

COVER STORY

Kelman's IOL design concepts endure 30 years

After 4 hours in the operating room, including 61 minutes of ultrasound time, Charles D. Kelman, MD, completed the first phacoemulsification procedure in 1967. Infection developed in that first patient, and the eye was ultimately removed. But Kelman tried again, and his second attempt was successful, changing the way cataract surgery was performed.

In 1982, 15 years after that first attempt, Kelman published his vision for IOL design in the inaugural issue of *IOL Today*, the precursor to *OCULAR SURGERY NEWS*, which marks its 30th year with this issue. One of the intentions of Kelman's 10 principles of IOL design was to help future ophthalmologists determine which IOL characteristics would be best for their patients.

Kelman described the purpose of his 10 principles of IOL design as ideas "to delineate some of the concepts of lens design so that a practicing physician can better evaluate the lenses he is currently using and any innovative new lenses which may appear over the next few years."

"The principles ... will also, in some cases, help an innovative surgeon to design a lens which may well turn out to be an improvement over current models," he wrote.



In June 1992, Charles D. Kelman, MD, was awarded the National Medal of Technology and Innovation by President George H.W. Bush for his accomplishments in cataract surgery technology.

Image: Kelman CD

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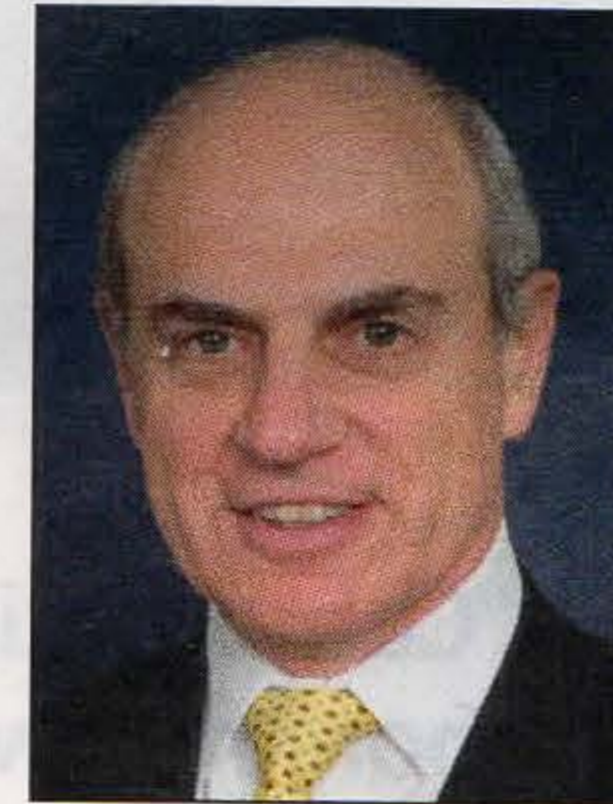
PERSPECTIVE

The last of Charlie's principles is certainly not the least: One size lens should fit all eyes. In the past 30 years, it has become increasingly obvious, with the increased sophistication of imaging and OCT techniques, how much variation there is between individual eyes that is not readily visible to the operating

surgeon. How insightful he was to anticipate this phenomenon and demand that all lenses be compatible, fundamentally just because they are placed in the center of the pupil, visual axis or limbal margins.

This is how we fundamentally practice surgical implantology today, just as Charlie did in his own time. In most cases, one lens diameter works fine in the bag, unless a special situation exists. Surgical ad-

vancements have demanded more precision in physical placement, for example, continuous curvilinear capsulorrhexis and in-the-bag place-



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ment; consequently, the refractive outcome is dependent on predictable biological anterior/posterior alignment of the new elements of the visual axis with calculation of the effective lens position. There have been many changes in a relatively short time — few have outpaced Charlie's foresight.

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