complications of cirrhosis) are being detected, allowing patient care to be adjusted in light of these findings. As the service has developed, referral numbers have increased due to increased awareness and positive reputation developed by the service. The procedures have improved in quality, with a rising D2 intubation rate and a falling duration of procedure. These data demonstrate that an endoscopy service can be successful delivered, using innovative teaching methods and ongoing support delivered by a UK team. The endoscopists are now delivering training to new trainees, with a view to self sufficiency in training and expansion to other areas in Sierra Leone.

OTH-07 IDENTIFICATION OF IBD COHORTS FROM LINKED ENDOSCOPY AND HISTOLOGY REPORTS USING NATURAL LANGUAGE PROCESSING

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Introduction Patients with inflammatory bowel disease (IBD) are likely to undergo multiple lifetime endoscopic procedures which generate histopathological reports. Managing these patients requires clinicians to derive a phenotypic overview from numerous episodes and diverse sources which can be time consuming, incomplete and subjective. We set out to evaluate the potential for a computer to extract phenotypic parameters from a series of linked histopathology and endoscopy reports to characterise an IBD cohort.

Methods 118,108 lower GI endoscopic procedure reports (200–017) and 62,051 lower GI histology reports (200–017) from GRH were imported into an SQL database. Unique patient identification numbers from the merged dataset were replaced with 128 bit hexadecimal GUIDs and all patient identifiable information subsequently stripped from the data tables (Service Evaluation Project 8622).

Text processing was undertaken in Python pandas dataframes:

- 1) Import both datasets and separate all words by single space, convert to lower case, remove apostrophes
- 2) Correct spelling of key words using Levenshtein distance
- 3) Find regular expressions that match disease phenotypes
- 4) Exclude non-IBD colitis diagnoses
- 5) Exclude negated IBD diagnoses
- 6) Export tagged machine interpreted reports back to SQL database
- 7) Select 100 random reports for each IBD confirmed or negated diagnosis to validate against original text
- 8) Return to steps – to modify regular expression reference lists to improve sensitivity and specificity.

Results The following results were obtained after multiple validation cycles initially based on an empiric regular expression dataset.

	Sensitivity	Specificity
Procedure indication: Previously known IBD colitis	100%	100%
Procedure indication: Previously known Crohn's disease	100%	100%
Histopathological interpretation: IBD colitis	100%	98%
Histopathological interpretation: IBD Crohn's	100%	98%

Some caution is required in interpretation of the specificity of the Crohn's and ulcerative colitis histopathology reports. Many samples are described as showing features of both diseases and the final conclusion is given as a likelihood or unclassified. The specificities reported here are for all IBD and do not reflect a capacity to distinguish between the different types.

Conclusions The evolution of the disease characteristic regular expressions through repeated validation cycles has provided a powerful tool for the automated generation of IBD databases from text in semi-structured endoscopy and histology reports. The potential for the scheduling of surveillance and linkage to other systems, such as primary care prescribing, are obvious. Further development will include a more detailed phenotypic interpretation and computation of the histopathological certainty in distinguishing the types of IBD.

OTH-11 INTELLIGENT LIVER FUNCTION TESTING (iLFT) IN ACTION

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Background and aims Liver Function Tests (LFTs) are commonly requested and are abnormal in 20% of cases. Intelligent liver function testing (iLFT) aims to improve diagnostic proficiency and quality of investigation thereby reducing overall costs to practitioners and patients and subsequent secondary care referrals. Following a pilot trial, iLFT was rolled out across general practices in NHS Tayside from August 2018.

Method The automated iLFT algorithm uses the combination of clinical features (alcohol consumption, BMI and metabolic syndrome), diagnostic criteria for liver disease, an investigation ordering and reporting system, and the tracked blood sciences system to generate a diagnosis or descriptor of the abnormality with fibrosis staging.

Management plans are disseminated back to the GP, along with a recommendation for one of three outcomes; a) secondary care follow up for advanced liver disease or complex treatment, b) primary care follow up of early or simple liver disease, c) where a clear diagnosis is unclear; the GP receives staging and prognostic information including referral criteria. Results of iLFT in action, over 6 months were analysed.

Results 777 iLFT requests over 6 months to 31/01/19. 568/777 requests had at least 1 abnormal LFT triggering the iLFT cascade. 169 (29.8%) were referred to secondary care, 399 (70.2%) patients were investigated further or managed in primary care. The most common finding was isolated ALT elevation without fibrosis (24.8%), followed by alcohol related liver disease without fibrosis (16.4%) then non-alcoholic fatty liver disease with fibrosis (8.1%) and elevated ALT and GGT without fibrosis (8.1%). There were 2 HBV infections, 8 HCV infections, 3 haemochromatosis diagnoses, 1 PBC and 1 A1AT PiS variant (risk of lung/liver disease) and 17 carriers of A1AT S or Z variant.

Conclusion Using iLFT; serious liver disease has been detected and referred to secondary care. High numbers of LFTs have been investigated readily and management plans generated. Of all the patients with abnormal LFT results only a third have