RESTACKING THE ODDS

IMPACT REPORT

Phase Two (2022-2025)

Co-Designing for Impact:
Supporting the Use of Data in
Early Years Systems

August 2025

murdoch children's research institute
SVA innovators for good
BAIN & COMPANY

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- the generous and pioneering investment by the Paul Ramsay Foundation in Restacking the Odds 2.0 that has been instrumental in advancing innovation to improve key early years services for children and families.

RESTACKING THE ODDS

RSTO is a collaboration between the Centre for Community Child Health at the Murdoch Children's Research Institute, Bain & Company, and Social Ventures Australia.

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We acknowledge the Traditional Owners of the land on which we work and pay our respect to Elders past, present and emerging.

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ACRONYMS

ACRONYM	DEFINITION
ANC	Antenatal care
ATSI	Aboriginal and Torres Strait Islander
CI	Continuous improvement
COM-B	COM-B (Capability, Opportunity, Motivation—Behaviour) Model of behaviour change
CoPs	Communities of practice
ECEC	Early childhood education and care
EYS	Early years of school
KPIs	Key performance indicators
MEL	Measurement, Evaluation and Learning plan
PBI	Community-led place-based initiatives
PDSA	Plan-Do-Study-Act
PLACE	Partnerships for Local Action and Community Empowerment
PP	Parenting programs
QQP	Quality, quantity and participation
RSTO	Restacking the Odds
SNHV	Sustained nurse home visiting
TDF	Theoretical Domains Framework

NOTE ON TERMINOLOGY

The term 'priority groups' is used throughout the guide to identify populations who may be disproportionately affected by adverse health or learning outcomes because of structural inequities.[1] Priority groups include pregnant women under 18 years of age, refugees or asylum seeker populations, disability populations, Aboriginal and Torres Strait Islander populations, Health Care Card holders, children in out-of-home care, and culturally and linguistically diverse populations.

1 Ascribing 'vulnerability' to priority groups is a form of systemic racism which can confirm and reinforce prejudices and stereotypes; and leads to pathologising the population. Racism is a key social determinant that has a profound impact on children's health, development and wellbeing, and drives an unequal distribution of health outcomes in society. The priority population groups most affected by racism in Australia are Aboriginal and Torres Strait Islander children and children from ethnic minoritised and migrant communities. (Priest et al., 2021; Priest et al., 2021b)

EXECUTIVE SUMMARY

PURPOSE OF THIS REPORT

Restacking the Odds (RSTO) is working to drive equitable outcomes in early childhood by ensuring that all children and families access high-quality, evidence-informed early years services. We empower service providers, communities and governments with the data and tools they need to improve the quality, quantity and participation rates of Australia's early years services.

Our objectives over the last three years were to:

- identify low effort ways to routinely collect and act on RSTO lead indicators—data that indicate whether you are on track to achieve your goals
- co-create scalable prototypes (data capability, visualisation and use) with service providers and communities to address barriers
- understand whether RSTO can work routinely to help services and community-led initiatives improve quality, quantity and participation
- build awareness of the benefits of stacking (accessing multiple high-quality services) and the importance of lead indicators at a systems level.

This report presents the impact of the second phase of RSTO 'RSTO 2.0' from 2022-2025. It provides:

- the emerging findings and learnings on the implementation of RSTO initiative
- recommendations for future directions. The report draws on mixed-methods and a descriptive analysis approach using available qualitative and quantitative data collected by RSTO and ARTD Consultants to answer five key evaluation questions (Figure 1).

Figure 1: Key evaluation questions

CONTEXT

Evidence shows that children's health, development and wellbeing can be improved by 'stacking' or combining multiple childhood services.[2] RSTO focuses on five key early years services that we know support good outcomes for children: antenatal care (ANC), early childhood education and care (ECEC), early years of school (P-3), sustained nurse home visiting (SNHV) and parenting programs (PP). These services are:

- longitudinal—supporting children throughout early childhood
- ecological—engaging both children and their parents
- evidence-based—backed by rigorous research.

RSTO aims to strengthen the early years system so that all children—especially those facing disadvantage—receive the very best support.

This means ensuring these services are delivered effectively, in terms of:

- quantity—are there are sufficient services available?
- quality—are they delivered at a high quality?
- participation—are children and families accessing them at the right frequency?

RSTO does this by facilitating local learning and continuous improvement. It ensures evidence-based lead indicator data is accessible and useful to frontline service providers to inform timely and contextual decision-making and action. RSTO works with local early childhood service partners through integrated service hubs[3] and community-led place-based initiatives focused on improving early childhood development.

This phase of RSTO focused on:

- building relationships with innovation partners across early years services and community initiatives
- understanding their barriers to collecting and using data for service improvement
- co-designing prototypes to support data-informed decision making
- promoting the benefits of stacking early years services through advocacy to policymakers
- building understanding of the role of lead indicators in improving decision making
- engaging governments at federal and state levels.

Over the last three years, RSTO has made significant progress in advancing evidence-informed local learning to drive more equitable access to high-quality early childhood services.

2 Molloy, C., O'Connor, M., Guo, S., Lin, C., Harrop, C., Perini, N. & Goldfeld, S. (2019). Potential of 'stacking' early childhood interventions to reduce inequities in learning outcomes. Journal of Epidemiology Community Health, 73(12), https://doi.org/10.1136/jech-2019-212282

3 Hubs (also referred to as 'Child and Family Hubs') provide a local and welcoming 'front door' for families that bring together services, data and local knowledge to support children and families. (National Child and Family Hubs Network).

FINDINGS

RSTO has identified key barriers and enablers to using lead indicators for service improvement across early years services and place-based initiatives

RSTO has identified key barriers and enablers to using lead indicators across all services—except for the early years of school[4]—and place-based initiatives (PBIs). These have been outlined in three peer-reviewed publications.

Barriers included:

- a lack of data capabilities and skills
- limited data systems to support integration
- inability to interpret and share data, and a lack of dedicated resources for using data effectively
- ad hoc and inconsistent lead indicators used by leaders across services
- data being required by funders for reporting and not for improvement or change efforts
- insufficient motivation.

Enablers included:

- consistent lead indicators across services
- investment in data systems
- training to support ongoing data use for decision making
- understanding and communicating the benefits of evidence-based lead indicators
- embedding data use into funding deliverables through policy and funding changes.

RSTO has developed practical, scalable prototypes that respond to key barriers and enablers

RSTO has worked with partners to successfully co-design and test practical prototypes—lead indicators, a data platform and a continuous improvement (CI) program—across early childhood education and care (ECEC), antenatal care, and parenting programs (Figure 2). This has led to immediate improvements in data availability, accessibility and use—particularly in ECEC. These tools have also enabled services to collect and analyse priority populations data for the first time. Prototypes for sustained nurse home visiting (SNHV) and the early years of school have not yet been fully developed. This is due to limited national service availability of SNHV, and to workforce challenges and internal resource priorities in schools. Across our prototypes, we've learnt which elements are valuable and scalable across different services, and which need to be adapted for local contexts.

4 Engagement with schools has been limited due to post-COVID restrictions from various state Department of Education, which did not permit research activities.

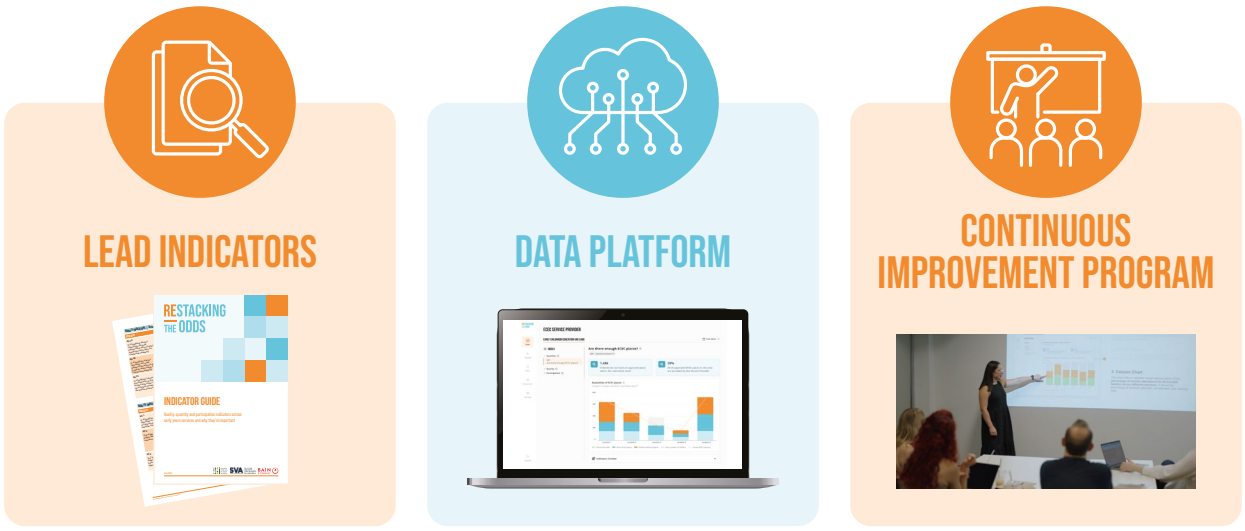


Figure 2: RSTO prototypes

Early-stage community-level prototypes show promise for supporting local decision making in specific areas—e.g. quantity of services—though challenges remain in engaging place-based initiatives and services to share data and use it for joint decision making and action to improve local early years services.

Early childhood education and care at the forefront of embedding RSTO prototypes into routine practice

In ECEC, four out of nine local innovation partner sites have implemented RSTO prototypes into routine practice. All partners continue to be engaged in data-informed learning and continuous improvement, indicating the sustainability of the approach. Long-term sustainability relies on both internal motivation—such as strong leadership, a learning driven culture, and internal champions—and external alignments, including shared priorities, accountability, and incentives to embed data-informed practice.

RSTO prototypes are shaping service delivery across quality, quantity and participation, with strongest impact seen in early childhood education and care

Implementation of RSTO prototypes has led to improvements in service quality, quantity and participation, especially in ECEC. There have been notable gains in data availability, accessibility and use—particularly for priority populations. One partner, committed to increasing participation for Aboriginal and Torres Strait Islander children, saw powerful results—an uplift in just three months and an 18% increase over the year. A testament to what's possible when the right data and local-led action come together (Figure 3).

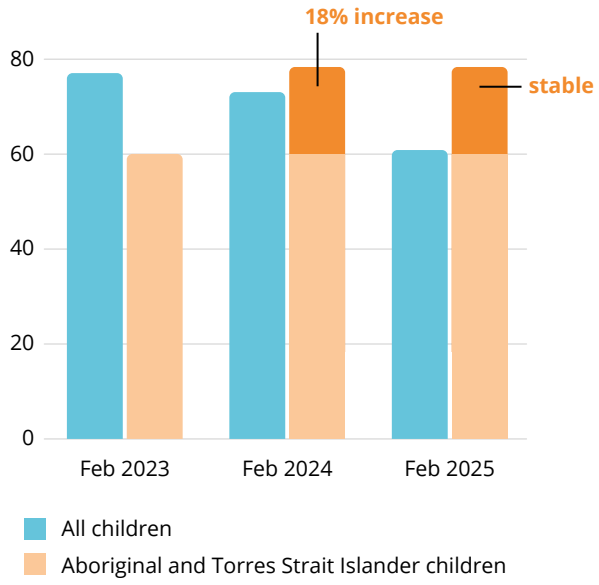


Figure 3: Changes in the participation of Aboriginal and Torres Strait Islander children in an ECEC site

The Continuous Improvement Program, which includes the use of Plan-Do-Study-Act (PDSA) cycles, has been a key driver of change. Services used lead indicators to identify improvement areas, planned strategies and refined practices iteratively to yield better outcomes. A CI approach has been critical for turning insights into action and ensuring that decisions remain grounded in practice experience.

Growing system-level recognition of lead indicators and service stacking is paving the way for aligned policy and investment

RSTO's policy efforts—through coalition-building, strategic engagement and identifying key opportunities—have elevated the importance of stacking services and integrating systems for greater impact. There is growing recognition of the need for 'better' data that captures quality, quantity and participation across early years programs. There is emerging recognition that using lead indicators as policy levers is key to shifting from reactive monitoring to continuous improvement focused on quality, quantity and participation.

This is reflected in key policy and reform recommendations:

- the South Australian Royal Commission into ECEC recommends 'stacking' in its final report, and the new Office for Early Childhood and Care has commenced initiatives to support stacking and connecting services.
- RSTO's lead indicators in SNHV are being considered in Queensland's measurement and evaluation framework. This follows a commitment to the significant expansion of SNHV programs in Queensland. The RSTO team worked closely with Queensland stakeholders within and beyond government to advocate for this investment.
- RSTO's influence is evidenced by 15 Overton citations, 21 references in major submissions and formal invitations to contribute to policy reform efforts, including the Early Years Strategy, the Investment Dialogue for Australia's Children, the Productivity Commission Report into ECEC and Putting Queensland Kids First.

> ***'The commission found compelling evidence abourt the benefit of 'stacking' multiple evidence-based services in the early years, particular antenatal care, nurse home visiting, early childhood education and care and parenting programs, to improve outcomes for children in the first 1000 days.'***
>
> Royal Commission into Early Childhood Education and Care Report, South Australia, 2023

KEY LEARNINGS

Building capability, motivation and opportunity is critical for implementation success

Successful implementation of evidence-informed continuous improvement demands a multifaceted approach. It requires tools and processes that build workforce capability, support collaborative decision making within and across services, and foster motivation at all levels. Early transformation in ECEC shows what's possible with leadership, skills, additional funding, and aligned goals.

Sustaining and spreading this change to other key services in the stack will require the continued support and refinement of prototypes to ensure successful implementation. Continued investment, policy alignment and system level support are required to embed and spread effective practice.

The right data and continuous improvement are catalysts for change

The transformation with ECEC partners after just one year highlights the potential of local learning and action informed by lead indicator data to drive meaningful change. It underscores the power of data that is timely, locally relevant and close enough to practice—to drive real-time feedback and rapid improvement.

To achieve the broader goal of 'stacking' these gains must be extended and sustained across other early years services. While progress is emerging across other services, deeper work is needed with place-based initiatives (PBIs) to embed RSTO tools and practices. Early-stage community-level prototypes show promise in aggregating data and informing local decision making, especially in assessing service quantity. Engaging PBIs continues to be difficult due to misaligned systems, inconsistent indicators across measurement and evaluation frameworks, and a lack of shared incentives between PBIs and service providers. Stronger mechanisms for collaboration, along with clearer frameworks for partnership, are essential. Equipping PBIs with the data and tools they need will be critical to realising the cumulative benefits of the stack—delivered through integrated, locally-driven efforts.

Scalable design with context-specific adaptation

While RSTO's core components (lead indicators, data platform and continuous improvement resources), are designed for scalability, success depends on adaptation to accommodate diverse service types and local contexts.

System change requires strategic focus, relationships and policy alignment

Early childhood systems are complex and fragmented, making coordinated action difficult. RSTO's policy influence is strongest where it offers a solution to an identified need and aligns with the direction of reform. Long-term presence, coalition partnerships and embedding RSTO lead indicators, tools and continuous improvement supports across services and PBIs will further amplify impact. This will ensure efforts are locally grounded and system-relevant.

Shifting mindsets toward proactive, data-informed improvement

There is limited understanding within government of the value of lead indicators for proactive service improvement. RSTO must continue building benefit for government, funders and policy makers by demonstrating how a continuous improvement approach, informed by lead indicators, drives value for practitioners and better outcomes for children. Creating the conditions for service improvement—including embedding integration into commissioning and funding models—is critical for shifting systems from reactive performance monitoring to a proactive focus on participation and quality.

FUTURE DIRECTIONS

The third phase of RSTO will prioritise the national sustainable scaling of RSTO prototypes across early years services. This requires the following actions across three strategic priorities:

1. **Continue to build evidence to support implementation**
    a. Build on our early implementation success in ECEC, and with quality and participation lead indicators, to demonstrate impact across the stack.
    b. Generate evidence and learning about how best to use lead indicators, data tools and continuous improvement supports to strengthen collective decision making and drive improvement.
    c. Revise and refine our approach to impact measurement and our theory of change to ensure they are aligned to our strategic ambition and goals.

2. **Develop a sustainable and impactful scaling strategy and operating model**
    a. Develop a more sophisticated understanding of the range of actors who play a role in the implementation of RSTO data tools and practices, their needs and the unique value that RSTO can deliver to them.
    b. Identify the specific benefits to key government departments, and barriers and enablers for adopting RSTO indicators into measurement frameworks across the early years system.
    c. Refine our support package to ensure the most impactful components can be delivered at scale with reduced resources.
    d. Develop a strategy and model to scale RSTO tools and supports, including the identification of potential payer(s) at scale to ensure we are planning for financial sustainability.

3. **Apply an experimental mindset and continuous learning approach to the implementation of our strategy for scaling the impact of RSTO**

The third phase of RSTO will focus on driving adoption of evidence-based lead indicator data and the stacked service model—at both service and system levels—to support continuous improvement across early years services and identify a sustainable future for RSTO.

PURPOSE OF THIS REPORT

This report outlines the progress of the second phase of RSTO—RSTO 2.0—from 2022 to 2024. It details:

- key findings
- learnings from prototype development and implementation and our advocacy work
- early impacts based on collected data
- how insights have shaped and informed our strategy and ongoing work.

This report draws on research publications (Appendix A), interviews with service and community partners, case studies, platform data, government and coalition stakeholders, and policy submissions. It builds on the independent evaluation of RSTO 2.0 conducted by ARTD Consultants and commissioned by Paul Ramsey Foundation.[5]

As a complex and multi-level systems change initiative operating at service, community and systems levels (Figure 4), RSTO adopts a learning and continuous improvement approach supported by developmental evaluation. This has allowed us to act on learnings during the development of the RSTO prototypes and refine as we go. This report examines both the development and implementation of the RSTO prototypes, progress across key early years services, and the short-term outcomes outlined in our Theory of Change.

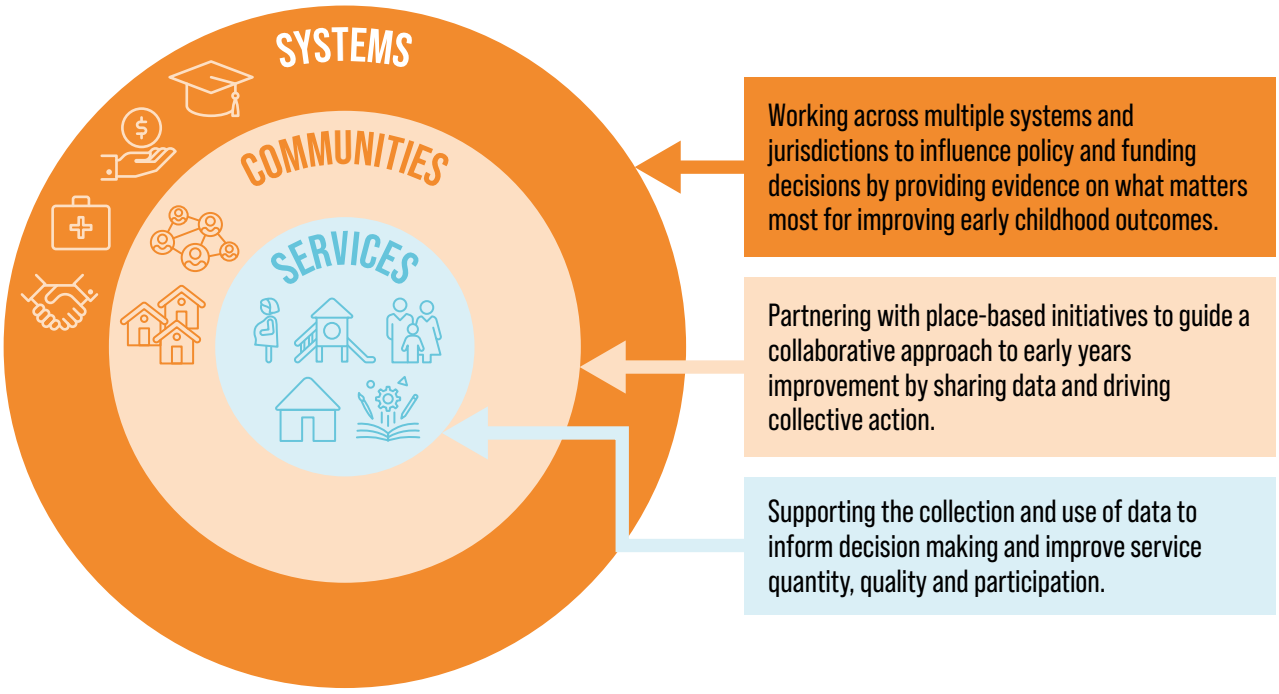


Figure 4: RSTO is a complex systems change initiative operating across multiple levels

5 ARTD Consultants. (February 2025). Evaluation of Restacking the Odds Phase 2: Final Report

HOW WE HAVE EVALUATED OUR IMPACT

This report draws on analysis guided by the Evaluation Framework, that comprises the RSTO Theory of Change (Figure 5), a nested policy and advocacy logic model (Appendix B), and key evaluation questions and methodology.

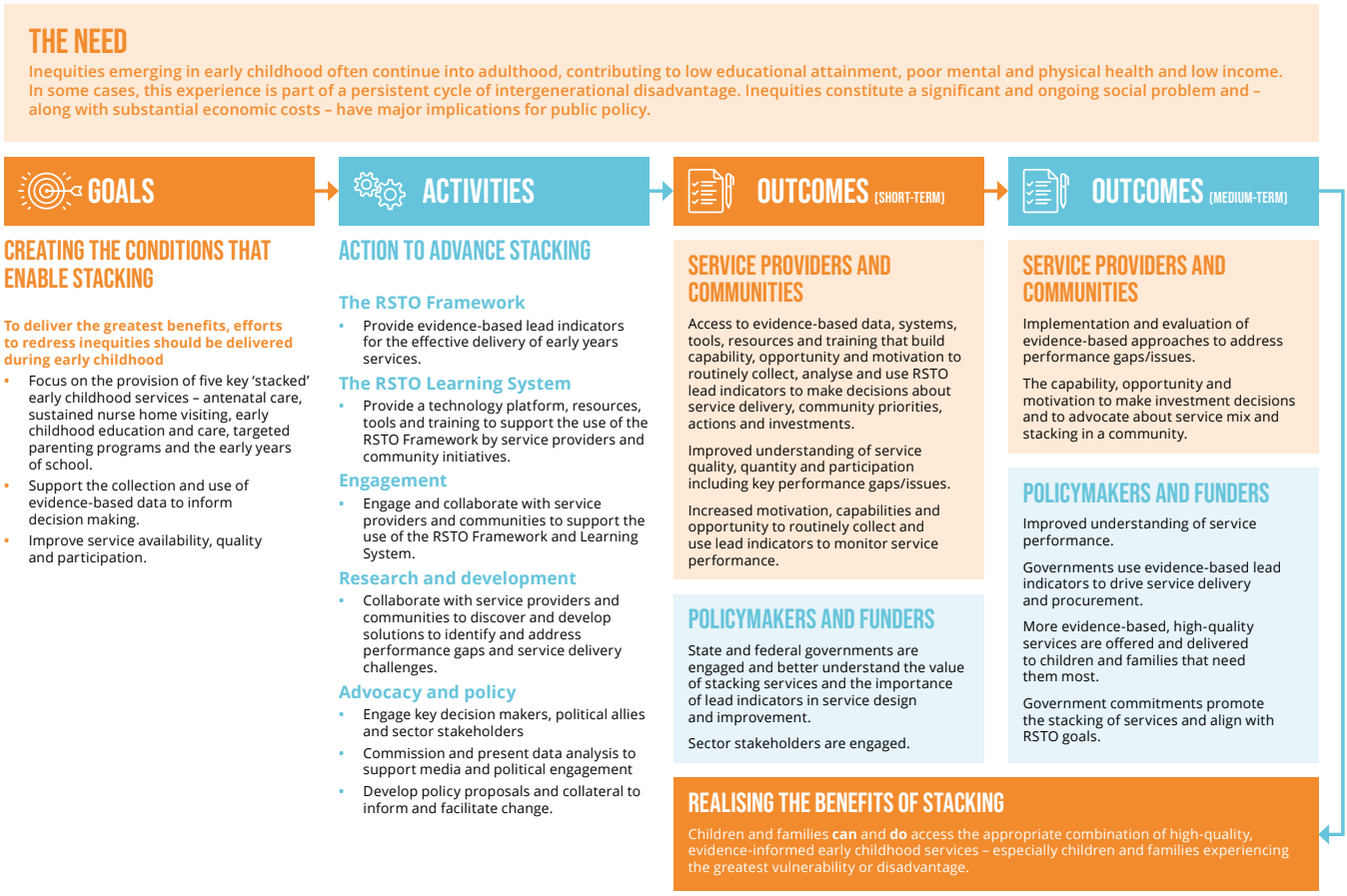


Figure 5: RSTO Theory of Change

This work has used a mixed-methods and descriptive analysis approach, drawing from available qualitative and quantitative data. The five evaluation questions align with the RSTO Theory of Change. Data sources for this evaluation have been obtained from a range of internal and external sources (Figure 6). This includes RSTO led-research summarised in 10 peer-reviewed publications (Appendix A), analysis of partner responses to the pre- and post-RSTO implementation impact monitoring survey (Appendix C) and the development of case studies based on CI documentation.

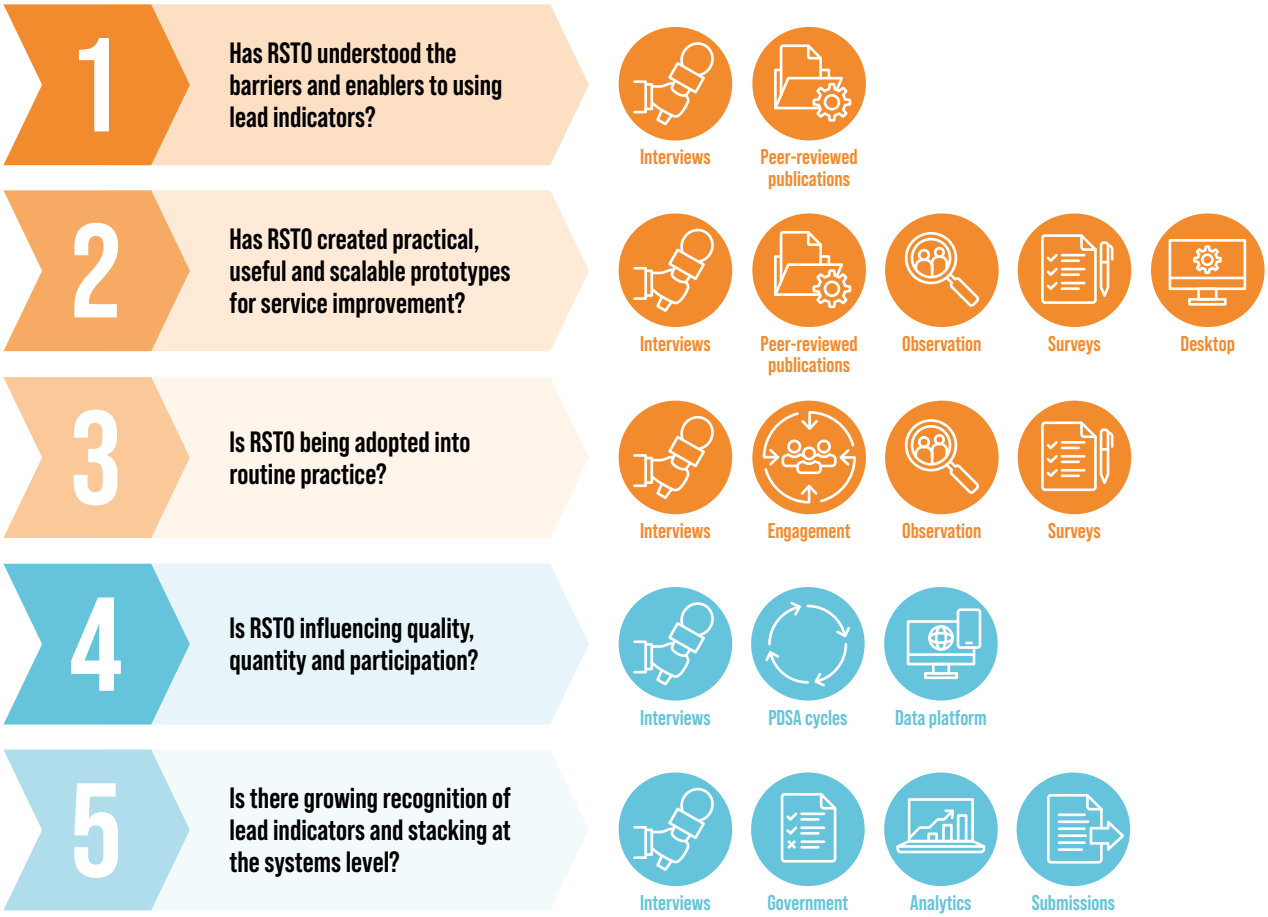


Figure 6: Key evaluation questions and data sources

LIMITATIONS OF OUR IMPACT ANALYSIS

Since RSTO local innovation partners commenced at different times during RSTO 2.0, a single baseline year could not be established. Consequently, this report presents data reflecting the full scope of each partner's experience to date.

During this phase of RSTO, the implementation of prototypes has been tested on a smaller scale in diverse contexts with variability in service delivery, community and provider needs, funding structures, resource availability, and implementation stages. This limits our ability to identify broadly applicable lessons. While the findings provide valuable insights, they are shaped by these contextual differences, which may limit their generalisability across all settings.

ABOUT RESTACKING THE ODDS

The early years provide a critical foundation for lifelong health, development and wellbeing. It is an especially important period for preventing or reducing the negative impacts of adversity. Early childhood services offer a significant opportunity for ensuring good outcomes for all children. They are a vital platform for delivering support to children and families who need it, and identifying those who may need additional support from other local services. These services are supported by evidence, provided by skilled and dedicated practitioners, and delivered across Australia. But for many children and families, high-quality services are either unavailable or inaccessible. This disproportionately affects families and communities experiencing greater disadvantage.

Despite evidence of the effectiveness of stacked services delivered across the early years from conception to school, Australia's early childhood system remains fragmented with significant inequities in access to services. Children experiencing disadvantage face greater barriers to access and participation in high-quality services.[7-9]

RSTO has identified five key early childhood service settings that, when stacked, provide a significant opportunity to address this equity gap: antenatal care (ANC); early childhood education and care (ECEC); the early years of school (EYS); sustained nurse home visiting (SNHV); and parenting programs (PP) (Figure 7). These services are:

- longitudinal—supporting children throughout early childhood
- ecological—engaging both children and their parents
- evidence-based—backed by rigorous research.

An **equity gap** means there are differences that are unfair and preventable. To address this, children, families and communities with the greatest needs may require more or different resources to enable them to thrive.

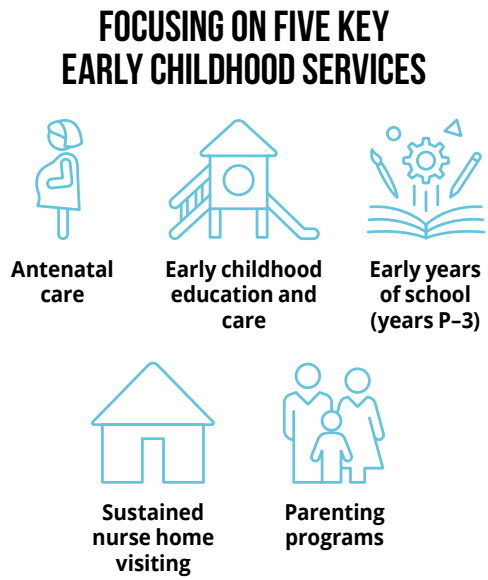


Figure 7: RSTO service settings

Early years service practitioners and leaders, place-based initiatives and governments play crucial roles in ensuring all children achieve good outcomes, through the commissioning, delivery and continuous improvement of these services. However, effective decision making about where to focus improvement efforts can be challenging due to a lack of accessible, relevant and reliable data that provide timely insights and support the measurement of progress towards better outcomes for children.

To address this, RSTO has been working in close partnership with pioneering early years service providers and community leaders to co-develop a suite of tools and supports. These are designed to enable the collection and use of high-quality, actionable service data to support local continuous improvement. Together, we're enhancing the early years service system with the insights and innovation needed to deliver better outcomes for all children.

AN OVERVIEW OF RSTO

RSTO 1.0
2018-2021

Building evidence

- Conducted **foundational research** to highlight the cumulative benefit of participating in more early years services.
- **Developed a framework** of evidence-based lead indicators to track service quantity, quality and participation across five early years services.
- Demonstrated that it is **possible to collect lead indicators** across a range of early years service settings that support decision making.

RSTO 2.0
2022-2025

Co-designing solutions

- Developed a deeper understanding of **data utilisation barriers and enablers** experienced by place-based and service provider practitioners and leaders in Australia.
- Identified and evaluated **data literacy interventions** with potential for application in early childhood service settings.
- Identified **key partners** with aligned goals to improve access to high-quality early years services and to support the co-design and implementation of RSTO.
- Co-designed a **data platform** to combine multiple data sources, calculate indicators and display results in a user-friendly **dashboard**.
- Co-designed a **training and continuous improvement program** to build service provider capability and motivation for using lead indicator data.
- Developed an **approach to implementing RSTO prototypes** in services and communities.
- Developed an advocacy strategy to promote the concept and benefits of stacking early years services, and the role of lead indicators in **improving decision making** across the early years system at federal and state levels.

RSTO 3.0
2025-2027

Scaling for impact

- **Generate actionable evidence** supporting service and system adoption of RSTO.
- **Expand the application of RSTO** and identify models for sustainability.
- Evaluate and **accelerate system change**.

Figure 8: An overview of RSTO 2018-2027

RSTO PROTOTYPES

The three RSTO prototypes are evidence-based and developed to support the end-to-end collection and use of lead indicators for informed decision making (Figure 9).

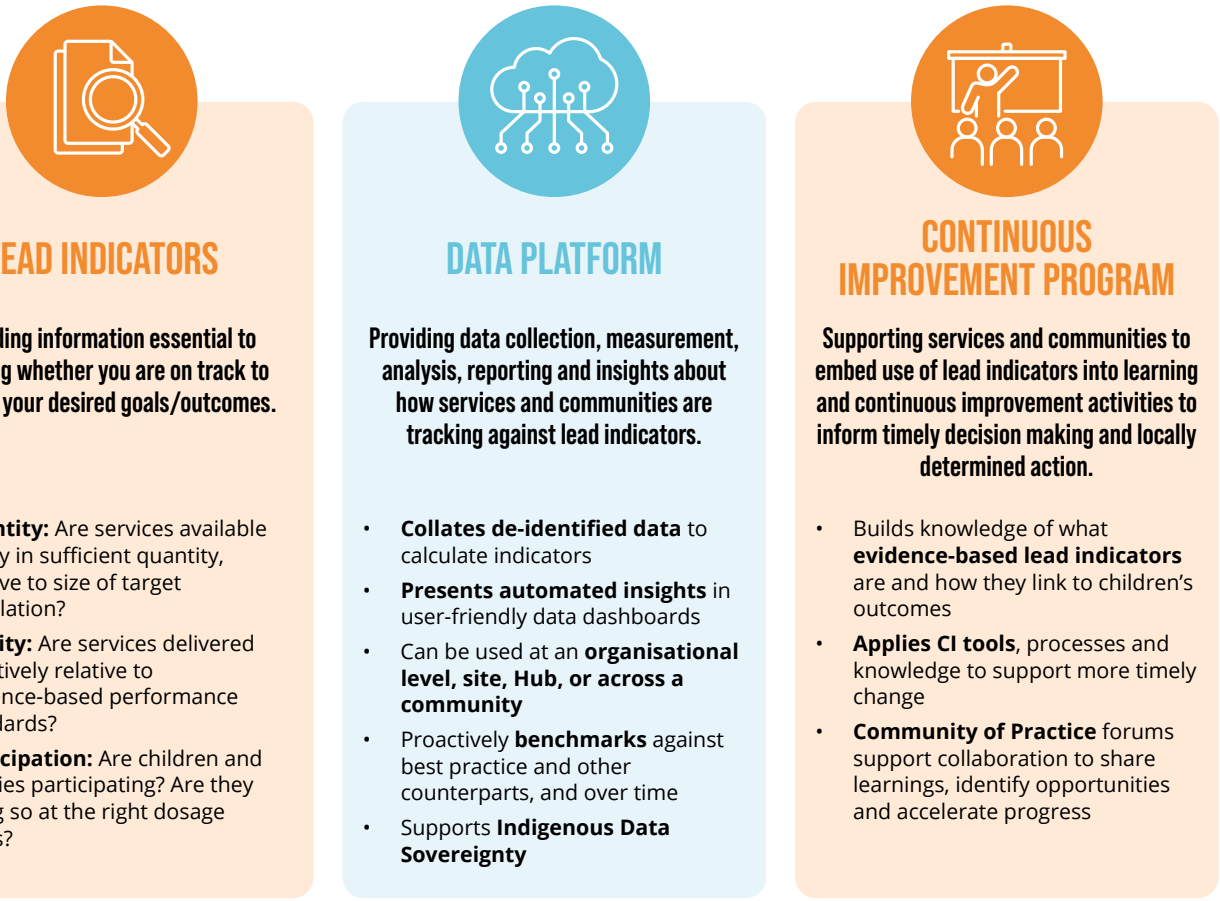


Figure 9: RSTO prototypes

EVIDENCE-BASED LEAD INDICATORS

The RSTO Indicator Guide provides a collection of evidence-based lead indicators for five key early childhood services across quality, quantity and participation.

As illustrated in Table 1, lead indicators help show whether services are on track to achieve goals/outcomes.

Table 1: The role of lead indicators

DATA TYPE	WHAT WE NEED	WHY WE NEED IT
Outcome indicators	Lag data that describes long-term progress among population groups.	For understanding eventual long-term outcomes.
Lead indicators	Changeable, timely indicators that reveal what 'leads' to outcomes.	For understanding the effects of action and enabling timely change.
Experience data	The experiences of families, children, practitioners and communities.	For understanding human needs/ experiences and informing local decision making.

Lead indicators allow service providers and other stakeholders to regularly assess progress and course correct when required. They provide information that supports governments and communities to learn and adapt regularly, rather than waiting for years to see outcomes.

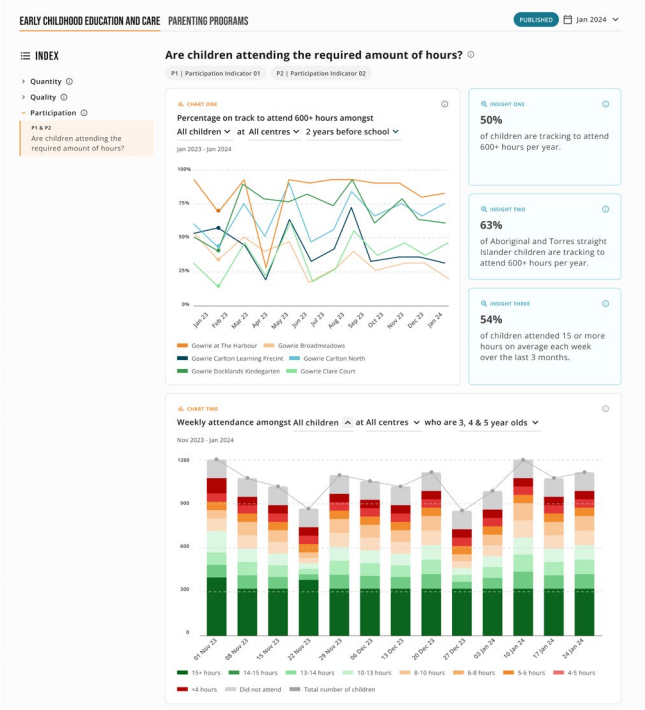
Table 2 provides examples of lead and outcome indicators for the five key service types. A potential action that a service might take to improve outcomes is identified for each lead indicator.

Table 2: Examples of evidence-based lead and outcome indicators for key early years services

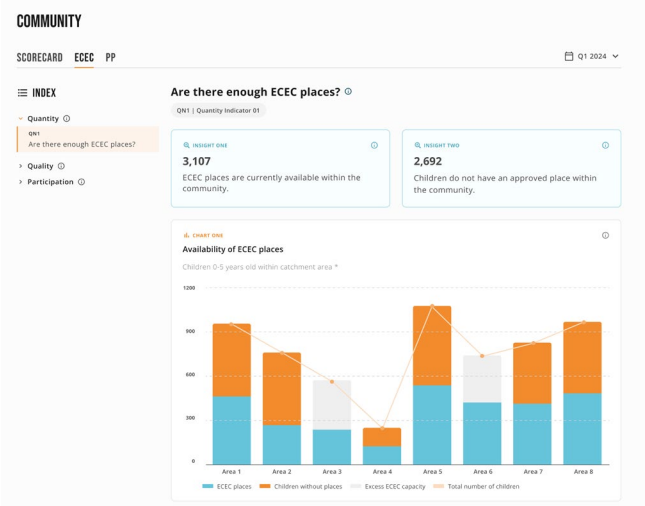
EARLY CHILDHOOD SERVICE	EXAMPLE OF LEAD (PROCESS) INDICATOR	POTENTIAL ACTION	EXAMPLE OF OUTCOME (LAG) INDICATOR
Antenatal care	% of pregnant women who smoke are referred to an evidence-based stop smoking service	Implement a systematic process to ensure all pregnant women who smoke are referred to an evidence-based stop smoking service	% of pregnant women who smoke
Sustained nurse home visiting	% of antenatal and early post-partum visits where education and support on breastfeeding are offered	Ensure program guidelines require nurses to provide early education and support, ideally before birth	% of women who breastfeed
Early childhood education and care	% of all children attending early childhood education and care for 15 hours or more in the two years before starting school	Overcome barriers to low participation rates through outreach to underrepresented families	Proportion of children at school entry who are developmentally on track in health, learning and psychosocial wellbeing
Parenting programs	Number of places available in supported parenting programs led by qualified facilitators, relative to the target population	Provide adequate training to parenting program facilitators	% of children with behavioural issues
Early years of school	% of K-3 classroom teachers that provide parents with strategies to use when reading with children at home	Ensure teachers are provided with appropriate reading and learning packs to distribute for home reading	% of children at expected level of reading (NAPLAN)

DATA PLATFORM

A custom-built platform has been developed to support the easy integration of de-identified data from service providers with other relevant data to automatically calculate and visualise lead indicators. The platform provides information that allows services and place-based initiatives (PBIs) to understand how they are tracking against a lead indicator and offers insights to support easy interpretation and action (Figure 10).



Example: ECEC service overview of participation lead indicators at a centre. Provides longitudinal view i.e. percentage of children on track to attend 600+ hours per year across different locations and population groups before school; as well as illustrates weekly attendance among children, with the ability to filter by different groups, locations, and years before school using the dropdown menus. It categorises attendance into different bands to provide a detailed view of attendance distribution. All dashboards have insight cards that provide a quick summary of key data for practitioners.



Example: Community overview of Quantity of ECEC places per defined geographic area.

Figure 10: Examples from the RSTO data platform

CONTINUOUS IMPROVEMENT PROGRAM

Continuous improvement (CI) methods help practitioners and place-based initiatives use data to test, adapt and improve in real time. They keep decisions grounded in practice and avoid the disconnect that can come from external-only analysis—driving better outcomes where it matters most.

The RSTO Continuous Improvement Program consists of a series of workshops delivered over 6-12 months to build organisational capability to embed the use of lead indicator data into service improvement activities (Figure 11). The length of the program varies based on the individual needs of service provider organisations, their implementation readiness, existing data skills, and frequency at which data is available for uploading into the data platform.

Beginning with a review of current practices, the identification of internal CI champions, and a whole-team orientation workshop, the program introduces lead indicators and builds capabilities in using CI tools including Plan Do Study Act (PDSA) cycles and driver trees.

Participants then apply these tools in practice—using data to identify areas for improvement, test changes and track progress with the support of coaching and group reflection. By program's end, services have a solid foundation for ongoing, data-informed learning and collective problem-solving.

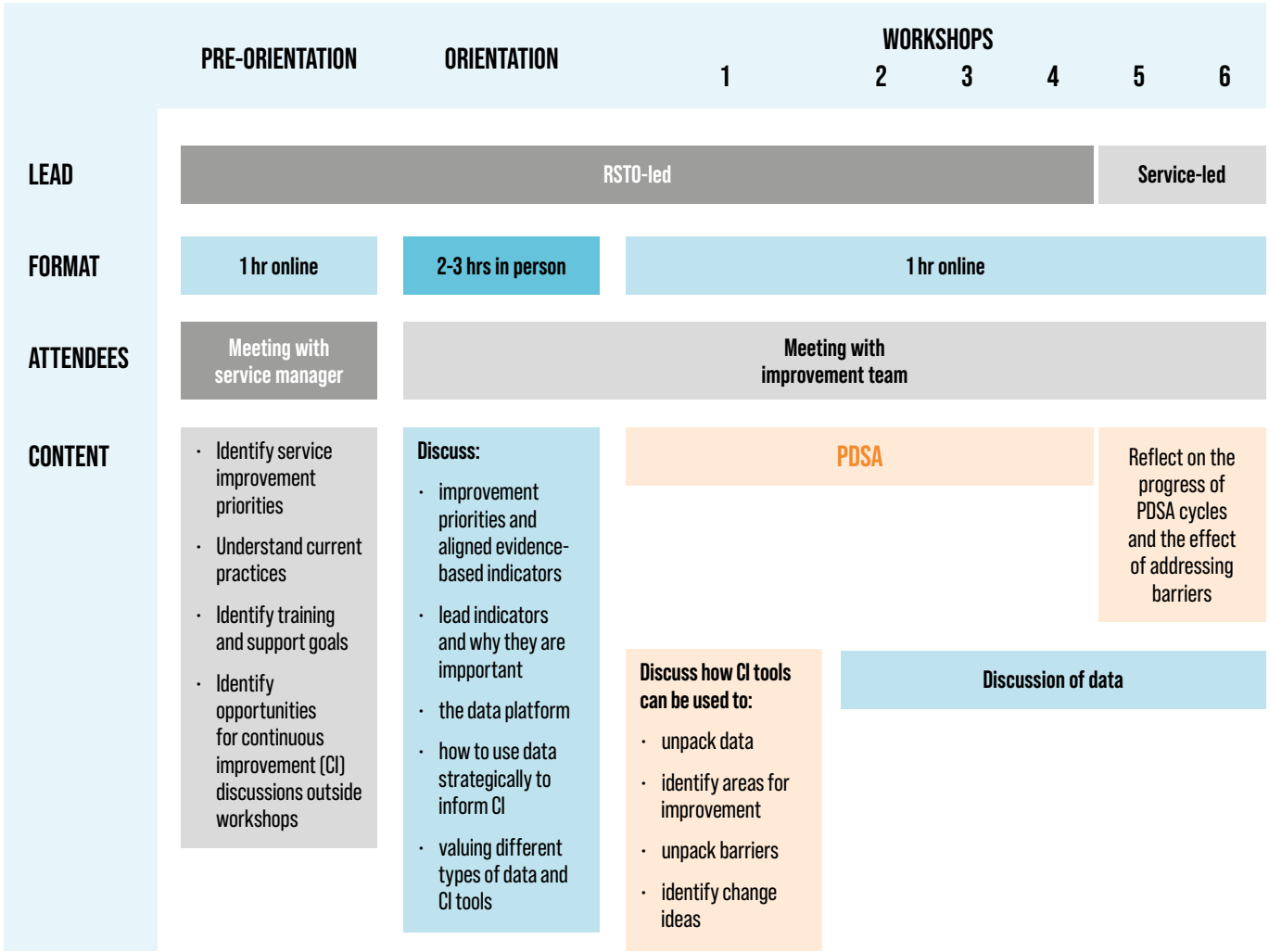


Figure 11: Overview of a typical Continuous Improvement Program

APPROACH TO PROTOTYPE DEVELOPMENT

The development of the prototypes has been informed by:

- research investigating the barriers and enablers experienced by service providers and community initiatives to collecting and using lead indicators (Appendix D)
- the COM-B Model of behaviour change which was selected for its comprehensive coverage of behavioural determinants (capability, opportunity and motivation) and its demonstrated utility in the development and evaluation of behaviour change interventions
- an international literature review of data literacy (Appendix E)
- co-design activities (Appendix F) with experts, service providers and communities (Table 3).

By drawing on evidence from research, best practice change models and local service insights, the prototypes that have been developed are both effective and user-centred, driving engagement and impact. Importantly, they continue to be refined based on feedback from our local innovation partners and emerging evidence from our research.

Table 3: RSTO methods

	BARRIERS AND ENABLERS	DATA LITERACY INTERVENTIONS	CO-DESIGN
Aim	• Identify data-utilisation barriers • Identify data-utilisation enablers	• Identify effective interventions	• Apply learnings from barriers and enablers research • Apply learnings from data literacy interventions
Design	• Semi-structured interviews • 68 early childhood service providers • Across strategies and states	• Rapid systematic review • International literature • Screened over 5,000 papers	• Design and testing with service providers
Analysis	• Behaviour change analysis (COM-B)	• Behaviour change analysis (COM-B)	• Behaviour change analysis (COM-B)

IMPLEMENTATION APPROACH AND PARTNERS

To support implementation of RSTO prototypes with local partners, the RSTO team draws on the Active Implementation Stages developed by the National Implementation Research Network.[6]

The model comprises four implementation stages: **Exploration**, focusing on needs alignment and readiness; **Installation**, involving data setup; **Initial Implementation**, where data setup is complete and training and continuous improvement programs are introduced; and **Full Implementation**, where data is used routinely, with RSTO providing coaching support (Figure 12). Each stage is used for both community/hub and service providers and includes specific activities, key progress indicators, defined roles and responsibilities, desired outcomes, and supporting tools and templates.

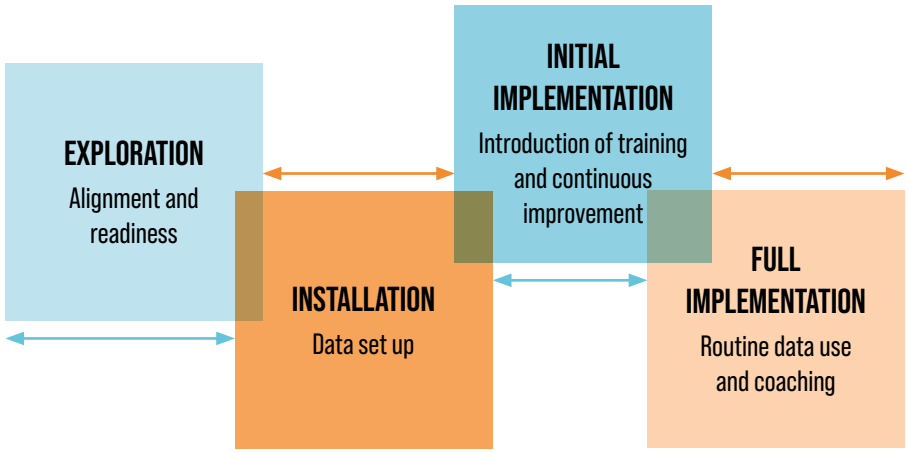


Figure 12. RSTO Implementation Model.

RSTO prototypes are being implemented across nine service provider organisations and 15 sites, including two hubs and two PBIs. Engagement occurs either directly with service providers, through hubs that deliver a range of early years services, and via PBIs aimed at enhancing early years service provision and integration to better meet community needs.

Hubs and PBIs can play a crucial role in supporting the stacking of early years services across a local area as experts in local community needs, conveners of service providers and local data stewards. PBIs can use RSTO prototypes to support service providers and the community to understand how early years services are tracking against lead indicators and enable joint decision making and collaborative learning for improvement.

6 Adapted from National Implementation Research Network (2020). Implementation Stages Planning Tool. Chapel Hill, NC: National Implementation Research Network, FPG Child Development Institute, University of North Carolina at Chapel Hill. https://nirn.fpg.unc.edu/sites/nirn.fpg.unc.edu/files/resources/Implementation%20Stages%20Planning%20Tool%20v8%20NIRN%20only%20Fillable.pdf

RSTO has developed both service provider and community 'versions' of the data dashboard across ANC, ECEC and PP to support planning and improvement at these different levels and drive 'stacking' across local early years systems (Table 4). RSTO has not yet developed data dashboards or tailored CI support programs for SNHV and EYS. This is due to the need to prioritise finite resources within the RSTO team, the current lack of national SNHV service provision, and challenges engaging with schools post-COVID.

Participation in the RSTO program is driven by each organisation's priorities, resource availability and connection to a hub or PBI. While each partner operates in a unique context, all share common characteristics and are grappling with similar challenges.

Table 4. RSTO 2.0 implementation partners

STRATEGY	NUMBER OF PARTNERS	SETTING	PARTNER TYPE AND SETTING
ECEC	4 service provider organisations across (9 sites)	Rural Regional Urban	Individual service providers Through a hub Through a PBI
ANC	3 service provider organisations (3 sites)	Rural Regional Urban	Individual service providers Through a hub
PP	2 service provider organisations (3 sites)	Regional	Through a hub Through a PBI

KEY EVALUATION QUESTIONS

1 HAS RSTO UNDERSTOOD THE BARRIERS AND ENABLERS TO USING LEAD INDICATORS?

Summary

RSTO has gained a clear understanding of the barriers and enablers to using lead indicators across all service settings (with the exception of the Early Years of School).

In each setting, service providers encountered barriers and identified enablers related to using data. These included **capabilities**, organisational **opportunities** for data use, and internal and external **motivations**. Insights were published in three peer-reviewed papers. The identified barriers and enablers have informed the ongoing refinement of RSTO's prototypes and implementation approach.

What we found

Capabilities to use data for improvement

For service providers, interviews uncovered a general lack of knowledge about:

- data collection (e.g., which data to use, how to collect it)
- data analysis and reporting (e.g. how to use the existing data systems, generate reports and interpret findings)
- data-informed decision making (e.g. how leaders used data to plan, what questions to ask of the data).

In several settings, knowledge gaps were identified in relation to determining which data is most valuable. While service providers, hubs and PBIs often collect large amounts of data, there is uncertainty about its usefulness and how it can be effectively shared to drive improvement. Interviewees emphasised the need for staff with data literacy skills and indicated that having staff with relevant skills facilitated data-informed decision making. Service practitioners indicated that regular training opportunities were helpful for building capacity as they allowed staff to keep up with relevant technology and data tools, and consolidate learning.

Organisational opportunities

Opportunity barriers were identified by service providers across ANC, ECEC, PP, and SNHV. Inadequate infrastructure, limited time to engage in data-utilisation activities, and lack of a strong data culture[7] in the organisation were major barriers. Data systems were frequently described as not fit for purpose. The lack of interlinked data systems was also noted as a significant barrier that made data extraction and integration especially cumbersome and onerous. This was true for service providers but exacerbated for PBIs. For PBIs, there were additional data systems barriers related to sharing data across organisational settings.

'If I went to [data manager] today and said 'could you pull me a report on all the families in [the region] that are receiving [the program] and their appointment scheduling'...it would be a very manual process.'

'For a good 18 months—two years we didn't have a data analyst in the division, it was a resourcing issue.'

In contrast, service providers and PBIs predicted that more advanced software systems that could auto-populate information from different sources would enable more data-informed decision making to occur. In addition to recognising the benefits of an integrated data system, service providers and PBIs emphasised the need for dedicated funding for specific activities to support data use. They indicated a clear need for funding to provide technical support, data literacy and continuous improvement training, and allocating staff time for data collection, analysis and reporting.

The need to build a stronger data culture was also clear. Service providers in each setting noted that there were limited opportunities to see that data-collection efforts were valued by leaders, and that data-sharing activities could become the norm. PBIs highlighted that lack of strong relationships with and between service provider partners limited data sharing across local partnerships, and between government and the PBI. Place-based initiative leaders stated that data was primarily used for accountability purposes (e.g. meeting funding requirements) rather than facilitating sharing of best practice service delivery or driving continuous improvement.

Motivation to use data for improvement

Interviews with service providers in leadership positions indicated that the importance of data-informed decision making was often understood and highly valued. However, the motivation to collect and use data for decision making was undermined by several factors. These included pressure on staff resources, a limited data culture and a lack of trust in the quality of the data.

'My opinion is they [the board] don't value...or they don't understand the value of that [participation] data, because I think if they did, they would invest in it.'

They also noted being unable to provide mentorship or model effective data use due to capacity and skills gaps. This contributed to staff perceiving that leaders did not prioritise data-informed decision making and led some to question whether it was a meaningful part of their own professional role or responsibility.

7 A data culture is an organisational environment where data is valued, accessible, and used to drive decisions and operations across an organisation/ community.

Service provider and PBI leaders highlighted external barriers to data use, including excessive reporting demands and inconsistent measurement across grants. Motivation was further undermined by fears that sharing data could risk funding, resources or reputation. Place-based initiatives in particular expressed concern that low data fidelity might lead to misinterpretation and negative judgments from funders. The absence of a common framework for lead indicators also led to ad hoc metrics, confusion about what to measure, and limited ability to use data for meaningful decision making or improvement.

'Frontline workers need to be better educated in understanding why data is captured, what specific data is captured and where [what] it is being used for.'

'When you [the practitioner] know what the purpose is and that there's real time feedback and that...the data and evaluation actually leads to something, I think that's really motivating.'

However, motivation increased when staff understood the rationale for collecting and reporting data that had demonstrated links to better outcomes for children and families. Staff emphasised the need for data feedback loops, where they could see how data they collected was being used to inform planning and service improvement decisions. For PBIs, it was important that lead indicators be interpreted and used to inform decision making in ways that would be meaningful not only for services but also for the community.

RSTO insights

- **Building workforce data literacy enables service improvement**
  A key barrier across service providers and PBIs was the capability required to build skills to collect, interpret and use data to support decision making and continuous improvement.
- **Empowering leaders drives a data-informed culture**
  Leaders need support and time to model the value of lead indicator data to support action, inspire staff to engage with data-informed practices, and adopt a culture of continuous improvement within and across services.
- **Investing in fit-for-purpose data systems reduces barriers to data use**
  Technology systems that support analysis, reporting, and secure, easy data sharing are essential for enabling practitioners to make timely, data-informed decisions.
- **Dedicated funding for data capability and infrastructure is key to sustained change**
  Ongoing investment is needed to support data roles, training and accessible tools to ensure services can meaningfully engage with data to drive improvement.
- **Lack of common lead indicators limits meaningful data use**
  Services working in isolation develop ad hoc metrics and struggle to identify what matters, which discourages data-informed improvement. Funders and policymakers could drive alignment by agreeing on consistent measures and embedding them in funding contracts.

2. HAS RSTO CREATED PRACTICAL, USEFUL, AND SCALABLE PROTOTYPES THAT ADDRESS BARRIERS AND ENABLERS TO USING LEAD INDICATORS FOR SERVICE IMPROVEMENT?

Summary

RSTO has worked with ECEC, ANC and PP service provider partners to co-design and develop practical and useful prototypes. RSTO has not yet adapted the data platforms and CI program for SNHV and EYS due to limited national SNHV service provision, challenges engaging with schools post-COVID and the need to prioritise the team's resources.

The RSTO prototypes have effectively addressed some of the identified barriers to data-informed decision making in ECEC, ANC and PP services. We accomplished this through developing a suitable data platform, building confidence in data interpretation, and creating opportunities for immediate action through the CI program.

Encouragingly, those ECEC partners who are consistently using RSTO data tools and practices one year on, have reported that the implementation of the prototypes has led to immediate and practical improvements in data availability, accessibility (particularly for priority population groups), and use across partners (i.e. demonstrating scalability of the prototypes across ECEC). While the RSTO service-level prototypes are scalable, with some elements adapted for context, more developmental work is required on the PBI-level prototypes.

Insights from RSTO 2.0 suggest that our current delivery model is resource-intensive and unlikely to be feasible at scale in the context of the current funding environment.

Table 5. Prototypes across RSTO service types.

PROTOTYPES	QUALITY, QUANTITY AND PARTICIPATION				
	ANC	ECEC	PP	SNHV	EYS
Lead Indicators	YES	YES	YES	YES	YES
Data platform—ingestion	YES	YES	YES	NO	NO
Service Level Dashboard	YES	YES	YES	NO	NO
Community Level	NO	YES	NO	NO	NO
Training and CI support	In progress	YES	YES	NO	NO
Scaling model developed	In progress	In progress	In progress	Not started	Not started

What we found

Prototypes co-designed with users for relevance and impact

We have developed a useful set of prototypes which can be applied across multiple early years service contexts, particularly in ANC, ECEC and PP (Table 2). Key components include lead indicators, data ingestion (collecting and importing data into the data platform), dashboards and filtering options (e.g. the ability to filter on priority populations). These prototypes were co-designed and continuously refined with our local service provider partners to ensure the end products were both meaningful and practical across various settings.

The co-design process included:

- collaborative sessions to brainstorm solutions and map out ideas
- exploration of the utility of a low-fidelity technology prototype using off-the-shelf software
- co-creation and iterative testing of early-stage prototypes with partners from ECEC, ANC and PP
- adaptations to prototypes for different settings to match how users would interact with them
- continual refinement of prototypes as new user needs and opportunities to enhance features are identified.

Prototypes and their role in addressing barriers

Barriers at baseline

Before implementing RSTO, 40% of participants from a sample of our ECEC, PP and ANC partner organisations had used data for decision making (Figure 13). Among the 60% who had not, some were willing but lacked the knowledge or confidence to use data. Others described a lack of understanding as to the relevance of data to their work.

'Very unfamiliar with where to even begin.'

'I have a lack of knowledge when it comes to data and how to use it.'

Figure 13: Data use as part of routine practice at baseline

Common capability barriers included limited knowledge, skills and experience interpreting data, as well as uncertainty about where to start and how to access data.

Common opportunity barriers included limited access to education, training and resources, as well as restricted availability of data and supporting tools. Additionally, a lack of leadership-driven data culture and routines (Figure 14), often hindered the use of data for continuous service improvement.

Ability to use data limited by the system:

'It doesn't give you the exact information you want or it's very hard to find. ...there's a lot of things that you can't just get...we need a report that does 'this and that', often they're not things you can do.'

Common motivation barriers included a limited understanding of the importance of data in decision making and a lack of confidence in using it. While commitment to improving service delivery was high—95% of survey participants recognised data as important to their role and 100% intended to use it—practical challenges still hindered effective data collection and use.

Data in different systems:

'They don't marry up...That's definitely a barrier for us in terms of using two different systems, having to transfer information over... It's time-consuming more than anything else. It's easy to miss somebody as well.'

Barriers to using data:

'Cost (of developing a solution).'

'Time-consuming. Whereas if you can just click on a button, that would be really good.'

'It's very hard to get.'

(Getting data out is) 'quite clunky and quite manual.'

RSTO prototypes directly addressed these challenges by:

- **Building capability:** providing education, training, and hands-on data interpretation support to build knowledge and skills, and strategies to support embedding data use into workflows.
- **Increasing opportunity:** offering a fit-for-purpose user-friendly data platform, training in continuous improvement and coaching, providing structured data-utilisation time and fostering a strong data culture to encourage effective use.
- **Strengthening motivation:** building confidence in data use, setting clear goals, and providing education on how service quality, quantity and participation improve child and family outcomes.

Ongoing monitoring throughout the CI program is essential to identify and address challenges as they arise. Throughout the course of this program, we actively monitored barriers and made efforts to address them. Key challenges included:

- **Capability:** Partners faced difficulties in understanding and consistently applying lead indicators, particularly when handling complex data or engaging in PDSA cycles.
- **Opportunity:** External factors, such as staffing changes and unexpected events, hindered the capacity to use data effectively.
- **Motivation:** While motivation remained high, external stressors and minimal data changes led to frustration and hindered progress.

By continuously monitoring these challenges, we prioritised their resolution and worked collaboratively with partners to refine strategies, ensuring the CI program remained effective and responsive to evolving needs.

Impact after 1 year

ECEC partners consistently using RSTO data tools and practices were surveyed after one year. Survey data showed that RSTO not only enhanced data infrastructure and capacity, but also fostered a culture of data-informed decision making, and increased motivation to collect and use data and ensure data accuracy.

What has Restacking the Odds done to elevate your use of lead indicators? What else might you need to successfully use lead indicators in the future?

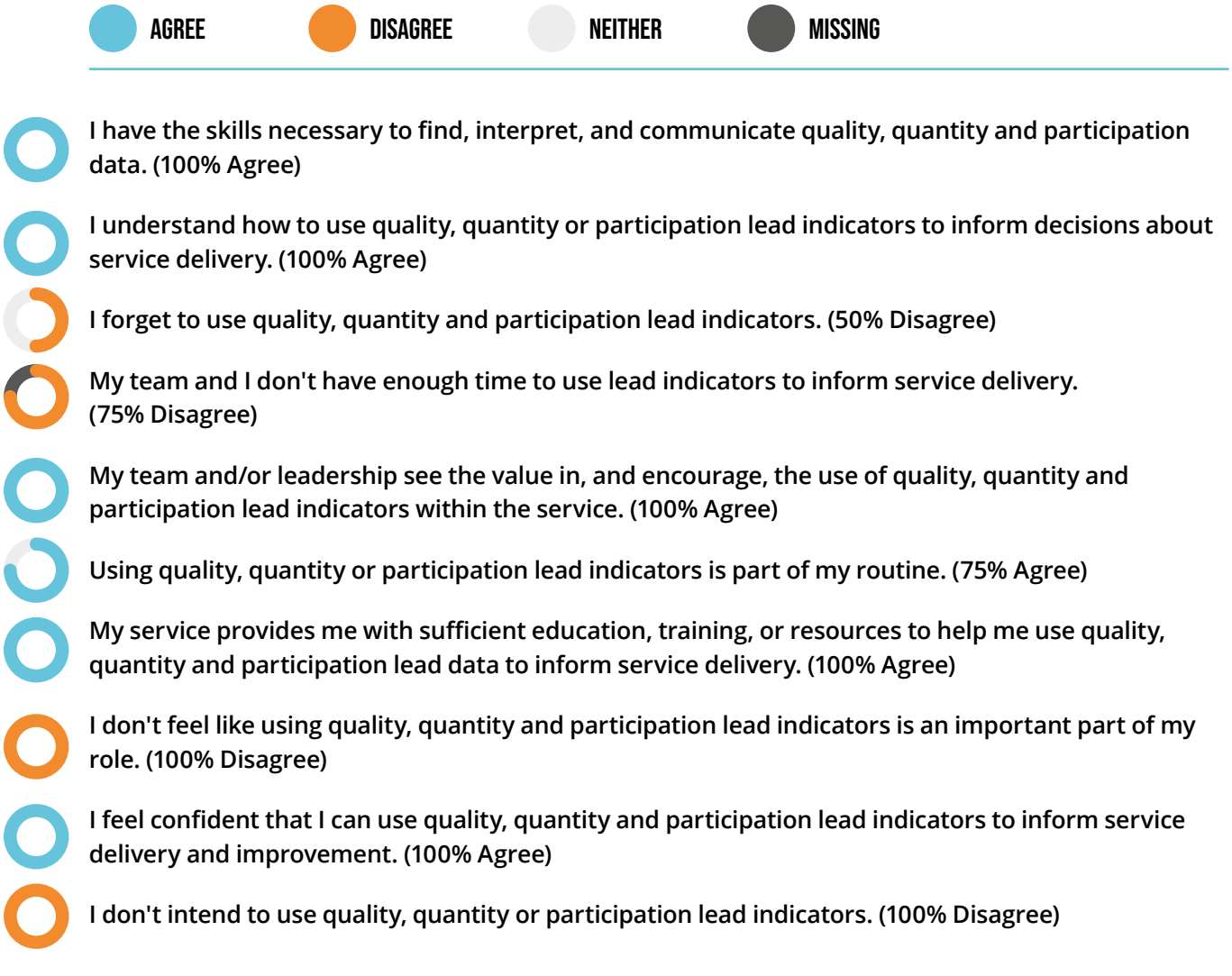
'It doesn't give you the exact information you want or it's very hard to find. ...there's a lot of things that you can't just get... we need a report that does "this and that", often they're not things you can do.'

'I found a new understanding stats and how we can use it.'

'Restacking the Odds has brought the use of data into my way of working and helped inform what I do.'

'I am beginning to understand the data, but it is new to me. I think beginning to see patterns in the data is important and perhaps we can begin to improve attendance using the lead indicators.'

'It makes us think more deeply about participation and how we can support community.'



- **I feel stressed, worried, or annoyed about using quality, quantity and participation lead indicators to inform decisions about service delivery. (100% Disagree)**
- **I have a plan for using quality, quantity or participation lead indicators (e.g., how, when). (100% Agree)**
- **I am optimistic that my service's engagement with RSTO will help improve child outcomes. (100% Agree)**

Scalability of prototypes

Service-level prototypes

The RSTO prototypes are scalable across services with necessary adaptations. For example, we have had to adapt quality lead indicators in parenting programs to ensure they can better support service providers to understand where there are opportunities to improve quality.

'**Scalable**' in the RSTO context, refers to the ability to expand or replicate a process, system, or solution in a way that can handle increasing demands or be applied across multiple settings or contexts without compromising performance. Essentially, it is repeatable and can grow efficiently over time.

We have codified a suite of scalable training and CI tools. However, our current delivery model is resource-intensive and may not be feasible to deliver at scale within the current funding environment. To address this, we are working with partners to design a scalable training and support model. This involves:

- identifying which content can be delivered synchronously versus asynchronously
- identifying opportunities to build local capacity to co-facilitate or deliver training and support activities
- exploring with partners how we can embed RSTO training and CI into existing related programs e.g. existing ECEC quality improvement programs.

PBI/Community prototypes

PBI prototypes are still in the early stages of development. We have developed:

- infrastructure to aggregate data across service providers and summarised at the community level within the data platform. For PBIs, quantity data has been particularly useful as it tells a story of how much (or little) service is available to meet the needs of a population. This provides important evidence to support funding applications and advocacy efforts.
- support for community initiative teams to engage with services, including information on the importance of lead indicator data for continuous improvement
- flexible data-sharing mechanisms that respect data sovereignty, allowing individual providers to control whether they share de-identified data with communities/hubs via the platform. This aligns with Maiam Nayri Wingara Indigenous Data Sovereignty Principles.[8]

Engaging PBIs in prototype adoption has been challenging due to:

- underdeveloped relationships with local services which impedes access to service level data
- the broad remit of PBIs and focus on a broader set of priorities and stakeholders, limiting the attention that can be given to the early years
- a lack of authorising power to collect and share data for joint decision making

8 https://www.maiamnayriwingara.org/mnw-principles

- the fact that not all service types are available in some communities e.g. ANC and PP are limited in some rural areas
- a limited focus on service improvement as a strategy for addressing inequities in child development
- no contracted requirement or enabling condition e.g. funding to collect and use lead indicators for service improvement.

To address this, we are working with PBIs to design supports to better meet their needs. For example:

- guidance on how to align their Measurement, Evaluation and Learning (MEL) framework with relevant RSTO lead indicators
- starting with a single service improvement area that matched local priorities (e.g. beginning with ECEC, then extending to early years of school)
- mapping PBI working groups where services and community leaders meet (e.g. ECEC Networks) and are building opportunities for shared data use to support joint decision making and resource allocation.

Prototypes influencing 'stacking'

To support RSTO's goal of supporting the stack at a community level, several processes and tools have been developed for implementation planning with new partnerships, including:

- aligning with local service improvement priorities from the start
- building understanding about the importance of lead indicators, how it relates and is used with other data to support learning and action
- ensuring data is de-identified and providing data FAQs to answer common concerns about data privacy
- creating mechanisms for services to come together in a local area.

'The significant new knowledge unearthed through a focus on leading indicators at the service level has already enabled the establishment of an increasingly robust and aligned quality improvement practice across elements of our service system.'

The adoption of RSTO data tools and practices by PBIs requires strong relationships and knowledge of the local service landscape by PBI backbone teams, which is not always established, particularly for newer initiatives in the early stages of formation. This has slowed progress more than expected.

PBIs also need to draw on multiple inputs when setting strategic priorities, including community experience and local population needs alongside evidence from research. They are grappling with how to effectively use and integrate these diverse data sources to create a comprehensive picture of what is happening at a local level and how to interpret it to support local decision making. Despite these challenges, the RSTO lead indicator framework has been instrumental in guiding consultations and strategy development for PBIs. It has helped them to understand the importance of lead indicator data for informing action and keep stacking on the agenda.

Clarifying core and flexible elements for scaling

To support scaling, we have started to identify which elements of the model are core and need to be consistently implemented to ensure impact, and which elements need to be flexible and adapted to local contexts to ensure successful implementation. We will continue to test and refine the core and flexible elements with our implementation partners during the next phase—RSTO 3.0.

RSTO insights

- **User experience drives design**
  Co-designing and iteratively refining prototypes with service providers ensures tools are practical, adaptable across early years settings, and responsive to real-world needs.
- **Barriers to data use can be addressed**
  RSTO tackled capability, opportunity and motivation barriers through education, training, fit-for-purpose tools, and a focus on data culture—leading to better service-level data use and confidence.
- **Prototypes improved data use and infrastructure**
  RSTO prototypes led to immediate improvements in data availability, accessibility and practical use—particularly in the ECEC partner organisations. They were also helpful for collecting and integrating priority population data, offering services their first opportunity to analyse service delivery for these groups.
- **Scalability requires knowing what's essential to effectiveness and what can be adapted locally**
  Key elements of RSTO (e.g. indicators, data platforms and dashboards) are scalable across services with appropriate adaptations. Identifying core and flexible elements of the model for implementation will enable effective scaling.
- **Training and support must be both effective and scalable**
  While current training and continuous improvement support is effective, it is resource intensive. Scalable support is being designed with partners.
- **Community-level prototypes are emerging**
  Early-stage community-level prototypes show promise in aggregating data and supporting local decision making in some areas e.g. quantity. However challenges remain—especially engaging PBIs and services in aligning priorities, having consistent indicators, sharing data, and establishing enabling conditions.

3. IS RSTO BEING ADOPTED INTO ROUTINE PRACTICE?

Summary

To date, of the nine ECEC sites implementing RSTO data tools and practices, four have fully embedded these into routine practice. The remaining five ECEC sites, PP and ANC partners are currently in the initial stages of implementation. Importantly, all partners have remained engaged with RSTO throughout the implementation process, underscoring the effectiveness and sustainability of the approach.

For partners where implementation is advanced, RSTO data tools and practices have become an integral part of their routine planning and improvement activities. Partners that are earlier on in their implementation journey are also demonstrating positive progress, overcoming barriers to data use and gradually integrating RSTO data tools and practices into their operations with reduced reliance on support from the RSTO team. The implementation process has become more efficient over time, with partners requiring fewer CI support sessions and the RSTO team proactively identifying partner needs and addressing challenges.

This sustained implementation cannot be achieved through short-term training alone. A comprehensive CI program is essential to embedding RSTO data tools and practices into routine use. Observations and participant feedback confirm that this routine use typically starts to embed after 5-10 CI support sessions.

ECEC

What we found

Embedding into **routine practice** is tracked through multiple sources of evidence. Regular reflections and monitoring activities—such as surveys, interviews, CI session participation, CI tool use, data uploads, dashboard engagement, and RSTO observations—help assess each service's stage of implementation. Full implementation is achieved when RSTO has been seamlessly adopted into standard operations, with minimal external support needed to sustain it.

Enablers of RSTO being adopted into routine practice

Partners have identified common enablers that have facilitated embedding RSTO data tools and practices into routine practice:

Leadership and team engagement

- Identifying a key person or people to lead and drive the initiative internally.
- Establishing strong leadership and practitioner engagement in continuous improvement (CI).
- Having a highly motivated team actively engaging in all phases of the PDSA cycle.
- Demonstrating how measures link to organisational goals.
- Having shared accountability across teams at a site or across multiple sites.

Structured support and orientation

- Having in-person orientation sessions.
- Conducting pre-orientation and regular surveys throughout the delivery of the CI support program to identify and address barriers to implementation.

Consistent data management, measurement approaches and reflection

- Taking ownership of data uploading, adhering to a monthly schedule without external prompts.
- Ensuring dedicated funding of a resource with protected time for data management and local independent leadership of CI.
- Embedding the lead indicators into the organisation's MEL framework.
- Embedding review of data into regular organisational performance reviews.

Working towards using RSTO more routinely:

'I plan to explore the dashboard more often to ensure I am using it more often to inform my work and plans.'

'Get more comfortable using the dashboard and interpreting data.'

'Restacking the Odds has brought the use of data into my way of working and helped inform what I do.'

Collaboration and collective progress

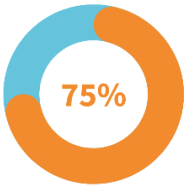
- Moving from individually led PDSA cycles to a collaborative, partner or community driven approaches with shared goals.
- Encouraging a culture of continuous improvement through ongoing engagement and collective accountability of the process across the organisation.

'I use them [the participation lead indicator and data dashboard] often to measure how attendance is going and what the trends are to unpack why.'

'Since bringing in the program, I think the biggest improvement has been is coming together as the leadership team actually talk, like talking about that there's an issue with attendance and then unpacking why.'

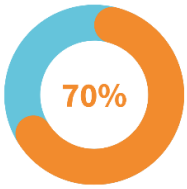
The independent evaluation of RSTO has reinforced these findings. It identified the importance of the organisational factors in embedding RSTO data tools and practices into routine planning and improvement activities.

Resources



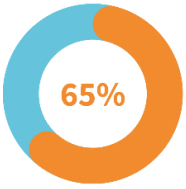
Seventy five per cent of respondents to an evaluation survey conducted by ARTD agreed with the statement that their organisations have '*the resources and information that staff need to use the RSTO program (e.g. computers available, staff training, data literacy to read and interpret the data)*'.

Knowledge and skills



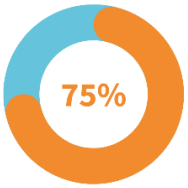
Partners were also asked whether staff within their organisations had the skills and knowledge to use the RSTO platform and features it provides. In response to the statement, '*my organisation has enough staff who are trained to use the RSTO data system (platform/ portal)*', 70% of respondents agreed and 10% disagreed (20% neither agreed nor disagreed).

Data use



In response to the statement, '*my organisation has enough staff who know how to use the data for continuous improvement*', 65% agreed and 15% disagreed (20 % neither agreed nor disagreed).

Leadership



Three quarters of respondents agreed with the statement that their organisations have '*leaders that prioritise and support use of RSTO resources and activities*'.

Alignment

All (100%) of the survey respondents strongly agreed or agreed that '*RSTO aligns with their organisation's mission and goals*'.

Challenges to embedding RSTO into routine practice

In contrast, challenges to embedding RSTO data tools and practices into routine planning and CI at a service and community level include:

- **Staffing and capacity constraints.** High staff turnover and under-resourcing affect capacity, the consistency of workshops, and the sustainability of knowledge/skills.

> ***'People are only intermittently sitting in seats... the only permanent staff are the CEO and Coordinator.'***

> ***'Staff turnover is high, and there's no consistent process for introducing new team members to RSTO's work, creating gaps in understanding.'***

- **Confidence and reliance on leadership**. Practitioners lack confidence and rely heavily on leadership for guidance.

> ***'It's about not knowing actually what to observe and how to go on and then put down. So they needed just someone to come in and provide that energy, that confidence in them, to build that confidence in them.'***

- **Limited data literacy and experience of using data.** Staff have limited skills related to data literacy and minimal prior exposure to data use and application.

> ***'There's no time to even reflect on it, what we did in the meeting. I have a lack of time to complete some of these tasks.'***

> ***'New staff lack understanding of what RSTO is and what it's trying to achieve.'***

- **Understanding of the purpose of indicators and how they connect to organisational goals.** Lead indicators are not embedded in measurement and evaluation frameworks.

> ***'They just weren't in that space and they really didn't understand why on earth we are doing it. Again, like that's it, they're trying to get through the day short-staffed or get through the day with some high needs children and that sort of thing, so that's where their heads are at.'***

RSTO insights

- **Leadership and ownership drive adoption**
  Successful implementation relies on strong internal champions who connect RSTO to organisational goals and foster team-wide engagement in continuous improvement.
- **Structure and integration sustain practice**
  Ongoing support, consistent data routines, and embedding RSTO into existing review processes helps services make the tools part of everyday practice.
- **Collaboration and continuous improvement**
  Shifting from individual to collective Plan-Do-Study-Act (PDSA) cycles based on the data fosters a shared understanding of the issues, learning and accountability. Encouraging a collaborative approach strengthens collective problem solving and actions across a service.
- **Capacity and capability gaps undermine adoption**
  High staff turnover, limited resourcing and low data literacy make it difficult for services to maintain consistent use of RSTO tools and sustain improvement practices over time.
- **Lack of clarity and confidence limits use**
  Without clear understanding of lead indicators or how they align with organisational goals and drive action, many practitioners will continue to lack the clarity and confidence to use data meaningfully in their day-to-day work.

4. IS RSTO INFLUENCING QUALITY, QUANTITY AND PARTICIPATION?

Summary

During RSTO 2.0, the implementation of prototypes led to improvements in service quality, quantity and participation in ECEC, particularly among priority populations. In ANC and PP, the prototypes contributed to improved data fidelity, especially in tracking quality and participation. At a PBI level, there was a strengthened understanding of service quantity, and in ECEC and PP, more informed decision making.

The CI program with its PDSA cycles was a key driver of change. Services used the lead indicators in the dashboards to identify improvement areas, then planned and implemented strategies based on practitioner experience, additional data (e.g. family feedback), RSTO research (e.g. participation barriers in ECEC) and through Community of Practice forums.

What we found

Early childhood education and care

In 2024, all ECEC partners implementing RSTO data tools and practices prioritised improving participation in their continuous improvement efforts. Two sites also focused on improving quality (Appendix G). Practitioners used service data to inform decision making, set priorities, develop and execute improvement plans, and monitor their effectiveness. Tables 6-8 illustrate this with practitioner case studies.

Table 6. Case study 1

CASE STUDY: INCREASING PARTICIPATION IN ECEC, VICTORIA, SITE 1	
Objective	Increase participation
Indicator	Universal Participation (P1): Proportion of children attending for 15 or more hours per week in the two years before formal schooling (600 hours per year).
Challenge	Practitioners hypothesised that lack of parent awareness about the benefits of 15-hour ECEC attendance was a key barrier. To address this they: • introduced a brief physical parent education resource placed at the parent sign-in/out area. However, after monitoring participation data on the RSTO dashboard, they found no change in attendance • investigated family engagement with the resource and discovered that parents were not reading it, and crucially, it did not reach families of children who were not attending at all • recognised the need for a revised approach. They shifted their focus to children considered the hardest to engage—those enrolled but attending zero hours per week.

CASE STUDY: INCREASING PARTICIPATION IN ECEC, VICTORIA, SITE 1	
Approach	The team set a new objective: To increase attendance among non-attending enrolled children, even if only for a short period, as a first step toward sustained participation. To achieve this, practitioners: • changed how they followed up with families, introducing afternoon solution-focused phone calls to parents to understand barriers to attendance • used these calls as opportunities to educate parents on the benefits of 15-hour attendance • provided child-centred solutions to encourage attendance (e.g. clarifying mild illness policies so children weren't unnecessarily kept home).
Positive changes	After just three months, the participation indicator showed significant improvement: • **More children attended each week:** The number of non-attending children dropped from 14-17 per week to around 10. • **Attendance hours increased:** Children who previously attended for less than 5 hours were now more likely to attend 5+ hours, and those attending less than 10 hours were more likely to exceed 10 hours. • **Greater progress toward the 600-hour goal:** The proportion of children on track to meet 600 annual hours rose by 8% (from 56.3% to 64.5%), with an even greater 19% increase among priority group children (from 52.8% to 72.1%).
Additional benefits	Beyond improved attendance, practitioners reported broader positive impacts: • **Increased staff capacity:** Less time was needed for follow-up calls as families became more proactive in communicating. • **Stronger relationships:** Improved connections with children and families contributed to better service quality. • **More targeted support:** The centre could now identify families in need of additional resources and provide appropriate referrals. Through CI, practitioners quickly identified what worked, adapted their approach and achieved measurable, lasting success: • *'Our weekly attendance has jumped since using [RSTO].'*

Table 7. Case study 2

CASE STUDY: INCREASING PRIORITY GROUP PARTICIPATION IN ECEC, VICTORIA, SITE 2	
Objective	Increase participation of priority group children in the 2 years before school
Indicator	Targeted Participation (P2): Proportion of priority group children attending for 15 or more hours per week in the three years before formal schooling (600 hours per year).
Challenge	A number of children were not meeting the recommended 15 hours per week: • Practitioners explored patterns in attendance and identified a large number of children were arriving late. • This was particularly prevalent among priority group children. The goal was to increase on time and overall attendance.
Approach	Practitioners spoke with parents about challenges they experience attending the site on time. Together, practitioners discussed potential solutions, such as: • having activities commence at the beginning of the day • participation requiring parents confirm their child's attendance in advance • requiring demonstrated early attendance in the weeks leading up to the activity. Based on child and parent feedback, and practitioner observation from historical implementation, a 9am Bush Kindy* program was trialled.
Positive changes	After five months, the participation indicator showed significant improvement: • Priority group children on track to attend 600 hours increased from 28.1% to 36.1%. • Children attending 0 hours decreased from an average of 10 children per week to 6 children per week.

CASE STUDY: INCREASING PRIORITY GROUP PARTICIPATION IN ECEC, VICTORIA, SITE 2	
Additional benefits	Children on track to attend 600 hours for the year increased from 43.1% to 54% (in 2023 there was *decreased* attendance over this same time period). There were additional lag effects on participation: • Children who were not eligible for Bush Kindy (e.g. continued late attendance), began to arrive earlier in anticipation of there being another Bush Kindy program that they could attend. The Bush Kindy program positively impacted relationships between staff and children: • The approach enabled them to improve Quality Area 5 focusing on building strong positive relationships. Related to RSTO quality indicator 1: The proportion of early childhood education and care (ECEC) services rated 'exceeding' the standard in quality areas 1, 4 and 5 and at least 'meeting' the standard in all other quality areas according to the ACECQA assessment).

** Bush Kindy = Excursion to 'bush' environment, allowing the young children to explore, usually in an unstructured way, the natural world. See* https://www.vic.gov.au/bush-kinders

Table 8. Case study 3

CASE STUDY: INCREASING PRIORITY GROUP PARTICIPATION IN ECEC, VICTORIA, SITE 1	
Objective	Increase participation of Aboriginal and Torres Strait Islander children in the two years before school
Indicator	Targeted Participation (P2): Proportion of priority group children attending for 15 or more hours per week in the three years before formal schooling (600 hours per year).
Challenge	Participation data showed Aboriginal and Torres Strait Islander children were less likely to be attending 15 hours of ECEC per week compared to their peers: • projected attendance based on 600+ hours per year was declining.
Approach	The site introduced regular, personalised check-ins with Aboriginal and Torres Strait Islander families, led by a culturally trained educator. • These check-ins built rapport, identified participation barriers, and connected families with additional support services where necessary. Previously, these families were more likely to exceed the 42 maximum allowable absence days, leading to loss of funding and disengagement from ECEC. • By fostering close relationships, the service could proactively understand absences and support sustained attendance.
Positive changes	After just three months, the participation indicator showed significant improvement: • Compared to all children, Aboriginal and Torres Strait Islander children's attendance was lower in 2023. In 2024, it was equal, and in 2025 Aboriginal and Torres Strait Islander children's attendance is on track to surpass non-Aboriginal and non-Torres Strait Islander children at this site in the two years before school. • Increased Aboriginal and Torres Strait Islander child attendance remains consistent, and there are less fluctuations.
Additional benefits	In addition to improved attendance among enrolled Aboriginal and Torres Strait Islander children, the service also: • *'Documented an increase in [Aboriginal and Torres Strait Islander] enrolments.'*

Figure 14: Changes in the participation of Aboriginal and Torres Strait Islander children in an ECEC site

Antenatal care

In 2024, the implementation partner implementing RSTO data tools and practices in antenatal care service chose to focus improvement efforts on quality. Midwives and leadership used service data to guide decisions, set priorities, implement improvement plans, and monitor their impact (Table 9).

Table 9. Case study 4

CASE STUDY: ANC REGIONAL HOSPITAL, VICTORIA	
Indicator	The service prioritised several quality indicators based on feasibility, minimal resource needs, and a common barrier with a single solution, including: • Quality indicator 2: percentage of pregnant women who have a complete record of the minimum set of routine test results available (Specifically, of the 4 types of results required for a complete set, they prioritised week 28 pathology results). • Quality indicator 11: percentage of pregnant women who have a recorded measure of symphysis fundal height at all routine appointments after 24 weeks gestation. • Quality indicator 17: percentage of pregnant women who complete an ultrasound between 18 and 23 weeks and have their cervix length recorded (specifically, they focused on increasing recording of cervix length).
Challenge	For the three indicators, practitioners felt confident that performance was better in practice than reflected in the data. They suggested the primary barrier to achieving quality on this indicator related to: • data collection processes that could be improved for all pregnant women (i.e. the data was available but had not been entered into the correct location).
Approach	Practitioners were provided with brief education and training about how to correctly enter the relevant data. This was voluntarily delivered by a practitioner who felt confident entering this data, and the process confirmed by leadership in attendance. The leading practitioner verbally stepped their peers through the process of: • how to source the primary data (i.e. 'go to program A, find the pathology report titled B, find the results that say C') • where the data should be entered (i.e. 'open X, go to tab Y, scroll to the bottom and find the field Z, enter results from C here').

CASE STUDY: ANC REGIONAL HOSPITAL, VICTORIA	
Positive changes	ANC data was imported into the dashboard quarterly. Improved quality was observed within one quarter: • For quality indicator 2: Week 28 pathology records improved—the service achieved 100%. • For quality indicator 11: Measuring and recording fundal height at all appointments after 24 weeks gestation improved—the service achieved 100%. • For quality indicator 17: Cervix length recording improved significantly. Initially, it was documented for 0% of women over 12 months. Within one quarter, after the training, this increased to 33%.
Refining approach	Brief education and training improved all three quality indicators, but barriers to cervix length recording persisted. To address this, leadership implemented mandatory reporting. Practitioners now receive a prompt to enter a valid cervix length before exiting a patient's record. Positive change was observed in the next data export: • For quality indicator 17: Recording cervix length improved again—the service achieved 100%. The data will now be monitored for long-term impact. Leadership plans for mandatory cervix length reporting to be temporary. After a period, the mandate will be removed and the data monitored to see if a reminder/prompt is still required (i.e. drop in quality), and only reinstated if it is. • The goal of education, training and mandated entry is to break any 'bad' habits of mis-entering data and embed correct data entry into standard practice.

RSTO insights

- **Visible impact on service outcomes through RSTO**
  Changes observed in service data, particularly via the dashboard, suggest RSTO is positively influencing service quality and participation for families and children, especially in ECEC. This highlights the value of embedding lead indicators into routine monitoring to track progress and inform service improvements.
- **Most progress where sites had clear goals**
  RSTO's impact has been most evident in ECEC participation and ANC quality, where sites had clear improvement goals. This shows the importance of aligning RSTO implementation with service-level goals to accelerate impact in targeted areas.
- **Priority populations see greatest gains when prioritised**
  Participation among priority groups has improved notably in ECEC. Targeted focus on equity, supported by lead indicators and continuous improvement, can drive measurable change in access for priority populations.
- **Organisation-wide benefits extend beyond pilot sites**
  The benefits of RSTO extends beyond individual sites, supporting broader organisational improvements. This demonstrates the potential for system-wide impact when embedded at multiple levels of service delivery.
- **Change takes time**
  Improvement cycles must allow for iteration—not all PDSAs yield immediate results. Achieving meaningful impact often requires multiple refinements, with some changes taking time to show up in the data. Allowing services adequate time to plan, test and assess actions is essential for driving effective change.
- **Lead indicator data alone is not enough**
  Insights beyond lead indicator data are needed. Identifying the most effective actions often requires qualitative insights, including feedback from parents, to understand the 'why' behind trends to design more targeted actions.

5. IS THERE GROWING RECOGNITION OF LEAD INDICATORS AND STACKING AT SYSTEMS LEVEL?

Summary

During RSTO 2.0, we have seen improved recognition among government decision makers, other advocates and service providers in the need for 'stacking', and a system that enables a combination of supports for children and families, including through a connected or integrated system. We're seeing this reflected in government funding and policy commitments—through support for integration, investment in community hubs, and a stronger focus on improving key service areas like early childhood education and care.

There has also been growing recognition of the value of 'better' data—data that helps to more effectively understand quality, quantity and participation—across a range of early years programs.

While progress has been made, further work is needed to deepen understanding of the essential role of lead indicators, and the unique opportunity the RSTO dashboard provides in delivering this actionable data.

What we found

RSTO policy and advocacy work across government

RSTO's policy and advocacy work aims to drive system-level change toward a more connected early childhood development system—one that enables service stacking and uses lead indicators and continuous improvement to strengthen quality, quantity and participation in service delivery. Policy and advocacy activities that target federal and state government, and collaboration with key sector partners on shared goals, is essential to drive progress toward adoption of RSTO concepts into government policies and funding. Our policy and advocacy activities during RSTO 2.0 are detailed in Appendix B. One tactical activity within this approach is engagement in formal submissions and consultation processes. An overview is provided in Figure 15.

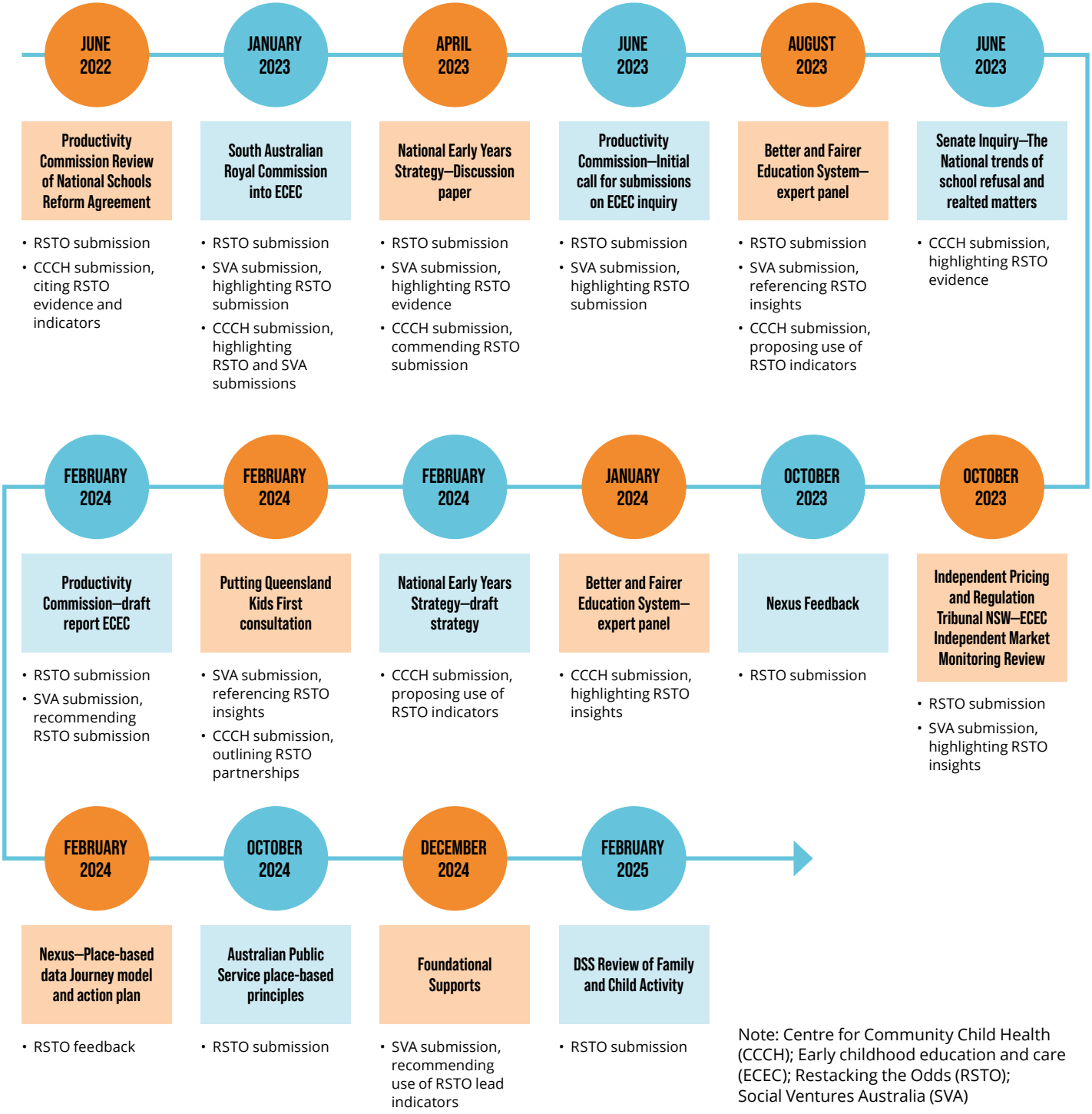


Figure 15: Overview of formal advocacy activity

Federal early years reform

We have successfully built relationships with key government departments, agencies and decision makers, capitalising on momentum and interest in the need for reform in the early years. The impact of our policy and advocacy work during RSTO 2.0 is evident across these three priorities for federal reform during this period:

1. The development of a National Early Years Strategy
2. Early Childhood Education and Care
3. Place-based initiatives to address long standing inequities with a focus on children.

Early Years Strategy

The national Early Years Strategy (2024-2034)[9] is the first of its kind in Australia and demonstrates formal government recognition of the importance of early childhood development on lifelong outcomes. RSTO responded to this opportunity to influence Federal Government concepts of 'stacking' through advocacy on:

- the need for an integrated early childhood system
- government acknowledgement of and commitment to fund key RSTO service types
- designing a measurement and accountability framework that embeds lead indicator data for course-correction.

Our advocacy requests during RSTO 2.0 have been reflected in the Early Years Strategy with the following inclusions in the Strategy:

- A priority focus area on accountability and coordination, including stronger data and integration.
- A priority focus area on place-based and locally-led solutions.
- Outcomes areas across education, health and connected families and communities.
- Principles of equity and evidence-informed approaches.

In addition, the RSTO team was invited to participate in Early Years Strategy Outcomes Framework sector workshops convened by Department of Social Services Early Years Taskforce and to share input and research to support the development of funded actions (for example, RSTO research on parenting programs). Through this work, we've learned there's more to do to clearly communicate the purpose and value of the lead indicators in driving systems change across diverse audiences. We'll continue to develop and test concepts in RSTO 3.0.

Early childhood education and care

The significant reforms underway in Australian early childhood education and care from Federal and State Governments have been a focal point for our policy and advocacy work during RSTO 2.0. The reform opportunity has provided a platform to engage with decision makers at the highest levels to lay the foundations for a more equitable universal early learning system. A focus has been highlighting the need for the system-level adoption of data-driven decision making and service improvement to ensure sufficient quantity, quality and participation in ECEC. An enhanced governance mechanism that uses data to hold the system to account would help deliver this.

'I think a really powerful piece of research comes out of the Murdoch Children's Research Institute, with Sharon Goldfeld, which talks about Restacking the Odds. She talks about the fact that there are a series of interventions—everything from parental income to early childhood education and care, to playgroups, to infant and maternal health. The evidence is that the more of these things you stack on top of one another, the more likely it is that you're going to get a better outcome for children.'

The Hon. Jay Weatherill, former Premier of South Australia and current Director, Thrive by Five, Minderoo Foundation

9 www.dss.gov.au/early-years-strategy

One area of activity in this policy area has been engaging with the Productivity Commission's inquiry into the early childhood education and care sector in 2024. In addition to formal submission processes, RSTO also met the Commission informally and at a formal hearing. RSTO made submissions to the inquiry and research[10] draft and final reports. These references highlighted key themes, including:

- participation by priority populations
- the potential role of navigators
- preschool integration funding
- the need for an ECEC commission
- the importance of the National Quality Standard and continuous improvement.

Commissioners engaged RSTO further by requesting additional evidence on ECEC quality and participation and technical reports on indicators. The Commission's final recommendations aligned with RSTO's positions, notably advocating for a dedicated commission with access to consistent data and a universal ECEC system that prioritises better access for children in priority populations.

These RSTO contributions helped shape key government commitments, including the removal of the Activity Test to improve access for children in families who may not meet the work or study requirements, the establishment of the Building Early Education Fund including a dedicated budget for integrated hubs, and an ECEC wage increase to strengthen workforce capacity.

Throughout the reforms, there has been a noticeable shift in government priorities, commitments and statements. Initially, government framing prioritised the benefits of childcare for the Australian workforce. In following the reports, government communications tended to emphasise a more explicit focus on children's universal right to good quality education. The shift in language indicates continued momentum in delivering universal and equitable early childhood education and care. While the goals of this reform—improving access and quality—align well with RSTO's aims, the lack of a single authorising agency overseeing ECEC makes it difficult to ensure these aims are achieved.

'A great early childhood education and care system pays a triple dividend—it sets children up for a great start in life, helps working families to get ahead, and builds our economic prosperity by supporting workforce participation.'

The Hon. Dr Jim Chalmers, Treasurer of Australia, announcing the Productivity Commission, February 2023

'Every child should have the right to quality, affordable early education. We think children should have guaranteed access to at least three days of high-quality early education and care—because early education is about changing lives.'

The Hon. Anthony Albanese, Prime Minister of Australia, announcing ECEC reform commitments, December 2024

10 https://www.pc.gov.au/inquiries/completed/childhood#report

Place-based advocacy

Momentum is growing in Australia for place-based approaches to improve outcomes and local services for children and families, particularly as a solution to long standing inequities. During RSTO 2.0, we have played a key role in this shift by providing a practical resource that puts lead indicator data in the hands of frontline decision makers and place-based initiatives, empowering communities to drive local change.

Our activities over this period have been focused on advocating for governments to create authorising environments through the resources, tools, agreements and reporting requirements put in place in these initiatives, ensuring that place-based initiatives are supported at a systemic level. We have highlighted how consistent lead indicator data at a whole of community level offers timely and valuable insights for governments—helping to identify where to act and assess the impact of their investments over time.

RSTO's impact in place-based work can be demonstrated by the growing strength of partnerships and inclusion in key program design activities. For example, RSTO has been invited by the Commonwealth government to contribute insights, evidence and feedback for:

- Foundational prospectus and data model for National Centre for Place-Based Collaboration ('Nexus'), which was formally funded under the new title: Partnerships for Local Action and Community Empowerment ('PLACE'). PLACE's remit includes a key pillar focused on data and a priority commitment to improving outcomes for young children.
- Shaping the data landscape for place-based initiatives through presentations to Department of Social Services groups and advocacy for consideration of RSTO lead indicators for inclusion in Stronger Places, Stronger People (SPSP) Understanding-Measurement, Evaluation and Learning Framework.
- Inclusion of RSTO indicators in Connected Beginnings' flagship Indicators guide.
- Standing up of 'place' and 'data' working groups to support the Investment Dialogue for Australia's Children (IDAC).

A key enabler in this work has been the opportunity to test policy ideas and incorporate insights from with place-based partners, such as Logan Together and Gladstone Region Together, directly into RSTO policy and advocacy efforts. This strengthens the relevance of our messaging and ensures our advocacy reflects real community experience, improving both its authenticity and impact. One barrier to adoption of lead indicator data within place-based initiatives results from the lack of a key authority mandating measures or outcomes.

State level advocacy

RSTO engagement with state governments aims to leverage their role in resource planning, policy development, service funding and data stewards for services including: antenatal care, sustained nurse home visiting (and universal child and family health), preschool and school.

Efforts during RSTO 2.0 have focused on South Australia and Queensland where the opportunities for influence have been greatest. Advocacy was tailored to each state and service, positioning RSTO as a solution to existing challenges or aligning with policy goals, such as using evidence for Sustained Nurse Home Visiting to address child inequities, and integrating the RSTO lead indicator framework into program rollout.

South Australia

RSTO publications and submissions were acknowledged throughout the South Australian Royal Commission into Early Childhood Education and Care. See Appendix B for a full list.

Significantly, 'stacking' was picked up as a key concept in this inquiry into a single service system (i.e. ECEC). Subsequently, South Australia has stood up the Office for Early Childhood Education, listing 'connecting services for the best start' as one of four reform pillars responsible for initiatives to support stacking through the early education system. Initiatives to improve stacking include[11]:

- Building 20 integrated hubs in communities with high rates of disadvantage, offering 30 hours of 3 and 4 year old preschool, child and family health services and parenting programs.
- Connecting the ECEC system with the health and development check system, for example offering health checks at preschool.
- Improving referral pathways with the child protection system.

> ***'The Commission found compelling evidence about the benefit of 'stacking' multiple evidence-based services in the early years, particular antenatal care, nurse home visiting, early childhood education and care and parenting programs, to improve outcomes for children in the first 1000 days.'***
>
> https://www.royalcommissionecec.sa.gov.au/__data/assets/pdf_file/0009/937332/RCECEC-Final-Report.pdf

The Royal Commission and the South Australian government also recognised that data-driven decision making is essential to drive this reform, for example:

- The Royal Commission report cites RSTO's contribution in 'the opportunity to build an evidence ecosystem with investment in research, translation of the evidence across the system and learning and evolving what works over time' (p66).
- The South Australian Government highlights 'The Office for Early Childhood Development will have a continued focus on how to integrate systems, services, and data. This will be a collaborative process to ensure services connect in ways that put children first and make it easy for families and providers to access and trust.' in response to the Royal Commission.

This is significant because it elevates the concept of 'stacking' and lays the groundwork for broader outreach, leveraging momentum within what has largely been a single-service reform effort.

Queensland

We successfully gained support for RSTO's advocacy asks on data, antenatal care and sustained nurse home visiting (from a strengthened universal child and family health check base), and 'stacking' from key advocates and allies in Queensland.

This was demonstrated through agencies signing on to support SVA's open letter to Queensland ministers and candidates calling for commitment to ensure no Queensland child would miss out on support between hospital and school (Appendix B). RSTO allies also included these asks in their own campaigning in the lead up to and following Queensland's 2024 election, enlisting wide-ranging buy-in from candidates on all sides of politics. RSTO actively engaged political decision makers, articulating how early years investments achieved political as well as policy goals.

11 https://www.earlychildhood.sa.gov.au/

The Queensland Government recognised the need to address service gaps to enable 'stacking' for Queensland children and has committed to state-wide delivery of sustained nurse home visiting. The RSTO lead indicator framework was included in the draft evaluation framework for this rollout.

RSTO was also invited by the Queensland Government to present how RSTO lead indicators could form part of an evaluation framework for the Putting Queensland Kids First investment package, drawing together key State Government departments responsible for initiatives across early education, antenatal care, child and family health checks and early years hubs and early years coordinators.

The Queensland workstream highlighted the value of building trust and credibility over time to be ready for policy windows. This groundwork meant RSTO was well-positioned to contribute when the Government announced the Putting Queensland Kids First consultation. By actively working to secure bipartisan support, the Strategy has now been adopted and progressed by the new Queensland Government.

Coalition building to strengthen shared advocacy goals

Early years sector experts have utilised RSTO's publications and tools as part of the development of their own programs and advocacy to system reform processes (10). Building champions across the early years advocacy landscape was a critical component of the RSTO 2.0 advocacy strategy, because it enabled expansion of our message reach but also actively informs the work of these partners.

Table 10. Examples of RSTO work referenced in others' submissions to recent public consultation processes.

EXAMPLES OF RSTO WORK REFERENCED IN OTHERS' SUBMISSIONS
Productivity Commission into ECEC
RSTO referenced in 15 submissions by other organisations, including: • Early Childhood Care and Development Policy Partnership • Searchlight • The Smith Family • Logan Together • NSW Government • Australian Education and Research Organisation • Early Learning Association Australia. The nature of these references included: • service providers demonstrating the benefits of their own RSTO data • use of RSTO as an accountability framework for government • calling for lead indicators • highlighting RSTO research evidence on ECEC as a strategy to reduce inequities and the benefits of stacking.
Early Years Strategy consultation
RSTO referenced in 6 submissions by other organisations, including: • The Benevolent Society • Brotherhood St Laurence • Australian Institute of Family Studies • Australian Education Research Organisation. They included: • integration and evidence for stacking • benefit of data to address inequities in system • evidence for participation needs.

EXAMPLES OF RSTO WORK REFERENCED IN OTHERS' SUBMISSIONS

Other organisations promoted RSTO in their publications, tools and resources

- **SNAICC** references RSTO framework in its funding model proposal for ACCO integrated early years services as a point of reference in developing a Theory of Change for an accountability framework and representative group.
- **Thrive by Five** lists RSTO 'stacking' research as part of its important Research Reports listing for leaders and staff.
- **Thriving Queensland Kids Partnership** highlights Restacking the Odds' stacking and lead indicator framework of quality, quantity and participation in its Queensland Kids Early Childhood Development Better Systems Roadmap
- **The Mitchell Institute recommends 'stacking'** as one policy response to **addressing unequal learning outcomes in the early years**, in 'Unequal from the start: the achievement gap and the early years'.

Policy citations on Overton

Overton focuses on identifying and tracking citations and mentions of research in policy documents. There have been 15 Overton policy citations that cite RSTO (Figure 16).

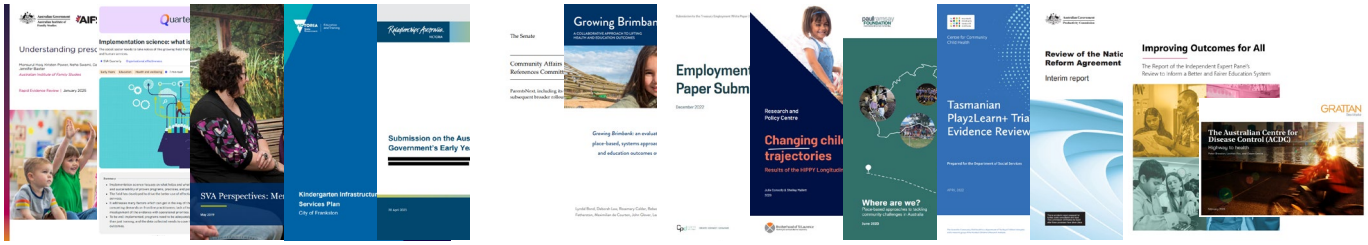


Figure 16: Overton policy citations that cite RSTO

RSTO insights

- **RSTO has received most traction at a conceptual level**
  There has been significant interest from governments in improving the connection between early years services and acknowledgement of the benefit of the 'stack' to improve outcomes for children. There is broad understanding of the value of using data to support improved delivery, however securing action to implement continuous improvement mechanisms has proven challenging to date.
- **A policy reform window may not translate quickly into action on the ground**
  The significant reforms in ECEC have demanded policymakers' focus. Attention has been on using large scale funding levers—e.g. changes to the subsidy and investment in new centres—to achieve equity, access and participation, rather than on incremental improvement. RSTO must align with current reform agendas and clearly demonstrate its value in delivering government goals as reforms are implemented.
- **Government's role in supporting collection and use of lead indicator data is not widely understood**
  Government departments typically prioritise outcomes data over lead indicators. RSTO must continue to demonstrate the value of investing time and effort in collecting and using lead indicators to enable proactive decision making and service improvement at the front line and systems level. Storytelling and advocacy with our service and community partners is important to demonstrate relevance and impact.

- **Advocacy is more powerful through coalitions**
  Partnering with like-minded organisations amplifies RSTO's influence and extends its reach. These partnerships refine messaging and identify areas where RSTO complements broader reform efforts, particularly in scaling. RSTO's evidence-driven approach adds rigour to advocacy asks, supporting the case for investment.
- **Strategic scaling focuses on where momentum is strongest**
  While 'stacking' services remains a core goal, focusing advocacy on areas with strong policy alignment—such as ECEC—lets RSTO demonstrate success. Other areas, like the early years of school and ANC, may require additional feasibility testing and stakeholder engagement.
- **Supporting PBIs strengthens system change**
  Integrating RSTO into place-based initiatives reinforces local advocacy and aligns with broader system goals. Collaborating with backbone organisations ensures efforts are complementary and grounded in local contexts.
- **Lack of enforceable mechanisms hinders adoption**
  The absence of levers like legislation or funding models requiring the use of evidence-based data, limits system-wide adoption. As readiness and appetite grows in key services (e.g. ECEC), RSTO should advocate for the creation of incentives for service improvement, including integration of key lead indicators in commissioning and funding agreements, particularly where quality and participation are undervalued in favour of enrolment metrics.

FUTURE DIRECTIONS

In its second phase, RSTO co-designed practical prototypes with early years and community partners to strengthen data-informed decision making and drive more equitable service delivery. The considerable progress we have demonstrated towards our goals was made possible with generous funding from Paul Ramsey Foundation.

It is clear from the learnings and insights captured in this Impact Report that we now need to turn our strategic focus towards the ultimate end goal for RSTO: how to sustainably scale our work across early years services nationally to achieve the cumulative benefits of stacking.

As we move into our third phase, RSTO 3.0 (2025-2027), we have prioritised actions that will help us move towards this ultimate goal. This requires action across three strategic priorities: building the evidence; developing a model for sustainable scale; and establishing learning and continuous improvement processes.

1. Continue to build evidence about how to successfully implement data tools and practices to stack early years services

Build on our early implementation success in early childhood education and care, and with quality and participation lead indicators, to demonstrate impact across the stack. This report highlights the successful use of lead indicator data to drive improvements in service participation and quality, particularly in ECEC. The transformation in continuous improvement practices in our ECEC partners after just one year of implementation demonstrates what is possible. For RSTO to achieve our ultimate goal of 'stacking' key early years services, these impacts must be spread and sustained beyond ECEC to the other early years services and make greater use of quantity lead indicator data to improve service availability.

Generate evidence and learning about how best to use lead indicators and data tools to strengthen collective decision making across child and family hubs and PBIs. While early-stage community-level prototypes are showing promise in aggregating data and supporting local decision-making, challenges remain. Engaging PBIs and aligning data systems across services within a region are difficult. Stronger mechanisms for collaboration and clearer frameworks for partnerships within communities will be needed to accelerate RSTO implementation. This will ensure that data are being used to strengthen collective decision making at a community level.

Revise and refine our approach to impact measurement and our theory of change to ensure they are both aligned to our ambition for scale and our goal of equitable access to stacked early years services. A key priority during this next phase of RSTO will be the refinement of our impact measurement and evaluation framework and approach. A critical component of this will be identifying a baseline minimum data set (MDS), which will include qualitative and quantitative measures that are routinely used alongside local (i.e. PBI), and service-specific indicator and CI data. This process will also include a review of our theory of change to ensure it more fully captures the potential impact of our work to support collaboration between services and community partners and stacking at a community level.

2. Develop a sustainable and impactful scaling strategy and operating model

Develop a more sophisticated understanding of the range of actors who play a role in implementation of RSTO data tools and practices, their needs and the unique value that RSTO can deliver to them. Work is already underway to engage with a broader set of implementation partner roles involved in early years data collection and use. In RSTO 3.0, this focus will need to broaden to develop a deeper understanding of the unique challenges for different roles (e.g. child and family hubs, place-based initiatives, commissioners and funders) and the value proposition of RSTO for audience. This will inform development of more tailored messaging to communicate the benefits of implementing RSTO data tools and supports. It will also underpin the development of additional resources and supports to better meet the different needs of a growing group of partners as we scale.

Embedding RSTO indicators to support reform and strengthen accountability. Many of the barriers to, and enablers of, data-informed service improvement identified during RSTO 2.0 are either influenced by, or within the control of, government funders and policymakers. There is an opportunity to align RSTO lead indicators with major early years reforms and embed them into government measurement, evaluation, and funding frameworks. This is particularly so for ECEC because of government commitments to improve access, provision and attendance. Potential opportunities also exist in investment and interest in place-based initiatives and hubs which seek to advance integration of early years services across the 'stack'. RSTO indicators can help demonstrate progress and strengthen accountability for reform goals—particularly in improving quantity, quality and participation for children facing disadvantage. Embedding lead indicators into regulatory requirements, evaluation efforts, and funding agreements would support more targeted and effective reform implementation. As the RSTO framework is already developed (with some refinements needed), there is potential to reallocate existing measurement and evaluation resources to support its use. National partnerships (e.g. with SNAICC and PLACE) and early signals of return on investment in RSTO tools and practices can also help make the case. In phase 3, we will work with government policymakers to identify what evidence and tools are needed to adopt the indicators and support reform accountability, and develop tailored resources to assist.

Refine our training support package to ensure the most impactful components can be delivered at scale with reduced resources. The learning and analysis captured in this Impact Report indicates that the most valuable service-level change results from the engagement with the continuous improvement (CI) supports. However, we will need to refine these supports and identify less resource-intensive adaptations to enable scaling. By embedding learning opportunities into existing programs, developing digital resources, offering asynchronous training options, and building capacity for local delivery (for example, trialling train the trainer type models) RSTO can increase accessibility of these critical supports. The development and evaluation of these adaptations during the next phase of RSTO, will inform the development of our model for scale.

Develop a strategy and model to scale RSTO. We will work with partners to define our strategic objective for scaling the impact of RSTO, including what success looks like and what partnerships will need to be developed to support our ambition to achieve the cumulative benefits of the stack. This will include identification of potential payer(s) for the implementation of RSTO data tools and supports at scale to ensure we are planning for financial sustainability. This will be a complex exercise as there is no single 'owner' of the stack of RSTO prioritised services—which spans multiple level of government, multiple government portfolios, includes public and private sector providers, and both regulated and non-regulated services.

3. Plan and implement learning loops to support scaling strategy

Apply an experimental mindset and continuous learning approach to the implementation of our strategy for scaling the impact of RSTO. As we design and implement our scaling strategy we will also identify key areas where learning will be critical. We will design experiments to gather insights and implement a process for continuous adaptation and improvement. This will ensure that our efforts to scale the impact of RSTO remain flexible and responsive to new information and evolving partner needs, ultimately increasing our chances of success. We are committed to sharing these learnings broadly with others doing (or funding) similar work in the early years space.

The program of work that will underpin the third phase of RSTO will aim to drive service and system adoption of evidence-based lead indicator data to support continuous improvement across the early years service system, and identify a pathway to future financial sustainability. RSTO 3.0 will be made possible with the generous support of Minderoo Foundation.

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APPENDICES

Appendix A: **RSTO 2.0 publications**

Appendix B: **Formal advocacy activity**

Appendix C: **Restacking the Odds Impact monitoring survey**

Appendix D: **Barriers and enablers**

Appendix E: **Data literacy interventions**

Appendix F: **Co-design**

Appendix G: **Continuous Improvement activities**

Appendix H: **Results from observations, interviews and surveys conducted with implementation partners**

APPENDIX A.
RSTO 2.0 PUBLICATIONS

Peer-reviewed publications (2022-2025)

Beatson, R., Macmillan, C.M., Sherker, S., Hilton, O., Goldfeld, S., Molloy, C. (2025). Improving data-based decision-making in early childhood services: A systematic review informed by the Capability Opportunity and Motivation model of Behaviour. *Child & Youth Services*, 1-28. https://doi.org/10.1080/0145935X.2025.2468185

Beatson, R., Lee, W.Y., Macmillan, C.M., Villanueva, K., Sherker, S., Hilton, O., Molloy, C., & Goldfeld, S. (2025). Data-utilisation barriers and facilitators in services delivering parenting programs: a qualitative analysis informed by the Theoretical Domains Framework & COM-B model. *Open Science Framework*. https://osf.io/preprints/osf/cd3e9_v1

Beatson, R., Molloy, C., Fehlberg, Z., Perini, N., Harrop, C., & Goldfeld, S. (2022). Early childhood education participation: A mixed-methods study of parent and provider perceived barriers and facilitators. *Journal of Child and Family Studies*, 31(11), 2929-2946. doi:10.1007/s10826-022-02274-5

Centre for Community Child Health at Murdoch Children's Research Institute, Social Ventures Australia and Bain & Company. (2023). *The Restacking the Odds Indicator Guide: Quality, quantity and participation indicators across early years services and why they're important* (Second edition). Melbourne, Australia. https://doi.org/10.25374/MCRI.21484551

Molloy, C., Guo, S., Goldfeld, S. (2023). Patterns of participation in early childhood education before and during the COVID-19 pandemic in Australia. *Australian Journal of Early Childhood*, 48, 182-202. https://doi.org/10.1177/18369391231189901

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Villanueva, K., Beatson, R., Hilton, O., Lee, W. Y., Macmillan, C., Molloy, C., Sherker, S. & Goldfeld, S. (2024). Barriers and Enablers to Data-Based Decision Making in Australian Place-Based Community Initiatives: A Qualitative Study Informed by the COM-B Model and Theoretical Domains Framework. *Child Indicators Research*, 1-27. https://doi.org/10.1007/s12187-024-10170-1

APPENDIX B.
SUMMARY OF FORMAL RSTO ADVOCACY ACTIVITY

OPPORTUNITY NAME	DATE	DESCRIPTION	LINK
Productivity Commission review of the National Schools Reform Agreement	June 2022	The Productivity Commission invited submissions on how well policy initiatives by the Australian, State and Territory Governments have achieved the objectives and outcomes NSRA to make recommendations for the next school reform agreement. RSTO: • highlighted the lack of a quality framework for schools • describes essential need for lead indicators of quality, quantity, participation for assessing performance, and course-correcting to address inequities • provide RSTO early years school communication brief CCCH: • Advocates for a multi-sector/broader than education policy response, citing RSTO evidence and indicators	RSTO submission RSTO attachment CCCH submission CCCH attachment
South Australian Royal Commission into Early Childhood Education and Care	Jan 2023	The SA Royal Commission invited submissions on whether South Australian families are supported in the first 1000 days of a child's life, opportunities to further leverage early childhood education and care to enable equitable and improved outcomes and input on building a universal 3 and 4 yo ECEC system RSTO: • highlighted the need for stacking to address inequities • recommended 15years ECEC for 2 years before school (universal) and 3 years before school for priority populations • proposed a focus on quality, quantity and participation • proposed place-based and integrated responses SVA: • highlights RSTO evidence and calls for 'stacking', data ecosystem and broader integration asks CCCH: • Highlights the RSTO and SVA submissions, including on addressing participation in ECEC, and hubs	RSTO submission SVA submission CCCH submission
National Early Years Strategy—Discussion paper	April 2023	DSS invited responses on a discussion paper to inform the first National Early Years Strategy RSTO: • Recommended an early years guarantee of quality evidence-informed, accessible early years services • Recommended embedding a common framework of quality, quantity and participation • Recommended investment in data and learning systems CCCH: • Commends the RSTO submission, supports the call for building capacity of early years workforce and need for earlier lead indicator data SVA: • Highlights RSTO evidence for stacking/combination of services	RSTO submission CCCH submission SVA submission

OPPORTUNITY NAME	DATE	DESCRIPTION	LINK
Productivity Commission—initial call for submissions on ECEC inquiry	June 2023	The Productivity Commission invited submissions on a review of what was needed to create a universal Early Childhood Education and Care system. RSTO: • Highlighted the importance of 'stacking' in the early years • Outlined the need for local-level quality, quantity and participation indicators to achieve universal ECEC • Provided evidence that children need 15 hours of ECEC for 2 years before school, 3 years for children in disadvantage. • Highlighted existing barriers to ECEC participation for disadvantaged children SVA: • Highlighted the need for 'stacking', linking to economist (Heckman) rationale • Outlined how RSTO could support stewarding the system for equity	RSTO submission SVA submission
Better and Fairer Education System—expert panel	August 2023	The consultation invited submissions outlining some of the key challenges and opportunities facing the Australian education system. RSTO: • Highlighted current lack of quality framework for schools • Outlined the indicators for quality, quantity and participation in early years of school • Advocated for investment in a new learning system including a technology platform, improvement support program and community of practice to support data-driven decision making SVA: • References RSTO insights in advocating for educators to be provided knowledge, skills and tools to address inequities for children CCCH: • Proposes RSTO indicators to be included in next NSRA measurement framework	RSTO submission Restacking the Odds Initiative—Attachment (not publicly available) SVA submission (not publicly available) CCCH submission
Senate Inquiry—The National trend of school refusal and related matters	Aug 2023	The Education and Employment References Committee sought submissions on school refusal. CCCH: • Highlighted RSTO evidence that use of lead-based indicators for tracking education strategies reveals otherwise hidden gaps • Identifies benefits of using lead indicators for school continuous improvement and/or state monitoring on tracking policy impact	Submissions not made public

OPPORTUNITY NAME	DATE	DESCRIPTION	LINK
Independent Pricing and Regulation Tribunal (IPART) NSW—ECEC Independent Market Monitoring Review	Oct 2023	IPART sought feedback on an ECEC independent market monitoring review RSTO: • Responded to the proposed methodology paper • Outlined data collection gaps RSTO found that were also relevant to the method, supported proposed quantity indicators, provided feedback on proposed indicators • Provided the indicator guide and ECEC technical report SVA: • Highlighted insights from RSTO in relation to the proposed data strategy for ECEC, including need for data at multiple (particularly local/community and service) levels, and to deliver equity.	RSTO submission SVA submission
Nexus Feedback	Oct 2023	The Nexus Centre sought input from Restacking the Odds on the development of its' Prospectus for a National Centre for a Place-based collaboration RSTO • Shared research on barriers and enablers for data use by place-based initiatives • Highlighted PBI needs from government relating to data sharing and capability uplift	Feedback not made public
Federal pre-budget submission 2024-25	Jan 2024	CCCH: • Highlighted RSTO insights that place-based practitioners lack the data and capabilities to collect and act on lead indicators to address inequities • Submitted proposal for government to co-design a scalable data-driven continuous improvement model to enable place-based initiatives address inequities	Submission not made public
National Early Years Strategy—draft strategy	Feb 2024	DSS sought feedback on the first draft of the Early Years Strategy. CCCH: • Called for governance/accountability mechanisms to oversee the strategy and repeats earlier calls for a guarantee • Enhance the strategy's data, evaluation and research area including lead indicators in the outcomes framework and program logic	Submission not made public
Putting Queensland Kids First consultation	Feb 2024	The Queensland Government consulted on a draft 'Putting Queensland Kids First' paper CCCH: • Outlined RSTO partnerships in QLD • Advocated for investment in hubs, health checks & sustained nurse home visiting, a common lead indicator framework to guide solutions SVA: • Advocated for health checks and sustained nurse home visiting, continuity of carer, investment in midwifery and nurse workforces, data collection, systems and reporting on participation in ANC and SNHV	Responses not made public

OPPORTUNITY NAME	DATE	DESCRIPTION	LINK
Productivity Commission—draft report ECEC	Feb 2024	The PC called for responses and information requests on a draft report of A pathway to universal ECEC. RSTO recommended: • embedding key indicators of quality, quantity and participation data at all levels • embedding continuous improvement across ECEC • improved access for children facing disadvantage SVA recommended: • Prioritise and accelerate action to improve equity in the system • Governance and stewardship	RSTO submission SVA submission Prof Sharon Goldfeld transcript (SG transcript) Suzie Riddell transcript (SR transcript)
Nexus—Place-based data journey model and action plan	May 2024	RSTO was invited to feedback on draft place-based data journey model and action plan developed as a collaborating partner for Nexus. RSTO recommended: • An increased focus on and articulation of the supports required and enablers of shared decision making • Clarification of 'suitable' data to be timely, sufficient to aid decision making (such as lead indicators) , and has meaning at different levels (community, government) • Further articulation of how place-based work would influence change at a government level.	Responses not published
Australian Public Service place-based principles	October 2024	The APS developed a place-based principles guidance document for APS staff undertaking place-based work. RSTO: • Highlighted the need for the principles to account for entrenched community disadvantage • Promote the role of community-led decision making, supported by capability uplift and enabled by responsive government decisions • Promoted the need for lead indicators to be embedded in learning frameworks	Responses not published
Foundational Supports	Dec 2024	DSS led a consultation to understand family, and sector needs in relation to planning the implementation of Foundational Supports for young children. SVA: • Recommended the planning and implementation of Foundational Supports to be supported by an appropriate framework of lead indicators, and supported by capability uplift.	Submissions not *yet* public
DSS Review of Family and Child Activity	Feb 2025	DSS invited feedback on programs funded under Family and Child Activity review—which includes Communities for Children / parenting programs. RSTO: • highlighted benefits of parenting programs for families experiencing disadvantage • highlighted the lack a consistent indicator framework for parenting programs, particularly quality • outlined our work to develop indicators for these	Responses not *yet* public

APPENDIX C.
RESTACKING THE ODDS IMPACT MONITORING SURVEY

Note, surveys delivered pre-RSTO implementation ask about barriers using "data"; this term is replaced with "lead indicators" immediately after implementation commencement and lead indicator concept introduction.

	TO WHAT EXTENT DO YOU AGREE WITH THE FOLLOWING STATEMENTS?		RESPONSE				
COM-B	**TDF Domain**	**Statement**	**Strongly Disagree**	**Disagree**	**Neither disagree nor agree**	**Agree**	**Strongly Agree**
Capability	Skills	I have the skills necessary to find, interpret, and communicate quality, quantity, and participation data	☐	☐	☐	☐	☐
	Knowledge	I understand how to use quality, quantity, or participation lead indicators to inform decisions about service delivery.	☐	☐	☐	☐	☐
	Memory, attention, decision making	I forget to use quality, quantity, and participation lead indicators.	☐	☐	☐	☐	☐
	Behaviour regulation	Using quality, quantity, or participation lead indicators is part of my routine.	☐	☐	☐	☐	☐
Opportunity	Environmental context	My service provides me with sufficient education, training, or resources to help me use quality, quantity, and participation data to inform service delivery.	☐	☐	☐	☐	☐
	Environmental context	My team and I don't have enough time to use lead indicators to inform service delivery.	☐	☐	☐	☐	☐
	Social Inf	My team and/or leadership see the value in, and encourage, the use of quality, quantity, and participation lead indicators with the service.	☐	☐	☐	☐	☐

	TO WHAT EXTENT DO YOU AGREE WITH THE FOLLOWING STATEMENTS?		RESPONSE				
COM-B	**TDF Domain**	**Statement**	**Strongly Disagree**	**Disagree**	**Neither disagree nor agree**	**Agree**	**Strongly Agree**
Motivation	Consequences	I believe using quality, quantity, and participation lead indicators at our service will lead to improved child outcomes	☐	☐	☐	☐	☐
	Reinforcement	I get praised when I use lead indicators to inform service delivery	☐	☐	☐	☐	☐
	Professional role and identity	I don't feel like using quality, quantity, and participation lead indicators is an important part of my role	☐	☐	☐	☐	☐
	Beliefs about capabilities	I feel confident that I can use quality quantity, and participation lead indicators to inform service delivery and improvement.	☐	☐	☐	☐	☐
	Intentions	I don't intend to use quality, quantity, or participation lead indicators.	☐	☐	☐	☐	☐
	Emotion	I feel stressed, worried, or annoyed about using quality, quantity, and participation lead indicators to inform decisions about service delivery.	☐	☐	☐	☐	☐
	Optimism	I optimistic that my service's engagement with RSTO will help improve child outcomes	☐	☐	☐	☐	☐
	Goals	I have plan for using quality, quantity, or participation lead indicators (e.g., how, when).	☐	☐	☐	☐	☐

APPENDIX D.
BARRIERS AND ENABLERS

Aim

To identify the factors that need to change to increase lead indicator data-utilisation behaviours (i.e. collecting, analysing, and using data to inform decisions). Semi-structured interviews were conducted with 68 Australian early childhood service providers to understand:

- what data-utilisation barriers are encountered? and
- what factors are considered useful for increasing data-utilisation behaviours?

Design

The study utilised a descriptive qualitative design with semi-structured interviews and thematic analysis guided by the COM-B and the TDF that underpins it.[17]

Sample

Using a purposive sampling method, 68 service providers were recruited from a range of early childhood service settings, in four Australian states (Queensland, New South Wales, Victoria, and Tasmania). This included representatives working in:

- Parenting Programs (n=18),
- Early Childhood Education and Care (n= 15),
- Sustained Nurse Home Visiting (n=6),
- Antenatal Care (n= 21), and
- Place-based Initiatives (n=8).

Participants were identified via publicly available information (e.g., service directories), snow balling, and existing study contacts previously engaged with the RSTO team in earlier phases of the research program. Eligibility criteria specified that participants could include program facilitators, service delivery managers or executives, organisational research and development staff, and policy makers involved or interested in data utilisation activities (i.e., data collection, analysis, reporting or decision-making). Invitations to participate were made via phone call or email and all participants were offered a $20 supermarket voucher as a token of appreciation for their time and expertise.

Data collection

Semi-structured interviews were conducted in 1:1 or small group format (2 or 3 participants). They took place via online meeting platforms (e.g., Zoom, MS Teams) or in-person at the service provider's workplace. Interviews commenced with information about the project aims, description of RSTO lead indicators, and examples relevant to the participant's service strategy. Data-utilisation barriers and enablers were then discussed with prompts provided by an interview guide informed by the COM-B and TDF. All interviews were audio-recorded and transcribed verbatim using an Australian transcription service.

Data analysis

Coding and analysis were guided by a team-developed codebook based on the COM-B and TDF. Researchers read each transcript in full, then used the codebook to categorise participant statements according to the COM-B factors and underlying TDF domains. An inductive thematic analysis was then conducted to understand the overarching themes that underpinned similar barriers and enablers. Weekly team meetings were conducted to check any responses that were initially difficult to code. Barriers and enablers were considered particularly important when they were discussed at length by a participant, were identified by several participants, or when a participant explicitly indicated that it was important.

APPENDIX E.
DATA LITERACY INTERVENTIONS

Aim

To identify effective workforce data-literacy interventions and analyse how the specific techniques and features of effective interventions would work to increase data-utilisation.

Design

The review followed a restricted systematic design, which maintains the core principles of a full systematic review while streamlining certain processes to provide critical insights more efficiently. The process was primarily accelerated by restricting the search scope, selection criteria, and number of studies subject to double coding procedures. Methodological decisions were guided by established recommendations (PRISMA, SWIM), and the study protocol was publicly pre-registered on the PROSPERO database (CRD 42022381849).

Search and study selection

A comprehensive search was conducted across five academic databases: ERIC, PsycINFO, CINAHL, Medline, and PubMed. Search terms covered service settings, interventions, and data utilisation outcomes. Additional sources such as research registers and reference lists of relevant studies were also searched. We included for review independent groups studies that evaluated the effects of data literacy interventions on either of the following: (a) data-specific knowledge, skills, beliefs, attitudes or intentions, or (b) data utilisation practices such as data-collection, data-analysis or reporting, or data-based decision-making.

We excluded studies that lacked a comparison group or did not focus on data utilisation in one of the five RSTO early childhood service settings. Grey literature and non-English studies were also excluded. To ensure rigour, a randomly selected subset of publications was reviewed by two researchers. More than 5,000 publications were screened and 12 met eligibility criteria.

Data extraction and analysis

We extracted data from eligible studies to identify effective interventions and applied the Behaviour Change Wheel framework to analyse the specific strategies that effective interventions utilised to build workforce capability, opportunity, and motivation to engage in data-based decision-making.

Further information

For more detailed information about the systematic review of data literacy interventions see the full published report: Beatson, R., Macmillan, C.M., Sherker, S., Hilton, O., Goldfeld, S., Molloy, C. (2025). Improving data-based decision-making in early childhood services: A systematic review informed by the Capability Opportunity and Motivation model of Behaviour. Child & Youth Services, 1-28. https://doi.org/10.1080/0145935X.2025.2468185

APPENDIX F.
CO-DESIGN

Design

The prototypes were informed by:

- Research investigating service provider and community barriers to collecting and using lead indicators (see 'Barriers and enablers' section),
- International literature review of data literacy interventions (see 'Data literacy interventions' section), and
- A co-design process with experts, service providers and communities.

Sample

To ensure relevance and usability, the prototypes were co-designed with service providers and communities through:

- Research & Discovery—Understanding user needs through interviews and workshops
- Ideation & Concept Development—Generating and refining ideas collaboratively
- Prototyping & Testing—Developing, testing, and refining prototypes based on user feedback

By integrating evidence of best practices with local insights, the prototypes are designed to be both effective and user-centred, fostering engagement and impact.

Data collection

The survey (Appendix C). Restacking the Odds Impact monitoring survey) aimed to understand and track barriers that partners experience using data. It was implemented at various times throughout the implementation process. It allowed RSTO to identify specific barriers the partner experienced, track progress addressing those barriers, monitor for new or reoccurring barriers, and allowed prioritisation of activities and approaches to address persistent barriers.

APPENDIX G.
CONTINUOUS IMPROVEMENT ACTIVITIES

SITE	SERVICE-IDENTIFIED PRIORITY INDICATOR	CHALLENGE IDENTIFIED	OBJECTIVE	ACTIONS UNDERWAY	PRELIMINARY RESULTS AND ACTIONS
Site 1 **Early Childhood Education and Care**	**Quality:** The proportion of early childhood education and care (ECEC) services rated 'exceeding' the standard in quality areas 1, 4 and 5 and at least 'meeting' the standard in all other quality areas according to the ACECQA assessment	Only one of seven ACECQA quality areas did not meet RSTO minimum rating at the most recent assessment: quality area 4. Service investigation into barriers achieving an "exceeding" quality area 4 rating, suggested the preschool transition and orientation process did not have enough focus on rapport building, need to be more personalised, child-centred (as opposed to parent-centred), and to be the same for all new pre-school student irrespective of whether they had had an older sibling already transition. The transition process differed between educators.	To improve ECEC quality, specifically quality area 4[1]: develop warm, respectful relationships with children, create safe and predictable environments and encourage children's active engagement in the learning program More specifically, they were trying to build stronger relationships with children and families, particularly those starting preschool .	Refining the transition process for children moving from childcare to preschool by establishing transition checklists with training to guide implementation of key activities over the 5-week period (e.g., schedule a catch up between former and new educators, introduce the new educator to the child, and organise a lunch in the new class).	Additional time is required to obtain and reflect on the data to assess impact due to ACECQA's intermittent assessments. However, anecdotally, the results are positive. For example: "*We have had a number of instances of positive feedback from families and staff about the quality of the transition process this time round.*" Practitioners continue to reflect and refine the process. They anticipate improved quality when next assessed.

SITE	SERVICE-IDENTIFIED PRIORITY INDICATOR	CHALLENGE IDENTIFIED	OBJECTIVE	ACTIONS UNDERWAY	PRELIMINARY RESULTS AND ACTIONS
Site 2 **Early Childhood Education and Care**	**Quantity 1:** Number of ECEC places per target population (2-5 years) per 15 hours per week	Data showed majority of children (56%) in the community were missing out on ECEC due to there being no places available for them.	Increase the number of 15 hours placed available at the service's ECEC sites.	The service engaged in advocacy and submitted applications for NSW Department of Education funding to increase the number of 15 hour places available	The service made an application for additional funding for additional places. The first application was unsuccessful, and the service was unable to influence the data. The service submitted several funding applications and has now secured funding for additional places.

APPENDIX H.
RESULTS FROM OBSERVATIONS, INTERVIEWS AND SURVEYS CONDUCTED WITH IMPLEMENTATION PARTNERS

COM-B DOMAIN	DATA USE BARRIERS BEFORE RSTO	IMPACT ON BARRIERS AFTER 1 CI SESSION USING DASHBOARD AND LEAD INDICATORS[1]	IMPACT ON BARRIERS DURING CI PROGRAM		IMPACT ON BARRIERS AFTER CONSISTENTLY IMPLEMENTING RSTO AFTER ONE YEAR IMPLEMENTING RSTO AND ENGAGING IN CI PROGRAM (USING DASHBOARD AND LEAD INDICATORS)[3]
			CI SESSIONS USING DASHBOARD AND LEAD INDICATORS[2]	COMMUNITY OF PRACTICE FORUM	
Capability	**Interviews with leadership:** Lack of data literacy skills within the team to translate and interpret data and to know what to do with the data *(e.g., "too inexperienced [to use data]"; "very unfamiliar with where to even begin"; "I have a lack of knowledge when it comes to data and how to use it".* A lack of understanding about what data is important for service improvement. A lack of understanding among data collectors about the importance of complete and accurate data and the implications for data use.	**Service changes:** By the end of the first session: Some practitioners were independently interpreting trends in the data in the they were seeing in dashboard. Identifying potential solutions to improve the data. Practitioner survey: All participants surveyed reported understanding how to use data and lead indicators. Large increase: feeling they had the skills to use data (increased from 50% to 80%)	**Observation:** As practitioners started looking at more complex data, additional gaps in skills and knowledge presented (that could then be addressed in future CI sessions). Practitioner survey: RSTO lead indicator use becoming more routine (Fluctuates. Drops then steadily increases.	**Observation:** When observing how other services were using data, practitioners identified strategies to embed lead indicator use into their own routine (e.g., existing meetings) and to help remind them to use lead indicators when making decisions in those meetings.	**Observation:** Services routinely uploading data to the dashboard without support and remembering without prompting. Practitioners routinely using dashboard and their own locally collected data to understand barriers to service quality and participation Practitioners have embedded the use of CI tools to facilitate team discussions when unpacking barriers and identifying solutions

COM-B DOMAIN	DATA USE BARRIERS BEFORE RSTO	IMPACT ON BARRIERS AFTER 1 CI SESSION USING DASHBOARD AND LEAD INDICATORS[1]	IMPACT ON BARRIERS DURING CI PROGRAM		IMPACT ON BARRIERS AFTER CONSISTENTLY IMPLEMENTING RSTO AFTER ONE YEAR IMPLEMENTING RSTO AND ENGAGING IN CI PROGRAM (USING DASHBOARD AND LEAD INDICATORS)[3]
			CI SESSIONS USING DASHBOARD AND LEAD INDICATORS[2]	COMMUNITY OF PRACTICE FORUM	
Capability	**Practitioner survey:** Data use is not part of routine practice Lack of skills; and/ or understanding to find, interpret and use data			**Practitioner survey:** Increased problem solving skills using data through *"collaboration and talking things out with colleagues, get various perspectives to think really deeply".*	**Practitioner survey:** All (100%) participants reported they: Understand how to use quality, quantity, or participation lead indicators to inform decisions about service delivery. Remember to use lead indicators Increase in lead indicator use being routine (75%).

COM-B DOMAIN	DATA USE BARRIERS BEFORE RSTO	IMPACT ON BARRIERS AFTER 1 CI SESSION USING DASHBOARD AND LEAD INDICATORS[1]	IMPACT ON BARRIERS DURING CI PROGRAM		IMPACT ON BARRIERS AFTER CONSISTENTLY IMPLEMENTING RSTO AFTER ONE YEAR IMPLEMENTING RSTO AND ENGAGING IN CI PROGRAM (USING DASHBOARD AND LEAD INDICATORS)[3]
			CI SESSIONS USING DASHBOARD AND LEAD INDICATORS[2]	COMMUNITY OF PRACTICE FORUM	
Opportunity	**Interviews with leadership:** Data availability and access (no data, or inaccessible data) (e.g., in PP there is limited or no data available, there is no method of priority group data monitoring; in ANC there are capacity and capability barriers preventing extraction, of existing data. For "easy" variables that can be accessed there is a 2.5 month delay between request, and data, and a lack of funding to address the barrier). Capacity to extract, analyse the data, and meaningfully translate data (e.g., graphs), mostly due to a highly manual process and the need to integrate data from multiple data management systems. A lack of top-down prioritisation from executive and/or government (and thus funders) to support data use and address data use barriers.	**Service changes:** Immediate changes to data collection: Collecting lead indicator data for the first time. Collecting client priority group demographic information. Adjusting location of data entry to support data extraction and use. Brief education and training about where to insert data, what data needs to be entered, why complete and accurate data is important, how leadership and executive use data. **Practitioner survey:** All participants now reported their team and leadership saw the value in and encouraged the use of using lead indicators. Large increase in feeling their service provided sufficient education, training, or resources to use data.	**Observation:** As practitioners practiced using the dashboard their capacity to use lead indicators increased (they became more efficient) Practitioners started identifying additional data collection opportunities to understand the local barriers preventing optimal quality, quantity, and participation. They developed tools (e.g., parent and/or child surveys) and collected data (e.g., in ECEC: *"what do you like or dislike most about coming to [service]"*. This allowed targeted PSDAs and action plans. **Practitioner survey:** Fluctuations in: Feeling leadership see the value in and encouraged the use of using lead indicators (after initial increase to 100%, then dropped and fluctuated.	**Observation:** The CoP strengthened a positive data culture through peer demonstrations. Leadership attended CoP and shared the value of data and reiterated their commitment to supporting their team. **Practitioner survey and interview:** Increased learning and collaboration opportunities: *"Learn what strategies other services have tried and tested, and which were successful"; opportunity to come together with different organisations or different parts of [our organisation] and actually unpack and learn what people are doing and what that looks like, and if it's successful and if it's not successful. So, I really think it's going to help the organisation and other sectors see overall quality and what that looks like".*	**Observation:** Practitioners have initiated regular internally led meetings outside of planned RSTO workshops to discuss data, lead indicators and CI Practitioners have started to bring more junior level staff members into the improvement team and CI discussions, allowing for sustainability of knowledge and increased team culture around data-informed CI. One ECEC organisations now recognising team CI efforts in staff newsletters and end of year reports. **Practitioner survey:** All (100%) participants reported they: Have the skills necessary to find, interpret, and communicate quality, quantity, and participation data.

COM-B DOMAIN	DATA USE BARRIERS BEFORE RSTO	IMPACT ON BARRIERS AFTER 1 CI SESSION USING DASHBOARD AND LEAD INDICATORS[1]	IMPACT ON BARRIERS DURING CI PROGRAM		IMPACT ON BARRIERS AFTER CONSISTENTLY IMPLEMENTING RSTO AFTER ONE YEAR IMPLEMENTING RSTO AND ENGAGING IN CI PROGRAM (USING DASHBOARD AND LEAD INDICATORS)[3]
			CI SESSIONS USING DASHBOARD AND LEAD INDICATORS[2]	COMMUNITY OF PRACTICE FORUM	
Opportunity	No access to efficient data management systems (in PP notes and excel spreadsheets are relied on; in ECEC different systems stored different data, and linking, aggregating, and analysing data was complex and highly manual). **Frontline worker surveys:** Lack access to sufficient education, training, or resources to help them use data Feel leadership don't value or encourage the use of data within the service				Feeling they are provided sufficient education, training, or resources to use lead indicators. Have enough time and capacity to use lead indicators Feel leadership see the value in and encouraged the use of using lead indicators

COM-B DOMAIN	DATA USE BARRIERS BEFORE RSTO	IMPACT ON BARRIERS AFTER 1 CI SESSION USING DASHBOARD AND LEAD INDICATORS[1]	IMPACT ON BARRIERS DURING CI PROGRAM		IMPACT ON BARRIERS AFTER CONSISTENTLY IMPLEMENTING RSTO AFTER ONE YEAR IMPLEMENTING RSTO AND ENGAGING IN CI PROGRAM (USING DASHBOARD AND LEAD INDICATORS)[3]
			CI SESSIONS USING DASHBOARD AND LEAD INDICATORS[2]	COMMUNITY OF PRACTICE FORUM	
Motivation	**Interviews with leadership:** Worker burn-out. **Frontline worker surveys:** Lack acknowledgement from leadership for using data (88%) No plans about how to use data Lack confidence using data Lack of insight into the value of data *"[don't] understand how it is relevant"* (qualitative response).	**Service changes:** Practitioners were engaged and immediately started identifying existing opportunities to embed data use, as well as goal setting (particularly for "quick wins" where changes can be made with limited resources in a short amount of time). **Practitioner survey:** All participants reported: Intending to use data no stress, worry, or annoyance about using data. Large increase in: Confidence using lead indicators Optimism about long-term impacts of implementing RSTO on child outcomes.	**Observation:** For some practitioners there appeared to be dips in motivation, mostly when capacity was strained (e.g., workforce pressures from sick leave) or when there were no or only small changes to data despite large effort, and optimism for large changes. **Practitioner survey:** Increase in having a plan for using data and goal setting. (steadily increases by 15-25% agreement each survey). Increased engagement: *"see the value and … seeing a difference in the stat [istics]"* after strategies were implemented (qualitative survey response).	**Observation:** The engagement in CoP was consistently very high. Leadership attended CoP and openly praised their staff. Practitioners shared learnings and multiple practitioners revisited and refined their PDSAs. **Interviews:** Increase goal setting: "*able to set goals and set actions … quickly found that the data was very useful."* **Practitioner survey:** Increased engagement and enjoyment: *"I am excited to learn more about this and look forward to seeing how I can use it in our everyday practice".*	**Observation:** Practitioners are: Highly engaged Independently using lead indicators and monitoring them via the dashboard to identify additional improvement opportunities, and to monitor previous gains to quickly act if there were drops Confidently engaging with the dashboard. **Interviews:** Increased engagement and intentions using data: "*I'm actually really motivated to see what the next set of stats will look like and present it"; "actually really saw a difference and wanted to make a difference."* Increase goal setting and seeing value in data: *"As soon as they started to see the data… perspective of it quite, quite quickly changed … able to set goals and set actions … they quickly found that the data was very useful".*

COM-B DOMAIN	DATA USE BARRIERS BEFORE RSTO	IMPACT ON BARRIERS AFTER 1 CI SESSION USING DASHBOARD AND LEAD INDICATORS[1]	IMPACT ON BARRIERS DURING CI PROGRAM		IMPACT ON BARRIERS AFTER CONSISTENTLY IMPLEMENTING RSTO AFTER ONE YEAR IMPLEMENTING RSTO AND ENGAGING IN CI PROGRAM (USING DASHBOARD AND LEAD INDICATORS)[3]
			CI SESSIONS USING DASHBOARD AND LEAD INDICATORS[2]	COMMUNITY OF PRACTICE FORUM	
Motivation					**Practitioner survey:** All (100%) participants reported they: Are optimistic RSTO implementation benefit child and family outcomes. Feel using lead indicators is an important part of their role Feel confident using lead indicators to improve service delivery. Intend to continue lead indicator use and have a plan (e.g. when, how). Believe that using lead indicators will improve child outcomes. No participant: Reported feeling stressed, worried or annoyed about using lead indicators.

Note. 1: The RSTO survey was introduced in 2024 to track barriers and enablers. The baseline data displayed in the table is for new partners who joined after the survey was developed. It was shared prior to the first CI session, then immediately after, and then intermittently after that time; 2: A survey was delivered to all CoP participants about the session, upon the conclusion of the session. This is a different survey to the barriers and enablers survey mentioned in note 1; 3: These results are based on ECEC partners who were consistently implementing RSTO after one year.