surgeon practices and opinions, and published evidence supporting cassette reuse safety and the impact of this practice on unnecessary carbon emissions and non-recyclable plastic waste. Considering that lens material and irrigation fluid are sterile, there is no evidence that single-use phacoemulsification cassettes are safer compared to reusable cassettes, and many facilities worldwide have been reusing single-use cassettes off-label for years.

Surveys of cataract surgeons' practice patterns and attitudes toward operating room (OR) waste have been conducted in North America, Europe, and most recently, Asia Pacific.[2-4] In each survey, more than 90% of ophthalmologists thought that surgical waste is excessive, wanted more reusable supply options from manufacturers, and wanted more discretion from manufacturers and policymakers to reuse certain products. In each survey, approximately 75% of respondents were willing to reuse phacoemulsification tubing/cassettes and unused irrigation solutions. However, there were large regional differences in the percentage of surgeons that were currently reusing these products. Phacoemulsification tubing/cassettes were being reused by 41% of respondents in Asia Pacific, compared to 21% in Europe and 7% in North America.[4] This presumably reflects geographic differences in regulations governing off-label reuse of single-use supplies.

As an example, the Aravind Eye Care System's (AECS) 15 eye hospitals in southern India routinely reuse a single-use phacoemulsification tubing/cassette for the entire surgical day's caseload of 20–30 procedures. We recently reported that their postoperative endophthalmitis (POE) rate with this protocol was 0.01% in 1,133,959 consecutive phacoemulsification procedures performed during the 9-year period between 2016 and 2024.[5] This was lower than the 0.06% POE rate in 9,587,018 cataract surgeries from the American Academy of Ophthalmology (AAO) Intelligent Research in Sight (IRIS) Registry during an overlapping 10-year period from January 2013 to March 2023.[6] Intracameral moxifloxacin prophylaxis was used in every procedure at AECS during this period, which would not have been true of the IRIS Registry population. However, because of U.S. regulations, virtually all the IRIS

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Registry cases would have been performed with single-use cassettes. We previously published an AECS microbiological study that cultured tubing reused all day and residual irrigation fluid from bags that were reused on multiple consecutive eyes.[7] None of the 370 cultures were positive for bacterial growth, consistent with a low risk of cross contamination.

In another recent study, we published a cost and carbon footprint life-cycle analysis of an autoclavable tubing/cassette that is FDA approved for up to 20 uses.[8] The carbon footprint of 1,000 single-use cassettes with packaging was 725 kg CO_2eq, which would be equivalent to driving a car 1,764 miles (2,849 km). This would generate 527 lbs (239 kg) of waste, of which 85% is non-recyclable plastic. Incorporating this option for the Compact Intuitiv machine (Johnson & Johnson) at our surgery center during the past year cut the waste and emissions by 20-fold and resulted in a 67% cost savings on tubing/cassettes per year.

Approved "day" cassettes that are reused for multiple consecutive patients without being removed, cleaned, or autoclaved between cases are available for a few machines in some global markets. However, they are not offered by the largest machine manufacturers accounting for the majority of global market share, and none are currently available in the U.S. Machines with the option of a day cassette approved for multiple consecutive same-day cases include the Rayner Sophi (10 cases), Oertli CataRhex 3 (6 cases), and Zeiss/DORC EVA NEXUS (20 cases). The Geuder Megatron S4 HPS and Ruck Qube Pro platforms limit the consecutive number of hours that the day cassette can be used (6 hours and 16 hours, respectively). In addition to reducing OR turnover time, day cassettes reduce the per case costs of manufacturing the product, the facility shelf space to store the product, and the significant carbon emissions and non-recyclable plastic waste from cataract surgery. Several of these manufacturers plan to seek FDA approval of their day cassette option.

With a global mandate to reduce the healthcare sector's environmental impact, high volume specialties like ophthalmology must reduce unnecessary waste and emissions, such as by safely reusing products required for every procedure. The position paper argues that day cassettes and other multiuse supplies should be offered as an option for every phacoemulsification machine. Because of the significant savings in manufacturing, packaging, and shipping costs, this option should reduce facility costs, improve OR efficiency, and dramatically reduce unnecessary waste without compromising safety. Finally, the paper educates surgeons and their facilities to consider adopting waste and cost-reducing multiuse phacoemulsification supply options when they are available.

References (continued)

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Upcoming ASCRS Foundation events

Get involved with Party for a Purpose

The ASCRS Foundation is looking for interested teams and individuals to participate in the next Party for a Purpose event in Washington, D.C. "Party for a Purpose in the USA" will take place on Friday, April 10 from 8:00–11:00 p.m. In celebration of the ASCRS Annual Meeting being held in the nation's capital, during the 250th anniversary of the U.S., the theme will focus on U.S. cities/states. Teams will compete by performing a song/dance that includes a U.S. city or state, e.g. "California Girls." Team members and party attendees are encouraged to wear outfits to support specific teams, or wear red, white, or blue. Several teams will compete for donations during this fun and lively event. During the 2025 event, more than $180,000 was raised to benefit the Foundation and Operation Sight. If you're interested in leading or joining a team, contact Laura Rousseau (lrousseau@ascrs.org). Physicians, industry representatives, and administrators are all welcome to participate.

ASCRS Foundation 20/20 Wine Club: Virtual Wine Tasting

The ASCRS Foundation's previously announced Virtual Wine Tasting has been postponed to early 2026. Stay tuned for more details on this event, which will benefit Operation Sight and the ASCRS Foundation. The tasting will be a live, online event, with wines from Jessup Cellars and Handwritten Wines. Join Vance Thompson, MD, Eric Donnenfeld, MD, Kerry Solomon, MD, and Jim Mazzo for an evening of wine tasting, while supporting a great cause. Members and non-members are invited to participate. The ASCRS Foundation 20/20 Wine Club is a partnership between the Foundation, Jessup Cellars, and Handwritten Wines. Members receive a customizable selection of wine (6–12 bottles) at their doorstep every spring and fall. A portion of the proceeds support the ASCRS Foundation. Stay tuned for more details on how you can be part of this unforgettable evening!