IMT Atlantique
Bretagne-Pays de la Loire
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New Medical Technology Challenges
Human factors approach for Medical Skills training – the NBI case
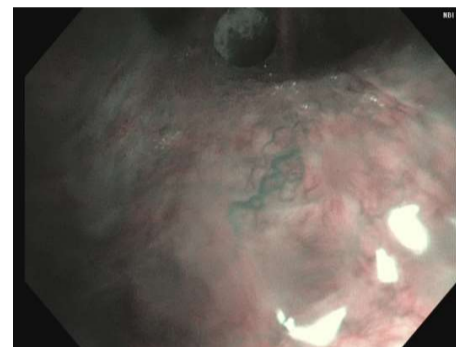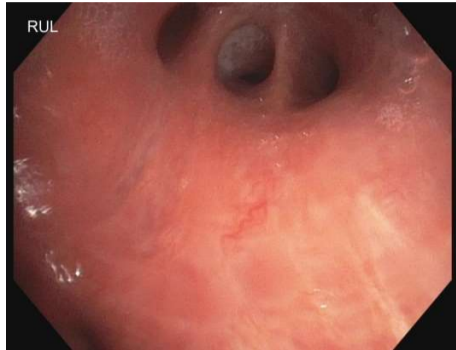
Parties prenantes

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DES SCIENCES
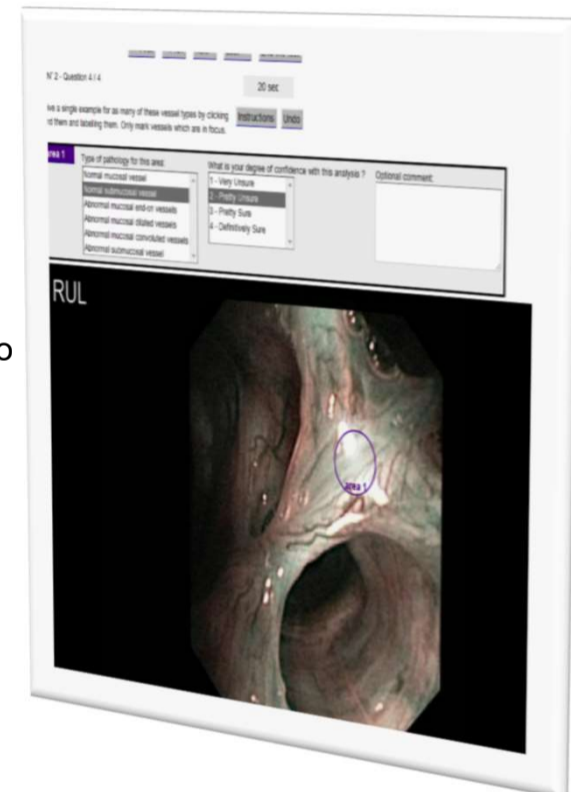DU NUMÉRIQUE
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LARIS

Evolution of Endoscopy

► **Narrow Band Imaging** *(NBI)* – New endoscopic technologies have dramatically improved the technical performance of surgical procedures.

► **Endoscopes spread across hospital departments** – Where open surgery and traditional literature provide teaching from an external view, endoscopes provide a completely different internal perspective of human anatomy.

► **Diagnostics shift** – high quality images of endoscopes (resolution, luminance, filters) challenges doctors' anatomical and diagnostic knowledge.

► **New technics involve new training** – short focal distance camera with narrow band imaging (NBI), ultrasound or auto fluorescence techniques

Case Study: NBI training using online interactive Medical Images Quiz (MedImq)

► The tool allows trainees to directly mark up medical images to show where they would biopsy. It features a "biopsy size" visual marking tool for the trainees.

► The sensitivity and the specificity of the trainees' answers was compared to the experts, who have answered the test before the training sessions.

► 38 participants over two years.

► Pre-test, Post-test and Follow-up test during NBI courses.

► overall class average normalized gain of 32% shows Medimq can be used to improve trainees' competency in analyzing NBI Images during a training course.

► Need to follow and mentor the trainees after the training course.

sharing Knowledge In Medical Imaging (KIMI)

► Knowledge sharing

► Building deep learning approaches to extract information from experts discussions

► Physicians Community based approach (Forum, Crowed sourcing, Q&A)

► Follow-up to an existing training

► Promote experts

Interaction + Knowledge approach

Training / Mentoring	Images segmentation
Q & A	Taxonomy
Human Knowledge sharing	Processing text together with images
Crowdsourcing	Building new Knowledge (or relations)

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