

Leading Better Value Care Bronchiolitis Initiative

Monitoring and evaluation plan
May 2018

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Abbreviations

Term	Definition
ACI	Agency for Clinical Innovation
BHI	Bureau of Health Information
ICD-10-AM	International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification
IHI	Institute of Healthcare Improvement
LBVC	Leading Better Value Care
LHD	Local Health District/s
LOS	Length of Stay
M&E	Monitoring and Evaluation
Ministry	NSW Ministry of Health
PREDICT	Paediatric Research in Emergency Departments International Collaborative
SNOWMED-CT	Systematized Nomenclature of Medicine - Clinical Terms

Glossary of evaluation terms

Baseline a pre-intervention assessment that is used to compare changes after implementation.

Dose response in this context is the examination of the link between dose and response as part of determining if a program caused the outcome and to what extent.

Economic evaluation is the process of systematic identification, measurement and valuation of inputs and outcomes of two alternative activities, and the subsequent comparative analysis of these. Economic evaluation methods provide a systematic way to identify, measure, value, and compare the costs and consequences of various programs, policies, or interventions.

Efficiency is a measure of how economic inputs (resources such as funds, expertise, time) are converted into results.

Evaluability is an assessment of the extent that an intervention can be evaluated in a reliable and credible fashion.

Evaluand is the subject of an evaluation, typically a program or system rather than a person.

Evaluation domains

Appropriateness is the extent that program activities are appropriate for the outcomes in which it is to achieve.

Effectiveness measures program effects in the target population/patient cohort by assessing the progress in the outcomes that the program is to achieve.

Impact is the long-term, cumulative effect of programs/interventions over time on what they ultimately aim to change. It assesses program effectiveness in achieving its ultimate goals.

Sustainability is the extent that the benefits of a program are maintained after formal support has ended.

Access and reach measures how accessible the program is to the target population (access) and how many of the target population have accessed the program (reach).

Focus group is a group of people, selected for their relevance to an evaluation. Focus groups are facilitated by a trained facilitator in a series of discussions designed to share insights, ideas, and observations on a topic of concern.

Formative and summative evaluation

Formative evaluation (monitoring) in formative (early) evaluation, programs or projects are typically assessed during their development or early implementation to provide information about how to revise and modify for improvement. In terms of the Leading Better Value Care program, there are two realms of formative evaluation. The first is the formative evaluation of the statewide program to indicate if programs are progressing towards goals and to define what improvements can be made to the overall program. The second realm is the assessment of the program at a site level to determine what is needed for local improvements.

Summative evaluation (impact) the purpose of summative evaluation is to make value judgements on the worth, merit and significance of a program. This is typically assessed at the end of an operating cycle or once a program has been settled. Findings are used to help decide whether a program should be adopted, continued, or modified.

Implementation fidelity is the degree that an intervention has been delivered as intended and is critical to the successful translation of evidence-based interventions into practice.

Implicit design is a design with no formal control group and where measurement is made before and after exposure to the program.

Indicator is a specific, observable, and measurable characteristic or change that shows the progress a program is making toward achieving a specific outcome.

Inferential statistical analysis is statistical analysis using models to confirm relationships among variables of interest or to generalise findings to an overall population.

Interrupted time series analysis is a continuous sequence of observations on a population, taken repeatedly (normally at equal intervals) over time to measure changes and map trends.

Interview guide is a list of issues or questions that guide the discussion in an interview.

Linear mixed models are an extension to the linear model. It includes random effects in addition to the usual fixed effects.

Longitudinal data or **pre and post analysis** is collected over a period of time, sometimes involving a stream of data for particular persons or entities to show trends.

Macro-meso-micro evaluation approach refers to a three level approach to evaluation. In terms of Leading Better Value Care, this is:

- macro – statewide
- meso – LHD
- micro – local sites.

Measuring tools or instruments are devices used to collect data (such as questionnaires, interview guidelines, audits and observation record forms).

Monitoring and evaluation (M&E) is a process that helps improve performance and achieve results. Its goal is to improve current and future management of outputs, outcomes and impact.

Multiple lines of evidence is the use of several independent evaluation strategies to address the same evaluation issue, relying on different data sources, analytical methods, or both.

Primary data is collected by an evaluation team specifically for the evaluation study.

Program in terms of program evaluation, a program is a set of activities managed together over a sustained period of time that aims to achieve outcomes for a client or client group.

Program evaluation is a rigorous, systematic and objective process to assess a program's effectiveness, efficiency, appropriateness and sustainability.

Program theory and program logic

Program theory explains how and why the program is intended to work and the causal links between activities and consequences.

Program logic is a pictorial depiction of the program theory.

Qualitative data are observations that are categorical rather than numerical, and often involve knowledge, attitudes, perceptions, and intentions.

Quantitative data are observations that are numerical.

Secondary data is collected and recorded by another person or organisation, usually for different purposes than the current evaluation.

Stakeholders are people or organisations that are invested in a program or that are interested in the results or what will be done with the results of an evaluation.

Statistical analysis is the manipulation of numerical or categorical data to predict phenomena, to draw conclusions about relationships among variables or to generalise results.

Stratified sampling is a probability sampling technique that divides a population into relatively homogeneous layers called strata, and selects appropriate samples independently in each of those layers.

Surveys are a data collection method that involves a planned effort to collect needed data from a sample (or a complete census) of the relevant population. The relevant population consists of people or entities affected by the program.

Triangulation, in the context of Leading Better Value Care, facilitates validation of data through cross verification from more than two sources.

Utility is the extent that an evaluation produces and disseminates reports that informs relevant audiences and have beneficial impact on their work.

The following table shows the monitoring and evaluation cycle of Leading Better Value Care programs.

Table 1 LBVC Monitoring and Evaluation Cycle

Evaluative perspectives	Expected economic benefits from the intervention – predicted	Evidence foundations of the intervention – program theory/logic model	Implementation on evaluation – intervention coverage, fidelity of implementation and contributing factors	Outcomes evaluation – patient and provider experience and patient outcomes	Economic evaluation – benefits and return on investment
Planning	Quantitative	Qualitative/quantitative			
Formative evaluation – early and ongoing alongside quarterly reporting			Qualitative/quantitative	Quantitative	Quantitative
Summative evaluation – at 12 months and 2 years			Qualitative/quantitative	Quantitative	Quantitative

Executive summary

Bronchiolitis is the most common condition amongst infants 12 months old and under.¹ In January 2018 the NSW Ministry of Health updated the guidelines for treating infants with bronchiolitis in the release of NSW Health Guideline GL2018_001 Infants and Children – Acute Management of Bronchiolitis.² These NSW Guidelines are not uniformly adhered to across NSW. This has meant that infants with bronchiolitis have been subjected to chest x-rays, viral testing, bronchodilators and oxygen treatment for mild or transient reduction of oxygen saturation. These treatments and investigations are of low clinical value, present risks to the infant, have the potential to increase the infant's length of stay and increase the cost of treating bronchiolitis.

In late 2017 bronchiolitis was selected as a Tranche 2 Leading Better Value Care program. The Leading Better Value Care program aims to align healthcare in NSW with the Institute of Healthcare Improvement Triple Aim of improving patient experience of care, the health of populations and the per capita cost of healthcare. This document outlines the monitoring and evaluation framework for the Leading Better Value Care Bronchiolitis Initiative to improve the management of infants aged 12 months with and under with bronchiolitis who present to hospitals in NSW through the implementation of the NSW Guidelines.

The evaluation will be an observational mixed methods evaluation with pre and post implementation comparisons to answer the following key evaluation questions:

- To what extent were the NSW Guidelines (the program) successfully implemented?
- What were the facilitators and constraints to the program achieving its end of program outcomes?
- To what extent was unwarranted clinical variation in bronchiolitis management reduced?
- To what extent did the program impact upon the family's perception of care received by their infant and subsequent experience of total care?
- To what extent did the program impact upon the staff experience of delivering bronchiolitis evidence based care?
- Did the program result in a more efficient use of resources?
- How will these improvements be sustained?
- Were there any unintended outcomes of the program?
- For whom did program work and in what context?
- Are all the intended recipients of the initiative being reached?

The evaluation will assess the extent that the program achieves system changes and intended outcomes as outlined within the program logic. It will also assess sustainability and aim to provide information to guide future investment decisions related to the management of infants with bronchiolitis.

As the programs continue to be refined, this monitoring and evaluation framework will continue to develop including the design of evaluation tools to best answer the evaluation questions outlined.

¹ Speciality Service and Technology Evaluation Unit, Health System Planning and Investment Branch, NSW Ministry of Health. *Descriptive analysis of acute paediatric bronchiolitis activity*. NSW Ministry of Health

² Health and Social Policy Branch, NSW Ministry of Health. *Infants and Children- Acute Management of Bronchiolitis Guideline*. NSW Ministry of Health; 10 January 2018

ACI will lead the data collection, analyses and feedback process for the formative and summative evaluation components in collaboration with state-wide data custodians, local health districts, implementation teams, other pillars and the Ministry.

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Introduction

Bronchiolitis

Acute bronchiolitis is the most common condition in infants aged 12 months and under who are admitted to hospital. There were 48,782 ED encounters with an acute bronchiolitis diagnosis from 2013/14 to 2016/17. Of these, 44% were admitted to hospital. Infants with bronchiolitis present to ED's throughout the year, however incidences rise in autumn and winter. There are more than twice as many ED presentations and admissions during these months.³

The total cost of treating this cohort on average is \$41M per year, with an average cost of \$9M in the ED and \$32M in admitted patient settings. Over four years, the total cost was \$35.6M in ED and \$127.3M in the admitted patient setting.⁴

There is considerable variation in the treatment of Infants with bronchiolitis which may lead to unnecessary:

- radiation exposure with chest x-rays
- nasopharyngeal suctioning to obtain a sample for viral testing
- treatment with bronchodilators that cause side-effects but not clinical improvement
- treatment with oxygen for mild or transient reduction of oxygen saturation, leading to increased length of stay and disruption to breastfeeding and family routines
- increased length of hospital admission and disruption to breastfeeding and family routines⁵

There is considerable variation in the Length of Stay (LOS) in the ED and in the admitted hospital setting. ED LOS ranged from less than one hour to 51.8 hours and in the admitted setting LOS ranged from less than one 1 day to 85 days.⁶

In January 2018 the NSW Ministry of Health updated the Infants and Children-Acute Management of Bronchiolitis Guideline to align with the Australasian Bronchiolitis Guideline developed by the Paediatric Research in Emergency Departments International Collaborative (PREDICT). From here on in, these are referred to as the NSW Guidelines or in general, the program.

Document outline

This document outlines the monitoring and evaluation (M&E) plan for the Leading Better Value Care (LBVC) initiative to improve the management of infants with bronchiolitis under the age of 12 months through the implementation of the NSW Guidelines. It has been developed in consultation with the Agency for Clinical Innovation (ACI) Paediatric Network and feedback from clinicians through the clinical reference group.

³ NSW Ministry of Health, Speciality Service and Technology Evaluation Unit. Acute Bronchiolitis: Descriptive analysis of acute paediatric bronchiolitis activity. North Sydney: NSW Ministry of Health; January 2018

⁴ Ibid

⁵ NSW Ministry of Health. Reducing low-value care in bronchiolitis Tranche Two Short Submission Pro Forma- Clinical. North Sydney: NSW Ministry of Health; 2017

⁶ NSW Ministry of Health, Speciality Service and Technology Evaluation Unit. Acute Bronchiolitis: Descriptive analysis of acute paediatric bronchiolitis activity. North Sydney: NSW Ministry of Health; January 2018

The framework has been informed by:

- key documents relevant to best practice care for bronchiolitis
- meetings with the ACI Paediatric Network
- collaborative program logic development

The document includes:

- an overview of the NSW LBVC initiative
- a background to the LBVC Bronchiolitis Initiative
- the purpose, focus, limitations, and design for the evaluation
- a program logic that illustrates how the model of care is expected to achieve the desired outcomes
- key evaluation questions
- the methods, data sources and analysis that will be conducted to answer the key questions
- the governance, codes of behaviour and ethical framework that underpin the evaluation
- identification of relevant audiences and communication of findings

Evaluation planning has been undertaken between February and May 2018 to meet timeframes for LBVC. The plan has been minimally revised through discussions with the Ministry, relevant ACI evaluation staff and the Chair of the Clinical Reference Group. The program will continue to be refined. This M&E framework reflects understanding of program design and implementation at the time of writing. As the program is further defined, specific measures and tools will be developed to support monitoring and evaluation. This plan will be reviewed and updated as necessary to reflect any changes in the program over time.

Background

Leading Better Value Care

The NSW Ministry of Health introduced the state wide LBVC initiative in late 2016. LBVC is a comprehensive approach to improve NSW Health system performance against the Institute of Healthcare Improvement Triple Aim of improving patient and provider experience, population health outcomes, and system efficiency and effectiveness.⁷ The initiative involved the implementation of eight selected clinical programs in the 2017-18 financial year, with a goal of delivering improved clinical outcomes, patient experience and system benefits. In late 2017, bronchiolitis was endorsed as a LBVC Tranche Two initiative. The basis for this was the clinical proposal aimed at reducing variation in the adherence to the newly revised NSW Guidelines by better managing low-value investigations, low-value treatment and length of stay for bronchiolitis. Associated with this is the aim to improve the provision of health care to this cohort during the 2018 winter period (and in subsequent years) given the seasonal peak in hospital presentations.

⁷ Institute of Healthcare Improvement. The IHI Triple Aim [Internet.] Boston: Institute of Healthcare Improvement; 2018 [cited May 2018] available from <http://www.ihl.org/Engage/Initiatives/TripleAim/Pages/default.aspx>

Figure 1 Triple Aim of LBVC programs



LBVC initiatives will be implemented by each Local Health District (LHD) and incorporated into LHD roadmaps and service level agreements for the purpose of monitoring and informing local quality improvements. A comprehensive impact evaluation will be undertaken after programs have been implemented within each LHD. The purpose of evaluation will be to assess the overall impact of each initiative on the NSW health system and guide decision making around the value (worth, merit and significance) of the LBVC initiative.

Increasing the Value of Care in Bronchiolitis Program

The Australian Bronchiolitis Guideline by the Paediatric Research in Emergency Departments International Collaborative (PREDICT) is a recent review of bronchiolitis in infants with recommendations for investigations and treatment.⁸ The NSW Guidelines have been updated to align with the PREDICT recommendations.

The program aims to improve adherence to these guidelines and to reduce unnecessary investigations and treatment and reduce hospital admissions and total bed days for infants with bronchiolitis. This will involve:

- Changing existing thresholds for investigations and treatment. Previous guidelines have had less specific recommendations about investigations, recommended treatment that is now recognised as without benefit and harmful and recommended supplemental oxygen at higher oxygen saturation levels.
- Changing carer expectations in line with changed recommendations for clinicians. The program aims to improve consumer literacy to help drive appropriate care.
- Changing care setting from inpatient to outpatient for infants who may be admitted for observation in case of deterioration and also for infants who no longer require treatment and are being observed for relapse.
- Collaborating with primary care clinicians to align recommendations (eg HealthPathways) with recent evidence-based guideline for care.

The first three bullet points are within the scope of the Bronchiolitis initiative, while the fourth bullet point is not.

These changes will be implemented through:

⁸ Paediatric Research in Emergency Departments International Collaborative. Australasian Bronchiolitis Guideline. Melbourne: Paediatric Research in Emergency Departments International Collaborative, 2016

- Clinician engagement activities
- Review of current practices and use of data to drive quality improvement
- Capability development
- Consumer engagement and enablement activities

The monitoring and evaluation framework

Purpose

The NSW Government is committed to evaluation to ensure a sound evidence base for program improvement and to contribute to decision making. The results of robust evaluations can significantly contribute to appropriate investment strategies and future policy and program directions to improve outcomes.

During implementation of the program, monitoring will occur to track implementation and progress. The purpose of monitoring is to enable improvement planning as the programs roll out.

After programs have been implemented and settled, an impact evaluation will be undertaken. Impact evaluation is used to determine the overall effect of a program, including intended and unintended outcomes and the impacts on the NSW health system.

The purpose of this plan is to guide monitoring and evaluation and:

- provide insight into the implementation of the Bronchiolitis program across NSW, including the key enablers and barriers to adoption
- determine whether the program has achieved its intended objectives and the impact of those on the health system
- define data sources and collection methods, both existing and required, to assess the program across the IHI triple aim including expected and unexpected outcomes, experience of care, efficiencies and effectiveness.

Parameters and limitations

This M&E plan is focussed on evaluating the reduction of low value care for bronchiolitis at a state wide level. Local LHD data collection will be necessary to enable comparison across the state. Specific implementation indicators will be collected as monitoring measures for roadmaps and SLAs to show that LHDs are progressing towards longer term program outcomes.

As part of the LBVC program, this M&E plan identified what should be measured to answer key evaluation questions, however, data may not be available at this time. Ongoing work is required to define and establish data requirements and collection methods as the program progresses.

Measurement alignment

A measurement alignment framework has been developed for LBVC to create shared priorities across the NSW health system and align data requirements and collection systems for implementation, outcome and impact measures.

There are three measurement levels aligned to guide the Bronchiolitis Initiative through implementation to the achievement of end of program outcomes (Figure 2).

These three levels include:

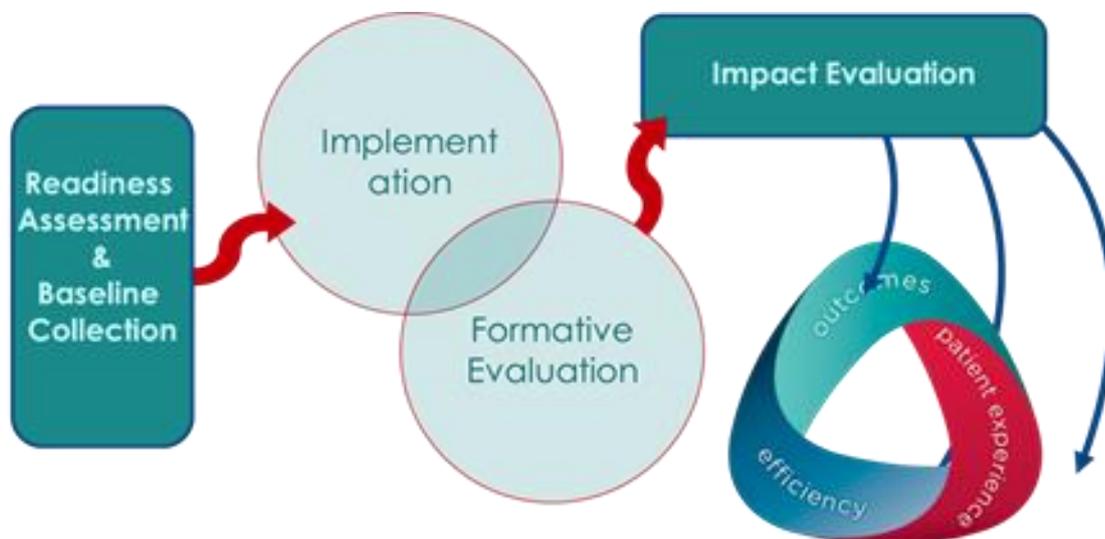
- program/project roadmaps
- service level agreements
- impact evaluation

For the first year of LBVC implementation, a set of indicators have been developed for each program to show progress towards implementation or program improvement. These are to be reported on a quarterly basis to the ACI. After 12 months, ACI will use the results from the quarterly reporting data to assess outcomes achieved and apply these to a formative economic/fiscal analysis.

The measurement alignment within the M&E framework will enable:

- oversight of program delivery against anticipated milestones to identify and manage unexpected deviations (monitoring via roadmaps and service level agreements)
- a clear structure and method for the state wide end of program impact evaluation to guide investment, disinvestment and future improvements
- a consistent source of data collection that is integrated to avoid variations in data collection at many levels using different mechanisms.

Figure 2 Monitoring and evaluation approach for LBVC Program



Methods

Patient cohort

The following table outlines the patient cohort for the Bronchiolitis LBVC initiative.

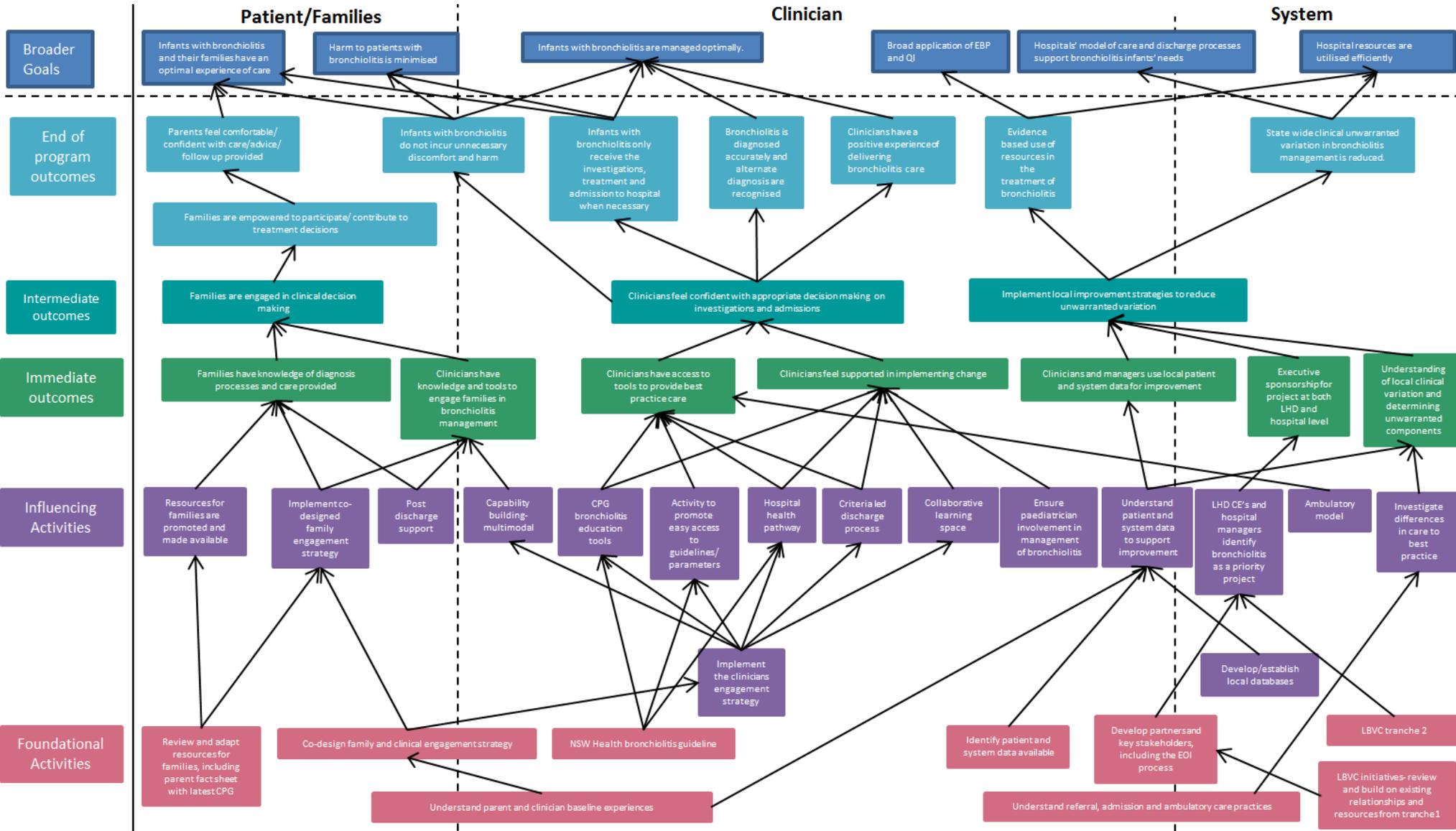
Age	Less than or equal to (\leq) 1 year on the date of separation.
ICD-10-AM codes	Any of 'J21.0', 'J21.1', 'J21.8', 'J21.9' coded as the principal diagnoses (as recorded in HoPeD) in the Admitted Patient Data Collection or as the emergency department diagnosis code in the Emergency Department Data Collection.
ICD-9-CM	'466.1' as the emergency department diagnosis code.
SNOMED-CT codes	'233602006', '4120002', '5505005', '195739001' as the emergency department diagnosis code
Facilities	Private hospitals are excluded (identified by the facility identifier not equal to "PRIV").
LHDs	All LHDs are included with the exception of X921 - "Victoria in reach to NSW Boundary Location" which is excluded. Justice Health (X170) is included in the NSW total but not combined with any other LHD.
Episode of care types	All episode care types should be included for measures of resource utilisation. For patient level measures, cases should be identified via acute hospitalisations or emergency presentations to emergency departments. Cases where a patient visited an ED and then was admitted to a hospital should be counted once only.

Source: Health System Information and Performance Reporting Branch, NSW Ministry of Health

Program logic

A program logic has been developed to outline how the program will work to achieve its intended outcomes (below). It provides a foundation to guide M&E and track progress towards milestones.

There are three streams of change in the program logic: system, staff and patients. The system stream describes to how the program intends to impact the change factors at a hospital, LHD and state level. The staff component describes how the program will influence and engage clinicians as the key change agents. The patient and carer component describes the actions that will contribute to optimising patient and carer experience and outcomes.



Assumptions of Program Logic

All program logics include assumptions. These assumptions are tested during the monitoring and evaluation to understand the potential facilitators and barriers to anticipated changes.

The assumptions for this program are:

- LHD executive, facility service managers agree there is a case for change and improvements are required
- governance processes will be established to support local accountability for improvements
- LHD's will identify clinical leaders and review workforce required to drive local practice changes
- adherence to the guidelines will improve patient and family experience of care
- adherence to the guidelines will improve clinician experience of care
- The guidelines are based on a sound comprehensive evidence base

Key evaluation questions

Evaluation Domain	Measurement alignment domain	Key evaluation questions
Appropriateness	Implementation fidelity	To what extent was the program implemented?
Effectiveness	Improving experience of care	What were the facilitators and constraints to the program achieving its end of program outcomes?
		To what extent did the program impact upon the staff experience of delivering evidence based care for treating bronchiolitis?
		To what extent was unwarranted clinical variation in bronchiolitis management reduced?
		To what extent were unnecessary investigations, treatment and admission to hospital identified and reduced?

		<p>To what extent did the program impact upon the families' perception of care received by their infant and subsequent experience of care?</p> <hr/> <p>Did the program result in a more efficient use of resources?</p>
Impact	Improving healthcare of the public	Were there any unintended outcomes of the program?
Sustainability	Providing efficient and appropriate care	For whom did program work and in what context?
Access and reach	Improving healthcare of the public	Are all the intended recipients of the initiative being reached?

Data and analysis matrix- Bronchiolitis

Question	Reporting alignment and frequency	Measure/Focus	Method	Data Source	Analysis
To what extent was the program successfully implemented?	Service Level Agreement Roadmap Evaluation	<ul style="list-style-type: none"> → Executive sponsor and governance established → Data collection at the local level is established → Number and location of sites implementing program → Evidence of systematic pathway 	<ul style="list-style-type: none"> Descriptive analysis Desktop analysis Specific site interviews 	<ul style="list-style-type: none"> Roadmaps Quarterly reports 	<ul style="list-style-type: none"> Contrast roadmap and interview data with program logic to test the theory of change and identify similarities and deviances from intended program theory. Sample LHD interview data to assess alignment and variation from intended program activities.
What were the facilitators and constraints to the program achieving its end of program outcomes?	Evaluation	<ul style="list-style-type: none"> → Facilitators and barriers to achieving end of program outcomes from staff and system perspective 	<ul style="list-style-type: none"> Semi-structured interviews from sample LHD staff 	<ul style="list-style-type: none"> Primary data collection 	<ul style="list-style-type: none"> Contrast key success factors and key barriers across sites with higher and lower program achievement to identify themes

Question	Reporting alignment and frequency	Measure/Focus	Method	Data Source	Analysis
To what extent did the program impact upon the staff experience of delivering bronchiolitis evidence based care?	Evaluation	→ Identify staff experience and enable improvement strategies to be developed	→ Questionnaire	Primary collection data	Analysing questionnaire responses to define experience
To what extent was unwarranted clinical variation in bronchiolitis management reduced?	Evaluation	<p>→ ED presentations</p> <ul style="list-style-type: none"> ➤ Rate of admissions to wards from ED ➤ Acute care length of stay in wards ➤ Number of patients referred to acute review clinic from ED and wards <p>→ Quantity and changes in low value care:</p> <ul style="list-style-type: none"> ➤ chest x-rays ➤ nasopharyngeal suctioning to obtain a sample 	<p>Quantitative data extraction and analysis</p> <p>Pre and post intervention comparison</p>	Administrative data	<p>Development of criteria for admission and that to be used to measure appropriate use of care</p> <p>Administrative data will be analysed for signs of changes in variation in specified areas</p> <p>The rates of admission to wards from ED's that meet admission criteria</p> <p>Number of referrals</p>

Question	Reporting alignment and frequency	Measure/Focus	Method	Data Source	Analysis
		for viral testing <ul style="list-style-type: none"> ➤ treatment with bronchodilators that cause side-effects but not clinical improvement ➤ treatment with oxygen for mild or transient reduction of oxygen saturation, ➤ increased length of hospital admission 			of non-admitted patients presenting to ED and place of referral
To what extent were unnecessary investigations, treatment and admission to hospital identified and reduced?	Evaluation	→ ED presentations <ul style="list-style-type: none"> ➤ Rate of admissions to wards from ED ➤ Acute care length of stay in wards ➤ Number of patients referred 	Quantitative data extraction and analysis Pre and post intervention comparison	Administrative data	Identification of criteria to determine treatment and testing options

Question	Reporting alignment and frequency	Measure/Focus	Method	Data Source	Analysis
		to acute review clinic from wards → ICD-10-AM coding indicating viral testing			
To what extent did the program impact upon the families' perception of care received by their infant and subsequent experience of care?	Evaluation	→ Patient reported experience measure (PREM) to be identified → Extent of carer involvement in care planning and decisions → Change in carer disease literacy	BHI patient survey- Time point comparison	BHI survey- paediatric survey covers inpatient and ED	ACI will work in collaboration with BHI to link data to patient cohort for baseline patient experience and oversample to gain adequate sample size where required. Pre post intervention and at regular points thereafter to be determined.
Did the program result in a more efficient use of resources?	Evaluation	Inpatient beddays NWAUs Rate of admission to wards Length of stay for	Pre and post intervention comparison Economic appraisal	Administrative data	Review pre and post implementation changes and observed effects regarding program responses/ improvements

Question	Reporting alignment and frequency	Measure/Focus	Method	Data Source	Analysis
		<p>admitted and non-admitted patients</p> <p>ICD-10-AM coding indicating viral testing</p>			<p>Pre-implementation Business as Usual base case to be used to as baseline for comparative economic analysis with post implementation results</p> <p>Summative assessment of net impact through comparison of quantifiable costs and benefits of the base case with the quantifiable costs and benefits of implementation of the model of care</p> <p>The summative evaluation including economic analysis identifying return on investment, net</p>

Question	Reporting alignment and frequency	Measure/Focus	Method	Data Source	Analysis
					present value and utilisation analysis results will inform decisions regarding ongoing investment Test against economic appraisal assumptions
Were there any unintended outcomes of the program?	Evaluation	→ Unexpected impacts	Semi-structured interviews from sample LHD staff	Primary data collection	Interrogation of interview data
How will these improvements be sustained?	Evaluation Roadmaps	→ Systems for data collection, feedback and ongoing improvement → Governance → Partnerships	Semi-structured interviews from sample LHD staff	Primary data collection Roadmaps	Combine sample LHD interview data on sustainability mechanisms and roadmap deliverables for key elements of program sustainability
Are all the intended recipients of the initiative being reached?	Evaluation	→ Stratified analysis by age, comorbidity, remoteness and severity	Stratified patient outcomes	Administrative data PROMs/PREMs	Interrogating and investing PROMs and PREMS to assess for whom and in what context the intervention has worked. This will

Question	Reporting alignment and frequency	Measure/Focus	Method	Data Source	Analysis
					inform future scale up.

Risks

Inherent to any program evaluation is a set of risks that need to be monitored and managed and, if necessary, escalated to the attention of relevant decision makers. A risk register has been established by the steering committee, who will monitor risks throughout the project. Risks in the below table have been identified and additional risks will be added:

Risk	Likelihood	Impact on evaluation and/or Stakeholders	Risk response
Issues with LHD engagement with LBVC tranche 2 initiatives	High	Major	Work with more engaged sites to develop initiative. Re-engage sites at the end of the winter period
Timeframe for implementation does not match the seasonality of the condition.	High	Medium	Evaluators are to be aware of seasonal trends so data can be understood in context
Methods inappropriate or flawed	Low	Low	The use of mixed methods will provide a comprehensive process which addresses the limits qualitative data and quantitative data alone. Where deemed suitable, methods may be adjusted with consultation of the CRG
The expected level of unwarranted clinical variation may be difficult to ascertain	Medium	Low	Consultation with CRG to understand variation in data between sites

Governance

Consistent with the *NSW Program Evaluation Guidelines* and the *ACI Framework: Understanding Program Evaluation*, the evaluation of the Bronchiolitis Initiative within the LBVC program will be conducted by ACI Clinical Monitoring, Economics and Evaluation (CMEE) Team. The evaluation will be overseen by the Bronchiolitis Leading Better Value Care Clinical Reference Group. The Clinical Reference Group comprises of content area experts (clinicians), evaluation expertise, the Paediatric Network and independent experts at a minimum. The Clinical Reference Group will be responsible for ensuring that the

evaluation is conducted in accordance with this M&E plan and to ensure findings are communicated to relevant stakeholders and audiences. A checklist against the *NSW Program Evaluation Guidelines* is attached at Appendix I and is to be used to guide the evaluation activities. CMEE will be instrumental in setting meeting times in accordance with key deliverables with secretariat support provided by the relevant Network Manager.

Terms of Reference for the evaluation will be developed at the time of establishing the Committee at the time of formative evaluation.

Communication and reporting plan

The dissemination of evaluation findings will be critical to inform future planning and investment decisions related to the Bronchiolitis Initiative. Communication of evaluation findings will be provided in an appropriate form to each audience and stakeholder group identified. Forums for feedback and discussion of results will be important for reflection and learning. The Bronchiolitis Initiative evaluation governance committee will define a communication plan.

Audience and stakeholders

Key audiences and stakeholders include:

- The NSW Ministry Senior Executive Forum membership; NSW Health Executive and Chief Executives, including the LBVC leadership team: interest in overall impact and future investment or disinvestment decisions.
- The ACI Executive and Network Managers: to understand program effectiveness, impact and directions for this and future programs. To understand, explain factors affecting clinical variation.
- The ACI Paediatric Network: to assess program effectiveness and provide feedback loop for ongoing improvement in the care of infants with bronchiolitis.
- LHD clinicians, service managers and executive: to understand factors affecting local performance and comparison with state and/or peer group equivalents, and to implement local quality improvement initiatives.
- Carers of infants with bronchiolitis: as partners in the care provided.

Codes of behaviour and ethics

This M&E plan comprises the delivery of human services and potentially confidential information. The evaluation will be conducted in an ethical manner and all individual records will be destroyed at the end of the evaluation.

The evaluation will be conducted in compliance with:

- *ACI Responsible governance, management and conduct of research: An ACI framework*⁹
- Australasian Evaluation Society (AES) Guidelines for the ethical conduct of evaluations¹⁰

⁹ Agency for Clinical Innovation. Responsible conduct management and conduct of research, an ACI framework. NSW: ACI, 2013. Available from:

http://intranet.aci.health.nsw.gov.au/__data/assets/pdf_file/0009/491652/Research-Framework11.pdf

¹⁰ Australasian Evaluation Society. Guidelines for the ethical conduct of evaluations. NSW: AES, 2013. Available from: https://www.aes.asn.au/images/stories/files/membership/AES_Guidelines_web_v2.pdf

- National Health and Medical Research Council (NHMRC) *National Statement on Ethical Conduct of Human Research*¹¹

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Appendices

As tools (e.g. interview guides and questionnaires) are developed they will be added to the appendices

¹¹ The National Health and Medical Research Council, the Australian Research Council and the Australian Vice-Chancellors' Committee. National statement on ethical conduct in human research. Canberra: Commonwealth of Australia: 2007 [updated May 2015; cited 2017 Mar 20]. Available from: https://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/e72_national_statement_may_2015_150514_a.pdf

Appendix 1: Evaluation of programs in ACI

Compliance with the NSW Government Program Evaluation Guidelines (January 2016)

This checklist is designed to assist people involved in evaluations in ACI ensure that evaluations are consistent with the NSW Government Program Evaluation Guidelines. A full copy of the Guidelines and the corresponding Toolkit can be accessed here:

<https://www.treasury.nsw.gov.au/projects-initiatives/centre-program-evaluation>

Definitions

Program evaluation builds evidence to contribute to decision making that can assist programs to operate at their optimal and to deliver good outcomes to end users.

In terms of evaluation in NSW, program refers to “A set of activities managed together over a sustained period of time that aim to achieve an outcome for a client or client group.” Program evaluation refers to “A rigorous, systematic and objective process to assess a program’s effectiveness, efficiency, appropriateness and sustainability.”

Principles (quick check)

The Guidelines take a principles based approach using nine principles that underpin best practice in program evaluation. These are noted below for quick assessment. The principles and associated activities form the remainder of this checklist under a series of focus areas.

Principle	Check (✓)
Evaluation has been built into the program design	
Evaluation is based on sound methods	
Resources and adequate time to evaluate is included in the program	
The right mix of expertise and independence has been used to develop and undertake the evaluation	
Proper governance and oversight has been established	
The evaluation design and conduct in its undertaking meets ethical standards	
Relevant stakeholders have informed and guided the evaluation	
Evaluation data has been used meaningfully	
The evaluation is transparent and open to scrutiny	

Planning evaluation

Assessment of key processes underpinning good practice	Check (✓)	Corresponding page # in Guidelines
Has the subject of the evaluation been clearly defined?		11
Is there a clearly defined scope?		11
Is the purpose of the evaluation clear (ie what decisions will the evaluation be used to inform – continuing, expanding or discontinuing)?		11
Are key roles and responsibilities for the evaluation allocated (who will manage, who will commission,		11

Assessment of key processes underpinning good practice	Check (✓)	Corresponding page # in Guidelines
who will conduct, who will implement findings)?		
Are key evaluation questions defined?		11
Is there an authorising environment for the evaluation (ie: authorisation to access data, interview end users/staff)?		15

Governance

Use governance processes to ensure oversight of evaluation design, implementation and reporting.

Assessment of key processes underpinning good practice	Check (✓)	Corresponding page # in Guidelines
Is there a governance structure in place to oversight the evaluation?		11
Does the governance structure include staff with appropriate seniority and understanding of evaluation?		11
Does the governance structure include staff/stakeholders with expertise in the content area?		11
Does the governance structure include staff/stakeholders with expertise in evaluation methods?		11
Does the governance structure include processes to disseminate information?		11

Audience and stakeholders

Assessment of key processes underpinning good practice	Check (✓)	Corresponding page # in Guidelines
Do stakeholders include program participants, senior decision makers, government and non-government staff involved in managing and delivering the program?		15
Has audience (those that will receive and use the evaluation findings) been identified (ie executive funders, Cabinet, Network)?		11
Has a stakeholder communication strategy been developed as part of the evaluation plan?		12
Are stakeholders involved in all aspects of the evaluation – planning, design, conducting and understanding of the results?		12

Undertaking the evaluation

Assessment of key processes underpinning good practice	Check (✓)	Corresponding page # in Guidelines
Have good project management principles, practice and tools been established to manage the evaluation?		15
Have sound methods been established to answer each of the key evaluation questions and any sub questions?		11
Have data sources and analysis approaches been defined for each question/method?		11
Are data sources (both primary and secondary) valid and robust?		11
Has data been used meaningfully to report clear statements of findings for consideration?		11
Is the evaluation plan, conduct and findings (methods, assumptions and analyses) transparent and open to scrutiny?		12
Have the ethical implications of the evaluation activities been considered and addressed adequately where personal data and impacts on vulnerable groups is potential?		12
Are privacy safeguards in place for end users, staff and vulnerable populations?		12
Is ethics approval required and if so, sought prior to commencing data collection?		12

Using key findings

Assessment of key processes underpinning good practice	Check (✓)	Corresponding page # in Guidelines
Is there a plan for communicating findings to decision makers, service providers and other stakeholders?		16
Is there a plan for how the key findings will be used?		16

The Health Economics and Evaluation Team can be contacted for further advice.