

Deep Dive on STAAR Surgical' s China Business

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October 20, 2023

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Glossary

Collamer®: The registered material for STAAR's EVO ICL™

EVO ICL™ (referred to as ICL): STAAR's PIOL product, ICL is generally used to refer to phakic intraocular lens implantation surgery

LASIK: Laser-assisted in situ keratomileusis

PIOL: Phakic intraocular lens

PRC or China: The People's Republic of China, which, for purposes of this document, does not include Hong Kong, Macau or Taiwan

SMILE®: Small Incision Lenticule Extraction

STAAR or the Company: STAAR Surgical Company, a company incorporated in the State of Delaware and whose common stock is listed on NASDAQ

Visian® ICL V4 (referred to as V4): Visian® Implantable Collamer® Lens (ICL™) V4 design

Visian® ICL V4c (referred to as V4c): Visian® Implantable Collamer® Lens (ICL™) V4c design

Summary

1. STAAR, as the leading manufacturer of lenses used worldwide in corrective or “refractive” surgery, possesses the unique capability to manufacture the core materials used in such surgery and has built a strong reputation among patients. Over the past several decades, it has gone through **core product research and development, market access, and market cultivation phases. We believe it is now poised to reap the rewards of continuously rising share in refractive surgery.**
2. The core myopic patient market targeted by STAAR is growing globally. As the prevalence of myopia among young people is much higher than in all-age prevalence, **we expect the prevalence and total number of myopia cases to rise faster than population growth in the coming decades.**
3. ICL still has a low share (~14.5%) in refractive surgery in China, which is STAAR’s largest market. We expect the number of such surgeries to grow at a fast pace over the next few years. We expect the long-term share to be above 40%.
4. Since the early days of its operations in China, STAAR has relied heavily on distributors, which leaves significant room for improvement in distribution efficiency. Now, with STAAR's share increasing, doctors becoming more skilled and consumer awareness heightened, we believe **STAAR is well-positioned to capture a greater share of the profit along the value chain and could potentially see an increase of 50%-100% in sell-in price.**
5. We estimate that **STAAR's operating profit in China can potentially reach over RMB 4.6 billion by 2030, with an operating profit margin of over 50% and a market valuation at over RMB 80 billion. Discounted to 2023 at a 12% WACC, the market valuation amounts to RMB 35 billion or USD 5 billion.**

Company Background

The following summary of STAAR and the industry and markets in which it operates is based on publicly available information, including but not limited to filings made by STAAR with the U.S. Securities and Exchange Commission (the "SEC").

1. STAAR was established in 1982, and its core product has long been the EVO ICL™, used for myopia correction surgery.
 - a. Currently, there are two mainstream categories of refractive surgeries available. The first category is corneal refractive surgery, which includes LASIK, as well as SMILE®. The second category includes intraocular lens implantation refractive surgery (ICL), a segment in which STAAR is currently one of the leading players. There are other lesser-known methods, which, due to their inherent limitations, have not achieved mainstream adoption.
 - b. The primary refractive principle of corneal refractive surgery is to alter the shape of the cornea by incising the cornea with a laser, permanently changing the eye's refractive capacity. The main difference between LASIK and SMILE lies in the size of the incision. In the LASIK method, a flap of the cornea must first be "lifted", the tissue is then partially cut and removed, and the corneal flap is placed back in its original position, akin to opening a can of meat, removing some of the meat, and then resealing the can. The SMILE incision is relatively smaller, where a micro-incision is created directly within the cornea and makes a small cut, akin to opening a tissue box and pulling out excess tissues. Both methods involve "subtracting" at the corneal level, changing refractive power by cutting the cornea.
 - c. The principle of lens implant refractive surgery is to introduce an artificial lens inside the eye, altering its refractive power. There are two methods for lens implant refractive surgery: implanting the lens in the anterior chamber and in the posterior chamber. Our discussion will focus on the latter only as it has become the mainstream method. This surgery does not involve any "excision" of cornea but rather uses an "addition" approach to implant a removable artificial lens between the iris and the natural lens. Its refractive principle is very similar to glasses/contact lenses, except that a very tiny and precise "lens" is placed inside the eye.
 - d. **The most significant differences between the two categories of refractive surgeries are whether a part of cornea is removed and whether the surgery is reversible.** All laser corneal refractive surgeries

inevitably damage corneal tissue because their principle involves cutting the cornea, which is rich in nerve endings. Due to the "subtractive" nature of laser corneal refractive surgeries, irreversible side effects can occur. In the U.S., where laser corneal refractive surgeries have a longer history relative to the rest of the world, there have been many tragic surgical mishaps, leading patients to live with irreversible side effects, and some even ending their lives¹.

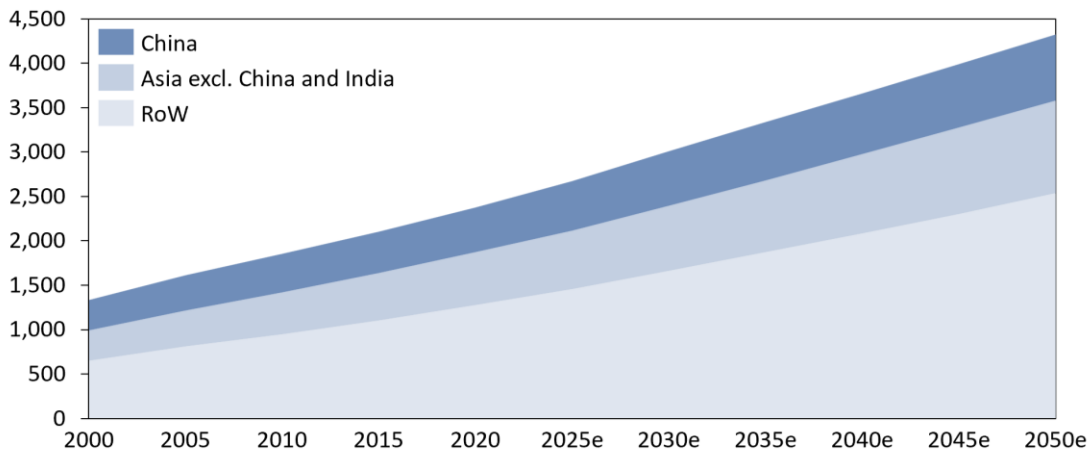
2. The inventor of the PIOL surgery was Dr. Svyatoslav Fyodorov from the Soviet Union. Dr. Fyodorov was one of the leading ophthalmologists of his time. In the 1970s, he developed radial keratotomy to correct myopia by altering the shape of the cornea. In 1986, while developing lens implantation surgery, he pointed out that the posterior chamber was the best place for lens placement, using silicone as the material. With the fall of the Berlin Wall in 1989, Dr. Fyodorov began to expand his business globally, setting up a company in Dubai and negotiating with major corporations. STAAR seized the opportunity to cooperate with Dr. Fyodorov. The joint efforts of Dr. Fyodorov and STAAR led to the introduction of a prototype in 1991. However, early products were shown to hinder the aqueous humor flow, affecting metabolism. The V4 tried to solve this issue through cutting the iris but was still suboptimal. **It was not until 2011 when the V4c truly addressed the problem by using a central hole, making the STAAR surgical approach feasible and safe.**
3. The core material, Collamer™, was granted a patent, awarded to STAAR, in 1995 (US005654363Aⁱⁱ). While the patent expired in 2014, nearly a decade ago, to date, no other company has been able to replicate STAAR's proprietary manufacturing process and produce a material with similar performance.
4. As a med-tech company, STAAR faces three ultimate challenges: improving surgical methods, securing approvals, and enhancing operational efficiency.
 - a. Over the past 20+ years, the most challenging times for STAAR were between 2007 and 2008. It faced multiple issues during that period: First, the revolutionary product V4c had not yet been launched, so there was no steady cash flow. Second, operational efficiency improvement was not a stated priority, and it was planning to fully integrate its newly re-organized Japanese business. Finally, it was on the verge of running out of capital. However, the Company managed to pull through, integrated the Japanese channels, and four years later, launched the revolutionary V4c.
 - b. Nowadays,

- i. The ICL surgery method is well-established. In China, an experienced surgeon's routine surgery time takes as little as 1.5 minutes. Including preparation and disinfection, a typical surgery for both eyes may take no more than 10 minutes. Many doctors can finish lens insertion, unfolding, and adjustment in as little as 15 seconds.
 - ii. In several key markets, such as China, Japan, the EU, and the U.S., at least one of STAAR's core products has been approved and is available for use.
 - iii. The Company has been actively improving its operational efficiency. For instance, in 2022, STAAR decided to cease support of its noncore lower-margin cataract IOL business after 2023, and to instead focus on the ICL business. In China, STAAR has been actively conducting training to increase the number of skilled doctors.
5. **We believe that STAAR has already gone through the critical stages core product research and development, market access, and market cultivation typical for a med-tech company and is now in a phase where market share continuously increasing, making it possible for it to reap the rewards of its efforts.**

Progression of Myopic Population

1. **The prevalence of myopia is structurally rising globally. Against the backdrop of increasing global screen usage, the global prevalence of myopia among adolescents has been rising over the past few years.** The most important metric in assessing the prevalence of myopia is the prevalence among high school students/young adults, rather than the overall prevalence of adolescent myopia or the national prevalence. This is because the prevalence of myopia tends to rise from childhood to adulthood, stabilizing later in life, and as the younger generations grow up, we expect that the national combined rate will gradually approach the high school student/young adult rate of prevalence.ⁱⁱⁱ

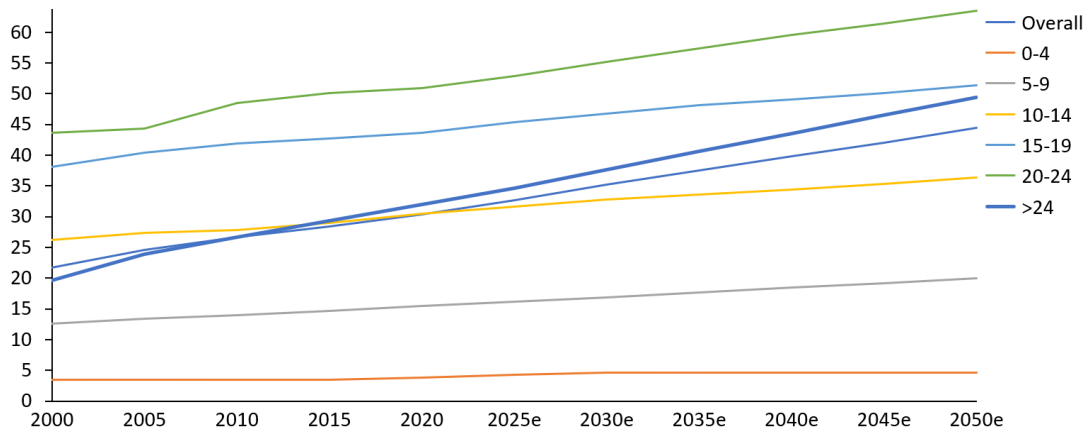
Number of people of all ages with myopia (in millions)



Sources: Anatole research; National Health Commission of the PRC; Ophthalmology Journal

2. According to data from National Health Commission of the PRC, the prevalence of myopia among Chinese high school students was 80.5% in 2020^{iv}, which translates into over 10 million myopic young people becoming adults each year. We estimate that **current prevalence of myopia in all age groups in China is about 40%, and we expect it to rise gradually to close to 80% in the long term.** In India, a study noted a nearly 10% increase in the prevalence of myopia in the same age group (11-15 years old) from 2009 to 2019 compared to that in the period of 1980 to 2008^v. With the spread of education and increased use of electronic devices, the continuous rise in the prevalence of myopia appears inevitable.

Global age-group prevalence of myopia (in percentage)



Sources: Anatole research; National Health Commission of the PRC; Ophthalmology Journal

China market is expected to continue to offer significant room for growth in the foreseeable future.

1. With the increasing prevalence of myopia among the younger generations, the number of myopic patients in China is expected to continue to grow over the next few decades.
 - a. Currently, China has about 500-600 million people with myopia, with the number of myopic minor patients stabilizing at around 100 million. Each year, there are about 8~12 million patients becoming adults, corresponding to about 16~24 million eyes. By our estimation, **China will have over 400 million adult myopic patients by 2023, and this number is expected to continue to grow.**

Myopic population demand forecast, 2017-2030E¹

	Unit	2019	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E		
Estimation															
a	Gross population with Myopia (incl. cured patients)	MN	492	501	511	521	533	545	561	572	583	594	616		
b	- Minors	MN	100	101	103	104	106	107	109	107	105	103	100		
c	- Adults	MN	392	399	408	416	427	437	451	464	477	490	516		
d	=e+ f	Gross no. of eyes with Myopia (incl. cured eyes)	MN	886	901	919	937	959	980	1,009	1,029	1,049	1,068	1,088	1,109
e	=b x 1.95	- Minors	MN	195	197	200	203	206	209	213	209	205	201	197	195
f	=c x 1.95	- Adults	MN	764	779	795	812	832	853	880	906	931	956	982	1,007
g	=h + i	No. of refractive surgery, in term of eyes	MN	2.01	2.17	2.80	3.00	3.40	3.82	4.29	4.61	4.97	5.35	5.73	6.16
h	=g - i	- Laser	MN	1.88	2.03	2.59	2.70	2.97	3.27	3.60	3.78	3.97	4.17	4.37	4.59
i		- ICL	MN	0.13	0.14	0.21	0.30	0.43	0.55	0.70	0.83	1.00	1.18	1.36	1.56
j	=i / g	-- Share of ICL	%	6.9%	7.1%	8.3%	11.0%	14.5%	16.9%	19.3%	22.1%	25.2%	28.4%	31.1%	34.0%
k		Therapeutic ratio	%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%
l	=g x k	No. of cured eyes	MN	2.0	2.1	2.8	3.0	3.4	3.8	4.3	4.6	4.9	5.3	5.7	6.1
m	=m ₁ + l	Accumulated no. of cured eyes	MN	13.8	16.0	18.7	21.7	25.1	28.9	33.1	37.7	42.6	47.9	53.6	59.7
n	=o + p	Outstanding (net) no. of eyes with Myopia	MN	872	885	900	915	934	951	976	991	1,006	1,020	1,035	1,050
o	=e	- Minors	MN	195	197	200	203	206	209	213	209	205	201	197	195
p	=f - m	- Adults	MN	751	763	776	790	807	824	847	868	888	909	928	947

Sources: Anatole research; National Health Commission of the PRC; prospectus dated June 24, 2022 of Chengdu Bright Eye Hospital Co., Ltd. (the "Bright Eye Hospital Prospectus")^{vi}

- b. In the meantime, the number of myopic surgeries in China has also been on an upward trajectory, not only due to the growing myopic population, but also as a result of consumers' increasing focus on appearance and convenience.
- c. Based on the Bright Eye Hospital Prospectus, there were approximately 2.8 million refractive surgeries, in term of eyes,

¹ Number of patients is estimated based on the prevalence of myopia data released by National Health Commission of the PRC. Number of refractive surgery is extrapolated forward and backward based on the 2021 data disclosed in the Bright Eye Hospital Prospectus. Number of ICL surgery is calculated by dividing STAAR's revenue derived from China with the average selling price, of which the revenue data was based on the Company's periodic reports filed with the SEC in the relevant periods, and the net average selling price is assumed to be USD 500 per lens excluding all taxes and surcharges, based on the 500~600 USD per lens average selling price indicated in a non-deal roadshow presentation prepared by STAAR in Jan 2023. The estimation of therapeutic ratio is based on Anatole's survey of medical practitioners, which indicated the ratio as being close to 100%.

conducted in China in 2021. Many industry experts that Anatole has surveyed have noted an exponential growth in the volume of refractive surgeries since 2021.

2. We predict that the share of ICL in refractive surgery will rise from 14.5% in 2023 to over 30% in the next 5-10 years and to over 40% in the longer run.
 - a. With the continuous increase in demand, consumer recognition of ICL is also continuously improving. However, due to the "Interim Measures for the Review and Management of Advertisements for Drugs, Medical Devices, Health Foods, and Special Medical Use Foods" promulgated by the State Administration for Market Regulation of the PRC, medical device manufacturers in China are not allowed to advertise their products to the public. Thus, consumer recognition of ICL mainly comes from word of mouth.
 - b. Based on our estimates, notwithstanding the growth in the last few years, the share of ICL surgery among refractive surgeries is expected to be only approximately 14.5% in 2023. The low market share means there is potentially room for significant growth. It's well known that patients with thin corneas, high degrees of myopia (according to our due diligence, thresholds varies but generally anywhere between -3.00D and -8.00D), and dry eye are the three main groups which are significantly better suited for ICL surgery than laser surgery. Over 20% of the population in China suffer from dry eye^{vii}, and among high school students with myopia, close to 20% of them have myopia of over -6.00D^{viii}. We have observed many dry eye patients choosing to either significantly delay surgery or opt for ICL surgery. In the long run, we believe that at least 40% of the potential patients are better suited for ICL than laser refractive surgery – a trend that is supported by the consensus that emerged from our interviews of medical experts during our due diligence.
 - c. We predict that the long-term share for ICL in China should be over 40%. Also, in the future, we expect there will be more and more patients born in the 1970s, 1980s, and 1990s who have endured the inconvenience of myopia for decades due to a lack of suitable treatment options seeking appropriate treatment through ICL.

ICL share forecast, 2019-2030E

	Unit	2019	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
No. of Myopia surgery, yoy growth	%	9%	8%	29%	7%	13%	12%	12%	7%	8%	8%	7%	7%
ICL surgery, yoy growth	%	41%	11%	50%	38%	45%	28%	26%	20%	20%	18%	15%	15%
Share of ICL	%	6.9%	7.1%	8.3%	11.0%	14.5%	16.9%	19.3%	22.1%	25.2%	28.4%	31.1%	34.0%

Sources: Anatole research; National Health Commission of the PRC; Bright Eye Hospital

3. Why is competition not a concern?

- a. Based on our research, the product development process in this space presents a high level of difficulty, with the production of the necessary materials remaining a significant hurdle.

b. **Core preparation process**

i. Product development:

- **Materials:** The research, development and manufacturing of the core materials creates a high entry barrier.
- **Optical design:** Although there are differences in optical properties of materials, replication is possible based on STAAR's products.
- **Manufacturing of lens:** Machines can be purchased for processing, with no significant technical difficulties.

ii. Product trials:

- **Animal tests:** Testing typically uses live pigs or rabbits, which are observed over a period of 3 to 6 months.
- **Phase three clinical trials:** This phase consists of multi-center trials and at least 2 selected hospitals, with a sample size of ~200. Enrollment period typically lasts between 1 and 1.5 years and observation period between 1 and 1.5 years.

iii. Certification:

- It typically takes approximately six months to obtain a registration certificate in China.

- c. **The key technical challenges for materials are biocompatibility, flexibility, rigidity, and water content. Safety is paramount, requiring materials with good biocompatibility. For example, Collamer™ material is a hydrophilic acrylate with pig collagen macromolecules attached to its surface, providing good biocompatibility, and maintaining lens clarity.**

- i. Hydrophilic materials are softer, leading to fewer allergic reactions when implanted, and they have better biocompatibility compared to other alternatives and

moderate water content; they also tend to cause less damage to surrounding tissues upon impact.

- ii. The material needs to have certain elasticity and rigidity, allowing the lens to unfold smoothly, which facilitates surgical operations and mitigates the risk of damage caused by rapid unfolding.
- iii. Using materials with a high refractive index can reduce product thickness, allowing correction of a broader range of refractive errors.
- iv. Currently, the Collamer® material used in STAAR's ICL products is the only material in the market that meets these requirements well.

d. STAAR's ICL V4c is the only posterior chamber ICL currently available in China.

- i. The collagen component can adhere to the fibronectin in the aqueous humor, preventing the lens from being recognized as foreign and reducing inflammation and allergic reactions. The negatively charged collagen prevents protein deposits, solving the problem of hydrophilic materials being prone to calcification, ensuring lens clarity over time.
- ii. The material has a water content of about 40%, which is relatively high compared to other products in the industry, making it more suitable for ICL surgery; it is softer, more flexible, unfolds at a slower speed, and is easier for surgeons to handle. Its high refractive index allows for the correction of myopia ranging from -0.5 to -18.00D and astigmatism between -0.5 to -6.00D.
- iii. The challenge of the material lies in the complex process of combining it with pig collagen, a technique no other company apart from STAAR has mastered based on our research. Thus, to date, other manufacturers trying to replicate EVO ICL products do not yet have the capability to incorporate "pig collagen" into their "hydrophilic acrylate."

e. As far as we have been able to determine, competitors still face significant challenges in various areas, preventing them from developing products comparable to STAAR's.

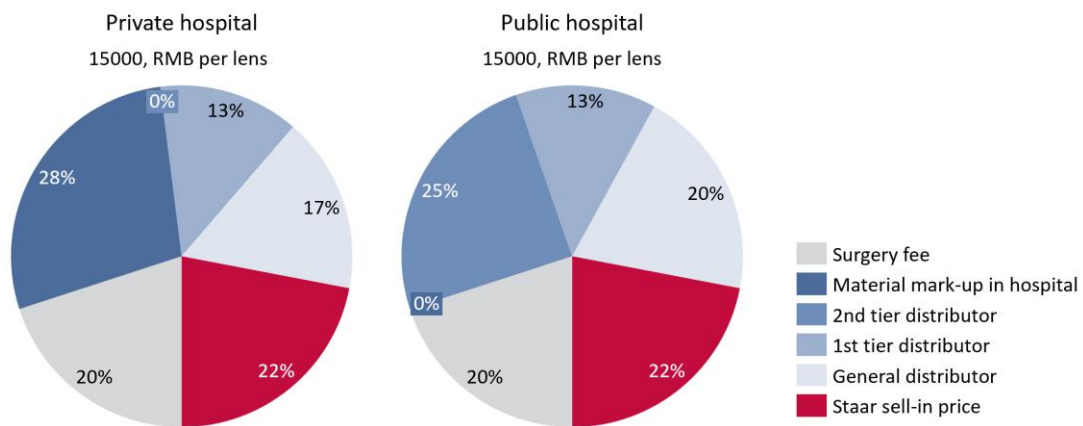
- i. Most competitors' materials originate from cataract lens materials, either hydrophilic or hydrophobic acrylates. For hydrophilic acrylates, although they can achieve water content levels of 25-30%, there is a long-term risk of opacification and, when removed, there is also the risk of residual cell calcification. For hydrophobic acrylates, while they can adhere closely to the capsule and avoid calcification, they are harder than Collamer[®], which compromises flexibility and consequently makes implantation and removal more likely to damage other tissues. This poses a higher inflammation risk, requiring larger doses of anti-inflammatory drugs and leading to longer recovery times for patients.
 - ii. Material innovation requires long-term effort and a significant amount of luck. Take ICL's cousin, the intraocular lens, as an example. The cataract lens has gone through several iterations, from the original polymethyl methacrylate to silicon, and then to hydrophilic and hydrophobic acrylates, spanning decades in time. Currently, the leading research direction in the industry is collagen polymer materials. A version of this was developed 15 years ago at the University of Miami, but despite the efforts of eye care giants Alcon and Bausch + Lomb, it has not yet achieved commercialization.
 - iii. We believe the scenario where a new ICL material comparable to STAAR's V4c suddenly appears and is readily available to other players in the market is unlikely in the foreseeable future.
4. STAAR has enormous potential to improve its operations in China.
- a. **In any industry, the company creating the highest value should reap the highest value in the value chain.** For refractive surgery, the value of medical terminals and manufacturers is evidently the highest. The reality in STAAR's case, however, is that the sell-in price of EVO ICL in China is only ~22%² of the terminal price including surgery fee, and 28% of the terminal price excluding surgery fee, which is relatively low

² ICL surgery terminal price is generally RMB 12,000~17,000 per eye for non-astigmatism, RMB 14,000~20,000 per eye for astigmatism. The percentage is calculated by taking the non-astigmatism average price of RMB 15,000 per eye and dividing it by STAAR's average selling price of US\$500 per eye, as discussed in Note 1 above.

compared to other consumables industries; by comparison, based on our research, the dominant intraocular lens manufacturer, Alcon, has a sell-in price that can reach up to 80% of the terminal price excluding surgery fee, while other manufacturers have average factory prices ranging from 45-60%.

The charts below set out the value breakdown of STAAR's EVO ICL products in China, when they are sold to private hospitals and public hospitals, respectively.

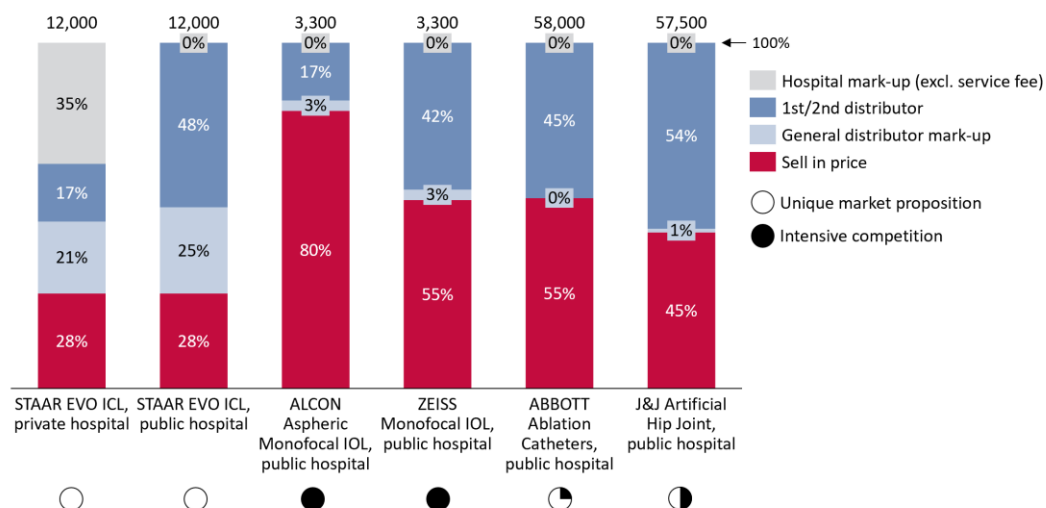
Value break down of STAAR's EVO ICL products in China



Source: Anatole research

The chart below sets out the value distribution in different products, when they are sold to private and/or public hospitals in China:

Value distribution in different product (excl. surgery fee), RMB³

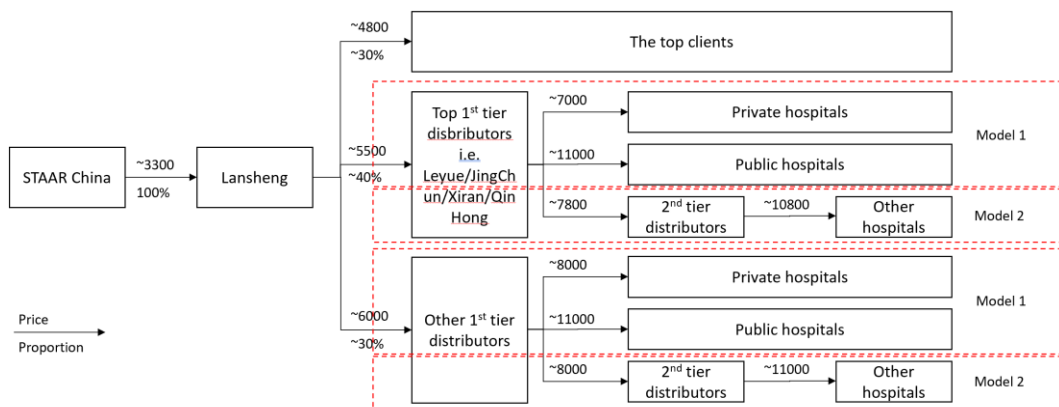


Source: Anatole research

³ Primarily based on field research with hospitals, supplemented by the survey of second tier distributors.

- b. **Given STAAR's strong leading position in the ICL field, we believe there is ample room to compress channel profits in China.** Sell-in prices can be adjusted to the industry average, *i.e.*, 45-60% of the terminal price⁴. As the Company's collaboration with medical terminals/doctors becomes more stable, we believe that there will be a much stronger case for STAAR to raise its sell-in price within the next few years.
- c. Female patients comprised approximately 69% of the total ICL surgery patients in China. Generally speaking, female patients tend to focus more on improving their appearance and quality of life and thus less price sensitive.^{ix}
- d. **STAAR's Operational Model in China: STAAR operates in China through a system of distributors.** Currently, the general distributor in China is Lansheng Supply Chain Management (Shanghai) Co., Ltd ("Lansheng"). All products sold in China are shipped from STAAR's Swiss factory to Lansheng's supply chain. Settlements are made between STAAR's headquarters and Lansheng. STAAR's primary entity in China is Dashi Optical Equipment Technology (Shanghai) Co., Ltd.

STAAR's value chain in China⁵



Source: Anatole research

- i. **Sales:** For certain customers, such as the Aier Group and certain other secondary distributors' end customers, both

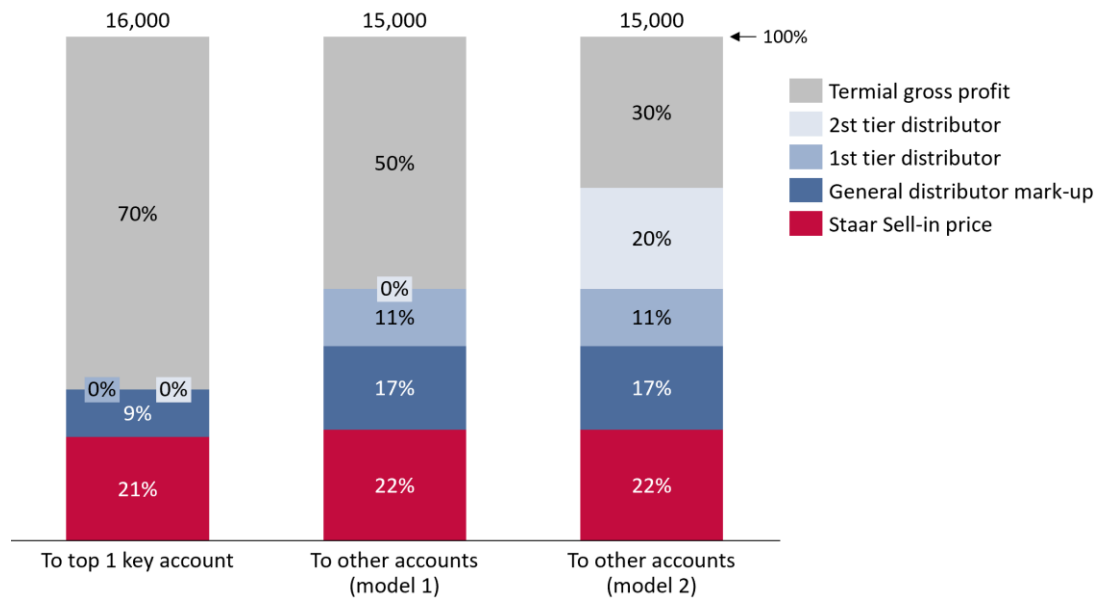
⁴ Based on field research with distributors.

⁵ See Note 1 above for a discussion of STAAR's average selling price. Other prices are estimated based on field research with hospitals and distributors, and the proportion of each channel is estimated based on field research with hospitals.

STAAR and Lansheng sales teams jointly promote sales to customers, but with different roles:

- Lansheng's sales team is mainly responsible for maintaining relationships with surgeons, making regular visits, understanding recent lens usage, and maintaining constant communications.
 - STAAR's sales team mainly liaises with the hospital directors or deans, promoting cooperation from a higher level. They monitor key hospital customer sales growth, discuss with Lansheng's sales team any issues, and inspect the hospital's patient intake process to identify sales issues.
- ii. **Promotional Activities: The STAAR China team is mainly responsible for domestic branding and promotional activities. When personnel training is required, by Lansheng, it is typically led by the STAAR China team. Related expenses, such as venue fees and conference organization costs, are covered by Lansheng.**
- e. **Value Chain Analysis: STAAR's value chain in China involves manufacturers, general distributor, first and second tier distributors, and terminal hospitals. STAAR China has the pricing power over and selection power of distributors.**
- i. The general distributor, Lansheng, currently takes a substantial share of the profit in the value chain and could be a source of profit optimization for STAAR.
 - ii. Secondary agents also enjoy considerable profit and solid cash flow, again offering room for profit optimization.
 - iii. Terminal hospitals offer limited room for profit optimization as they are the final contact point with consumers and as a result generally require a higher unit profit.

STAAR' value distribution along the value chain (incl. surgery fee) in China, RMB per lens, in 2022⁶



Source: Anatole research

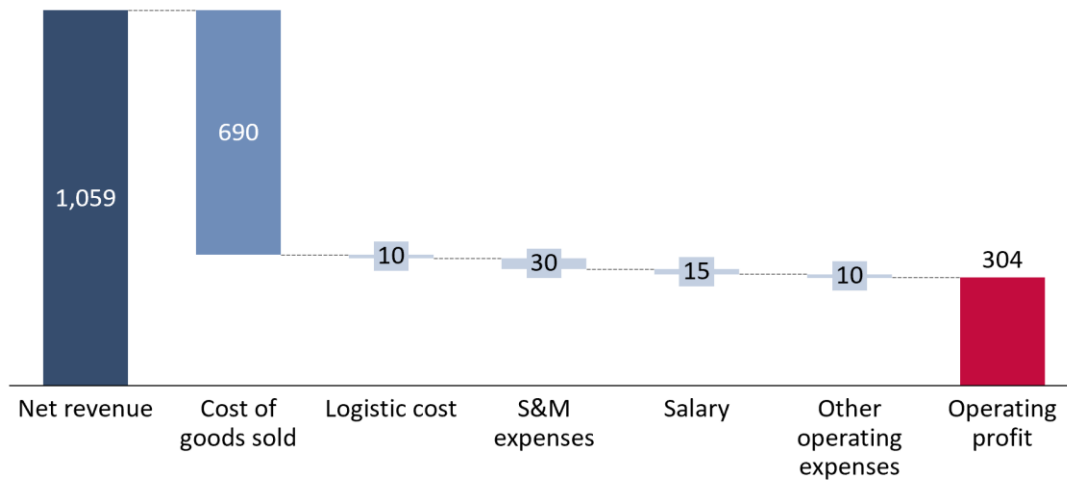
- f. **Our Calculation: Based on our research, we estimate that Lansheng's operating profit in 2021 reached approximately RMB 304 million or USD 47 million based on an CNYUSD exchange rate of 0.155. That year, STAAR China's profit was approximately USD 27 million⁷. The profit of the general distributor is bigger than STAAR China's.**

⁶ Based on our field research, top hospitals typically have a price premium compared to other hospitals by RMB 1000-2000 per lens.

⁷ Based on STAAR's annual report on Form 10-K for the year ended December 31, 2021 filed with the SEC, STAAR's non-GAAP operating margin in 2021 was estimated as 21%. We believe its China business should have a higher margin than that of the group and have therefore assumed the operating margin of the China business to be 25%. STAAR's net sales in 2021 in China was approximately USD 107 million, hence the operating profit of this market is estimated to be approximately 27 million. STAAR's 2021 annual report is available at:

https://www.sec.gov/ix?doc=/Archives/edgar/data/0000718937/000156459022006264/staa-10k_20211231.htm.

Estimate of operating profit of the general distributor of STAAR in China (in RMB million)



Source: Anatole research

- i. **Net revenue:** In 2021, STAAR headquarters sell-in volume is about 200,000-240,000 lenses, to Lansheng⁸. We assume Lansheng's post-tax average selling price to be RMB 4,814⁹. We estimate Lansheng's net revenue in China to be RMB 963~1,155 million. We use the average, RMB 1059 million, for the purpose of this analysis.
- ii. **Cost of goods sold:** STAAR's net sales in China in 2021 was USD 107 million, corresponding to Lansheng's cost of goods sold of approximately RMB 690 million.
- iii. **Warehouse and Transportation Costs:** Lansheng uses S.F. Express for shipping to secondary distributors or terminal customers, which usually costs RMB 25-35 per lens. Some shipments require S.F. air freight. Adding to that an additional RMB 2-3 million in storage cost, we estimate the total warehouse and transportation cost to be approximately RMB 10 million.
- iv. **Sales and Marketing Expenses: Estimated at approximately RMB 30 million, mainly including:**
 - **The maintenance cost for hospitals is estimated at**

⁸ Calculation is based on that set forth in Note 1.

⁹ Calculation is based on the information set forth in the chart titled "STAAR's value chain in China", minus value-added tax at 13%.

about RMB 4 million: Lansheng primarily covers some of the more key hospitals outside of Shanghai. Lansheng's sales team routinely visits doctors. Lansheng directly covers approximately 30-50 hospitals. Based on the typical salary range and average travel expenses for such salespersons, we estimate the annual maintenance cost for each hospital to be around RMB 100,000.

- **Annual hospital activity apportioned costs are estimated at about RMB 12 million:** Hospitals regularly carry out patient education and consumer lectures, among other themed activities. It is estimated that there are around 80 hospitals with an annual usage of over a thousand units maintained by Lansheng. The related activity costs of these hospitals are borne jointly by the hospitals and Lansheng, with each hospital typically requiring Lansheng to bear a cost of about RMB 100,000 to 200,000 annually.
- **Other marketing costs are estimated at about RMB 14 million:** STAAR China and Lansheng routinely organize provincial and national academic conferences and establish and operate a significant number of hospital training centers. It is estimated that Lansheng assists STAAR China to host about 100 conferences and 200 training camps on average every year, and the cost for each such event is RMB 40,000 and RMB 50,000, respectively.

- g. As a shareholder, we are fully cognizant of the value provided by Lansheng to STAAR, especially in the early stages of the development of the ICL market in China. Lansheng helped expand channels, maintained customer relationships, and carried out extensive promotional work. Both parties have played their roles in fostering the industry's growth in China over the years. We are also appreciative of terminal brands such as Aier for their significant push in the adoption of new technologies. **However, given the state of play today, we think it fair to raise the question: Should new incremental businesses continue to be allocated in the same old manner? We believe the answer is no. We are of the view that going forward, resources should be tilted more towards the terminals and STAAR China itself.**

- i. **STAAR has now a proven track record of successfully**

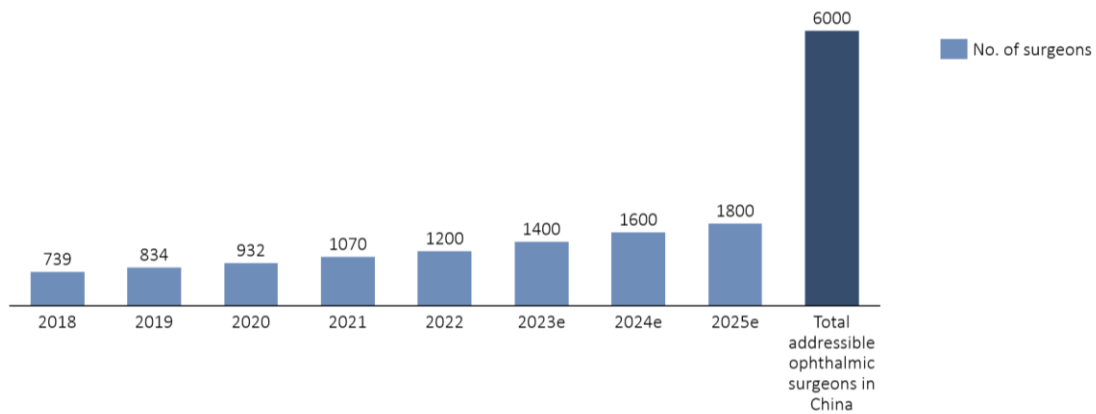
establishing training centers, working in collaboration with terminals. For instance:

- In September 2022, the EVO ICL Specialist International Certification Program patient education training base was officially established at Kunming Aiwei Ophthalmology Hospital.
- In October 2022, the EVO ICL patient education training base was established in Aidi Ophthalmology.
- In March 2023, the EVO ICL Specialist International Certification Program patient education training base plaque awarding ceremony was held at Xiamen Ophthalmic Center.
- In May 2023, the EVO ICL Technology training base plaque awarding ceremony took place at Xi'an People's Hospital (Xi'an Fourth Hospital).
- In July 2023, the EVO ICL Technology training base was officially set up at Nanchang Bright Eye Hospital.
- In July 2023, the EVO ICL International Training Center was established in Changsha Aier.

- ii. In the past five years, **STAAR trained about 100 doctors annually**. With the establishment of more training bases, we estimate the number of EVO ICL certified doctors to increase significantly from the 1,200 certified doctors in 2022¹⁰. Considering that there were over 20,000 ophthalmologists in China as of 2022^x and only a portion of them primarily deals with surgeries, we estimate that the number of doctors who are potentially capable of performing ICL surgeries is around 6,000-8,000.

¹⁰ Based on 4Q 2022 STAAR earning call; historical data was estimated based on terminal surveys.

Number of EVO ICL certified surgeons in China



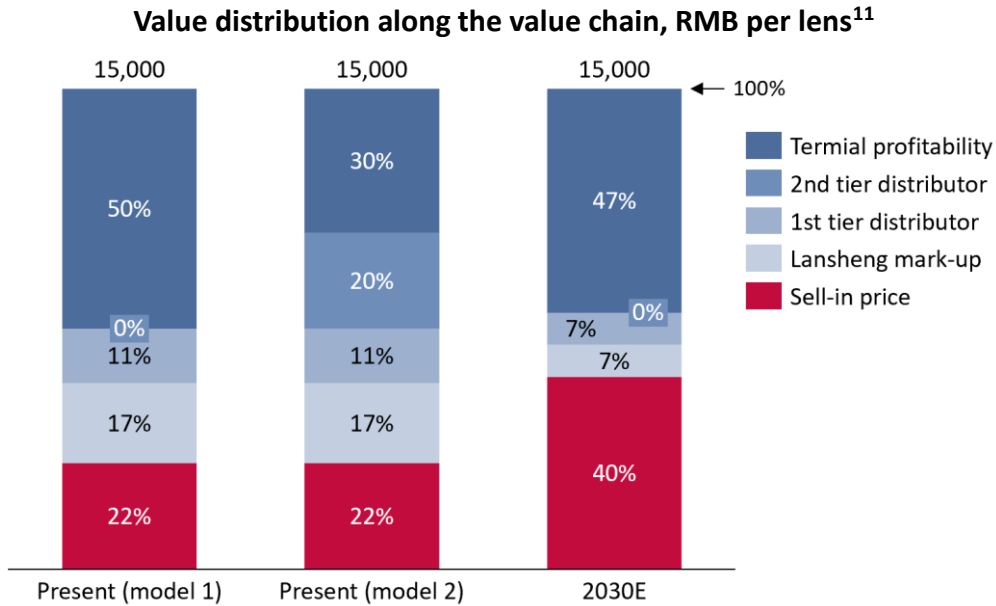
Source: Anatole research; STAAR's earnings call on February 22, 2023

- iii. Training is mainly organized by STAAR and terminals rather than distributors. In the past few years, there has been a continuous increase in training investments by STAAR and the terminal clients, although from 2020 through 2022, large scale training was not possible due to externalities.
- iv. **As STAAR invests more resources in terminal training and the number of certified surgeons in China increases, we expect the proficiency of surgeons in ICL surgeries to further improve, leading to higher quality of surgeries and patient satisfaction. It should then be a natural progression for STAAR to redistribute more of the incremental business profits to itself, rather than to its distributors.**

We believe that the value of STAAR’s China business alone exceeds USD 5 billion.

We have come to this view based on the following key assumptions:

1. We expect the volume of ICL surgeries to achieve high-speed growth for years to come.
2. We expect the sell-in price of STAAR to increase from the current RMB 3,300 to RMB 6,000, **while maintaining a healthy channel profit structure.**



Source: Anatole research

3. With the improvement of channel efficiency, it is not unreasonable to expect the operating profit margin in China to increase to more than 50% by 2030.
4. We estimate that by 2030, STAAR's operating profit in China will be over RMB 4.6 billion, implying a net profit of RMB 3.5 billion. Given a 25x current P/E multiple, this translates into a valuation of over RMB 80 billion. Discounted at a 12% WACC, **the present value of STAAR China business would exceed RMB 35 billion, or USD 5 billion.**

¹¹ Model 1 and 2 as chart “STAAR’s value chain in China”

STAAR China Financial Model, 2023-2030E

	Unit	2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e	
Financials, non-gaap										
Revenue	RMB MN	1,434	1,932	2,517	3,180	4,292	5,628	7,119	8,931	
ASP	RMB	3,300	3,500	3,800	4,000	4,500	5,000	5,500	6,000	
No. of lens	K	435	552	662	795	954	1,126	1,294	1,489	
Gross profit	RMB MN	1,004	1,386	1,861	2,393	3,348	4,513	5,838	7,458	
Gross margin	%	70%	72%	74%	75%	78%	80%	82%	84%	
S&M	RMB MN	258	406	604	763	1,030	1,351	1,709	2,143	
S&M as % of revenue	%	18%	21%	24%	24%	24%	24%	24%	24%	
G&A and R&D	RMB MN	316	353	396	443	496	556	623	698	
G&A and R&D as % of revenue	%	22%	18%	16%	14%	12%	10%	9%	8%	
Operating profit	RMB MN	430	626	861	1,186	1,821	2,607	3,506	4,617	
Operating margin	%	30%	32%	34%	37%	42%	46%	49%	52%	
Cost per lens	RMB MN	990	990	990	990	990	990	990	990	
DCF model										
		2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e	Terminal val.
Operating profit	RMB MN	430	626	861	1,186	1,821	2,607	3,506	4,617	
Tax	RMB MN	-108	-157	-215	-297	-455	-652	-877	-1,154	
Depreciation	RMB MN	20	20	20	20	20	20	20	20	
Working capital changes	RMB MN	65	94	129	178	273	391	526	692	
Free cash flow	RMB MN	407	584	795	1,088	1,659	2,366	3,176	4,175	4,384
Discount factor	RMB MN	1	0.89	0.80	0.71	0.64	0.57	0.51	0.45	6.46
PV	RMB MN	407	521	634	774	1,054	1,343	1,609	1,889	28,328
WACC	%	12%								
Terminal growth	%	5%								
Valuation based on DCF	RMB MN	36,559								
Valuation based on DCF, in USD	USD MN	5,008								
P/E model										
		2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e	
Operating profit	RMB MN	430	638	895	1,222	1,854	2,634	3,529	4,632	
Tax rate	%									25%
Net profit	RMB MN									3,474
P/E multiple										25
Market cap	RMB MN									86,857
Discount rate	%									13%
Valuation	RMB MN	36,920	41,719	47,143	53,271	60,197	68,022	76,865		
Valuation in USD	USD MN	5,057								

¹ See, e.g. <https://lasikcomplications.com/index.htm>

ⁱⁱ Record of the patent is available at:

<https://patentimages.storage.googleapis.com/bf/ed/e9/5a5ed4af7ad78b/US5654363.pdf>

ⁱⁱⁱ Global Prevalence of Myopia and High Myopia and Temporal Trends from 2000 through 2050, Brian A. Holden, et. Al, American Academy of Ophthalmology, February 11, 2016, available at

[https://www.aaojournal.org/article/S0161-6420\(16\)00025-7/fulltext](https://www.aaojournal.org/article/S0161-6420(16)00025-7/fulltext)

^{iv} Transcript of the press conference of the National Health Commission on July 13, 2021, available at

<http://www.nhc.gov.cn/xcs/s3574/202107/2fef24a3b77246fc9fb36dc8943af700.shtml>

^v Agarwal D, Saxena R, Gupta V, Mani K, Dhiman R, Bhardawaj A, Vashist P. Prevalence of myopia in Indian school children: Meta-analysis of last four decades. PLoS One. 2020 Oct 19;15(10):e0240750. doi: 10.1371/journal.pone.0240750. PMID: 33075102; PMCID: PMC7571694.

^{vi} The initial public offering prospectus of Chengdu Bright Eye Hospital Co., Ltd. dated June 24, 2022, available at:

<http://www.cninfo.com.cn/new/disclosure/detail?plate=szse&orgId=9900041829&stockCode=301239&announcementId=1213806193&announcementTime=2022-06-24>

^{vii} A Clinic -based multi-center survey of clinical characteristics of dry eye in China, Aier Hospital, available at: <https://aierchina.com/technical/xshd/zhyb/7180.html>

^{viii} Transcript of the press conference of the National Health Commission on July 13, 2021, available at:

<http://www.nhc.gov.cn/xcs/s3574/202107/2fef24a3b77246fc9fb36dc8943af700.shtml>

^{ix} White Paper on Refractive Surgery Market in China Released; Refractive Surgeries Increased by Approximately 75% in the Past Two Years, Aier Hospital, Available at:

<https://www.aierchina.com/project/jsss/zlnr/sszds/7849.html>

^x 2022 China Health Statistics Yearbook, available at:

<http://www.nhc.gov.cn/mohwsbwstjxxzx/tjtjn/202305/6ef68aac6bd14c1eb9375e01a0faa1fb/files/b05b3d958fc546d98261d165cea4adba.pdf>