Supplementary File

Concepts and features associated with implementation of large-scale hospital interventions. (denotes concepts added after literature review)*

Concept	Associated Features	Antecedents	Intended Outcome	Supported by the literature?	Comments and examples
External, top-down source	Implementing externally developed interventions	Basic and applied research undertaken	Standardised, evidence-based practice used across sites	Always	Developed by quality or safety agencies,[34] research institutes / groups,[24] professional colleges
	Support for implementation built into intervention	Current locally held resources may be inadequate for effective implementation; knowledge and skills deficits	Social and practical support and relevant knowledge and skills acquisition assist implementation of intervention with high fidelity	Often	Intervention designed to provide implementation support through tools (e.g.,[35]), checklists (e.g.,[10]), or guidelines (e.g.,[36]). Education and skills building key elements
	Aligns with organisational or state/nation-wide priorities	Clear, coherent intentions developed and presented	Adoption of intervention through collective understanding of a clear intention	Often	Often synonymous with the large-scale intervention model[12]
	Incentives and disincentives for implementation are offered			Rarely	For one project a participation fee was charged for organisations,[35] for another, selected participants were paid[37]
Evidence-based interventions	Implementing evidence-based interventions	Basic and applied research undertaken	Standardised, evidence-based practice used across sites	Always	Usually based on Level 1 evidence; sometimes informed by a pilot at a subset of sites[38,39]

	De-implementation of previous practices	Current practices have been updated/outmoded	New interventions	Rarely	Rarely reported explicitly. Even for implementation of new IT systems, legacy software may be kept alongside the new [31]
Safety and quality focus	Clear aim of improving patient outcomes*	Clear, coherent intentions developed and presented	Adoption of intervention through collective understanding of a clear intention	Always	With or without baseline data setting up a case for change, consistent understanding that intervention is needed to improve patient outcomes
	Sites harness their positive safety culture	Work of improving patient outcomes seen as core business	Higher adoption and engagement through collective competencies and intentions	Rarely	Rarely reported explicitly. Assumption made in most that positive safety culture exists.
Facilitation through assessment and provision of resources	External funding	Current locally held resources may be inadequate for effective implementation; knowledge and skills deficits	Social and practical support and relevant knowledge and skills acquisition assist implementation of intervention with high fidelity	Sometimes	Mix of external, internal or research funding
	Support for comparison across sites implementing the intervention*	Siloed working may hide need for change	Benchmarking and social support allow implementation of intervention with high fidelity	Sometimes	Often included in research-based design or collaborative groups
	Support for planning and implementation activities from	Current locally held resources may be inadequate for effective implementation;	Social and practical support and relevant knowledge and skills	Sometimes	Research-based projects and those involving a collaborative group

	external agencies*	knowledge and skills deficits	acquisition assist implementation of intervention with high fidelity		were most likely to give support; (e.g.,[26,40]) often given in-kind
	Case for change made through data	Limited or no understanding of the need for change; complacency	Tension for change fosters adoption of the intervention	Always	Baseline data and local audit and feedback were common implementation strategies
	Sites given a lead-in time to assess for readiness and local needs*	Naïve site, unprepared (even if willing) for change	Participants more likely to adopt change, exert greater effort, exhibit greater persistence, and display more cooperative behaviour	Sometimes	Formal needs/readiness assessments were sometimes reported[39]
Harnessing local resources and encouraging adaptation	Executive support/ sponsorship	Social and practical support for work of implementation not initially explicit	Intervention driven by local organisational ownership, active support, accountability and responsibility	Always	While commonly reported, it was only implied in some papers Variable use of the terms “support” and “sponsorship”
	Local adaptation encouraged / expected	Diversity of sites and contextual factors	Both implementation and intervention can be tailored to suit local context without loss of fidelity	Often	Assumed step, often based on a quality assurance / improvement model
	Clinical leadership	Social and practical support for work of implementation not initially explicit	Intervention driven by local organisational ownership, active support, accountability and responsibility	Often	Involvement of clinical leads gave credibility, accountability to implementation efforts. Social influence through mentorship, leading by example.