

# CONSTIPATION

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## Introduction

Constipation is common in young children, a frequent cause of referral secondary care, and can become chronic in more than one-third of those affected. The most common form is idiopathic constipation, where there is no anatomical or physiological explanation for the symptoms.<sup>1</sup> Children and young people with Down syndrome, autism or cerebral palsy are particularly prone to idiopathic constipation and there is also a higher prevalence in children and young people in local authority care.<sup>1</sup> Severe constipation can be associated with faecal soiling which can have a significant emotional impact on children and young people and be stressful for parents and carers; prolonged support may be required to address social, psychological and educational consequences.<sup>1,2</sup>

The following section reviews severe constipation 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 constipation among 0–24 year olds*

#### Definition

Hospitalisations of 0–24 year olds with constipation 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

The number of 0–24 year olds hospitalised between 2011 and 2015 with any diagnosis of constipation is presented together with the total number of hospitalisations with constipation as a primary or any diagnosis. Constipation was the primary diagnosis in half of all such hospitalisations for 0–14 year olds and in one-quarter for 15–24 year olds.

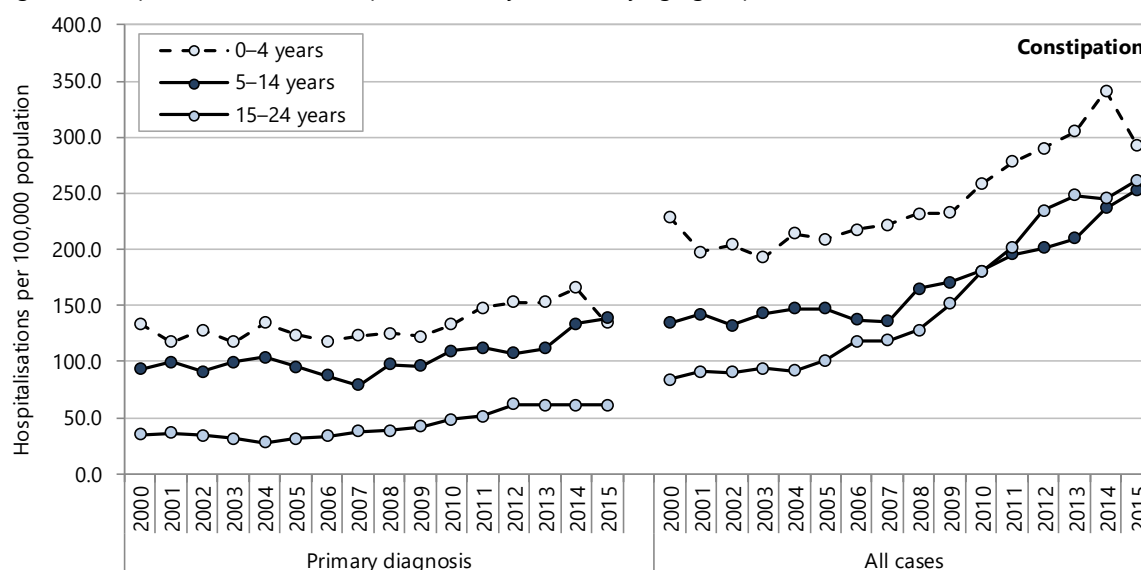
Hospitalisation rates for constipation rose in all age groups from 2000 to 2014, with a fall in rates for 0–4 year olds from 2014 to 2015. The rise in hospitalisation rates was most marked when all cases were included, particularly for 15–24 year olds. Hospitalisation rates were consistently highest for 0–4 year olds until 2014 (**Figure 1, Table 1**). Similar patterns over time were seen in all ethnic groups, with rates for European/Other tending to have the highest rates and Asian/Indian tending to have the lowest (**Figure 2**).

Table 1. 0–24 year olds hospitalised with constipation, New Zealand 2011–2015

Age group	Unique individuals (n)	Hospitalisations (n)		Ratio All : Primary
		Primary diagnosis	All cases	
Constipation				
Hospitalisation				
0–24 years	14,578	7,805	18,723	2.40
0–14 years	8,541	5,948	11,247	1.89
15–24 years	6,108	1,857	7,476	4.03

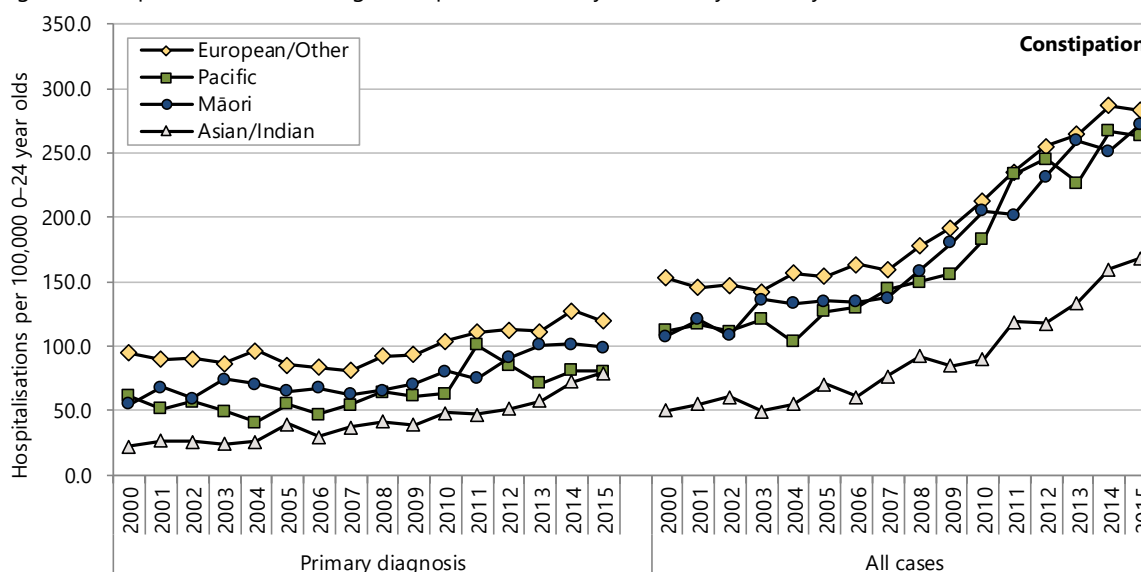
Source: National Minimum Dataset. 'Primary' corresponds to hospitalisations where constipation was primary diagnosis; 'All cases' corresponds to hospitalisations with constipation listed in any of the first 15 diagnoses; The sum of the age groups may total to more than the 0–24 year old total

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



Numerator: National Minimum Dataset, Denominator: Statistics NZ Estimated Resident Population. 'All cases' corresponds to hospitalisations with constipation in any of the first 15 diagnoses; Rates are per 100,000 age-specific population

Figure 2. Hospitalisations involving constipation 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 constipation included in any of the first 15 diagnoses. **Error! Reference source not found.** Fewer than half of the hospitalisations of 0–24 year olds with constipation had this condition as a primary diagnosis (**Table 2**). Constipation was included within the first 15 diagnoses in hospitalisations for a variety of conditions

including intestinal and digestive disorders, pregnancy, childbirth and the puerperium, diseases of the genitourinary and respiratory systems and injury and poisoning (**Table 2**).

Table 2. Hospitalisations involving constipation in 0–24 year olds, by primary diagnosis, New Zealand 2011–2015

Primary diagnosis	2011–2015 (n)	Annual average	Rate per 100,000 0–24 year olds	95% CI	%
<b>Constipation* in 0–24 year olds</b>					
<b>New Zealand</b>					
Constipation	7,805	1,561	101.62	99.39–103.89	41.7
Other functional intestinal disorders	22	4	0.29	0.19–0.43	0.1
Paralytic ileus and intestinal obstruction without hernia	75	15	0.98	0.78–1.22	0.4
Fissure and fistula of anal and rectal regions	46	9	0.60	0.45–0.80	0.2
Irritable bowel syndrome	24	5	0.31	0.21–0.46	0.1
Other intestinal diseases	55	11	0.72	0.55–0.93	0.3
Total intestinal diseases	8,027	1,605	104.51	102.25–106.82	42.9
Inflammatory bowel disease	52	10	0.68	0.52–0.89	0.3
Other diseases of the digestive system	573	115	7.46	6.87–8.10	3.1
Symptoms and/or abnormal clinical findings NEC	1,916	383	24.94	23.85–26.09	10.2
Pregnancy, childbirth and the puerperium	1,162	232	15.13	14.28–16.02	6.2
Diseases of the genitourinary system	971	194	12.64	11.87–13.46	5.2
Diseases of the respiratory system	909	182	11.83	11.09–12.63	4.9
Injury and/or poisoning	897	179	11.68	10.94–12.47	4.8
Other diagnoses	4,216	843	54.89	53.26–56.57	22.5
Total	18,723	3,745	243.76	240.30–247.27	100.0

Numerator: National Minimum Dataset, Denominator: Statistics NZ Estimated Resident Population. \* Constipation in any of the first 15 diagnoses; Rate per 100,000 0–24 year olds; NEC = not elsewhere classified

## Demographic distribution

**Table 3** presents the demographic distribution of individuals with constipation in New Zealand between 2011 and 2015. There was a slight but statistically significant social gradient with increasing prevalence of constipation requiring hospitalisation for individuals living at each increasing NZDep2013 quintile, compared with individuals living in areas with lower deprivation scores (NZDep2013 deciles 1–2). Prevalence of constipation requiring hospitalisation was significantly higher for 0–4 year olds and lower for 5–14 year olds, compared to 15–24 year olds. Compared to rates for European/Other 0–24 year olds, Māori and Pacific rates were not significantly different while Asian/Indian rates were significantly lower and MELAA rates significantly higher.

Table 3. 0–24 year olds hospitalised for constipation, by demographic factor, New Zealand 2011–2015

Variable	Unique individuals 2011–2015 ( <i>n</i> )	Rate per 100,000 population	Rate ratio	95% CI
Constipation* in 0–24 year olds				
New Zealand				
NZ Deprivation Index quintile				
Deciles 1–2	2,174	153.19	1.00	
Deciles 3–4	2,220	166.03	1.08	1.02–1.15
Deciles 5–6	2,588	179.54	1.17	1.11–1.24
Deciles 7–8	3,420	210.52	1.37	1.30–1.45
Deciles 9–10	4,537	244.18	1.59	1.51–1.68
Prioritised ethnicity				
Māori	3,455	191.55	0.96	0.92–1.00
Pacific	1,447	204.19	1.02	0.96–1.08
Asian/Indian	1,136	118.51	0.59	0.56–0.63
MELAA	318	315.32	1.58	1.41–1.76
European/Other	8,223	200.14	1.00	
Gender				
Female	8,745	232.92	1.00	
Male	5,833	148.56	0.64	0.62–0.66
Age group (years)				
0–4	3,746	240.17	1.23	1.18–1.28
5–14	4,926	165.07	0.85	0.82–0.88
15–24	6,108	194.71	1.00	

Numerator: National Minimum Dataset, Denominator: Statistics NZ Estimated Resident Population. \* Constipation 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 constipation varied across all South Island DHBs from 2000 to 2015, there have been small increases in Nelson Marlborough, South Canterbury and Southern DHBs and decreases in Canterbury and West Coast DHBs (**Figure 3**).

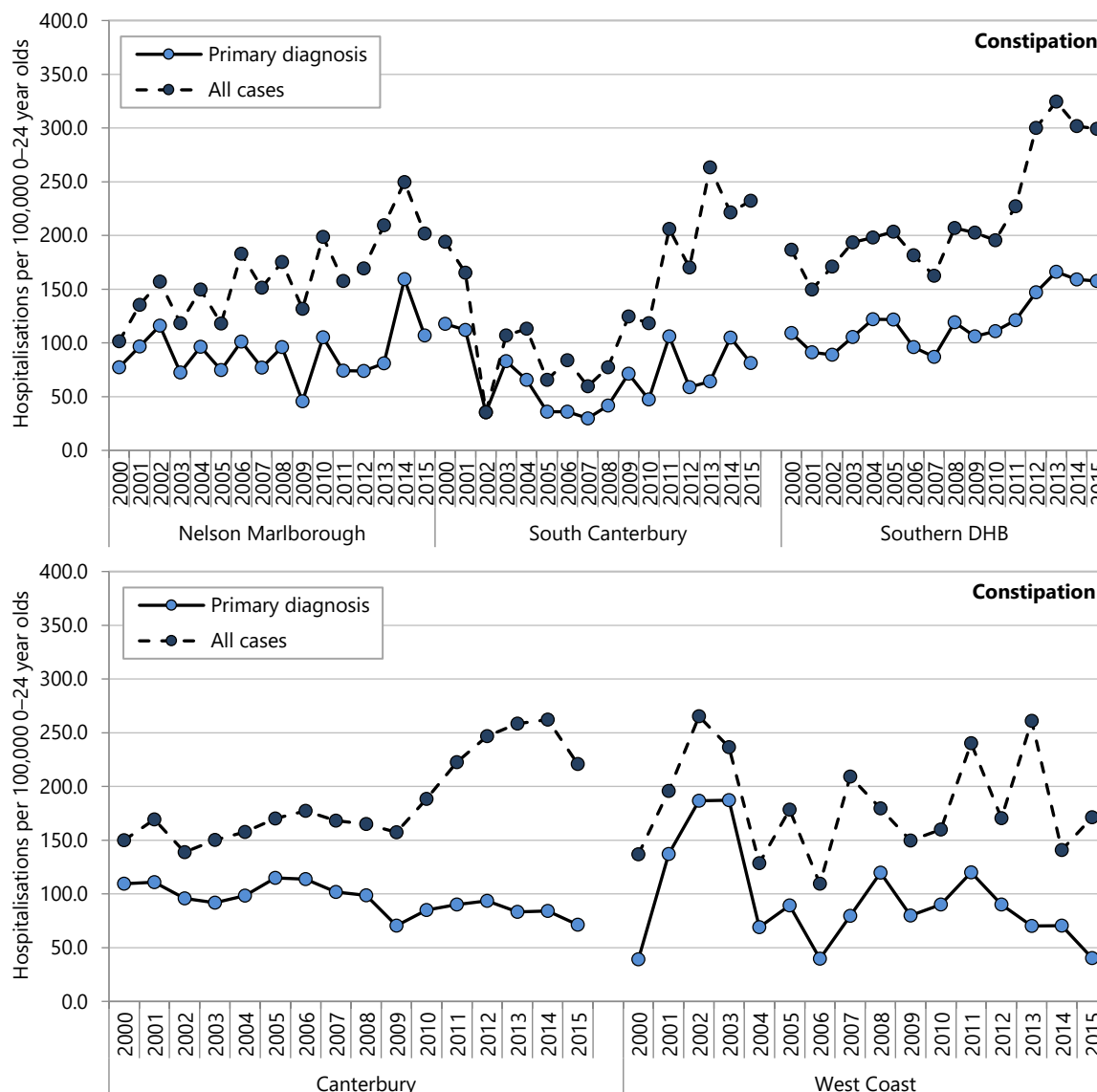
**Table 4** presents the number of individual 0–24 year olds hospitalised with any diagnosis of constipation in the South Island DHBs between 2011–2015, together with hospitalisations in which constipation documented as the primary diagnosis or any diagnosis. The All:Primary diagnosis ratio was between two and three nationally and in all South Island DHBs reflecting the size of the potential undercount if only primary diagnoses were included in analysis of discharge data.

Table 4. Hospitalisations for constipation in 0–24 year olds, South Island DHBs vs New Zealand 2011–2015

DHB	Unique individuals ( <i>n</i> )	Hospitalisations ( <i>n</i> )		Ratio All:Primary
		Primary diagnosis	All cases	
Constipation in 0–24 year olds				
Nelson Marlborough	303	208	415	2.00
South Canterbury	142	71	187	2.63
Canterbury	1,574	701	2,010	2.87
West Coast	80	39	98	2.51
Southern	1,109	778	1,504	1.93
New Zealand	14,578	7,805	18,723	2.40

Source: National Minimum Dataset. 'All cases' corresponds to hospitalisations with constipation listed in any of the first 15 diagnoses

Figure 3. Hospitalisations for constipation in 0–24 year olds, South Island DHBs 2000–2015



Numerator: National Minimum Dataset, Denominator: Statistics NZ Estimated Resident Population. 'All cases' corresponds to hospitalisations with constipation listed in any of the first 15 diagnoses

## Evidence for good practice

### Possibilities for prevention

The exact cause of idiopathic constipation is not fully understood; contributing factors may include pain, fever, dehydration, dietary and fluid intake, psychological issues, toilet training, medicines and family history of constipation.<sup>1</sup> If simple measures such as increasing fluid intake, increasing fruit and vegetables in the child's diet, encouraging a regular toileting habit and encouraging more exercise are not effective then early assessment by a health professional is important.<sup>3</sup>

### Evidence-based health care for children and young people with constipation

Conflicting advice and inconsistent practice make treatment of constipation potentially less effective and frustrating for children and their families. Providing consistent messages from the variety of healthcare professionals from whom children and young people with idiopathic constipation seek help is important. This will help to reduce rates of ED presentation and unplanned hospitalisation for constipation, reduce rates of recurrent constipation and/or impaction in children and young people, increase parent or carer satisfaction with information and advice, and enable children and young people to satisfactorily manage constipation.<sup>1</sup>

The following national and international guidelines, systematic reviews, other publications and websites relevant to the prevention and management of constipation are provided for further reading.

### **New Zealand guidelines**

- Starship Children's Health. 2012. Starship clinical guidelines: Constipation. <https://www.starship.org.nz/for-health-professionals/starship-clinical-guidelines/c/constipation/>

### **Evidence-based medicine reviews**

- Gordon M, et al. 2016. Osmotic and stimulant laxatives for the management of childhood constipation. Cochrane Database of Systematic Reviews. <http://dx.doi.org/10.1002/14651858.CD009118.pub3>
- Lu ML, et al. 2015. Electrical stimulation therapy for slow transit constipation in children: A systematic review. *International Journal of Colorectal Disease*, 30(5), 697-702. <http://dx.doi.org/10.1007/s00384-015-2180-3>
- Siminas S & Losty PD. 2015. Current surgical management of pediatric idiopathic constipation: A systematic review of published studies. *Annals of Surgery*, 262(6), 925-33. <http://dx.doi.org/10.1097/sla.0000000000001191>

### **Other relevant publications**

- Sbahi H & Cash BD. 2015. Chronic constipation: A review of current literature. *Current Gastroenterology Reports*, 17(12), 1-13. <http://dx.doi.org/10.1007/s11894-015-0471-z>
- Vandenplas Y, et al. 2015. Prevalence and health outcomes of functional gastrointestinal symptoms in infants from birth to 12 months of age. *Journal of Pediatric Gastroenterology and Nutrition*, 61(5), 531-37. <http://dx.doi.org/10.1097/MPG.0000000000000949>
- Wald A. 2016. Constipation: Advances in diagnosis and treatment. *JAMA*, 315(2), 185–91. <http://dx.doi.org/10.1001/jama.2015.16994>

### **Websites**

- Kidshealth. Constipation. <http://www.kidshealth.org.nz/constipation>

## **References**

1. National Institute for Health and Care Excellence. 2014. Constipation in children and young people NICE quality standard [QS62] <https://www.nice.org.uk/guidance/qs62> accessed September, 2016
2. Duncanson M, Oben G, Wicken A, et al. 2016. Constipation: A commonly costly complex condition. Paediatric Society of New Zealand 68th Annual Scientific Meeting - The science of healing, The art of medicine. Bethlehem College, Tauranga <https://ourarchive.otago.ac.nz/handle/10523/6933>
3. Kidshealth. Constipation <http://www.kidshealth.org.nz/constipation> accessed September, 2016.