Gastroenterology: Getting Ahead of the Curve

Summary and recommendations

- There are currently considerable pressures on gastroenterology service delivery with long outpatients waits; gastroenterology has the longest medical backlog[1] and endoscopy waits.[2]
- This may compromise meeting the NHS Long Term Plan and cancer targets.[3]
- In the future demand will increase with aging population.
- 49% of the existing workforce is likely to retire in the next 10 years, increasing the pressure.[4]
- The future workforce increasingly would like to work less than full time.[4]
- The current workforce distribution shows considerable variation in geographical distribution.[4]
- The future needs have been modelled and it is suggested to meet the 20-year demand would require 45 additional trainees annually given a minimal increase of 1.8% demand, and a greater investment in the wider workforce numbers across all subspecialty services.
- Training pathways in advanced endoscopy workforce to support the NHS LTP, particularly in cancer diagnostics.
- Prioritise delivery and development of the new workforce in regions which have a smaller current workforce for population, in order to reduce health inequalities.
- Collaboration to collect workforce data equitably across the UK and all subspecialties to objectively and credibly project the optimum amount of medical and wider workforce to develop specialty serviced needed in the future.

Background

Gastroenterology services are under immense pressure with increasing significant outpatient and elective endoscopy waits, while being a service which also contributes to General Internal Medicine (GIM), itself experiencing increasing demands.[1,2] The aging population is predicted to increase the future pressures and the current workforce seems unlikely to meet the aspirations of the NHS Long Term Plan.[5]

The current gastroenterology consultant workforce has expanded by three times in 22 years, yet demand exceeds this.[4] Consistently for the last 10 years about half of advertised consultant gastroenterology/hepatology posts have not been appointed to due to a lack of applicants. [4]

Furthermore 49% of the current consultant workforce intends to retire in the next 10 years, so that future appointments are likely to be replacement posts rather than workforce expansion.[4] Over 50% of trainees would like to work less than full time, thus further increasing the need for more workforce.[4]

If medical students were increased now, they become working consultants in about 18 years' time, so that while there is a need to increase the number of trainees, it is also important to retain the workforce where possible, including working around retirement.

Endoscopy

Endoscopy has both high volume elective diagnostic procedures, often now performed by nurse endoscopists, and also a rapidly evolving specialism with more complex and high-risk interventional procedures being performed regularly by doctors, requiring advanced skills. The workforce needs to be trained and educated to be confident and competent to assist during these procedures and to provide high quality care for patients throughout their journey.

Endoscopic services for upper GI endoscopy, flexible sigmoidoscopy and colonoscopy may be performed by a doctor, nurse or non-medical endoscopist, of whom will have required training to meet satisfactory standards for independent practice.[6] The standards

Diagnostic Endoscopy is often performed following referral direct from primary care and other referral sources and demand has increased. GI cancers may present with relatively non-specific symptoms thus investigation is required to further investigate.

The endoscopy Joint Advisory Group (JAG) perform a biennial census UK endoscopy census 2021. This showed that underlying demand has increased, and Covid resulted in an increased backlog. There are currently significant wait times: 58% of NHS services met urgent cancer waits, 18% met routine waits and 13% met surveillance waits. To try and meet demand 53% of acute NHS services outsourced activity and 46% insourced activity.[7]

Complex interventional endoscopy, such as endomucosal resection (EMR), endoscopic retrograde cholangiopancreatography (ERCP) and endoscopic ultrasound (EUS) requires advanced endoscopic training. Techniques enable are likely to develop and increase in demand in the future, offering an alternative to more invasive surgery.

	UK Endoscopists in 2023	Optimum Number of UK Endoscopists by 2042 in moderate demand scenario
Consultant GI	2,022	2890
Consultant Surgeon	2,071	2960
Other Doctor	1,422	2032
Non-medical Endoscopist	898	1283

Table 1: Predicting optimum number of endoscopist workforce needed by 2042. This does not include the number needed to manage the current backlog.

Screening for gastrointestinal cancers involves endoscopy, most notably the National Bowel Cancer screening programme which may be further expanded requiring a 35% increase in that workforce.[8]

Hepatology services

Liver disease disproportionately affects lower socioeconomic populations. Mortality from liver disorders is rising, in contrast to other major diseases where mortality has fallen. the England rate of premature deaths from liver disease increased by 42% from 2001 to 2023.[9] Liver disease profile, December 2024 update - GOV.UK

The current major causes of liver disease in the UK are:

- Metabolic: Obesity and diabetic
- Alcohol
- Viral hepatitis
- Autoimmune (5%)

Being overweight or obese also contributes to the highest proportion of liver cancers (around 1,300 cases annually) and is second only to smoking as the leading preventable cause of cancer in the UK, with alcohol consumption ranking sixth.[10] In the most recent *Lancet* Commission into liver disease highlights the continuing increase in burden of liver disease from excess alcohol consumption and obesity, with high levels of hospital admissions which are worsening in deprived areas.[11]

The risk factors have increased in the last 50 years, resulting in a fourfold increase in mortality in that time, and demand for liver services. [12] But the majority of liver disease has modifiable risk factors, so at risk groups should be screened for liver injury so that patients can be advised and supported to prevent progression to cirrhosis or manged in an earlier stage of cirrhosis to try and slow progression to decompensation.

Expensive drugs such as the glucagon-like peptide 1 agonists are now widely available to treat obesity and diabetes, and Resmetirom has recently been licensed by the FDA to treat mild and moderate fibrosis, but this should not be at the expense of fundamental public health initiatives addressing obesity and refined sugar intake.[13]

NICE recommend those with cirrhosis should be managed by a specialist in hepatology (Recommendations | Cirrhosis in over 16s: assessment and management | Guidance | NICE). NHSE suggest a specialised liver centre for populations 600,000 to 1,000,000, and NICE Guidance advises that people who have, or are at high risk of developing, complications of cirrhosis should be referred to a specialist Hepatology centre, so suggesting 68-114 UK liver centres. Such specialist centres should provide 24-hour support, 7 days per week from an appropriately trained and accredited consultant in Gastroenterology and/or Hepatology.

Hepatologists train with the current gastroenterology and hepatology training programme and subspecialise. Those who trained prior to the current formal specialist training programmes that self-declare as a hepatologist are about 11% of the current UK consultant gastroenterologists, approximately 467 of the total 2,122 UK gastroenterologists / hepatologists (RCP Census 2023).[14]

The Lancet Commission called for the establishment of acute liver services in every DGH in 2014 linked with 30 regional specialist centres.[12] This has yet to be achieved. There are currently 124 acute UK Trusts, with 220 acute general hospitals[15]. So, every acute general hospital needs hepatology input. However, currently hepatologists are more frequently in 7 transplant centres and in specialist liver centres, so there is a need to train more hepatologists to provide the necessary input. One third of gastroenterology trainees are now specialising in hepatology.

Liver disease should be managed with multidisciplinary care with specialist liver nurses, hepatobiliary surgeons, palliative care, pharmacists and alcohol care teams, and requires adequate staffing of all these groups. Opportunities then to reframe burdened out-patient services include manging patients with stable cirrhosis and inactive liver disease by monitoring with PIFU via a patient engagement portal, whilst still managing their surveillance scans and blood tests. Nurse led acute clinics to allow patients recently discharged with decompensation to avoid admission at up to weekly intervals - this will promote re-compensation. Better working with community services allows patients with irreversible decompensated cirrhosis not suitable for transplant to be cared for in the community in the same way as we do with patients with cancers who are for best supportive care.

We have a commitment to tackling health inequalities, seen in hepatological services. A 7-day consultant services in all our acute hospital trust is not yet provided, and this impacts on the morbidity and mortality of patients who present with decompensated liver disease.

Inflammatory Bowel Disease

Inflammatory Bowel Disease (IBD) is a chronic relapsing and remitting condition with a rising prevalence and complexity in the UK, onset from childhood to later life. Symptoms can range from mild to severe, with life-threatening complications. The prevalence has increased by 4.3% per year between 2008 and 2018, now affecting 500,000 or 1:137 of the population, affecting their daily lives.[1]

IBD affects adults of an economically productive age, with a peak incidence between the ages of 15 and 30 years old, and therefore there is a substantial potential economic impact[16]. The most recent IBD survey 63% of surveyed trusts in all four nations do not have adequate multi-disciplinary teams to support patients in a timely manner. Late diagnosis leads to significantly poorer outcomes that impact on the wellbeing and working life of this cohort.[17] Delays to diagnosis are associated with stricturing and penetrating complications in Crohn's disease and intestinal surgery in IBD.[18]

IBD requires both patient education and rapid access to specialist advice. Only 20% of surveyed services have adequate specialist IBD nurses, 21% of services have adequate access to a specialist dietician and only 6% have access to a clinical psychologists (Table 2)[19] IBD Standards | IBD UK

	No / 250,000	% meeting IBD	England	Wales	Scotland	NI	UK total	Predicted for 2042

		standards 2023						
Stoma Nurse	1.5	47%	345	19	33	6	403	568
GI Dietician	1	21%	230	13	22	4	269	379
Psychologist	0.5	6%	115	6	11	2	134	189
GI Radiologist	0.5	77%	115	3	11	2	131	185
GI pathologist	1	32%	230	6	11	2	249	351
Administrator	0.5	41%	115	3	5	1	125	176
Specialist Nurse	2.5	20%	575	8	14	2	600	846

Table 2: IBD standards for workforce required for population, and NHS Trusts meeting those standards

Nutrition

Malnutrition affects an estimated 5% of the population in England and numbers are projected to increase such that an additional 516,000 people will be affected by malnutrition by 2035. Malnutrition increases susceptibility to disease, worsening nutritional status and impairing recovery from illness. 29% of hospital admission patients are at risk of malnutrition and these patients have longer hospital stays and more complications.[20] Rates are higher (57%) in patients with underlying gastrointestinal disease.[21] The additional cost of a person with malnutrition is £7,775 per person per year, at a total cost to the healthcare system in England of £22.6 billion.[20] Nutrition interventions are cost effective, the savings are 2-5 times greater than the investments.[20]

British Association for Parenteral and Enteral Nutrition (BAPEN) recommends that all acute hospitals or boards should have a multidisciplinary nutrition support team to support the delivery of nutritional support to patients.[22,23] This is commonly led by a gastroenterologist with a dietitian, a specialist nutrition nurse, and a pharmacists. In 2021 16.7% of NHS trusts in England had no nutrition support team. It is also recommended that all acute hospital trusts or boards should have a consultant gastroenterologist with an interest in nutrition delivering regular nutrition ward rounds.

It is predicted that there will be an increase in intestinal failure prevalence from 50 per million to 80 per million in the next 5 years as well as an increase in type 2 intestinal failure operations from 600 to 1,000 per year in the same timeframe.[24] Staffing of all professions in multidisciplinary nutrition teams at integrated intestinal failure centres and home parenteral nutrition centres needs to increase by 60% over the next 5 years to meet this demand, alongside the need for staffing smaller nutrition teams in other hospitals.

Training issues

Many trainees are extending training, and 42% plan for less-than-full-time (LTFT) working as consultants; a trend not accounted for in workforce models. [25] We know when services are strained, training is readily compromised.[26] Consequently, 85% of trainees feel unprepared to progress into consultant roles, having received less specialist training than their European peers.[25] Although expanding medical student places in promising, the lack of additional speciality training posts is concerning. The projected workforce requires dedicated trainers.

We support the shift towards delivering care closer to our patients in the community, with a focus on prevention and early detection.[27] This approach will benefit our patients with liver disease, inflammatory bowel disease and gastrointestinal cancer. However, gastroenterology faces the largest secondary care backlog in medicine.[28] To make a community centred model work, we need a workforce equipped to support primary care and ensure timely action when early problems are detected; a challenge we currently struggle to meet.

The UK has a higher cancer mortality rate than other comparable countries.[27] Reducing mortality in gastrointestinal cancer hinges on timely diagnosis which requires a skilled endoscopy workforce. Yet, trainees have difficulty gaining endoscopy proficiencies despite the growing demand.[25,29,30] The clinical endoscopist programme showcases the benefit of intensive training, and similar investment in gastroenterology trainees could help service pressures. Additionally, many trainees are not receiving practical training in managing upper gastrointestinal bleeding, a vital, life-saving intervention which they will be required to do as an emergency as a consultant, raising concerns about patient safety. [25,29,30]

Expanding gastroenterology training posts, and supporting training is critical to being able to provide our future patients with the best care.

Nursing issues

The current challenges in healthcare have been instrumental in transforming the NHS workforce, with nurses playing a pivotal role by advancing knowledge and skills to establish new services to help meet the demand. As a result, many Advanced Nursing roles have emerged. Advanced nursing practice is evident by the nurse practitioners' highly developed and extensive knowledge in areas of diagnostics, therapeutics, the biological, social and epidemiological sciences and pharmacology, and their enhanced skills in areas such as consultation and clinical decision making. They can apply knowledge and skills to a broad range of clinically and professionally challenging and complex situations.

Furthermore, the nursing workforce has a crucial role in leadership, management and research which facilitates departmental and service development. The NHS has a commitment to provide more community-based services and virtual clinics, nurses in advanced practice are well placed to provide and manage such services which can lead to improved waiting times and more streamlined service provision. Nurses can also play an important role commission of services, working with stakeholders and developing guidelines and position statements.

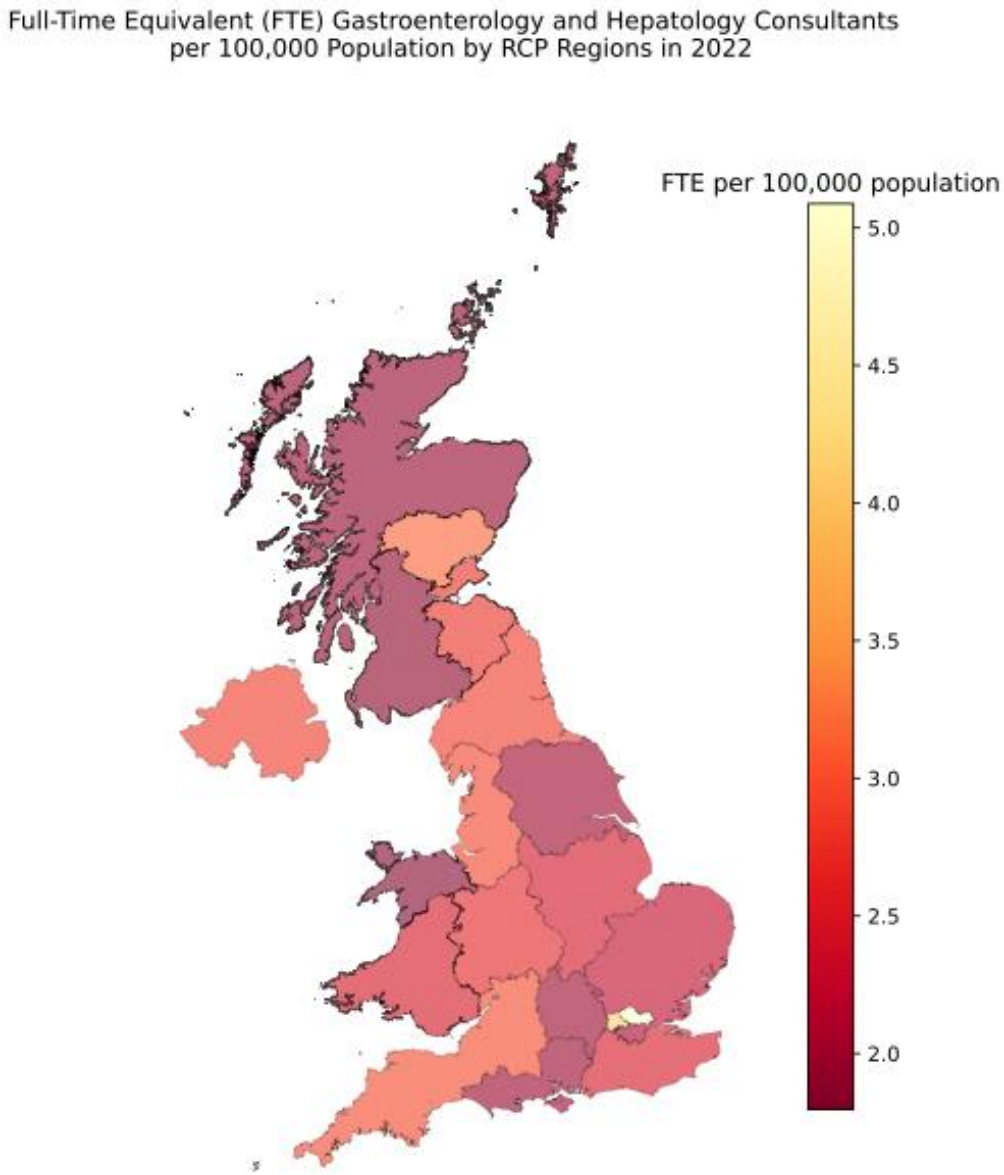
The future of the nursing workforce in Gastroenterology, Hepatology and Endoscopy requires significant improvement to meet the needs of the predicted service demand. At present there is very little information regarding how many nurses are currently working in each specialist area or on gastroenterology wards.

The role of the Clinical endoscopists (CE) in practice growing. National census of UK endoscopy services demonstrated there were 5,973 endoscopists employed across services in the UK[31] and 12 % of this figure were identified as clinical endoscopists. It is suggested

that CE are providing 23% of the endoscopy workload with a predicted 10-15 % increase in endoscopy procedures such as OGD.[32] The role of the CE is expected to grow to support the increasing demand for diagnostic gastrointestinal endoscopic procedures.

The role of the nurse in gastroenterology is essential to support the future service delivery, however, nurses need to be recognised and valued according for the work that they do with the opportunity for role progression and access to further education.

Heat map demonstrating workforce shortages in the UK



FTE calculations assumptions: 1 FTE for full-time consultants and 0.65 FTE for LTFT consultants.

Influence of new Technologies

How might changes in technology affect the impending workforce gap in gastroenterology?

- Cancer DNA tests are likely to lead to a greater need for diagnostic endoscopy.
- Robotics in endoscopy has the potential to deliver of diagnostic tests in the future.
- Artificial Intelligence in diagnostic endoscopy adds information but lengthens procedures.
- Private Body Scans resulting in an increase in referrals with abnormal results.
- Apps to support patients to self-manage in the community can help direct intervention when appropriate and facilitate communication.

The above technology is an adjunct to future healthcare but may well increase the workforce needed rather than replace it.

A credible and objective analysis of NHS data: how many gastroenterology /hepatology doctors are needed

The University of Birmingham team lead by Professor Nigel Trudgill analysed consultant gastroenterology specific workforce data. In the NHS all a patient's care episode is under the care of a named consultant. This has then enabled the BSG to further extrapolate forward all the objective wider workforce data accordingly to predict the wider workforce numbers it will need in the next two decades.

Markov modelling based on current data sources was used to predict the number of specialist training numbers needed year on year to deliver gastroenterology and hepatology numbers over the next two decades.

- Over the past four years, there was an average intake of 98 trainees per year in England.
- The yearly proportions of male/female trainees and those working LTFT have been estimated based on overall proportions from 2018/2019 HST data and the Royal College of Physicians data.
- The model predicts that with the current inflow of 98 trainees per year, within the first 10 years, 939 NTN trainees in England will become consultants within 2 years of completing training.
- Over this period, 712 consultants will retire or leave the workforce within the first 10 years, and 696 will do so in the following 10 years.
- This results in an increase from 1,530 full-time equivalent (FTE) consultants in England in 2022 to 1,893 in 2032 and 2,136 by 2042.

However, this projected number will not meet the base-case demand.

For England

- With a conservative demand growth rate of 1.8% (taken from a Health Protection Report) and adjusting for a 5.5% vacancy rate, the FTE requirement for England would be 1,619 in 2022, 1,936 by 2032, and 2,314 by 2042.

- To meet this demand in 10 years, an additional 22 trainees per year would be required.
- To meet this demand in 20 yrs, an additional 40 trainees per year are required.
- *If a higher demand growth rate of 2.4% is used, an additional 82 trainees would be required annually to meet the 10 year demand, and 105 additional trainees would be needed annually to meet the requirement of 2,602 FTEs by 2042.*

For the UK as a whole:

- Meeting the 20-year demand would require 45 additional trainees annually under the 1.8% demand scenario and 119 additional trainees annually for the 2.4% demand scenario.

Limitations and Considerations

While this model does not account for efficiency improvements or existing endoscopy backlogs, it describes the increasing demand and the proportional rise in consultants leaving the workforce as trainee numbers grow. The workforce gap is likely to widen further given the increasing proportion of LTFT workers and the high rate of retirements expected over the next two decades.

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