

## Criteria Led Discharge of wheezy children from a Short Stay Assessment Unit

### *Authors:*

Lucinda Armstrong<sup>1</sup>

Mark D Lyttle<sup>1,2</sup>

### *Affiliations*

1. Emergency Department, Bristol Royal Hospital for Children, Upper Maudlin Street, Bristol.
2. Faculty of Health and Applied Sciences, University of the West of England, Bristol

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### *Corresponding author:*

Lucinda Armstrong

Emergency Department

Bristol Royal Hospital for Children

Upper Maudlin Street

Bristol

BS2 8BJ

Tel: 01173428187

Email: [Lucinda.armstrong@uhbristol.nhs.uk](mailto:Lucinda.armstrong@uhbristol.nhs.uk)

## **SUMMARY**

Implementation and evaluation of criteria led discharge from a Short Stay Assessment unit (SSU) for children with wheeze.

## **THE PROBLEM**

Wheeze is one of the commonest childhood presentations to Emergency Departments (ED), (1,2,3) with a significant proportion admitted to wean inhaled therapy frequency to 3-4 hourly (4). In our ED, as in many other institutions, patients who respond well to their initial burst of inhaled treatment are admitted to our SSU.

Our 8 bedded paediatric SSU has over 5000 admissions annually, of which almost one-fifth are for wheeze; their care is largely delivered by nurses who wean bronchodilator frequency, educate and train families, and escalate care to doctors/Emergency Nurse Practitioners (ENP) if the clinical course is atypical. Doctors/ENPs are therefore involved predominantly early in the clinical course and at discharge assessment. Whilst nurses are allocated specifically to the SSU, doctors/ENPs manage a concurrent case load both here and in the co-located ED, which can lead to delays in discharge assessments depending on other clinical acuity.

Just as efficient admission to inpatient wards reduces ED crowding, there are similar benefits from efficient use of the SSU. Criteria Led Discharge (CLD) is a protocolised discharge process that empowers nurses to discharge pre-identified cohorts of patients with a predictable clinical course. It can safely and effectively reduce discharge delays, and is recognised as appropriate for SSUs (5).

## **AIMS**

We aimed to introduce CLD for SSU patients admitted with wheeze. We evaluated whether this practice was safe, and whether time to discharge was reduced, to assess benefits for families and the department.

## **MAKING A CASE FOR CHANGE**

We developed a proforma (Figure 1) which includes CLD criteria and best practice points (eg checking inhaler technique, providing written asthma action plans) (4), to ensure existing high standards of care continued. Admission criteria for the SSU mandate that the patient must be oxygenating well in air ( $\geq 92\%$ ). To further optimise safety patients are reviewed for eligibility by a senior doctor/ENP after initial bronchodilator therapy, and are reviewed by two nurses (of which one is Band 6 or above) prior to discharge. The project and materials were approved by the ED senior leadership and governance teams. Staff, including all senior nurses and medics, were trained in the process prior to implementation, with full implementation commencing in May 2016.

## **IMPROVEMENTS ACHIEVED**

We utilised a plan-do-study-act approach to evaluate safety and efficiency, and present our methods and results below. Descriptive statistics are used to report proportions, with median values and interquartile ranges presented for data with ranges due to skewness of data. Mann-Whitney U test was used to assess significance of change in times to discharge pre- and post-implementation. On implementation, CLD was reiterated through our “message of the week” (at all nursing and medical handovers) for two weeks. Project champions were also available to troubleshoot, and train staff as necessary. Continuous feedback was sought from the clinical team, whether verbal, written, or from our “Happy app” (6); modifications were made to processes and materials, and fed back to staff, to maximise engagement.

Data were abstracted from clinical records of half the children admitted to the SSU with wheeze before and after implementation (September-October 2015 and 2016, 97 and 108 charts respectively). Data included CLD uptake, time to discharge, and unplanned return rates.

Key findings (Table 1) were:

- 64 (59%) were initiated on the CLD pathway, of which seven (11%) were removed due to developing an oxygen requirement; over 50% of wheezing children were therefore discharged by CLD
- Median time from discharge readiness to departure reduced from 75 minutes in 2015 to 10 minutes by CLD (p value <0.0001)
- This extrapolates to savings of approximately 50 bed days per year based on 2017 SSU admission rates
- 2 of 5 wheeze-related unplanned re-attendances had CLD

CLD therefore appears safe and effective, with discharge over an hour sooner than doctor/ENP review (both pre-and post-implementation; p-value for difference between doctor/ENP review and CLD = 0.002; other comparisons in Table 1). The process was enthusiastically adopted, being used for two-thirds of eligible children. All patients had the best practice checklist completed, and all were reviewed by appropriate staff prior to discharge. Only 2 (4%) CLD patients had an unplanned re-attendance, similar to those having doctor/ENP review.

Our SSU bed usage rates approach 250% every 24 hours, with wheeze one of the commonest conditions. Saving 1.5 hours per patient significantly aids flow and improves overall ED performance. Using CLD also offloads cognitive burden for doctors/ENPs, enabling them to deliver higher quality care to other patients. Finally, CLD is also likely better for families, as they have education delivered in a calmer environment by experienced nurses, and are able to return home sooner.

## **LEARNING**

CLD uptake continues to increase; 789 children were discharged on this pathway in 2017. This is likely for a number of reasons. In starting this project we identified an area of frustration in a very common condition

– all staff wanted to improve discharge pathways for these children, but were torn by other clinical demands, creating the situation of being “ready for change”. Promotion and support of CLD by the senior leadership team, coupled with our active feedback loop, contributed to its widespread uptake, including amongst rotating staff.

We made processes and materials simple to access and complete. CLD proformas are easy to find, the sign-off process is rapid, and tick box lists of discharge criteria and best practice give nurses confidence that they are discharging families safely in line with national guidance (4,5). Demonstrating positive impact through simple evaluation has also been crucial; quantifying and sharing our safety and efficiency results has had a very positive impact.

### **NEXT STEPS**

We now frequently monitor our wheeze CLD performance to ensure high standards are maintained, and we have implemented and are evaluating CLD for other conditions with predictable clinical courses including gastroenteritis, procedural sedation recovery, head injury, bronchiolitis, and accidental ingestions. We are also exploring the potential to safely use CLD in the main ED. Finally, while we have assumed that going home quicker is better for families, we aim to confirm this through patient reported experience measure surveys.

### **ACKNOWLEDGEMENTS**

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**TABLES AND FIGURES**

**Figure 1: Criteria led discharge and best practice checklist proforma for wheeze**




**CRITERIA LED DISCHARGE**  
**Children's Emergency Department and Observation Unit**  
**Bristol Royal Hospital for Children**

Patient Label

**Viral Induced Wheeze**

The above patient is suitable for discharge by nursing staff according to the criteria below, providing:

- there is no deterioration in the patient's clinical condition
- the criteria detailed below have been met
- the discharge is undertaken by a Band 6 or Band 7 nurse and another qualified nurse

	Criteria for Discharge	Criteria Met. Date & time	Nurse 1 initials	Nurse 2 initials
1	Salbutamol inhalers weaned to 4 hourly			
2	No significant respiratory effort			
3	No oxygen requirement whilst on ward 39 (if oxygen required a medical review can be undertaken and the child return to the CLD pathway)			

**Please cross through any section above not required**

Inhaler technique checked	
TTA completed	
Advised to see GP in 48 hrs	
Wheeze plan given and explained	
Medway letter completed	
Family happy with CLD	
Discharged from Medway using criteria led option	

(see guidance notes over page)

Signed (Cons/Registrar/ENP): _____	Date: _____
Print Name: _____	
Designation: _____	
I confirm the above criteria were met and the patient was discharged on _____ (Date) at _____ (Time)	
Signed: _____	Print Name: _____
Signed: _____	Print Name: _____

**If the above criteria are not met please contact the practitioner responsible for the patient**

**Table 1: Demographics and comparison of efficiency and safety between 2015 and 2016**

	<b>2015</b> <i>n (%)</i>	<b>2016</b> <i>n (%)</i>	
Age; median years (+/- IQR)	2 (1-4)	2 (1-3.5)	
Male (%)	68 (70%)	70 (66%)	
<i>Total number attending with wheeze</i>	<b>354</b>	<b>397</b>	
Admitted to observation unit	209 (59%)	223 (56%)	
Admitted to inpatient ward from CED	60 (17%)	76 (19%)	
Discharged direct from CED	83 (23%)	95 (24%)	
Did not wait to be seen	2 (1%)	2 (1%)	
<i>Notes reviewed</i>	<b>97</b>	<b>108</b>	
Doctor/ENP led discharge completed	97 (100%)	43 (40%)	
Criteria led discharge initiated	0 (0%)	64 (59%)	
Criteria led discharge completed	0 (0%)	57 (53%)	
Exceptions to CLD*	NA	7 (7%)	
Left against medical advice	0 (0%)	1 (1%)	
<i>Time to discharge; median minutes (+/- IQR)</i>			<i>p-value</i>
Last inhaler to discharge - all patients	75 (30-230)	20 (3-123)	0.0006
Last inhaler to discharge – doctor/ENP review	75 (30-230)	105 (22-215)	0.64
Last inhaler to discharge - CLD	NA	10 (0-46)	<0.00001†
<i>Reattended with wheeze</i>	<b>2</b>	<b>5</b>	
Reattended with wheeze after CLD	0 (0%)	2 (40%)	

IQR: Interquartile range; CED: Children’s Emergency Department; CLD: Criteria Led Discharge; ENP: Emergency Nurse Practitioner

\*Identified as being eligible for Criteria Led Discharge, but subsequent change in condition led to doctor/ENP review being mandated – in this case all 7 were because the child needed supplementary oxygen during their observation period

†p-value relates to comparison between time to discharge on CLD (2016) and 2015 values