PRENATAL-TO-3 POLICY CLEARINGHOUSE EVIDENCE REVIEW

October 2024



Shared Book Reading Programs

Evidence Review Findings: Effective

Shared book reading programs provide free, age-appropriate books to children and families with training and guidance on how to read together. These programs promote nurturing and responsive child-parent relationships through the frequent practice of shared reading and the accumulation of literacy resources at home. Shared book reading programs also improve developmental outcomes by improving child language and vocabulary skills. States can support evidence-based shared book reading programs through direct state investments, and by leveraging federal funds through CHIP and the Maternal and Child Health Block Grant. The current evidence base does not provide clear guidance on the optimal funding type or best method for states to support shared book reading programs.

By providing access to children's books and parental training on how to read effectively, shared book reading programs can promote family bonding experiences and positive child development. There are many local shared book reading programs, and some have been implemented statewide. States can support them by leveraging federal funding or making direct investments into the programs. The current evidence base does not provide clear guidance for how states can best support shared book reading programs, and therefore, these programs are classified as a strategy—rather than a policy—for improving outcomes in the prenatal-to-3 period.

Decades of research in the field of child development have made clear the conditions necessary for young children and their families to thrive.¹ These conditions are represented by our eight policy goals, shown in Table 1. The goals positively impacted by shared book reading programs are indicated with a filled circle, and the goals theoretically aligned (but without evidence of effectiveness from strong causal studies) are indicated with an unfilled circle.

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Table 1: Impacts of Shared Book Reading Programs on Policy Goals

Positive Impact	Policy Goal	Overall Findings
0	Access to Needed Services	Trending null impacts on well-child visits
	Parents' Ability to Work	(Policy goal outside the scope of this review)
	Sufficient Household Resources	(Policy goal outside the scope of this review)
	Healthy and Equitable Births	(Policy goal outside the scope of this review)
	Parental Health and Emotional Wellbeing	(Policy goal outside the scope of this review)
	Nurturing and Responsive Child-Parent Relationships	Mostly positive impacts, especially on shared book reading practices and children's books at home
	Nurturing and Responsive Child Care in Safe Settings	(Policy goal outside the scope of this review)
	Optimal Child Health and Development	Mixed impacts, with beneficial impacts on children's vocabulary skills

What Are Shared Book Reading Programs?

The early years of a child's life lay the foundation for healthy development and learning, and this age period provides a crucial window of opportunity for infants, toddlers, and their families, including for language development.^{2,3} Early literacy developed in the first 3 years of life—also known as emergent literacy—refers to the skillset infants and toddlers need to develop before they can learn to read and write effectively in the future.⁶ These skills include expanding vocabulary, print knowledge, and understanding letter-sound connections (i.e., phonological awareness).⁷⁻⁹

Research indicates emergent literacy skills play a crucial role in child language and literacy development and are critical for school readiness and academic success.^{4,5} Reading, talking, and interacting regularly with infants and toddlers is shown to develop children's emergent literacy skills by stimulating their brain and motivating them to learn.^{49,50,54}

Shared book reading is a term used to describe the interactions between an adult and a child while reading a book together.¹⁸ Shared book reading programs deliver children's books to all families and children that are part of a participating group.¹⁷ For example, families may be able to participate because they live in a county that is eligible to receive the service or because they are patients at a participating pediatrician's office.

Shared book reading programs provide free, age-appropriate books to children and families with the goal of encouraging shared reading practices.¹⁸ These programs deliver books in a variety of ways-directly to the home, in health care clinics, and through local community partnerships (e.g., library, book fair). Often, there is a training component associated with these programs that focuses on how to read together effectively, ranging from reading tips on a handout to step-by-step inperson guidance.

A growing body of research supports shared book reading as an effective strategy to promote children's emergent literacy skills.¹⁹⁻²⁴ Although there are many local and statewide shared book reading programs (e.g., Dolly Parton's Imagination Library, Raising A Reader, Book Babiesⁱ), this evidence review focuses on the Reach Out and Read (ROR) program, because ROR is the only program that has been rigorously evaluated through randomized controlled trials (RCTs).

ROR gives every child a new, age-appropriate children's book at each well-child visit from birth through age 5; on average, a cumulation of 10 books throughout the program.²⁷ During the well-child visit, the clinician provides families anticipatory guidance (e.g., reading aloud strategies) as part of the ROR training component.²⁶ Frequently, ROR also has volunteers in clinic waiting areas modeling how to read aloud to children, showing parents the techniques of exploring books with children, and distributing reading strategies handouts that families can take home.²⁶

ROR was founded in 1989 at Boston Medical Center (formerly Boston City Hospital) by a group of pediatricians and early childhood educators.²⁸ Since then, ROR has grown drastically through both public and private funding. Today, ROR programs exist in all states and the District of Columbia, with approximately 6,200 program sites (36,000 trained clinicians), serving 4.4 million children, and providing 7.1 million books each year across the country.²⁸

Who Is Affected by Shared Book Reading Programs?

ROR is a universal program, meaning all children birth to 5 years old and their parents are eligible to participate if their health care clinics are a part of the ROR program. Approximately 52 percent of participating families come from racial/ethnic minority backgrounds, and 79 percent come from families with low incomes.²⁹ ROR research samples are often comprised of immigrant families, Medicaid recipients, single parents, and parents with lower levels of education.³⁰⁻³³

Emergent literacy disparities exist across socioeconomic backgrounds. Gaps in children's vocabulary start to appear as early as 18 months of age, and by 24 months old, research has found a 6-month gap between high- and low-socioeconomic groupsⁱⁱ in speech processing skills critical to

ⁱ Book Babies has one randomized control study. However, this study does not meet our standard of rigor because of its high attrition rate. https://fpg.unc.edu/sites/fpg.unc.edu/files/resource-files/Book_Babies_Final_Report.pdf

^{II} Socioeconomic groups were based on the score of the Hollingshead Four Factor Index of Socioeconomic Status (HI; Hollingshead, 1975). The index is based on a weighted average of maternal education and occupation and has a score range from 8 to 66. Families were divided into low (HI<=45, n=23) and high (HI>47, n=25) sub-groups in this study, based on a median split of the HI scores in the sample.

language development.¹⁰ Motivated by the pioneer research of 30-million-word gap,^{11,iii} a recent replication study with a much larger sample shows that the word gap (i.e., the number of words children are exposed to) was estimated to be 4 million words between the highest and lowest socioeconomic groups^{iv} by 4 years of age. Although this average overall number of words is considerably smaller than the 30-million-word gap reported decades ago, it still highlights the crucial difference in daily language exposure in home environments across socioeconomic groups. Children whose mothers graduated from college are exposed to approximately 3,000 more words per day compared to children whose mothers did not have a high school degree or equivalent, which translates into a 4-million-word gap by 4 years of age between the highest and lowest socioeconomic groups.¹⁴

Infants and toddlers from families facing financial instability are less likely to experience activities and opportunities that foster their emergent literacy skills, compared to children from families with higher, more stable incomes.⁵¹ Shared book reading programs can address these disparities by getting books into the hands of families and children living in underserved communities.

What Are the Funding Options for Shared Book Reading Programs?

States can use both federal and state funding to support shared book reading programs. States can leverage federal funding mechanisms such as the Children's Health Insurance Program (CHIP) and the Maternal and Child Health (Title V) Block Grant to expand and sustain ROR.³⁵ States can also make direct investments in ROR, or they can include ROR in early literacy grants.

CHIP allows states to use up to 10 percent of CHIP funding to implement health services initiatives (HSI) focused on improving the health of eligible children.³⁶ States implementing HSI have flexibility to determine the type and scope of those initiatives. This approach allows states to receive federal matching funds for ROR activities.

Oklahoma and North Carolina are recent examples of states that used HSI funding to expand their ROR programs:

- In 2018, the Oklahoma Health Care Authority (OHCA) awarded ROR a 5-year contract for approximately \$200,000 annually, funded by unspent CHIP administrative funds. OHCA used the funds and collaborated with ROR Oklahoma in designing HSI to train pediatricians in how to promote early literacy, among other goals.³⁷
- In 2020, North Carolina used its CHIP funds to implement HSI and received approval to use federal matching funds to expand ROR. This approval allowed ROR to access up to \$3,013,000 through either state investments or private donations in meeting the federal matching funds requirement to begin new ROR initiatives.³⁸

ⁱⁱⁱ Hart and Risley conducted research in early 1990s and estimated that a 30-million-word gap (i.e., total number of words children are exposed to) exists by the age of 3 among 42 children from various socio-economic backgrounds. However, this study has been criticized by other scholars because of its small sample and data extrapolation problems.

^{iv} Socioeconomic groups were based on mothers' attained level of education. Mothers in the highest socioeconomic group have completed at least one college degree (n=84). Mothers in the lowest socioeconomic group do not have a high school degree or equivalent (n=45).

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States can also leverage federal Title V Block Grant funds to support ROR initiatives.³⁵ States must match every \$4 of federal Title V Grant with at least \$3 of state funding.³⁹

Arizona and Indiana are recent examples of states using these federal grant dollars to support ROR:³⁷

- In 2022, the Arizona Department of Health Services awarded ROR a multiyear grant of \$100,000 annually, funded by the state's federal Maternal and Child Health Grant. ROR Arizona is using the funds to provide training for pediatric clinicians and to distribute books at an additional 10,000 well-child visits.
- In 2020, the Indiana Department of Mental Health and Addiction awarded ROR \$250,000, funded by the state's federal Maternal and Child Health Grant. The funding enabled ROR Indiana to expand programming beyond the city of Indianapolis, train staff, and purchase books for new sites across the state.

Additionally, states can make direct investments in ROR through direct allocations to ROR or through state grants for early literacy programs. As of the end of Fiscal Year 2023, ROR had secured more than \$10.75 million in public funds across 23 states.⁴⁰ In Fiscal Year 2023, nine states made direct investments to ROR.^v Among the nine states, North Carolina and South Carolina each made a state investment of \$1 million or more.⁴⁰

Several states allocated funding for ROR in recent years, including:

- Illinois: \$500,000 was appropriated from the general fund to the Department of Public Health for a grant to the Illinois chapter of the American Academy of Pediatrics for ROR programming in Fiscal Year 2024.⁴³
- **Connecticut:** \$500,000 was appropriated to the State Library for each of the Fiscal Years 2024 and 2025. The appropriation is made available for grants in equal amounts to Dolly Parton's Imagination Library, Read to Grow, and ROR.⁴⁵
- **Minnesota:** The state made a onetime appropriation for a grant to ROR Minnesota to establish a statewide plan that encourages early childhood development through a network of health care clinics. The grant includes an allocation of \$250,000 for each of the Fiscal Years 2024 and 2025.⁴⁴
- **Michigan:** The state allocated up to \$4 million from the state school aid fund to improve children's access to books and other literacy materials in Fiscal Year 2025. This allocation includes Dolly Parton's Imagination Library, ROR, or any other shared book reading programs to children birth to age 5.⁴²
- **New Jersey:** The state allocated \$100,000 from the general fund for ROR programming in Fiscal Year 2025.⁴¹

Why Should Shared Book Reading Programs Be Expected to Impact the Prenatalto-3 Period?

Shared book reading programs aim to improve children's developmental outcomes through three pathways: (1) helping families accumulate early literacy resources, including a diverse range of children's books and shared reading guidance tailored by age; (2) promoting shared reading and

^v The nine states are CT, DE, GA, NC, NJ, OK, OR, SC, and WA.

emotional bonding between parents and children by encouraging routine reading practices and incorporating reading as a bedtime ritual; and (3) fostering vocabulary, language, and literacy development to lay the foundation for children's long-term academic success.^{18,46,47}

Because ROR is delivered in a pediatric health care clinic setting, the program may also motivate families to attend well-child visits regularly during the birth-to-3 period.⁴⁸ As a result, for families who participate in ROR, the program has the potential to increase attendance at well-child visits, strengthen parent-child bonding, and promote skills for school readiness.

What Impact Do Shared Book Reading Programs Have, and for Whom?

Shared book reading programs promote nurturing and responsive child-parent relationships through the frequent practice of shared reading and the accumulation of literacy resources at home. Shared book reading programs also promote child development by improving child language and vocabulary skills. To date, the current rigorous causal evidence base for shared book reading programs is limited to evaluations of ROR programs. Future research is needed that draws from other shared book reading programs.

The research discussed here meets our standards of evidence for being methodologically strong and allowing for causal inference, unless otherwise noted. Each strong causal study reviewed has been assigned a letter, and a complete list of causal studies can be found at the end of this review, along with more details about our standards of evidence and review method. The findings from each strong causal study reviewed align with one of our eight policy goals from Table 1.

The Evidence of Effectiveness table (Table 2) displays the findings associated with participating in shared book reading programs (beneficial, null,^{vi} or detrimental) for each of the strong studies (A through C) in the causal studies reference list. For each indicator, a study is categorized based on findings for the overall study population; subgroup findings are discussed in the narrative. Table 2 also includes our conclusions about the overall impact on each studied policy goal. The assessment of the overall impact for each studied policy goal weighs the timing of publication and relative strength of each study, as well as the size and direction of all measured indicators.

The Evidence of Effectiveness table is focused on studies that assess outcomes in the prenatal-to-3 period. Only three studies meet our causal criteria and are included in Table 2. One quasi-experimental study primarily recruited families who were Medicaid recipients from an urban clinic in Louisville, Kentucky.^A Approximately 200 families participated in the study. ROR intervention took place when infants were 2 to 24 months old. Among the participants, 85 percent of the sample were African American, more than 90 percent of the sample were single parents, and less than 10 percent of the sample had education beyond high school.

Two RCT studies primarily recruited Hispanic families from two urban clinics (no region reported), using separate populations from different time periods.^{B,C} Both studies had more than 100 participating families. ROR intervention took place when infants were 6 to 15 months old. One study

 $^{^{}vi}$ An impact is considered statistically significant if p \leq 0.05. Results with p-values above this threshold are considered null or nonsignificant.

reported that 59 percent of the sample was unemployed, and that 38 percent of the sample did not have a high school degree or equivalency.^C The other study did not report specific data on demographic information.^B

Of the three causal studies included in this review, none examined how outcomes differed by race or ethnicity (beyond simply presenting summary statistics or controlling for race/ethnicity). A rigorous evaluation of a policy's effectiveness should consider whether the policy has equitable impacts and should assess the extent to which a policy reduces or exacerbates pre-existing disparities in economic and social wellbeing.

Policy Goal	Indicator	Beneficial Impacts	Null Impacts	Detrimental Impacts	Overall Impact on Goal
Access to Needed Services	Well-Child Visits		С		Trending* Null
Nurturing and	Shared Reading Frequency	B, C			Mostly Positive
Responsive	Shared Reading Enjoyment	A, B, C			
Child-Parent	Number of Books	B, C			
Relationships	Library Card & Visits		B, C		
Optimal Child Health and Development	Vocabulary Skills	С	В		Mixed

Table 2: Evidence of Effectiveness for Shared Book Reading Programs by Policy Goal

*Trending indicates that the evidence is from fewer than two strong causal studies.

Access to Needed Services

Only one study included in this review examined the impact of ROR on families' attendance at wellchild visits. The study found no impact of ROR on this indicator.^c On average, families in both the ROR and control groups attended three well-child visits between 6 and 18 months old, compared to the recommended four visits by the American Academy of Pediatrics.

Nurturing and Responsive Child-Parent Relationships

Three studies included in this review examined the impact of ROR on household early literacy resources and parent-child reading behaviors. All three studies assessed the impact of ROR immediately after the intervention. The studies found mostly positive impacts of ROR in terms of how frequently parents and children read together, whether reading is their favorite activity, and the number of children's books at home.

ROR has positive impacts on shared reading frequency. Two studies show higher percentages of parents who reported shared reading at least 3 days per week among those participating in ROR (66% in Study B and 78% in Study C), compared to parents in control groups (22% in Study B and

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46% in Study C).^{B,C} After controlling for demographic and socioeconomic variables, the odds of parents reading to their child at least 3 times per week was 10.1 times greater in the ROR group than in the control group.^B One study also found 32 percent of parents in the ROR group reported shared reading at least 6 nights per week as part of bedtime ritual, compared to 13 percent of parents in the control group.^C

ROR also has positive impacts on parents' and children's enjoyment in shared reading. Three studies show higher percentages of parents in ROR groups reported shared reading being one of their favorite parenting activities, compared to parents in control groups (between-group differences ranged from 19% to 30%).^{A,B,C} The odds of parents reporting shared reading being their favorite parenting activity was 5.9 times greater in the ROR group than in the control group.^B One study also found 27 percent of parents in the ROR group reported shared reading being their children's favorite activity, compared to 12 percent of parents in the control group.^C

ROR has mixed impacts on early literacy resources, with beneficial impacts on the number of children's books at home, but null impacts on the possession of a library card and library visits. Two studies show higher percentages of families who had more than 10 children's books at home among those participating in ROR (73% in Study B and 61% in Study C), compared to parents in control groups (49% in Study B and 45% in Study C).^{B,C} However, no difference exists between ROR and control groups with respect to the possession of a library card, frequency in taking their child to the library, or a parent visiting library themselves.^{B,C} The number of children's books increased as a result of participating in ROR, but other literacy behaviors, such as visiting a library and checking out books, may not occur immediately after the intervention.

Optimal Child Health and Development

Two studies included in this review examined the impact of ROR on toddlers' vocabulary skills and found mixed impacts across different types of vocabulary skills assessed in the studies.^{B,C} One study found, after a 6-month intervention, children in the ROR group scored significantly higher by 11.7 percentage points on receptive vocabulary (i.e., ability to understand words) than children in the control group at 18 months.^B Although not statistically significant, children in the ROR group also scored higher by 6.2 percentage points on expressive vocabulary (i.e., ability to produce words) than children in the control group at 18 months. However, another study found a null impact of ROR on toddlers' overall vocabulary scores.^C

Additional Insights on ROR Enhancement Programs

ROR enhancement programs provide additional support for families (e.g., start as early as newborn, text reminders to read). Two recent RCT studies examined the impacts of ROR enhancement programs.^{D,E} These two RCT studies did not compare ROR to the control group; instead, they compared between ROR enhancement and standard groups. Therefore, these two studies are not included in Table 2 and are not discussed within the main evidence on the effectiveness of the ROR model more generally.

One RCT study examined the impact of an early promotion ROR program which started at the newborn well-child visit, compared to the standard promotion ROR program which started at 6-

9

month well-child visit.^D This study found that compared to parents in the standard program, parents in the early-start program scored higher on a questionnaire assessing home literacy environment at 6 months of age.

Another RCT study examined the impact of an ROR-plus program, in which videos and text messages were used to promote shared book reading, compared to the standard ROR program.^E This study found that compared to parents in the standard program, parents in the ROR-plus program scored higher on the questionnaire assessing home literacy environment at 15 months.

These two studies suggest that ROR enhancement programs might enrich the home reading environment beginning at infancy, reflective of more books at home, more frequent shared reading, and more responsive parent-child interactions. However, these enhancement programs do not appear to be widely implemented, nor have they been comprehensively included in the research. Future studies should examine the long-term impacts on child health and developmental outcomes of ROR enhancement programs.

Is There Evidence That Shared Book Reading Programs Reduce Disparities?

None of the experimental studies in this review explored reductions in disparities or identified differential impacts by race, ethnicity, or socioeconomic status. Future research is needed to explore the impacts of shared book reading programs on different demographic groups.

Nonetheless, two observational studies highlight the potential of ROR in reducing disparities across racial/ethnic and socioeconomic groups. One study found, after controlling for child age and parental education, the odds of Hispanic parents demonstrating child-centered literacy orientation was 5.4 times greater in the ROR group than in the control group.³⁴ However, this study did not compare Hispanic parents to White parents.

Another observational study found the difference in attending well-child visits before and after receiving ROR was the largest among Hispanic families (odds ratio = 2.5), compared to Black families (odds ratio = 2.0) and White families (odds ratio = 0.7).³² The same study also found that the difference in well-child visit attendance before and after receiving ROR was larger among parents who did not have a high school degree (odds ratio = 2.8), than parents who had a high school degree (odds ratio = 1.3). Because this study did not use an RCT research design, we cannot assume causality on the impacts of ROR. Nonetheless, these findings suggest that shared book reading programs may play a crucial role in reducing disparities in public health outcomes.

More experimental research is needed to establish whether shared book reading programs reduce disparities in outcomes for parents and children by race, ethnicity, and socioeconomic status. Future research should also examine specific policy levers that states could adopt to effectively provide shared reading materials to families and ensure equitable access to these resources.

Has the Return on Investment for Shared Book Reading Programs Been Studied?

No strong causal evidence has evaluated the cost effectiveness of shared book reading programs.

What Do We Know, and What Do We Not Know?

Shared book reading programs show beneficial impacts on outcomes in the birth-to-3 period with respect to shared reading materials, practices, and enjoyment within parent-child dyads.^{A,B,C} These programs also show preliminary benefits to vocabulary development among toddlers.^C

Some observational evidence highlights the possibility of ROR reducing racial disparities with respect to well-child visit attendance for Hispanic families,^{32,34} but one rigorous study suggests null impacts.^A To date, the rigorous research base for shared book reading programs is limited to evaluations of Reach Out and Read (ROR).

The studies included in this review were limited by smaller sample sizes (total N<200), crosssectional research design, and a focus on urban areas.^{A,B,C} Future research is needed to examine the potential impacts of shared book reading programs at scale beyond the foci of shared reading materials and behaviors. According to the theory of change of shared book reading programs, early shared reading experiences lay the foundation for school readiness.^{18,46,47} Therefore, it is important to examine the effects of shared book reading programs on children's kindergarten readiness using experimental and longitudinal research designs. More diverse samples across racial/ethnic and socioeconomic groups in greater geographical locations are also needed to build the current evidence base for shared book reading programs.

Future research is needed that draws from other shared book reading programs, such as Dolly Parton's Imagination Library (DPIL).²⁵ DPIL has been implemented globally and has a rich evidence base built on large, diverse samples. However, many studies used qualitative approaches in examining the impacts of the program. Importantly, all studies that evaluated the effectiveness of DPIL to date are based on families who voluntarily chose to participate in the program. As such, no randomization of experimental design is used to compare between families who are offered the program and those who are not. Nonetheless, observational studies suggest that DPIL is positively associated with parent-child literacy interactions, children's literacy and language skills, and kindergarten readiness.^{11,12,52,53}

Are Shared Book Reading Programs an Effective Policy for Improving Prenatal-to-3 Outcomes?

The current evidence base demonstrates the effectiveness of ROR at promoting nurturing and responsive child-parent relationships and optimal child health and development. States can support ROR through direct state investments, and by leveraging federal funds through CHIP and the Maternal and Child Health Block Grant.

How Did We Reach Our Conclusions?

Method of Review

This evidence review began with a broad search of all literature related to the policy and its impacts on child and family wellbeing during the prenatal-to-3 period. First, we identified and collected relevant peer-reviewed academic studies as well as research briefs, government reports, and working papers, using predefined search parameters, keywords, and trusted search engines. From

this large body of work, we then singled out for more careful review those studies that endeavored to identify causal links between the policy and our outcomes of interest, taking into consideration characteristics such as the research designs put in place, the analytic methods used, and the relevance of the populations and outcomes studied. We then subjected this literature to an indepth critique and chose only the most methodologically rigorous research to inform our conclusions about policy effectiveness. All studies considered to date for this review were released on or before July 31, 2024.

Standards of Strong Causal Evidence

When conducting a policy review, we consider only the strongest studies to be part of the evidence base for accurately assessing policy effectiveness. A strong study has a sufficiently large, representative sample, has been subjected to methodologically rigorous analyses, and has a wellexecuted research design allowing for causal inference—in other words, it demonstrates that changes in the outcome of interest were likely caused by the policy being studied.

The study design considered most reliable for establishing causality is a randomized controlled trial (RCT), an approach in which an intervention is applied to a randomly assigned subset of people. This approach is rare in policy evaluation because policies typically affect entire populations; application of a policy only to a subset of people is ethically and logistically prohibitive under most circumstances. However, when available, RCTs are an integral part of a policy's evidence base and an invaluable resource for understanding policy effectiveness.

The strongest designs typically used for studying policy impacts are quasi-experimental designs (QEDs) and longitudinal studies with adequate controls for internal validity (for example, using statistical methods to ensure that the policy, rather than some other variable, is the most likely cause of any changes in the outcomes of interest). Our conclusions are informed largely by these types of studies, which employ sophisticated techniques to identify causal relationships between policies and outcomes. Rigorous meta-analyses with sufficient numbers of studies, when available, also inform our conclusions.

Studies That Meet Standards of Strong Causal Evidence

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