Actualizaciones de embalaje RayOne

Marzo de 2024

Ambition / We play to win

Focus / We put patients first

Integrity / We keep our promises

Openness / We are passionate about new ideas

Respect / We support each other

¿Qué está cambiando?

1,6 millones RayOne en 2024

1. **Folleto** IFU → **Folleto** Slim IFU y nuevo sitio web **eIFU**
2. **Bandeja** exterior → **Bolsa** exterior
3. Perforación de borde largo → **Tirador** con bloqueo

Rayner

Lentech s.o.s. Tecnología Visual

eIFU

Folleto en 23 idiomas a **folleto** en 5 idiomas (EN, AR, ES, RU, UK)

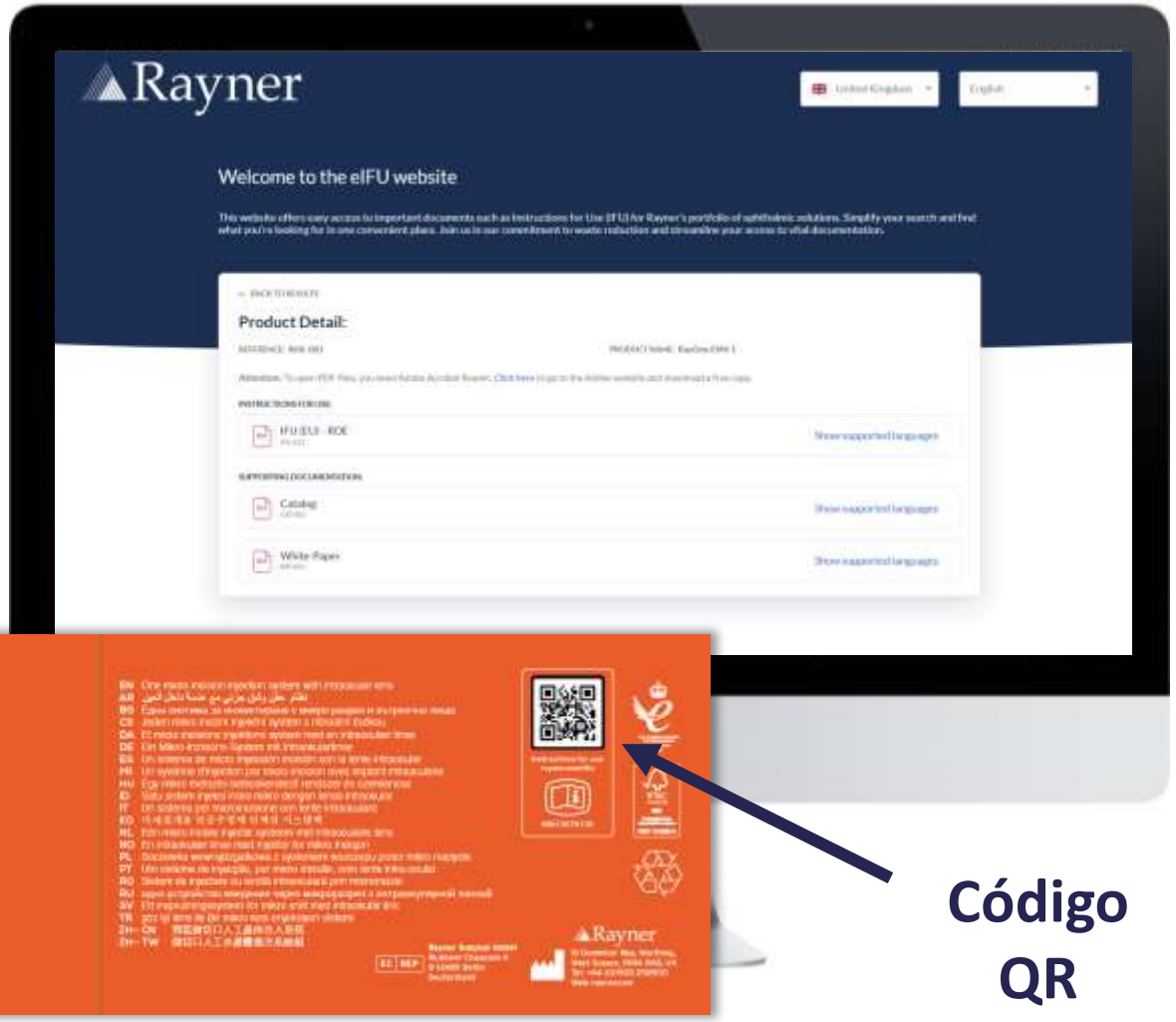
Mejoras en la huella de carbono:

- ✓Reducción del **uso de papel** (>30 toneladas anuales)
- ✓Reducción del **peso del transporte**
- ✓Reducción de los **residuos de quirófano**
- ✓Reducción de **costes** [sólo interno]

Rayner

eIFU

EN VIVO



Código QR

Rayner.com/IFU

- ✓Búsqueda y filtros
- ✓PDF de las IFU para imprimir
- ✓QR/URL en cartón e IFU
- ✓Teléfono gratuito multinacional
- ✓**Los idiomas mostrados dependen de la selección inicial de país**
- ✓Incluye OVD (SF más adelante en 2024)

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Tecnología Visual

J Cataract Refract Surg 2024

¡Un tema candente!

LABORATORY SCIENCE

Paper waste from instructions for use brochures in cataract surgery implant packaging in Europe and the United States

Benjamin Stern, MD, Radhika Rampat, MD, David Shahnazaryan, MD, Damien Gatinel, MD, PhD

Purpose: To assess the extent of paper waste generated per year by instructions for use (IFUs) brochures included in intraocular lens (IOL) packaging in Europe and the U.S.

Setting: Rothschild Foundation Hospital, Paris, France; Royal Free London NHS Foundation Trust, Center for Sight, London, United Kingdom.

Design: Experimental study.

Methods: A sample of IOLs were collected and each IFU was weighed. In addition, the cumulative weight of these brochures used in cataract surgeries performed annually in Europe and the U.S. was estimated, and the potential annual paper consumption that could be achieved if all manufacturers adopted electronic IFUs (e-IFUs) in Europe and the U.S. was determined.

Results: The mean (± standard deviation) weight for overall IFUs, classic IFUs, and e-IFUs were 17.6 ± 13.8 g, 23.2 ± 13.2 g, and 3.9 ± 1.8 g, respectively. The estimated cumulative weight of paper generated from the IFUs accompanying implants used in European and U.S. cataract surgeries is 153 tons. If all manufacturers transition to e-IFUs, the cumulative weight saved would be 126 tons (−84%), equivalent to 131 tons of carbon dioxide equivalent and the preservation of more than 2000 trees annually.

Conclusions: The classic IFUs in IOL packaging result in a significant amount of paper waste annually. Therefore, there is an urgent need for a rapid transition to e-IFU technology. The adoption of e-IFUs has already been authorized in Europe and the U.S., and it is crucial to expedite this process.

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The modern world increasingly recognizes the significance of waste reduction, minimizing carbon footprints, and embracing sustainable practices in various aspects of human activity, including the healthcare sector. While the primary goal of the healthcare industry is to enhance human health and save lives, it is crucial to consider the environmental effect of its operations. The healthcare system accounts for nearly 10% of greenhouse gas emissions in the U.S., and its ecological footprint cannot be overlooked.[1] One area that demands attention is the operating rooms, which account for up to 30% of hospital waste.[2] Considering that ophthalmology has the highest surgical volumes in the medical field, it becomes evident that ophthalmologists have a significant opportunity to contribute to reducing unnecessary waste in operating rooms.[3]

Cataract surgery, the most frequently performed surgical procedure in ophthalmology, plays a significant role in the field, with approximately 20 million surgeries being conducted worldwide annually.[4–6] This includes 5 million surgeries in Europe and 3.7 million in the U.S.[7,8] Given these statistics, cataract surgeons must actively participate in efforts to address this issue.

Intraocular lenses (IOLs), essential medical devices used in cataract surgery, necessitate detailed and comprehensive informational materials to accompany each unit, ensuring proper utilization. These informational materials, instructions for use (IFUs), are typically printed on paper and included in the product packaging. They provide crucial information translated into multiple languages facilitating global distribution of the same product. In fact, most countries mandate translation, with only a handful permitting the use of English. This allowance is usually limited to professional users and established devices. Some researchers have already drawn attention to the excessive waste generated by lengthy IFUs printed in multiple languages.[9–11] However, the environmental implications and cumulative paper waste resulting from this practice in Europe and the U.S., which may appear insignificant, have

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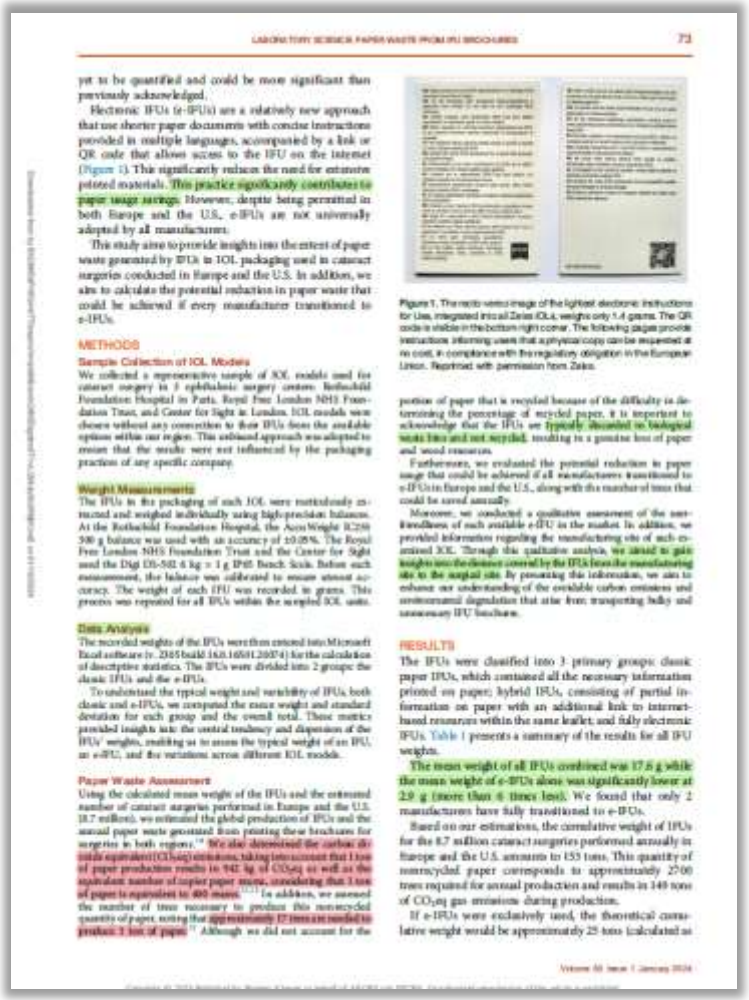


yet to be quantified and could be more significant than previously acknowledged.

Electronic IFUs (e-IFUs) are a relatively new approach that use shorter paper documents with concise instructions provided in multiple languages, accompanied by a link or QR code that allows access to the IFU on the internet (Figure 1). This significantly reduces the need for extensive printed materials. This practice significantly contributes to paper usage savings. However, despite being permitted in both Europe and the U.S., e-IFUs are not universally adopted by all manufacturers.

This study aims to provide insights into the extent of paper waste generated by IFUs in IOL packaging used in cataract surgeries conducted in Europe and the U.S. In addition, we aim to calculate the potential reduction in paper waste that could be achieved if every manufacturer transitioned to e-IFUs.

METHODS

Sample Collection of IOL Models

We collected a representative sample of IOL models used for cataract surgery in 3 ophthalmic surgery centers: Rothschild Foundation Hospital in Paris, Royal Free London NHS Foundation Trust, and Center for Sight in London. IOL models were chosen without any connection to their IFUs from the available options within our region. This unbiased approach was adopted to ensure that the results were not influenced by the packaging practices of any specific company.

Weight Measurements

The IFUs in the packaging of each IOL were meticulously extracted and weighed individually using high-precision balances. At the Rothschild Foundation Hospital, the AccuWeight BC250 500 g balance was used with an accuracy of ±0.05%. The Royal Free London NHS Foundation Trust and the Center for Sight used the Digi DS-502 6 kg × 1 g IP65 Bench Scale. Before each measurement, the balance was calibrated to ensure utmost accuracy. The weight of each IFU was recorded in grams. This process was repeated for all IFUs within the sampled IOL units.

Data Analysis

The recorded weights of the IFUs were then entered into Microsoft Excel software (v. 2305 build 16.0.16501.20074) for the calculation of descriptive statistics. The IFUs were divided into 2 groups: the classic IFUs and the e-IFUs.

To understand the typical weight and variability of IFUs, both classic and e-IFUs, we computed the mean weight and standard deviation for each group and the overall total. These metrics provided insights into the central tendency and dispersion of the IFUs' weights, enabling us to assess the typical weight of an IFU, an e-IFU, and the variations across different IOL models.

Paper Waste Assessment

Using the calculated mean weight of the IFUs and the estimated number of cataract surgeries performed in Europe and the U.S. (8.7 million), we estimated the global production of IFUs and the annual paper waste generated from printing these brochures for surgeries in both regions.[7,8] We also determined the carbon dioxide equivalent (CO_2eq) emissions, taking into account that 1 ton of paper production results in 942 kg of CO_2eq as well as the equivalent number of copier paper trees, considering that 1 ton of paper is equivalent to 400 trees.[12,13] In addition, we assessed the number of trees necessary to produce this nonrecycled quantity of paper, noting that approximately 17 trees are needed to produce 1 ton of paper.[14] Although we did not account for the

Figure 1. The ratio versus image of the lightest electronic instructions for Use, integrated into all Zeiss IOLs, weighs only 1.4 grams. The QR code is visible in the bottom right corner. The following pages provide instructions informing users that a physical copy can be requested at no cost, in compliance with the regulatory obligation in the European Union. Reprinted with permission from Zeiss.

portion of paper that is recycled because of the difficulty in determining the percentage of recycled paper, it is important to acknowledge that the IFUs are typically discarded as biological waste bins and not recycled, resulting in a genuine loss of paper and wood resources.

Furthermore, we evaluated the potential reduction in paper usage that could be achieved if all manufacturers transitioned to e-IFUs in Europe and the U.S., along with the number of trees that could be saved annually.

Moreover, we conducted a qualitative assessment of the user-friendliness of each available e-IFU in the market. In addition, we provided information regarding the manufacturing site of each examined IOL. Through this qualitative analysis, we aimed to gain insights into the distances covered by the IFUs from the manufacturing site to the surgical site. By presenting this information, we aim to enhance our understanding of the available carbon emissions and environmental degradation that arise from transporting bulky and unnecessary IFU brochures.

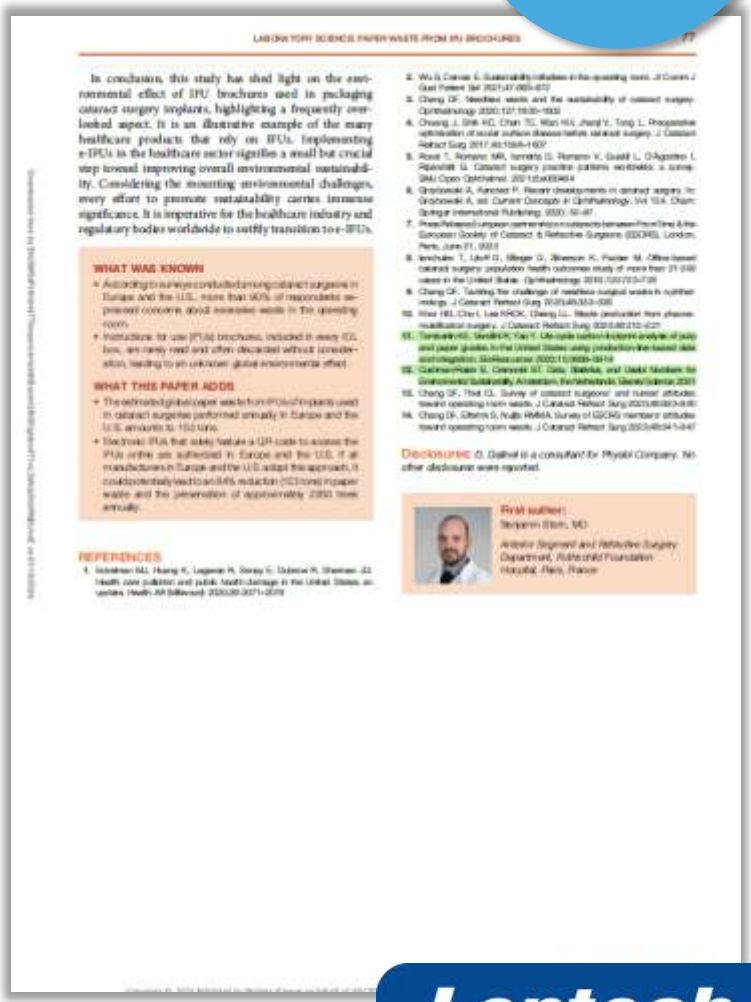
RESULTS

The IFUs were classified into 3 primary groups: classic paper IFUs, which contained all the necessary information printed on paper; hybrid IFUs, consisting of partial information on paper with an additional link to internet-based resources within the same leaflet; and fully electronic IFUs. Table 1 presents a summary of the results for all IFU weights.

The mean weight of all IFUs combined was 17.6 g while the mean weight of e-IFUs alone was significantly lower at 2.9 g (more than 6 times less). We found that only 2 manufacturers have fully transitioned to e-IFUs.

Based on our estimations, the cumulative weight of IFUs for the 8.7 million cataract surgeries performed annually in Europe and the U.S. amounts to 153 tons. This quantity of nonrecycled paper corresponds to approximately 2700 trees required for annual production and results in 140 tons of CO_2eq gas emissions during production.

If e-IFUs were exclusively used, the theoretical cumulative weight would be approximately 25 tons (calculated as



In conclusion, this study has shed light on the environmental effect of IFU brochures used in packaging cataract surgery implants, highlighting a frequently overlooked aspect. It is an illustrative example of the many healthcare products that rely on IFUs. Implementing e-IFUs in the healthcare sector signifies a small but crucial step toward improving overall environmental sustainability. Considering the mounting environmental challenges, every effort to promote sustainability carries immense significance. It is imperative for the healthcare industry and regulatory bodies worldwide to swiftly transition to e-IFUs.

WHAT WAS KNOWN

- According to surveys conducted among cataract surgeons in Europe and the U.S., more than 90% of respondents expressed concerns about excessive waste in the operating room.
- Instructions for use (IFUs) brochures, included in every IOL box, are rarely read and often discarded without consideration, leading to an unknown global environmental effect.

WHAT THIS PAPER ADDS

- The estimated global paper waste from IFUs of implants used in cataract surgeries performed annually in Europe and the U.S. amounts to 153 tons.
- Electronic IFUs that solely feature a QR code to access the IFUs online are authorized in Europe and the U.S. If all manufacturers in Europe and the U.S. adopt this approach, it could potentially lead to an 84% reduction (123 tons) in paper waste and the preservation of approximately 2350 trees annually.

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Rayner

https://journals.lww.com/jcrs/abstract/2024/01000/paper_waste_from_instructions_for_use_brochures_in.13.aspx

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Bolsa exterior

Rayner

Bolsa de esterilidad exterior flexible

- ✓**83% de reducción de residuos plásticos** = mayor sostenibilidad (ESG)
- ✓**+40% de capacidad de autoclave** = mayores niveles de producción

- ✓Etiquetado de productos idénticos
- ✓Mantenimiento de los niveles de esterilidad e integridad del producto

Cartón

Sistema pull-tab intuitivo

✓Mejora la rigidez del transporte

Sistema Crashlock

✓Mejora la protección contra manipulaciones

- Se ha añadido información sobre el Forest Stewardship Council® (FSC®) y el reciclaje
- Código QR y URL del sitio web de eIFU
- No se modifican las dimensiones del cartón, los materiales ni los colores de la marca.

Rayner

Mensajería

1. Menos **papel** (folleto eIFU) ...ahorro de más de 30 toneladas al año
2. Menos **plástico** (bolsa) ...83% de reducción
3. Menos **energía de fabricación** (bolsa) ...30% de reducción
4. Menor **peso de transporte** (bolsa y folleto de eIFU)
5. Mejora de **la integridad y la seguridad del envase** (cartón con lengüeta)
6. Satisfacer la **creciente** demanda de RayOne

- Todo ello basado en **las opiniones de los clientes**: quieren menos envases y la supresión del IFU
- Respalda nuestro **compromiso ESG**: menos residuos y emisiones de carbono
- Garantiza **el suministro fiable** del producto RayOne

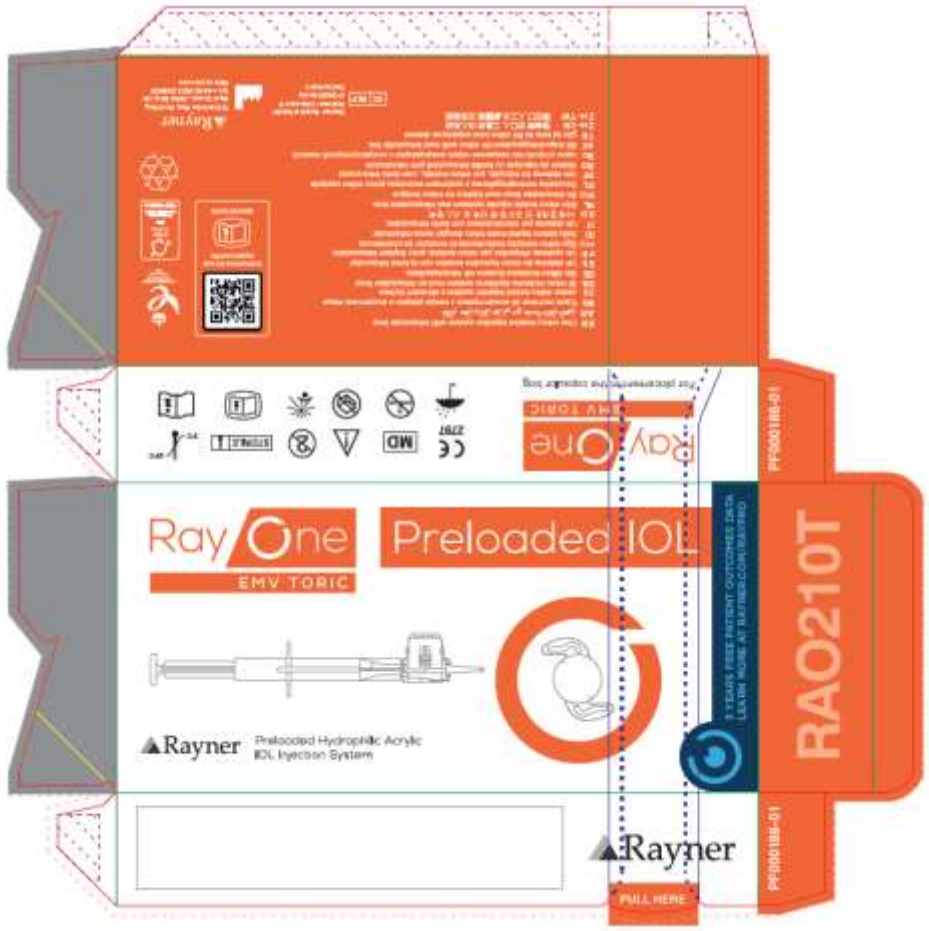
¿Cuándo cambia?

- **Introducción escalonada** en las próximas semanas, tanto en EE.UU. como en los EE.UU. (excluidos Rusia y China).
- **Periodo transitorio**: depende de las competencias
- **Pedidos mixtos** - no se pueden solicitar antiguos/nuevos

- **Mensaje global único…**

  En pedidos a partir de abril

- **Comunicaciones a finales de la próxima semana**



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¿Cómo se apoya?

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Rayner | RayOne

RayOne Packaging Updates

Dear Valued Customer

On behalf of Rayner, I am delighted to inform you about some important updates to the packaging of our **RayOne fully preloaded IOL injector systems.**

These updates are a direct result of your feedback, and support Rayner's ongoing commitment to ESG (Environmental, Social, Governance) improvements – with 1.6 million RayOne packs projected to be manufactured in 2024, these updates will significantly reduce the environmental impact of our flagship IOL portfolio.

From April 2024, you will start to see the following RayOne packaging updates:

1. **The outer plastic tray will be replaced with a flexible pouch – reducing plastic waste by 83%.**
2. **A new Rayner eIFU (Electronic Instructions for Use) website has been launched – for fast and convenient access to important product information.**
3. **Cartons will open using an intuitive pull-tab system – improving carton rigidity during transportation.**

The updates affect the following products:

- RayOne Spheric (RAO100C)
- RayOne EMV (RAO200E)
- RayOne EMV Toric (RAO210T)
- RayOne Aspheric (RAO600C)
- RayOne Trifocal (RAO603F)
- RayOne Toric (RAO610T)
- RayOne Trifocal Toric (RAO613Z)
- RayOne Hydrophobic (RAO800C)
- RayOne Hydrophobic BLF (RAO850B)

Important:

There is no change to RayOne IOLs or the fully preloaded injector – the updates only affect the packaging.

All packaging updates are due to be introduced at the same time. This means that if the RayOne carton has a pull-tab opening mechanism or eIFU QR code on it, then the RayOne IOL and injector will be inside a flexible sterility pouch.

There will be a transition period during which RayOne orders may contain a mix of legacy and new packaging. The transition period is dependent on inventory levels for individual lens powers. It is not possible to request a particular packaging configuration.

The following pages contain more detailed information about each packaging update.

Rayner | RayOne

Pouch

- A flexible sterility pouch has been introduced as a replacement for the RayOne outer plastic tray with foil lid.
- The new pouch reduces plastic waste by 83% versus the outer plastic tray.
- Product labelling on the pouch is identical to the outer plastic tray.
- Product sterility and integrity levels are maintained versus the outer plastic tray.

Please visit **www.rayner.com/rayone-injector** to watch the new RayOne preparation video and download the new RayOne loading guide.

Outer plastic tray

New flexible sterility pouch

eIFU/IFU

- Rayner has launched a new MDR-compliant eIFU website (**www.rayner.com/IFU**), where printer-friendly PDF versions of the full IFU can be downloaded.
- The carton and IFU leaflet contain a URL/QR code for fast and convenient access to Rayner's eIFU website.
- A multinational freephone number is available for requesting a printed IFU.
- The current IFU booklet, which contains 23 languages, has been replaced with a slim IFU leaflet containing five languages (EN, AR, ES, RU, UK) – covering countries that do not currently accept eIFUs.
- The new slim IFU leaflet reduces Rayner's paper usage by over 35 tonnes per year, equivalent to approximately 33,000 kg CO_2 eq and 600 trees[1,2], additionally RayOne's carbon footprint as a result of the reduced overall product weight during transportation.
- Sulcoflex supplementary IOLs will be added to the Rayner eIFU website during 2024.

Visit **www.rayner.com/IFU** to view and download the RayOne IFU in all available languages.

IFU booklet

New IFU leaflet

Rayner | RayOne

Carton

- The perforated opening on the long edge of the RayOne carton has been replaced with an intuitive pull-tab system on the short edge, which improves packaging rigidity during transportation.
- To open the RayOne carton, simply pull the tab marked 'PULL HERE'.
- A crash lock mechanism has also been added to the left end of the carton to improve product tamper-proofing.
- Forest Stewardship Council® (FSC®) and recycling information has been added to the reverse of the carton, authenticating RayOne's environmentally responsible packaging.
- A QR code and URL directing users to the Rayner eIFU website has been added to the reverse of the carton, along with a multinational freephone number for requesting paper copies of the IFU.
- There are no changes to the carton dimensions, materials, or brand colours.

Please visit **www.rayner.com/rayone-injector** to watch the new RayOne preparation video and download the new RayOne loading guide.

Long edge opening

New pull-tab opening

At Rayner, we are extremely proud and excited to introduce these important RayOne packaging updates, as part of our culture of continuous improvement and commitment to reducing Rayner's impact on the environment.

If you have any questions about the updates, please speak to your local Rayner representative.

Yours faithfully

Tim Brown
Marketing Director, Europe

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Rayner Surgical GmbH, Rudower Chaussee 9, D-12489 Berlin, Deutschland

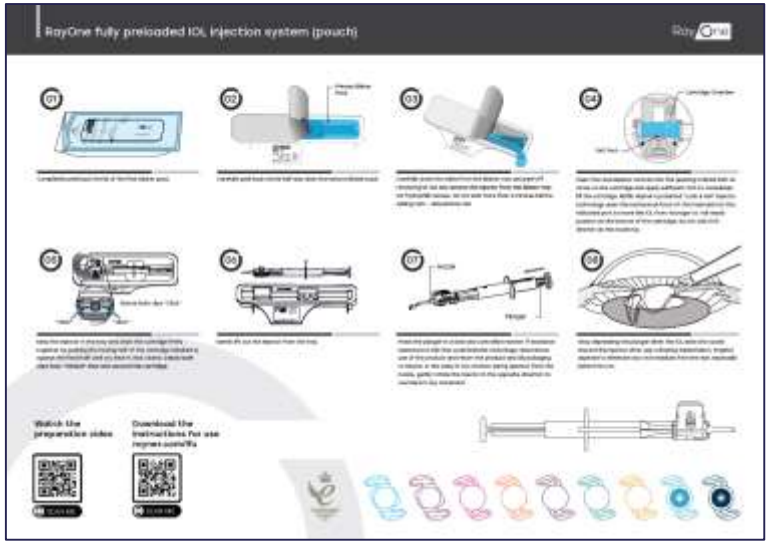
EC 2023-190 02/24

- Carta de 3 páginas
- Apto para todos
- Toda la información
- Enlaces a activos

✓ Inglés
✓ Alemán
✓ Español
✓ Portugués
✓ Polaco
✓ Francés
✓ Italia
✓ Brasileño-PT

Rayner

¿Cómo se apoya?



Rayner

Vídeo de preparación para RayOne

- YouTube (en directo la próxima semana)
- Cartón con lengüeta y bolsa
- https://youtu.be/Adye4oRXsUM

Guía de carga RayOne

- Bolsa
- QR al vídeo y al sitio web de eIFU
- EN, DE, ES, PT, FR, IT, PL, PT-BR

Rayner.com/rayone-injector actualizado en consecuencia

¿Cómo se apoya?

- Comunicado de prensa
- Mensajes sociales
- Eblast
- Actualización de la página web de ESG

"La responsabilidad medioambiental es importante en Rayner. Con envases de cartón más fáciles de usar, una gran reducción de los residuos de envases de plástico, la eliminación de los prospectos de papel IFU y procesos de fabricación de menor consumo energético, estamos dando pasos para desarrollar no sólo una mejor experiencia para nuestros clientes, sino también un menor impacto medioambiental. Es importante reconocer el efecto que nuestras acciones tienen en el medio ambiente y tomar medidas en la medida de lo posible para mitigar el impacto de la cirugía de cataratas".

Tim Clover, Consejero Delegado de Rayner

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Ambition / Focus / Integrity / Openness / Respect /