

Queensland Child and Youth Clinical Network

Reducing Low Benefit Care in Paediatrics

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Reducing Low Benefit Care in Paediatrics

Low Benefit Care (LBC) is care that provides little or no benefits to patients, has potential to cause harm, can incur unnecessary cost to both patient and health services, with risk to sustainability in health care.

The guidance document and supporting resources from the Queensland Child and Youth Clinical Network (QCYCN) aims to:

- increase awareness and enhance the system effectiveness for LBC in paediatric health,
- support health services implement strategies to reduce LBC in paediatric health,
- assist clinicians to identify LBC practices which are aligned to recommendations and supported by evidence based rational, and
- support clinicians with the process through practical resources.

A survey was conducted to identify the focus areas of LBC in paediatrics. It was identified that 40% of the respondents were unaware of the Choosing Wisely Recommendation aligned to paediatrics and 31% either did not know or were unsure of what low benefit means. Through this process, focus areas were identified and are showcased in this document. Other LBC recommendations pertaining to paediatrics can be found in Appendix 1.

The QCYCN LBC Working Group reviewed the document and provided feedback. Endorsement was sought by the QCYCN Clinician Collaborative on 03/11/2021

Feedback was sought from other state-wide clinical networks and amendments actioned in responses to feedback provided.

This document will be periodically updated (3 years) as new evidence becomes available that identifies LBC pertaining to paediatric health care.

Disclaimer: *The recommendations contained herein are not intended to substitute for, or override, clinical judgement, and that decisions should be made after considering local institutional guidelines or advice from local specialists or governance bodies.*

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Background

LBC is care that has no benefit or benefit that is disproportionately low compared with its cost, is of low value and potentially wastes limited resources. The costs and harm related with systemic overdiagnosis and overtreatment is receiving international attention¹ and some medical care routinely provided to children is ineffective and potentially harmful.²

For patients and their caregivers, receiving a low-value test or treatment can lead to physical and psychological consequences.³ The importance of inclusion and shared decision making is supported and embraced by foundations such as Choosing Wisely through tools such as *5 questions to ask your doctor* (Appendix 2).

Choosing Wisely in collaboration with 14 medical Colleges/Groups (Appendix 3) have created a list of 36 recommendations with supporting rationale to increase the efforts of reducing LBC and raise awareness of paediatric overuse practices defined as provision of excess net harms.

This document relates to all patients aged 0-17 years presenting for healthcare across Queensland and their families. This is reflective of the 36 Choosing Wisely Recommendations and additional LBC recommendations that pertain to paediatrics. This is inclusive of care provided across emergency department (ED), inpatient care and outpatient settings. Annually across Queensland there are 1,606,405 (19/20 Financial year) paediatric ED presentations. Addressing LBC has the potential to improve their care, long term outcomes and reduce healthcare expenditure for the system.

To minimise, highlight and promote LBC practices in paediatrics, the following steps have been taken:

- Identify commonly used practices for which there is well established evidence to show that, in most circumstances, constitute LBC
- Identify strategies to assist with implementation and sustainability in reducing LBC
- Evaluate the effectiveness through measurement over time in LBC

Reducing LBC is important for improving health outcomes for patients and the efficiency of the health system. Quality improvement depends on knowing how much low-benefit care occurs, where and why it occurs.⁴

The QCYCN recognises the need to increase awareness and enhance the system effectiveness for LBC in paediatric health, as a network priority. This is aligned to recent outcomes from the Queensland Clinical Senate Meetings on *LBC: Runs on the Board* (Appendix 4), *Maximising Benefits of Care* (Appendix 5) and the *Choosing Better Care Together Program* which aims to optimise the appropriateness and effectiveness of clinical care and maximise evidence-based interventions that align with patients' personal treatment goals. This has the dual benefit of improving care and reducing unnecessary health expenditure.

¹ Ian A Scott and Stephen J Duckett, In search of professional consensus in defining and reducing low-value care, *Med J Aust* 2015; 203 (4): 179-181. || doi: 10.5694/mja14.01664, Published online: 17 August 2015

² Eric R. Coon, MD, MS1; Paul C. Young, MD2; Ricardo A. Quinonez, MD3; et al, 2017 Update on Pediatric Medical Overuse, *JAMA Pediatr.* 2018;172(5):482-486. doi:10.1001/jamapediatrics.2017.5752

³ Emma E. Sypes, Chloe de Grood, Fiona M. Clement, Jeanna Parsons Leigh, Liam Whalen-Browne, Henry T. Stelfox & Daniel J. Niven, Understanding the public's role in reducing low-value care: a scoping review, *Implementation Science* volume 15, Article number: 20 (2020)

⁴ Tim Badgery-Parker, Sallie-Anne Pearson, Kelsey Chalmers, Jonathan Brett, Ian A Scott, Susan Dunn, Neville Onley, Adam G Elshaug, Low-value care in Australian public hospitals: prevalence and trends over time, February 19, 2019

What is LBC to a clinician

Many clinicians have different understandings of what LBC is and how it relates to their core business of delivering the evidence-based care.

- *“In health care, we need to maximise the benefits of care for our patients. The focus is to try to avoid unnecessary LBC that impacts on the patient’s time and energy, bringing little or no benefit and sometimes, causing harm or distress or even cost to the patient, in this instance, the child and parents. In the current world of health, this is driven by human bias, information disparities and possibly fear of litigation concerns. We as clinicians need to focus on the validity of providing the different modalities of care and therefore avoid, overuse of investigations such as blood and imaging requests, medication prescribing, and procedures”*
- *“To me LBC is the provision of medical treatments that occur because “that’s what has always been done”, it’s an expectation of parents and medical staff and to ease anxiety and protect against legal action in case someone got the diagnoses wrong. It’s the admission to ease anxiety, it’s the antibiotic that is given even when all 24hr results are negative.”*

Commonly used LBC practices

To identify LBC practices, the following sources were reviewed:

- [Choosing Wisely Australia](#) is part of a global initiative to improve the safety and quality of healthcare. There are 36 recommendations identified through Choosing Wisely Australia aligned to 14 colleges/groups
- [ATLAS](#) - The *Third Australian Atlas of Healthcare Variation / The Fourth Australian Atlas of Healthcare Variation, Australia Commission on Safety and Quality in Health Care*. The Australian Commission on Safety and Quality in Health Care in partnership with patients, carers, clinicians, the Australian, state and territory health systems, the private sector, managers and healthcare organisations to achieve a safe, high-quality and sustainable health system. Clinical variation is a difference in healthcare processes or outcomes, compared to peers or to a gold standard such as an evidence-based guideline recommendation. There are a number of recommendations pertaining to paediatric health outlined in the report and in Appendix 6 & 7.
- [Evolve](#), is a flagship initiative led by physicians and the Royal Australasian College of Physicians (RACP) to drive high-value, high-quality care in Australia and New Zealand. Evolve is a founding member of Choosing Wisely in Australia and New Zealand.

An electronic survey was distributed to clinicians throughout Queensland via QCYCN Clinician Collaborative, QCYCN LBC Working Group, Statewide Directors of Paediatrics group, Emergency Care of Children Working Group and other means of distribution. 32 responses were received with the following demographics:

12 Hospital and Health Services participated:

- Cairns and Hinterland Hospital and Health Service
- Central Queensland Hospital and Health Service
- Children’s Health Queensland Hospital and Health Service
- Gold Coast Health
- Mackay Hospital and Health Service

- Metro North Health
- Metro South Health
- North West Health Service
- Sunshine Coast Hospital and Health Service
- Townsville Hospital and Health Service
- West Moreton Health
- Wide-Bay Hospital and Health Service

Professional Stream participation included:

- Executive
- Allied Health
- Midwifery
- Nursing
- Medical
- Public Health
- Project Officer / Manager

The survey outlined the Choosing Wisely recommendations and asked participants to rank these in order of importance / priority to their HHS/Organisation, with specific relevance to LBC in paediatric health. The outcomes of this survey supported and informed the direction of the document.

Recommendations

The recommendations identified as high focus through the survey are addressed below, categorised under Medical imaging, Medications, and Investigations. Other LBC recommendations pertaining to paediatrics can be found in Appendix 1.

Medical imaging

1. Do not routinely undertake chest X-rays for the diagnosis of bronchiolitis in children or routinely prescribe salbutamol or systemic corticosteroids to treat bronchiolitis in children

Proposed Strategy:

Bronchiolitis remains a clinical diagnosis. No investigations should be routinely performed. No medication should be routinely administered. Management should be limited to supporting feeds and oxygenation as required.

Source: Royal Australasian College of Physicians (RACP) Paediatrics & Child Health Division^{5,6,7,8,9,10,11,12,13}

Rational:

Chest X-rays: Chest X-rays for patients with acute lower respiratory tract infections rarely affect clinical treatments and outcomes. Chest X-ray films do not discriminate well between bronchiolitis and other forms of lower respiratory tract infection and in mild cases do not offer information that is likely to affect treatment. It is estimated that 133 children with typical bronchiolitis would have to undergo radiography to identify one radiograph that is suggestive of an alternate diagnosis.

Salbutamol: With the exception of improving clinical scores in infants treated as outpatients, the evidence overwhelmingly shows that bronchodilators, including salbutamol, do not improve oxygen saturation, reduce hospital admissions or shorten the duration of hospitalisation and time to resolution of illness in children with bronchiolitis. Compared with these minimal benefits, salbutamol is associated with adverse impacts such as tachycardia, oxygen desaturation and tremors. If a bronchodilator is required, adrenaline appears to be a superior alternative to salbutamol in reducing the severity of bronchiolitis.

Steroids: The majority of randomised controlled trials have not found a clinically relevant, sustained impact of systemic or inhaled glucocorticoids on admissions or length of hospitalisation in children with bronchiolitis or other forms of lower respiratory tract infection.

Target Audience:

Consumer, Doctors, Medical Imaging, Pharmacy

⁵ Beigelman A, King TS, Mauger D, et al. Do oral corticosteroids reduce the severity of acute lower respiratory tract illnesses in preschool children with recurrent wheezing? *Journal of Allergy and Clinical Immunology* 2013; 131(6):1518-25.

⁶ Bordley WC, Viswanathan M, King VJ, et al. Diagnosis and testing in bronchiolitis: a systematic review. *Archives of Pediatric Adolescent Medicine*. 2004; 158(2):119-26.

⁷ Cao AY, Choy JP, Mohanakrishnan L, et al. Chest radiographs for acute lower respiratory tract infections. *Cochrane Database of Systematic Reviews* 2013; 12: CD009119.

⁸ Fernandes RM, Bialy LM, Vandermeer B, et al. Glucocorticoids for acute viral bronchiolitis in infants and young children. *Cochrane Database of Systematic Reviews* 2013; 6:CD004878.

⁹ Gadomski AM, Scribani MB. Bronchodilators for bronchiolitis. *Cochrane Database of Systematic Reviews* 2014; 6:CD001266.

¹⁰ Hartling L, Fernandes RM, Bialy L, et al. Steroids and bronchodilators for acute bronchiolitis in the first two years of life: systematic review and meta-analysis. *British Medical Journal* 2011; 342:d171.

¹¹ Modaresi MR, Asadian A, Faghihinia J, et al. Comparison of epinephrine to salbutamol in acute bronchiolitis. *Iranian Journal of Pediatrics* 2012; 22(2):241-4.

¹² Schuh S, Lalani A, Allen U, et al. Evaluation of the utility of radiography in acute bronchiolitis. *Journal of Pediatrics* 2007; 150(4):429-33.

¹³ Yong JH, Schuh S, Rashidi R et al. A cost effectiveness analysis of omitting radiography in diagnosis of acute bronchiolitis. *Pediatric Pulmonology* 2009; 44(2):122-7.

2. Don't order chest x-rays in patients with uncomplicated acute bronchitis.

Proposed Strategy:

Do not request CXR in children with Bronchitis. Provide anticipatory guidance to parents about indications to present for further clinical review such as wet cough for >4 weeks.

Source: The Royal Australian College of General Practitioners^{14,15,16,17,18}

Rational:

Acute bronchitis is the commonest cause of cough presenting to GPs. It is usually viral (>90%) and self-limiting, and antibiotics should not routinely be used.

Chest x-rays (CXRs) are the imaging tests most frequently ordered by Australian GPs, and the most common indication is acute bronchitis/bronchiolitis (140,000 annually, data combined for both conditions).

'Uncomplicated' bronchitis refers to cough and sputum lasting less than three weeks in immunocompetent patients without underlying respiratory disease, and no clinical features suggesting pneumonia. A Cochrane review found routine CXR did not affect outcomes in adults or children presenting to hospital with acute chest infection. CXRs may also lead to false positives, further investigation and unnecessary radiation.

Target Audience:

Consumer, GP Engagement/ED Doctors/Paediatrician

3. Do not routinely order chest X-rays for the diagnosis of asthma in children

Proposed Strategy:

Chest Xray is not indicated for children with Asthma. Do not request a chest x-ray unless the patient has severe Asthma not responding to routine treatment or clinical features to suggest an air leak. Refer to guideline Asthma – Emergency management in children (Appendix 8)

Source: RACP Paediatrics & Child Health Division^{19,20,21}

Rational:

There is extensive evidence that the majority of X-rays ordered for children admitted for asthma and wheezing disorders do not provide clinically relevant information and therefore do not contribute to their diagnosis and management. Clear clinical criteria outlining the indications for X-rays in asthma should be defined to avoid unwarranted chest X-rays in children with acute wheeze.

Target Audience:

Consumer, GP Engagement/ED: doctors

¹⁴ Gordon J, Miller G, Pan Y. Ordering chest X-rays in Australian general practice. *Aust Fam Physician* 2015;44:537-9.

¹⁵ Michigan Quality Improvement Consortium. Management of uncomplicated acute bronchitis in adults. Southfield (MI): Michigan Quality Improvement Consortium; 2012 Sep. 1.

¹⁶ Metlay J, Kapoor W, Fine M. Does this patient have community-acquired pneumonia? Diagnosing pneumonia by history and physical examination. *JAMA*. 1997;278(17):1440-45.

¹⁷ Cao A, Choy J, Mohanakrishnan L, et al. Chest radiographs for acute lower respiratory tract infections. *Cochrane Database of Systematic Reviews* 2013, Issue 12. Art. No.:CD009119.

¹⁸ Albert A. Diagnosis and treatment of acute bronchitis. *Am Fam Physician*. 2010;1:82(11).

¹⁹ Hederos C-A, Janson S, Andersson H, et al. Chest x-ray investigation in newly discovered asthma. *Pediatric Allergy and Immunology* 2004; 15(2): 163–165.

²⁰ Muthukrishnan L, Raman R. Analysis of clinical & radiological findings in children with acute wheeze. *Pulmonary and Respiratory Research* 2013; 1:1

²¹ Narayanan S, Magruder T, Walley SC, et al. Relevance of chest radiography in pediatric inpatients with asthma. *Journal of Asthma* 2014; 51(7):751-5.

4. Don't do computed tomography (CT) for the evaluation of suspected appendicitis in children and young adults until after consultation with a paediatric surgeon.

Proposed Strategy:

Careful history and physical examination are the most important diagnostic tools for acute appendicitis. Surgical consultation must be sought when there is a high index of clinical suspicion before abdominal ultrasound is requested.

Source: Royal Australasian College of Surgeons^{22,23,24,25,26,27,28,29,30,31}

Rational:

Ultrasound is a good diagnostic tool that will reduce radiation exposure but should only be interpreted in conjunction with clinical examination as in itself it does not have specificity or sensitivity as a screening investigation for appendicitis in children. Ultrasound is the preferred initial consideration for imaging examination in children and young adults. If the results of the ultrasound exam are equivocal, it may be followed by CT.

Target Audience:

Consumer, ED doctors, Surgeons, medical imaging

5. Don't request CT head scans in patients with a head injury, unless indicated by a validated clinical decision rule.

Proposed Strategy:

The majority of children presenting to hospital with a head injury do not require neuroimaging. Use the PECARN Tool / Chalice to determine which children need observation vs CT head (Appendix 9).

Source: Australasian College for Emergency Medicine / The Royal Australian and New Zealand

²² Meulepas J, Ronckers C, Smets A, et al. Radiation exposure from pediatric CT scans and subsequent cancer risk in the Netherlands. J Natl Cancer Inst. doi: 10.1093/jnci/djy104

²³ Brenner D, Elliston C, Hall E, et al. Estimated risks of radiation-induced fatal cancer from pediatric CT. AJR Am J Roentgenol. 2001;176:289-296.

²⁴ Pearce M, Salotti J, Little M, et al. Radiation exposure from CT scans in childhood and subsequent risk of leukemia and brain tumors: a retrospective cohort study. Lancet. 012;380:499-505.

²⁵ Mathews J, Forsythe A, Brady Z, et al. Cancer risk in 680,000 people exposed to computed tomography scans in childhood or adolescence: data linkage study of 11 million Australians. BMJ. 2013;346:f2360.

²⁶ . Danielle I. Miano, BS,*§ Renee M. Silvis, BS,* Jill M. Popp, et al. Abdominal CT Does Not Improve Outcome for Children with Suspected Acute Appendicitis. J Pediatr Surg. 2003 Mar;38(3):367-71; discussion 367-71. doi: 10.1053/jpsu.2003.50110.

²⁷ Antonia E Stephen 1, Dorry L Segev, Daniel P Ryan, Mark E Mullins, Samuel H Kim, Jay J Schnitzer, Daniel P Doody The diagnosis of acute appendicitis in a pediatric population: to CT or not to CT

²⁸ Giljaca, V, Nadarevic T et al. Diagnostic Accuracy of Abdominal Ultrasound for Diagnosis of Acute Appendicitis: Systematic Review and Meta-analysis. World Journal of Surgery. 41, pages 693–700 (2017)

²⁹ Wan MJ, et al. Acute appendicitis in young children: cost-effectiveness of US versus CT in diagnosis-a Markov decision analytic model. Radiology 2009;250(2):378-86.

³⁰ Doria AS, et al. US or CT for diagnosis of appendicitis in children? A meta-analysis. Radiology 2006;241(1):83-94.

³¹ Krishnamoorthi R, et al. Effectiveness of a staged US and CT protocol for the diagnosis of paediatric appendicitis: reducing radiation exposure in the age of ALARA. Radiology 2011;259(1):231-9.

Rational:

Most head injuries presenting to emergency departments will be minor and do not require immediate neurosurgical intervention or inpatient care. Mild head injury patients can be risk stratified into 'low' or 'high' risk groups based on the presence or absence of identified clinical risk factors. Current validated clinical decision rules include the Canadian CT Head Rule (for adults) or the PECARN (Paediatric Emergency Care Applied Research Network) Tool (for children). These rules can safely identify patients who can be discharged home, without CT scanning.

Target Audience:

Consumer, ED doctors

Medications

6. Do not prescribe antibiotics for exacerbation of asthma

Proposed Strategy:

Antibiotics should not be used for asthma when there is no clinical evidence of bacterial pneumonia

Source: The Thoracic Society of Australia and New Zealand^{44,45,46,47}

Rational:

The most recent Global Initiative for Asthma (GINA) report does not recommend a role for antibiotics in management of asthma exacerbation unless there is strong evidence of lung infection, such as fever and purulent sputum or radiographic evidence of pneumonia. This is supported by recent trials

³² Finkelstein E, Corso P, Miller T, Associates. The Incidence and Economic Burden of Injuries in the United States. New York: Oxford University Press; 2006.

³³ Haydel MJ, Preston CA, Mills TJ, Luber S, Blaudeau E, DeBlieux PM. Indications for computed tomography in patients with minor head injury. N Engl J Med. 2000; 343(2): 100-5.

³⁴ Mower W, Hoffman J, Herbert M, Wolfson A, Pollack C, Zucker M, et al. Developing a clinical decision instrument to rule out intracranial injuries in patients with minor head trauma: methodology of the NEXUS II investigation. Ann Emerg Med. 2002; 40(5): 505-14.

³⁵ Mower WR, Hoffman JR, Herbert M, Wolfson AB, Pollack CV, Jr., Zucker MI. Developing a decision instrument to guide computed tomographic imaging of blunt head injury patients. J Trauma. 2005; 59(4): 954-9.

³⁶ Stiell IG, Lesiuk H, Wells G, McKnight R, Brison R, Clement C, et al. The Canadian CT Head Rule Study for patients with minor head injury: Rationale, objectives, and methodology for phase I (derivation). Ann Emerg Med. 2001; 38(2): 160-9.

³⁷ Stiell IG, Wells GA, Vandemheen K, Clement C, Lesiuk H, Laupacis A, et al. The Canadian CT Head Rule for patients with minor head injury. Lancet. 2001; 357(9266): 1391-6.

³⁸ Stiell IG, Lesiuk H, Wells GA, Coyle D, McKnight RD, Brison R, et al. Canadian CT head rule study for patients with minor head injury: methodology for phase II (validation and economic analysis). Annals of emergency medicine. 2001; 38(3): 317-22.

³⁹ Ro Y, Shin S, Holmes J, Song K, Park J, Cho J, et al. Comparison of clinical performance of cranial computed tomography rules in patients with minor head injury: a multicenter prospective study. Academic emergency medicine. 2011; 18(6): 597-604.

⁴⁰ Boudia W, Marghli S, Souissi S, Ksibi H, Methammem M, Haguiga H, et al. Prediction Value of the Canadian CT Head Rule and the New Orleans Criteria for Positive Head CT Scan and Acute Neurosurgical Procedures in Minor Head Trauma: A Multicenter External Validation Study. Annals of emergency medicine. 2012; 61(5): 521-7.

⁴¹ Kuppermann N, Holmes JF, Dayan PS, Hoyle JD, Jr., Atabaki SM, Holubkov R, et al. Identification of children at very low risk of clinically-important brain injuries after head trauma: a prospective cohort study. Lancet. 2009; 374(9696): 1160-70.

⁴² Dunning J, Daly JP, Lomas JP, Lecky F, Batchelor J, Mackway-Jones K. Derivation of the children's head injury algorithm for the prediction of important clinical events decision rule for head injury in children. Arch Dis Child. 2006; 91(11): 885-91.

⁴³ Osmond M, Klassen T, Wells G, Correll R, Jarvis A, Joubert G, et al. CATCH: a clinical decision rule for the use of computed tomography in children with minor head injury. CMAJ. 2010; 182(4): 341-8.

⁴⁴ Brusselle GG, Vanderstichele C, Jordens P, et al. Azithromycin for prevention of exacerbations in severe asthma (AZISAST): a multicentre randomised double-blind placebo-controlled trial. Thorax. 2013;68(4):322-9.

2018 GINA Report, Global Strategy for Asthma Management and Prevention.

⁴⁵ Li H, Liu DH, Chen LL, et al. Meta-analysis of the adverse effects of long-term azithromycin use in patients with chronic lung diseases. Antimicrob Agents Chemother. 2014;58(1):511-7.

⁴⁶ Johnston SL, Szigeti M, Cross M, et al. Azithromycin for Acute Exacerbations of Asthma The AZALEA Randomized Clinical Trial. JAMA Intern Med. 2016;176(11):1630-1637.

⁴⁷ Stokholm J, Chawes BL, Vissing NH, et al. Azithromycin for episodes with asthma-like symptoms in young children aged 1-3 years: a randomised, double-blind, placebo-controlled trial. Lancet Respir Med. 2016;4(1):19-26.

involving azithromycin (a commonly prescribed antibiotic for management of asthma), which found that this drug had no statistically significant impacts on severity of symptoms during an exacerbation. One small randomised controlled trial (RCT) in young children with recurrent asthma-like symptoms showed that azithromycin reduced the duration of asthma-like symptoms. No RCT has been conducted in children who have a diagnosis of asthma to determine if the rate of severe asthma exacerbation or the severity of asthma symptoms or duration of an asthma exacerbation is reduced by azithromycin. A potential role for azithromycin in reducing the duration of an episode of asthma-like symptoms in children less than 3 years of age requires further investigation. Antibiotic treatment in addition to its lack of efficacy also increases the risk of bacteria resistance for those on long term treatment regimes.

Target Audience:

Consumer, ED doctors, inpatient doctors, Pharmacy, GP Engagement

7. Avoid prescribing antibiotics for upper respiratory tract infection (URTI).

Proposed Strategy:

Paediatric patients presenting with upper respiratory tract infections do not require antibiotics but should be monitored clinically for superimposed bacterial infection particularly in at risk groups (neonates < 3months of age, indigenous children, immunocompromised children). Queensland Paediatric Sepsis Pathway (Appendix 10)

Source: Australasian Society for Infectious Diseases^{48,49,50}

Rational:

Most uncomplicated upper respiratory infections are viral in aetiology and antibiotic therapy is not indicated. Oral antibiotic therapy of presumed URTI in febrile young infants is not only 'low value' but can be actively dangerous, in delaying presentation to hospital (inappropriately reassuring parents and confounding investigations of sepsis). This is a major issue for paediatrics primary care and ED presentations. Patient education is an important component of management together with symptomatic treatment.

Frequent antibiotic use also impacts on bacterial resistance making future severe infections resistant to standard antibiotics.

Infections with *Streptococcus pyogenes* and *Bordetella pertussis* do require antibiotic therapy.

Target Audience:

Consumer, GP Engagement/ED Doctors, Inpatient Doctors

8. Don't routinely administer antipyretics with the sole aim of reducing body temperature in undistressed children

Proposed Strategy:

Children presenting with fever who are otherwise well do not require routine antipyretic therapy. These children benefit from rest, frequent fluids and supportive cares.

⁴⁸ Kenealy T, Arroll B. Antibiotics for the common cold and acute purulent rhinitis. Cochrane Database Systemic Review 2013; CD000247.

⁴⁹ Hersh AL, Jackson MA, Hicks LAI. Principles of judicious antibiotic prescribing for upper respiratory tract infections in paediatrics. Paediatrics 2013;132(6):114654.

⁵⁰ Antibiotic Expert Groups. Therapeutic guidelines: antibiotic. Version 15. Melbourne: Therapeutic Guidelines Limited; 2014.

Source: Australian College of Nursing^{51,52,53,54,55}

Rational:

Fever is defined as a rise in body temperature above the normal range of approximately 38 degrees Celsius and is commonly seen as a primary indication of illness in children. It is a normal physiological response to infection and illness and will not place a generally healthy child at harm.

The benefits of fever in slowing the growth and replication of bacteria and viruses are well documented within the literature, however the administration of pharmacological antipyretic therapy to reduce fever remains a common clinical intervention. Current evidence does not support the routine use of antipyretics solely to reduce body temperature but to maximise the comfort and well-being of the distressed child as an adjunct to the investigation and management of the cause of fever.

Antipyretic therapy is not effective in managing adverse symptoms of fever such as febrile convulsion. Supportive care that includes parental education is also important to increase understanding and to decrease anxiety.

Target Audience:

Consumer, GP Engagement/ED/inpatients

Investigations

9. Remove all invasive devices, such as intravascular lines and urinary catheters, as soon as possible.

Proposed Strategy:

Daily review of all invasive devices is recommended. Remove as soon as no longer required to limit local and systemic infection and local complications.

Source: Australian and New Zealand Intensive Care Society (ANZICS)^{56,57,58,59,60,61}

⁵¹ National Institute for Health and Clinical Excellence (NICE). Feverish Illness in Children – Assessment and Management in Children Younger than 5 years. NICE Clinical Guideline 47, 2013, London, UK.

⁵² Carey, JV. Literature review: should antipyretic therapies routinely be administered to a patient fever? Journal of Clinical Nursing 2010; 19:2377-93.

⁵³ Greisman LA, Mackowiak PA. Fever: beneficial and detrimental effects of antipyretics. Current Opinion in Infectious Diseases 2002; 15(3):241-245.

⁵⁴ Sullivan JE, Farrar HC. Clinical report: Fever and antipyretic use in children. American Academy of Paediatrics 2011; 127(3).

⁵⁵ Van den Anker, J.N. Optimising the management of fever and pain in children. The International Journal of Clinical Practice 2013;67(Suppl.178).

⁵⁶ Ziegler MJ, Pellegrini DC, Safdar N. Attributable mortality of central line associated bloodstream infection: systematic review and meta-analysis. Infection 2015;43(1):29-36.

⁵⁷ O'Horo J, et. al. Arterial catheters as a source of bloodstream infection: a systematic review and meta-analysis. Crit Care Med 2014;42:1334-1339.

⁵⁸ Pronovost P, et. al. An intervention to decrease catheter-related bloodstream infections in the ICU. NEJM 2006;355:2725-32.

⁵⁹ Trautner BW, Hull RA, Darouiche RO. Prevention of catheter-associated urinary tract infection. Curr Opin Infect Dis 2005;18:37-41.

⁶⁰ The Australian Guidelines for the Prevention and Control of Infection in Healthcare (2010); <http://www.nhmrc.gov.au/book/australian-guidelines-prevention-and-control-infection-healthcare-2010/b4-2-2-intravascular-acc>

⁶¹ CDC Guidelines for the Prevention of Intravascular Catheter-Related Infections, 2011 <http://www.cdc.gov/hicpac/pdf/guidelines/bsi-guidelines-2011.pdf>

Rational:

Patients in the intensive care unit often require invasive devices as part of their treatment as well as monitoring of therapy. These lines however are a potential source of healthcare related infections. Preventative 'bundles' of care including simple measures such as hand hygiene and aseptic methods of insertion and care of devices have reduced the risk of health care related infections. Infections related to invasive devices are a significant cause of morbidity and mortality. Hence, all invasive devices such as arterial lines, central lines, urinary catheters should be removed as soon as possible.

Target Audience:

Consumer, inpatient doctors/intensive care

- 10. For children, young people with life-limiting conditions (such as advanced cardiac, renal or respiratory failure, metastatic malignancy, third line chemotherapy), and their parents/ carers and families, ensure that they are introduced early to Advance Care Planning discussions and periodically re-visit these decisions to actively consider and update their goals of care to support high value EOL care and minimise avoidable admission to ICU.**

Proposed Strategy:

Early referral to palliative care services supports the initiation of timely, ongoing discussions and documentation of goals of care with young people and their parents/carers and family upon diagnosis of a life-limiting condition. This will allow families to actively consider and clearly communicate if admission to and care in intensive care aligns with their care goals

Source: Australian and New Zealand Intensive Care Society^{62,63,64,65,66,67,68,69}

Rational:

The ANZICS Statement on Care and Decision Making at the End of Life for the Critically Ill states that the goal of intensive care is to return patients to a quality of life that is acceptable to them. To achieve this goal, it is essential that clinicians explore the values and preferences of each patient. Engaging young people and their families in the discussions relating to treatment limitations, suffering, quality of life and options for redirection of care can improve the quality of end of life care, and create more meaningful experiences for family members relationships and ongoing mental health and for health professional's resilience and well-being.

According to the Paediatric Palliative Care Position Statement (2015), there is a common misconception that palliative care is solely for end-of-life care, when all hope has been abandoned. From diagnosis, palliative care is a necessary element in the treatment of young people with life limiting conditions. Early referral promotes and maintains quality of life and enables discussions

⁶² Detering KM, Hancock AD, Reade MC, Silvester W. The impact of advance care planning on end of life care in elderly patients: randomised controlled trial. *BMJ* 2010;340:c1345.

⁶³ Truog RD, Campbell ML, Curtis JR, Haas CE, Luce JM, Rubenfeld GD, Rushton CH, Kaufman DC. Recommendations for end-of-life care in the intensive care unit: a consensus statement by the American College of Critical Care Medicine. *Critical Care Medicine* 2008;36(3):953-63.

⁶⁴ Australian and New Zealand Intensive Care Society. ANZICS Statement on Care and Decision-Making at the End of Life for the Critically Ill (Edition 1.0). Melbourne, ANZICS, 2014.

⁶⁵ Fields MJ, Cassel CK. Approaching death, improving care at the end of life. Washington, D.C.: National Academy Press; 1997;437.

⁶⁶ Angus DC, Barnato AE, Linde-Zwirble WT, Weissfeld LA, Watson RS, Rickert T, Rubenfeld GD, Robert Wood Johnson Foundation ICU End-Of-Life Peer Group. Use of intensive care at the end of life in the United States: an epidemiologic study. *Crit Care Med* 2004;32(3):638-43.

⁶⁷ Curtis JR, Engelberg RA, Wenrich MD, Shannon SE, Treece PD, Rubenfeld GD. Missed opportunities during family conferences about end-of-life care in the intensive care unit. *Amer J Respir Crit Care Med* 2005;171:844-9.

⁶⁸ Gries CJ, Engelberg RA, Kross EK, Zatzick D, Nielsen EL, Downey L, Curtis JR. Predictors of symptoms of posttraumatic stress and depression in family members after patient death in the ICU. *Chest* 2010;137(2):280-7.

⁶⁹ Prigerson HG, Bao Y, Shah MA, et al. Chemotherapy use, performance status, and quality of life at the end of life. *JAMA Oncol* 2015;1(6):778-84.

between young people and their families to identify their goals of care while planning for future care needs and supporting them as they experience grief and loss. This planning and support enable effective collaboration with other healthcare teams, improving case management, care experiences and quality of life. Planning care in advance ensures families have opportunities to decide about treatments and interventions over time. During times of crisis, this avoids families and health professionals engaging in difficult discussions or time-pressured decision making and eliminates provision of unwanted interventions.

Target Audience:

Consumer, GP Engagement, inpatients Intensive Care, inpatient doctors

Principles for reducing LBC

The first step is identification of commonly used LBC practices in paediatric health (see above). The next step is identifying the cause and effect of the main LBC drivers.

The following principles are important to consider when implementing the above LBC strategies:

- Communication pathway with consumers and patients:
 - Discuss the Management Plan in detail with parent/child, provide the proposed differentials, explain the process of investigation if needed, or the reasons why investigation may or may not be required in other circumstances.
 - Discuss the treatment and management plans with parents.
 - Take time to provide parents with the next course of action and plans if the child presents with other symptoms deviating from expected course of illness. This will allow parents to appreciate that you are holistic in your management and would tailor the management plan with new changes in the medical condition.
 - Focusing on “quality of care” is important rather than processing “quantity in care” – with restrictions in budget and time, this can be challenging for clinicians.
- Communication with GPs:
 - Provide feedback to GPs that may have provided information/recommendations that go against LBC practices.
 - Communication within primary care setting for workforce to ensure consistent language and understanding of LBC.
- Patient mediated strategies:
 - Empowering the patients to question the value of interventions proposed by clinicians.
 - This needs to involve shared decision making with the family, multidisciplinary supports, educational materials, and wider public messaging for previous myths of treatment.
- Education with the parents and child:
 - Discussing care, environmental and social structures surrounding the families, including supportive public health messages.
 - For example – We don’t routinely prescribe antibiotics for Asthma as they don’t help with child’s symptoms and can have other minor adverse reactions.
 - discussing safety strategies with parents who smoke and have young babies or children with respiratory illness, such as removing an outer garment and washing hands before picking up their child.
- Support in clinical decision functions through technology (Electronic records, alerts, prompts)

Evaluation of effectiveness of strategies for reducing LBC

It is important to be able to apply quality improvement methodology to measure and evaluate the progress of your LBC quality improvement initiative and provide continued feedback to staff to keep the team engaged and active during implementation. It is also important to report progress and outcomes to executives, governance committees, project sponsors etc. Evaluation can be conducted with clinicians, individual teams or units (departments), whole hospitals or health service patients/consumers and methods can include feedback systems such as PREMS, patient experience surveys, consumer feedback platforms, audits and evaluation frameworks. Evaluation can look at levels of understanding and adherence, as well as reasons for deviation from LBC, from healthcare professionals. Further details of evaluation can be found in the appendices and Toolkit.

Future directions

Future work in Reducing Low Benefit Care in Paediatrics should build on this initial Guidance Document and Toolkit to:

- develop further resources to assist clinicians with implementation, taking into consideration data, auditing tools, costing sources, conversation videos and guides
- using data to identify areas of LBC and evaluate change across all discipline areas including Medical, Nursing and Allied Health
- develop and promote education and tools
- identify LBC champions to model behaviour and attitude
- develop consumer communication strategy, resources and awareness
- explore digital solutions, including digital clinical decision aids, that improve awareness and accessibility to LBC resources, foster collaboration, support benchmarking
- support localised approaches
- build collaboration with primary care and Health Consumers Qld.

Conclusion

This Guidance Document and Toolkit aimed to increase awareness and enhance the system effectiveness for LBC in paediatric health, promote a shared language about LBC, outline prioritised evidence-based practices and provide practical implementation strategies to support clinicians. This document provides a strong foundation and is well positioned as a catalyst for necessary statewide system change that has both state and national relevance. Reducing LBC can help ease the burden of healthcare costs to individuals, society and health services (beyond just financial costs), reduce harm from over treatment, build trust in the health system and health professionals and lead to greater consistency in healthcare within paediatrics. QCYCN will continue to advocate for and promote the implementation of evidence-based LBC strategies to ensure compassionate, high value paediatric healthcare.

Appendices

Appendix (1) Other Recommendation list

Other LBC recommendations pertaining to paediatrics highlighted below:

Choosing Wisely

Source	Recommendation
Australasian College for Emergency Medicine	1. Don't request computed tomography (CT) head scans in patients with a head injury, unless indicated by a validated clinical decision rule.
Australasian Paediatric Endocrine Group	1. Do not rely on random measures of circadian hormones for diagnostic purposes.
	2. Do not rely solely on bone age measurement for assessing growth in young children with short stature under 2 years of age.
	3. Do not routinely measure insulin-like growth factor binding protein 3 (IGFBP-3) for workup and diagnosis of childhood short stature.
	4. Do not initiate gonadotropin-releasing hormone (GnRH) analogue treatment in children outside of central precocious puberty, for the target outcome of delaying puberty and improving final adult height.
	5. Do not routinely prescribe aromatase inhibitors to promote growth in children with short stature.
Australasian Society for Infectious Diseases	2. Do not investigate or treat for faecal pathogens in the absence of diarrhoea or other gastro-intestinal symptoms.
Australasian Society of Clinical Immunology and Allergy	1. Don't delay introduction of solid foods to infants - ASCIA Guidelines for Infant Feeding and allergy prevention recommend introduction of solid foods to infants, around 6 months of age.
Australian and New Zealand Intensive Care Society / College of Intensive Care Medicine of Australia and New Zealand	3. Transfuse red cells for anaemia only if the haemoglobin concentration is less than 70gm/L or if the patient is haemodynamically unstable or has significant cardiovascular or respiratory comorbidity.
	4. Undertake daily attempts to lighten sedation in ventilated patients unless specifically contraindicated and deeply sedate mechanically ventilated patients only if there is a specific indication.

	5. Consider antibiotic de-escalation daily.
RACP Paediatrics & Child Health Division	1. Do not routinely undertake chest X-rays for the diagnosis of bronchiolitis in children or routinely prescribe salbutamol or systemic corticosteroids to treat bronchiolitis in children
	2. Do not routinely order chest X-rays for the diagnosis of asthma in children
	3. Do not routinely treat gastroesophageal reflux disease (GORD) in infants with acid suppression therapy.
	4. Do not routinely order abdominal X-rays for the diagnosis of non-specific abdominal pain in children
Royal Australasian College of Surgeons	1. Don't do computed tomography (CT) for the evaluation of suspected appendicitis in children and young adults until after ultrasound has been considered as an option.
The Australia and New Zealand Child Neurology Society	1. Do not routinely perform electroencephalographs (EEGs) for children presenting with febrile seizures.
	2. Do not routinely perform computed tomography (CT) scanning of children presenting with new onset seizures.
	3. Do not routinely undertake repeat blood level monitoring of antiepileptic drug (AED) treatments.
	4. Do not routinely undertake neuroimaging for new onset primary headache without first examining for neurological abnormality.
	5. Do not routinely perform electroencephalographs (EEGs) for children presenting with syncope (fainting).
The Australian Physiotherapy Association	1. Most clinically significant acute ankle injuries can be diagnosed with history, examination, and selective use of plain radiography. The Ottawa Ankle Rules dictate selective use of plain radiography in patients with acute ankle injury is useful in identifying patients who have sustained clinically important fracture, dislocation, and osteochondral injuries. However, acute ligamentous injuries involving the anterior talofibular ligament can be diagnosed clinically and treated symptomatically. When there are persistent symptoms, which raise suspicion of either instability or other internal derangement such as osteochondral injury, MRI can be used if the non-urgent weight bearing x-rays show no abnormality.
The Royal Australian and New Zealand College of Radiologists	1. Don't request imaging for acute ankle trauma unless indicated by the Ottawa Ankle Rules (localised bone tenderness or inability to weight-bear as defined in the Rules).

	2. Don't request imaging of the cervical spine in trauma patients, unless indicated by a validated clinical decision rule.
	3. Don't request computed tomography (CT) head scans in patients with a head injury, unless indicated by a validated clinical decision rule.
The Royal Australian College of General Practitioners	1. Don't order chest x-rays in patients with uncomplicated acute bronchitis.
	2. Don't treat otitis media (middle ear infection) with antibiotics, in non-Indigenous children aged 2-12 years, where reassessment is a reasonable option.
The Thoracic Society of Australia and New Zealand	1. Do not prescribe combination therapy (inhaled corticosteroids with long-acting beta2 agonist) as initial therapy in mild to moderate asthma before a trial of inhaled corticosteroids alone.
	3. Do not use oral beta2 agonists as bronchodilators in asthma, wheeze or bronchiolitis.
	4. For children with bronchiolitis without other co-morbidities, do not delay discharge from an inpatient admission based on oxygen saturations alone if saturations are $\geq 90\%$.
	5. Do not delay immunisation/s based on presence of mild respiratory symptoms in the absence of fever.

Evolve

Source	Recommendation
Paediatrics and Child Health Division	Do not routinely treat gastroesophageal reflux disease (GORD) in infants with acid suppression therapy
	Do not routinely order abdominal X-rays for the diagnosis of non-specific abdominal pain in children

Australian Atlas of Healthcare Variation

ATLAS Version	Topic	Recommendation
Third 2018 Third 2018	Neonatal and paediatric health	
	1.2 Antibiotics dispensing in children, 9 years and under (2016-17)	1i. NPS MedicineWise to ensure that its public education campaigns highlight the potential harms of inappropriate antibiotic use in children, and provide advice for parents on managing coughs, colds, earaches and sore throats without the use of antibiotics.
		1j. The Commission, as part of the Antimicrobial Use and Resistance in Australia Surveillance System, to monitor antibiotic use in children in hospitals and the community.
		1k. The National Health and Medical Research Council to consider funding research into approaches to reduce antibiotic overuse in children, particularly in acute respiratory infections when antibiotics are most commonly prescribed.
1.3 Proton pump inhibitor medicines dispensing, 1 year and under (2016-17)	Inappropriate use of proton pump inhibitor medicines in children 1h. The Pharmaceutical Benefit Advisory Committee to recommend PBS streamlined authority required listings for PPI medicines that have Therapeutic Goods Administration-approved indications in infants and children, such as gastro-oesophageal reflux disease.	
Fourth 2021	Ear, nose and throat surgery for children and young people	
	3.1 Tonsillectomy hospitalisations, 17 years and under	3a. The Australian and New Zealand Society of Paediatric Otorhinolaryngology to work with relevant clinical colleges to develop clinical guidelines on tonsillectomy in children, and subsequent to this the Commission to develop a clinical care standard with safety and quality indicators.
		3b. Health service organisations to: i. Conduct audits of indications for tonsillectomy and tonsillectomy rates to monitor variation and provide the results back to clinicians to act upon in line with Action 1.28 of the National Safety and Quality Health Service (NSQHS) Standards. ii. Incorporate individual clinicians' audit data as part of re-credentialing processes.
3.2 Myringotomy hospitalisations, 17 years and under	3c. State and territory health departments and health service organisations to set benchmarks for access to paediatric audiology services.	

3d. The Australian Government Department of Health to develop and implement two national ear and hearing health performance indicators for Aboriginal and Torres Strait Islander children consistent with the recommendations of the National Aboriginal and Torres Strait Islander Hearing Health Advisory Panel:

- i. Measure the proportion of Aboriginal and Torres Strait Islander children who received an annual ear and hearing health check and the proportion of these who were found to have ear and/or hearing health conditions
- ii. Measure the proportion of Aboriginal and Torres Strait Islander children who received audiology services and the proportion of these diagnosed with hearing loss.

3e. The Australian Government Department of Health, as part of the Roadmap for Hearing Health, to publish data on progress against the integrated national approach to undertaking ear health checks of children aged 0–6, with the goal of every Aboriginal and Torres Strait Islander child having regular ear health checks.

3f. Health service organisations to:

- i. Conduct audits of myringotomy and myringotomy rates to monitor variation and provide the results back to clinicians to act upon in line with Action 1.28 of the NSQHS Standards
- ii. Incorporate individual clinician’s audit data as part of recredentialing processes

Appendices cont.

Appendix (2)

5 questions to ask your doctor or other healthcare provider before you get any test, treatment, or procedure

[5 questions to ask your doctor or other healthcare provider before you get any test, treatment, or procedure \(choosingwisely.org.au\)](https://www.choosingwisely.org.au)

Appendix (3)

Australasian College for Emergency Medicine

Australasian Paediatric Endocrine Group

Australasian Society for Infectious Diseases

Australasian Society of Clinical Immunology and Allergy

Australian and New Zealand Intensive Care Society / College of Intensive Care Medicine of Australia and New Zealand

Australian College of Nursing

RACP Paediatrics & Child Health Division

Royal Australasian College of Surgeons

The Australia and New Zealand Child Neurology Society

The Australian Physiotherapy Association

The Royal Australian and New Zealand College of Radiologists

The Royal Australian College of General Practitioners

The Thoracic Society of Australia and New Zealand

Appendix (4)

Queensland Clinical Senate Meeting on LBC: Runs on the Board

[LBC: Runs on the board | Clinical Excellence Queensland | Queensland Health](#)

Appendix (5)

Queensland Clinical Senate Meeting Maximising Benefits of Care

[Maximising benefits of care | Clinical Excellence Queensland | Queensland Health](#)

Appendix (6)

Third Atlas 2018 - Neonatal and paediatric health

<https://www.safetyandquality.gov.au/our-work/healthcare-variation/atlas-2018/atlas-2018-1-neonatal-and-paediatric-health>

Appendix (7)

Fourth Atlas 2021

- ENT - (Tonsillectomy) What can be done
<https://www.safetyandquality.gov.au/our-work/healthcare-variation/fourth-atlas-2021/ear-nose-and-throat-surgery-children-and-young-people/31-tonsillectomy-hospitalisations-17-years-and-under>
- ENT - (Myringotomy) What can be done
<https://www.safetyandquality.gov.au/our-work/healthcare-variation/fourth-atlas-2021/ear-nose-and-throat->

[surgery-children-and-young-people/32-myringotomy-hospitalisations-17-years-and-under](#)

Appendix (8)

Asthma – Emergency management in children

[Asthma - Emergency guideline | Children's Health Queensland](#)

Appendix (9)

CHQ Head injury – Emergency management in children

[Head injury – Emergency management in children | CHQ \(health.qld.gov.au\)](#)

Appendix (10)

Paediatric Sepsis Pathway

[Paediatric Sepsis pathways | Clinical Excellence Queensland | Queensland Health](#)

Resources

List of LBC recommendations resources

Choosing Wisely – Recommendations pertaining to Paediatrics

<https://www.choosingwisely.org.au/recommendations?q=paediatrcis&organisation=&medicineBranch=&medicalTest=&medicineTreatment=&conditionSymptom=>

Evolve - Paediatrics and Child Health Division recommendations

<https://evolve.edu.au/recommendations/pchd>

Australian Commission on Safety and Quality in Health Care – ATLAS Australian Atlas of Healthcare Variation

- Third Atlas 2018
<https://www.safetyandquality.gov.au/our-work/healthcare-variation/third-atlas-2018>
- Fourth Atlas 2021
<https://www.safetyandquality.gov.au/our-work/healthcare-variation/fourth-atlas-2021>

Tool Kit

Clinician

There are a number of resources that will assist clinicians with LBC implementation. These resources can be adapted in your health service.

Evolve Resources - <https://evolve.edu.au/resources>

- Evolve – Before making a clinical decision, ask these top five questions
[https://evolve.edu.au/docs/default-source/default-document-library/evolve-top-5-questions-\(pdf-325-kb\).pdf?sfvrsn=4](https://evolve.edu.au/docs/default-source/default-document-library/evolve-top-5-questions-(pdf-325-kb).pdf?sfvrsn=4)
- Difficult Conversations - A carer and a physician Video
<https://www.youtube.com/watch?app=desktop&v=ANtozByOX8>

Australian Commission on Safety and Quality in Health Care Resources

- Decision support tools for consumers
<https://www.safetyandquality.gov.au/our-work/partnering-consumers/shared-decision-making/decision-support-tools-consumers>

Implementation Tools

- Choosing Wisely Week Engagement Toolkit
<https://www.choosingwisely.org.au/implementations/resource/choosing-wisely-week-engagement-toolkit>
- Choosing Wisely - Hospital implementation toolkit
<https://www.choosingwisely.org.au/implementation/choosing-wisely-implementation-toolkit>
- Consumer Engagement in Champion Health Services
<https://www.choosingwisely.org.au/implementations/resource/consumer-engagement-in-champion-health-services>

Improvement tools

For more step by step guides and quality improvements tools to assist you go to

- [Clinical Excellence Queensland Improvement Toolkit](#)
- [NSW Clinical Excellence Commission Improvement Science Step by Step Guide](#)
- [Children's Hospital Queensland Patient Safety and Quality Service Quality Activity on a Page](#)
- [Institute for Healthcare Improvement Quality Improvement Essentials Toolkit](#)
- [Institute for Healthcare Improvement QI Essentials Toolkit: PDSA Worksheet](#)
- [Institute for Healthcare Improvement PDSA cycle worksheet](#)

Consumer

5 questions to ask your doctor or other healthcare provider before you get any test, treatment, or procedure

<https://www.choosingwisely.org.au/resources/consumers-and-carers/5questions>

Starting a Choosing Wisely conversation

<https://www.choosingwisely.org.au/resources/consumers-and-carers/conversation-starter-kit>

It's OK to ask questions – video

<https://www.youtube.com/watch?app=desktop&v=ZVKU9Pwm7dA&feature=youtu.be>

Do you ask your doctor many questions?

<https://www.choosingwisely.org.au/resources/videos/do-you-ask-your-doctor-many-questions>

If a doctor recommends a test or procedure, would you ask them about risk?

<https://www.choosingwisely.org.au/resources/videos/if-a-doctor-recommends-a-test-or-procedure-would-you-ask-them-about-risk>

Australian Commission - Antibiotic use decision aids – updated 2021

- Middle ear infection: should my child take antibiotics?
<https://www.safetyandquality.gov.au/publications-and-resources/resource-library/middle-ear-infection-should-my-child-take-antibiotics>
- Acute bronchitis: should I take antibiotics?
<https://www.safetyandquality.gov.au/publications-and-resources/resource-library/acute-bronchitis-should-i-take-antibiotics>

Asthma – Fact sheet – Information form families

[Children's health fact sheets | Children's Health Queensland](#)

[Pre-school wheeze fact sheet](#)

[Puffers and spacers fact sheet](#)

[Educational asthma video series](#)

Bronchiolitis– Fact sheet – Information form families

[Children's health fact sheets | Children's Health Queensland](#)

Data

There are a number of data collections and systems that maybe appropriate data sources. Please see list below:

Recommendation	Sources	Data available through
Do not prescribe antibiotics for exacerbation of asthma	The Thoracic Society of Australia and New Zealand	QHAPDC, IPharmacy
Do not routinely undertake chest X-rays for the diagnosis of bronchiolitis in children or routinely prescribe salbutamol or systemic corticosteroids to treat bronchiolitis in children	RACP Paediatrics & Child Health Division	QHAPDC, Ipharmacy, Queensland Radiology Information System (QRiS)
Don't do computed tomography (CT) for the evaluation of suspected appendicitis in children and young adults until after ultrasound has been considered as an option	Royal Australasian College of Surgeons	ED, QHAPDC, QRiS
Avoid prescribing antibiotics for upper respiratory tract infection.	Australasian Society for Infectious Diseases	QHAPDC, Ipharmacy
Don't request computed tomography (CT) head scans in patients with a head injury, unless indicated by a validated clinical decision rule.	The Royal Australian and New Zealand College of Radiologists / Australasian College for Emergency Medicine	ED, QHAPDC, QRiS
Don't order chest x-rays in patients with uncomplicated acute bronchitis.	The Royal Australian College of General Practitioners	QHAPDC, QRiS
Remove all invasive devices, such as intravascular lines and urinary catheters, as soon as possible.	Australian and New Zealand Intensive Care Society	QHAPDC
Don't routinely administer antipyretics with the sole aim of reducing body temperature in un-distressed children	Australian College of Nursing	QHAPDC, Ipharmacy
Do not routinely order chest X-rays for the diagnosis of asthma in children	RACP Paediatrics & Child Health Division	QHAPDC, QRiS
For patients with limited life expectancy (such as advanced cardiac, renal or respiratory failure, metastatic malignancy, third line chemotherapy) ensure patients have a 'goals of care' discussion at or prior to admission to ICU and for patients in ICU who are at high risk for death or severely impaired functional recovery, ensure that alternative care focused predominantly on comfort and dignity is offered to patients and their families.	Australian and New Zealand Intensive Care Society	QHAPDC, Advance Care planning module in Viewer