






REVIEW ARTICLE

Review article: A primer for clinical researchers in the emergency department: Part XII. Sustainability of improvements in care: An introduction

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Abstract

Despite an increased focus on ways to improve implementation of evidence and de-implementation of practices with no known benefit, there is limited guidance on how to sustain these improvements. This review provides an introduction to sustainability of improvements in care and sustainability research, discussing how to support sustainability in practice and detailing a sustainability research agenda for the emergency medicine setting.

Key words: *emergency medicine, evidence-based practice, implementation science, sustainability, sustainment.*

Introduction

Healthcare organisations are experiencing increased demands to provide evidence-based care.¹ However, there continues to be failures in

translating research evidence into clinical practice resulting in evidence-practice gaps.^{2–5} CareTrack Australia found that only 57% of Australian adults received healthcare that was in line with evidence-based guidelines.⁶ Similar results were found for children, with only 60% of paediatric encounters adhering to quality care indicators for 17 conditions.^{7,8} Clinicians can become entrenched in their practice and despite being aware of the evidence and wanting to change, altering clinical practice behaviour is difficult.^{2,4} The last decade has seen a focus on ways to improve implementation of evidence-based interventions and de-implementation of practices with no proven benefit.^{9–11} Sustainability of proven practices is identified as one of the most noteworthy translational research problems of our time,¹² yet how to sustain these improvements is relatively under-researched¹³ and it is unclear how and why evidence-based practices are or are

Key findings

- Sustaining evidence-based practice change in the ED is challenging; however, the consequences of failing to sustain improvements can be substantial including failure to deliver best practice and wasted resources.
- Research and guidance on how to improve sustainability in this setting is limited.
- This article provides an introduction to sustainability, sustainability research and guidance on how to support sustainability in the acute care setting.

not sustained.^{10–12,14,15} In the acute care and ED setting implementation and strategies to improve sustainability of change may be particularly challenging and important.^{1,16,17}

What is sustainability?

Definitions of sustainability include durability, routinisation, long-term implementation/follow up, institutionalisation and maintenance.^{18,19} A consistent definition is essential to reduce confusion and to support clinicians to make evidence-based decisions about sustainability.¹⁵ Distinguishing between sustainability and sustainment is important.^{10,20} Sustainability is how much an evidence-based innovation, after external support stops, can

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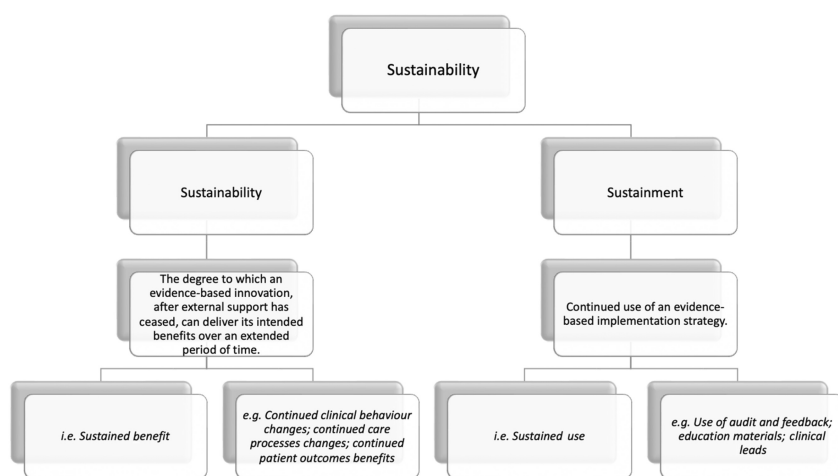


Figure 1. The concepts of sustainability and sustainment.^{10,18,21–23}

deliver ‘sustained benefits’.^{10,21} Sustainment is the continued use of an evidence-based implementation strategy (Fig. 1).^{10,21} The consequences of failing to sustain new interventions are substantial and include failing to deliver best practice, failing to deliver care cost effectively and wasting of resources.²⁴

Moore and colleagues propose five constructs when defining sustainability.^{1,15,25} They are inter-related:²⁶

1. after a defined period of time (sustainability);
2. the programme, clinical intervention and/or implementation strategies continued to be delivered (sustainment) and/or;
3. individual behaviour change is maintained (sustainability);
4. the programme and individual behaviour change may evolve or adapt (sustainability) while;
5. continuing to produce benefits for individuals/systems (sustainability).²⁶

Factors influencing sustainability

Evidenced-based practice interventions are more likely sustained if tailored to the clinicians and setting concerned.^{7,14,18} A theory, model or framework to plan, evaluate and examine causal determinants of sustainability is recommended.^{1,25} Mapping sustainability and sustainment to a framework allows for influences to be accurately identified within organisations and improves the

generalisability of outcomes.^{18,20}

There is no agreement upon which theory, model or framework is best.¹⁴

There are some general factors known to be either facilitators or barriers to sustaining practice change.²⁵ A supportive management team, committed champions to advocate for the intervention and appropriate infrastructure to support the change and monitor long-term outcomes can facilitate sustained practice change.²⁵

Barriers to sustainability include insufficient training and implementation delivery and lack of capacity to deliver the intervention through champions, mentoring and supervision.²⁵ Other barriers include workload pressures, staff shortages, high staff turnover, problem complexity, poor leadership, poor organisational support and no consideration of the socioeconomic or political environment that is national policies, guidelines and audit programmes.²⁵

Sustainability in the ED

Sustainability research is largely conducted in public health and community settings, with minimal focus on acute care.^{11,25,27,28} A systematic review to identify factors influencing sustainability of evidence-based care in hospital-based settings found only four of the 32 studies were specifically focused on sustaining care in the ED.²⁵ Combined with an absence of methodological rigour in sustainability studies^{1,15,18} there is limited evidence on

factors that support sustainment of practice change and effective sustainability in acute care.^{1,25,28}

EDs are fast-paced environments.^{11,29} Practice change is difficult in any acute care setting but particularly in EDs¹⁶ due to their unique challenges, such as large patient volumes with a diverse range of conditions, frequent staff rotations and time pressure to meet competing demands.^{11,30}

What research needs to be undertaken?

Understanding when the implementation phase ends and the sustainability phase begins

There is no formal agreement on when an implementation period ends and the post-implementation/sustainability period starts,^{1,11,26} with timepoints suggested in the literature ranging from 6 months to 16 years.^{15,18} A single time point is often used to measure sustainability, masking the dynamic nature of sustainability.¹⁸ Research should include multiple set timepoints to capture variations over time.^{11,18,21}

Determining the best ways to measure sustainability and sustainment

A wide range of outcome measures are used to measure sustainability of improvements including continuation of health system improvements (i.e. length of stay, quality of care; behaviour change compliance); continuation of health benefits (i.e. patient outcomes); programme delivery sustainment; and/or combinations of all.^{15,24} The most common measure for sustainment is continuation of programme components.²⁴

Although there are no agreed methods or tools to measure sustainability,^{15,20} there are a few purposely designed tools available that can be used.¹⁵ Ideally a combination of sustainability and sustainment outcome measures should be used combining both quantitative and qualitative methods,^{15,18} such as audits of routinely collected hospital data, cost-effectiveness evaluations, surveys and interviews or focus group discussions with staff.¹⁵

Understanding the balance between fidelity and adaptation

The concepts of fidelity and adaption add to the complexity of measuring sustainability.^{10,31} Fidelity is the degree to which an intervention follows the originally intended implementation strategy and delivers the components of the intervention

faithfully.¹⁰ 'Low' fidelity to implementation methods may result in diminished benefits/outcomes.¹⁰ Adaptation is the process of modifying the original implementation strategy with the aim of improving its fit to the local context.^{10,31} Research is needed to understand the impact of adaption on an intervention's effectiveness and the

balance between adaptation and fidelity of a proven intervention.

How can we manage and support sustainability in practice?

Several sustainability frameworks are available to assist with evaluating

TABLE 1. Considerations to help clinicians promote sustained evidence-based intervention use based on the Consolidated Framework for Sustainability Constructs in Healthcare^{1,24,25}

The organisational setting	<p>Is there any opposition to sustaining the use of intervention?</p> <p>How will/has the evidence-based practice been integrated with existing policies and programmes?</p> <p>Does the intervention need to be adapted to better fit the context in which it is being implemented to promote sustained use?</p> <p>What organisational values or culture needs to be considered to improve receptivity of sustained intervention use?</p> <p>Is the organisation ready to sustain the intervention use?</p> <p>Does it have the capacity to sustain intervention use?</p>
Negotiating initiatives process	<p>What human factors will influence sustained intervention use? i.e. belief in the intervention</p> <p>Are individuals clear on their roles/responsibilities regarding delivery of sustained intervention use?</p> <p>Is there clear accountability of roles/responsibilities for delivery of sustained intervention use?</p> <p>Is there a shared vision and/or aim to promote the sustained intervention use?</p> <p>Are there incentives to sustain the use of the intervention?</p> <p>Does sustained use of the intervention add or deduct to the workload of staff?</p>
Resources	<p>How complex is the intervention, or the processes required to sustain intervention use?</p> <p>What resources and infrastructure are available to promote sustained intervention use?</p> <p>Is there funding for delivery of sustained intervention use?</p> <p>What are the organisational factors to implementing and sustaining the practice change? i.e. barriers and facilitators</p> <p>What processes need to be put in place to sustain intervention use? i.e. systems, structures or strategies</p> <p>Is there sufficient staff for delivery to sustain intervention use?</p> <p>Is there sufficient time for delivery to sustain intervention use?</p>
The external environment	<p>What external factors may impact sustained intervention use?</p> <p>Is there strong senior organisational leadership to sustain intervention use?</p> <p>Are there any political/socioeconomic considerations that need to be accommodated to sustain intervention use?</p>
The initiative design and delivery	<p>Is sustaining the practice change a priority of the organisation?</p> <p>What are you implementing and/or sustaining?</p> <p>What characteristics of the intervention need to be sustained?</p> <p>Is the intervention effective at demonstrating sustained patient benefits/practice change?</p> <p>How will the progress of the sustained intervention be monitored over time?</p> <p>What training is required to promote sustained intervention use?</p>
The people involved	<p>Are there ED level champions to promote sustained intervention use?</p> <p>Are the staff invested in participating to promote sustained intervention use?</p> <p>Is there communication participation to promote sustained intervention use?</p> <p>Is there clear ownership of the intervention/programme to guide promotion of sustained intervention use?</p> <p>Do those with ownership have enough power to promote sustained intervention use?</p> <p>Is there enough satisfaction from the staff and patients to promote sustained intervention use?</p> <p>Are there strong relationships/collaboration/networks to promote sustained intervention use?</p>

and identifying factors that influence sustainability and developing targeted strategies.¹

The Consolidated Framework for Sustainability Constructs in Healthcare²⁵ groups the barriers and facilitators of sustainability in acute care hospital settings into six themes: the organisational setting, negotiating initiative processes, resources, the external environment, the initiative design and delivery and the people involved.²⁴ Examples of how to explore these factors in a particular setting have been provided in Table 1.

Conclusion

Sustaining evidence-based practice change in the acute care and ED setting is challenging. This review provides an introduction to sustainability and describes how sustainability frameworks can be used to support ongoing use of evidence-based practice. High quality research is needed to improve our understanding and identify ED specific factors and methods to improve the sustainability of interventions in this setting.

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Author contributions

FEB initiated the concept of the paper. VR, SM and ET wrote the first draft. All authors approved the final manuscript.

Competing interests

FEB is a section editor for *Emergency Medicine Australasia*.

Data availability statement

Data sharing not applicable – no new data generated.

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