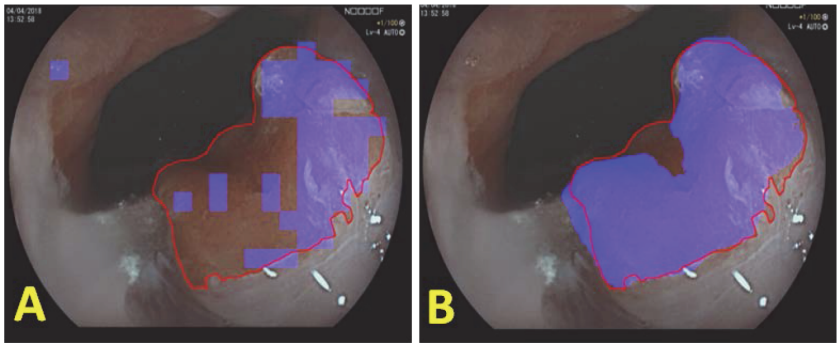

Abstract O31 Figure 1 Shows an example of a patch-based prediction (A, left side, Recall 46.3%) and a Pixel-based prediction (B, right side, recall 97.5%). The red line represents the expert endoscopist marking of the lesion, while the blue patch is the DL model prediction

score (for correctly predicted images, at IoU 0.5) 0.81 and 0.69 (P value < 0.0001), respectively.

Conclusions Pixel-based model is significantly faster, and performed better than patch-based model. Given average human visual response latency is estimated at 70–100 ms, this data suggest our pixel-based model with image processing speed of 33 ms/image could potentially detect neoplasia faster than human eye so it will be best suited for real time detection. To our knowledge, this is the first report comparing these two different approaches in Barrett's neoplasia and suggests that all future work should be done with Pixel based model.

O32 DEFINING NORMAL RANGES FOR 96-HOUR WIRELESS PH MONITORING USING HEALTHY CONTROLS

[1]Radu Rusu*, [2]Mark Fox, [3]Emily Tucker, [1]Sebastian Zeki, [1]Jason Dunn, [1]Jafar Jafari, [1]Terence Wong. *[1]Guy's and St Thomas' NHS Foundation Trust, London, UK; [2]Center for Integrative Gastroenterology, Arlesheim, Switzerland; [3]Royal Derby Hospital, Derby, UK*

10.1136/gutjnl-2020-bsgcampus.32

Introduction Technology now allows up to 96-hour wireless pH-recording in clinical practice; however, no normal values exist for this methodology. This study acquired 96-hour esophageal pH recordings in healthy controls (HC) and compared these values against measurements in patients with endoscopic evidence of gastroesophageal reflux disease (GORD). Results were used to validate the Lyon Consensus Classification for GORD Diagnosis.

Methods HC had wireless pH monitoring (Bravo) over 96 hr at two tertiary centers. Bravo was inserted under sedation at endoscopy. Median and 95th percentile values were calculated for the acid exposure time (AET) over 24, 48, 72 and 96-hrs and compared against the 'worst 24-hrs' (i.e. most pathological day). The same analysis was applied to results from a clinical database of consecutive patients with erosive esophagitis (Los Angeles (LA) classification) that completed 96-hr monitoring (acid suppressants stopped ≥5-days previously). A receiver operating curve (ROC) analysis with the area under the ROC curve (AUC) and a Youden's index was also performed to define the optimal cut-off of AET.

Results 71 asymptomatic HC were studied, of whom 47 (age 28±9 years, 66% F) completed 96-hr pH recording. Median (upper 95th percentile) AET was 1.7% (3.0%) for any study day and 2.9% (4.5%) for worst day. 136 patients with reflux esophagitis completed the 96-hr study (61 LA A, 60 LA B, 12 LA C, 3 LA D) - table 1.

Abstract O32 Table 1

HC	96 h Average Day	96 h Worst Day
n	47	47
Median% AET (95th Percentile)	**1.7** (3.0)	**2.9** (4.5)
LA A		
	61	61
	6.1 (7.1)	**9.8** (11.0)
LA B		
	60	60
	8.2 (10.4)	**11.65** (15.1)
LA C		
	12	12
	9.6 (12.1)	**13.2** (16.4)
LA D		
	3	3
	23.4 (38.0)	**27.9** (51.6)

Linear regression analysis revealed a correlation ($p<0.0001$, $R2=33\%$) between endoscopic findings and AET after adjusting for gender, age and duration of the test. ROC analysis for the average AET over 96 hrs differentiated the group with endoscopic evidence of GORD (LA B, C, D) from HC with sensitivity 92%, specificity 75%, positive predictive value (PPV) 77%, negative predictive value (NPV) 91% for a cut-off AET of 3.1%, with AUC 0.91. Similar results were present for the 'worst 24-hr' analysis (sensitivity 91%, specificity 79%, PPV 80%, NPV 90% for a cut-off AET of 5.8%; AUC 0.92).

Conclusions This study defines the normal range for 96-hr ambulatory wireless pH monitoring. These measurements discriminated between HC and patients with conclusive GORD diagnosis, based on endoscopic findings. The findings also validate the diagnostic criteria proposed by the Lyon Consensus. The optimal upper limit of normal in HC was ~4% AET (3.0% average AET, 4.5% worst day AET) and the cut-off to define pathological AET in patients with reflux esophagitis (LA B, C, D) was approximately ~6% AET (worst day 5.8% AET).