Bronchiolitis in children: diagnosis and management

Consultation on draft guideline - Stakeholder comments table

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Association of Paediatric Emergency Medicine	Guideline	005 006 008	009 004 020	We are aware that the grey shaded parts of the guidance are not being updated, however we felt that it may be helpful to include "no wet nappies within 12 hours" in association with reduction of feeds in all areas, not just when discussing red flags with carers	Thank you for your comment. This area is out of scope for this update and therefore cannot be updated.
Association of Paediatric Emergency Medicine	Guideline	006	002	We wonder if there could be some more detailed guidance around how to define "persistent oxygen saturation of less than 90% when breathing air" as an admission criteria; • We note that discharge criteria guidance states "has maintained oxygen saturation over 90% in air for 4 hours, including a period of sleep", which we feel is robust enough to safely discharge in the de-escalation stage of treatment. • We also note that the committee felt that the change to 90% saturation means children would be assessed and monitored for some time in an emergency healthcare setting, and that this extended assessment and monitoring would allow healthcare professionals to understand the child's overall health and whether it was worsening. • However we have some concerns that prolonged oxygen saturation monitoring in this setting would be difficult to achieve and is inconsistent with how the majority of infants with bronchiolitis are managed in the urgent and emergency department setting. We are concerned that there may be	Thank you for your comment. Re-assessing duration of monitoring for oxygen saturation is out of scope for this update. This update was specifically commissioned to examine the oxygen saturation threshold for referral, admission, management, and discharge. The committee noted that children may receive or need observation for up to several hours' while a decision is made to admit. The original wording "persistent" has not changed as length of monitoring is out of scope for this update. The 4-hour monitoring period is only listed for the discharge recommendation and also has not been updated as it is out of scope. NICE guidelines are not mandatory and clinical discretion should be used to decide the length of time children should be monitored. Overall, the committee said fewer children would be expected to be admitted because of the lower threshold.

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				impacts on already stretched departments with regards to patient flow and admissions to short stay units. We have some concerns about the safety of less robust methods of assessment, particularly in the escalation stage of treatment, and that some infants with serious illness may be discharged inappropriately.	
Association of Paediatric Emergency Medicine	Guideline	General	General	Thank you. APEM fully supports an update to urgent and emergency department management in respect of new evidence in oxygen saturation levels.	Thank you for your comment. Please note that since consultation, we have made edits to the recommendations, based on feedback from other stakeholders, which now allow healthcare professionals to continue to use a threshold of 92% for babies under 6 weeks of age, and for babies and children with underlying health conditions.
BLISS	Equality Impact Assessment	002	General	**Section 3.3** It is noted that pulse oximeters may not work as effectively on certain skin tones, and that this was discussed by the Committee during the evidence review as well. This is an important area of consideration, and concerning if there is emerging evidence that a key-way for ascertaining oxygen saturation levels is less effective depending on skin tone. The Committee should consider whether developing a research recommendation, forming a consensus recommendation or signposting to any	Thank you for your comment. The recommendations now contain a Patient Safety Alert on the best practice for using pulse oximeters. The issue of variation in oximetry performance between patients is an important one, but is not unique to bronchiolitis and therefore any research recommendations should not be limited to a single clinical context. We note the recently published rapid review on "Pulse Oximetry and Racial Bias" (https://www.nhsrho.org/wp-content/uploads/2021/03/Pulse-oximetry-racial-bias-report.pdf) and that NHS England and NHS Improvement have updated their websites relating to COVID diagnosis and monitoring on this basis

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				available guidance once the public-facing guideline is finalised, is possible.	(https://www.nhsrho.org/news/nhs-update-guidance-on-blood-oxygen-monitors/). We have noted this ongoing work in our Surveillance log and will give consideration to any formal guidance or policy published in this area in the future.
BLISS	Guideline	005 - 006	022 - 008	It is noted in the evidence review (P. 14, Line 36-38) that ''the committee stressed the importance of taking other symptoms into account and not using oxygen saturation in isolation to make decisions'' The importance of making decisions based on symptoms as a whole, and not just oxygen saturation levels, could be more explicitly referenced in recommendation 1.3.2	Thank you for your comment. The committee have considered this issue and feel that the recommendation as it currently stands is sufficiently clear. By listing other factors in 1.3.2 it encourages consideration of wider issues than oxygen saturation alone.
BLISS	Guideline	General	General	Bliss welcomes the opportunity to provide feedback on this updated Guideline.	Thank you for your comment.
British Paediatric Respiratory Society	Guideline	General	General	Feedback consistently supported the adjustment of discharge oxygen saturations to >90% in line with the BIDS trial. One question that arose was around the general applicability of this to all patients: • The GDG primarily considered the BIDS study which specifically excluded "infants who: were preterm (<37 weeks' gestation) and had received oxygen therapy in the past 4 weeks; had cyanotic or haemodynamically significant heart disease; had cystic fibrosis or interstitial lung	Thank you for your comment. The trial upon which the committee based their decision to change oxygen saturation thresholds excluded children with many different health conditions and so the committee felt that it could not be generalised to apply to children at higher risk of a more severe case of bronchiolitis. Therefore, the recommendations for admission, management and discharge have been amended based on your suggestion. They now include a caveat that an oxygen saturation threshold of 92% can continue to be used for children with underlying health conditions or babies aged under 6 weeks.

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				disease; had documented immune function deficit". Did the GDG consider/discuss whether their recommended advice of <90% for admission and >90% for discharge was relevant/safe in this vulnerable group of infants? There were a number of comments of concern regarding the adjustment of admission criteria to <90%: • There was some concern that there is no specific evidence to support the switch to <90% (from <92%) for admission. This was not studied in the BIDS trial (although this would be a good next study). The GDG appear to have conflated 2 opposing arguments - that SpO2 is too dominant in admission decision making at 92%, but that at 90% clinical factors should have dominance in clinical decision making. Concern was expressed that, from the first argument, 90% would become a hard and fast rule as we know how focussed clinicians are on it. The GDG considered the observational study of too low quality to include in the discussion, but in that study relatively few infants came within the 90-91% SpO2 bracket and a takeaway message	

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				from that study was that <92% in ED was probably a sensible thing. • There was a suggestion that a de-emphasizing of <92% may be a possible way of adjusting admission criteria instead of a wholesale switch to <90% - eg "if a child without risk factors has adequate feeding and is stable for a period of 4 hours observation with a period of sleep in ED with an SpO2 >=90%, then they could be considered for discharge. In other circumstances an SpO2 threshold of <92% should be considered a reasonable threshold for admission."	
NICE GP Reference panel	Guideline	General	General	Guidance on when to refer would be more helpful if divided into two sections, firstly remote triage then an in-person examination. This would make it clear to me what should be referred without first bringing the child into the surgery for further assessment.	Thank you for your comment. This area is out of scope for this update.
NSA for Children and Young People				It would have been helpful if NICE could have given clear advice about o2 sats in primary care. (i.e. all practiced need to be able to measure o2 sats in children). Because we could then specify o2 sats measurement needs to be provided in primary care.	Thank you for your comment. This matter is covered in recommendation 1.1.8: Measure oxygen saturation in every child presenting with suspected bronchiolitis, including those presenting to primary care if pulse oximetry is available.

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Paediatric Intensive Care Society	General	General	General	PCCS agree with the last minute changes	Thank you for your comment. Please note that since consultation, we have made edits to the recommendations, based on feedback from other stakeholders, which now allow healthcare professionals to continue to use a threshold of 92% for babies under 6 weeks of age, and for babies and children with underlying health conditions.
Royal College of General Practitioners	General	General	General	No comments from RCGP.	Thank you for your comment. Please note that since consultation, we have made edits to the recommendations, based on feedback from other stakeholders, which now allow healthcare professionals to continue to use a threshold of 92% for babies under 6 weeks of age, and for babies and children with underlying health conditions.
Royal College of Paediatrics and Child Health	Guideline	004	007	The reviewer noted that they cannot see the rationale for still recommending oxygen saturation measurement in primary care if it is available when oxygen saturation level is not in any part of the "when to refer" guidance. What is a primary care clinician to do with the saturation reading they obtain?	Thank you for your comment. Section 1.2 of the guideline 'When to refer' still contains a recommendation relating to the need to take oxygen saturation into account, but it has now moved from recommendation 1.2.1 to 1.2.2. Recommendation 1.2.2. now states that children with bronchiolitis who have persistent oxygen saturation of less than 92% when breathing air should be considered for referral to hospital. Therefore recommendation 1.1.8, to measure oxygen saturation in children presenting to primary care if pulse oximetry is available, is still valid because oxygen saturation is a consideration during the decision whether to refer a child to hospital. A primary care clinician who has taken an oxygen saturation reading should consider referring children to hospital if they have persistent

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					oxygen saturation of less than 92% when breathing air. It is expected that this would be considered in the wider context of other symptoms and clinical concerns. For example, recommendation 1.2.3 (which remains unchanged) states that any known risk factors for more severe bronchiolitis should also be taken into account when deciding whether to refer a child with bronchiolitis to secondary care.
Royal College of Paediatrics and Child Health	Guideline	004	007	The reviewer supports the guidance to remove saturation level as a referral criteria; it makes statement 1.1.8 unnecessary (although this is in grey [2015] so not subject to comment).	Thank you for your comment. Please note that oxygen saturation has not been completely removed as a referral criterion. The recommendations have been modified so that an oxygen saturation of less than 92% when breathing air should now prompt a consideration of referral to hospital, rather than immediate referral for emergency hospital care (please see recommendation 1.2.2)
Royal College of Paediatrics and Child Health	Guideline	004	015	The reviewer agrees with change to consideration of referral opposed to definitive referral.	Thank you for your comment.
Royal College of Paediatrics and Child Health	Guideline	004	016	The reviewer supports this recommendation as in their acute service area it is unusual for primary care colleagues to have working SAT monitors.	Thank you for your comment.
Royal College of Paediatrics and Child Health	Guideline	004 - 006	015 - 018	The reviewer agrees with the emphasis on the judgement of the child's general condition as well as the alteration in the oximeter readings. It is recognised that readings in primary care may be unreliable for the reasons given.	Thank you for your comment.

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Royal College of Paediatrics and Child Health	Guideline	005	006	The reviewer supports this recommendation as in their acute service area it is unusual for primary care colleagues to have working SAT monitors.	Thank you for your comment.
Royal College of Paediatrics and Child Health	Guideline	005	006	This should read taking less than 50% of required feed volume rather than usual feed volume as some babies will take significantly more than they need.	Thank you for your comment. The threshold for volume of feed which indicates inadequate oral fluid intake is outside the scope of this update. The previous committee decided to recommend 50-75% of usual feed volume as a borderline intake. The lower feed intake could apply to an older baby who is improving, whereas the 75% limit could apply to a younger baby with risk factors who may not be able to tolerate a lower food intake. The previous committee commented that other clinical factors and risk factors should be taken into account when making decisions.
Royal College of Paediatrics and Child Health	Guideline	005	017	The reviewer agrees with the change of admission criteria to 90% as opposed to 92%. American guidance has been this since 2014. It is also acceptable in a child without comorbidities. There was a paper in published in ADC in December 2020 which looked at admissions and the benefits of using 90%, it was clear that it is successful.	Thank you for your comment. We believe that the paper you are referring to is: van Hasselt, Tim J, Singham, Bhavna, Bassett, Eve et al. (2020) Oxygen saturation thresholds in bronchiolitis: examining admissions. Archives of disease in childhood 105(12): 1197-1199 This study was identified in the systematic review and presented as part of the evidence to the committee. For a full summary of the committee's consideration of this evidence, please see the Evidence review (https://www.nice.org.uk/guidance/ng9)

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Royal College of Paediatrics and Child Health	Guideline	005	017	A definition (or guidance) of "persistent" may be of help if possible, particularly if guideline users read "When to discharge" (page 7; line 21) and interpret persistent as meaning 4 hours. This may lead to a prolonged period of A&E/Assessment Unit observation for babies with saturations above 90% to see if they are maintained for 4 hours before being confident it is safe to discharge from ED if other criteria are met. Alternative phrasing may be "oxygen saturation of less than 90% when breathing air (except for fleeting dips not associated with apnoea or movement artefact)".	Thank you for your comment. Re-assessing the duration of monitoring is out of scope for this update. The update is restricted to: assessing the oxygen saturation threshold for referral, admission, management, and discharge. Using "persistent" in recommendations 1.2.1, 1.3.2, and 1.4.4 allows some clinical discretion when deciding how long to monitor children. The 4-hour oxygen saturation monitoring period is only included in the discharge recommendation and should not necessarily be applied to other recommendations. NICE guidelines are not mandatory and clinical discretion can be applied as needed.
Royal College of Paediatrics and Child Health	Guideline	005 006 007	022 019 017	The reviewer fully supports the "permissive hypoxia" saturations and can see that the caveats are set out elsewhere in the document. However, it was questioned if the 90% sections might be framed better as "90% saturations are acceptable, but it is reasonable to be more cautious in children who are under six weeks corrected gestational age or who have underlying medical conditions".	Thank you for your comment. The trial upon which the committee based their decision to change oxygen saturation thresholds excluded children with many different health conditions and the committee did not feel that it could be generalised to children at higher risk of a more severe case of bronchiolitis. Therefore, the recommendations for admission, management and discharge have been amended to reflect stakeholder feedback during consultation: an oxygen saturation threshold of 92% can continue to be used for cbabies under the age of 6 weeks and babies and children with underlying health conditions.

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Royal College of Paediatrics and Child Health	Guideline	007	016	The addition of SaO2 above 90 % for 4hrs and sleep, will help for expedient discharge, and prevent practices of 12hr + unnecessarily.	Thank you for your comment.
Royal College of Paediatrics and Child Health	Guideline	007	021	The requirement for maintenance of saturations over 4 hours including a sleep may prolong admission in some children. If other criteria are met, and an infant has had a sleep and a feed, does the period out of oxygen need to be 4 hours? This may only practically be of relevance if an acute assessment unit or clinical decision unit are considered an "admission" (and may impact audit data if variation exists between admission guidance).	Thank you for your comment. We have made no changes to the previous guidance on the duration of monitoring, as this was outside of the scope of this update. We have noted the issue of the duration of monitoring on our surveillance log and will monitor future published evidence in this area. NICE guidelines are not mandatory and clinical discretion can be applied as needed.
Royal College of Paediatrics and Child Health	Guideline	General	General	"fluid intake is 50% to 75% of normal". This is repeated on multiple occasions, but only once does it also say, "or no wet nappy in 12 hours". E.g. line 9 on page 5. Consistency might be required here.	Thank you for your comment. This area is out of scope for this update.
Royal College of Paediatrics and Child Health	Guideline	General	General	The reviewers view is that Professor Steve Cunningham's evidence is currently the best available. The reviewer believes that pre pulse oximeters (discharge with saturations 90%) happened gradually and there has not been a huge difference in mortality from bronchiolitis. Furthermore, paediatric cardiology patients manage with these saturations. The current surge in respiratory infections and limited capacity in all UK paediatric units mean this should be an immediate strongly recommended change of practice, arguably mandated.	Thank you for your comment. The recommendations related to response to an oxygen saturation threshold of 90% regarding admission, management and discharge are worded as actions that should be undertaken. NICE guidelines are not mandatory and clinical discretion can be applied as needed.

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Royal College of Paediatrics and Child Health	Guideline	General	General	The reviewer noted that this guideline is much more in line to what most acute settings already do.	Thank you for your comment. Please note that since consultation, we have made edits to the recommendations, based on feedback from other stakeholders, which now allow healthcare professionals to continue to use a threshold of 92% for babies under 6 weeks of age, and for babies and children with underlying health conditions.
Royal College of Paediatrics and Child Health	Guideline	General	General	This is a timely and important update which has the potential to guide safe and appropriate referral, admission and discharge for infants with bronchiolitis and reduce the impact on secondary care capacity.	Thank you for your comment. Please note that since consultation, we have made edits to the recommendations, based on feedback from other stakeholders, which now allow healthcare professionals to continue to use a threshold of 92% for babies under 6 weeks of age, and for babies and children with underlying health conditions.