


Reach Out and Read and developmental screening: using federal dollars through a health services initiative

Marny Dunlap ¹, Lori Lake,² Shelly Patterson,³ Bryon Perdue,³ Alexandria Caldwell¹

¹Pediatrics, The University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma, USA

²Reach Out and Read Oklahoma, Oklahoma City, Oklahoma, USA

³Oklahoma Health Care Authority, Oklahoma City, Oklahoma, USA

Correspondence to

Dr Marny Dunlap, Pediatrics, The University of Oklahoma Health Sciences Center, Oklahoma City, OK 73104, USA; marny-dunlap@ouhsc.edu

Accepted 31 December 2020
Published Online First 13 January 2021

ABSTRACT

Oklahoma established the first health services initiative (HSI) to expand Reach Out and Read (ROR), increase developmental screening and improve the quality of well-child visits (Early and Periodic Screening, Diagnostic and Treatment (EPSDT)). ROR uses a book in the exam room to assess development and parent-child interaction, however, little is known about the relationship between this training and using a formal developmental screening tool. The purpose of this study is to see if using federal funding would facilitate ROR expansion and if this expansion would improve developmental screening and EPSDT visits in Oklahoma. Medicaid billing data for state fiscal year (SFY) 2018 and 2019 were analyzed. Standard statistical methods were used to analyze the data descriptively to determine the proportion of developmental screenings performed and EPSDT visits. Comparisons were made between ROR and non-ROR sites. Nine new ROR sites were added with 26 new providers/staff and 130 providers/staff at existing sites trained in ROR from November 2018 to June 2019. In SFY 2018, the developmental screening percentage at non-ROR sites was 33% vs 47% at ROR sites ($p < 0.0001$), in SFY 2019 non-ROR sites were 36% vs 48% at ROR sites ($p < 0.0001$). The EPSDT visit percentage in SFY 2018 was 50% at non-ROR sites vs 69% at ROR sites and in SFY 2019 was 51% at non-ROR sites vs 72% at ROR sites. HSIs are an effective way to fund ROR. Additional funding allowed for increased ROR sites and training. ROR sites are more likely to perform developmental screenings and EPSDT visits.

INTRODUCTION

Reach Out and Read (ROR) is an evidence-based early literacy intervention that takes place in primary care clinics that serve children across the USA.¹ The intervention consists of a three-part model where at each wellness visit for children aged 6 months through 5 years of age, children are exposed to a literacy-rich clinic environment where they are given a developmentally appropriate new book to keep, and their parents are provided with literacy-based anticipatory guidance from their primary care provider.¹ ROR is implemented across >6000

primary care practices across the country and almost 100 sites in Oklahoma.² Parents of children who participate in ROR are more likely than those who do not participate to report reading to their children and enjoying reading as a favorite activity, and their children have higher receptive and expressive vocabulary scores.^{3–9}

While ROR has proven to be an effective way to promote early literacy and school readiness, challenges with the program exist, including that of funding. This has been particularly difficult in Oklahoma where ROR does not receive any state funding. However, the State Children's Health Insurance Program (CHIP) allows states to use a limited amount of CHIP funding (up to 10%) to implement health services initiatives (HSIs) focused on improving the health of eligible children (§ 2105(a)(1)(D)(ii) of the Social Security Act).¹⁰ States implementing HSIs have flexibility to determine the type and scope of HSIs. Under the CHIP HSI option, states receive the federal CHIP matching rate for expenditures associated with HSIs.¹⁰ This project aimed to find innovative ways to expand ROR funding in Oklahoma through an HSI, increase ROR training for providers and staff, improve the quality of the well-child visit (WCV) and increase developmental screening.

METHODS

Setting up a health services initiative

Since Oklahoma was the first state to use an HSI to fund ROR, it took multiple years to develop this project. Our story began about 4 years ago with a brainstorming meeting at the Oklahoma Healthcare Authority (OHCA). OHCA was looking for ways to increase rates of developmental screening and WCVs among individuals covered by Medicaid. The University of Oklahoma (OU) and ROR were interested in expanding the reach and use of ROR by providers in Oklahoma and exploring the potential for funding options from Medicaid. The outcome: a proposal to partner and use Medicaid matching funds to help support the infrastructure of ROR Oklahoma as a vehicle to improve the quality of healthcare visits for young children in Oklahoma. Towards that end,



© American Federation for Medical Research 2021. No commercial re-use. See rights and permissions. Published by BMJ.

To cite: Dunlap M, Lake L, Patterson S, et al. *J Investig Med* 2021;**69**:897–900.

a project team was developed that consisted of members from OHCA, ROR Oklahoma and OU. The initial idea was to use a direct administrative match where every state dollar was matched one-to-one by federal dollars. The project team had calls with both national and regional Centers for Medicare and Medicaid Services (CMS) staff. The advice was that a state needed to officially submit a plan to be approved. The team had much discussion over the years and finally decided the best plan for Oklahoma was to use an HSI. HSIs allow more flexibility for the states and can also be used to serve children not covered by Medicaid. Oklahoma has been successful with previous HSI projects, so this was the route we chose to use.

An HSI provides significant federal dollars for a small investment from the state depending on their annual matching rates. Oklahoma does not have a state appropriation for ROR so private dollars were raised to provide the matching funds for the state. This project was a collaboration between a private foundation, OU, OHCA and ROR. OU partnered with OHCA to expand ROR in Oklahoma, increase ROR training for providers and staff, improve the quality of the WCV and increase developmental screening. OHCA and OU developed an interagency agreement in which OU provided for the state share matching funds. ROR Oklahoma was contracted by OU to carry out the work of the project.

To implement an HSI, states must submit a state plan amendment (SPA) detailing the proposed initiative to CMS for approval.¹¹ States may submit plans at any time, but a given state may have specific times they present proposals. Oklahoma typically submits proposals in the fall and spring. An HSI must be intended to directly improve the health of children in low-income households and to serve children who are eligible for but not enrolled in Medicaid or CHIP. Although focused on improving the health of children in low-income households, the initiatives may serve children regardless of income and are not bound by the same state-wide requirements that govern regular CHIP benefits.¹² To receive funding, states must demonstrate the need for the HSI, identify the source of state funding, describe how the proposal will target improving the health of low-income children, estimate the number of low-income children who will be served, identify the timeframe for the project and meet the defined program design criteria.¹³

Project details

SoonerCare (Oklahoma's Medicaid) billing data from the OHCA was used to determine the percentage of developmental screenings per WCV. Data from the National ROR data base, www.myror.org, was used to look at expansion and training numbers. A list of all ROR providers in Oklahoma was compiled. National Provider Identifier numbers were used to help the OHCA identify the providers. Trainees that do not bill under their own Medicaid number, and providers that do not bill SoonerCare, were excluded. SoonerCare billing data for state fiscal year (SFY) 2018 and 2019 was compiled and analyzed by OHCA clinical outcome analysts. Comparisons were made between ROR participating and non-ROR participating providers. A χ^2 test was conducted to determine the relationship between provider groups and developmental screenings and the relationship between

provider groups and WCVs (Early and Periodic Screening, Diagnostic and Treatment (EPSDT)). Developmental screening data could not be accurately identified for Federally Qualified Health Centers (FQHC) sites that receive bundled payments. Paid claims for SoonerCare members between the ages of 9 months and 36 months were used to determine the percentage of members receiving developmental screenings by the number of children receiving WCVs. Procedure code 96110 was the primary code used to identify these screenings with 96112 being used at the request of a few providers. WCVs were indicated by the use of procedure codes 99381, 99382, 99383, 99384, 99385, 99391, 99392, 99393, 99394, 99395, 99460, 99461 and 99463 with specific associated diagnosis codes used in OHCA's EPSDT (WCV) federal reporting methodology. Paid claims for SoonerCare members between the ages of 6 months and 59 months were used to determine the percentage of members receiving WCVs by the number of members receiving any paid service. Billing providers were limited to hospitals, clinics, advance practice nurses, mid-level practitioners, public health agencies and physicians for claims with any paid service. The OU Institutional Review Board determined this does not meet the criteria for human subjects research (#12571). This was a secondary data analysis of Medicaid billing data so informed consent was not obtained.

RESULTS

This project took place from November 1, 2018 to June 30, 2019. During this period, nine new ROR sites were added. In addition, 26 new providers and staff were trained in ROR at new sites and an additional 130 providers and staff were trained at existing ROR sites.

OHCA analyzed 156 out of 282 ROR providers' billing data. In SFY 2018, the per cent of developmental screenings for those aged between 9 months and 36 months for all SoonerCare providers was 36%. For all non-ROR sites, the developmental screening percentage was 33% compared with 47% at ROR sites. Without FQHCs the non-ROR sites had a developmental screening percentage of 34% vs the ROR sites of 60% ($p < 0.0001$). In SFY 2019, the overall per cent of developmental screenings for all SoonerCare providers was 39%. The percentage for non-ROR sites was 36% and ROR sites was 48% ($p < 0.0001$). Excluding FQHCs, the proportion of developmental screenings performed at WCV was 37% at non-ROR sites and 61% at ROR sites (table 1).

For children between 6 months and 5 years the percentage of EPSDT (WCV) visits per all claims by member was 60% in SFY 2018 and 60% in SFY 2019 for all providers. In SFY 2018 for non-ROR providers the WCV percentage was 50% compared with 69% ($p < 0.0001$) for ROR providers (table 2).

In SFY 2019, WCV percentage was 51% for non-ROR providers and 72% for ROR providers ($p < 0.0001$). When excluding FQHCs the 2018 WCV percentage was 67% for ROR providers and 49% for non-ROR providers and the 2019 was 70% for ROR providers and 50% for non-ROR providers.

DISCUSSION

Oklahoma was the first state to implement an HSI using CHIP dollars to fund ROR activities. Partnership

Table 1 Percentage of developmental screens

State fiscal year	Provider group	Total members with a well-child (EPSDT) visit	Total members with developmental screenings	Percentage of developmental screens per EPSDT visit by member
2018	All providers	55,290	19,998	36
2018	Non-ROR	45,103	15,066	33
2018	Non-ROR Not FQHC	44,290	15,065	34
2018	All ROR	11,651	5436	47
2018	ROR Not FQHC	8995	5431	60
2019	All providers	54,648	21,289	39
2019	Non-ROR	44,832	16,343	36
2019	Non-ROR Not FQHC	43,761	16,343	37
2019	All ROR	11,155	5357	48
2019	ROR Not FQHC	8778	5355	61

*The total member count for all providers will differ from the sum of non-ROR and all ROR provider groups due to members having visits with more than one provider throughout the year.

EPSDT, Early and Periodic Screening, Diagnostic and Treatment; FQHC, Federally Qualified Health Centers; ROR, Reach Out and Read.

agreements between state Medicaid, a state university and ROR Oklahoma allowed the use of CHIP HSI dollars to help pay for the infrastructure of ROR. Implementation of this HSI helped expand ROR sites and training of providers and staff across the state. As the forerunner in developing a new use of HSIs, we faced a number of challenges including change in leadership and reorganization, concern about being the first state and assurance that this was an appropriate use of federal funding. We overcame these challenges by having a strong dedicated team of representatives from OHCA, ROR and OU dedicated to achieving the expansion of ROR. Building those relationships and persistence were the key ingredients in making the project a success.

Table 2 Percentage of well-child visits

State fiscal year	Provider group	All claims member count	EPSDT well-child visit member count	Percentage of EPSDT visits per all claims by member
2018	All providers	161,235	96,023	60
2018	Non-ROR	157,435	78,378	50
2018	Non-ROR Not FQHC	156,276	76,793	49
2018	All ROR	28,595	19,819	69
2018	ROR Not FQHC	2265	15,283	67
2019	All providers	157,601	95,252	60
2019	Non-ROR	154,005	78,023	51
2019	Non-ROR Not FQHC	151,965	76,046	50
2019	All ROR	26,958	19,315	72
2019	ROR Not FQHC	21,112	14,873	70

*The total member count for all providers will differ from the sum of non-ROR and all ROR provider groups due to members having visits with more than one provider throughout the year.

EPSDT, Early and Periodic Screening, Diagnostic and Treatment; FQHC, Federally Qualified Health Centers; ROR, Reach Out and Read.

Advocacy from pediatricians, parents and children, outside experts and philanthropies also helped.

ROR clinics have significantly higher rates of developmental screening than non-ROR sites. Developmental screening allows for early detection, referral and treatment for young children.¹⁴ One reason for this may be the training that ROR providers receive. ROR providers are trained in how to talk with parents at each developmental age about the book and how to read aloud to their child. They also use the book as a clinical tool to help with developmental surveillance. This additional training may stress to providers the importance of developmental surveillance and make it more likely that they follow recommended developmental screenings. ROR may also be a marker of quality in a clinic. Clinics that have chosen to participate in ROR have applied to the National ROR Center to be a site, received approval from National ROR, committed to having the first year of funding secured and trained their physicians, nurse practitioners, physician assistants and support staff using a continuing medical education-accredited standardized training methodology. A recent study by Burton and Navsaria revealed that many staff and providers at ROR clinics believed that ROR helped boost clinic morale, improved employee satisfaction and positively affected patient-provider relationships.¹⁵

ROR clinics have significantly higher percentage of WCVs (EPSTD) than non-ROR sites. WCVs are an important component of pediatrics and contribute to identification of illnesses, timely immunizations, education for parents and appropriate screenings.¹⁶ A recently published study by Needlman *et al* showed that parents reported more WCV attendance after ROR was implemented in a clinic compared with before the implementation.¹⁷ This study adds to the growing evidence that ROR clinics have higher attendance at the recommended WCVs. This should encourage health systems, insurance companies and state Medicaid systems to consider funding ROR to help improve the quality of their clinics and improve metrics on developmental screening and WCVs.

Limitations

This study had a few limitations. We used Medicaid billing data to determine developmental screening rates. This requires providers to enter an extra code for the screening to be billed. Some providers may be performing developmental screening but not billing. However, this could occur in both the ROR and non-ROR groups. Medical residents and providers who do not bill Medicaid were excluded from the analysis. While there is no satisfactory way currently to capture providers that do not bill Medicaid, resident physician billing should be captured under their attending billing.

CONCLUSIONS

One of the significant challenges of ROR sites across the country is funding. HSIs can be an effective way to fund the ROR intervention by using federal funds. This model of funding could be replicated in every state in the country as an aspect of strategies to improve the literacy, health and well-being of young children.

Contributors All authors have made contributions to this manuscript. All authors helped in preparation of the manuscript. BP and AC contributed to the statistical work and editing. MD, SP and LL all participated in the design and implementation of the project.

Funding This project was funded by the Oklahoma Healthcare Authority.

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; externally peer reviewed.

ORCID iD

Marny Dunlap <http://orcid.org/0000-0003-3687-0393>

REFERENCES

- 1 Council on Early Childhood, High PC, Klass P. Literacy promotion: an essential component of primary care pediatric practice. *Pediatrics* 2014;134:404–9.
- 2 Reach Out and Read National Center Data. Home. Available: www.reachoutandread.org
- 3 High PC, LaGasse L, Becker S, et al. Literacy promotion in primary care pediatrics: can we make a difference? *Pediatrics* 2000;105:927–34.
- 4 Needlman R, Toker KH, Dreyer BP, et al. Effectiveness of a primary care intervention to support reading aloud: a multicenter evaluation. *Ambul Pediatr* 2005;5:209–15.
- 5 Rikin S, Glatt K, Simpson P, et al. Factors associated with increased reading frequency in children exposed to reach out and read. *Acad Pediatr* 2015;15:651–7.
- 6 Needlman R, Fried LE, Morley DS, et al. Clinic-based intervention to promote literacy. A pilot study. *Am J Dis Child* 1991;145:881–4.
- 7 High P, Hopmann M, LaGasse L, et al. Evaluation of a clinic-based program to promote book sharing and bedtime routines among low-income urban families with young children. *Arch Pediatr Adolesc Med* 1998;152:459–65.
- 8 Sanders LM, Gershon TD, Huffman LC, et al. Prescribing books for immigrant children: a pilot study to promote emergent literacy among the children of Hispanic immigrants. *Arch Pediatr Adolesc Med* 2000;154:771–7.
- 9 Golova N, Alario AJ, Vivier PM, et al. Literacy promotion for Hispanic families in a primary care setting: a randomized, controlled trial. *Pediatrics* 1999;103:993–7.
- 10 MACPAC. MACPAC fact sheet. advising Congress on Medicaid policy, 2019. Available: www.macpac.gov/wp-content/uploads/2019/07/CHIP-Health-Services-Initiatives.pdf
- 11 Centers for Medicare and Medicaid Services. Medicaid state plan amendments. Available: <https://www.medicare.gov/state-resource-center/Medicaid-state-plan-amendments/index.html>
- 12 Centers for Medicare and Medicaid Services. *Frequently asked questions (FAQs) health services initiative*, 2017.
- 13 Mann C, Serafi K, Traub A. *Leveraging CHIP to protect low-income children from lead*, 2017.
- 14 Lipkin PH, Macias MM, AAP Council on Children with Disabilities, Section on Development and Behavioral Pediatrics. Promoting optimal development: identifying infants and young children with developmental disorders through developmental surveillance and screening. *Pediatrics* 2020;145:e20193449.
- 15 Burton H, Navsaria D. Evaluating the effect of reach out and read on clinic values, attitudes, and knowledge. *WMIJ* 2019;118:177–81.
- 16 Wolf ER, Hochheimer CJ, Sabo RT, et al. Gaps in WellChild care attendance among primary care clinics serving low-income families. *Pediatrics* 2018;142:e20174019.
- 17 Needlman RD, Dreyer BP, Klass P, et al. Attendance at Well-Child visits after reach out and read. *Clin Pediatr* 2019;282–7.