# An implementation roadmap for setting-wide positive behavioural support in adult disability settings: a concept paper

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## Summary

Adults with intellectual and developmental disabilities are one of the most marginalised groups in modern society. When budgetary pressures and recruitment difficulties are considered in disability services, together with stringent regulatory requirements, the need for innovation in sustainable, equitable and quality services for the most vulnerable in our population is unmistakable. This concept paper presents an implementation roadmap for setting-wide positive behavioural support in adult disability settings. Implementation of innovation involves sustained commitment and must be considered as a process. The paper discusses the significance of a whole organisation roadmap in the context of limited budgets, quality assurance and resource issues in the field of disability service provision for adults. The need for further empirically robust research examining the use of this roadmap is discussed as a socially, politically and economically important area of investigation.

**Keywords:** Evidence-based practice, intellectual and developmental disabilities, positive behavioural support, multi-tiered systems of support

## Introduction

Several healthcare initiatives have invited applied researchers to investigate service delivery procedures and contextual influences to advance the efficacy and productivity of system implementation across multiple levels (Fixsen et al., 2005; Bertram et al., 2015). An often-overlooked challenge is that the complexities of implementation can far outweigh the intricacies of the specific innovations being put into place (Olswang and Prelock, 2015; Hull et al., 2019; Skouteris, 2021). It is important to regard implementation as a process rather than a single event (Fixsen et al., 2005). This article will explore a conceptual framework for implementation and how it may be applied in the development of an implementation roadmap for setting-wide positive behavioural support (PBS) in adult disability settings.

## What is PBS and how is it implemented?

There have been several definitions and revisions of the term PBS over the years (Warren et al., 2006; Carr and Horner, 2007; Dunlap et al., 2009; Gore et al., 2013), which has led to the term becoming quite broad; however, it is outside of the scope of this paper to attempt to address this issue. Carr et al. (2002) defined PBS as "an applied science that uses educational and systems change methods to enhance quality of life and minimize problem behaviour" (p. 4), while more recently Gore et al. (2022) provided a revised description which incorporates ten key components across three core overlapping themes of rights and values, theory and evidence base, and process and strategy. There is a growing body of evidence supporting the use of this framework across settings and populations (Carr and Horner, 2007; Hassiotis et al., 2014;

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Charlton et al., 2020). PBS can be implemented in several ways, including by specialist behaviour support teams (Hassiotis et al., 2009; Toogood et al., 2015), by individual practitioners (McClean et al., 2007; Baker and Allen, 2012) and by multi-tiered setting-wide approaches (Rotholz and Ford, 2003; Allen et al., 2012). Implementation of PBS can be challenging, contingent on how well the various components are understood and utilised (Hawe et al., 2009). Dunworth et al. (2024) described factors such as staff turnover and burnout, training and knowledge, and relationships between PBS practitioners and frontline staff as barriers to the implementation of PBS. Hassiotis et al. (2018) also described implementation challenges such as resource requirements (specifically time) and issues with procedural fidelity.

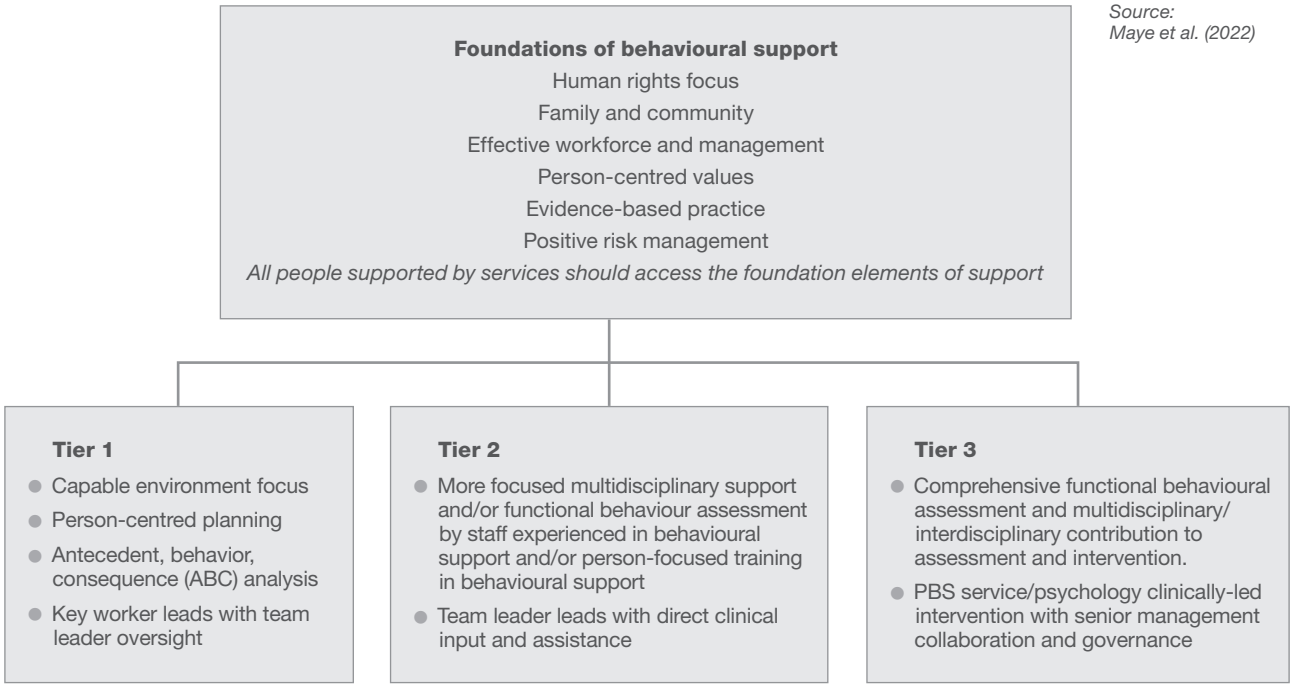
## Implementation challenges

Procedural fidelity refers to the extent to which an intervention is carried out as intended (Gresham et al., 1993). Stronger procedural fidelity is associated with more successful interventions and better outcomes for the individual (DiGennaro et al. 2005). Accordingly, it is important to have systems in place to measure procedural fidelity in human services (Horner et al., 2004). One such tool is the periodic service review which is well-documented as an effective means of measuring and enhancing implementation (LaVigna et al., 1994). However, procedural fidelity is often not measured or reported (Brady et al. 2019). School-wide literature demonstrates that procedural fidelity reached by staff drops significantly in environments with higher variability such as high schools (Horner et al., 2010). Residential settings for adults with intellectual disabilities can also be described as changeable environments due to high staff turnover, a broad range of support needs among those supported, and variability in the skill sets of direct support personnel (Brady et al., 2019; Lugo, 2022), although there is a dearth of robust literature available for these settings. Systemic or setting-wide models of PBS seek to address these challenges by incorporating proactive strategies to target these contributing factors.

## Setting-wide PBS

Setting-wide PBS is an innovative approach to providing quality services for adults with intellectual disabilities. This development aligns with the revised definition provided by Gore et al. (2022) and the systematic review conducted by Hayward et al. (2021) which posit that there is a significant opportunity for greater consideration of these systemic characteristics in future research. *Figure 1* illustrates an example of this tiered model (Maye et al., 2022). Tier 1 involves the adaptation of physical, interpersonal and organisational contexts to enhance quality of life and

**Figure 1:** Tiered model of positive behavioural support




*Source: Maye et al. (2022)*

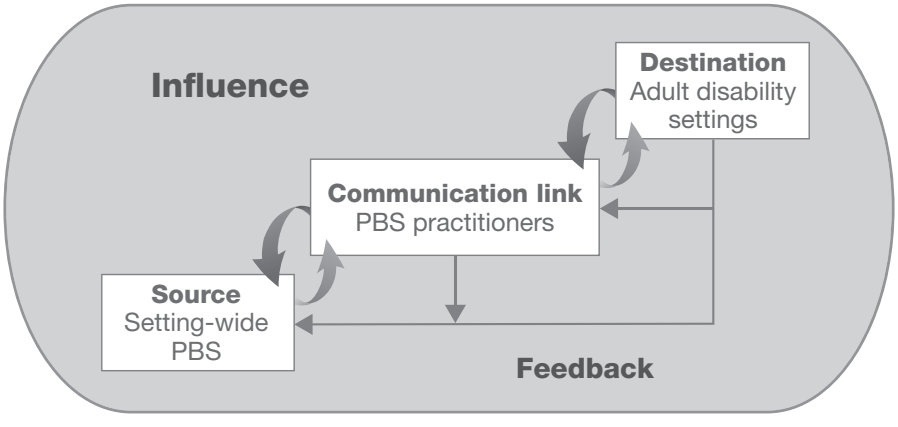
reduce distressed behaviours (Allen et al., 2012; McGill et al., 2018). Tier 2 provides additional focused supports to allow for early identification of those vulnerable to experiencing distressed behaviours in the context of a greater level of support need and more complex contextual factors (Gore et al., 2022). More focused multidisciplinary supports and expertise are provided at this level. Finally, Tier 3 specialist individualised supports may be considered for those individuals who either do not respond to Tier 1 and Tier 2 supports or present with significantly distressed behaviours (e.g., high risk). Tier 3 supports usually involve intensive specialist individualised supports (McGill et al., 2018; Gore et al., 2022).

There is ample evidence of the effective application of this tiered framework in educational settings to prevent and reduce problem behaviours, enrich the social culture, and advance social and emotional proficiency (Horner et al., 2010; Noltemeyer et al., 2019). Equivalent evidence of the application of this systemic model in adult settings, however, is limited to date, despite promising outcomes being described (Martin, 2015; McGill et al., 2018). There are some important works exploring the implementation of PBS in adult settings (Hayward et al., 2021; Noone et al., 2021). These studies highlight that the initial innovation-decision process is crucial in the successful adoption of the framework by organisations. The broad and varying conceptualisations of PBS probably daunt senior management teams and erode confidence in progression. This paper seeks to address this, and complement the aforementioned studies, by adding a practical implementation blueprint for setting-wide PBS across all three tiers. With the present demands faced by adult service providers concerning the recruitment and retention of skilled staff (Power and Burke, 2021), along with the provision of quality supports that promote agency and human rights (Iffland et al., 2024), further exploration into how to implement effective frameworks is warranted.

## Implementation science and PBS

Fixsen et al. (2005) described the theory-to-practice gap eloquently when they wrote that shelves full of intervention manuals do not necessarily translate to innovative practice or change in human service systems. A large proportion of long-term changes in healthcare communities fail (Bernstein et al., 2016; Dearing and Cox, 2018), which is often related to implementation barriers rather than ineffective programmes (Olswang and Prelock, 2015; Bauer and Kirchner, 2020). Empirical developments focused on bridging theory to practice have fostered an appreciation of the position of implementation science as a conceptual and methodological tool (Hull et al., 2019). Eccles and Mittman (2006) defined implementation science as "…the scientific study of methods to promote the systematic update of research findings and other evidence-based practices into routine practice and, hence, to improve the quality and effectiveness of health services" (p. 1). There are more than 150 theories, models and frameworks in the implementation literature (Strifler et al., 2018), and the selection of an appropriate paradigm is difficult. In their synthesis of implementation research, Fixsen et al. (2005) noted four essential elements of successful execution of a programme: 1) carefully chosen skilled purveyors; 2) effective organisational support; 3) involvement of communities and consumers at all stages; and 4) adequate funding structures. The authors applied these findings in the development of a conceptual framework. The application of this conceptual framework to setting-wide PBS in adult settings is summarised in *Figure 2*.

**Figure 2:** Conceptual framework for implementation of setting-wide PBS in adult settings



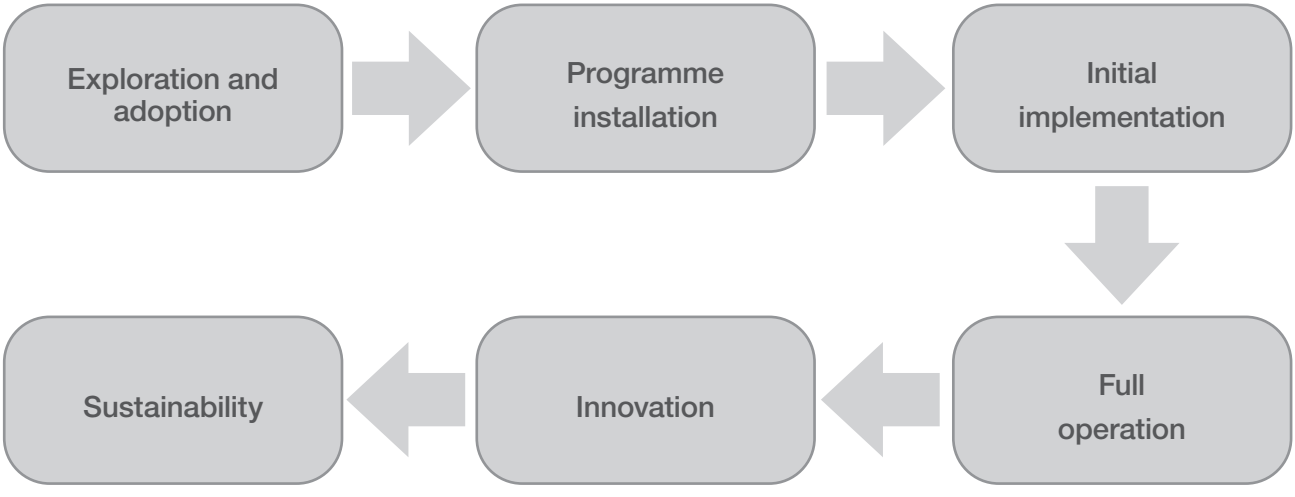

*Adapted from Fixsen et al. (2005)*

In this paradigm, 'source' refers to the setting-wide PBS, a preventative multi-tiered framework aimed at enriching the quality of life and reducing the behaviour support needs of all adults with intellectual and developmental disabilities accessing supports in a setting or organisation (Gore et al., 2022). The 'destination' refers to the individual practitioners and the organisation that adopts the innovation and may include various types of adult disability services such as supported living settings. The 'communication link', or purveyors, refers to an individual or group of individuals skilled and focused on implementing the programme with fidelity and effectiveness (Fixsen et al., 2005). Practitioners with expertise in PBS such as behavioural psychologists or those with professional training and experience in systemic models of PBS could fulfil this role (Martin, 2015). There are promising developments in this area in the UK (Tomlinson et al., 2017; Leitch et al., 2020) with multiple MSc programmes in Positive Behaviour Support established. Partnerships between academic institutions and state agencies such as the National Federation of Voluntary Bodies or the National Disability Authority could be explored to develop appropriate programmes to ensure that adequately skilled change agents are available. Purveyors (setting-wide PBS practitioners) have the opportunity to gain knowledge and experience in the implementation of evidence-based practices such as setting-wide PBS over time (Fixsen and Blase, 1993; Winter and Szulanski, 2001; Schofield, 2004). Inclusion of setting-wide PBS professionals in community disability teams (multidisciplinary teams) could potentially build a network of experience and skill in the implementation of complex systemic intervention within these networks, while potentially reducing the load of individual referrals.

## Setting-wide PBS implementation roadmap

Fixsen et al. (2005) in their synthesis of implementation research identified specific stages in effective implementation processes which are presented in *Figure 3*. This section adopts these stages to outline an implementation roadmap for setting-wide PBS in adult disability settings.

**Figure 3:** Stages of the implementation process



### Stage 1: Exploration and adoption

Exploration aims to evaluate the fit between an organisation's needs, relevant evidence-based practices and contextual resources for decision-making (Lawson and Samson, 2001; Weintraub and McKee, 2019). The remit of adult disability services is to provide quality inclusive, person-centred, rights-based services that enrich the quality of life (Mansell and Beadle-Brown, 2004; United Nations, 2006). Setting-wide PBS is a multi-tiered framework focused on establishing a proactive, positive and rights-focused culture of support to enrich the quality of life and ease distressed behaviours (Freeman et al., 2005) – a good fit for adult disability service provision. Commitment of leadership to the implementation process is key for organisational change; however, effective ways to secure this cooperation remain under-researched (Fixsen et al., 2005; Bertram et al., 2015). Organisational readiness for change (ORC) has been identified as a crucial antecedent for organisational commitment to implementation (Lehman et al., 2002; Weiner et al., 2008). Weiner et al. (2008) define this construct as "the extent to which organisational members are psychologically and behaviourally prepared to implement organisational change" (p. 381). ORC measures offer a valuable way to evaluate a service's position regarding factors that support or hinder its progress and is the first task recommended in this plan. There are a multitude of available instruments in the literature focused on various aspects of readiness (Weiner et al., 2008; Helfrich et al., 2009; Blackman et al., 2013). The Organisational Readiness for Implementing Change (ORIC) is a brief, reliable and valid measure developed for this purpose (Shea et al., 2014) and is the first recommended task in this potential roadmap for implementation. Although generating ORC is challenging, numerous determinants in ORC theory have been identified, such as the skill level of employees and organisational culture (Weiner et al., 2008). This is useful should the ORIC assessment reflect a low or absent inclination in the organisation to evolve. The second recommended task, to establish an implementation task force consisting of key stakeholders in the organisation, such as adults with intellectual and developmental disabilities and their advocates, senior management teams, direct support professionals, clinical staff, and administrative personnel, is crucial to encourage and sustain commitment to change and ownership of new organisational policies and procedures (Bachman and Duckworth, 2003; Griffiths et al., 2007; Schalock et al., 2018).

### Stage 2: Programme installation

At this point, resources are focused on active preparation for the adoption of the principles of the agreed evidence-based practice or, in this case, setting-wide PBS. These may include funding applications to commissioners, human resource strategies, policy development and/or revisions, referral systems and outcome expectations (Fixsen and Blase, 1993; Fixsen et al., 2005; Bertram et al., 2015). Recent investigations into cost-of-service provision for adults with intellectual and developmental disabilities indicate quality supports that include important elements of setting-wide PBS, such as engagement in meaningful activities, do not cost more and that it is possible to enhance services with existing resources (Bigby et al., 2020). However, this requires direct support staff that have the capacity, opportunity and motivation to acquire the range of complex skills necessary to implement effective interventions (Campbell, 2010). The commissioning of standardised setting-wide PBS workforce development programmes in partnership with academic institutions and government departments has the potential to provide a means for cost-effective programme installation across disability service providers at scale. Other related costs such as equipment (webcams, computers etc.), appropriate skill development spaces outside of residential settings, and funding time for staff while they are engaged in training should be included, reviewed and adhered to in yearly budgets as they are a necessary outlay in the provision of quality services.

### Stage 3: Initial implementation

Perhaps evolution is a more fitting description of the initial implementation of a programme, as change does not occur uniformly in all parts of an intervention or an organisation (Waddell et al., 2019). Resistance to change, inertia and adherence to familiar 'this is how we do things here' routines mingled with the difficulty with implementing something different and unfamiliar is well evidenced in the literature (Ersek et al., 2012; Van Ness et al., 2012; Mulhall et al., 2018; Sarre et al., 2018). Generating awareness in organisations that initial implementations are problematic may be essential protection from disappointment or drift following problematic initial trials. The inclusion of feedback systems from the onset where consumers and implementers are committed to examining barriers and enablers to change is an essential ingredient for sustainable interventions. *Table 1* provides a summary of useful tools to collect quality data on implementation fidelity and outcome measures of impact across all three tiers of the setting-wide PBS framework so that implementation can

be refined. A Tier 1 Benchmarks of Quality assessment has been developed for school settings (Kincaid et al., 2021) but is not appropriate to use with adult populations. Accordingly, an adapted version of the instrument for adult disability settings that may provide an important tool for quality evaluation has been developed by the authors. The original tool was based on the critical elements of school-wide PBS (Lewis and Sugai, 1999) and was intended as a self-assessment tool to evaluate the quality of Tier 1 PBS (Kincaid et al., 2005). The adapted version incorporates similar elements, adjusted to fit the adult context. For example, one of the critical elements in the school-wide tool is effective procedures for dealing with discipline. This was adapted in the adult version to "ethical procedures for responding safely to distressed behaviours", reflecting FREDA (fairness, respect, equality, dignity and autonomy) principles crucial in adult service provision (Curtice and Exworthy, 2010). This tool may be used as a self-assessment tool within organisations, or it may potentially be used as a quality assurance measure by external quality assessors such as state regulatory bodies. The adapted tool is available from the authors upon request.

### Stage 4: Full operation

The full function of an innovation proceeds when evaluated outcomes of initial efforts are incorporated into purveyor, organisation and consumer-related policies, procedures and practices (Fixsen et al., 2005; Bertram et al., 2015). The intervention transforms into the standard practice in the setting, as evidenced in several school-wide implementations of PBS (Cook et al., 2015; Noltemeyer et al., 2019; Charlton et al., 2020). It is only when fidelity measures are above criterion for the majority of evaluations that the success of the fully operational 'destination' can approximate the efficacy of the original 'source' – or in this case setting-wide PBS (Fixsen et al., 2005). There is much work to do for setting-wide PBS to reach this stage of the implementation roadmap in adult disability settings. Further research continuing the exploration of implementation in these environments is essential. One potential approach may involve the use of status checks early in the implementation process to allow for responsive supports for non or slow responders to intervention (e.g., mobile phone notifications) (Irvine et al., 2012), which may be a novel area for further investigation. Utilising this approach may allow for earlier identification of the need for synchronous or asynchronous coaching in the implementation of trained skills during intervention stages. Others have begun testing this approach in early intervention parent training models for toddlers at risk of, or diagnosed with, autism (Ousley et al., 2023).

### Stage 5: Innovation

Implementation teams gain experience and knowledge of the intervention and the enablers and barriers to change with every trial (Alblooshi et al., 2021). This presents an opportunity for fine-tuning the implementation process and the intervention being used, with the identification of useful enhancements and potential threats to validity (Lewis et al., 2020). It is essential, however, that this stage follows the previously described full operation of the practice so that any innovations or developments are based on proficient execution of the intervention (Fixsen et al., 2005). This provides further support for the development of PBS expertise in community disability teams to create an infrastructure for full operation and innovation to emerge. The use of technology is rising as an effective innovation in the field of mental health, with the development of digital mental health interventions to increase access to evidence-based mental health care (Graham et al., 2020). Technology, such as mobile and web-based apps, has the potential to increase access to evidence-based practices in disability service provision and is an important area for future research.

### Stage 6: Sustainability

The establishment of fully operational setting-wide PBS in adult disability settings will take several years to achieve. Long-term sustainable commitment to implementation is required for vulnerable adults and direct support staff to experience the potential benefits of this model of support. Implementation teams, in partnership with the disability community, require the proficiencies and attentiveness required to sustain innovative evidence-based practices, such as setting-wide PBS, in the context of fluctuating socio-political and financial influences (Fixsen et al., 2005). Short-term quick-fix solutions focused solely on individual concerns cannot provide sustainable quality supports for the most vulnerable in our society.

## External Influences: social, economic and political context

Funding of disability service provision was significantly impacted by the austerity measures imposed following the global financial crisis of 2008 (O'Sullivan and McNamara, 2021). The timing of this was detrimental to the lives of vulnerable adults as the UN Convention on the Rights of Persons with Disabilities was adopted only 2 years before (United Nations, 2006). The National Federation of Voluntary Service Providers produced a report in 2019 detailing an unprecedented funding crisis in intellectual disability services. The report describes "a lack of consistency,

**Table 1:** Relevant outcome measures for evaluating setting-wide PBS[1]

[1] *The bracketed numbers in each measure indicate the relevant tier of the setting-wide framework they may be used for. For example, (1) relates to Tier 1, (1–3) indicates a measure that may be used for all three tiers.*

| Dependent variable | Measures for participants with intellectual disabilities | Measures for staff | Setting-wide measures (organisational) | Examples of how measures are applied across tiers |
|---|---|---|---|---|
| **Behaviours of concern** | • Routine incident reports (1)<br>• Behaviour monitoring forms (1)<br>• Behaviour Problems Inventory (BPI) (Rojahn et al., 2001) (2,3) | • Trust in care reports (1–3) | | • Tier 1: Are there decreases in incident reports across the organisation after implementing PBS?<br>• Tier 2: Are there decreases in trust in care reports in specific residences after?<br>• Tier 3: Did the individual BPI score for a supported individual decrease? |
| **Adaptive behaviour** | • Short Adaptive Behaviour Scale (SABS) (Hatton et al., 2001) (1–3) | | | • Tier 1: Did overall SABS scores for all individuals supported by the organisation change/improve?<br>• Tier 2: Did SABS score for the group of individuals supported in a specific setting change/improve?<br>• Tier 3: Did SABS score for the supported person improve following implementation of an individual behaviour plan? |
| **Quality of life** | • Personal Outcomes Scale for Adults with Intellectual and Developmental Disabilities (van Loon and Mostert, 2023) (1–3)<br>• Engagement in meaningful activity and relationships (EMAC-R) (Mansell and Beadle-Brown, 2005) (1–3) | • Satisfaction of Employees in Health Care survey (SEHC) (Alpern et al., 2013) (1) | | • Tier 1: Have there been improvements or maintenance of staff retention rates?<br>• Tier 2: Have the quality-of-life scores for the group of individuals supported in a specific setting increased?<br>• Tier 3: Have the individual quality of life scores for the supported person increased? |
| **Quality of support/ procedural fidelity** | • The Person-Centred Planning Process Satisfaction Survey (Abery et al., 1999) (1–3)<br>• Periodic Service Review (PSR) (LaVigna et al., 1994) (1–3) | • Active Support Measure (ASM) (Mansell and Elliott, 1996) (1–3)<br>• Periodic Service Review (PSR) (LaVigna, 1994) (1–3)<br>• Training evaluation form (staff) (Kirkpatrick and Kirkpatrick, 2016) (1–3)<br>• Capability Opportunity Motivation–Behaviour (COM-B) setting-wide PBS interview (adapted from Lambe et al., 2020) (1–3)<br>• Practice Leadership Questionnaire (PLQ) (Beadle-Brown et al., 2015) (1–3)<br>• Knowledge tests (training) (Kirkpatrick and Kirkpatrick, 2016) (1–3)<br>• Hierarchical task analysis for skill development (Hignett et al., 2019) | • Periodic Service Review (PSR) (LaVigna et al., 1994) (1–3)<br>• Observational checklists<br>• Positive Behaviour Support Plan fidelity check (Horner et al., 2000) (3)<br>• PCP fidelity checks (1,2)<br>• Behaviour Support Plan Quality Evaluation Tool (Browning-Wright et al., 2007) (3)<br>• Positive Environment Checklist (Albin and O'Neil, 1994) (1)<br>• Positive Behaviour Support Plan Audits (3)<br>• Setting-Wide PBS Benchmarks of Quality (Scheuermann and Turner, 2020) | • Tier 1: Is there evidence that all individuals supported in an organisation are meaningfully engaged?<br>• Tier 2: Have all staff employed in the residential setting attended training in active supports?<br>• Tier 3: Has the observational measure score of procedural fidelity for the individuals' PBS plan increased? |
| **Social validity** | • Treatment Acceptability Rating Form – Revised (TARF-R) (Reimers et al., 1992) (1–3)<br>• Observational data (1–3) | • Treatment Acceptability Rating Form – Revised (TARF-R) (Reimers et al., 1992) (1–3) | • Social Validity Surveys (providers of services) (1–3) | • Tier 1: Have social validity scores increased across all areas/settings of the organisation?<br>• Tier 2: Are there increases in the treatment acceptability scores of all staff in a specific residential setting?<br>• Tier 3: Is there clear observational evidence that the supported person accepts and approves of the individual intervention objectives? |
| **Readiness for change** | • Individual consent procedures (1–3) | • Staff resistance to change scale (Oreg, 2003) (1)<br>• Acceptance of change scale (Di Fabio and Gori, 2016) (1) | • Organisational Readiness for Implementing Change (ORIC) (Shea et al., 2014) (1) | • Tier 1: Has the PBS committee completed organisational readiness for implementing change tool?<br>• Tier 2: Has the full staff team in the residential setting completed the staff resistance to change scale?<br>• Tier 3: How has the individual been supported to consent to intensive individual supports (describe evidence)? |

equity or transparency in how resources are distributed" (p. 1). This crisis has influenced the experiences of employees of disability services, who describe disadvantageous pay and working conditions (Power and Burke, 2021). Perhaps this partly explains why many care providers are experiencing significant recruitment issues since the onset of the Covid-19 pandemic (Molloy, 2021; Lunga and Murphy, 2023). These factors are influential at all levels of implementation as commissioners and providers face the challenge of identifying policy interventions that support regulatory requirements, facilitate implementation of evidence-based practices that promote quality of life and human rights for vulnerable populations, and minimise barriers to implementation that could squander precious limited resources (Goldman et al., 2001). Investigation of this implementation roadmap for setting-wide PBS could provide an important strategy for commissioners and service providers to navigate this dilemma.

## Conclusions

Implementation of innovation involves sustained commitment, and it must be considered as a process rather than an event (Fixsen et al., 2005; Hasson, 2010). The significance of producing a pragmatic future roadmap for disability organisations to implement this evidence-based practice in the context of limited budgets, regulatory requirements and staffing limitations cannot be undervalued. While the organisational change process is notoriously complex and volatile (Waddell et al., 2019), this toolkit provides a way for organisations to identify what stage they are at in implementing a setting-wide PBS framework and to adopt evidence-based strategies that address barriers to implementation and move forward. Finally, this roadmap may provide a valuable platform for additional crucial research into the successful and sustained implementation of PBS in adult disability settings.

## Declaration of conflicting interest

The lead author was an employee of the host organisation that part-funded the research programme.

## Acknowledgements

The authors wish to acknowledge the Irish Research Council as co-funder for this research synthesis in partnership with St. Patricks Centre (Kilkenny) disability service provider.

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