Royal College of Physicians | Inflammatory Bowel Disease Programme

Biological therapy

National clinical audit of biological therapies

UK Inflammatory Bowel Disease (IBD) audit

Paediatric national report
August 2013

Prepared on behalf of the Clinical Effectiveness and Evaluation unit at the Royal College of Physicians

The Clinical Effectiveness and Evaluation Unit (CEEU) of the Royal College of Physicians runs projects that aim to improve healthcare in line with the best evidence for clinical practice: national comparative clinical audit, the measurement of clinical and patient outcomes, clinical change management and guideline development. All our work is carried out in collaboration with relevant specialist societies, patient groups and NHS bodies. The unit is self-funding, securing commissions and grants from various organisations, including the Department of Health and charities such as the Health Foundation.

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The web-based data collection tool was developed by Westcliff Solutions Ltd (www.westcliffsolutions.co.uk).

Executive summary

Background

The purpose of the audit is to measure the efficacy, safety and appropriate use of biological therapies, also known as anti-TNFα therapy (Infliximab and Adalimumab) in patients with IBD in the UK and to capture the views of patients on their quality of life at intervals during their treatment.

This is the first full national report of the biological therapy element of the UK IBD audit and all analyses within this report include only those patients that were newly started on biological therapies between 12 September 2011 (start of data collection) and 28 February 2013. The data contained within this report has been taken from **only** completed submissions within the biological therapy audit web tool (https://www.ibdbiologicsaudit.org).

Participation in the biological therapies audit provides local IBD teams with the means to meet Standard A6 of the IBD Standards; specifically the regular review of patient outcomes and auditing of biological therapy. Participation in the audit also provides the opportunity to review treatment against NICE recommendations (TA187)

Overall summary

The data presented in this report suggest that the biological therapies are effective treatments for IBD that are used to good effect throughout the participating paediatric units in the UK. In this audit we have identified a number of issues, that when addressed should improve the delivery of these medicines and the resultant quality of patient care.

Engagement in the biologics audit has been reasonably good but clinicians should be encouraged to enter data on all appropriate patients to provide the universal patient population needed to strengthen the report's conclusions, especially in relation to safety. Objective assessment of response to therapy is an important part of using biological medicines and the assessment of change in disease activity and quality of life data are integral to this.

Individual services should assess the barriers to local appropriate delivery of these drugs to ensure that patients are not waiting unduly for these therapies when their use is clinically indicated. It is also vital that patients are appropriately screened before receiving treatment in keeping with current guidelines. Continued audit of biological therapy treatment will ensure improvement in these issues and that the quality of care for IBD patients continues to improve.

Key findings

1. Although the level of participation from specialist paediatric sites is encouraging (76%) non-participation of some sites limits the universal coverage aimed for at the audit's inception (Section 1, page 8)
2. The majority of paediatric patients received Infliximab as their biologic treatment (Section 2, table 1)
3. 39% of Crohn's disease patients waited more than 2 weeks to begin treatment on Infliximab, with 39% of this delay attributed to waiting for the next available clinic appointment. (Section 5, page 23)
4. It is disappointing to find that pre-treatment screening chest x-ray (78%), stool culture collection (34%) and testing for Hepatitis B (34%) as part of pre-treatment screening is not being carried out in 100% of cases. (Section 2, table 5)
5. Informed consent to receive treatment is taken in the majority of patients (99% Crohn's disease Infliximab) and usually takes the form of written consent (64%). (Section 5, page 23)
6. The majority of Crohn's disease patients (91%) are receiving concomitant therapy at initial treatment. Of these 90% are receiving an immunosuppressant at initial Infliximab treatment. (Section 5, page 24 & 25)

7 Recorded adverse events are uncommon. Acute treatment reactions and infections are the commonest events recorded among 3.4% and 10.1% of all patients, respectively. There were no deaths or cases of malignancy reported at follow up. (Section 2, table 4)
8 Routine collection of quality of life scores (IMPACT III) is low in clinical practice with 23% recording this at baseline and 8% at either 3 or 12 months follow up, in all IBD patients. (Section 2, table 9)
9 Only 11% of patients were recorded as having been appropriately prescribed anti-TNFα treatment, when compared against NICE TA187 criterion 1.5. (Section 2, table 8)
10 Biological therapies are effective treatments for patients with IBD with 73% of paediatric patients entering remission at the first recorded treatment after 12 weeks. (Section 2, table 2)
11 The majority of patients being started on anti-TNFα treatment have moderate disease activity as assessed by the Paediatric Crohn's Disease Activity Index (PCDAI). (Section 2, table 6)

Key recommendations

1 Sites should continue to participate in national audit and aim to submit data on **all** appropriate patients. Increased participation will be encouraged by greater system utilities that have been introduced to the audit web tool recently.

2 All organisations should ensure that patients are not waiting more than 2 weeks to begin treatment wherever possible.

3 Clinicians should be vigilant in screening for opportunistic infections both before starting and while patient's remain on biological therapy.

4 Sites should routinely assess disease activity at baseline and again at 3 and 12 month follow up. This measure is a vital part of objectively assessing the appropriateness of initial treatment, response and the ongoing need for maintenance therapy.

5 Local teams should encourage patients to complete patient reported outcome measures (IMPACT III) at baseline and again at 3 and 12 month follow up.

6 Sites participating in the audit should export their own local data and use this for local analyses, benchmarking and local quality improvement activities.

7 The findings and recommendations of this report should be shared at relevant multi-disciplinary and clinical governance / audit meetings

Section 1: Introduction and methodology

Introduction

The use of biological therapy in the treatment of IBD is a relatively new therapeutic advance. The commonest anti-TNFα agents, Infliximab (IFX) and Adalimumab (ADA), have been demonstrated to be effective in Crohn's disease in large randomised clinical trials in adult and open label studies in children. For some patients they have significant effects when other therapies, including surgery, have failed to control the disease adequately. There are however adverse events, some of which are serious and there remain a number of unanswered questions regarding the use of these drugs in IBD patients. Most data regarding biologic treatments comes from specialist units and prior to the inception of this audit there were no national data regarding efficacy, safety or appropriateness of use in the United Kingdom. Biological therapies are expensive drugs with a year of treatment for one patient approximating to around £10,000.

Aims of the biological therapies audit

To assess nationally:

1. the appropriate use / prescribing of biological therapies in the treatment of IBD
2. the efficacy of biological therapies in the treatment of IBD
3. the safety of biological therapies in the treatment of IBD
4. IBD patients' views on their quality of life at defined intervals throughout their use of biological therapies.

Eligibility and participation

Sites are eligible to participate in the biological therapies audit if they prescribe and administer biological therapies to their patients with IBD. There are 25 specialist paediatric IBD sites in the UK, of these 19 (76%) are participating in the biological therapies element. There are two additional paediatric sites that participated in the biological therapies audit (21 in total) in addition to the specialist paediatric IBD sites. There may also be paediatric patients receiving biological therapies under adult gastroenterology services.

Definition of a 'site'

Lead clinicians were asked to collect data on the basis of a unified IBD service which would be registered as a named 'site'. This was typically a single hospital within a Trust/Health Board but where a Trust/Health Board had more than one hospital offering independent IBD services they entered data for separate 'sites'. Some organisations running a coordinated IBD service across several hospitals with the same staff participated in the audit as one Trust/Health Board-wide site.

Inclusion and exclusion criteria

Only those patients with diagnosed IBD; ulcerative colitis (UC), Crohn's disease (CD) and IBD-type unspecified (IBDU) that are started on biological therapy for the purpose of the treatment of their IBD are included. Patients of all ages are included in the audit. Hospitals that do not provide any biological treatment to their IBD patients are excluded from participation.
The process of inclusion and exclusion of data in national analyses is detailed in the consort diagram on page 10 of this report.

Denominators

Denominators throughout the report vary depending upon the number of submissions to which the data analysed relates. To illustrate, a single patient can have multiple initial or follow up treatments and may have been treated on one or both drug types. The denominators can vary considerably and readers should review all table notes and explanatory text provided within the report.

Methods

This is a prospective audit with data collection taking place in 'real time' during the clinical appointment with the patient. Data entry takes place in the form of 'submissions' to a web-based data collection tool (www.ibdprogramme.co.uk). A submission refers to data entered in any of the following categories: patient demographics, IBD disease details, initial anti-TNF treatment, follow up anti-TNFα treatment and IBD related surgery. Further detail about each of the categories can be found on page 19 of this report.

Data collection tool

Security and confidentiality are maintained through the use of site codes. Sites access the dataset by using unique usernames and passwords, only the lead clinician at each site can authorise local access. Data could be saved during, as well as at the end of an input session and online help including definitions and clarifications of data items; internal logical data checks and instant feedback mechanisms ensure the collection of high quality data.

'Locking' data

Once all mandatory data items within a submission are complete, the site providing the data 'locks' the submission to indicate to the UK IBD audit project team that the data is ready for inclusion in the audit. Only submissions that are locked can be included in national analyses. For an explanation of the different submission types in the biological therapies audit, please see page 19 of this report.

Site level data

Due to low numbers of UC and IBDU patients, site level data is restricted to CD only. The IBD programme steering group having taken statistical advice has identified numbers less than 6 patients as potentially compromising patient anonymity in the age and gender fields of table 2. Therefore results in site reports that meet this criterion have been replaced with 'N<6'. In the case of the national report no data will appear in the 'Your site' columns but these have been left in situ to show the format of the individualised site reports

Evidence

Guidance referred to within this document is taken from the following:

- National Institute for Health and Care Excellence. TA187 Crohn's disease - Infliximab (review) and Adalimumab (review of TA40): guidance. London: NICE. 2011 http://guidance.nice.org.uk/TA187/Guidance/pdf/English
- Mowat C et al. Guidelines for the management of inflammatory bowel disease in adults. Gut. 2011; 60(5): 571-607 http://gut.bmj.com/content/60/5/571.abstract
- The IBD Service Standards www.ibdstandards.org.uk

Presentation of results

National results are presented as numbers and percentages for categorical data and as median and inter-quartile range (IQR) for numerical data. This report summarises paediatric site data provided from those sites that registered to the audit indicating that they provide their IBD service to mainly paediatric patients. A separate report has been prepared for adult IBD services and can be viewed on the Royal College of Physicians website: www.rcplondon.ac.uk/biologics. Where measures are comparable, both adult and paediatric data are provided for review.

Section 2 gives a summary of the key findings. Results have been divided into groups that address the main objectives of the biological therapies audit: safety, efficacy and appropriateness.

Section 3 gives brief background information of the UK IBD audit and the benefits of participation in the biological therapies audit

Section 4 gives an explanation of the role of the biological therapy audit in the treatment of IBD with information about the licencing of biological therapies and their approval for use. The categories of data entered are explained as are the improvements made to both the methodology of the audit and the web tool following feedback from participating sites.

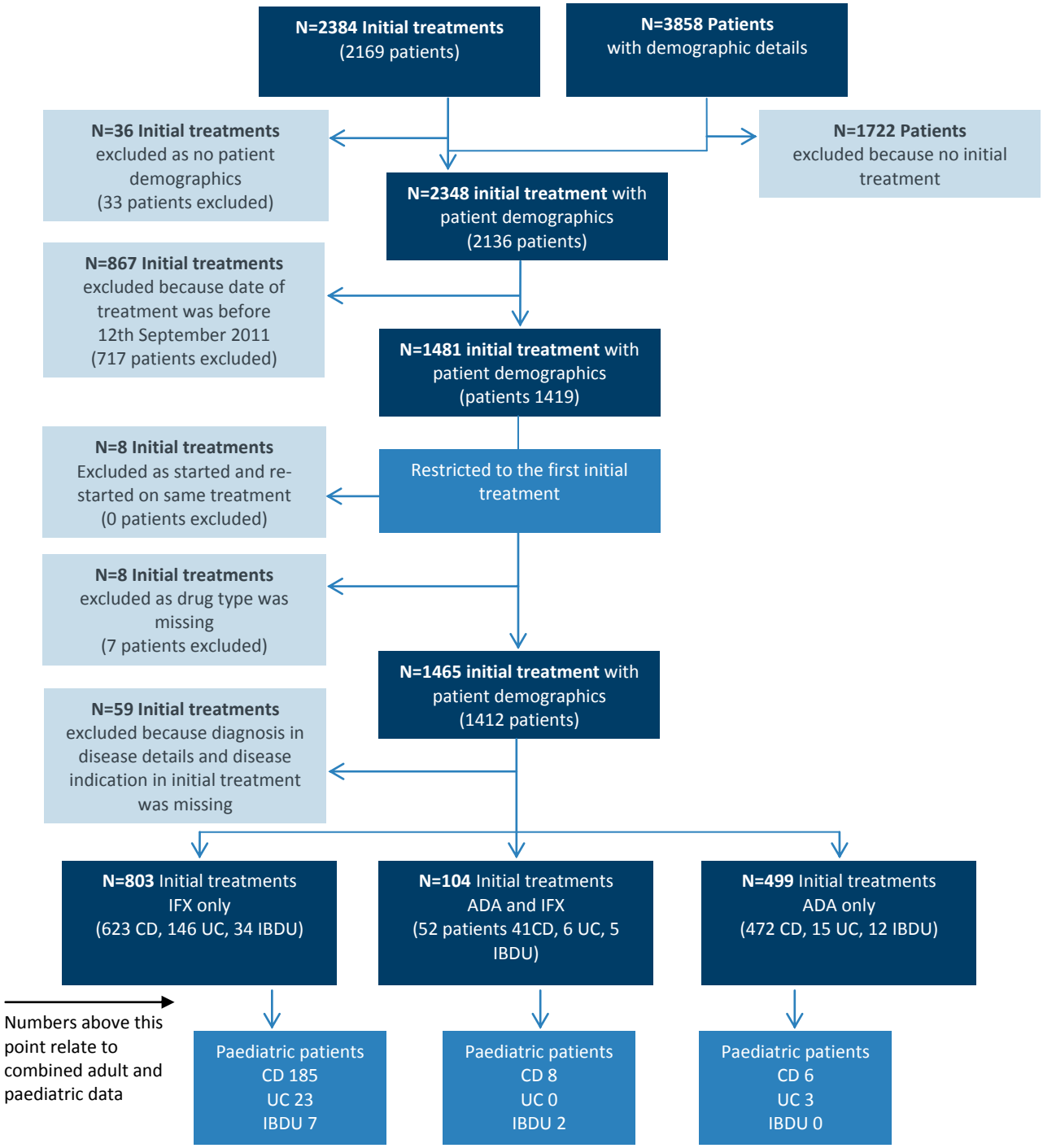
Section 5 gives the full national results for all data items collected as part of the biological therapy audit. Participating sites that provided sufficient data to be included in national analyses will receive a spread sheet enabling comparison of their own local data alongside each national data item in the CD data set. This section of the report also provides further detail about the IBD-related surgical data and Patient Reported Outcome Measures (PROMs) data and methodology

Section 2: Summary of key findings

This data should be reviewed in light of the number of overall cases entered to the web tool at the time of export. Readers are reminded to consider the context and actual number of cases when interpreting findings.

Consort diagram – for adult and paediatric patients

On 28 February 2013 there were 3858 individual adult and paediatric patient demographic submissions entered on to the web tool.



On 28 February 2013, 21 paediatric sites had entered details of 433 patients to the biological therapies audit web tool. All analyses within this current report include only those patients that were **newly started** on anti-TNFα treatment from 12 September 2011 (the onset of the audit), totalling 234. See the consort diagram above to review the number and reasons for exclusion from analysis.

Key data tables

The tables below use key data items to address the objectives of the biological therapies audit and provide an overall view of the main characteristics of the patient group included

Table 1: Summary of paediatric patients included in the national analysis

	CD	YOUR SITE	UC	IBDU	TOTAL
Patients[1]	199		26	9	234
Initial treatments	**207**		**26**	**11**	**244**
IFX	193		23	9	225
ADA	14		3	2	19
Follow up treatments	**549**		**53**	**8**	**610**
IFX	538		53	8	599
ADA	11		0	0	11
All treatments total	**756**		**79**	**19**	**854**

[1] 8 CD / 2 IBDU patients were treated with both IFX and ADA

Table 2: Summary table highlighting key items for adult and paediatric data comparison

The table below demonstrates demographic data, disease details and response to therapy in patients with CD treated by either IFX or ADA

	CD – Adult % (n/N)	CD – Paediatric % (n/N)	YOUR SITE
Percentage of all patients that were classified as having CD (of all CD + UC + IBDU patients included)	84% (937/1120)	85% (199/234)	
General patient characteristics			
Gender: Male	48% (454/937)	60% (120/199)	
Age at diagnosis, median (IQR)[1]	N=826 24 (17,35)	N=188 12 (10,14)	
Age at initial treatment, median (IQR) [1]	N=936 33 (24,46)	N=199 14 (13,16)	
Time from diagnosis to treatment in years, median (IQR) [6]	N=826 5.26 (1.51, 11.6)	N=188 1.24 (0.54, 2.67)	
Disease distribution[2]			
Terminal ileum (L1)	21% (174/827)	7% (14/188)	
Colonic (L2)	27% (226/827)	36% (68/188)	
Ileocolonic (L3)	39% (324/827)	46% (86/188)	
Upper GI (L4)	35% (292/827)	71% (134/188)	
Perianal involvement	25% (206/827)	31% (59/188)	
Pre-treatment surgery recorded[1]			
Yes	34% (310/921)	18% (36/196)	
Response to treatment and remission[1,6]			
Response[3] to treatment (at first follow up after 12 weeks)	78% (203/261)	73% (32/44)	
Remission[4] achieved (at first follow up after 12 weeks)	62% (163/261)	73% (32/44)	

(Continued overleaf)

Table 2 continued: Summary table highlighting key items for CD adult and paediatric data comparison

	CD – Adult % (n/N)	CD – Paediatric % (n/N)	YOUR SITE
Adverse events			
Number of adverse events reported (at any follow up treatment)	6% (116/1907)	5% (29/546)	
Number of patients that experienced at least one adverse event[5]	14% (94/664)	18% (22/119)	

[1] Denominators change to exclude cases where date / disease severity score was not provided

[2] 111 adult patients and 11 paediatric patients had no IBD disease details recorded

[3] Response is defined for adult patients as an HBI drop of >3 or an HBI score of ≤4 and for paediatric patients as a PCDAI drop of ≥15 or a PCDAI score of ≤10.

[4] In adult patients remission is defined as an HBI score of ≤4 and for paediatric patients a PCDAI score of ≤10

[5] In patients with follow up treatment data provided

[6] Where a patient switched treatment, the first treatment the patient received was used

Table 3: Percentage of all CD patients on any immunosuppressant or any steroid as a concomitant therapy during treatment

	IFX		ADA	
	Initial	FU	Initial	FU
Immunosuppressant's	82% (158/193)	83% (443/535)	72% (10/14)	36% (4/11)
Steroids	22% (43/193)	4% (21/535)	21% (3/14)	0% (0/11)

Table note: Immunosuppressant group includes: Azathioprine, Mercaptopurine or Methotrexate. Steroid group includes: Budesonide, Hydrocortisone, Methylprednisolone or Prednisolone

Audit objective: safety

The number of serious adverse events and pre-treatment screening

Table 4: Percentage of all paediatric patients who had an adverse reaction recorded at follow up treatment, by type of reaction

Adverse reaction type	% (n/N)
Acute treatment reaction[1]	3.4% (8/234)
Infection[2]	10.1% (14/138)
Rash[2]	0.7% (1/138)
Worsening of IBD[2]	0.0% (0/138)
Blood abnormality[2]	1.4% (2/138)
Drug-induced lupus[2]	0.0% (0/138)
Serum sickness like reaction[2]	0.0% (0/138)
Malignancy[2]	0.0% (0/138)
Suspected demyelination[2]	0.0% (0/138)
Confirmed demylelination[2]	0.0% (0/138)
Headaches[2]	0.7% (1/138)
Cardiac failure[2]	0.0% (0/138)
Chest pain[2]	0.7% (1/138)
Pregnancy[2]	0.0% (0/138)
Alopecia[2]	0.0% (0/138)
Death[2]	0.0% (0/138)
Other[2]	3.6% (5/138)

[1] All patients who had initial treatment data recorded

[2] All patients who had initial and follow up treatment data recorded

Table 5: Percentage of all patients who had a pre-treatment screening test (ever), by screen type and the percentage of patients who did not have a Chest x-ray, Mantoux or TB screen

Screening undertaken = Yes	Adult % (n/N)	Paediatric % (n/N)
Chest x-ray (CXR)	93% (1047/1120)	78% (182/234)
Mantoux	6% (63/1120)	4% (10/234)
Gamma interferon TB	32% (361/1120)	44% (103/234)
No CXR or Mantoux or TB screening performed pre-treatment	**3% (35/1120)**	**6% (13/234)**
Hepatitis B	79% (884/1120)	34% (80/234)
Stool cultures	38% (425/1120)	34% (79/234)
Varicella	61% (686/1120)	64% (150/234)
HIV	41% (455/1120)	4% (10/234)

Table note: when patient had switched treatments (n=53) i.e. had more than one initial treatment, if they had a screen test for either initial treatment then these were counted as having a pre-screen

Audit objective: efficacy

Disease activity and surgical activity pre and post initiation of treatment

Table 6: Disease activity at initial treatment compared to the first follow up treatment that took place after 12 weeks of treatment for combined CD, UC and IBDU patients

	Disease activity scores: Median (IQR)	
	Initial treatment	First follow-up treatment after 12 weeks
PCDAI	(N=103) 28 (18, 38)	(N=43) 0 (5, 15)
PUCAI	(N=22) 53 (39, 66)	(N=8) 7.5 (0,25)

Follow up treatment category includes any follow up treatment data entered, and is not restricted to only those that provided initial treatment data.

Table 7: Surgical activity recorded in the 6 months pre-treatment and the 6 months post-treatment with biological therapies for combined CD, UC and IBDU patients:

Surgical activity	Adult % (n/N)	Paediatric % (n/N)
Number of patients with surgery recorded in the 6 months before starting on biological therapy	7% (75/1120)	8% (19/234)
Number of patients with surgery recorded in the 6 months after starting on biological therapy	5% (52/1120)	5% (12/234)

Further information about the surgical data collected in the biological therapies audit can be found on page 47 of this report

Audit objective: appropriateness of prescribing anti-TNFα

Compliance with NICE technology appraisal 187 (TA187)

Detailed information about the NICE guidance and recommendations for use of biological therapies in IBD in the UK can be found in Section 4 (page 18) of this report. Here one of the NICE criteria from TA187 (1.5) has been used to assess the appropriateness of prescribing anti-TNFα therapy.

Table 8: Summarising CD paediatric compliance with selected TA187 NICE criteria

Note: restricted to include only paediatric patients aged 6-17 years and treated at a paediatric site

NICE (TA187)	National CD data % (n/N)	YOUR SITE
Criterion 1.5 IFX should be used for people aged 6-17 years with severe active CD only if: a) the disease has not responded to conventional therapy b) the person is intolerant of or has contraindications to conventional therapy		
Percentage of CD patients treated with Infliximab had a PCDAI score of ≥45 prior to commencing of Anti-TNFα[1,2]	11% (11/99)	
Percentage of CD patients treated with infliximab were treated with conventional therapy[1] at or prior to commencement of biological therapy	91% (171/188)	
Percentage of CD patients treated with Infliximab appropriately prescribed[3] treatment in compliance with NICE criterion 1.5 (TA187)[2]	11% (11/99)	

[1] Conventional therapies are: Mercaptopurine, Azathioprine, Methotrexate, Prednisolone, Budesonide, Methylprednisolone and Hydrocortisone

[2] Among patients who had a PCDAI recorded

[3] Appropriately prescribed is defined as prescribing to those who had ever had conventional therapies[1] prior to or at their initial treatment and had a PCDAI score of ≥45.

Audit objective: Patient Reported Outcome Measures (PROMs)

Completion and results of the PROMs questionnaires (IMPACT III)

Table 9: Median (IQR) PROMS scores, calculated using IMPACT III for all PROMs data entered at initial treatment versus all PROMs data at any follow up treatments for combined CD, UC and IBDU patients

IMPACT III	Initial treatment	Follow up treatment[1]
Number of treatments	244	85
Number with PROM data completed	23% (55/244)	8% (7/85)
Impact III PROM score: Median (IQR)	101 (84, 118)	96 (58, 118)

[1] Follow up treatment category includes any follow up treatment PROMs data entered, at any follow up at 3 months or 12 months and is not restricted to only those that provided initial treatment PROMs data. A window period of ½ a month either side for both time-points was used

Further information about the paediatric quality of life measure used in the biological therapies audit (IMPACT III) can be found of page 48 of this report

Completion of follow up treatment data, disease severity scoring and PROMs

Table 10: Follow up and response rates to disease activity and quality of life scores for combined CD, UC and IBDU patients

	% (n/N)
Follow up	
% of patients with at least one follow-up recorded	59% (138/234)
Disease severity	
% all of treatments[1] where disease severity score (PCDAI) is recorded	39% (332/854)
% of patients have an PCDAI score recorded at first follow-up after 12 weeks	43% (43/100)
Quality of life scores	
% of all treatments[1,2] where IMPACT III is recorded	19% (62/329)

[1] For initial and follow-up treatments combined

[2] Follow up treatment is restricted to treatments at 3 and 12 months after initial treatment. A 1/2 month window period either side of each time point was used

Section 3: Background information

The burden of inflammatory bowel disease

The inflammatory bowel diseases, UC and CD are chronic diseases that involve inflammation of the gastrointestinal tract. The incidence of IBD has risen dramatically in recent decades with IBD now affecting approximately 240,000 people in the UK. IBD most commonly first presents in the second and third decade but much of the recent increase has been observed in childhood, notably with CD in children increasing 3 fold in 30 years. UC and CD are lifelong conditions with no cure; 20-30% of UC patients will require colectomy and approximately 50-70% of CD patients require surgery over their lifetime. The main symptoms include diarrhoea, abdominal pain, anaemia and an overwhelming sense of fatigue with for some patients, associated features such as arthritis, anal disease, fistulae, abscess and skin problems which can also contribute to a poor quality of life. In addition there are wide ranging effects on growth and pubertal development, psychological health, education and employment, family life, fertility and pregnancy. Effective multidisciplinary care can attenuate relapse, prolong remission, treat complications and improve quality of life.

UK IBD audit

The UK IBD audit seeks to improve the quality and safety of care for all IBD patients in hospitals throughout the UK by auditing individual patient care, the provision and organisation of IBD service resources and through reporting on inpatient experience and patient reported outcome measures. The biological therapies audit is one element of the wider UK IBD audit.

This national report of the biological therapies audit enables participating sites to compare or benchmark their performance against national data. All data should be considered within the context of the actual number of treatments.

Further information on the work of the UK IBD audit project can be accessed via the inflammatory bowel disease webpage of the Royal College of Physicians website (www.rcplondon.ac.uk/ibd).

The benefits of the biological therapies audit

The biological therapies audit is an electronic register of patients receiving treatment and enables IBD teams to:

- monitor the disease activity of patients over the course of their anti-TNFα treatment
- monitor at both a patient and service level, data on adverse events, dose escalation and treatment regimes
- capture the views of the local patients on their quality of life at intervals throughout their treatment
- benchmark local results against national level data
- generate individual patient summaries
- generate letters detailing treatment plans

Availability of audit results in the public domain

Full and executive summary copies of the national report of the results for the biological therapies audit of the UK IBD audit – round 4 will be available in the public domain via the Royal College of Physicians, London website: http://www.rcplondon.ac.uk/biologics . The national report of results will be made available to the Department of Health in England, NHS Healthcare Improvement Scotland, NHS Wales Health & Social Care Department and the Department of Health, Social Services and Public Safety in Northern Ireland. As this is the first national report of biological therapies and the data is not yet at a suitable level of maturity, site level data will only be made available in the public domain in the next national report (August 2014).

Section 4: The biological therapies audit

What is the role of biological therapy in the treatment of IBD?

Infliximab

IFX (Remicade) is a chimeric anti-TNFα monoclonal antibody with potent anti-inflammatory effects, possibly dependent on apoptosis of inflammatory cells. Controlled trials have demonstrated efficacy in both active and fistulating CD. Typically IFX is administered via an intravenous infusion during a day visit to hospital by a suitably qualified health professional.

Adalimumab

ADA (Humira™) is a recombinant human immunoglobulin (IgG1) monoclonal antibody containing only human peptide sequences. Typically ADA is provided via a self-administered injection. Patients are provided with a home supply of the medication and following close monitoring are able to manage their own treatment with regular medical follow up.

License in the UK

IFX and ADA are licensed for treatment of moderately to severely active CD, in adult patients who have not responded despite a full and adequate course of therapy with a corticosteroid and/or an immunosuppressant; or who are intolerant to or have medical contraindications for such therapies. IFX is also licensed for the treatment of active fistulating CD. In children and adolescents aged 6-17 years infliximab is licenced for the treatment of severe, active CD and for the treatment of severely active UC ADA is also licenced for the treatment of severe, active CD in paediatric patients (aged 6 to 17 years)

Approval in the UK

NICE recommends that IFX and ADA are used within their licensed indications as treatment options for adults with severe active CD whose disease has not responded to conventional therapy (including immunosuppressive and/or corticosteroid treatments). They have recommended that IFX and ADA should be given as a planned course of treatment until treatment failure (including the need for surgery) or until 12 months after the start of treatment, whichever is shorter. Patients should then have their disease reassessed to determine whether ongoing treatment is still clinically appropriate. NICE has also recommended IFX as an option for the treatment of acute exacerbations of severely active UC only in patients in whom Ciclosporin is contraindicated or clinically inappropriate. They have not however recommended use for the maintenance of remission of UC.

NICE recommends that Infliximab is used within its licensed indication for the treatment of patients aged 6-17 years with severe active CD whose disease has not responded to conventional therapy (including immunosuppressive and/or corticosteroid treatments). They have recommended that the need to continue treatment is reviewed at least annually.

The biological therapies are relatively new treatments for IBD. There is however relatively little long term data regarding efficacy and safety and there is no national data regarding how often the drugs are used, what the long term safety and efficacy are in general day to day care. The biological agents are expensive drugs and their increasing use has proved a financial challenge for many Trusts and Health Boards. It is therefore of value to know why the drug is being used, what the effects are and what the long-term safety profile is.

Data entry to the biological therapies audit

Data entry takes place in the form of 'submissions' to a web-based data collection tool. A submission refers to data entered in any of the following data categories: patient demographics, IBD disease details, initial anti-TNFα treatment, follow up anti-TNFα treatment and IBD related surgery. Once all mandatory fields are completed within a category the data is locked and then suitable for inclusion in national findings. Only locked data can be viewed by the UK IBD audit project team. The full audit dataset is available from the Royal College of Physicians website (www.rcplondon.ac.uk/biologics).

Patient demographics category

Patients are identified prospectively when the decision to treat using biological therapies is made by a clinician. The demographic details of this patient are entered to the web tool; this includes a number of patient identifiers that are pseudonymised at the point of data entry and are only ever visible to the participating site. Details of the patient's consultant and general practitioner can also be entered.

IBD disease details category

This section requires sites to provide detail of the IBD history of a patient, including the extent of their disease, any related comorbid conditions and details of any surgical procedures undertaken prior to the initiation of biological therapies.

Initial anti-TNFα treatment category

Here the details of the initial or baseline anti-TNFα treatment are provided. The site indicates whether the patient is being treated with either ADA or IFX and the system generates the appropriate questions for either option. Information is collected with regard to pre-treatment investigations and screening up to the point of the completion or abandonment of the treatment, with detail of any treatment reactions that may occur.

Follow up anti-TNFα treatment category

Each follow up treatment that is entered must relate to a previously entered initial anti-TNFα treatment submission. An unlimited number of follow up treatments can be completed to allow continuous data collection as the patient continues to be treated with biological therapies. The outcome of each follow up treatment must be provided to state whether treatment will continue or be stopped. Details of any adverse events are recorded for each follow up treatment

IBD-related surgery category

Details of IBD related surgery can be added to the web tool at any time; a prompt to update this section of the web tool appears at the conclusion of all initial and follow up anti-TNFα treatment submissions. This allows for identification of any escalation of treatment that is required while a patient is being provided biological therapy.

PROM (Patient Reported Outcome Measures) category

PROM data are collected at initial anti-TNFα treatment and then again at 3, 6 and 12 month follow up treatments. For further information about PROM data, see page 48

The continued development of the biological therapies audit web tool

The biological therapies audit web tool has been updated and developed in line with the requirements identified through feedback from sites. The adaptability of the newly modified web-tool will be the key feature of its success, the changes below summarise some examples of the adaptations made to date.

Existing patients

One of the first adaptations of the system was to allow for the submission of data for patients who are already established on biological therapy, in addition to those that are newly started on these

medications. This allowed sites to begin to build their own local registers of patients being treated with biological therapies. This report does not contain analyses of data entered for patients that are already established on anti-TNFα therapy, data is collected for these patients only at those sites that wish to use the data at a local level.

Reporting functions

Sites can produce both patient and treatment summary reports when required.

Patient summary report - provides a printable summary of all treatment provided for a specific patient over time, detail of any adverse events, acute reactions and relevant surgery are listed. A graphical display of the patient's disease severity scoring over time allows for a simple visual representation of the success/failure of treatment, to encourage action when required. The patient summary can be filed in patient's case notes or provided with an accompanying letter to a patient's general practitioner.

Treatment summary report - provides a printable summary of any isolated initial or follow up treatment, again this can be filed in the case notes to avoid duplication of effort and also included in correspondence with a general practitioner to inform them of the treatment provided to their patient.

Data import function

The import function allows users to directly copy data held in other spread sheets into the web tool in order to register patients for the audit via the use of a template provided.

Reduction of mandatory fields

Following feedback from users regarding the length of time taken to enter submissions onto the web tool. The numbers of mandatory fields have been reduced by approximately 50% making the process of entering and locking data far faster and simpler.

System security of the biological therapies audit web tool

The 'UK IBD audit biological therapies audit system and hosted server security details' document is available via the Royal College of Physicians website (www.rcplondon.ac.uk/biologics) and outlines the system security information provided to all sites upon invitation to participate in the audit. The document gives an overview of the security measures in place, while providing assurance that security procedures designed by Microsoft and other industry standard bodies have been followed. The contracted system developer also implemented the recommended procedures contained within the NHS 'Securing web infrastructure and supporting services good practice guideline'.

Further detail can be found on the following: physical data centre (location, security, admission control, climatisation, electricity and fire protection), operating system (version, user access, security, encryption, updates and patches and backups) database software (version, user access and encryption) and application software (source control, user access and encryption).

The purpose of collecting identifiable patient data was to make the system useful for staff at a local site level enabling full monitoring and interpretation of the data for the purpose of immediate local service improvement and patient care. Patient identifiable data can only be seen by the registered members of the local team who will have been approved access to the site via the local clinical lead (nearly always a consultant gastroenterologist). Sites using the web tool cannot view data entered at other participating sites. The UK IBD audit project team have administrative control to analyse anonymised data only and are not able to view any patient identifiable information.

In accordance with the principles of the Data Protection Act, sites participating in the biological therapies audit are reminded that patients should be informed of the uses of their data by means of information leaflets and posters provided by the UK IBD audit project team.

Section 5: Full paediatric national audit results tables

Crohn's disease

Crohn's disease IBD disease details	Frequency (%)	
	Infliximab	Adalimumab
	National (N=182)	National (N=14)
Diagnosis		
Maximal disease distribution at the time of decision to initiate biological therapy defined by the Montreal Classification		
Terminal ileum (L1)	14 (8%)	0 (0%)
Colonic (L2)	65 (36%)	6 (43%)
Ileocolonic (L3)	81 (45%)	8 (57%)
Upper GI (L4)	129 (71%)	6 (43%)
Perianal involvement	56 (31%)	5 (36%)
Pattern of Crohn's disease		
Inflammatory	155 (85%)	12 (86%)
Stricturing	12 (7%)	1 (7%)
Fistulating	15 (8%)	1 (7%)
Date of diagnosis		
<1 year ago	52 (29%)	3 (21%)
1-5 years ago	114 (63%)	8 (57%)
6-10 years ago	15 (8%)	3 (21%)
>10 years ago	1 (1%)	0 (0%)
Weight at diagnosis (kg)	**(n=151)**	**(n=7)**
Median (IQR)	37 (27, 48)	39 (23, 42)
Height at diagnosis (cm)	**(n=146)**	**(n=7)**
Median (IQR)	149 (137, 161)	148 (125, 152)
Pubertal status	**(n=53)**	**(n=2)**
Tanner stage 1	23 (43%)	2 (100%)
Tanner stage 2	10 (19%)	0 (0%)
Tanner stage 3	9 (17%)	0 (0%)
Tanner stage 4	9 (17%)	0 (0%)
Tanner stage 5	2 (4%)	0 (0%)
Smoking status	**(n=111)**	**(n=12)**
Ex-smoker	1 (1%)	0 (0%)
Never smoked	110 (99%)	12 (100%)
IBD related surgery		
The number of Examinations Under Anaesthetic (EUAs) **in the year before the decision to start anti-TNFα treatment**		
0	138 (76%)	12 (86%)
1-5	43 (24%)	2 (14%)
6-10	1 (1%)	0 (0%)

Crohn's disease IBD disease details	Frequency (%)	
	Infliximab	Adalimumab
	National (N=182)	National (N=14)
Extra-intestinal manifestations of IBD		
Does the patient have any bone and joint disorders	**(n=179)**	**(n=14)**
Yes	15 (8%)	1 (7%)
If yes, specify which bone and joint disorders (multiple options may have been selected)	**(n=179)**	**(n=14)**
Peripheral arthritis	5 (3%)	0 (0%)
Large joint arthritis	6 (3%)	1 (7%)
Sacroilitis	3 (2%)	0 (0%)
Other	4 (2%)	0 (0%)
Hepatobiliary disorders	**(n=155)**	**(n=6)**
Yes	5 (3%)	0 (0%)
If yes, specify which Hepatobiliary disorders (multiple options may have been selected)	**(n=155)**	**(n=6)**
Abnormal liver blood tests	3 (2%)	NA
Other	2 (1%)	NA
Renal disorders	**(n=179)**	**(n=14)**
Yes	3 (2%)	0 (0%)
If yes, specify which renal disorders	**(n=179)**	**(n=14)**
Other	3 (2%)	0 (0%)
Skin/mucosal disorders	**(n=156)**	**(n=6)**
Yes	11 (7%)	1 (17%)
If yes, specify which skin/mucosal disorders (multiple options may have been selected)	**(n=156)**	**(n=6)**
Erythema nodosum	4 (3%)	0 (0%)
Pyoderma gangreosum	1 (1%)	0 (0%)
Aphthous ulcers	1 (1%)	0 (0%)
Other	6 (4%)	1 (17%)
IBD related growth disorders	**(n=179)**	**(n=14)**
Yes	30 (17%)	2 (14%)
Ophthalmic disorders	**(n=179)**	**(n=14)**
Yes	2 (1%)	1 (7%)
If yes, specify which ophthalmic disorders	**(n=179)**	**(n=14)**
Iritis/Uvetis	2 (1%)	1 (7%)
Non IBD comorbidities		
Does the patient have any non-IBD comorbidities	**(n=179)**	**(n=14)**
Yes	7 (4%)	1 (7%)
If yes, complete the Charleson Index		
Median score (IQR)	1 (1, 1)	1 (1, 1)

Crohn's disease Initial anti-TNFα treatment	Frequency (%)	
	Infliximab	Adalimumab
	National (N=193)	National (N=14)
Consent		
Was informed consent to receive anti-TNFα treatment taken from this patient	**(n=159)**	**(n=7)**
Yes	157 (99%)	7 (100%)
No	2 (1%)	0 (0%)
If yes, was this written or verbal	**(n=157)**	**(n=7)**
Verbal	56 (36%)	1 (14%)
Written	101 (64%)	6 (86%)
Treatment details		
Time between date of decision to start and date of initial treatment (first loading dose)	**(n=158)**	**(n=3)**
Median (IQR) in days	9 (4, 19)	38 (23, 44)
If there was a delay of 2 weeks or more between the date of decision to start and the initial treatment, what was the reason(s) for the delay	**(n=62)**	**(n=3)**
Delay in consent	6 (10%)	0 (0%)
Funding authorisation	3 (5%)	1 (33%)
Wait for next available clinic appointment	24 (39%)	0 (0%)
Abnormalities on screening	2 (3%)	0 (0%)
Delay in screening	8 (13%)	0 (0%)
Patient choice / availability	7 (11%)	2 (67%)
Staffing issues	7 (11%)	0 (0%)
Medical reason	7 (11%)	0 (0%)
Other	2 (3%)	0 (0%)
Did you have to apply for funding for this anti-TNFα treatment	**(n=158)**	**(n=3)**
Yes	34 (22%)	1 (33%)
What was the clinical indication for this treatment	**(n=191)**	**(n=13)**
Severe perianal Crohn's disease	34 (18%)	1 (8%)
Active luminal Crohn's disease	139 (73%)	11 (85%)
Other clinical indication	18 (9%)	1 (8%)
Weight at the time of this treatment (kg)	**(n=151)**	**(n=7)**
Median (IQR)	46 (36, 54)	49 (34, 51)
Height at the time of this treatment (cm)	**(n=128)**	**(n=4)**
Median (IQR)	156 (147, 166)	151 (146, 158)

Crohn's disease Initial anti-TNFα treatment	Frequency (%)	
	Infliximab	Adalimumab
	National (N=193)	National (N=14)
Treatment details continued		
Pubertal status	**(n=51)**	**(n=0)**
Adult patient	2 (4%)	0 (0%)
Tanner stage 1	12 (24%)	0 (0%)
Tanner stage 2	7 (14%)	0 (0%)
Tanner stage 3	13 (25%)	0 (0%)
Tanner stage 4	10 (20%)	0 (0%)
Tanner stage 5	7 (14%)	0 (0%)
Hydrocortisone cover given at this treatment	**(n=162)**	
Yes	103 (64%)	NA
No	59 (36%)	NA
Antihistamine cover given at this treatment	**(n=156)**	
Yes	59 (38%)	NA
No	97 (62%)	NA
Dose given at this infusion (mg/kg)	**(n=161)**	
5mg/kg	160 (99%)	NA
10mg/kg	1 (1%)	NA
Duration of infusion	**(n=161)**	
2 hours	151 (94%)	NA
Other duration (in minutes)	10 (6%)	NA
Infusion completion outcome		
Completed successfully at prescribed rate	186 (96%)	NA
Completed successfully at lower rate	5 (3%)	NA
Infusion discontinued and not restarted	2 (1%)	NA
Induction dose		
160/80mg	NA	1 (7%)
80/40mg	NA	13 (93%)
Planned maintenance dose		
40mg every other week	NA	14 (100%)
Were any acute reactions recorded for this treatment	**(n=193)**	**(n=7)**
Yes	2 (1%)	0 (0%)
Which acute reactions	**(n=193)**	**(n=7)**
Nausea	1 (1%)	0 (0%)
Other	2 (1%)	0 (0%)
Is the patient receiving any concomitant therapies for the management of IBD at the time of this treatment		
Yes	175 (91%)	13 (93%)

Crohn's disease Initial anti-TNFα treatment	Frequency (%)	
	Infliximab	Adalimumab
	National (N=193)	National (N=14)
Treatment details continued		
If yes, indicate which concomitant therapies	**(n=175)**	**(n=13)**
Mercaptopurine	5 (3%)	1 (8%)
Methotrexate	16 (9%)	4 (31%)
Azathioprine	137 (78%)	6 (46%)
Prednisolone	36 (21%)	3 (23%)
If Prednisolone, what is the current dose (mg/day) Median (IQR)	20 (2, 38)	5 (5, 10)
Budesonide	1 (1%)	0 (0%)
If Budesonide, what is the current dose (mg/day) Median (IQR)	3 (3, 3)	NA
IV Hydrocortisone	4 (2%)	0 (0%)
If Hydrocortisone, what is the current dose (mg/day) Median (IQR)	300 (150, 400)	NA
IV Methylprednisolone	2 (1%)	0 (0%)
If Methylprednisolone, what is the current dose (mg/day) Median (IQR)	13 (0, 25)	NA
5ASA	42 (24%)	5 (38%)
Antibiotics	17 (10%)	0 (0%)
Dietary therapy	19 (11%)	0 (0%)
Other	12 (7%)	2 (15%)
On any immunosuppressant (Azathioprine, Mercaptopurine or Methotrexate)	158 (90%)	10 (77%)
Any previous discontinued therapies prior to the decision to start anti-TNFα treatment	**(n=158)**	**(n=3)**
Yes	57 (36%)	3 (100%)
If yes, indicate which previous therapies (more than one therapy may have been selected)	**(n=57)**	**(n=3)**
Mercaptopurine	3 (5%)	0 (0%)
Methotrexate	7 (12%)	0 (0%)
Azathioprine	26 (46%)	1 (33%)
Prednisolone	25 (44%)	1 (33%)
Budesonide	2 (4%)	0 (0%)
5ASA	10 (18%)	0 (0%)
Dietary therapy	22 (39%)	1 (33%)
Anti-TNFα treatment - Adalimumab	2 (4%)	0 (0%)
Anti-TNFα treatment - Infliximab	4 (7%)	3 (100%)
Other	2 (4%)	0 (0%)
IV Methylprednisolone	3 (5%)	0 (0%)
On any immunosuppressant (Azathioprine, Mercaptopurine or Methotrexate)	30 (53%)	1 (33%)

Crohn's disease Initial anti-TNFα treatment	Frequency (%)	
	Infliximab	Adalimumab
	National (N=193)	National (N=14)
Treatment details continued		
If any previous therapies indicate the reason for stopping (The results below are combined reasons for discontinuing previous therapies, for all therapy types indicated above)	**(n=106)**	**(n=6)**
Treatment effective and discontinued	31 (29%)	2 (33%)
No response	19 (18%)	1 (17%)
Loss of effect	22 (21%)	2 (33%)
Intolerant	18 (17%)	0 (0%)
Dependency	4 (4%)	0 (0%)
Patient choice	6 (6%)	0 (0%)
Other	5 (5%)	1 (17%)
Reason not specified	1 (1%)	0 (0%)
Pre-treatment screening in relation to initiation of anti-TNFα therapy		
Chest x-ray	**(n=186)**	**(n=14)**
Yes	151 (81%)	8 (57%)
No	35 (19%)	6 (43%)
Mantoux screen	**(n=154)**	**(n=14)**
Yes	8 (5%)	0 (0%)
No	146 (95%)	14 (100%)
BCG given	**(n=144)**	**(n=13)**
Yes	3 (2%)	0 (0%)
No	141 (98%)	13 (100%)
Gamma interferon TB screen	**(n=163)**	**(n=14)**
Yes	89 (55%)	9 (64%)
No	74 (45%)	5 (36%)
Stool culture/test	**(n=173)**	**(n=14)**
Yes	63 (36%)	4 (29%)
No	110 (64%)	10 (71%)
Hepatitis B serology	**(n=176)**	**(n=14)**
Yes	65 (37%)	2 (14%)
No	111 (63%)	12 (86%)
Hepatitis C serology	**(n=176)**	**(n=14)**
Yes	45 (26%)	1 (7%)
No	131 (74%)	13 (93%)

Crohn's disease Initial anti-TNFα treatment	Frequency (%)	
	Infliximab	Adalimumab
	National (N=193)	National (N=14)
Pre-treatment screening in relation to initiation of anti-TNFα therapy		
HIV screen	**(n=153)**	**(n=14)**
Yes	6 (4%)	0 (0%)
No	147 (96%)	14 (100%)
Varicella screen	**(n=184)**	**(n=14)**
Yes	119 (65%)	9 (64%)
No	65 (35%)	5 (36%)
CRP	**(n=192)**	**(n=14)**
Yes	190 (99%)	14 (100%)
No	2 (1%)	0 (0%)
FBC	**(n=192)**	**(n=14)**
Yes	188 (98%)	14 (100%)
No	4 (2%)	0 (0%)
MRI pelvis	**(n=125)**	**(n=8)**
Yes	60 (48%)	4 (50%)
No	65 (52%)	4 (50%)
PROM completion at this encounter		
Has a PROM been completed at this encounter	**(n=130)**	**(n=2)**
Yes, IBD PROM	2 (2%)	0 (0%)
Yes, IMPACT III	49 (38%)	1 (50%)
No, PROM not completed at this encounter	79 (61%)	1 (50%)
Disease severity score		
For the patient choose whether to complete the Adult - Harvey Bradshaw Index or the Paediatric Crohn's Disease Activity Index		
Yes, Harvey Bradshaw Index (HBI)	(n=23)	(n=0)
Median (IQR)	6 (0, 9)	NA
Yes, Paediatric Crohn's Disease Activity Index (PCDAI)	(n=101)	(n=2)
Median (IQR)	28 (18, 38)	25 (10, 40)

Crohn's disease Follow up anti-TNFα treatment (Includes all follow up treatment entered at any time after initial treatment)	Frequency (%)	
	Infliximab	Adalimumab
	National (N=538)	National (N=11)
Follow up treatment details		
Time between date of initial treatment and date of follow up	**(n=535)**	
Median (IQR) in days	104 (42, 214)	NA
Current Infliximab dose number	**(n=535)**	
0-5	349 (65%)	NA
6-10	171 (32%)	NA
>10	15 (3%)	NA
Infliximab dose given at this treatment (mg/kg)	**(n=532)**	
5 mg/kg	506 (95%)	NA
10 mg/kg	26 (5%)	NA
Hydrocortisone cover given at this treatment	**(n=524)**	
Yes	289 (55%)	NA
No	235 (45%)	NA
Antihistamine cover given at this treatment	**(n=502)**	
Yes	182 (36%)	NA
No	320 (64%)	NA
Infusion completion outcome	**(n=525)**	
Completed successfully at prescribed rate	519 (99%)	NA
Completed successfully at lower rate	4 (1%)	NA
Infusion discontinued and not restarted	1 (<1%)	NA
Other	1 (<1%)	NA
Continue Infliximab treatment plan	**(n=535)**	
Continue treatment with Infliximab	518 (97%)	NA
Stop treatment with Infliximab	17 (3%)	NA
If treatment stopped, what were the reasons for stopping	**(n=17)**	
Treatment effective and discontinued	4 (24%)	NA
Loss of response	1 (6%)	NA
Poor response	8 (47%)	NA
Side effects/adverse events	1 (6%)	NA
Other	3 (18%)	NA
Review of Adalimumab treatment plan		
Continue treatment with Adalimumab	NA	10 (91%)
Stop treatment with Adalimumab	NA	1 (9%)

Crohn's disease Follow up anti-TNFα treatment (Includes all follow up treatment entered at any time after initial treatment)	Frequency (%)	
	Infliximab	Adalimumab
	National (N=538)	National (N=11)
Follow up treatment details continued		
If continue treatment, what is the planned continued treatment frequency		**(n=10)**
Every week	NA	1 (10%)
Every other week	NA	9 (90%)
If continue treatment, what is the planned continued treatment dose (mg)		**(n=10)**
40mg	NA	10 (100%)
Did the patient report complete compliance with the maintenance regime since the last Adalimumab review		**(n=10)**
Yes	NA	10 (100%)
Did the patient report any acute reactions?	**(n=535)**	**(n=11)**
Yes	5 (1%)	0 (0%)
Which acute reactions	**(n=535)**	**(n=11)**
Bronchospasm (cough/wheeze/dyspnoea)	1 (<1%)	0 (0%)
Fatigue	1 (<1%)	0 (0%)
Rash	2 (<1%)	0 (0%)
Urticaria	1 (<1%)	0 (0%)
Other	4 (1%)	0 (0%)
Is the patient currently receiving any other therapies for the management of IBD	**(n=535)**	**(n=11)**
Yes	452 (84%)	4 (36%)
If yes, indicate which other therapies	**(n=452)**	**(n=4)**
Mercaptopurine	3 (1%)	2 (50%)
Methotrexate	12 (3%)	2 (50%)
Azathioprine	428 (95%)	0 (0%)
Prednisolone	21 (5%)	0 (0%)
If Prednisolone, what is the current dose (mg/day) Median (IQR)	20 (5, 35)	NA
5ASA	61 (13%)	0 (0%)
Antibiotics	11 (2%)	0 (0%)
Other	19 (4%)	0 (0%)
On any immunosuppressant (Azathioprine, Mercaptopurine or Methotrexate)	443 (98%)	4 (100%)

Crohn's disease Follow up anti-TNFα treatment (Includes all follow up treatment entered at any time after initial treatment)	Frequency (%)	
	Infliximab	Adalimumab
	National (N=538)	National (N=11)
Follow up treatment details continued		
Were there any adverse events since last review	**(n=535)**	**(n=11)**
Yes	28 (5%)	1 (9%)
What adverse events	**(n=535)**	**(n=11)**
Infection	17 (3%)	1 (9%)
Rash	1 (<1%)	0 (0%)
Blood abnormality	2 (<1%)	0 (0%)
Chest pain	2 (<1%)	0 (0%)
Headache	1 (<1%)	0 (0%)
Other	5 (1%)	0 (0%)
Weight at the time of this treatment (kg)	**(n=466)**	**(n=11)**
Median (IQR)	48 (39, 58)	41 (34, 41)
Height at the time of this treatment (cm)	**(n=374)**	**(n=10)**
Median (IQR)	157 (146, 167)	150 (150, 150)
Pubertal status	**(n=144)**	**(n=0)**
Adult patient	1 (1%)	0 (0%)
Tanner stage 1	21 (15%)	0 (0%)
Tanner stage 2	12 (8%)	0 (0%)
Tanner stage 3	21 (15%)	0 (0%)
Tanner stage 4	41 (28%)	0 (0%)
Tanner stage 5	48 (33%)	0 (0%)
PROM completion at this encounter		
Has a PROM been completed at this encounter	**(n=407)**	**(n=4)**
Yes, IBD PROM	1 (<1%)	0 (0%)
Yes, IMPACT III	25 (6%)	3 (75%)
No, PROM not completed at this encounter	381 (94%)	1 (25%)
Disease severity score		
For the patient choose whether to complete the Adult - Harvey Bradshaw Index or the Paediatric Crohn's Disease Activity Index		
Yes, Harvey Bradshaw Index (HBI)	(n=149)	(n=0)
Median (IQR)	0 (0, 0)	NA
Yes, Paediatric Crohn's Disease Activity Index (PCDAI)	(n=225)	(n=4)
Median (IQR)	5 (0, 10)	19 (9, 38)

Ulcerative colitis

Ulcerative colitis IBD disease details	Frequency (%)	
	Infliximab	Adalimumab
	National (N=22)	National (N=3)
Diagnosis		
Maximal disease distribution at the time of decision to initiate biological therapy defined by the Montreal Classification		
Left sided (E2)	9 (41%)	0 (0%)
Extensive (E3)	13 (59%)	3 (100%)
Date of diagnosis		
<1 year ago	8 (36%)	0 (0%)
1-5 years ago	14 (64%)	3 (100%)
Weight at diagnosis (kg)	**(n=18)**	**(n=0)**
Median (IQR)	43 (29, 56)	NA
Height at diagnosis (cm)	**(n=18)**	**(n=0)**
Median (IQR)	155 (135, 164)	NA
Pubertal status	**(n=12)**	**(n=0)**
Tanner stage 1	3 (25%)	NA
Tanner stage 2	4 (33%)	NA
Tanner stage 3	1 (8%)	NA
Tanner stage 4	2 (17%)	NA
Tanner stage 5	2 (17%)	NA
Smoking status	**(n=16)**	**(n=2)**
Never smoked	16 (100%)	2 (100%)
IBD related surgery		
The number of Examinations Under Anaesthetic (EUAs) **in the year before the decision to start anti-TNFα treatment**		
0	20 (91%)	3 (100%)
1-5	2 (9%)	0 (0%)
Extra-intestinal manifestations of IBD		
Does the patient have any bone and joint disorders	**(n=21)**	**(n=3)**
Yes	0 (0%)	0 (0%)
Hepatobiliary disorders	**(n=17)**	**(n=0)**
Yes	1 (6%)	0 (0%)
If yes, specify which Hepatobiliary disorders	**(n=17)**	**(n=0)**
Other	1 (6%)	NA
Renal disorders	**(n=21)**	**(n=3)**
Yes	0 (0%)	0 (0%)

Ulcerative colitis IBD disease details	Frequency (%)	
	Infliximab	Adalimumab
	National (N=22)	National (N=3)
Extra-intestinal manifestations of IBD continued		
Skin/mucosal disorders	**(n=17)**	**(n=0)**
Yes	0 (0%)	0 (0%)
IBD related growth disorders	**(n=21)**	**(n=3)**
Yes	2 (10%)	0 (0%)
Ophthalmic disorders	**(n=21)**	**(n=3)**
Yes	0 (0%)	0 (0%)
Non IBD comorbidities		
Does the patient have any non-IBD comorbidities	**(n=21)**	**(n=3)**
Yes	1 (5%)	1 (33%)
If yes, complete the Charleson Index		
Median score (IQR)	1 (1, 1)	1 (1, 1)

Ulcerative colitis Initial anti-TNFα treatment	Frequency (%)	
	Infliximab	Adalimumab
	National (N=23)	National (N=3)
Consent		
Was informed consent to receive anti-TNFα treatment taken from this patient	**(n=20)**	**(n=0)**
Yes	20 (100%)	0 (0%)
If yes, was this written or verbal	**(n=20)**	
Verbal	3 (15%)	0 (0%)
Written	17 (85%)	0 (0%)
Treatment details		
Time between date of decision to start and date of initial treatment (first loading dose)	**(n=20)**	**(n=1)**
Median (IQR) in days	7 (2, 10)	17 (17, 17)
If there was a delay of 2 weeks or more between the date of decision to start and the initial treatment, what was the reason(s) for the delay	**(n=4)**	**(n=1)**
Wait for next available clinic appointment	3 (75%)	0 (0%)
Patient choice / availability	1 (25%)	1 (100%)
Medical reason	1 (25%)	0 (0%)
Did you have to apply for funding for this anti-TNFα treatment	**(n=20)**	**(n=1)**
Yes	3 (15%)	0 (0%)
What was the clinical indication for this treatment		
Acute severe ulcerative colitis	10 (43%)	0 (0%)
Chronic refractory ulcerative colitis	13 (57%)	3 (100%)
Weight at the time of this treatment (kg)	**(n=19)**	**(n=0)**
Median (IQR)	50 (40, 56)	NA
Height at the time of this treatment (cm)	**(n=15)**	**(N=0)**
Median (IQR)	158 (150, 167)	NA
Pubertal status	**(n=12)**	**(n=0)**
Tanner stage 1	3 (25%)	0 (0%)
Tanner stage 2	2 (17%)	0 (0%)
Tanner stage 3	3 (25%)	0 (0%)
Tanner stage 4	3 (25%)	0 (0%)
Tanner stage 5	1 (8%)	0 (0%)
Hydrocortisone cover given at this treatment	**(n=20)**	
Yes	15 (75%)	NA
No	5 (25%)	NA

Ulcerative colitis Initial anti-TNFα treatment	Frequency (%)	
	Infliximab	Adalimumab
	National (N=23)	National (N=3)
Treatment details continued		
Antihistamine cover given at this treatment	**(n=18)**	
Yes	12 (67%)	NA
No	6 (33%)	NA
Dose given at this infusion (mg/kg)	**(n=20)**	
5mg/kg	20 (100%)	NA
Duration of infusion	**(n=19)**	
2 hours	18 (95%)	NA
Other duration (in minutes)	1 (5%)	NA
Infusion completion outcome		
Completed successfully at prescribed rate	23 (100%)	NA
Induction dose		
80/40mg	NA	3 (100%)
Planned maintenance dose		
40mg every other week	NA	2 (67%)
Other	NA	1 (33%)
Were any acute reactions recorded for this treatment	**(n=23)**	**(n=3)**
Yes	0 (0%)	0 (0%)
Is the patient receiving any concomitant therapies for the management of IBD at the time of this treatment		
Yes	23 (100%)	3 (100%)
If yes, indicate which concomitant therapies		
Mercaptopurine	1 (4%)	0 (0%)
Azathioprine	19 (83%)	2 (67%)
Prednisolone	9 (39%)	0 (0%)
If Prednisolone, what is the current dose (mg/day) Median (IQR)	18 (0, 40)	NA
IV Hydrocortisone	1 (4%)	0 (0%)
If Hydrocortisone, what is the current dose (mg/day) Median (IQR)	200 (200, 200)	NA
IV Methylprednisolone	2 (9%)	0 (0%)
If Methylprednisolone, what is the current dose (mg/day) Median (IQR)	530 (60, 1000)	NA
5ASA	14 (61%)	2 (67%)
Antibiotics	2 (9%)	0 (0%)
Dietary therapy	2 (9%)	0 (0%)
Other	4 (17%)	2 (67%)
On any immunosuppressant (Azathioprine, Mercaptopurine or Methotrexate)	20 (87%)	2 (67%)

Ulcerative colitis Initial anti-TNFα treatment	Frequency (%)	
	Infliximab	Adalimumab
	National (N=23)	National (N=3)
Treatment details continued		
Any previous discontinued therapies prior to the decision to start anti-TNFα treatment	**(n=20)**	**(n=1)**
Yes	4 (20%)	1 (100%)
If yes, indicate which previous therapies (more than one therapy may have been selected)	**(n=4)**	**(n=1)**
Azathioprine	0 (0%)	1 (100%)
Prednisolone	3 (75%)	1 (100%)
5ASA	1 (25%)	0 (0%)
Infliximab	1 (25%)	1 (100%)
On any immunosuppressant (Azathioprine, Mercaptopurine or Methotrexate)	0 (0%)	1 (100%)
If any previous therapies indicate the reason for stopping (Results are combined reasons for discontinuing therapies, for all therapy indicated above)	**(n=5)**	**(n=3)**
Treatment effective and discontinued	1 (20%)	0 (0%)
No response	1 (20%)	1 (33%)
Loss of effect	2 (40%)	0 (0%)
Intolerant	0 (0%)	1 (33%)
Other	1 (20%)	1 (33%)
Pre-treatment screening in relation to initiation of anti-TNFα therapy		
Chest x-ray	**(n=22)**	**(n=3)**
Yes	22 (100%)	0 (0%)
No	0 (0%)	3 (100%)
Mantoux screen	**(n=15)**	**(n=3)**
Yes	1 (7%)	0 (0%)
No	14 (93%)	3 (100%)
BCG given	**(n=15)**	**(n=3)**
Yes	0 (0%)	0 (0%)
No	15 (100%)	3 (100%)
Gamma interferon TB screen	**(n=12)**	**(n=3)**
Yes	5 (42%)	0 (0%)
No	7 (58%)	3 (100%)
Stool culture/test	**(n=22)**	**(n=3)**
Yes	9 (41%)	0 (0%)
No	13 (59%)	3 (100%)

Ulcerative colitis Initial anti-TNFα treatment	Frequency (%)	
	Infliximab	Adalimumab
	National (N=23)	National (N=3)
Pre-treatment screening in relation to initiation of anti-TNFα therapy continued		
Hepatitis B serology	**(n=20)**	**(n=3)**
Yes	11 (55%)	1 (33%)
No	9 (45%)	2 (67%)
Hepatitis C serology	**(n=19)**	**(n=3)**
Yes	7 (37%)	1 (33%)
No	12 (63%)	2 (67%)
HIV screen	**(n=13)**	**(n=3)**
Yes	1 (8%)	1 (33%)
No	12 (92%)	2 (67%)
Varicella screen	**(n=22)**	**(n=3)**
Yes	20 (91%)	2 (67%)
No	2 (9%)	1 (33%)
CRP		
Yes	23 (100%)	3 (100%)
FBC		
Yes	23 (100%)	3 (100%)
MRI pelvis	**(n=7)**	**(n=0)**
Yes	1 (14%)	NA
No	6 (86%)	NA
PROM completion at this encounter		
Has a PROM been completed at this encounter	**(n=15)**	**(n=0)**
Yes, IMPACT III	8 (53%)	NA
No, PROM not completed at this encounter	7 (47%)	NA
Disease severity score		
For the patient choose to complete the Paediatric Ulcerative Colitis Activity Index		
Yes, Paediatric Ulcerative Colitis Activity Index (PUCAI)	18 (78%)	0 (0%)
Median (IQR)	55 (40, 65)	NA

Ulcerative colitis Follow up anti-TNFα treatment (Includes all follow up treatment entered at any time after initial treatment)	Frequency (%)	
	Infliximab	Adalimumab
	National (N=53)	National (N=0)
Follow up treatment details		
Time between date of initial treatment and date of follow up		
Median (IQR) in days	44 (16, 154)	NA
Current Infliximab dose number		
0-5	41 (77%)	NA
6-10	12 (23%)	NA
Infliximab dose given at this treatment (mg/kg)		
5 mg/kg	52 (98%)	NA
10 mg/kg	1 (2%)	NA
Hydrocortisone cover given at this treatment		
Yes	51 (96%)	NA
No	2 (4%)	NA
Antihistamine cover given at this treatment		
Yes	36 (68%)	NA
No	17 (32%)	NA
Infusion completion outcome		
Completed successfully at prescribed rate	53 (100%)	NA
Continue Infliximab treatment plan		
Continue treatment with Infliximab	50 (94%)	NA
Stop treatment with Infliximab	3 (6%)	NA
If treatment stopped, what were the reasons for stopping	**(n=3)**	
Loss of response	1 (33%)	NA
Poor response	1 (33%)	NA
Other	1 (33%)	NA
Did the patient report any acute reactions?	**(n=53)**	
Yes	0 (0%)	NA

Ulcerative colitis Follow up anti-TNFα treatment (Includes all follow up treatment entered at any time after initial treatment)	Frequency (%)	
	Infliximab	Adalimumab
	National (N=53)	National (N=0)
Follow up treatment details continued		
Is the patient currently receiving any other therapies for the management of IBD		
Yes	52 (98%)	NA
If yes, indicate which other therapies	**(n=52)**	
Mercaptopurine	2 (4%)	NA
Azathioprine	48 (92%)	NA
Prednisolone	11 (21%)	NA
If Prednisolone, what is the current dose (mg/day) Median (IQR)	20 (10, 35)	NA
5ASA	36 (69%)	NA
Antibiotics	1 (2%)	NA
Other	2 (4%)	NA
On any immunosuppressant (Azathioprine, Mercaptopurine or Methotrexate)	50 (96%)	NA
Were there any adverse events since last review	**(n=53)**	
Yes	0 (0%)	NA
Weight at the time of this treatment (kg)	**(n=29)**	
Median (IQR)	55 (45, 64)	NA
Height at the time of this treatment (cm)	**(n=15)**	
Median (IQR)	159 (151, 175)	NA
Pubertal status	**(n=37)**	
Tanner stage 1	5 (14%)	NA
Tanner stage 3	6 (16%)	NA
Tanner stage 4	11 (30%)	NA
Tanner stage 5	15 (41%)	NA
PROM completion at this encounter		
Has a PROM been completed at this encounter	**(n=43)**	
Yes, IMPACT III	5 (12%)	NA
No, PROM not completed at this encounter	38 (88%)	NA
Disease severity score		
For the patient complete the Paediatric Ulcerative Colitis Activity Index		
Yes, Paediatric Ulcerative Colitis Activity Index (PUCAI)	(n=44)	NA
Median (IQR)	8 (0, 28)	NA

IBD type unspecified

IBD type unspecified IBD disease details	Frequency (%)	
	Infliximab	Adalimumab
	National (N=7)	National (N=2)
Diagnosis		
Maximal disease distribution at the time of decision to initiate biological therapy defined by the Montreal Classification		
Left sided (E2)	1 (14%)	0 (0%)
Extensive (E3)	6 (86%)	2 (100%)
Date of diagnosis		
<1 year ago	5 (71%)	2 (100%)
1-5 years ago	1 (14%)	0 (0%)
6-10 years ago	1 (14%)	0 (0%)
Weight at diagnosis (kg)	**(n=4)**	**(n=0)**
Median (IQR)	43 (34, 53)	NA
Height at diagnosis (cm)	**(n=4)**	**(n=0)**
Median (IQR)	151 (142, 158)	NA
Pubertal status	**(n=0)**	**(n=0)**
Smoking status	**(n=4)**	**(n=1)**
Never smoked	4 (100%)	1 (100%)
IBD related surgery		
The number of Examinations Under Anaesthetic (EUAs) **in the year before the decision to start anti-TNFα treatment**		
0	6 (86%)	2 (100%)
1-5	1 (14%)	0 (0%)
Extra-intestinal manifestations of IBD		
Does the patient have any bone and joint disorders		
Yes	0 (0%)	0 (0%)
Hepatobiliary disorders	**(n=5)**	**(n=1)**
Yes	0 (0%)	0 (0%)
Renal disorders		
Yes	1 (14%)	0 (0%)
If yes, specify which renal disorders		
Other	1 (14%)	0 (0%)
Skin/mucosal disorders	**(n=5)**	**(n=1)**
Yes	0 (0%)	0 (0%)
IBD related growth disorders		
Yes	2 (29%)	1 (50%)

IBD type unspecified IBD disease details	Frequency (%)	
	Infliximab	Adalimumab
	National (N=7)	National (N=2)
Extra-intestinal manifestations of IBD continued		
Ophthalmic disorders		
Yes	1 (14%)	1 (50%)
If yes, specify which ophthalmic disorders		
Iritis/Uvetis	1 (14%)	1 (50%)
Non IBD comorbidities		
Does the patient have any non-IBD comorbidities		
Yes	1 (14%)	0 (0%)
If yes, complete the Charleson Index		
Median score (IQR)	2 (2, 2)	NA

IBD type unspecified Initial anti-TNFα treatment	Frequency (%)	
	Infliximab	Adalimumab
	National (N=9)	National (N=2)
Consent		
Was informed consent to receive anti-TNFα treatment taken from this patient	**(n=6)**	**(n=0)**
Yes	6 (100%)	NA
If yes, was this written or verbal	**(n=6)**	
Verbal	1 (17%)	NA
Written	5 (83%)	NA
Treatment details		
Time between date of decision to start and date of initial treatment (first loading dose)	**(n=6)**	**(n=0)**
Median (IQR) in days	9 (0, 16)	NA
If there was a delay of 2 weeks or more between the date of decision to start and the initial treatment, what was the reason(s)	**(n=2)**	**(n=0)**
Delay in screening	1 (50%)	NA
Medical reason	1 (50%)	NA
Did you have to apply for funding for this anti-TNFα treatment	**(n=6)**	**(n=0)**
Yes	3 (50%)	NA
What was the clinical indication for this treatment		
Acute severe IBD type unspecified	5 (56%)	1 (50%)
Chronic refractory IBD type unspecified	4 (44%)	1 (50%)
Weight at the time of this treatment (kg)	**(n=5)**	**N=0)**
Median (IQR)	55 (48, 61)	NA
Height at the time of this treatment (cm)	**(n=3)**	**(n=0)**
Median (IQR)	166 (150, 177)	NA
Pubertal status	**(n=1)**	**(n=0)**
Tanner Stage 3	1 (100%)	NA
Hydrocortisone cover given at this treatment	**(n=6)**	
Yes	4 (67%)	NA
No	2 (33%)	NA
Antihistamine cover given at this treatment	**(n=6)**	
Yes	4 (67%)	NA
No	2 (33%)	NA
Dose given at this infusion (mg/kg)	**(n=7)**	
5mg/kg	7 (100%)	NA
Duration of infusion	**(n=6)**	
2 hours	5 (83%)	NA
Other duration (in minutes)	1 (17%)	NA

IBD type unspecified Initial anti-TNFα treatment	Frequency (%)	
	Infliximab	Adalimumab
	National (N=9)	National (N=2)
Treatment details continued		
Duration of infusion	**(n=6)**	
2 hours	5 (83%)	NA
Other duration (in minutes)	1 (17%)	NA
Infusion completion outcome		
Completed successfully at prescribed rate	7 (78%)	NA
Completed successfully at lower rate	1 (11%)	NA
Other	1 (11%)	NA
Induction dose		
160/80mg	NA	1 (50%)
80/40mg	NA	1 (50%)
Planned maintenance dose		
40mg every other week	NA	1 (50%)
Other	NA	1 (50%)
Were any acute reactions recorded for this treatment	**(n=9)**	**(n=2)**
Yes	1 (11%)	0 (0%)
Which acute reactions	**(n=9)**	**(n=2)**
Other	1 (11%)	0 (0%)
Is the patient receiving any concomitant therapies for the management of IBD at the time of this treatment		
Yes	9 (100%)	2 (100%)
If yes, indicate which concomitant therapies		
Mercaptopurine	1 (11%)	0 (0%)
Azathioprine	5 (56%)	2 (100%)
Prednisolone	3 (33%)	0 (0%)
If Prednisolone, what is the current dose (mg/day) Median (IQR)	3 (0, 15)	NA
Budesonide	1 (11%)	0 (0%)
If Budesonide, what is the current dose (mg/day) Median (IQR)	6 (6, 6)	NA
IV Methylprednisolone	2 (22%)	0 (0%)
If Methylprednisolone, what is the current dose (mg/day) Median (IQR)	401 (1, 800)	NA
5ASA	5 (56%)	1 (50%)
Antibiotics	1 (11%)	1 (50%)
Dietary therapy	1 (11%)	0 (0%)
Other	2 (22%)	0 (0%)
On any immunosuppressant (Azathioprine, Mercaptopurine or Methotrexate)	6 (67%)	2 (100%)

IBD type unspecified Initial anti-TNFα treatment	Frequency (%)	
	Infliximab	Adalimumab
	National (N=9)	National (N=2)
Treatment details continued		
Any previous discontinued therapies prior to the decision to start anti-TNFα treatment	**(n=6)**	**(n=0)**
Yes	3 (50%)	NA
If yes, indicate which previous therapies (more than one therapy may have been selected)	**(n=3)**	
Mercaptopurine	1 (33%)	0 (0%)
Methotrexate	1 (33%)	0 (0%)
Azathioprine	1 (33%)	0 (0%)
Prednisolone	2 (67%)	0 (0%)
Other	1 (33%)	0 (0%)
On any immunosuppressant (Azathioprine, Mercaptopurine or Methotrexate)	1 (33%)	0 (0%)
If any previous therapies indicate the reason for stopping (The results below are combined reasons for discontinuing previous therapies, for all therapy types indicated above)	**(n=6)**	**(n=0)**
Loss of effect	1 (17%)	0 (0%)
Intolerant	2 (33%)	0 (0%)
Dependency	2 (33%)	0 (0%)
Other	1 (17%)	0 (0%)
Pre-treatment screening in relation to initiation of anti-TNFα therapy		
Chest x-ray		
Yes	5 (56%)	0 (0%)
No	4 (44%)	2 (100%)
Mantoux screen		
Yes	1 (11%)	0 (0%)
No	8 (89%)	2 (100%)
BCG given		
No	9 (100%)	2 (100%)
Gamma interferon TB screen		
Yes	5 (56%)	1 (50%)
No	4 (44%)	1 (50%)
Stool culture/test		
Yes	4 (44%)	1 (50%)
No	5 (56%)	1 (50%)
Hepatitis B serology		
Yes	2 (22%)	0 (0%)
No	7 (78%)	2 (100%)

IBD type unspecified Initial anti-TNFα treatment	Frequency (%)	
	Infliximab	Adalimumab
	National (N=9)	National (N=2)
Pre-treatment screening in relation to initiation of anti-TNFα therapy		
Hepatitis C serology		
Yes	2 (22%)	0 (0%)
No	7 (78%)	2 (100%)
HIV screen	**(n=9)**	**(n=1)**
Yes	2 (22%)	0 (0%)
No	7 (78%)	1 (100%)
Varicella screen	**(n=8)**	**(n=2)**
Yes	4 (50%)	1 (50%)
No	4 (50%)	1 (50%)
CRP		
Yes	9 (100%)	2 (100%)
FBC		
Yes	9 (100%)	2 (100%)
MRI pelvis	**(n=5)**	**(n=0)**
Yes	5 (100%)	NA
PROM completion at this encounter		
Has a PROM been completed at this encounter	**(n=4)**	**(n=0)**
No, PROM not completed at this encounter	4 (100%)	NA
Disease severity score		
For the patient choose to complete the Paediatric Ulcerative Colitis Activity Index		
Yes, Paediatric Ulcerative Colitis Activity Index (PUCAI)	4 (44%)	0 (0%)
Median (IQR)	35 (10, 60)	NA

IBD type unspecified Follow up anti-TNFα treatment (Includes all follow up treatment entered at any time after initial treatment)	Frequency (%)	
	Infliximab	Adalimumab
	National (N=8)	National (N=0)
Follow up treatment details		
Time between date of initial treatment and date of follow up		
Median (IQR) in days	39 (14, 72)	NA
Current Infliximab dose number		
0-5	8 (100%)	NA
Infliximab dose given at this treatment (mg/kg)		
5 mg/kg	8 (100%)	NA
Hydrocortisone cover given at this treatment	**(n=7)**	
Yes	7 (100%)	NA
Antihistamine cover given at this treatment	**(n=7)**	
Yes	5 (71%)	NA
No	2 (29%)	NA
Infusion completion outcome		
Completed successfully at prescribed rate	7 (88%)	NA
Completed successfully at lower rate	1 (13%)	NA
Continue Infliximab treatment plan		
Continue treatment with Infliximab	7 (88%)	NA
Stop treatment with Infliximab	1 (13%)	NA
If treatment stopped, what were the reasons for stopping	**(n=1)**	
Poor response	1 (100%)	NA
Did the patient report any acute reactions?	**(n=8)**	
Yes	1 (13%)	NA
Which acute reactions	**(n=8)**	
Bronchospasm (cough/wheeze/dyspnoea)	1 (13%)	NA
Flushing	1 (13%)	NA
Rash	1 (13%)	NA

IBD type unspecified **Follow up anti-TNFα treatment** (Includes all follow up treatment entered at any time after initial treatment)	Frequency (%)	
	Infliximab	**Adalimumab**
	National (N=8)	**National (N=0)**
Follow up treatment details continued		
Is the patient currently receiving any other therapies for the management of IBD		
Yes	8 (100%)	NA
If yes, indicate which other therapies		
Mercaptopurine	1 (13%)	NA
Azathioprine	5 (63%)	NA
Prednisolone	1 (13%)	NA
If Prednisolone, what is the current dose (mg/day) Median (IQR)	5 (5, 5)	NA
5ASA	3 (38%)	NA
Other	3 (38%)	NA
On any immunosuppressant (Azathioprine, Mercaptopurine or Methotrexate)	6 (75%)	NA
Were there any adverse events since last review	**(n=8)**	
Yes	0 (0%)	NA
Weight at the time of this treatment (kg)		
Number of responses	(n=7)	NA
Median (IQR)	61 (57, 67)	NA
Height at the time of this treatment (cm)		
Number of responses	(n=6)	NA
Median (IQR)	161 (161, 167)	NA
Pubertal status	**(n=2)**	
Tanner stage 3	2 (100%)	NA
PROM completion at this encounter		
Has a PROM been completed at this encounter	**(n=6)**	
No, PROM not completed at this encounter	6 (100%)	NA
Disease severity score		
For the patient complete the Paediatric Ulcerative Colitis Activity Index		
Yes, Paediatric Ulcerative Colitis Activity Index (PUCAI)	(n=5)	NA
Median (IQR)	10 (10, 10)	NA

IBD-related surgery

In total there were details of 1948 IBD related surgical procedures entered to the biological therapies web tool.

The table below shows surgical procedures that were carried out pre and post initiation of biological therapy (ADA and IFX combined). For the purpose of this analysis only those procedures that related to patients that had a date of initial treatment recorded within their initial treatment submission were included.

IBD related surgery	Procedures (N=1838)			
	Adult (n=1698)		Paediatric (n=140)	
Surgical procedure by type	Pre-biologic initiation (n=589)	Post-biologic initiation (n=80)	Pre-biologic initiation (n=54)	Post-biologic initiation (n=17)
Right hemicolectomy	122 (21%)	5 (6%)	4 (7%)	3 (18%)
Total proctocolectomy ileoanal pouch	7 (1%)	0 (0%)	1 (2%)	0 (0%)
Total proctocolectomy permanent ileostomy	11 (2%)	4 (5%)	0 (0%)	0 (0%)
Colectomy ileostomy with retained rectal stump	28 (5%)	13 (16%)	3 (6%)	5 (29%)
Colectomy colostomy with retained rectal stump	4 (1%)	2 (3%)	1 (2%)	0 (0%)
Partial colectomy	15 (3%)	1 (1%)	3 (6%)	0 (0%)
Small bowel resection	121 (21%)	12(15%)	5 (9%)	1 (6%)
Insertion of seton	69 (12%)	15 (19%)	5 (9%)	0 (0%)
Drainage of perianal sepsis	66 (11%)	11 (14%)	7 (13%)	1 (6%)
Gastric surgery	1 (<1%)	0 (0%)	0 (0%)	0 (0%)
Stricturoplasty	21 (4%)	6 (8%)	1 (2%)	0 (0%)
Apendicectomy	3 (1%)	0 (0%)	1(2%)	0 (0%)
Cholecystectomy	3 (1%)	0 (0%)	0 (0%)	0 (0%)
Radiological drainage of abscess	3 (1%)	1 (1%)	2 (4%)	2 (12%)
Other surgical procedure	115 (20%)	10 (13%)	21 (39%)	5 (29%)

Adult

99 submissions were excluded from analysis as either the type of surgical procedure undertaken or the date that the surgery was performed was not recorded.

Paediatric

11 submissions were excluded from analysis as either the type of surgical procedure undertaken or the date that the surgery was performed was not recorded.

Patient Reported Outcome Measures (PROMs)

PROMs measure quality from the patient perspective. They are typically short, self-completed questionnaires, which measure the patients' health status or health related quality of life at a single point in time. The health status information is collected from patients by way of PROMs questionnaires before, during and after an intervention (in this case the initiation of biological therapy) and provides an indication of the outcomes or quality of care delivered to patients.

IMPACT III

The IMPACT III is a health-related quality of life questionnaire for paediatric patients with IBD. Originally developed in Canada, the IMPACT III (UK) has been shown to be a valid tool to measure quality of life in British children with IBD[2]. Outcome measures have traditionally relied on disease activity indexes but these measures fail to assess the patient subjective view of their experience.

The IMPACT III questionnaire is a 35-item questionnaire that addresses 6 domains of IBD: bowel symptoms, body image, functional/social impairment, emotional impairment, tests/treatment and systemic impairment. Total scores range from 35 (best) to 175 (poor) and a decrease in total score of 10.8 is reported to be indicative of a clinically meaningful improvement.

There were 55 IMPACT III questionnaires completed at an initial treatment across both anti-TNFα types and all disease types reporting a median (IQR) score of 101 (84, 118).

There were 7 IMPACT III questionnaires completed at 3 or 12 month follow up treatment across both anti-TNFα types and all disease types reporting a median (IQR) score of 96 (58, 118).

Due to the limited number of IMPACT III questionnaires completed at both initial and follow up treatment for individual patients, a median change in IMPACT III score cannot be reliably reported. We expect that there will be sufficient data available to facilitate a more robust analysis of IMPACT III scores in the next national report of this audit (August 2014)

Table 9 from section 2, page 15 above is provided again for reference.

Table 9: Median (IQR) PROMS scores, calculated using IMPACT III for all PROMs data entered at initial treatment versus all PROMs data at any follow up treatments for combined CD, UC and IBDU patients

IMPACT III	Initial treatment	Follow up treatment[1]
Number of treatments	244	85
Number with PROM data completed	23% (55/244)	8% (7/85)
Impact III PROM score: Median (IQR)	101 (84, 118)	96 (58, 118)

[1] Follow up treatment category includes any follow up treatment PROMs data entered, at any follow up at 3 months and 12 months and is not restricted to only those that provided initial treatment PROMs data. A window period of ½ a month either side for both time-points was used

[2] Validation of an Instrument to Measure Quality of Life in British Children With Inflammatory Bowel Disease. Ogden, C.A.; Akobeng, A.K.; Abbott, J.; Aggett, P.; Sood, M.R.; Thomas, A.G. Journal of Pediatric Gastroenterology & Nutrition. 53(3):280-286, September 2011

Appendices

Appendix 1: Abbreviations

Abbreviation	Full title
5ASA	5-Aminosalicyclic acid
ADA	Adalimumab
Anti-TNFα	Anti-Tumour Necrosis Factor Alpha
BSG	British Society for Gastroenterology
BSPGHAN	British Society for Paediatric Gastroenterology Hepatology and Nutrition
BDA	British Dietetic Association
CD	Crohn's disease
CEEU	Clinical Effectiveness and Evaluation Unit
CRP	C-Reactive Protein
HBI	Harvey Bradshaw Index
HQIP	Health Quality Improvement Partnership
IBD	Inflammatory Bowel Disease
IFX	Infliximab
IQR	Inter-Quartile Range
MG/DAY	Milligrams per Day
NCAPOP	National Clinical Audit and Patient Outcomes Programme
NICE	National Institute for Health and Clinical Excellence
PUCAI	Paediatric Ulcerative Colitis Activity Index
PCDAI	Paediatric Crohn's Disease Activity Index
%	Percentage
RCN	Royal College of Nursing
RCP	Royal College of Physicians
RPS	Royal Pharmaceutical Society
SCCAI	Simple Clinical Colitis Activity Index
UC	Ulcerative Colitis
UK	United Kingdom

Appendix 2: Biological therapy audit governance

Audit governance

The biological therapies audit is guided by the multidisciplinary IBD programme steering group, which is a collaborative partnership between gastroenterologists (the British Society of Gastroenterology), colorectal surgeons (the Association of Coloproctology of Great Britain and Ireland), patients (Crohn's and Colitis UK), physicians (the Royal College of Physicians of London), nurses (the Royal College of Nursing), pharmacists (the Royal Pharmaceutical Society), Dietitians (the British Dietetic Association) together with paediatric gastroenterologists (The British Society of Paediatric Gastroenterology, Hepatology and Nutrition).

The audit is commissioned by the Health Quality Improvement Partnership (HQIP) as part of the National Clinical Audit and Patient Outcomes Programme (NCAPOP) with additional funding from Health Improvement Scotland. The audit is managed by the Clinical Effectiveness and Evaluation unit (CEEU) of the Royal College of Physicians of London. Each hospital identified an overall clinical lead that was responsible for data collection and entry for their IBD Service. Data were collected by hospitals using a standardised method.

Any enquiries in relation to the work of the UK IBD audit can be directed to: ibd.audit@rcplondon.ac.uk

IBD programme steering group members

The names of members of the biological therapies audit sub-group are provided in bold. This is the group tasked with leading this particular element of the UK IBD audit and contributed considerably to the development of this element of work

Dr Ian Arnott, associate director and chair of the UK IBD audit steering group and consultant gastroenterologist, Western General Hospital, Edinburgh
Professor John Williams, consultant gastroenterologist, Abertawe Bro Morgannwg Health Board, director of the Health Informatics Unit at the Royal College of Physicians and chair of the biological therapies audit sub-group

Association of Coloproctology of Great Britain and Ireland

Mr Omar Faiz, consultant colorectal surgeon, St Marks Hospital *(from Dec 2012)*
Mr Graeme Wilson, consultant colorectal surgeon, Western General Hospital, Edinburgh

British Dietetic Association

Ms Katie Keetarut, senior IBD dietitian, University College Hospital *(from Mar 2012)*
Ms Miranda Lomer, consultant dietician, Guy's and St Thomas Hospital *(until Mar 2012)*

British Society of Gastroenterology

Dr Stuart Bloom, consultant gastroenterologist, University College Hospital
Dr Keith Bodger, consultant physician & gastroenterologist, University Hospital Aintree
Dr Fraser Cummings, consultant gastroenterologist, University Hospital Southampton
Professor Chris Probert, consultant gastroenterologist, Bristol Royal Infirmary
Dr Barney Hawthorne, consultant gastroenterologist, University Hospital of Wales
Professor Jonathan Rhodes, professor of medicine, University of Liverpool (*until Jun 2012)*
Mrs Chris Romaya, executive secretary
Dr Ian Shaw, consultant gastroenterologist, Gloucestershire Royal Hospital
Dr Graham Turner, consultant gastroenterologist, Royal Victoria Hospital, Belfast *(from Dec 2012)*
Dr Abraham Varghese, consultant gastroenterologist, Causeway Hospital

British Society of Paediatric Gastroenterology, Hepatology and Nutrition

Dr Charles Charlton, consultant paediatric gastroenterologist, Queens Medical Centre *(from Dec 2012)*
Dr Sally Mitton, consultant paediatric gastroenterologist, St George's Hospital, London
Dr Richard Russell, consultant paediatric gastroenterologist, Yorkhill Hospital, Glasgow

Crohn's and Colitis UK (NACC)

Mr David Barker, chief executive *(from Feb 2013)*
Mr Peter Canham, patient involvement advisor
Mr Richard Driscoll, chief executive *(until Dec 2012)*
Mr Ian Johnston, patient representative, *(from Dec 2012)*

Primary Care Society for Gastroenterology

Dr John O'Malley, clinical director, All Day Health Centre, Arrowe Park Hospital

Royal College of Nursing Crohn's and Colitis Special Interest Group

Ms Kay Crook, gastroenterology nurse specialist, Alder Hey Children's Hospital
Ms Diane Hall, clinical nurse specialist, Heartlands Hospital *(from Dec 2012)*
Ms Veronica Hall, nurse consultant in gastroenterology, Royal Bolton Hospital *(from Dec 2012)*
Dr Karen Kemp, IBD clinical nurse specialist, Manchester Royal Infirmary
Ms Allison Nightingale, IBD clinical nurse specialist, Addenbrookes Hospital *(until Dec 2012)*

Royal College of Physicians

Ms Rhona Buckingham, operations manager, Clinical Effectiveness and Evaluation Unit
Mr Calvin Down, project manager, UK IBD audit *(until Jan 2012)*
Ms Hannah Evans, medical statistician, Clinical Effectiveness and Evaluation Unit *(from Jan 2013)*
Dr Emma Fernandez, project manager, IBD QIP *(until Mar 2013)*
Ms Jane Ingham, director, Clinical Standards Department
Ms Kajal Mortier, project coordinator, UK IBD programme
Ms Susan Murray, programme manager, UK IBD programme *(from Oct 2012)*
Miss Aimee Protheroe, project manager, UK IBD programme
Mr Michael Roughton, medical statistician, Clinical Effectiveness and Evaluation Unit *(until Nov 2012)*
Dr Kevin Stewart, clinical director, Clinical Effectiveness and Evaluation Unit *(from Aug 2011)*
Ms Anne Utah, project coordinator, UK IBD programme *(from Mar 2013)*

Royal Pharmaceutical Society of Great Britain

Ms Anja St. Clair-Jones, lead pharmacist-surgery and digestive diseases, Royal Sussex County Hospital

Appendix 3: List of participating sites

Each of the sites listed below contributed to this national biological therapies report, submitting one or more (locked or unlocked) case. Those sites that submitted sufficient data to be included in the national analyses have been indicated in blue:

Country	Trust / Health Board	Site
England	Alder Hey Children's NHS Foundation Trust	Alder Hey Children's Hospital
England	Barts Health NHS Trust	Barts and The London Children's Hospital
England	Birmingham Children's Hospital NHS Foundation Trust	Birmingham Children's Hospital
England	Cambridge University Hospitals NHS Foundation Trust	Addenbrooke's Hospital (Paediatric Gastro unit)
England	Chelsea and Westminster Hospital NHS Foundation Trust	Children's Services, Chelsea and Westminster Hospital
England	Great Ormond St Hospital for Children NHS Trust	Great Ormond St Hospital
England	Leeds Teaching Hospitals NHS Trust	Leeds General Infirmary (Paediatric Gastro Unit)
England	Norfolk and Norwich University Hospitals NHS Foundation Trust	Jenny Lind Children's Hospital
England	Nottingham University Hospitals NHS Trust	Nottingham Children's Hospital
England	Oxford University Hospitals NHS Foundation Trust	Oxford Children's Hospital
England	Royal Free Hampstead NHS Trust	Royal Free Hospital (Paediatric Gastroenterology Unit)
England	Sheffield Children's NHS Foundation Trust	Sheffield Children's Hospital
England	University Hospitals Southampton NHS Foundation Trust	Southampton Children's Hospital
England	St George's Healthcare NHS Trust	St George's Hospital (Paediatric Gastro unit)
England	University Hospitals of Leicester NHS Trust	Leicester Royal Infirmary Children's Hospital
Northern Ireland	Western Health and Social Care Trust	Altnagelvin Area Hospital (Paediatric Gastroenterology)
Scotland	NHS Grampian	Royal Aberdeen Children's, Ninewells and Raigmore Hospitals combined
Scotland	NHS Greater Glasgow & Clyde	Yorkhill Children's Hospital
Scotland	NHS Lothian	Royal Hospital for Sick Children, Edinburgh
Wales	Abertawe Bro Morgannwg University Health Board	Morriston Hospital (Paediatric Gastroenterology)
Wales	Cardiff and Vale University Health Board	Dept of Child Health, University Hospital of Wales

Appendix 4: Action plan

This action plan has been produced to enable you to take forward the recommendations of this national audit and allows for the generation of a local action plan as you feel appropriate for your own service. A version of this action that you are able to edit is available at www.rcplondon.ac.uk/biologics

National recommendations / actions	Staff responsible	Progress at your site
1. Sites should continue to participate in national audit and aim to submit data on **all** appropriate patients	Local UK IBD audit clinical lead / Clinical audit department staff	
2. All organisations should ensure that patients are not waiting more than 2 weeks to begin treatment wherever possible.	Consultant gastroenterologists / IBD specialist nurses / Hospital management	
3. Clinicians should be vigilant in screening for opportunistic infections both before starting and while patient's remain on biological therapy.	Consultant gastroenterologists / IBD specialist nurses	
4. Sites should routinely assess disease activity at baseline and again at 3 and 12 month follow up.	Consultant gastroenterologists / IBD specialist nurses	
5. Local teams should encourage patients to complete patient reported outcome measures (IMPACT III) at baseline and again at 3 and 12 month follow up.	Consultant gastroenterologists / IBD specialist nurses/ Infusion clinic staff	
6. Sites participating in the audit should export their own local data and use this for local analyses, benchmarking and local quality improvement activities.	Local UK IBD audit clinical lead / Local IBD team members	
7. The findings and recommendations of this report should be shared at relevant multi-disciplinary and clinical governance / audit meetings	Local UK IBD audit clinical lead / Local IBD team members / Hospital management	

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