Horizon Europe project fact sheet:

eHealth CAPsule for digestive disease diagnostics and therapy
eCAP

Project description:

The eCAP project is developing a novel medical device, combining a smart capsule with an e-health platform for targeted precise diagnostics, improved patient/doctor workflows, and patient empowered disease management. Our goal is to improve outcomes for patients with gastrointestinal (GI) digestive diseases and in particular, reflux disease.

We are creating a miniature capsule, which can be implanted minimally invasively, has multi-sensing capacity that measures GI physiology, and has environmental awareness for a controlled time period. The eCAP IoT will use an ubiquitous smartphone communication standard, together with cloud computing technology and user-friendly application interfaces to integrate, process, and interpret longitudinal physiological data collected by the capsule as well as patient reported experiences for delivering a comprehensive analysis to the physician.

The digital platform is designed not only to process the capsule data and patient reported outcome measures, but also to allow the clinician to personalize the test for each patient and receive accurate and meaningful results from the interpretation of this multi-stream data by Artificial Intelligence.

The universality of the eCAP solution will allow its uptake worldwide, including in low resource environments, which will benefit from its intuitive user nature and access to international expert derived interpretive algorythms.

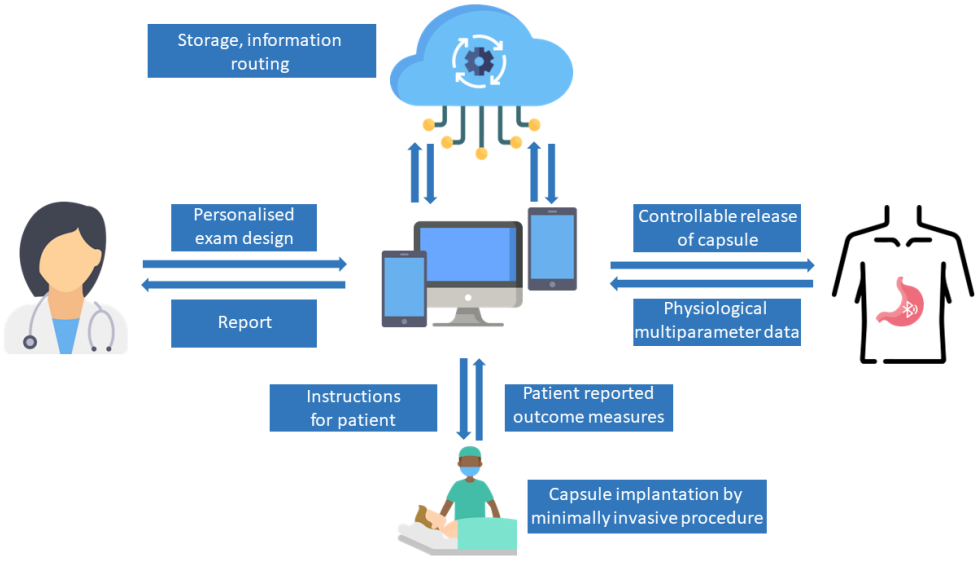

Figure 1 eCAP enabled digestive disease diagnostics

Project facts:

Start date:	01/05/2022
End date:	30/04/2026
Duration in months:	48
Project budget:	€5.57 M
EU contribution:	€4.75 M

HORIZON Innovation Action

Call:	HORIZON-HLTH-2021-TOOL-06
Topic:	HORIZON-HLTH-2021-TOOL-06-01 Smart medical devices and theirsurgical implantation for use in resource-constrained settings
Project number:	101057525

Keywords: smart capsule, bluetooth, GERD, GI, endoscopy

Project objectives:

Our ambition is to facilitate a shift in GI diagnostics from its current unscalable analogue version to a patient centred e-health tool by leveraging the rapidly growing field of connected medical devices for remote patient monitoring.

To achieve the project aims, the following objectives have been set:

1. Create a smart capsule with multiple sensors to detect biochemical and physiologic events associated with GI disorders;
2. Validate eCAP technology in patients suffering from gastroesophageal reflux disease (GERD);
3. Validate the eCAP technology in different settings (France, Ukraine and Kenya) for clinical evaluation and assess the economic impact via cost-effective analysis.

Expected impact:

The eCAP smart capsule, implanted by minimally invasive techniques, will allow gastrointestinal physiology monitoring for a longer, controlled period of time. With the inclusion of real-time patient experience data and interpretation guided by Artificial Intelligence, GERD diagnostics will become cheaper, faster, more available, and more robust. Developed by a project consortium with world-class expertise in the field, eCAP has potential to expand to digestive disease diagnostics beyond GERD.

Ultimately, eCAP is expected to contribute to:

- improved patient outcomes, achieved through timely and accurate diagnosis;
- enhanced access to digestive disease diagnostics and care, enabled by decreased cost of equipment and less expertise required from the physician for data interpretation;
- decreased care costs on the patient and system level;
- patient empowerment, supported by user-friendly medical device and inclusion of patient-reported symptoms in diagnosis.

Project consortium:

Co-funded by the European Union

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Consortium:

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TYN	Ireland
SE	Netherlands
ENT	Ireland
INT	Ireland
IF	United Kingdom
BET	Czech Republic
OTPAK	Kenya
OLY	Ukraine
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