

## ANTERIOR CHAMBER PHAKIC IOLS

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## Financial Interests


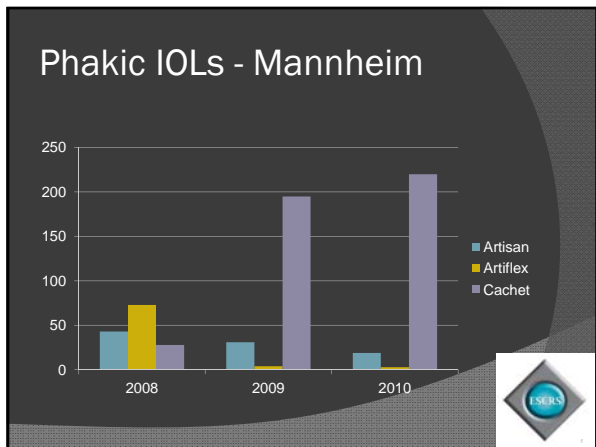
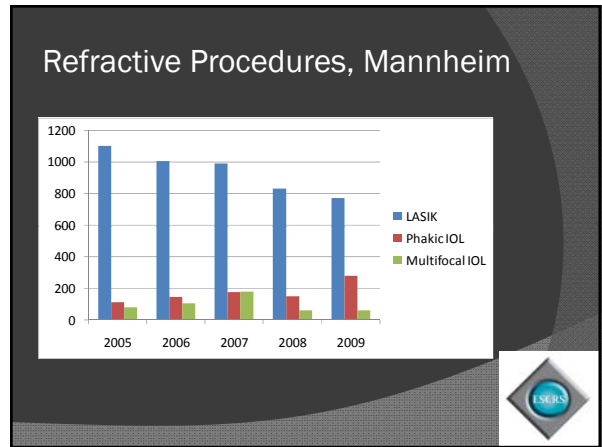
- ◉ Consultant to AMO Inc.
- ◉ Consultant to Alcon Inc.
- ◉ Consultant to Alcon LenSx Inc.
  
- ◉ Clinical investigator for AcuFocus Inc.



## Do We Need Phakic IOLs ?

YES !

- ◉ The range of LASIK is limited
- ◉ LASIK in high myopia causes halos etc.
  
- ◉ No expensive lasers required
- ◉ Phakic IOLs are reversible





## Phakic IOLs – Personal Experience

- ◉ Nuvita IOL
- ◉ Vivarte / GBR IOL
  
- ◉ Artisan / Verisyse IOL
- ◉ Artiflex / Veriflex IOL
  
- ◉ AcrySof Cachet Phakic IOL




**HOW MUCH ENDOTHELIAL CELL LOSS IS ACCEPTABLE ?**



**ISO 11979-10:2006**

- Ophthalmic implants – intraocular lenses  
Part 10: phakic intraocular lenses
- Assumes annual loss of 2%, which means less than 2% per year should be acceptable



**ANTERIOR CHAMBER HISTORICAL DESIGNS**



**Nuvita IOL**

- Sizing very difficult
- Pupil ovalization in 50 %
- IOL exchanged in many cases



**Unacceptable results**



**Vivarte / GBR**

- Sizing very difficult
- Decentration frequent
- Pupil ovalization occurs frequently
- Significant endothelial cell loss




**Unacceptable results**




**ICARE®**


- HEMA 26%
- Large vault, close to endothelium
- Progressive endothelial cell loss



**Unacceptable results**



## ANTERIOR CHAMBER CURRENT DESIGNS




### Artisan / Verisyse IOL


- FDA approved for myopia
- Outside US
  - Hyperopia
  - Toric design
- Surgery
  - Large incision, causing astigmatism
  - Iridectomy
  - Difficult




- Saxena R, Boekhoorn SS, Mulder PG, Noordzij BG, van Rij G, Luyten GP  
Long-term follow up of endothelial cell change after Artisan phakic intraocular lens implantation.  
*Ophthalmology 2008; 115:608-613*
- 82 eyes at 1 year, 13 eyes at 7 years  
Endothelial cell loss 8.3% at 5 years (1.7% per year)





- Tahzib NG, Nuijts RM, Wu WY, Budo CJ  
Long-term study of Artisan phakic intraocular lens implantation for the correction of moderate to high myopia: ten-year follow up results  
*Ophthalmology 2007; 114:1133-1142*
- 89 eyes  
endothelial cell loss 8.9% at 10 years (0.9% per year)




### Summary Artisan / Verisyse IOL

- Long-term safety established
- Difficult to implant
- Iridectomy required
- Large incision causes astigmatism
- Prolonged visual rehabilitation






### Artiflex / Veriflex IOL

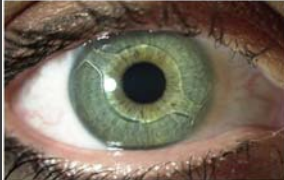

### Summary Artiflex / Veriflex

- not FDA approved; no long-term data
- Advantages
  - Small incision
  - No suture
- Disadvantages:
  - Difficult surgery
  - Iridectomy required
  - Uveitis frequent

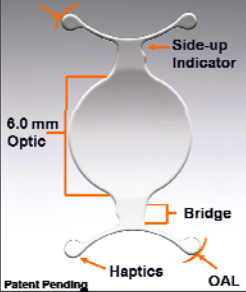



### AcrySof CACHET Phakic IOL




- not FDA approved (but CE marked)
- Single piece, AcrySof® material, angle supported
- Foldable

### AcrySof CACHET Phakic IOL



Optic	6.0 mm
Overall Length	12.5 to 14.0 mm
Diopter Range	-6.0 to -16.5 D

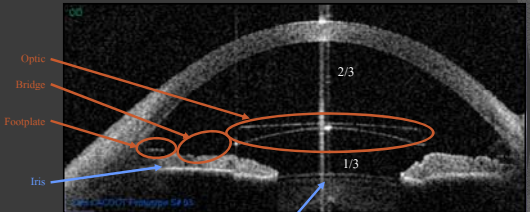





### 1st Implant 6. Dec. 1999, Mannheim




### Cachet IOL Position *in vivo* (no iridectomy/iridotomy required)

Anterior Chamber OCT

- Kohnen T, Knorz MC, Cochener B, Gerl RH, Arné JL, Colin J, Alió JL, Bellucci R, Marinho A

Acrysof angle-supported phakic intraocular lens for the correction of moderate-to-high myopia: one-year results of a multicenter European study. *Ophthalmology* 2009; 116:1314-1321

- 190 eyes, 161 at one year endothelial cell loss from preop to one year 4.8% (includes surgical loss !)



- Knorz MC, Lane SS, Holland S  
Acrysof angle-supported phakic IOL for the correction of moderate to high myopia: Three-year interim results of an international multicenter study (*JCRS* 2011; 37: 469-480)

- 360 eyes  
**Surgical ECC loss:** (pre-op to 6 months) 3.31% centrally and 2.98% peripherally  
**Chronic ECC loss:** (annualized from 6 months to 3 years) 0.4% centrally and 1.1% peripherally



## Summary Acrysof Cachet IOL

- Not FDA approved, CE marked
- Long-term safety established
- Easy to implant
- No iridectomy required
- Fast visual rehabilitation



## Summary Phakic IOLs

- Long-term proved phakic IOLs today
  - ICL (FDA approved)
  - Verisyse IOL (FDA approved)
  - Acrysof Cachet Phakic IOL (CE marked, investigational use only in US)
- AcrySof Cachet Phakic IOL my favorite
  - Extremely easy to implant
  - No iridectomy required
  - No chronic ECC loss, no pupil ovalisation



THANK YOU !

