

CADDIE

A new era of AI enabled Endoscopy



The need for earlier colorectal cancer diagnosis



“At Bowel Research UK, we look forward to a day when no one will die of bowel cancer. As someone who has had their life saved through bowel screening but also had missed diagnosis, I am excited by the impact Odin Vision’s artificial intelligence can have on improving early detection and patient experience.”

Lesley Booth MBE, Director of Research and Patient & Public Involvement and Engagement at Bowel Research UK

In the UK, there are over 42,000 new cases of colorectal cancer (CRC) and 16,000 deaths per year, making it the 2nd leading cause of cancer deaths. The number of CRC related deaths is predicted to increase by 51%^[1] over the next 15 years, with increased prevalence in young people^[2].

Challenges in Colonoscopy

- **Polyp Detection:** Up to 25% of adenomas are missed during colonoscopy^[3], with each 1.0% increase in the adenoma detection rate correlating to a 3.0% decrease in the risk of interval cancer^[4].
- **Polyp Diagnosis:** Only 3% of NHS histopathology departments have enough staff to meet clinical demand. As demand increases, this will lead to longer waiting times for results^[5].
- **Colonoscopy Quality:** 70% of post colonoscopy colorectal cancers have avoidable factors including poor bowel preparation and shortcomings in caecal intubation^[6].

1 M. Araghi et al., “Global trends in colorectal cancer mortality: projections to the year 2035,” *Int. J. Cancer*, vol. 144, no. 12, pp. 2992–3000, Jun. 2019, doi: 10.1002/ijc.32055

2 “Colorectal Cancer Incidence Patterns in the United States, 1974–2013.” – PubMed - NCBI. www.ncbi.nlm.nih.gov/pubmed/28376186

3 S. Kumar et al., “Adenoma miss rates associated with a 3-minute versus 6-minute colonoscopy withdrawal time: a prospective, randomized trial,” *Gastrointest. Endosc.*, vol. 85, no. 6, pp. 1273–1280, Jun. 2017, doi: 10.1016/j.gie.2016.11.030

4 D. A. Corley et al., “Adenoma Detection Rate and Risk of Colorectal Cancer and Death A BS TR AC T,” *n engl j med*, vol. 14, no. 3, pp. 1298–306, 2014, doi: 10.1056/NEJMoa1309086.

5 Meeting pathology demand: histopathology workforce census. Royal College of Pathologists (2018)

6 R. Anderson and R. Valori, “PTH-009 Avoidable factors are identified in 70% of post colonoscopy colorectal cancers (PCCRCs),” *Gut*, vol. 67, no. Suppl 1, pp. A16–A17, Jun. 2018, doi: 10.1136/gutjnl-2018-bsgabstracts.31.

Introducing CADDIE from Odin Vision



Chris Skidmore former Minister of State at the Department of Health and Social Care and Minister of State for Science, Research and Innovation speaking about CADDIE:

“This kind of innovation will be crucial in helping the NHS prevent more than 20,000 cancer-related deaths a year by 2033 – a key aim of our modern Industrial Strategy”

Speaking at the announcement of Odin Vision's NIHR funded FORE AI clinical trial, Sir Simon Stevens, NHS Chief Executive:

“The NHS is determined to take advantage of the artificial intelligence revolution and ensure we are harnessing the latest and best technologies to improve care and save more lives”

What is CADDIE?

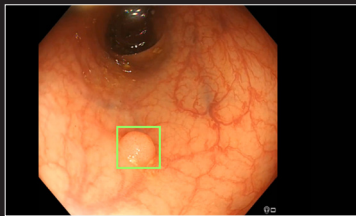
CADDIE is Odin Vision's cutting-edge Artificial Intelligence system for a new era of endoscopy.

It supports endoscopists to detect and characterise colorectal polyps in real-time during colonoscopy procedures.

AI to improve colonoscopy

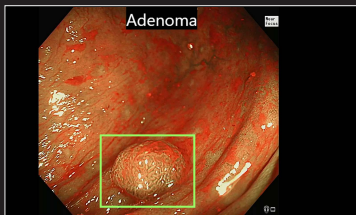
- AI Polyp Detection
- AI Polyp Characterisation
- AI Bowel Cleanliness (Visible Mucosa)
- AI Caecum (AO Confirmation)
- Cloud Technology
- Vendor Neutrality
- Easy to Use

Comprehensive AI for Colonoscopy

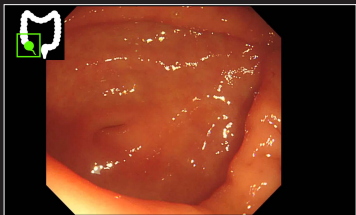


AI for Polyp Characterisation

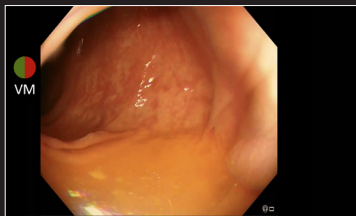
CADDIE supports trained endoscopists by displaying information relating to the visual characteristics of colonic polyps, enabling the user to characterise the highlighted tissue as adenoma or non-adenoma.



Endoscopists who are suitably trained, can use optical diagnosis to decide the histology of a polyp and follow clinical guidelines for resection and histopathology.



Optical Diagnosis means patients can benefit from same day results, reducing unnecessary waiting time.



AI for Polyp Detection

A clear green rectangle is placed around the potential polyp in real-time. The endoscopist is also drawn to the area of interest by an audible alert.



AI for Bowel Cleanliness

Incomplete bowel preparation can result in hidden colorectal mucosa and hinder polyp detection.

CADDIE provides an additional aid to the endoscopist – an easy to view and intuitive on-screen live display, showing the percentage of visible mucosa in the endoscope's field of view.

AI for Caecum

20% of interval cancers are located at the caecum. A key quality performance indicator of the colonoscopy procedure is to identify caecum anatomy such as the Appendiceal Orifice (AO).

CADDIE's AI can identify images containing the AO and remind users to switch on polyp detection for the withdrawal phase.

Comprehensive AI for Colonoscopy



Easy to Use

CADDIE has a simple and user friendly interface that integrates into the current clinical workflow.

Visual information and audio alerts are used to direct the user's attention to regions of interest.

Due to the intuitive nature of CADDIE, minimal training is required.

Hands free interaction during the procedure. Detection and characterisation controlled by foot pedal.



Set up and Integration

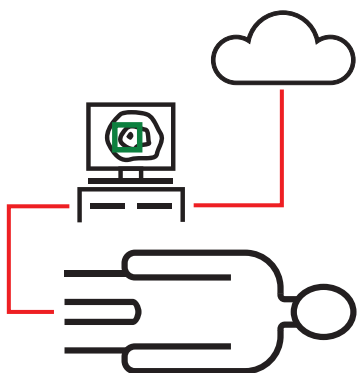
CADDIE can be configured for single monitor use or used with a second monitor.

The system can integrate with existing clinical workflows and endoscopy equipment. It is not tied to one endoscopy equipment manufacturer.

It can be used as a stand alone computer installed on the endoscopy stack or via the cloud.



CADDIE in the Cloud



CADDIE's Advanced Cloud Technology

Our secure cloud solution uses a small computer connected to the endoscopy stack to stream the video from the hospital to the cloud. The system analyses the images in the cloud in real-time and sends the results back to the endoscopy monitor for the endoscopist to see.

Real-Time

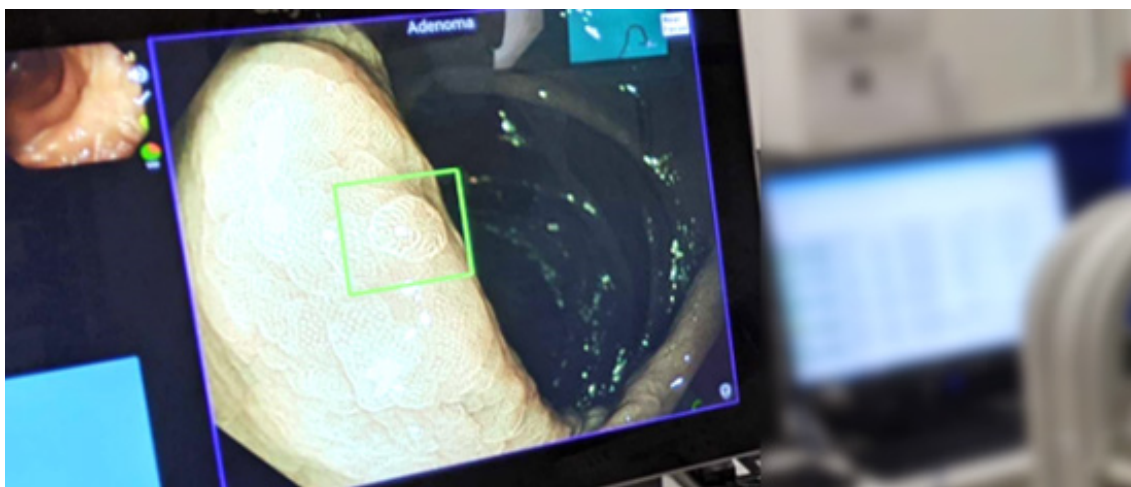
CADDIE uses bespoke data streaming technology to securely send data to the cloud and back in real-time.

Flexible

On demand service and available everywhere. Install into all endoscopy rooms and customise your usage to suit your demand. Per procedure cost effectiveness.

Future Proof

Instant and automatic updates. Get the latest AI without engineers having to visit the hospital to install software/hardware updates. There is no waiting and no down time with new features accessed at the click of a button.



About Odin Vision

Odin Vision is an award-winning Artificial Intelligence (AI) company founded by a team of eminent clinicians and artificial intelligence experts. Our mission is to create the next generation of AI enabled applications for endoscopy. We believe that AI will drive a new era of healthcare by supporting doctors to deliver higher quality care leading to improved patient outcomes, better patient experience and increased value for healthcare providers.

Odin Vision is a spin-out from the world-renowned Wellcome / EPSRC Centre for Interventional and Surgical Sciences (WEISS) at University College London (UCL). The centre is led by Professor Danail Stoyanov, who has pioneered the field of machine learning in endoscopic imaging for over 20 years and Professor Laurence Lovat, a ground-breaking consultant gastroenterologist specialising in clinical research and the translation of technology into clinical practice.

The Odin Vision team brings together deep industry and academic experience in AI. We have developed multiple AI products across a wide range of imaging modalities and clinical applications. Our multi award winning technical team are the world's experts in AI and endoscopy.

We have been named as one of the Top AI UK Start-Ups by market analyst Beauhurst and won Best MedTech Start-Up at the SEHTA MedTech Business Awards. Our technology has featured on the BBC and Reuters News.

Odin Vision has received support from NHS Artificial Intelligence Lab, the Accelerated Access Collaborative in partnership with NHSX, InnovateUK, NIHR, ASHN, UK Space Agency, European Space Agency, the Royal Academy of Engineering, The Royal Society, the European Union and the Enterprise Europe Network.



Discover more

Try CADDIE in your hospital

CADDIE is a CE marked device and available in Europe.
To try CADDIE in your hospital, go to odin-vision.com

Or email us info@odin-vision.com

Press

Watch coverage of Odin Vision's technology
on the BBC and Reuters at odin-vision.com



Specifications are subject to change
Please refer to the instructions for use for complete instructions, contraindications, warnings and precautions
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