

# Liderando el conocimiento del mañana

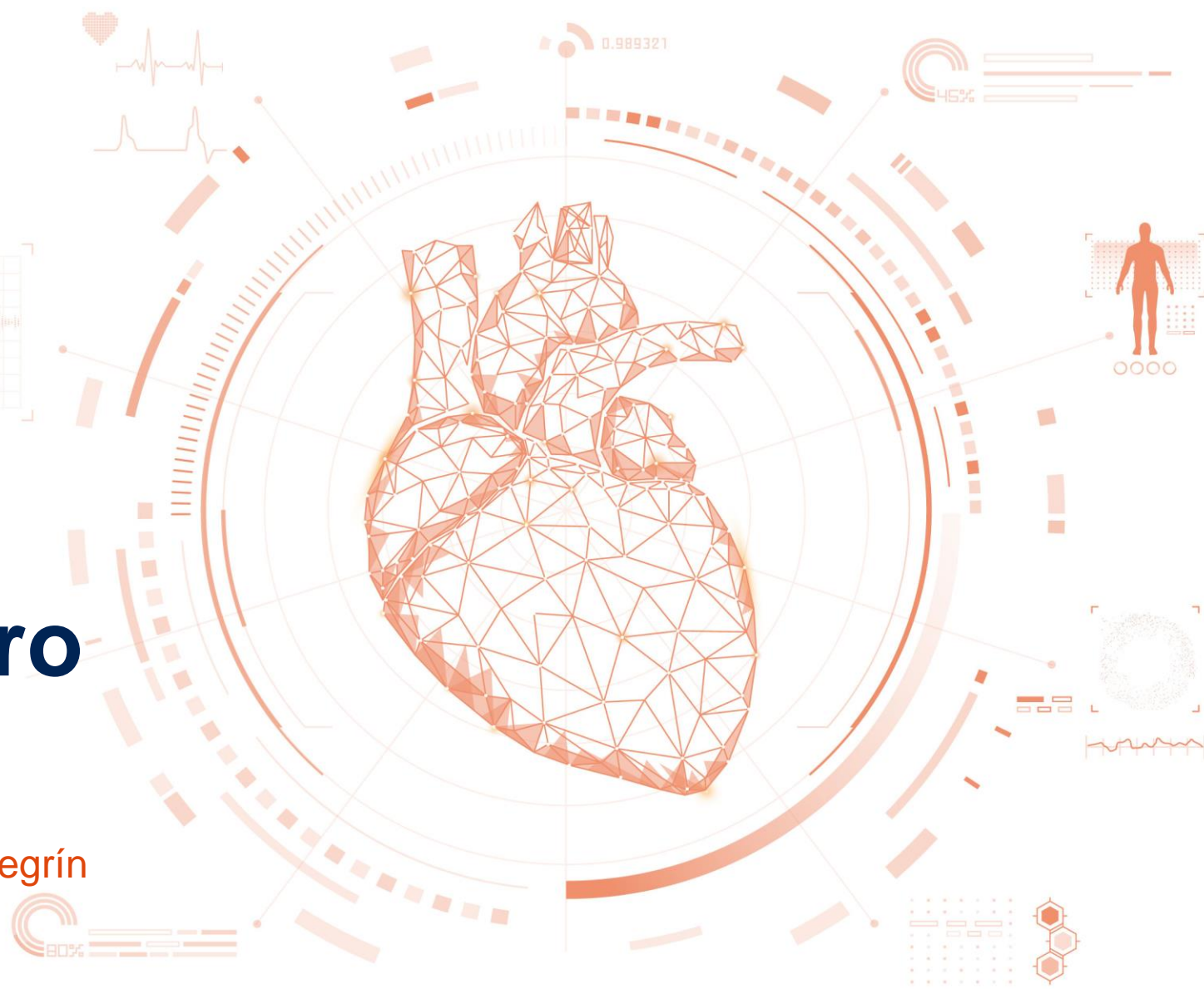
Cardio**Advanced**Forum

# Herramientas digitales para practicar la cardiología del futuro

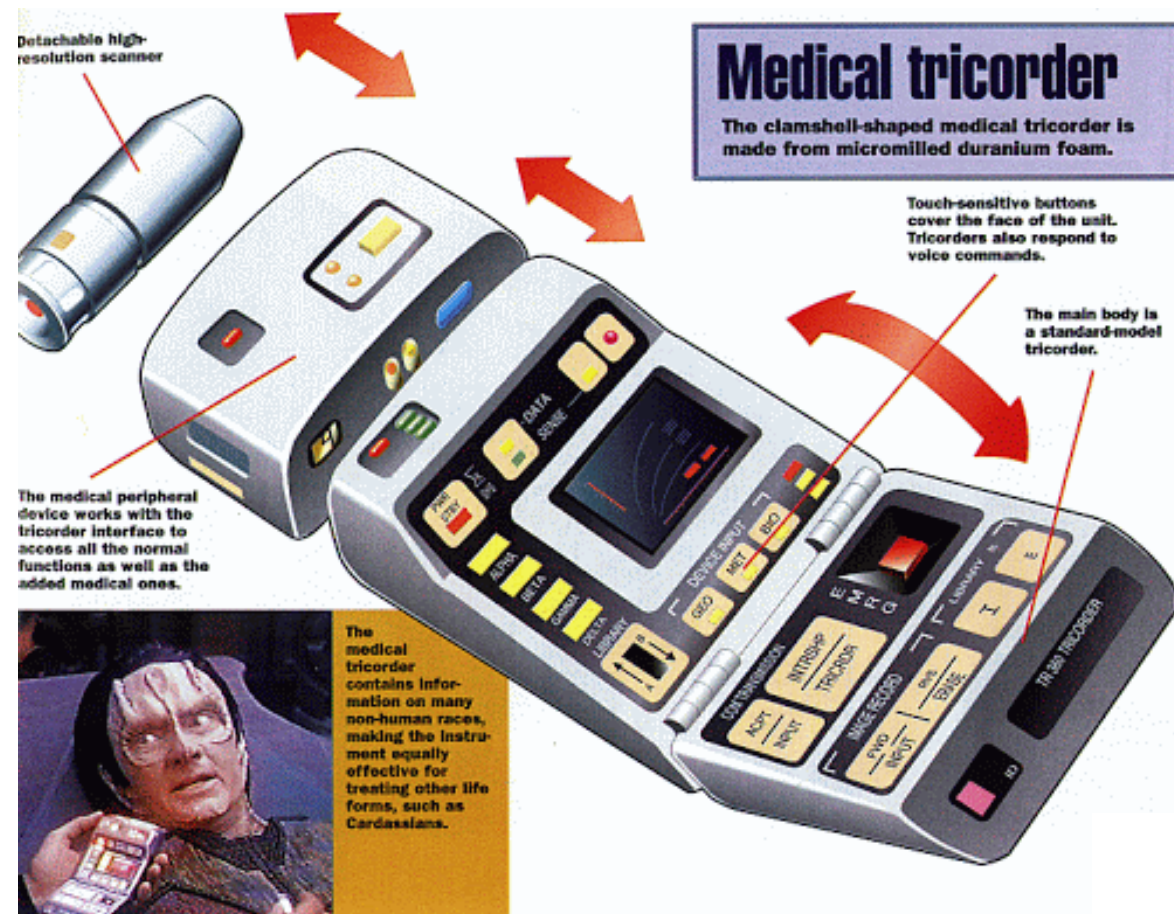
Antonio García Quintana

Unidad de Insuficiencia Cardíaca

Hospital Universitario de Gran Canaria Doctor Negrín









# Jonathan Rothberg



## Jonathan Rothberg

From Wikipedia, the free encyclopedia

**Jonathan Marc Rothberg** (born 1963) is an American scientist and entrepreneur. He is best known for his contributions to [next-generation DNA sequencing](#).<sup>[1]</sup> He works and resides in Guilford, Connecticut.

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- 1 Early life
- 2 Education and scientific career
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### Early life [ edit ]

Jonathan Marc Rothberg was born in [New Haven, Connecticut](#) to Lillian Rothberg and Henry Rothberg, a [chemical engineer](#). Prior to Rothberg's birth, his parents founded Laticrete International, Inc. a family-owned manufacturer of products for the installation of tile and stone.<sup>[2]</sup> As a child Jonathan went on sales calls with his father.<sup>[3]</sup> Rothberg's family established the foundation for his scientific career.<sup>[4]</sup>

### Education and scientific career [ edit ]

Rothberg earned a [BS](#) in [Chemical Engineering](#) with an option in [Biomedical Engineering](#) from [Carnegie Mellon University](#) in 1985.

While a graduate student at Yale in 1991, he founded CuraGen, one of the first [genomics](#) companies. CuraGen went public in 1999.<sup>[3]</sup> By the next year it had a market cap of \$5 billion, bigger than that of American Airlines.<sup>[3]</sup> Rothberg resigned as chief executive of CuraGen in 2005.<sup>[2]</sup> CellDex Therapeutics acquired CuraGen in 2009 for \$93.5 million in stock and reduced it to only five employees by October.<sup>[5][2]</sup>

In 2000, [454 Life Sciences](#) was founded as a subsidiary of CuraGen; Rothberg was the CEO of CuraGen at the time.<sup>[6]</sup> The idea for 454 Life Sciences came when Noah, his second child, was born in 1999, and had to be sent to the neonatal intensive care unit because of breathing troubles.<sup>[3]</sup> Noah turned out to be fine, but Rothberg was frustrated that doctors did not have a rapid test to ensure his son did not have an inherited disease.<sup>[3]</sup>

Rothberg brought to market a machine for [massively parallel DNA sequencing](#). 454 Life Sciences and the [Baylor College of Medicine](#) Genome Center were the first to complete and make public the sequence of an individual [human genome](#) ([James D. Watson](#)<sup>[7][8]</sup>). Published in *Nature* magazine, that genome was made publicly on [GenBank](#) and browsable via the efforts of [Lincoln Stein](#)'s group<sup>[9]</sup> contributing to [personal genomics](#). Rothberg lost control of 454 Life Sciences by 2007.<sup>[3]</sup> The company was acquired by [Roche Diagnostics](#) in 2007 for \$140 million then closed down by Roche in 2013 after other approaches to sequencing rendered the underlying technology noncompetitive.<sup>[10][2]</sup>

In 2004, Rothberg founded RainDance Technologies, which used droplet-based microfluidics.<sup>[11]</sup> RainDance was acquired in 2017 by Bio-Rad Laboratories, Inc.<sup>[12]</sup> Rothberg also co-founded ClariFi, a company that sells software for hedge funds. ClariFi was acquired by S&P in 2007 for an undisclosed amount.<sup>[13]</sup>

Rothberg founded [Ion Torrent](#) in 2007, which developed [ion semiconductor sequencing](#), a technology utilized by their Personal Genome Machine (PGM) DNA sequencer.<sup>[14]</sup> He founded the

Jonathan Rothberg



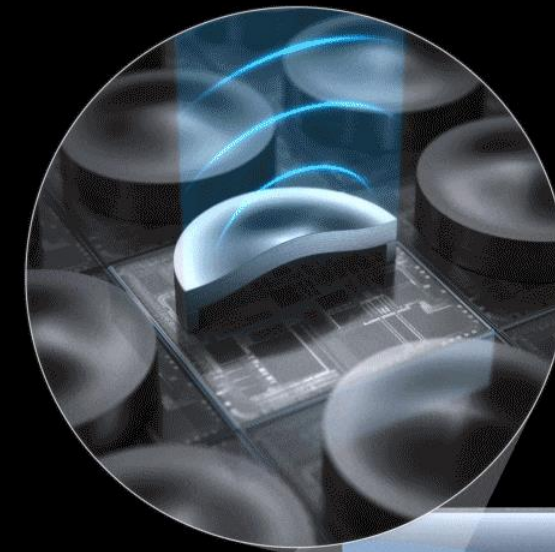
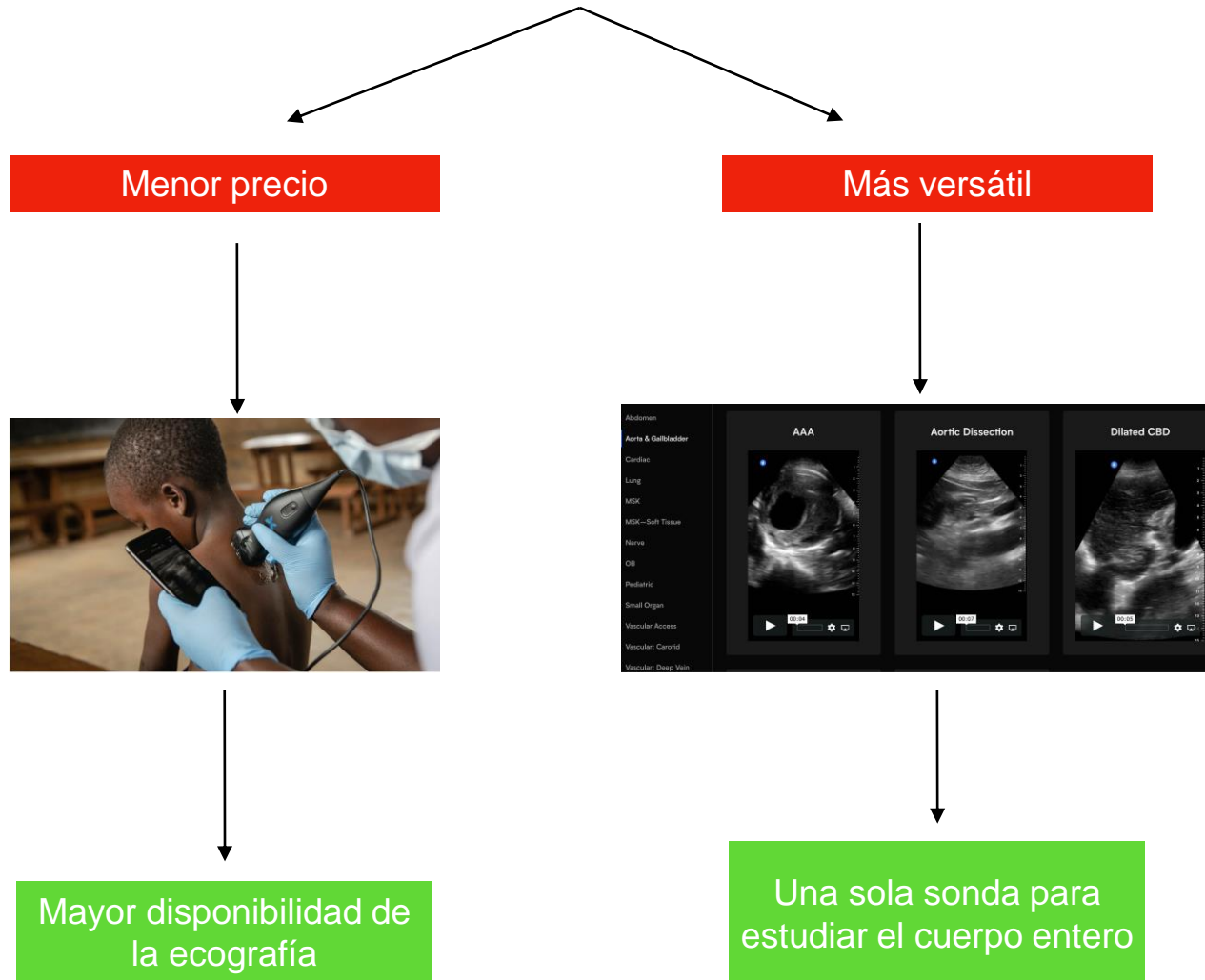
Rothberg, January 2008

<b>Born</b>	<a href="#">New Haven, CT</a>
<b>Alma mater</b>	<a href="#">Carnegie Mellon University</a> <a href="#">Yale University</a>
<b>Known for</b>	<a href="#">454 Life Sciences</a> , <a href="#">Ion Torrent</a> , <a href="#">RainDance Technologies</a>
<b>Awards</b>	<a href="#">National Medal of Technology and Innovation</a> (2016)
	<b>Scientific career</b>
<b>Fields</b>	<a href="#">Next-generation sequencing</a> , <a href="#">medical imaging</a> , <a href="#">pharmaceuticals</a> , <a href="#">medical devices</a>

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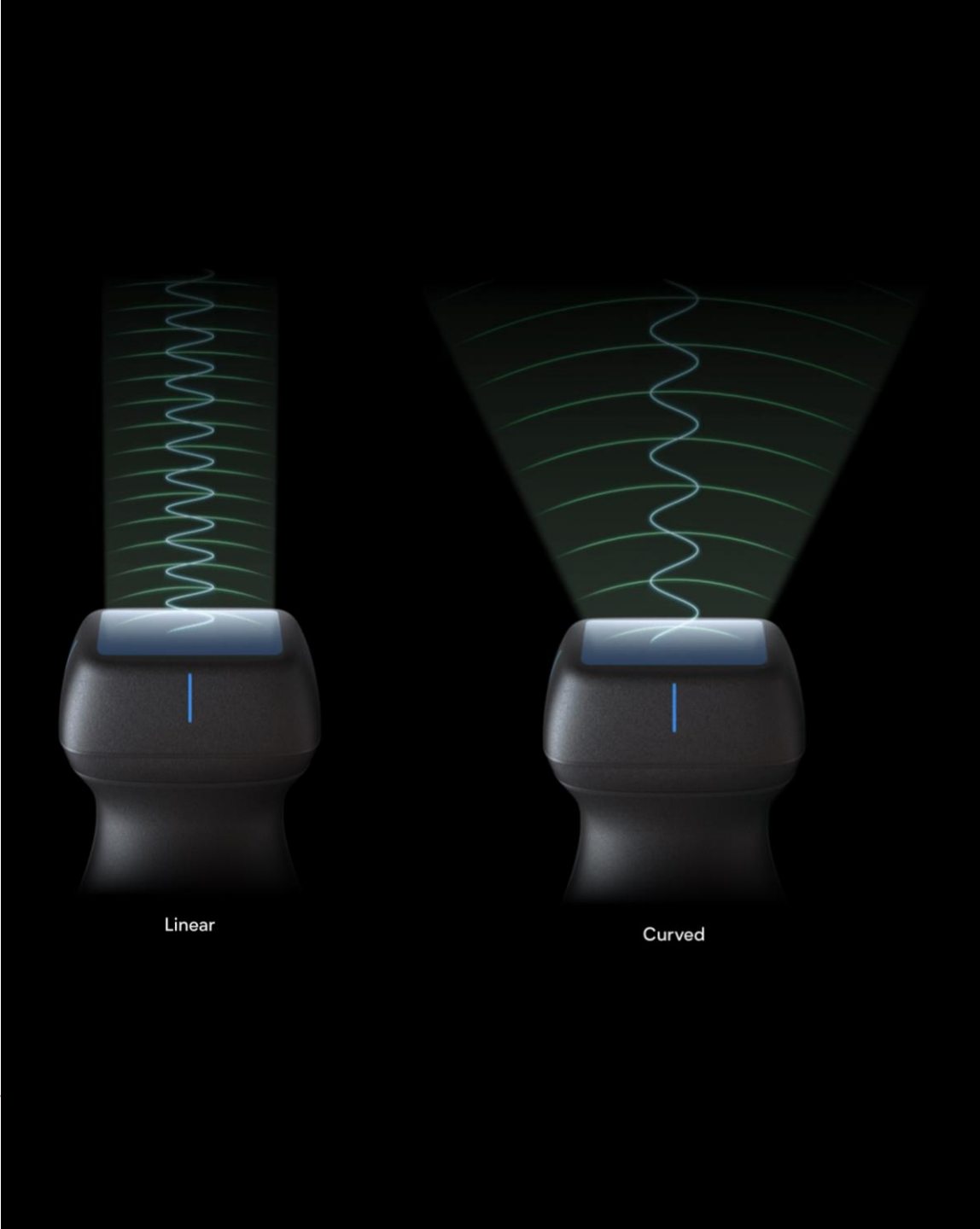
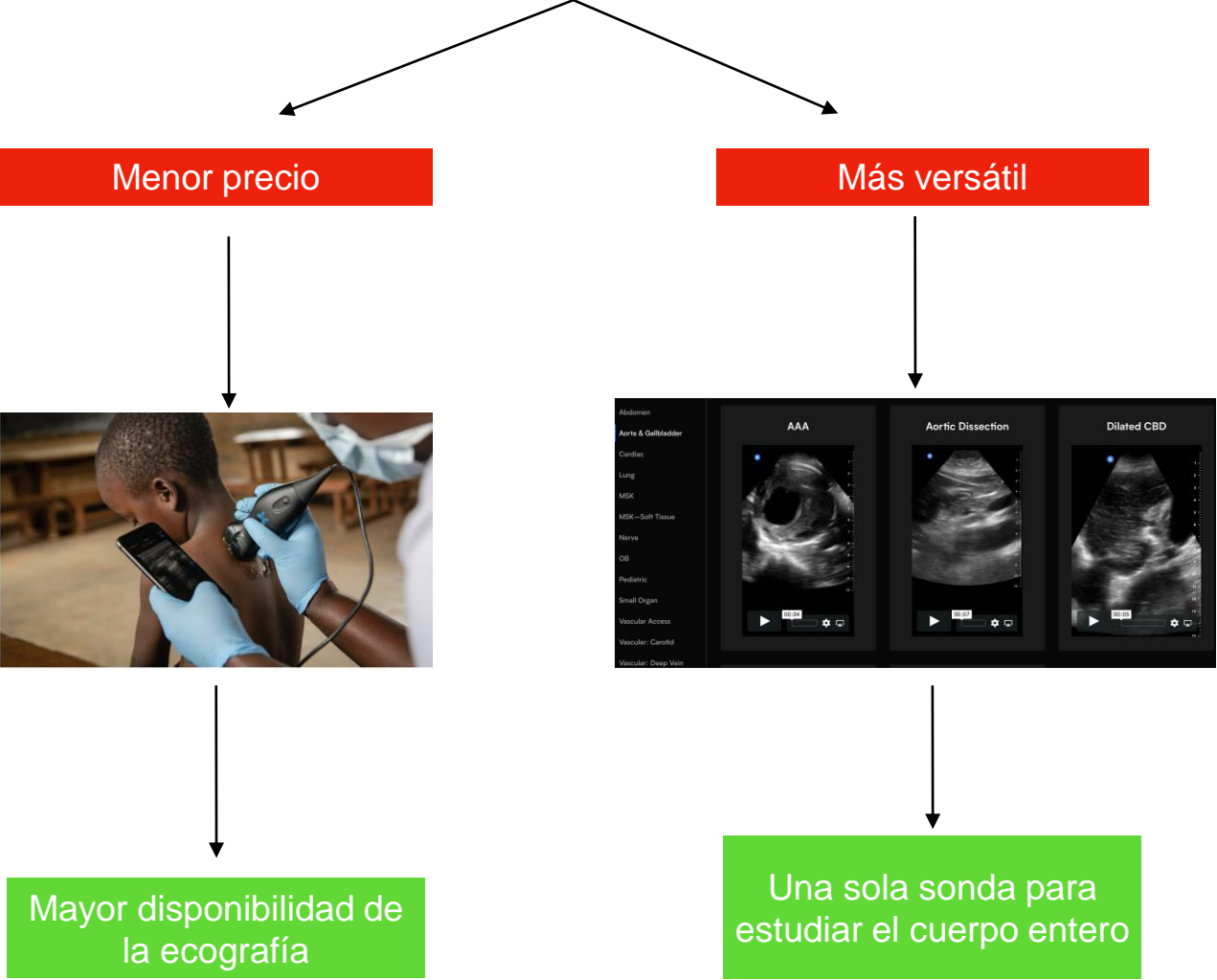
# Cristales piezoeléctricos por Chips de Silicona



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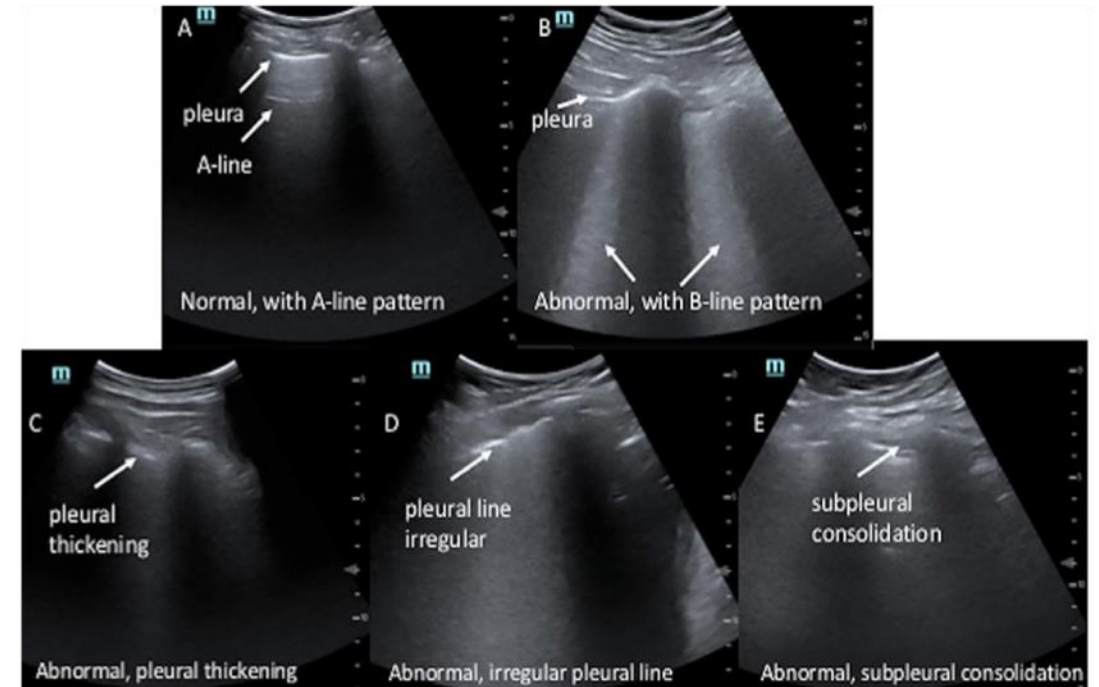
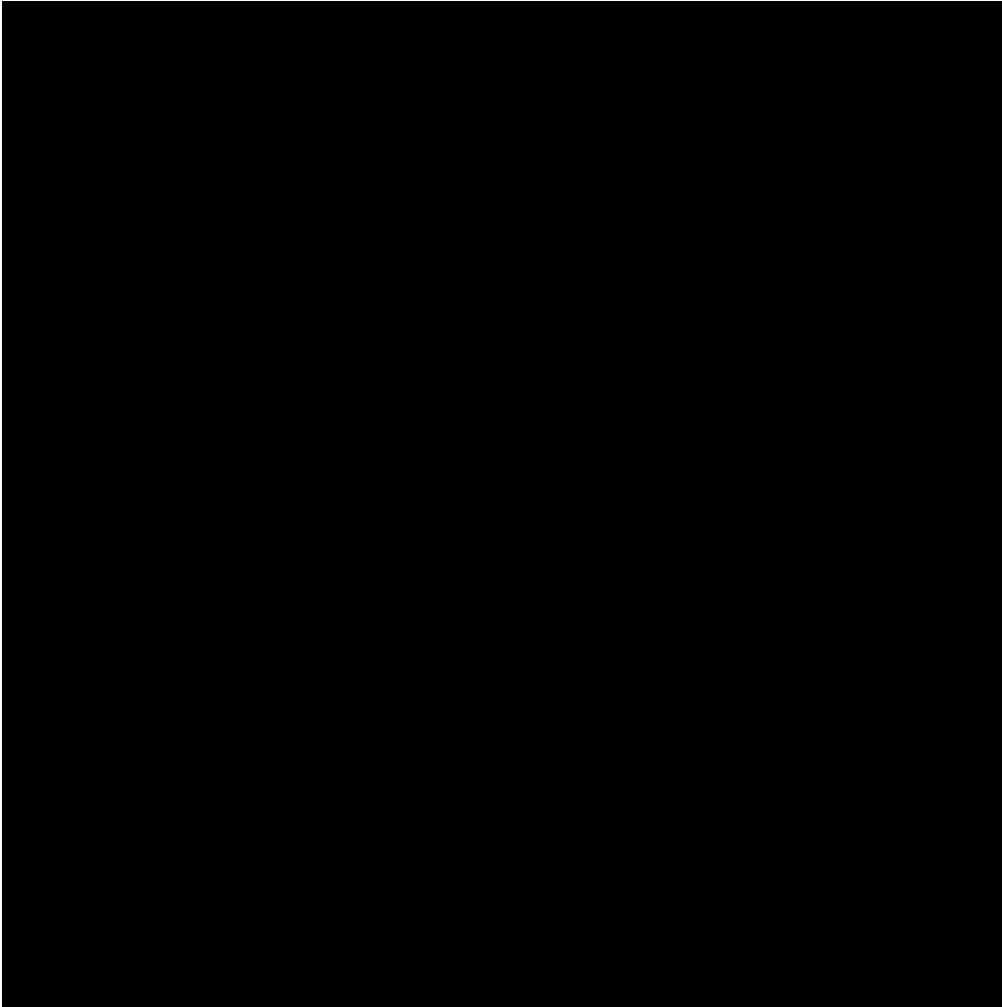
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# Cristales piezoeléctricos por Chips de Silicona





# Eco pulmonar y COVID-19



**Figure 1.** Lung ultrasounds. (A) Normal lung ultrasound. A-lines are horizontal lines that can be seen in the absence of pathology. (B) Abnormal lung ultrasound. The pleura is noted at the top of the lung. This is an example of coalescing B-lines shown as what appear to be headlights coming down from the pleura. (C) Abnormal lung ultrasound. Demonstrated is pleural thickening, >3 millimeters by visual estimate was considered abnormal. (D) Abnormal lung ultrasound. Demonstrated is an irregular pleural line seen in viral infections. (E) Abnormal lung ultrasound. Shown is a subpleural consolidation that appears black between the pleura above the pleural line.



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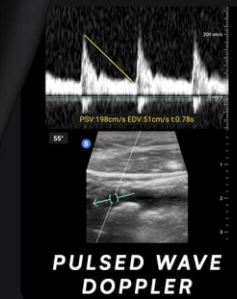
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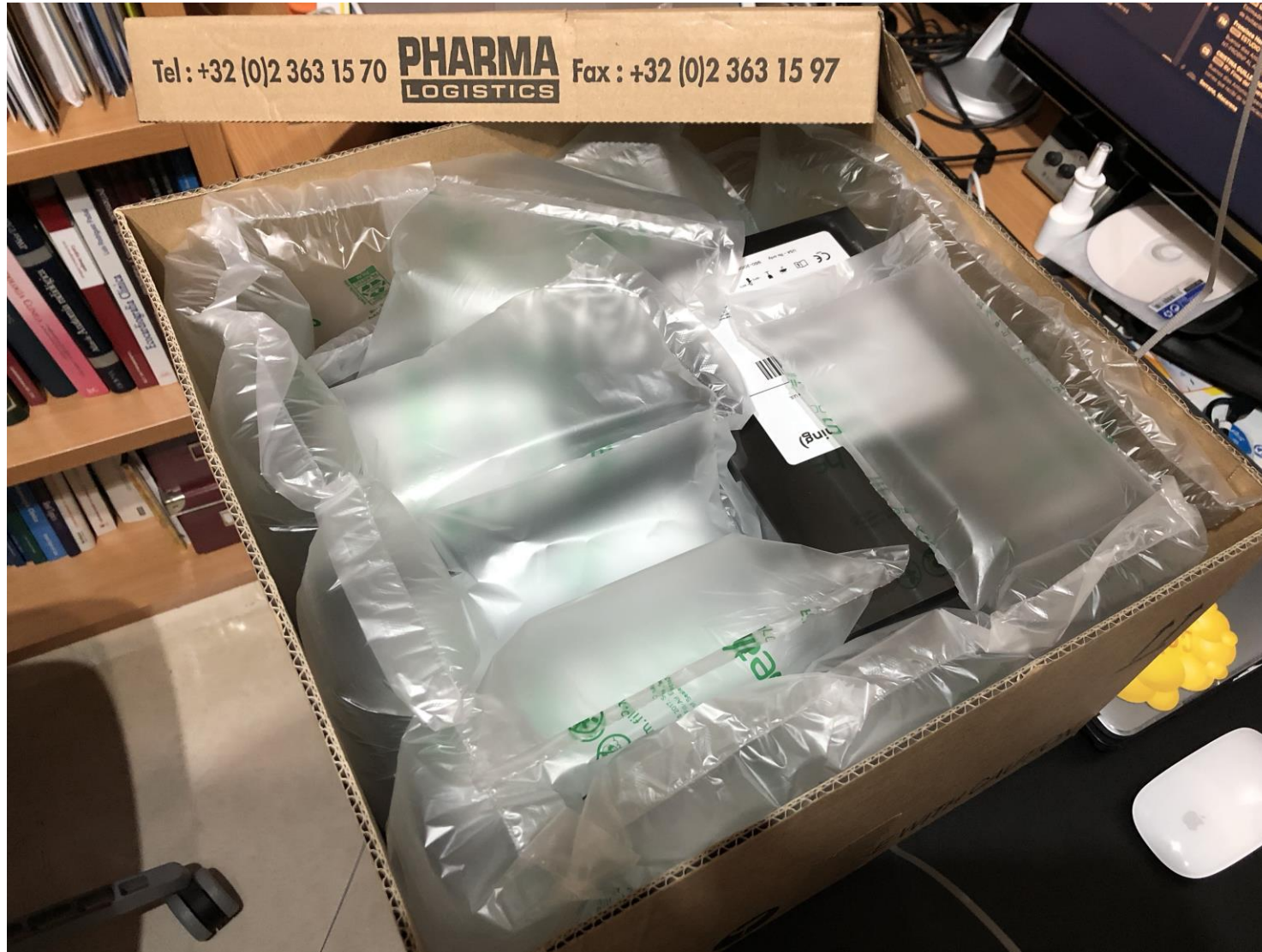


PULSED WAVE  
DOPPLER

# Unboxing



# Unboxing

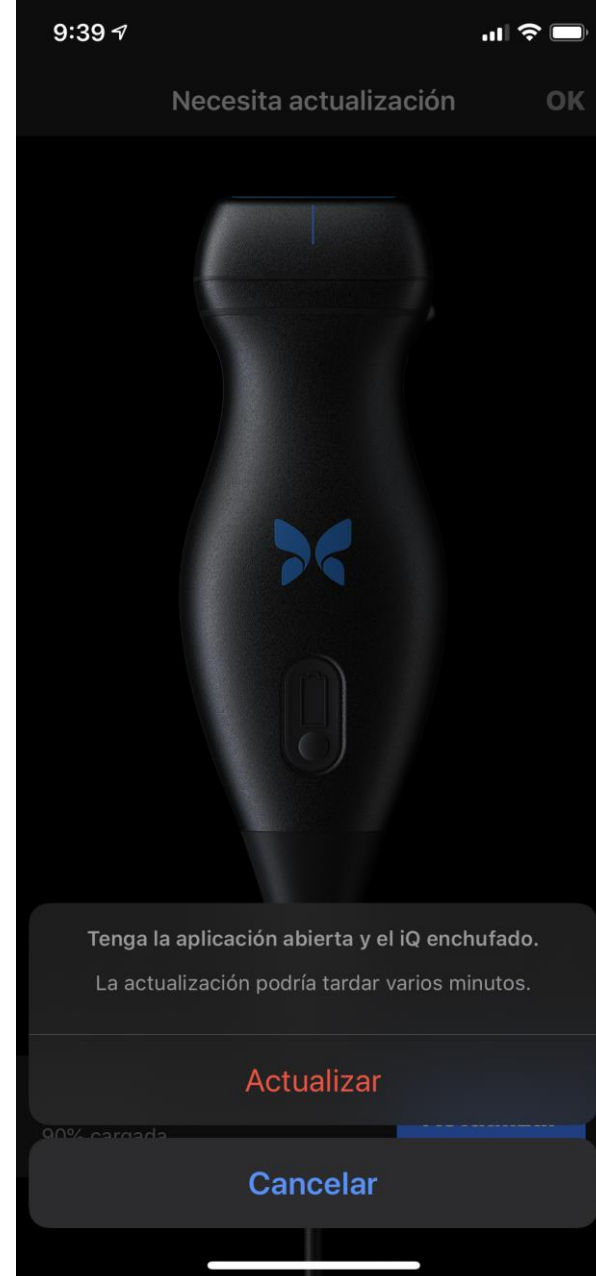
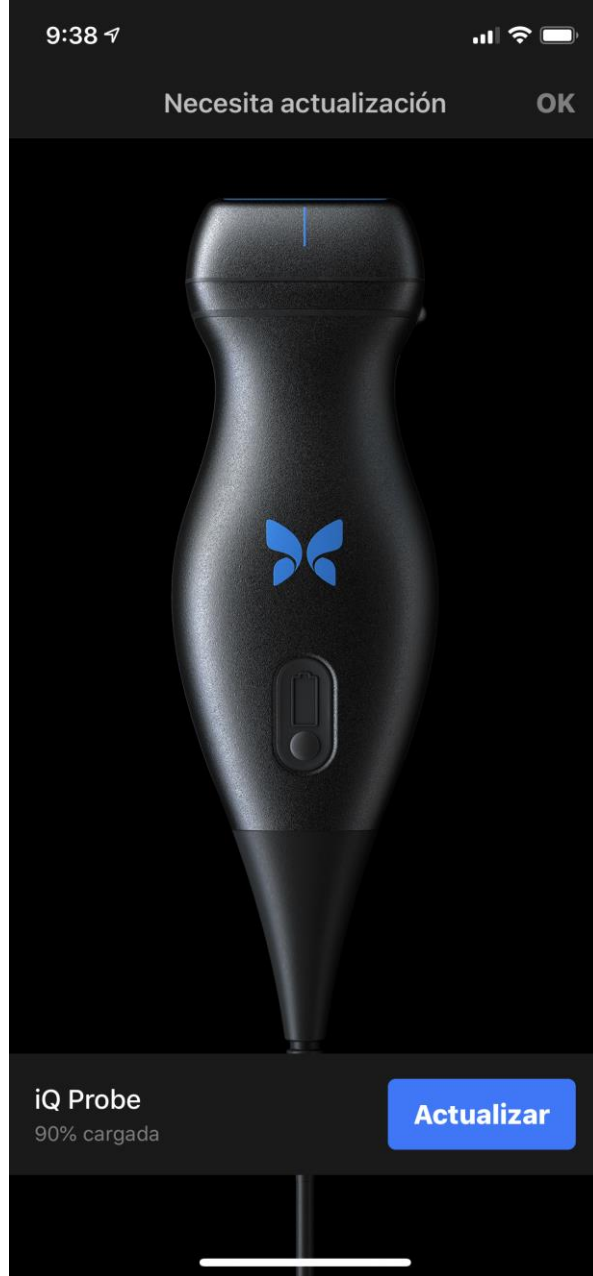


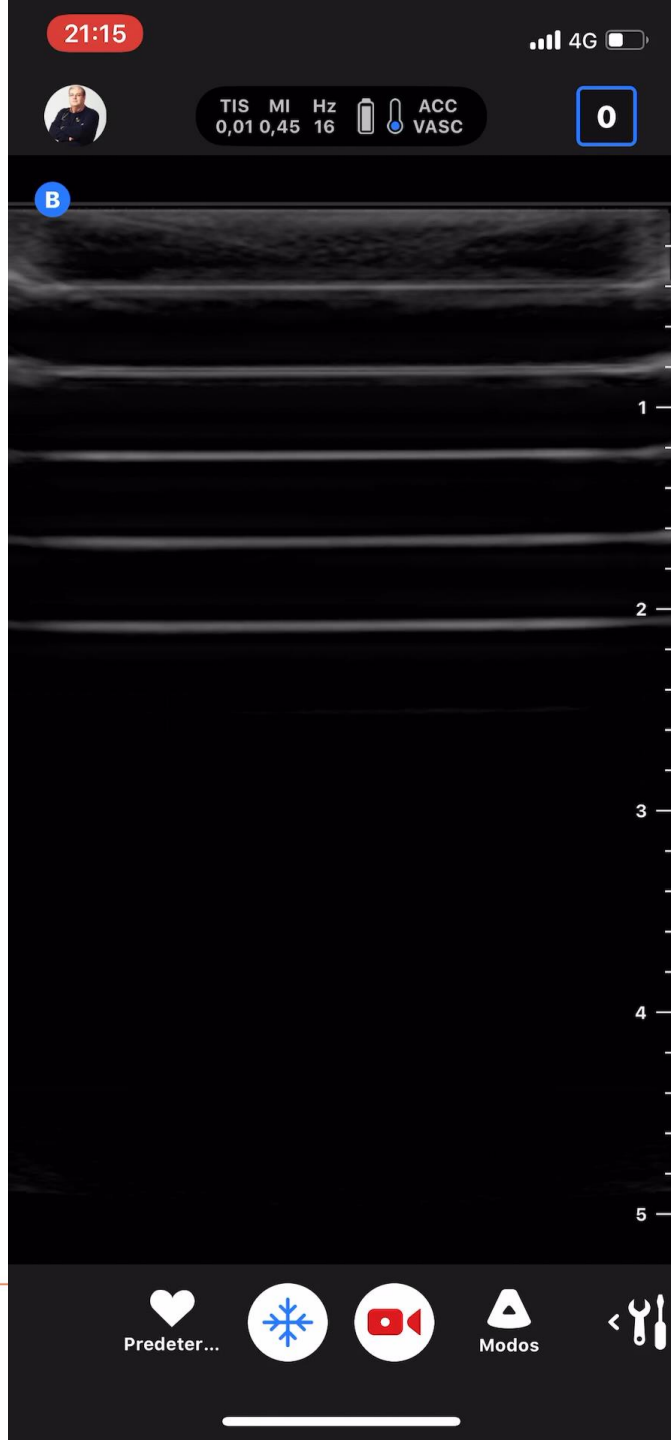
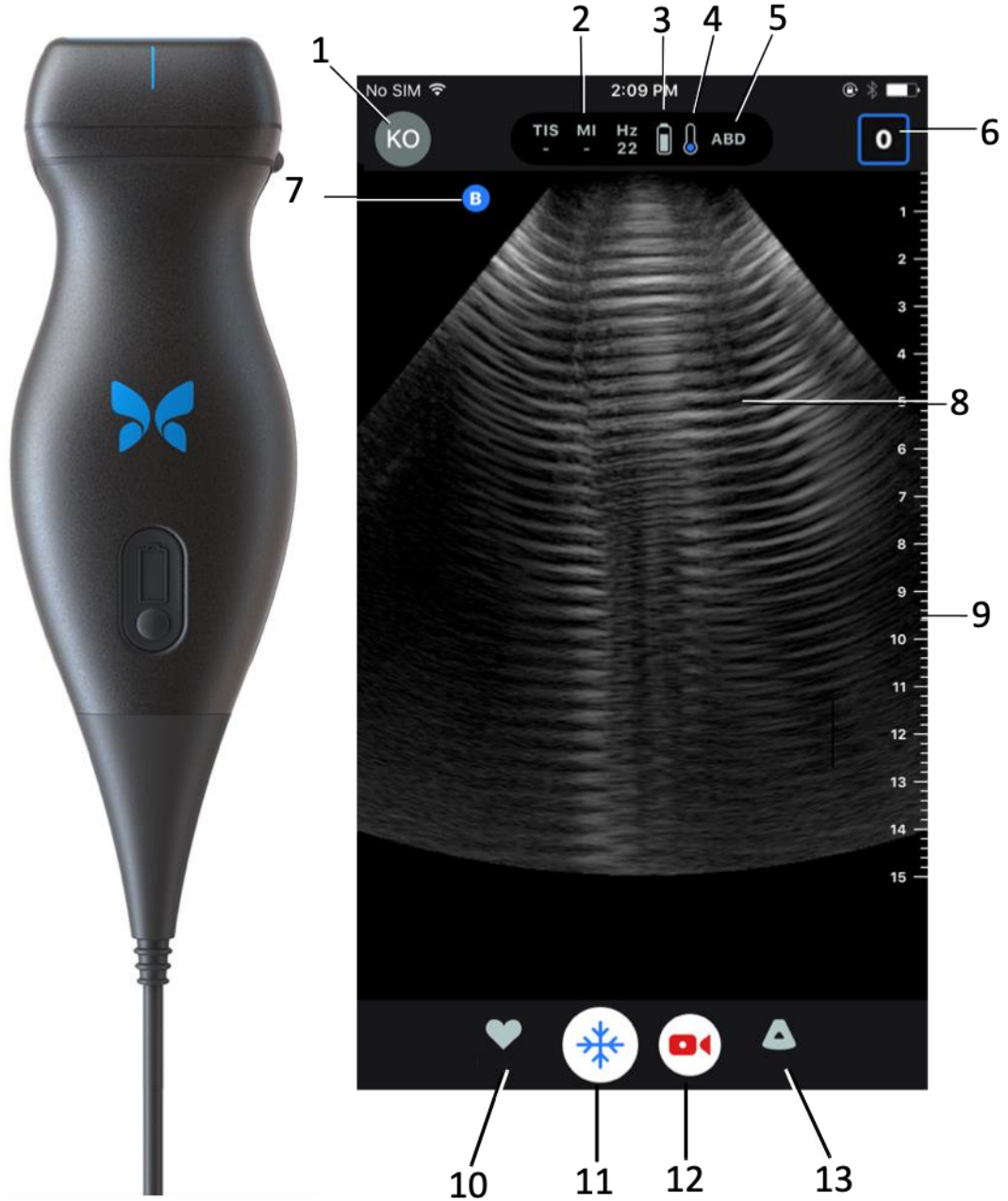
# Unboxing





# Actualizar





1	<b>Avatar del usuario.</b> Si se ha cargado una foto, aparecerá aquí. En caso contrario, aquí aparecen las iniciales del usuario.
2	Los valores de índice térmico (TI), índice mecánico (MI) y Hz
3	Estado de la batería de la sonda
4	Indicador de temperatura de la sonda
5	Parámetro predefinido en uso (abreviado)
6	<b>Carrete de capturas.</b> El número que aparece en el icono indica el número de imágenes y videoclips existentes en ese momento en el <b>Carrete de capturas</b> .
7	Marcador de orientación de la sonda
8	Área de visualización de imágenes
9	Regla. Indica la profundidad de la imagen en centímetros. Al ampliar la imagen, la regla se ajusta según corresponda.
10	Selección de <b>Predefinidos</b>
11	Control <b>Congelar la imagen</b>
12	<b>Grabar clip (video)</b>
13	Selección de <b>Modos</b>

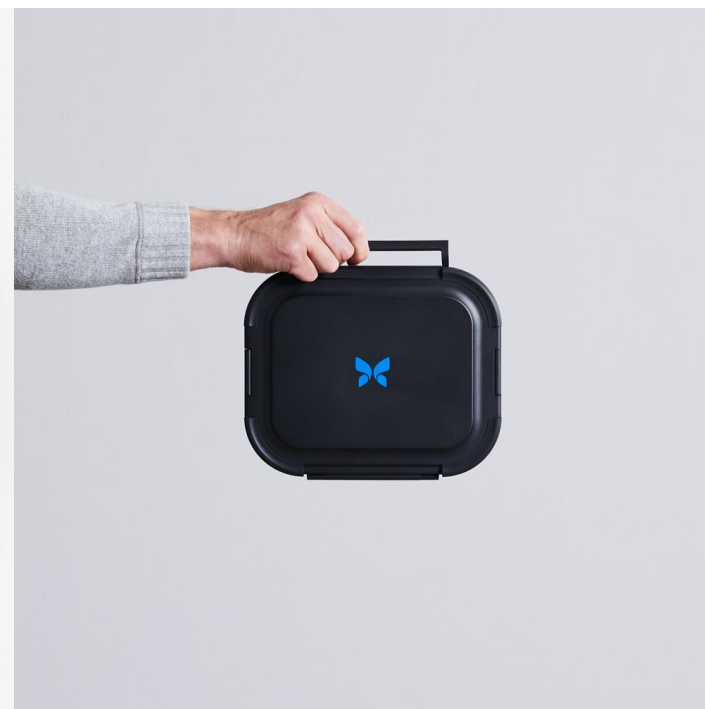
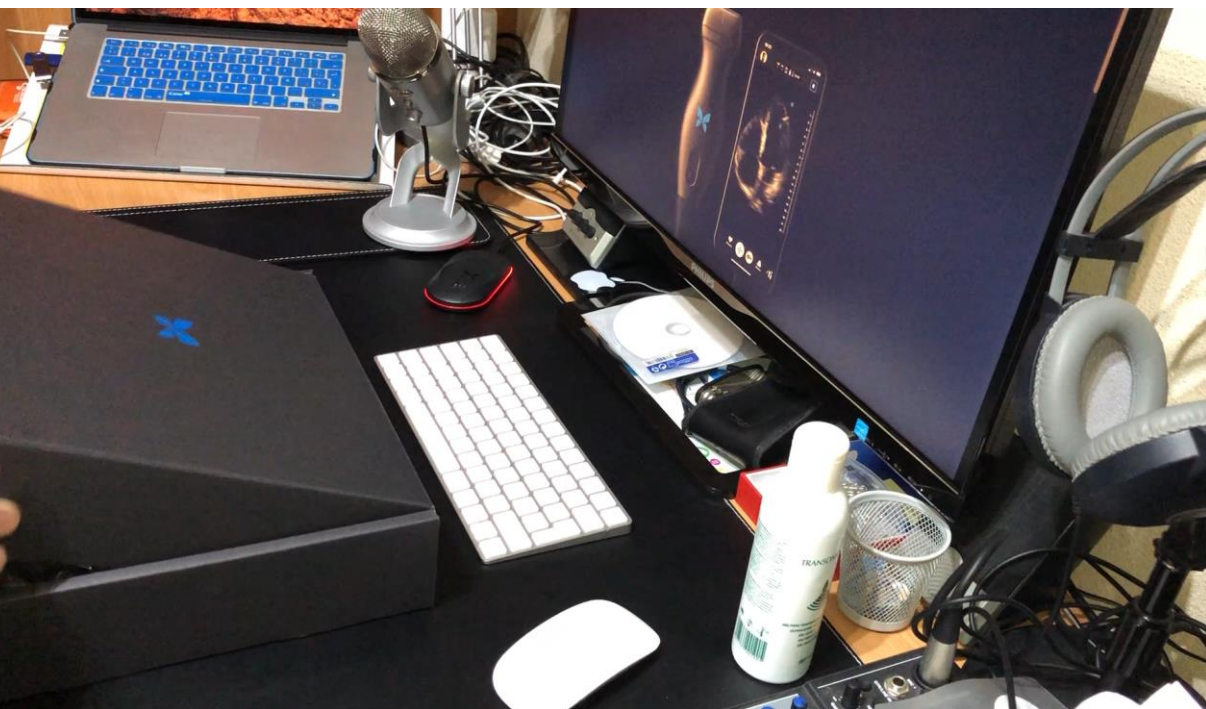
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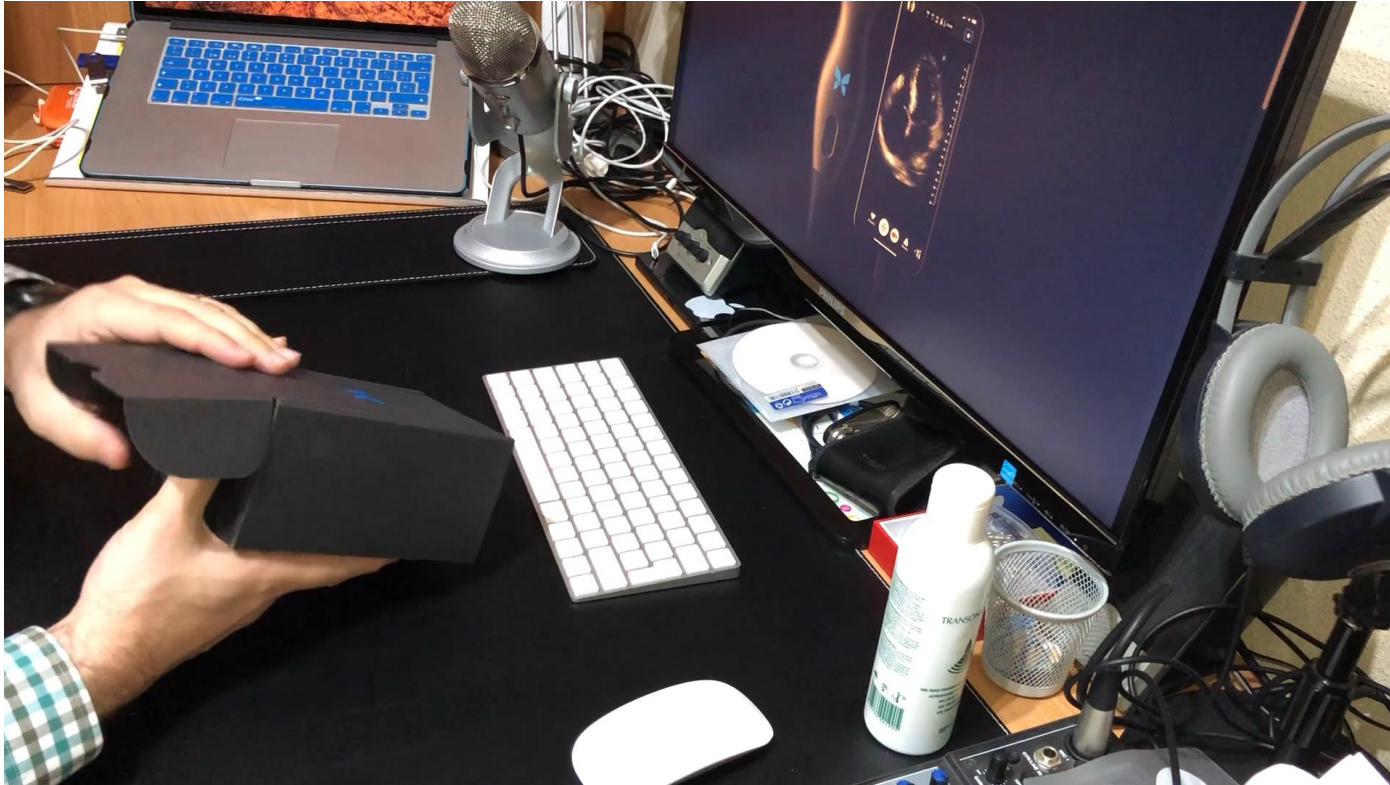
# Cargador



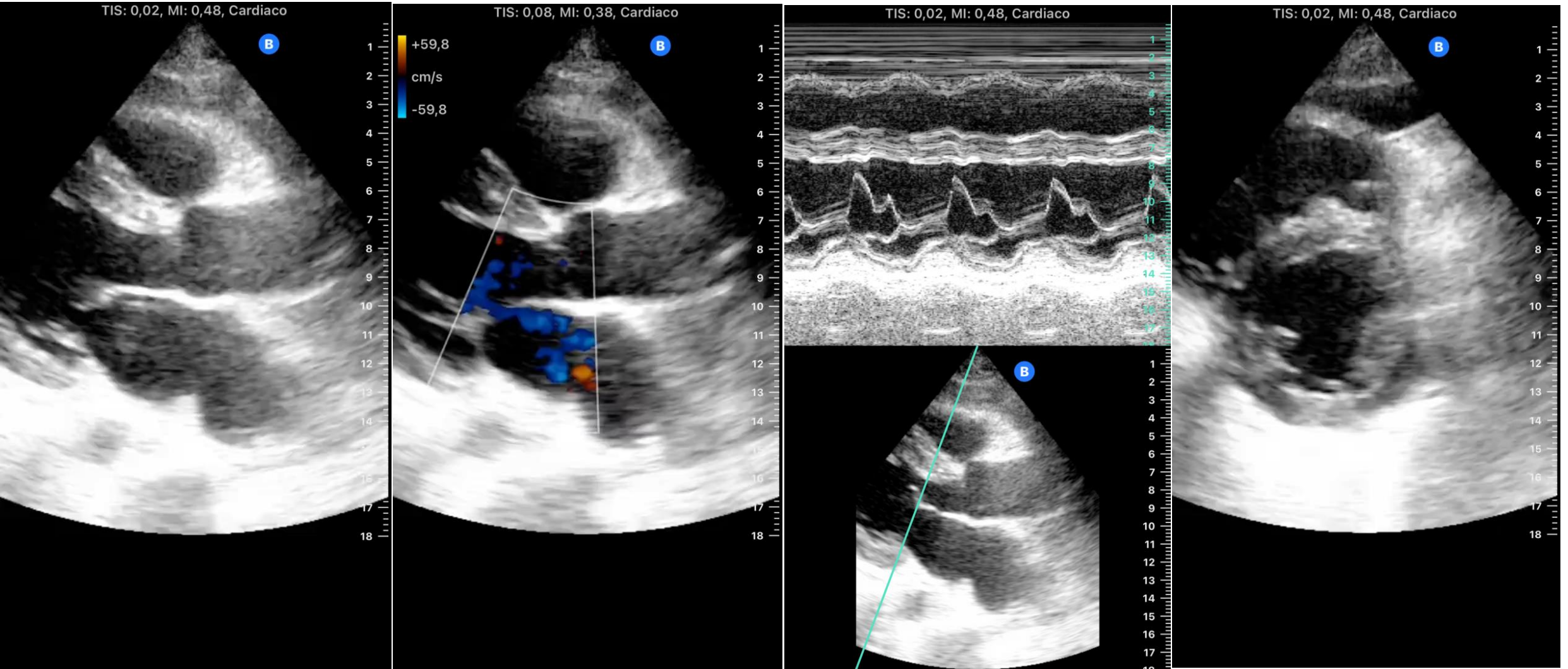
# Maletín de transporte



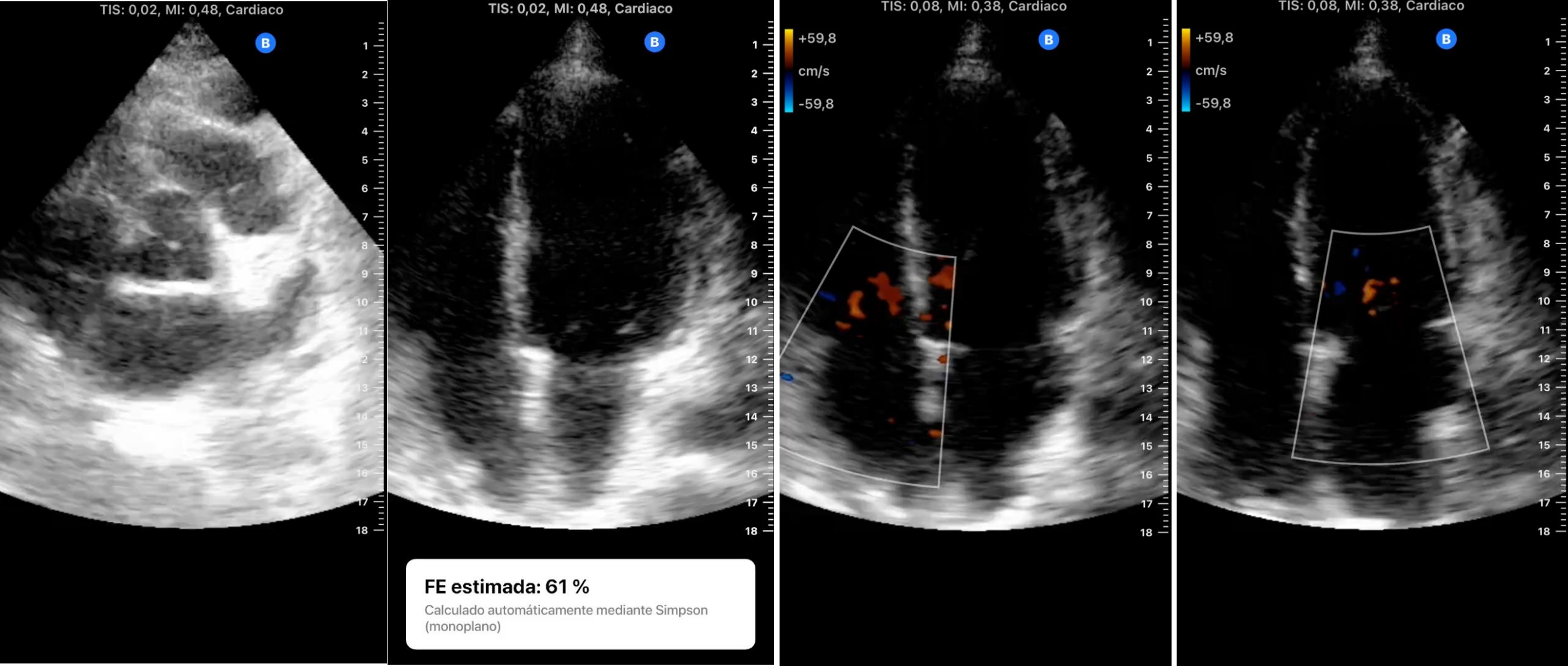
# Pinza de soporte



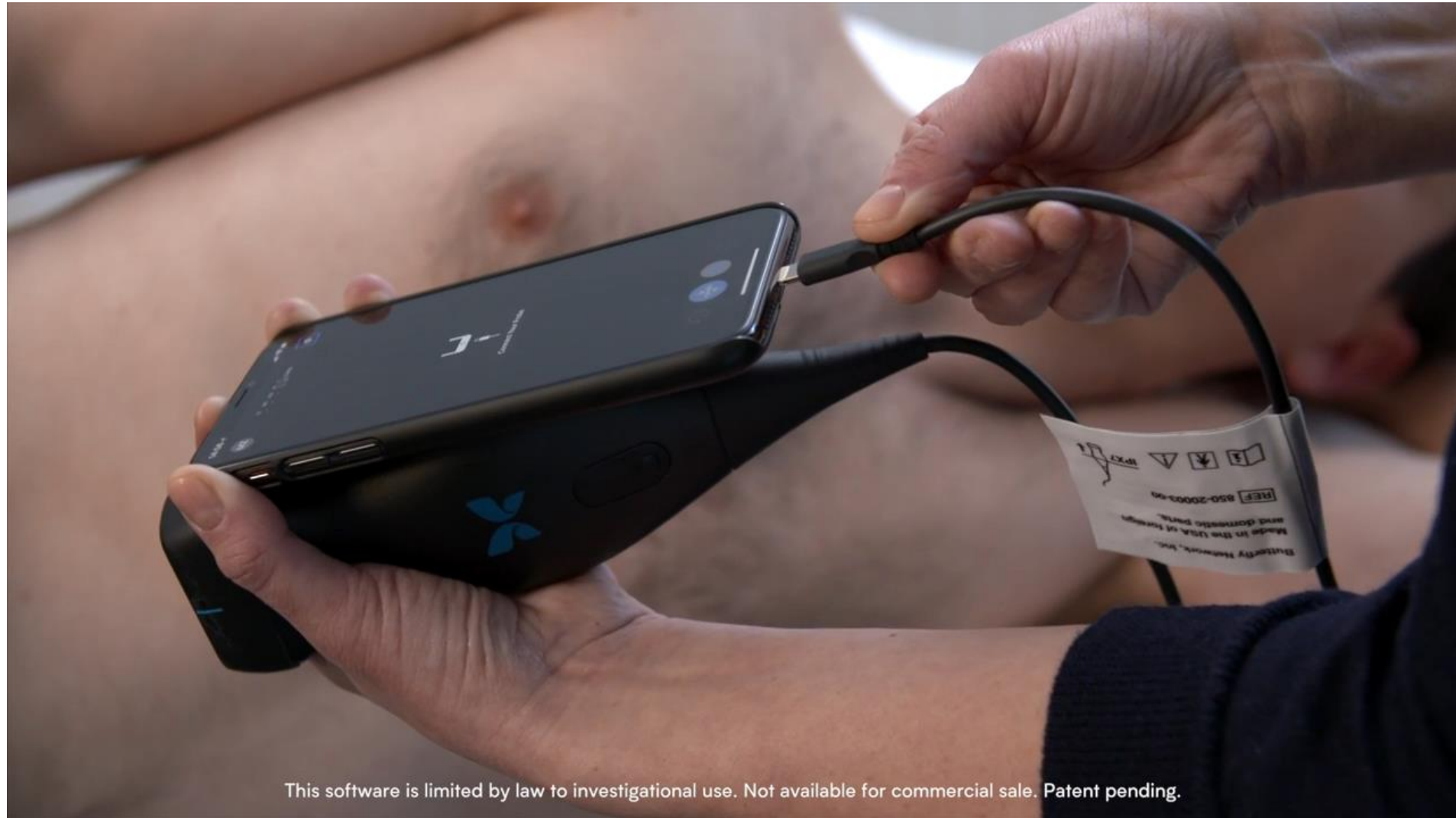
# Butterfly Network



# Butterfly Network

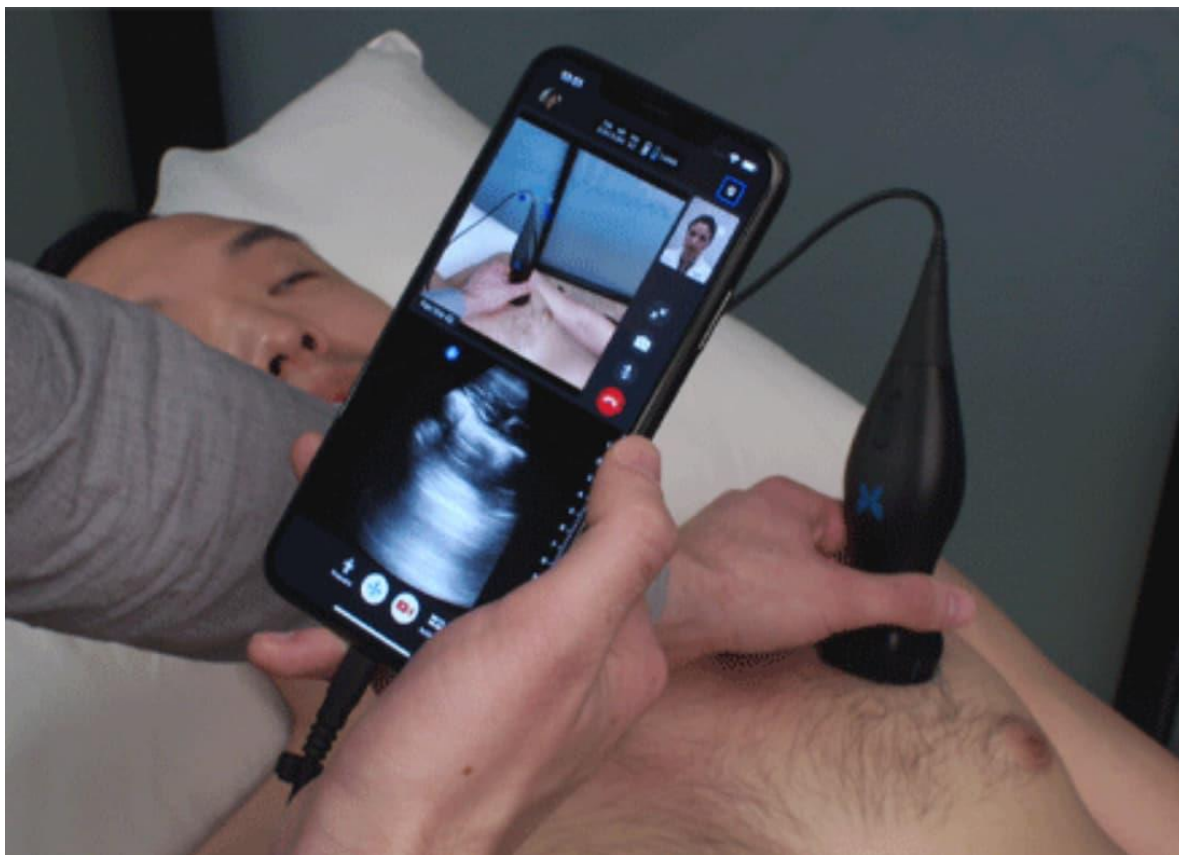


# Realidad aumentada para hacer ecos sin “saber”

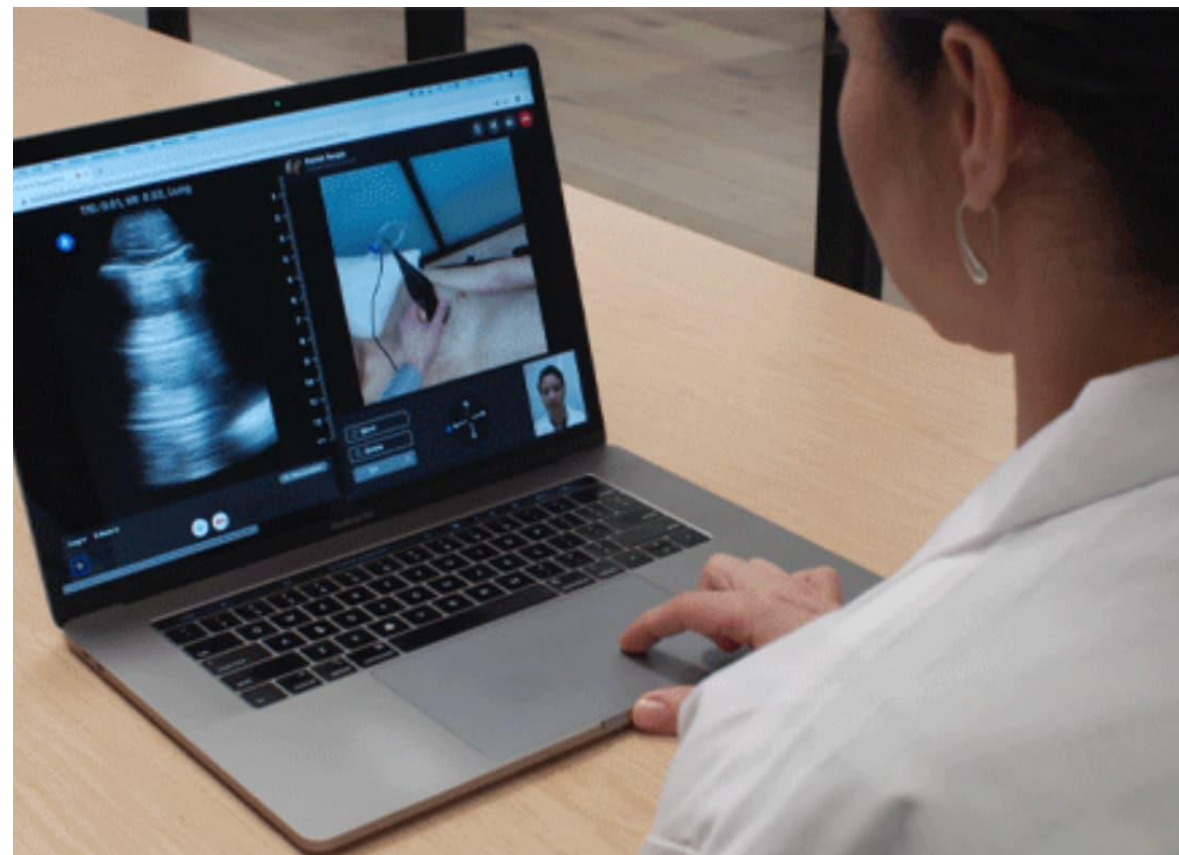


This software is limited by law to investigational use. Not available for commercial sale. Patent pending.

# Tele-guía en Ecocardiografía con Realidad Aumentada

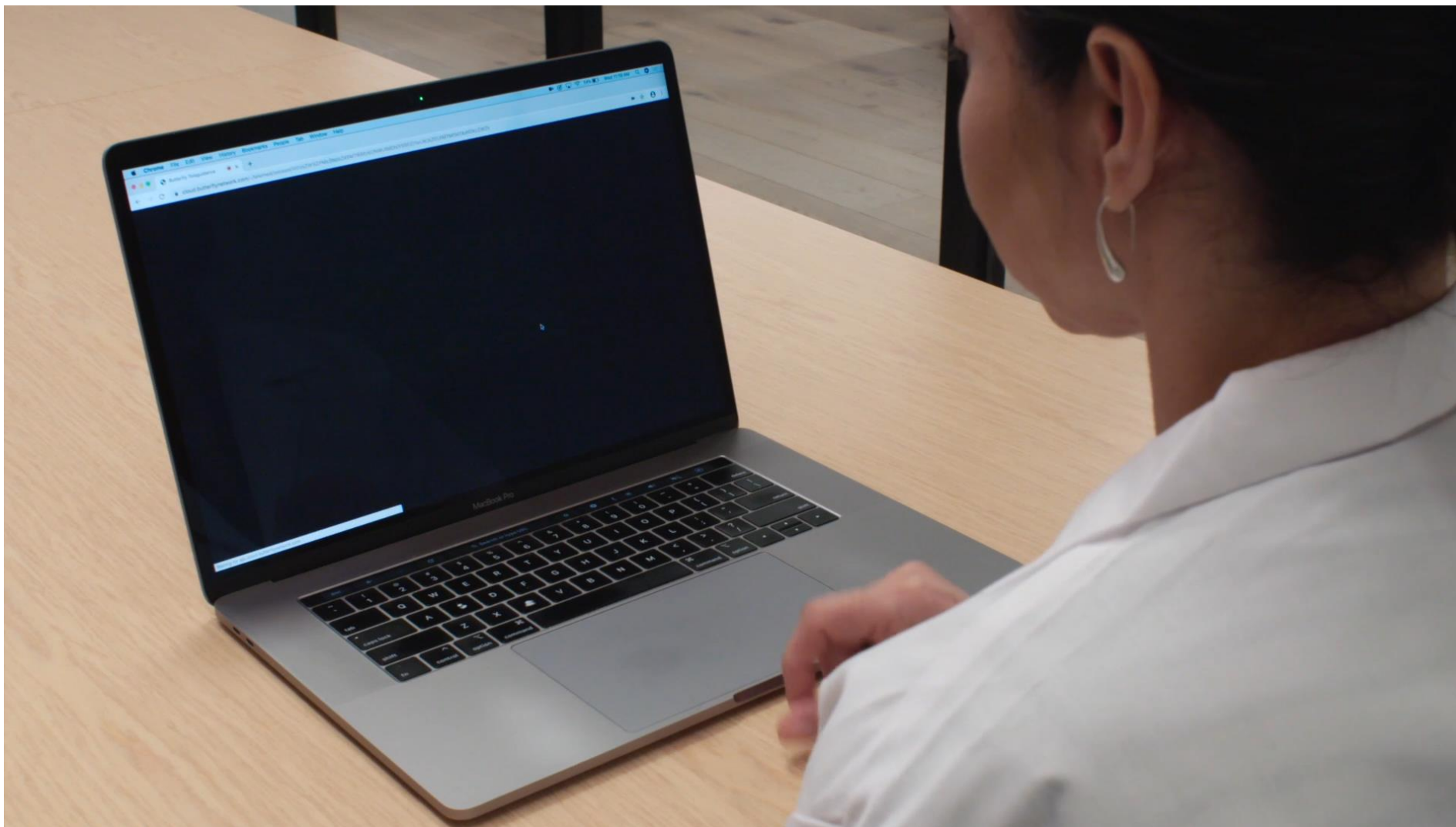


**Ecógrafo a pie de cama**



**Colaborador a distancia**

# Tele-guía en Ecocardiografía con Realidad Aumentada



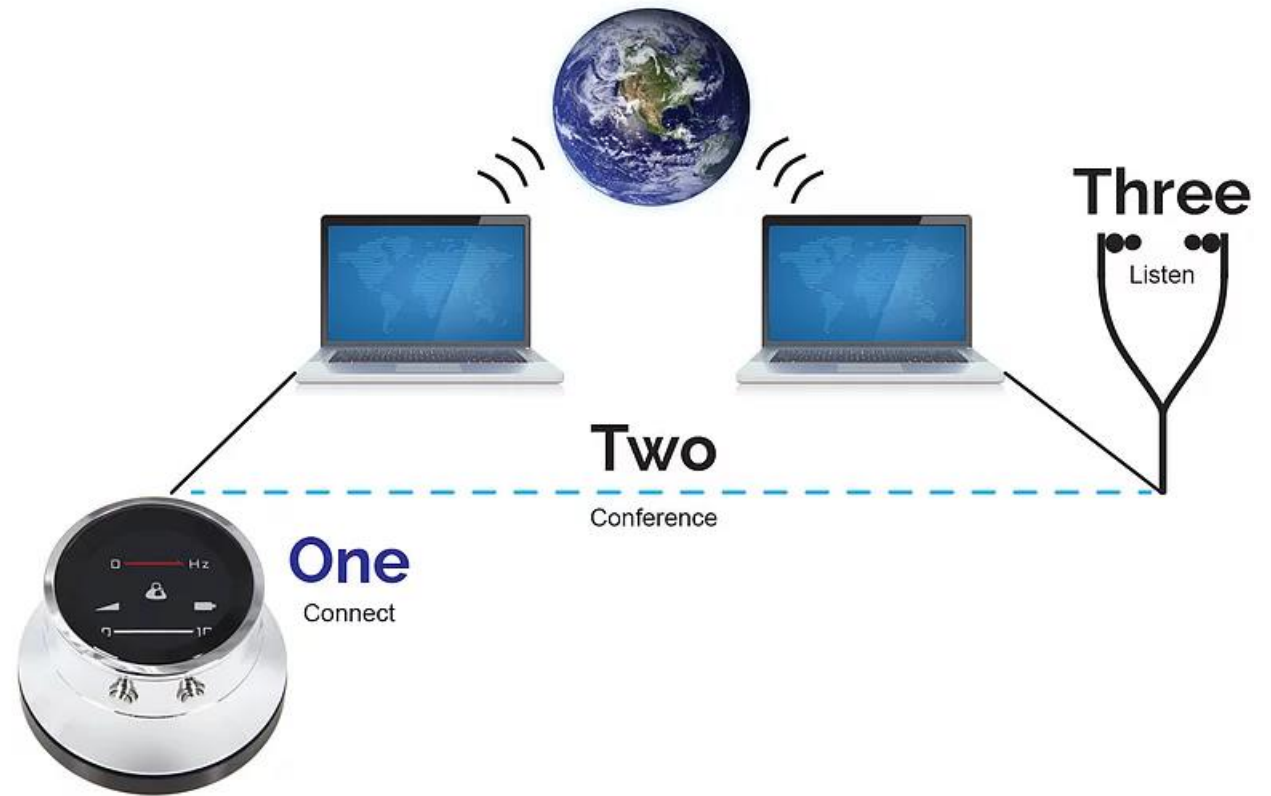


# Thinklabs

La evolución digital del fonendoscopio modificando el formato tradicional



## Opciones de Telemedicina



# Thinklabs

La evolución digital del fonendoscopio modificando el formato tradicional



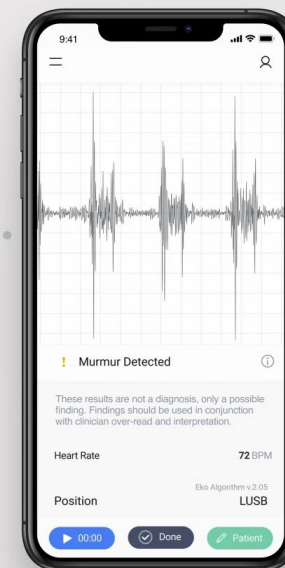
## Seguridad en tiempos COVID-19



# Adaptación de Fonendoscopio y Wireless



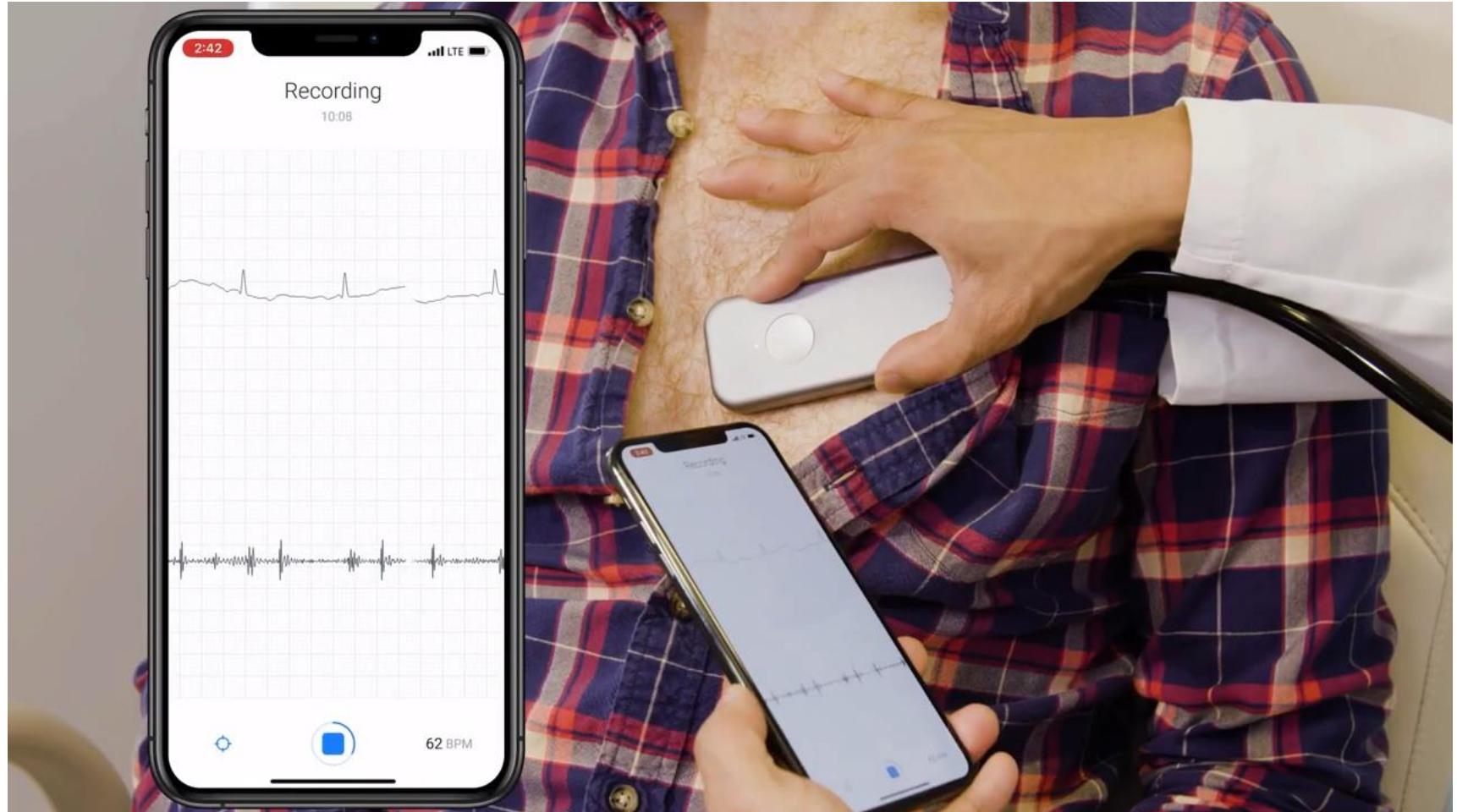
Eko CORE supports wireless auscultation



# Eko: Fonocardiograma + ECG + AI



# Eko: Fonocardiograma + ECG + AI



<https://www.ekohealth.com>

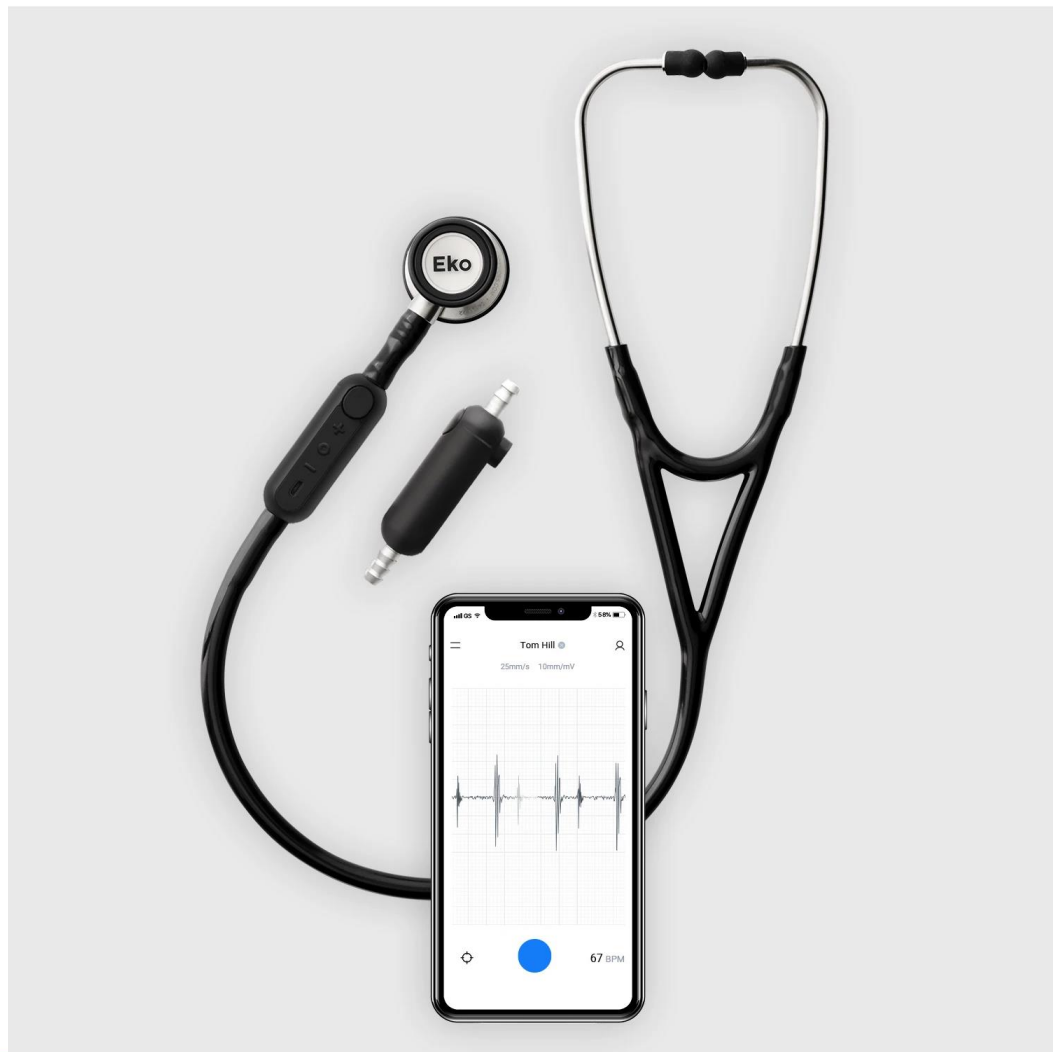
La IA permite interpretar el ECG para detectar arritmias y el fonocardiograma permite diagnosticar soplos

# Eko: Fonocardiograma + ECG + AI



- IA: permite diagnóstico para personas no entrenadas (Screening)
  - Racionalizar otros recursos (eco, etc.)
  - Revisión trabajadores (mutuas)
  - Investigación
  - Docencia (compartir archivos)
- Telemedicina
- Wireless (protección infección)

# Gadgets para mejorar la atención sanitaria





0.989321

