INFLAMMATORY BOWEL DISEASE (IBD)

Introduction

The two main forms of inflammatory bowel disease are ulcerative colitis (UC) and Crohn's Disease (CD), which both involve inflammation of the intestines with symptoms including diarrhoea (which may be bloody particularly in UC), abdominal pain, tiredness and weight loss.[1,2] IBD can develop at any age, with peak incidence between the ages of 15 and 25 years.[2] Over recent decades there has been an increase in IBD around the world, and the disorders are occurring more commonly in younger children.[3,4] These conditions affect multiple body systems including liver, joints, bone, skin and eyes.[4] Some children present with joint pain or rashes before bowel disease is evident.[3] Important comorbidities include impaired growth and pubertal development, anaemia, osteoporosis and increased risk of developing colorectal cancer.[2] Almost all children with CD and at least half of children with UC have poor weight gain or weight loss prior to diagnosis.[3] Treatments for IBD can suppress the immune system making children and young people more susceptible to vaccine-preventable diseases and increasing risk of some cancers.[4] IBD can disrupt normal activities including education, reduce quality of life and affect social and psychological wellbeing.[2]

The following section reviews IBD in children and young people using information from the National Minimum Dataset. The sections conclude with an overview of evidence for good practice for these conditions.

Data sources and methods

Indicators

Rates of inflammatory bowel disease (IBD) among 0–24 year olds

Definition

Hospitalisations of 0–24 year olds with inflammatory bowel disease (IBD) per 100,000 population

Data sources

Numerator:	National Minimum Dataset
Denominator:	Statistics New Zealand Estimated Resident Population (with linear extrapolation being used to calculate denominators between Census years)

Additional information

This section presents analyses where the condition was the primary diagnosis or was documented within any of the first 15 diagnoses (all cases). The rationale for presenting all cases is to highlight the full spectrum of health issues experienced by those with this condition, and their consequent requirement for acute health services. Analyses are per hospital discharge event, therefore events are only included if the condition is documented within either the primary diagnosis or within any of the first 15 diagnoses.
Codes used for identifying cases are documented in Error! Reference source not found..

National trends and distribution

From 2000 to 2013 there were fewer than five deaths of 0–24 year olds with inflammatory bowel disease (IBD) as an underlying cause**,** as documented within the National Mortality Collection.

The number of 0–24 year olds hospitalised between 2011 and 2015 with any diagnosis of IBD is presented together with the total number of hospitalisations with Crohn disease or ulcerative colitis as a primary diagnosis or within any of the first 15 diagnoses (**Table 1).**

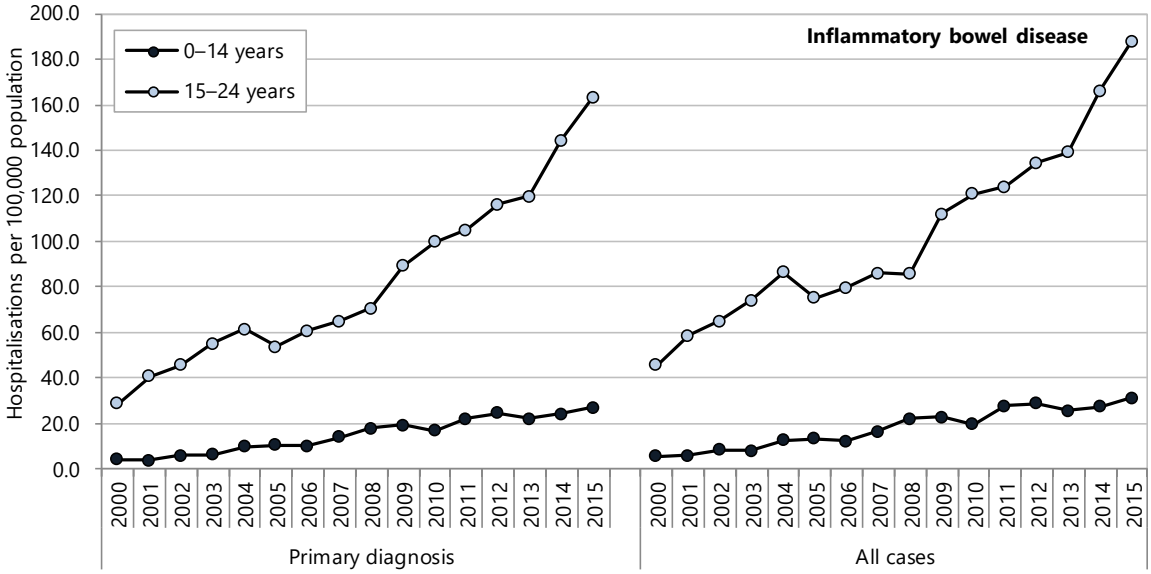
Since 2000 hospitalisation rates for IBD have risen, particularly for 15–24 year olds. Hospitalisation rates were consistently higher for 15–24 year olds compared with 0–14 year olds **(Figure 1).** Hospitalisation rates were consistently highest for European/Other 0–24 year olds and lowest for Pacific and Māori 0–24 year olds. The rise in rates over time was particularly marked for European/Other and Asian/Indian 0–24 year olds (**Figure 2**).

Table 1. 0–24 year olds hospitalised with inflammatory bowel disease, New Zealand 2011–2015

	Unique individuals *(n)*	Hospitalisations *(n)*		Ratio All : Primary
		Primary diagnosis	All cases	
Inflammatory bowel disease				
Hospitalisation				
0–24 years	1,447	5,168	5,999	1.16
0–14 years	312	1,092	1,277	1.17
15–24 years	1,205	4,076	4,722	1.16
Inflammatory bowel disease in 0–24 year olds				
Crohn disease	1,050	4,145	4,842	1.17
Ulcerative colitis	471	1,023	1,176	1.15

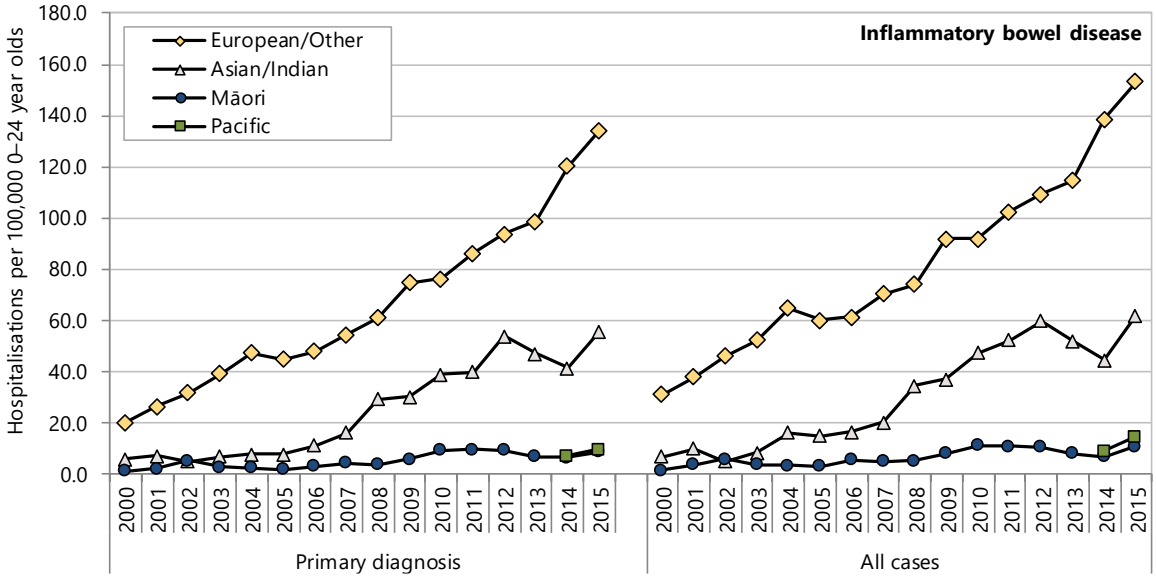
Source: National Minimum Dataset. 'Primary' corresponds to hospitalisations where inflammatory bowel disease was primary diagnosis; 'All cases' corresponds to hospitalisations with inflammatory bowel disease listed in any of the first 15 diagnoses; The sum of the age groups and of the diagnoses may total to more than the 0–24 year old total

Figure 1. Hospitalisations for inflammatory bowel disease, 0–24 year olds, by age group New Zealand 2000–2015



Numerator: National Minimum Dataset, Denominator: Statistics NZ Estimated Resident Population. 'All cases' = inclusion in any of the first 15 diagnoses

Figure 2. Hospitalisations involving inflammatory bowel disease in 0–24 year olds, by ethnicity, New Zealand 2000–2015



Numerator: National Minimum Dataset, Denominator: Statistics NZ Estimated Resident Population. 'All cases' corresponds to hospitalisations with inflammatory bowel disease listed in any of the first 15 diagnoses; Rates for Pacific are suppressed (prior to 2014) due to small numbers

Demographic distribution

Table 2 presents the demographic distribution of individuals with inflammatory bowel disease in New Zealand between 2011 and 2015. Inflammatory bowel disease prevalence was significantly lower among individuals residing in areas with higher deprivation scores (NZDep2013 deciles 5–10) compared with areas with low deprivation scores (NZDep2013 deciles 1–2). Most individuals with IBD were in the 15–24 age group with very few aged under five years. By far the majority of 0–24 year olds with IBD were of European/Other ethnicity.

Table 2. 0–24 year olds hospitalised for inflammatory bowel disease, by demographic factor, New Zealand 2011– 2015

Variable	Unique individuals 2011–2015 *(n)*	Rate per 100,000 population	Rate ratio	95% CI
Inflammatory bowel disease* in 0–24 year olds				
New Zealand				
NZ Deprivation Index quintile				
Deciles 1–2	374	26.35	1.00	
Deciles 3–4	381	28.49	1.08	0.94–1.25
Deciles 5–6	302	20.95	0.79	0.68–0.93
Deciles 7–8	358	22.04	0.84	0.72–0.97
Deciles 9–10	263	14.15	0.54	0.46–0.63
Prioritised ethnicity				
Māori	71	3.94	0.14	0.11–0.17
Pacific	21	2.96	0.10	0.07–0.16
Asian/Indian	124	12.94	0.45	0.37–0.54
MELAA	34	33.71	1.16	0.83–1.63
European/Other	1,193	29.04	1.00	
Gender				
Female	674	17.95	1.00	
Male	773	19.69	1.10	0.99–1.22
Age group (years)				
0–4	35	2.24	0.06	0.04–0.08
5–14	281	9.42	0.25	0.22–0.28
15–24	1,205	38.41	1.00	

Numerator: National Minimum Dataset, Denominator: Statistics NZ Estimated Resident Population. 'All cases' means inflammatory bowel disease is listed in any of the first 15 diagnoses; Rate ratios are unadjusted; Ethnicity is Level 1 prioritised; Decile is NZDep2013

Regional trends and distribution

Hospitalisation rates for inflammatory bowel disease (IBD) varied across the South Island DHBs from 2000 to 2015 and have been increasing across Canterbury, South Canterbury and Southern DHBs while Nelson Marlborough has decreased (**Figure 3**).

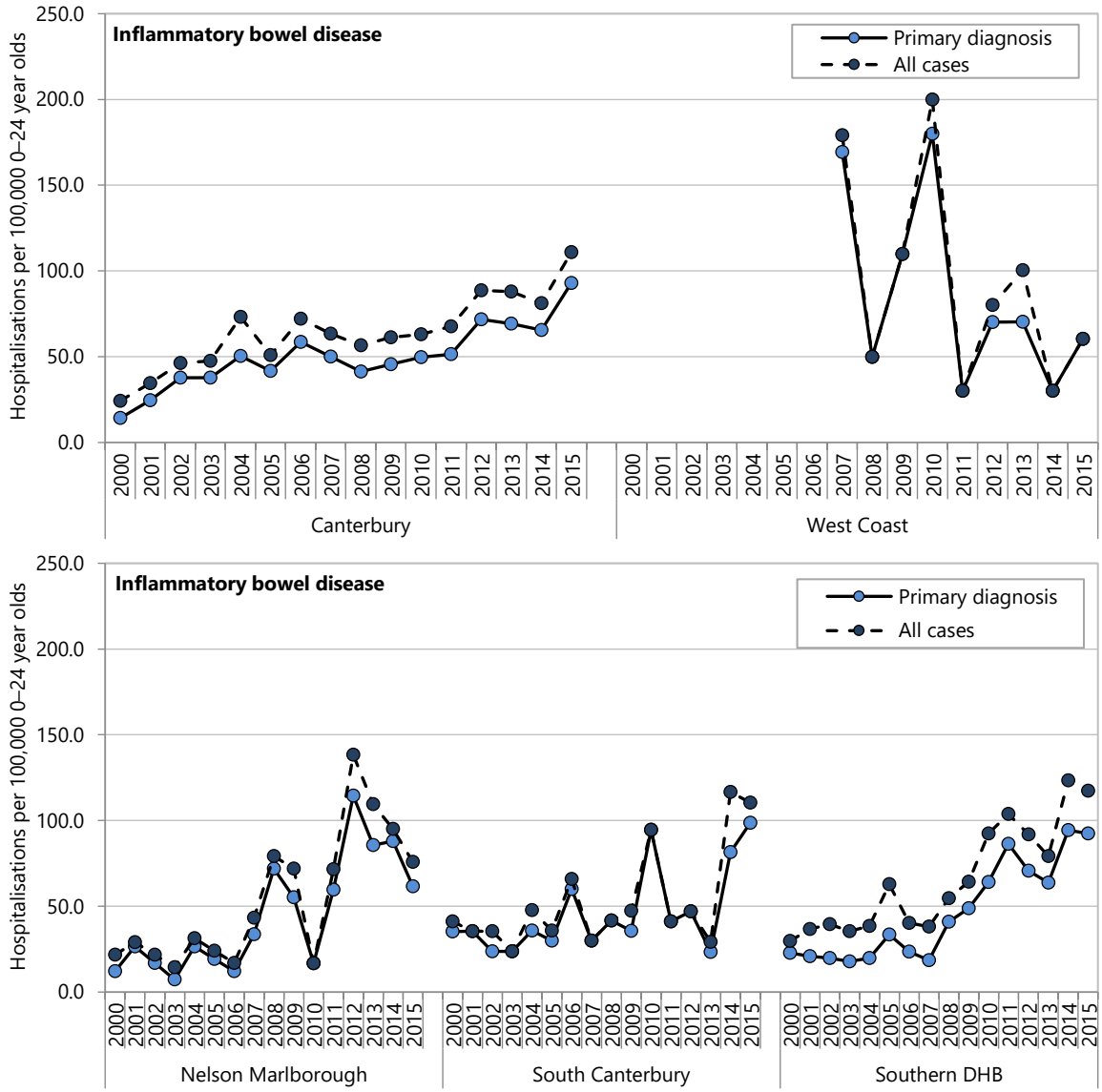
Table 3 presents the number of individuals resident in each district health board that had an IBD diagnosis of between 2011 and 2015. It also presents the number of hospital discharges in which IBD was documented as the primary diagnosis or any diagnosis. The All:Primary diagnosis ratio for IBD is close to one nationally and in all South Island DHBs indicating that IBD was the primary diagnosis in most of the hospitalisations for this condition.

Table 3. Hospitalisations for inflammatory bowel disease in 0–24 year olds, South Island DHBs vs New Zealand 2011–2015

DHB	Unique individuals *(n)*	Hospitalisations *(n)*		Ratio All:Primary
		Primary diagnosis	All cases	
Inflammatory bowel disease in 0–24 year olds				
Nelson Marlborough	49	172	206	1.20
South Canterbury	21	50	59	1.18
Canterbury	204	583	725	1.24
West Coast	11	26	30	1.15
Southern	136	422	534	1.27
New Zealand	1,447	5,168	5,999	1.16

Numerator: National Minimum Dataset, Denominator: Statistics NZ Estimated Resident Population. 'All cases' means IBD is listed in any of the first 15 diagnoses; Rate ratios are unadjusted; Note that individuals may appear in multiple DHBs

Figure 3. Hospitalisations involving inflammatory bowel disease in 0–24 year olds, South Island DHBs vs New Zealand 2000–2014



Numerator: National Minimum Dataset, Denominator: Statistics NZ Estimated Resident Population. 'All cases' =IBD is listed in any of the first 15 diagnoses; Caution rates for the West Coast are based on small numbers and suppressed prior to 2007

Evidence for good practice

Possibilities for prevention

The precise cause of inflammatory bowel disease (IBD) is not clear although genes, bacteria and immune system responses in the digestive tract are all important contributing factors.[3] Although there is no strategy for primary prevention, one of the aims of IBD treatment is to prevent flare-ups happening once acute inflammation has healed.[2]

Evidence-based health care for children and young people with inflammatory bowel disease

Treatment of IBD aims to induce remission by healing inflammation and reducing symptoms during a flare-up, or to maintain remission by preventing flare-ups occurring. Various drugs can help with both of these aims and surgery may be an option for some young people.[2] IBD is a systemic condition which affects many body systems, and there are risks associated with the various immunosuppressive treatments used. It is important to be attentive to all aspects of physical and psychological health of children and young people with IBD, including monitoring growth, bone health and vitamin and mineral deficiencies, ensuring vaccinations are up-to-

date, screening for depression, monitoring eye and skin health, providing dietary recommendations and making special considerations for international travel.[4] For young people who plan or become pregnant management of IBD poses particular challenges as there is an increased risk of adverse birth outcomes.[5,6] These complex management requirements mean that children and young people with IBD benefit from engagement with a multidisciplinary team with appropriate specialist experience and expertise. Within New Zealand's dispersed geography this can be achieved by a shared care arrangement involving a tertiary level gastroenterologist in Auckland or Christchurch, regional paediatrician, tertiary and regional paediatric dieticians, nurses and other allied health professionals, and local primary care services. Regional Health Schools can provide continuity of education for children with significant or prolonged disruption to their usual schooling.[3]

Details of treatment options for people with inflammatory bowel disease, including risks associated with treatment, can be found in the guidelines and other evidence-based information sources provided below for further reading.

New Zealand guidelines

- Day A & Paediatric Gastroenterology Clinical Network. 2014. Management of inflammatory bowel disease in children and adolescents in New Zealand: A clinical guideline. Paediatric Society New Zealand & National Child and Youth Clinical Networks. https://www.starship.org.nz/media/256562/nz_ibd_clinical_guideline_aug_2015.pdf

International guidelines

- National Institute for Health and Care Excellence. 2016. Ulcerative colitis pathway. https://pathways.nice.org.uk/pathways/ulcerative-colitis
- National Institute for Health and Care Excellence. 2016. Crohn's disease pathway. http://pathways.nice.org.uk/pathways/crohns-disease
- Nguyen GC, et al. 2016. The Toronto consensus statements for the management of inflammatory bowel disease in pregnancy. *Gastroenterology*, 150(3), 734-57.e1. http://dx.doi.org/10.1053/j.gastro.2015.12.003

Evidence-based medicine reviews

- Ariyaratnam J & Subramanian V. 2014. Association between thiopurine use and nonmelanoma skin cancers in patients with inflammatory bowel disease: a meta-analysis. *American Journal of Gastroenterology*, 109, 163-69 http://dx.doi.org/10.1038/ajg.2013.451
- Bonovas S, et al. 2016. Intravenous versus oral iron for the treatment of anemia in inflammatory bowel disease: A systematic review and meta-analysis of randomized controlled trials. *Medicine*, 95(2), e2308. http://dx.doi.org/10.1097/md.0000000000002308
- Huang V, et al. 2014. Distance management of inflammatory bowel disease: Systematic review and meta-analysis. *World Journal of Gastroenterology*, 20, 829-42 http://dx.doi.org/10.3748/wjg.v20.i3.829
- Melek J & Sakuraba A. 2014. Efficacy and safety of medical therapy for low bone mineral density in patients with inflammatory bowel disease: a meta-analysis and systematic review. *Clinical Gastroenterology and Hepatology*, 12, 32-44.e5 http://dx.doi.org/10.1016/j.cgh.2013.08.024
- Mozaffari S, et al. 2015. Pregnancy outcomes in women with inflammatory bowel disease following exposure to thiopurines and antitumor necrosis factor drugs: A systematic review with meta-analysis. *Human and Experimental Toxicology*, 34(5), 445-59. http://dx.doi.org/10.1177/0960327114550882
- Toussi S, et al. 2013. Infections in children and adolescents with juvenile idiopathic arthritis and inflammatory bowel disease treated with tumor necrosis factor-alpha inhibitors: Systematic review of the literature. *Clinical Infectious Diseases*, 1318-30 http://dx.doi.org/10.1093/cid/cit489
- Wang Y, et al. 2016. Oral 5-aminosalicylic acid for induction of remission in ulcerative colitis. *Cochrane Database of Systematic Reviews*, 4, CD000543. http://dx.doi.org/10.1002/14651858.CD000543.pub4
- Wang Y, et al. 2016. Oral 5-aminosalicylic acid for maintenance of remission in ulcerative colitis. *Cochrane Database of Systematic Reviews*, 5, CD000544. http://dx.doi.org/10.1002/14651858.CD000544.pub4
- Wedlake L, et al. 2014. Fiber in the treatment and maintenance of inflammatory bowel disease: a systematic review of randomized controlled trials. *Inflammatory Bowel Diseases*, 20(3), 576-86 http://dx.doi.org/10.1097/01.MIB.0000437984.92565.31

- Williams C, et al. 2014. Systematic review with meta-analysis: malignancies with anti-tumour necrosis factor-alpha therapy in inflammatory bowel disease. *Alimentary Pharmacology and Therapeutics*, 39, 447-58 http://dx.doi.org/10.1111/apt.12624

Websites

- Ministry of Health. 2015. Inflammatory bowel disease http://www.health.govt.nz/your-health/conditions-and-treatments/diseases-and-illnesses/inflammatory-bowel-disease
- Health Navigator New Zealand. 2015. Inflammatory bowel disease video and information about Crohn's disease http://www.healthnavigator.org.nz/videos/i/inflammatory-bowel-disease/ http://www.healthnavigator.org.nz/health-a-z/c/crohns-disease/
- Crohn's & Colitis New Zealand http://crohnsandcolitis.org.nz/ includes a teenager's guide to living with IBD.

References

1. Ministry of Health. 2015. Inflammatory bowel disease http://www.health.govt.nz/your-health/conditions-and-treatments/diseases-and-illnesses/inflammatory-bowel-disease accessed September, 2016
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5. Mozaffari S, Abdolghaffari A, Nikfar S, et al. 2015. Pregnancy outcomes in women with inflammatory bowel disease following exposure to thiopurines and antitumor necrosis factor drugs: A systematic review with meta-analysis. *Human and Experimental Toxicology*, 34(5) 445-59. http://dx.doi.org/10.1177/0960327114550882
6. Nguyen GC, Seow CH, Maxwell C, et al. 2016. The Toronto consensus statements for the management of inflammatory bowel disease in pregnancy. *Gastroenterology*, 150(3) 734-57.e1. http://dx.doi.org/10.1053/j.gastro.2015.12.003