

University of Vermont

UVM ScholarWorks

College of Nursing and Health Sciences Doctor
of Nursing Practice (DNP) Project Publications

College of Nursing and Health Sciences

2023

Increasing Provider Use of the Family Media Plan for Patients Ages 2-5

Christine Head
University of Vermont

Follow this and additional works at: <https://scholarworks.uvm.edu/cnhsdnp>



Part of the [Pediatric Nursing Commons](#)

Recommended Citation

Head, Christine, "Increasing Provider Use of the Family Media Plan for Patients Ages 2-5" (2023). *College of Nursing and Health Sciences Doctor of Nursing Practice (DNP) Project Publications*. 114.
<https://scholarworks.uvm.edu/cnhsdnp/114>

This Project is brought to you for free and open access by the College of Nursing and Health Sciences at UVM ScholarWorks. It has been accepted for inclusion in College of Nursing and Health Sciences Doctor of Nursing Practice (DNP) Project Publications by an authorized administrator of UVM ScholarWorks. For more information, please contact schwyrks@uvm.edu.

Increasing Provider Use of the Family Media Plan for Patients Ages 2-5

Chris Head

Department of Nursing and Health Sciences, University of Vermont

DNP III

March 21, 2023

Advisor: Rebecca Nagle, DNP, PNP, RN

Abstract

Background

Currently in the United States, 56.1% of preschoolers use over one hour a day screen time, exceeding time recommendations set by the American Academy of Pediatrics (AAP) (Healthy People 2030, 2020). Excess screen use by preschoolers is detrimental to development, behavior, and increases the risk for obesity. The Family Media Plan (FMP) is an evidenced-based intervention developed by the AAP to reduce screen time use in pediatrics (Reid Chassiakos et al., 2016).

Purpose

To address preschoolers at risk for the overuse of screen time, this quality improvement project aimed to increase evidenced-based intervention for those ages 2-5 years old who use more than one hour a day of screen time.

Methods

At a pediatric clinic in New England, a standard intervention process for the introduction of the FMP was piloted for 2–5-year-olds. A one-page handout of the FMP was developed for providers and families to initiate the plan at well-child visits. Providers were surveyed before and after the intervention trial to evaluate provider practice in addressing screen time in preschoolers and to assess approval of the intervention.

Results

Prior to the implementation of the Family Media Plan intervention, no participating providers used an intervention to address screen time use in the preschooler population. After

the intervention period, 80% of providers used the FMP intervention and planned to continue to use it in future practice.

Conclusion

The FMP intervention is appropriate for use in primary care setting to address the overuse of screen time in the preschool population.

Contents

Problem Description	5
<i>Methods</i>	10
Context	10
Interventions.....	11
Study of the Interventions.....	12
Measures	13
Analysis	13
<i>Results</i>	15
Results	15
<i>Discussion</i>.....	19
Summary	19
Interpretation	21
Limitations	23
<i>References</i>.....	26
<i>Appendices</i>	30
Appendix A.....	30
Synthesis Table of Evidence	30
Appendix B.....	33
Plan Do Study Act Cycle.....	33
Appendix C.....	34
Family Media Plan Intervention Handout	34
Appendix D.....	36
IHI PDSA Tool.....	36

Appendix E	37
IRB Exemption from University of Vermont	37
Appendix F	38
Stetler Model	38

Problem Description

Overabundance of screen time and media use at any age may have detrimental effects on overall health, but the effects of screen time use in preschool aged children has been found to be especially harmful. Screen time use in the preschool aged population is associated with decreased play, increased sedentary activity, obesity, unhealthy snacking, behavioral issues, and cognitive and developmental delay (Madigan et al., 2019; Vanderloo et al., 2020). Currently only 43% of children ages 2 to 5 years old meet the recommendation established by the American Academy of Pediatrics (AAP) of less than one hour a day. Nationally, this leaves a large percentage of young children at risk for the harmful outcomes related to an excessive use of screen time (Healthy People 2030, 2020).

Available Knowledge

The quantity of media and screen use in our society has been amplified in the last decade with an increase of access to personal devices such as smart phones and tablets, social media, instant streaming, and access to internet. In 2011, less than 1% of children ages 2-4 had their own tablet compared with 44% in 2020 (Rideout & Robb, 2020). Unsurprisingly the rates of screen time in this same age group have increased by tenfold from 2011 to 2020 (Rideout &

Robb, 2020). With the increasing screen use for this age group, it is crucial to consider the health implications for young children that may be irreversible and have lifelong impact on wellbeing.

By its nature, screen use precipitates sedentary behavior, especially in children who replace active play with screen time. Children who have screen time over recommended daily amounts have an increased risk of obesity and higher caloric intake (Fang et al., 2019). Children who use over two hours of screen time a day have an increased risk of obesity by 67% compared to those who use under two hours a day (Fang et al., 2019). The physical health consequences increase the chances of diseases associated with obesity including hyperlipidemia, hypertension, and diabetes. The sequelae of childhood obesity in combination with the extreme difficulty in treating it only reinforces the importance of screen use reduction in young populations (Kansra et al., 2021).

In preschool populations there is evidence supporting developmental and behavioral consequences correlated with high screen time. High screen time use in preschool populations is associated with developmental and cognitive delays, and reduced readiness for kindergarten (Vanderloo et al., 2022). Early effects of this phenomenon are quite evident with one study showing that 3-year-olds with high rates of screen time use scored significantly lower on 36-month developmental screening tests (Madigan et al., 2019). Psychosocial issues are also correlated to high screen time rates. A study evaluating 3-5-year-olds with high screen time rates showed they displayed greater internalizing and externalizing behaviors than their peers, such as aggression, depression, anxiety, and social withdrawal (Neville et al., 2021). The cumulative implications of high screen time use at young ages is alarming, especially considering the potential effects on long term development and behavior.

To address the impacts of screen use on children, the AAP has an evidenced-base limit of no more than one hour of quality programming a day for children ages 2 to 5 years old (Counsel on Communications and Media, 2016). Unfortunately, as previously stated, most children in this age group have higher media use than the evidence-based guidelines. Healthy People 2030 (2020) has set a goal of increasing the percent of children ages 2 to 5 years old with screen time use under an hour a day from 43.9% to 48.9% by 2030. To accomplish this goal, providers at pediatric clinics must effectively screen for screen time use and employ interventions to both educate families and help them reduce screen time. Screening for screen time occurs at yearly well-child visits using the Bright Futures screening guidelines. Currently the guidance for well-child visits does not include a recommended standard validated intervention for those who screen over recommended amounts (Hagan et al., 2017; Jones et al., 2021).

The addictive properties of screen and media use make interventions to change behavior difficult. Developing healthy habits around screen time use, specifically at an early age, has been found to be one of the only effective methods in reducing screen time use in all pediatric populations (Bahadur et al., 2021). Four systematic reviews and meta-analysis show that behavioral intervention for reducing screen time in those ages 2-5 years old show significant decreases in screen time use compared to control groups (Downing et al., 2018; Jones et al., 2021; Lewis et al., 2021; Nguyen et al., 2020). While interventions vary, those that are most effective in screen time reduction for ages 2-5 include goal setting, action planning, and family involvement, and education alone does appear to affect rates (Bahadur et al., 2021; Lewis et al., 2021; Yilmaz et al., 2015). Primary care settings have been identified as one of several settings where interventions have been found to be effective (Jones et al., 2021; Kratochvil, 2020; Yilmaz et al., 2015). The need for intervention to accompany screening and education is crucial

to change the rates of screen time use in this age group given the gap in screening without standard intervention in primary care.

The Family Media Plan is an evidenced-based method for reducing screen time use in pediatrics (Hawkey, 2019; Kratochvil, 2020). This intervention allows families to address screen time for their children and provides an action plan and goal setting to improve healthy screen time habits. By completing an actionable plan, families can develop awareness of screen time for their preschoolers and all household members setting up boundaries for media use. The gap between high screen time use in young children and implementation of evidenced-based interventions by pediatrics primary care providers is lacking. Early intervention may not only reduce screen time in children ages 2 to 5 years old but promote healthy development, behavior, and impact lifelong health and wellbeing.

Rationale

The theoretical framework this project followed was The Stetler Model for evidence-based practice in nursing. This model follows five steps which include preparation, validation, comparative evaluation, translation, and evaluation (Stetler, 2010; Appendix G). Preparation of this project involved the evaluation of the evidence indicating that screen use in preschoolers is detrimental to physical and mental health. Evidence shows that interventions to reduce screen time are effective, but not systematically used in practice. The validation step was completed through a systematic review of evidence using a validated rating tool to assess for quality of evidence. This process resulted in high quality evidence that was sufficient to support the project aims. Comparative evaluation allowed for the synthesizing of evidence to determine which intervention was appropriate to reduce screen time in the preschool population. This resulted in the Family Media Plan intervention as the chosen intervention tool. To translate this intervention

to practice, a pediatric practice was chosen to trial the use of this intervention. Pre and post surveys allowed for evaluation of project and for project outcomes to be described.

The conceptual framework of this quality improvement project followed was the Plan-Do-Study-Act (PDSA) model (Appendix B). This framework uses a methodical process to assess for improvement as it relates to change. By using the PDSA model, this project can be improved upon and expanded in a systematic method that consistently evaluates the effectiveness and process of the project.

Specific Aims

Global Aim

Healthy People 2030 has a national goal of increasing the percent of 2-5-year-old children with under one hour a day of screen time from 43.9% to 48.9% by 2030 (Healthy People 2030, 2020). The global aim of this project was to help increase the number of children ages 2-5 years old with screen time under one hour a day by 5% by 2030.

Primary Aim

The primary aim of this DNP quality improvement project was to have providers implement the Family Media Plan as an intervention for children ages 2-5 years old who screen over AAP recommendations at a pediatric clinic in Northern New England by November 2022. This aim had a benchmark of 75% of providers agreeing the intervention useful, efficient, sustainable, easily incorporated into the well-child visit and would use it in the future.

Secondary Aims

One of the secondary aims of this DNP project was to develop a single page handout for providers to give to families at well-child visits to facilitate the introduction of the Family Media Plan by the end of August 2022.

Also, by the end of August 2022, pre and post project implementation surveys were developed for providers at this pediatric clinic to gather data regarding the provider practice, project implementation and provider feedback. The pre-implementation survey was used to determine baseline provider practice regarding an intervention for high screen time use in preschool children. The post-implementation survey was used to assess changes in provider practice and gather feedback on the implementation process.

A documentation Smart Phrase was developed in the clinic's electronic medical record for providers to record the intervention of the Family Media Plan in patient charts by September 2022.

By the end of November 2022, a chart review was completed to review the number of Family Media Plan interventions completed in comparison to the total number of positive screens at well-child visits for those ages 2-5 over the course of the implementation phase.

Methods

Context

This quality improvement project took place at a pediatric clinic in Northern New England, which has two pediatric offices within a large academic medical system. There are 14 providers in the clinic. Well-child visits at this practice are directed by the Bright Futures guidelines and all children should be screened for screen time use starting at age 12 months. The electronic medical record used at this practice is EPIC. All well-child visits are documented in EPIC using a template that includes a screening for screen time use. This screening process involves the provider asking how many hours a day a patient uses screens or media and if the patient has any limits in place. At the time of this project there was no standardized practice for

introducing an intervention when a preschool child screens over one hour per day of screen time use.

Interventions

The intervention that was implemented for this quality improvement project was the introduction of the “Family Media Plan (FMP) intervention” at well-child visits by providers. This intervention uses the Family Media Plan (FMP), an evidenced based intervention that includes family involvement, goal setting, and action planning. Knowing that the FMP is effective in changing screen time use in the preschool population, this intervention was targeted for those ages 2-5 years old who use over one hour per day of screen time. To implement the FMP intervention, a single page handout was designed based on the Family Media Plan website for the providers to give to families during well-child visits. The handout included instructions on how to use the FMP, the purpose of the FMP, and basic education about screen time guidelines for preschoolers (Appendix C). This handout allowed families to select individualized screen time goals during the well-child visit. The paper version allowed for goals to be selected while education and instruction was delivered by the provider. The family left the well-child visit with their FMP in hand, ensuring the intervention had been completed. This intervention aimed to be efficient and complementary to the education a provider may offer on screen time recommendations.

The record of the intervention was documented by the provider in EPIC in the well-child visit note. EPIC allows for Smart Phrases or “dot phrases” to be created for efficient charting of routine interventions, assessments, phrases used by providers. A specific “dot phrase” was designed for efficient documentation and was used by the providers to indicate in the patient chart that the child received an FMP intervention.

The total duration of the project for the FMP intervention was eight weeks to gather sufficient data and patient interactions. Prior to the start of intervention trial, a thirty-minute educational presentation was given to providers to present evidence surrounding screen time and preschoolers and to teach the FMP intervention process with opportunities for questions.

Study of the Interventions

To study baseline data, an initial survey for the providers at the clinic was distributed to understand how often providers use the FMP for children ages 2-5 who use screen over one hour a day. This survey quantified the number of providers who use any interventions including the FMP to address screen time for 2-5-year-olds at this pediatric primary care clinic prior to starting the trial of the FMP intervention. The survey was beta-tested by experts to ensure quality of the questions.

The FMP intervention handout was developed using the online AAP Family Media Plan for ages 2-5 and then reviewed by experts in the field (Appendix C). This involved the development of an educational handout to explain the FMP and a paper version of the FMP for families to complete in well-child visits. This allowed families to leave visits with an intervention in hand, ensuring materials were delivered to patients.

During and after the completion of the project, chart reviews were completed from the initiation to completion of the project to assess how often the intervention was used for those patients who were eligible based on using over one hour a day of screen time. This allowed for an understanding of an intervention rate by comparing the total number of eligible patients to total number who received the FMP intervention.

A post implementation survey was distributed at the end of the eight-week trial to gather both qualitative and quantitative data about the process. This included questions about the ease

of use of the FMP intervention, barriers to use, frequency of use, provider satisfaction, future use, and changes in practice in comparison to before the project started.

Measures

The measures of this project aimed to understand the change in provider use of the Family Media Plan (FMP) intervention as well as provider approval of the FMP intervention. A baseline measure was gathered via a preintervention survey to understand baseline provider practice regarding screen time intervention. A beta tested post intervention survey was used to gather a quantitative measure of provider use of the FMP intervention. This was expressed by a percent change from pre-implementation to post-implementation of the FMP intervention. To meet the primary aim of the project, an increase in provider use of the FMP intervention was required. Chart review allowed for a quantitative measurement of the number of interventions completed for all possible patients; those patients who the FMP intervention would be appropriate based on age and screen time use. This measure was expressed as a percentage of total interventions completed for all well child visits for those ages 2-5 with over one hour a day of screen time.

The beta tested post intervention survey measured the percentage of providers who plan to continue to use the FMP, find the intervention useful, efficient, sustainable, and easily incorporated into the well-child visit. Answers were in “yes or no” or Likert scale style questions. The post intervention survey results were used to evaluate if the FMP intervention meets the criteria of the secondary aim of 75% intervention approval by providers.

Analysis

The analysis of the qualitative data gathered from surveys was represented in bar charts to represent changes in provider attitudes pre and post project. The data gathered from surveys

included baseline provider practice information regarding how often they screen patients ages 2-5 years old for screen time use, how often they educate families on screen time, and their value on the importance of addressing screen time use in the preschool population. A second survey was distributed after the project trial period was completed and contained the same questions as the first survey with the addition of questions regarding the efficiency, sustainability, usefulness, ease of use of the FMP and intended future use of the FMP. All answers were gathered based on “yes or no” or Likert scale type questions.

To assess if there was an increase in provider use of the FMP, changes in provider practice and attitude regarding the utilization the FMP were analyzed in bar charts. A grouping of data was used to analyze the same pre and post survey questions and is represented on a pre and post bar charts. Survey questions that used the Likert scale have numerical values assigned to each answer ranging from 1-5. To group provider answers for each question, mean Likert scores for each question were calculated based on the assigned integers and then represented on the chart as pre/post means. Questions that are “yes or no” style are represented with the percentage of provider response.

A second grouping of data was designated to address a primary aim of the project using the 75% benchmark of provider approval for efficiency, sustainability, usefulness, ease of use, and intended future use of the intervention. The “yes or no” questions are displayed as the percentage of participating providers response in the Y axis. The X axis will contain the question asked in the survey. The analysis of the primary aim is visualized using a horizontal marker at the 75% threshold to display that the aim is achieved.

To analyze the quantitative data, the total possible number of patients interactions that met the criteria for the FMP intervention is compared to the actual number of recorded

interventions by participating providers in a pie chart. This will give a percentage of completed interventions as a baseline for this project. This analysis sets a percentage bench march for improvement in future PDSA cycles.

Ethical Considerations

According to the policy defining activities which constitute research at the University of Vermont/University of Vermont Health Network, this work met criteria for operational improvement activities exempt from IRB review (Appendix F). No identifying patient data was used or recorded during this project. Surveys and data collection were completed using a secure application.

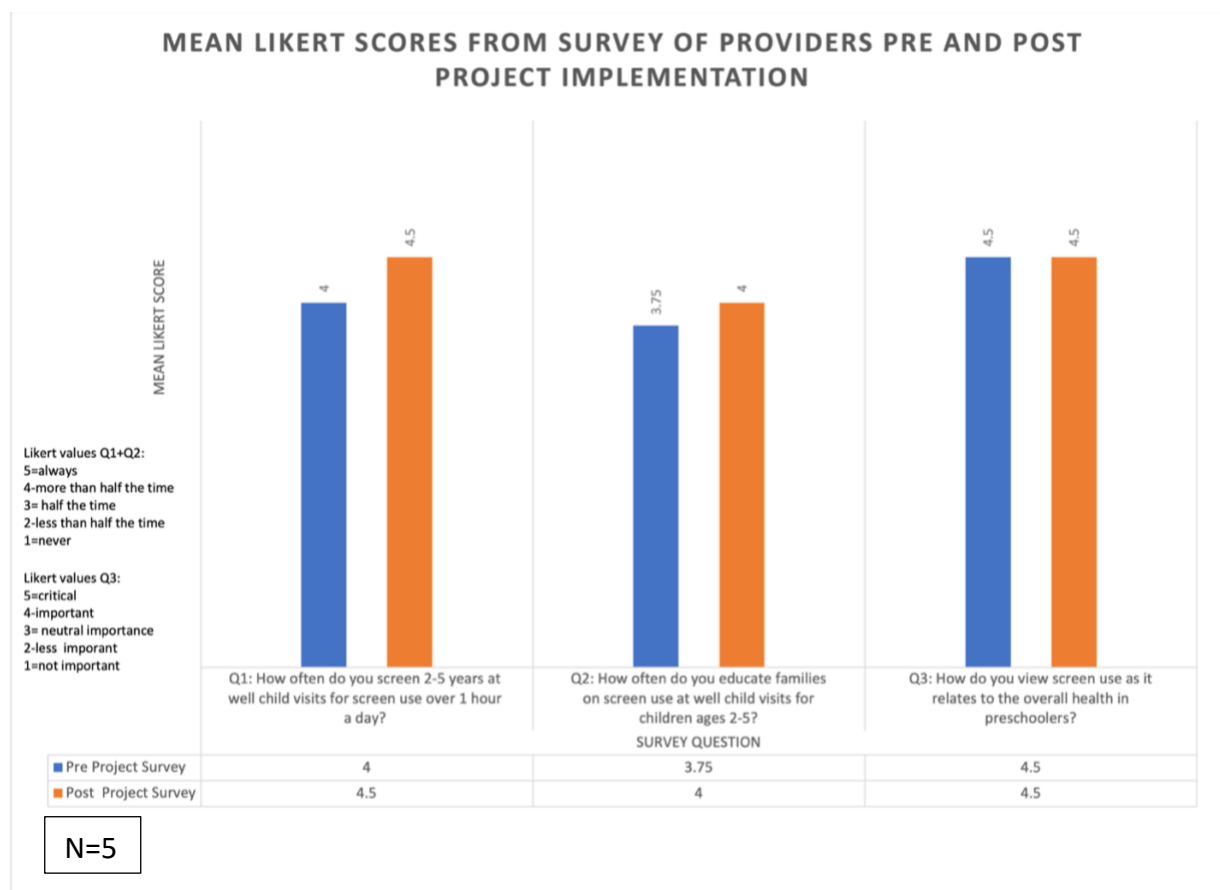
Results

Results

Six providers participated initially in this quality improvement project, with the implementation period lasting a total of eight weeks. Six providers took the pre-implementation survey while five providers participated in the post-implementation survey. The provider who did not participate in the post-survey was not included in the data collected, as there was no response or feedback. The comparison of pre and post survey questions indicated that screening for screen time increased, use of the family media plan increased, and provider concern for screen time as it relates to health of preschoolers remained the same (Figure 1).

Figure 1

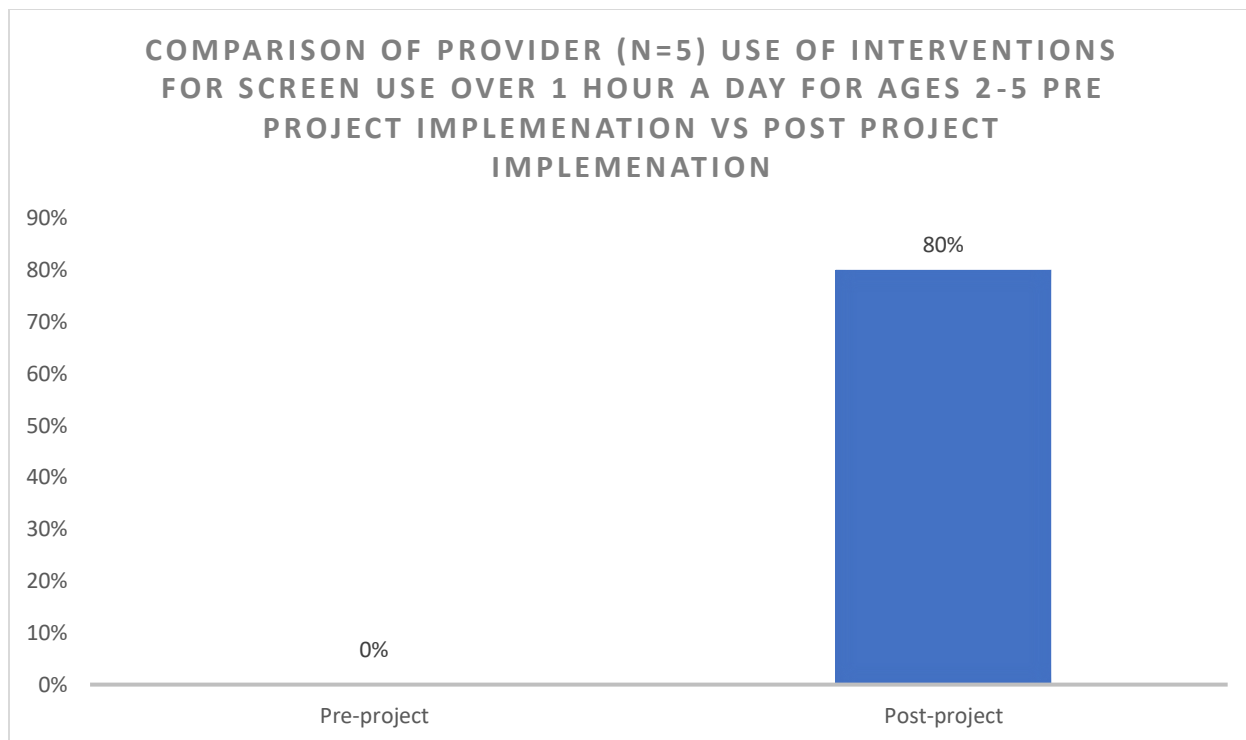
Mean Likert Scores from Surveys of Providers Pre and Post Project Implementation



Data from the pre and post project implementation surveys show that providers did not use any intervention, including the Family Media Plan, for preschoolers who had more than one hour a day of screen time prior to the project implementation. The number of providers using the Family Media Plan (FMP) intervention increased from 0% to 80% during the project implementation (Figure 2). 100% of the providers who did use the FMP intervention tool indicated they would continue to use this tool (Figure 3).

Figure 2

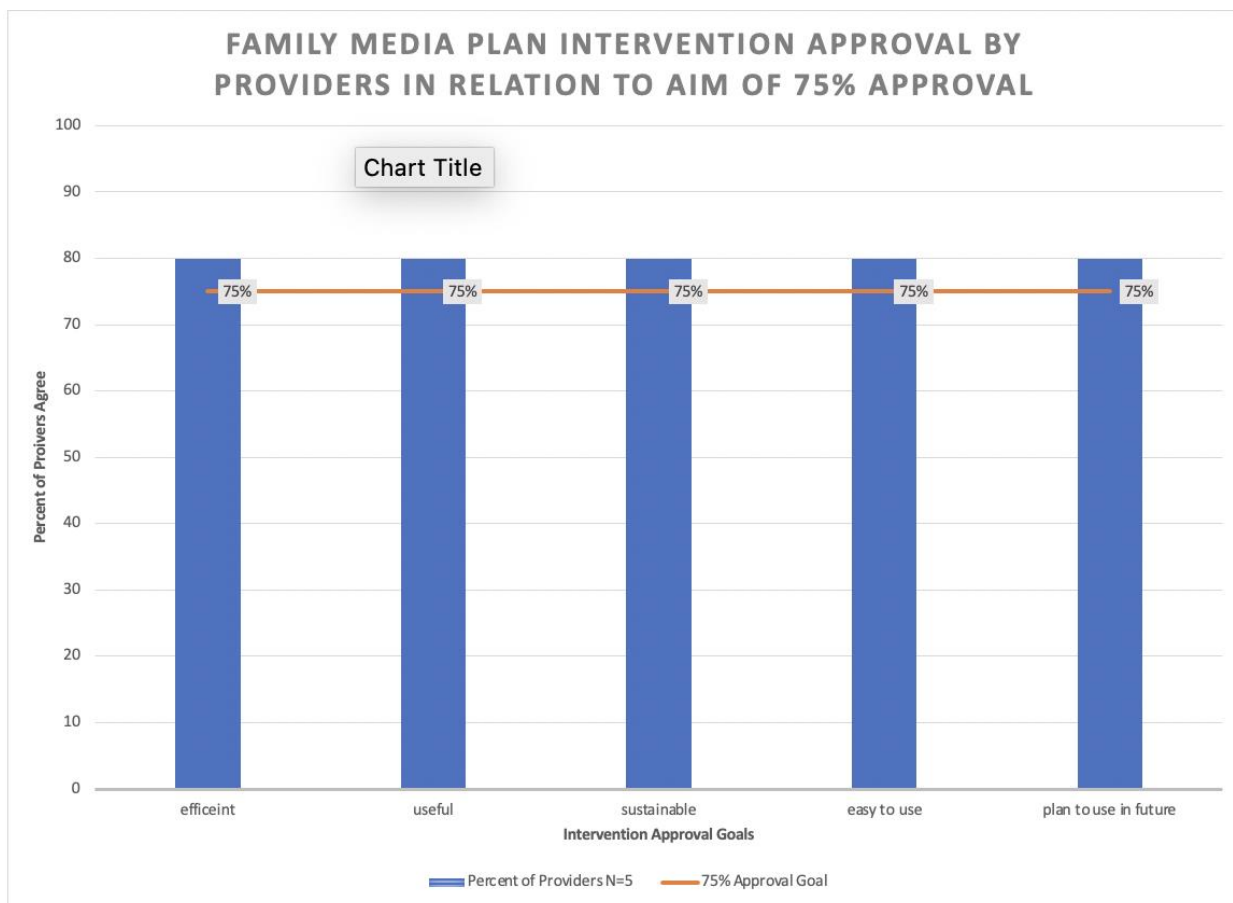
Provider Use of Interventions for Screen Use Over 1 Hour a Day for Ages 2-5 Pre Project versus Post Project Implementation



Based on the post implementation survey, 80% of responding providers found the Family Media Plan intervention useful, efficient, sustainable, easy to use, and plan on using the intervention in the future. Only five of the six providers who started the project responded to the post survey, resulting in the feedback for one of the providers to be unknown and without approval or disapproval, requiring this provider to be removed from the data.

Figure 3

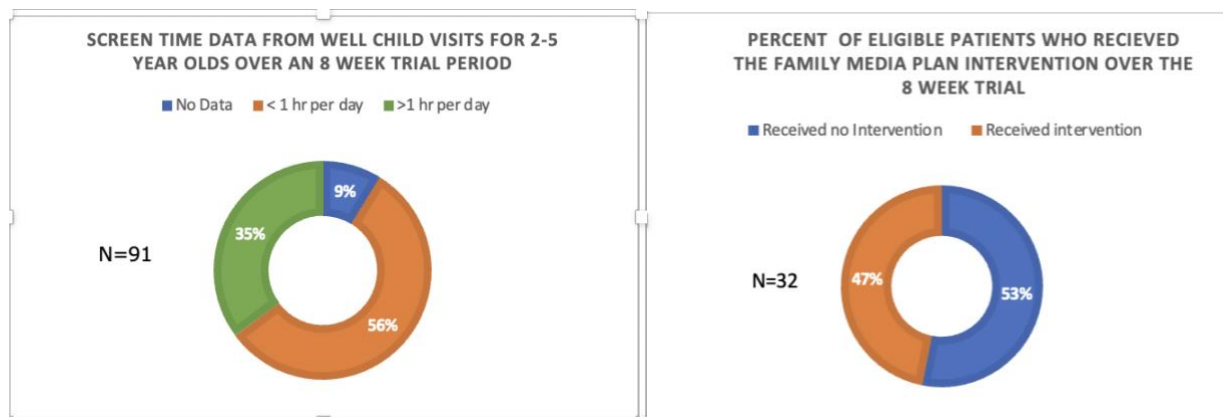
Family Media Plan Intervention Approval by Providers in Relation to Aim of 75% Approval



Participating providers had 91 well-child visits for 2–5-year-olds occurred during the 8-week intervention. Out of this total, 56% of patients had less than one hour a day of screen use and did not qualify for the Family Media Plan intervention. No data was available for 9% of the visits and 35% of visits were positive for screen time use of over one hour per day. Of the total 32 patients with over one hour a day of screen use, 15 (47%) received the Family Media Plan intervention.

Figure 4.

Patient Interactions from 8 Week Intervention Trial Period



Qualitative data from providers included feedback collected through the post survey in an open text format. Barriers identified to using the intervention included two providers citing changing practice habits, three providers citing more acute issues during the well-child visit, and two providers citing forgetting documentation. One provider cited not being able to use materials for non-English speaking families. There was no qualitative data in terms of improvement for the tool itself. Positive feedback included “great” and “relevant”.

Discussion

Summary

Overall, the findings supported the global and primary aims of the project. The number of providers who used an evidenced-based intervention to reduce screen time increased by 80% and 75% of providers approved of the Family Media Plan intervention tool and associated process.

A key finding of this project was that none of the participating providers in this project used any intervention for screen time in preschoolers prior to the initiation of the project. During the project, four of the five participating providers utilized the tool and four participants indicated that they would continue to use the intervention tool in the future. Success of providers using the Family Media Plan intervention tool not only changes the intervention rate in this practice but is encouraging for future use of the tool and further PDSA cycles of this project.

Providers perceived an increase in screening for screen time at well child visits as the average prior to the start of the project was “more than half the time” and after the project the average was closer to “always” (Figure 1). It is clear based on provider feedback that screen time is not always addressed or screened for during-well child visits at this practice, which was confirmed based on the results that 9% of the patient interactions in this project did not include screenings for screen time (Figure 4). This project exposed that the screening for the preschool age group does not occur in every health supervision visit and the Family Media Plan intervention did change practice for the participating providers.

An encouraging finding for continued use of the Family Media Plan intervention was that 80% of providers who responded to the follow up survey found the tool to be useful, efficient, easy, sustainable to use in practice, and would continue to use this intervention in future practice. Based on these results, The Family Media Plan intervention is a tool that can be used effectively in practice. A following PDSA cycle with more providers would be appropriate for further validation. One provider never responded to follow up survey, which brings into question what their responses would have been and what barriers prevented them from participating in the project. A PDSA cycle with a larger group of providers could bring to light to the possible issues that occurred for the provider with unknown feedback during this project cycle.

The Family Media Plan intervention tool was used for 47% of eligible patients. With no initial rate to compare to, this number gives an improvement point for future PDSA cycles. While this intervention rate is an improvement from no intervention prior to the initiation of the project, clearly there are barriers to all eligible patients receiving the intervention. Feedback from providers identified some barriers to intervention use including not enough time in the well-child visit, parent concern for other issues during visits, language, and changing practice habits to use

the intervention. With these barriers in mind, it may be important to integrate the intervention further into the electronic medical record to decrease time needs and help remind providers of the intervention.

Interpretation

The initiation of the Family Media Plan intervention for this project increased the number of providers who used an intervention for preschoolers with over an hour a day of screen time use. Research suggests that pediatric primary care currently does not use any interventions for screen time, which was consistent for this group of providers. If Healthy People 2030 has the goal of reducing the number of preschoolers with screen time over 1 hour a day, there must be an intervention to address this issue. Provider approval of the Family Media Plan (FMP) intervention in this project shows that this tool may be able to support the Healthy People goal of 2030 and reduce screen time use in preschoolers. With data suggesting that evidenced-based interventions like the FMP do reduce screen time use in preschool populations, it is crucial to introduce these interventions in primary care settings (Kratochvil, 2020). Continuing use of the FMP intervention with expansion through PDSA cycles would help address this problem.

Primary care has been identified as an appropriate setting to address screen time use (Jones et al., 2021; Kratochvil, 2020; Yilmaz et al., 2015). The provider approval of the intervention process indicates the Family Media Plan intervention tool was successful in this primary care setting on a small scale. Based on these findings, the expansion of the tool to the entire practice for a uniform approach to address screen time would be an appropriate next step for the PDSA cycle. Success in one practice could indicate success in other practices in the future. State health initiatives focused on children's health would be appropriate for future cycles to expand the impact on the preschool population.

The influence of this project on reducing screen time itself cannot be directly measured as the focus was based in provider use and approval of the Family Media Plan as a first step to address screen time use in preschoolers. However, a recent study shows how intervention for recreational media use in young children does improve health and increased physical activity (Pedersen et al., 2022). Knowing the Family Media Plan intervention is based in evidence, it is possible implementing the intervention could have similar results for this population. Future PDSA cycles of this project could evaluate the effect of the Family Media Plan over time. Studies have shown that short term use of the Family Media Plan does reduce screen time use in preschoolers (Kratochvil, 2020). A study with a similar design to this project used the Family Media Plan to reduce screen use in preschoolers and followed up with patients one month after the initiation of the plan to assess changes in screen time (Kratochvil, 2020). Further PDSA cycles of this project will benefit from assessing if changes occur in screen time use in patients as well as feedback on the tool itself from the patient and family experience.

Based on literature review, the best age to address screen time is in the preschool age group as habits are the most easily adjusted with family involvement. While screening for screen time use was expected to occur at each well-child visit, 9% of patients were not screened and the average providers estimation for screening scored at a 4 out of 5 on the Likert scale (Figure 1). Preschoolers who are not screened for screen time use are at risk for the negative health consequences of excess screen time. With these factors in mind, the emphasis on screening each preschooler is crucial to understand the total picture of health and well-being.

The integration of the Family Media Plan into the well-child visit was well received by providers. However, two of the initial six providers did not use the intervention. Possible reasons for this may be attributed to the providers involvement in too many concurrent projects, other

initiatives, and commitments with medical students causing excessive workload and project fatigue. Some barriers for the providers who did not continue with the project may be the opportunity costs for additional time, charting, and change in practice during the well-child visit. Further PDSA cycles of the project will allow for more understanding of how to address barriers during the well-child visit and improve provider satisfaction.

Limitations

Limitations of this project include a small sample size of providers and number patient interactions. Another limitation is potential bias of providers who self-selected to participate in the project. A smaller provider pool and limited interactions for using the Family Media Plan intervention may impact the reliability and validity of the findings. Greater provider involvement and more patient interactions would provide greater insight into provider satisfaction with the intervention. Providers self-selected to participate in the project after a thirty-minute presentation on the health risks of high screen time use for preschoolers, the project aims and Family Media Plan intervention and process. Providers who found screen time and media use more important may have been more likely to participate in the project. To counteract this self-selection a second round of recruitment was done to involve more providers via email request, which only added one provider to the total group. The completion of this project at an academic medical center may have caused competition for interest with other projects and initiatives.

Accuracy of the intervention rate could be skewed as the intervention was based on chart review and may not have included all interventions completed. For an intervention to be counted, it had to be recorded in the chart. This required providers to use the provided “dot phrase”. Provider’s habits in charting, time and understanding of the value of recording the intervention all may have prevented charting of all interventions completed. Integration of the “dot phrase”

into the well child visit template was explored and was not possible at this time due to time constraints.

Other limitations included the inability to provide the Family Media Plan intervention for those who were non-English speaking. This clinic has many patients who do not speak English and appointments are completed with interpreters. Further progression of this project would include translation of materials.

Lastly, one of the six providers who initially started the project never responded to follow up surveys and chart review indicates that they did not use the intervention. Efforts were made to connect during the implementation phase of the project to address barriers, as well as three attempts to the provider after the completion of the project to gather follow up information and feedback via multiple modalities. Unfortunately, without any responses, it is unclear what barriers or factors impacted the success of the project with this provider. Hopefully further PDSA cycles would address the best ways in which to follow up with providers to not miss any input, feedback, and possible improvements.

Conclusions

The primary aims of the project were achieved through increasing the number of providers who use an intervention to address high screen time use in preschoolers and achieving 75% provider approval of the Family Media Plan intervention tool. The outcomes of this project indicate that the Family Media Plan tool could be successful in addressing screen time use in the preschool population. Improvements would include further PDSA cycles with greater number of providers, gathering family and patient feedback regarding the intervention process and tool, and improving the documentation of the intervention. Based on the results of this project and other studies, pediatric primary care and well-child visits are an excellent place to address the issue of

screen time use in preschool children. These findings support further exploration and expansion of using the Family Media Plan intervention. Without action, Healthy People 2030's goal of addressing the high screen time use in preschoolers may not be achieved. The Family Media Plan intervention may be one factor in changing health outcomes for at risk preschoolers.

Other Information

Funding

No funding was required for this project.

References

- Bahadur, E., Akkuş, P. Z., Yoldaş, T., & Özmert, E. N. (2021). How effective is family counselling on screen exposure of pre-school children? *Turk J Pediatr*, *63*(2), 282-290.
<https://doi.org/10.24953/turkyped.2021.02.012>
- Counsel on Communications and Media. (2016). Media and Young Minds. *Pediatrics*, *138*(5).
<https://doi.org/https://doi.org/10.1542/peds.2016-2591>
- Dang, D., Dearholt, S., Bissett, K., Ascenzi, J., & Whalen, M. (2022). *Johns Hopkins evidence-based practice for nurses and healthcare professionals: Model and guidelines*. (4th ed.). Sigma Theta Tau International.
- Downing, K. L., Hnatiuk, J. A., Hinkley, T., Salmon, J., & Hesketh, K. D. (2018). Interventions to reduce sedentary behaviour in 0–5-year-olds: a systematic review and meta-analysis of randomised controlled trials. *British Journal of Sports Medicine*, *52*(5), 314-321.
<https://doi.org/10.1136/bjsports-2016-096634>
- Fang, K., Mu, M., Liu, K., & He, Y. (2019). Screen time and childhood overweight/obesity: A systematic review and meta-analysis. *Child Care Health Dev*, *45*(5), 744-753.
<https://doi.org/10.1111/cch.12701>
- Hagan, J., Shaw, J., & Duncan, P. (2017). *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents*. (4th ed.). American Academy of Pediatrics;.
- Hawkey, E. (2019). Media use in childhood: Evidence-based recommendations for caregivers. CYF News. *CYF News*.
<http://www.apa.org/pi/families/resources/newsletter/2019/05/media-use-childhood>
- Healthy People 2030. (2020). *Increase the proportion of children aged 2 to 5 years who get no more than 1 hour of screen time a day*. <https://health.gov/healthypeople/objectives-and->

[data/browse-objectives/physical-activity/increase-proportion-children-aged-2-5-years-who-get-no-more-1-hour-screen-time-day-pa-13](#)

Institute for Healthcare Improvement. (2022). *Science of Improvement: Testing Changes*.

Retrieved April 7 from

<http://www.ihl.org/resources/Pages/HowtoImprove/ScienceofImprovementTestingChanges.aspx>

Jones, A., Armstrong, B., Weaver, R. G., Parker, H., von Klinggraeff, L., & Beets, M. W.

(2021). Identifying effective intervention strategies to reduce children's screen time: a systematic review and meta-analysis. *International Journal of Behavioral Nutrition and Physical Activity*, 18(1), 126. <https://doi.org/10.1186/s12966-021-01189-6>

Kansra, A. R., Lakkunarajah, S., & Jay, M. S. (2021). Childhood and Adolescent Obesity: A

Review [Review]. *Frontiers in Pediatrics*, 8. <https://doi.org/10.3389/fped.2020.581461>

Kratochvil, T., Wineinger, M., Saner, D., , Fernandez, C. . (2020). Screen Media Use in

Pediatrics: A QI Project to Promote Behavioral Change. *Graduate Medical Education Research Journal*, 2(1). <https://doi.org/10.32873/unmc.dc.gmerj.2.1.001>

Lewis, L., Povey, R., Rose, S., Cowap, L., Semper, H., Carey, A., Bishop, J., & Clark-Carter, D.

(2021). What behavior change techniques are associated with effective interventions to reduce screen time in 0–5 year olds? A narrative systematic review. *Preventive Medicine Reports*, 23, 101429. <https://doi.org/https://doi.org/10.1016/j.pmedr.2021.101429>

Madigan, S., Browne, D., Racine, N., Mori, C., & Tough, S. (2019). Association Between Screen

Time and Children's Performance on a Developmental Screening Test. *JAMA Pediatrics*, 173(3), 244-250. <https://doi.org/10.1001/jamapediatrics.2018.5056>

- Neville, R. D., McArthur, B. A., Eirich, R., Lakes, K. D., & Madigan, S. (2021). Bidirectional associations between screen time and children's externalizing and internalizing behaviors. *Journal of Child Psychology and Psychiatry*, 62(12), 1475-1484.
<https://doi.org/https://doi.org/10.1111/jcpp.13425>
- Nguyen, P., Le, L. K.-D., Nguyen, D., Gao, L., Dunstan, D. W., & Moodie, M. (2020). The effectiveness of sedentary behaviour interventions on sitting time and screen time in children and adults: an umbrella review of systematic reviews. *International Journal of Behavioral Nutrition and Physical Activity*, 17(1), 117. <https://doi.org/10.1186/s12966-020-01009-3>
- Pedersen, J., Rasmussen, M. G. B., Sørensen, S. O., Mortensen, S. R., Olesen, L. G., Brønd, J. C., Brage, S., Kristensen, P. L., & Grøntved, A. (2022). Effects of Limiting Recreational Screen Media Use on Physical Activity and Sleep in Families With Children: A Cluster Randomized Clinical Trial. *JAMA Pediatrics*, 176(8), 741-749.
<https://doi.org/10.1001/jamapediatrics.2022.1519>
- Rideout, V., & Robb, M. B. (2020). *The Common Sense census: Media use by kids age zero to eight, 2020*.
- Stetler, C. (2010). Stetler model. In J. Rycroft-Malone & T. Bucknall (Eds.), *Evidence-based practice series*. Oxford, UK: Wiley-Blackwell.
- Vanderloo, L. M., Carsley, S., Aglipay, M., Cost, K. T., Maguire, J., & Birken, C. S. (2020). Applying Harm Reduction Principles to Address Screen Time in Young Children Amidst the COVID-19 Pandemic. *J Dev Behav Pediatr*, 41(5), 335-336.
<https://doi.org/10.1097/dbp.0000000000000825>

Vanderloo, L. M., Janus, M., Omand, J. A., Keown-Stoneman, C. D. G., Borkhoff, C. M., Duku, E., Mamdani, M., Lebovic, G., Parkin, P. C., Simpson, J. R., Tremblay, M. S., Maguire, J. L., & Birken, C. S. (2022). Children's screen use and school readiness at 4-6 years: prospective cohort study. *BMC Public Health*, 22(1), 382-382.

<https://doi.org/10.1186/s12889-022-12629-8>

Yilmaz, G., Demirli Caylan, N., & Karacan, C. D. (2015). An intervention to preschool children for reducing screen time: a randomized controlled trial. *Child: Care, Health and Development*, 41(3), 443-449. <https://doi.org/https://doi.org/10.1111/cch.12133>

Appendices

Appendix A

Synthesis Table of Evidence

Clinical Question: How do interventions aimed at reducing screen time use compare to no intervention for pediatrics ages 2-5 who screen over recommended amounts by the AAP?

Keywords: screen time, preschool, pediatrics, media, excessive screen time, intervention, primary care, sedentary behavior

Author, YEAR	Study Design Theoretical Framework	Sample Characteristics & Setting	Variables: Independent Dependent	Data Analysis	Main Findings	Level of Evidence**
(Nguyen et al., 2020)	Systemic review/meta-analysis	Meta-analysis of screen time interventions for children and adolescents (ages 3-18), using 7 RCTs	Independent: Interventions aimed at reducing screen time versus none Dependent: Change in screen time in minutes/day	Meta-analysis of mean difference of screen time - 17.12 min/day (95% CI -28.82 to -5.42)	Behavior interventions significantly reduce screen time in children versus no intervention. Length of intervention not associated with outcomes.	Level 1 Quality: High JHNEBP Evidence Rating Scale (Dang et al., 2022)
(Downing et al., 2018)	Systematic review/ meta-analysis	17 RCT trials, children <5.9 years old, include outcomes of screen time/sedentary behavior interventions	Independent: intervention for sedentary behavior versus none Dependent: Change in screen time use minutes/day	Mean difference in screen time outcome between groups was -17.12 (95% CI -28.82 to -5.24) min/day with a significant overall intervention effect (Z=2.87, p=0.004)	The 0-5 age group is an effective age group for interventions aimed at reducing sedentary activity and screen time. Parent interaction is important in interventions. Significant reduction in screen time use with intervention ages versus no intervention	Level 1 Quality: High JHNEBP Evidence Rating Scale (Dang et al., 2022)
(Kratovichil, 2020)	Quality improvement project	Primary care well-child visits, sample size = 38 children ages 6-13, introduction of Family Media Plan with goal-oriented discussion +handout 1 month follow up	Independent: Introduction of Family media plan at well-child visits Dependent: Screen time use	Median screen time per week decreased from 16 hours to 12 hours after pediatrician counseling and Media Use Plan intervention	Goal oriented discussion with Family Media Plan reduced screen time per week over 1 month	Level V Quality: Good (Dang et al., 2022) JHNEBP Evidence Rating Scale (Dang et al., 2022)
(Yilmaz et al., 2015)	RCT	Primary care well-child visits, ages 2-6, sample=412 All have similar amounts of	Independent: No intervention versus intervention for screen time	Screen time in minutes/day post intervention: Control:	Those ages 2-6 who received interventions had significantly reduced screen time and	Level I Quality: Good

Author, YEAR	Study Design Theoretical Framework	Sample Characteristics & Setting	Variables: Independent Dependent	Data Analysis	Main Findings	Level of Evidence**
		screen time use before intervention to reduce screen time	Dependent: change in screen time, BMI	93.96 ± 18.84 mins/day Intervention group: 21.15 ± 6.12 mins/day	aggressive behavior, BMI did not change	JHNEBP Evidence Rating Scale (Dang et al., 2022)
(Lewis et al., 2021)	Systematic review/ meta-analysis of RCTs	Ages 2.5-5, received behavioral change techniques (BCT) for screen time, meta-analysis of 7 RCTs, 642 =sample size	Independent: behavioral change technique versus no intervention for screen time use Dependent: change in screen time mins/day	Daily screen time reduced by 25-39 min/day with BCT interventions versus no intervention.	11 different behavioral change techniques significantly reduce screen time for those ages 0-5 with the most promising including “behavior substitution, information about social and environmental consequences, demonstration of the behavior, behavioral practice/rehearsal, social action planning and goal setting behavior.”	Level I Quality: Good JHNEBP Evidence Rating Scale (Dang et al., 2022)
(Jones et al., 2021)	Systematic review	204 studies evaluated in systematic review and meta-analysis, children ages 0-18, introduction of behavioral intervention for screen time reduction	Independent: Behavioral intervention versus control Dependent: Reduction in screen time	For behavioral intervention, the standard difference in mean of screen time reduction from control was (SDM = 0.116, 95CI 0.08 to 0.15). Inclusion of the Goals, Feedback, and Planning behavioral techniques were associated with a positive impact on intervention effectiveness (SDM = 0.145, 95CI 0.11 to 0.18).	Behavioral interventions for ages 0-18 influence screen time reduction. Interventions with goal setting, planning and feedback are the most effective behavioral interventions.	Level 1 Quality: High JHNEBP Evidence Rating Scale (Dang et al., 2022)
(Bahadur et al., 2021)	Retrospective case control study	Children ages 24-62 months, mean screen time 5hrs/day, behavioral	Independent: behavioral sessions for parents versus no intervention	Baseline median screen time before the intervention was 5.0 hours a	Parental sessions including counseling including AAP recommendations	Level II Quality: Good

Author, YEAR	Study Design Theoretical Framework	Sample Characteristics & Setting	Variables: Independent Dependent	Data Analysis	Main Findings	Level of Evidence**
		counseling for parents (3 sessions) by pediatrician, pediatric development clinic Sample size=105	Dependent: screen time hrs/day, background screen time (% whole day)	day for all participants (Interquartile range (IQR): 4-9), after the intervention the median screen time for all participants decreased to 2.0 hours a day (IQR:1-3) (p<0.001). Background screen time was described as "whole day" in 89.8% (n=89) of all participants (n=99) before the intervention, this decreased to 16.1% after the intervention	about screen viewing, information on the health and developmental effects of screen time on children, strategies to reduce screen time conducted at a pediatric development clinic significantly reduced screen time per day and background screen time for those ages 24-62 months.	JHNEBP Evidence Rating Scale (Dang et al., 2022)

Appendix B

Plan Do Study Act Cycle

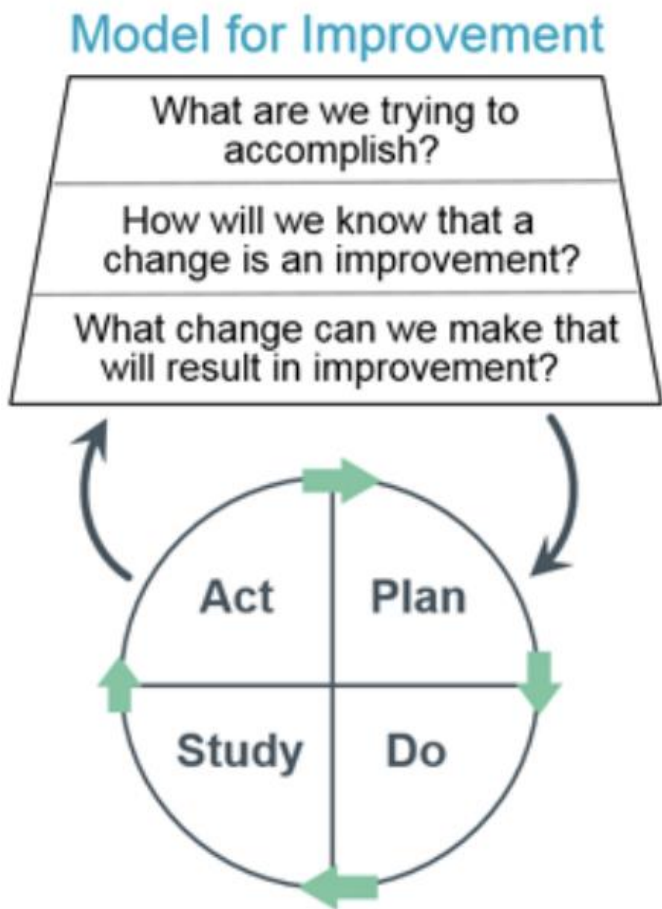


Figure A. Plan Do Study Act Cycle (Institute for Healthcare Improvement, 2022)

Appendix C

Family Media Plan Intervention Handout

FAMILY MEDIA PLAN

Since media habits are different for every household, the Family Media Plan can be customized to meet your family's needs. Make a full plan, or just choose a few parts that matter the most to your family.

CIRCLE WHAT IS IMPORTANT TO YOU

We will help balance tech with online and offline activities by:

- Planning a screen-free activity to do together as a family every day.
- Making a habit of turning off media that's not being used by anyone.
- Participating in other activities available in our community.
- Having fewer apps on our devices.
- Setting lock-screen reminders.
- Filling our child's days with more play than media.
- Setting media time limits.
- Making sure screen time doesn't interfere with physical activity and healthy eating.
- Realizing when we turn to media to dull our own emotions, and finding healthier ways to cope.

We will communicate about media by:

- Talking about media on a regular basis.
- Discussing media content that is shocking or upsetting.
- Listening to each other with open minds.
- Using "talk-out-louds" to help teach little minds how to communicate about media.
- Becoming more aware of how media and our emotions connect.
- Talking about the ways media can affect mental health.

We will create some screen-free zones for our family by:

- Keeping meals screen-free.
- Keeping bedrooms screen-free at night.
- Not texting (or emailing, web searching, live streaming, etc.) while driving.
- Keeping strollers and shopping carts screen-free.
- Not using devices on the way to and from school.

We will choose times and spaces where we don't want distractions from screens by:

- Choosing which days of the week are OK for screens and media.
- Avoiding screens before school.
- Planning one screen-free day each week.
- Silencing phones by putting them on "do not disturb" during family time and playtime.
- Preventing media use from interfering with sleep.
- Avoiding screens during the hour before sleep.

We will choose good content for our family by:

- Being more intentional about media use.
- Prioritizing creative, educational, prosocial and positive media.
- Reviewing new video games together before buying or playing them.
- Making a plan about spending money online.

We will use media together more often by:

- Planning family movie nights.
- Co-viewing media to connect and help our kids learn.
- Playing apps and games or watching videos together as a family.

We will emphasize kindness and empathy when using technology by:

- Being polite and considerate to others online and in person.

We will set and discuss digital safety rules by:

- Limiting media use for our young child to keep it from interfering with developmental, social and emotional skills.
- Exploring privacy settings and setting them at the highest level of security.
- Talking about ways to be a good digital citizen.

For more information and resources go to :<https://www.healthychildren.org/English/fmp/Pages/MediaPlan.aspx>

Figure A. Family Media Plan Paper Version

The Family Media Plan was designed by the American Academy of Pediatrics and can help you set screen time goals for your whole family. Remember, parents are role models.




Preschoolers should get **less than 1 hour** per day of quality programming!

Family Media Plan

Good Habits Start Early

It takes 5 minutes to make a plan!
Print it out and put it on the fridge!
GO TO:

<https://www.healthychildren.org/English/media/Pages/default.aspx>



Screen time replaces play time and time outside increasing your preschooler's risk for **obesity**



Too much screen time is harmful for a preschooler's **development and behavior**



Fast media like Tik Tok and Instagram can be over stimulating for young brains. Try some of these educational shows:



<https://www.healthychildren.org/English/media/Pages/default.aspx>

Figure B. Family Media Plan Educational Handout and Explanation

Appendix D

IHI PDSA Tool

Planning Overabundance of screen time and media use at any age may have detrimental health effects, but the effects of screen time use in preschool aged children has been found to be especially harmful. Screen time use in the preschool aged population is associated with decreased play, increased sedentary activity, obesity, unhealthy snacking, behavioral issues, and cognitive and developmental delay (Madigan et al., 2019; Vanderloo et al., 2020). Currently only 43% of children ages 2 to 5 meet the recommendation established by the American Academy of Pediatrics (AAP) of less than one hour a day of screen time. Nationally, this leaves a large percentage of young children at risk for the negative outcomes related to an excessive use of screen time (Healthy People 2030, 2020).

Aim The primary aim of this project is to increase provider intervention using the evidenced-based Family Media Plan for children ages 2-5 who screen over AAP recommendations at a pediatric clinic in Northern New England by November 2022. This aim includes a goal that 75% of providers find this intervention useful, efficient, and easily incorporated into the well child visit.

Describe your test of change.	Responsible	When	Where
Providing handouts for providers to initiate the family media plan during well child visits for preschoolers who screen over recommended amounts.	CH	Sept 2022	NEE pediatric clinic
List the tasks needed to set up this test of change.	Responsible	When	Where
1. Survey providers regarding current beliefs 2. Chat audits for current rates of intervention. 3. Education regarding intervention for screen time 4. Provide intervention materials 5. Providers use intervention during well child visits 6. Follow up survey regarding use of intervention (<u>rate, time, efficiency, ease of use</u>) 7. Chart audits for post-intervention rates.	CH Provided	Sept 2022- Nov 2022	NEE pediatrics clinic
Predict what will happen when the test is carried out.	Measures of Success		
I predict there will be at least a 50% increase in provider intervention rates for those ages 2-5 who screen over recommended amounts by Nov 2022.	50% increase in provider intervention 75% approval of intervention		

Do Run the test. This test has not been completed yet.

Study Describe the measured results and how they compared to the predictions: The results will be evaluated to see changes in the rate of provider intervention and provider satisfaction with the intervention.

Act Describe what modifications to the plan will be made for the next cycle from what you learned: From the data and surveys collected it will be evident if changes in the intervention process need to be changed or improved or if this intervention feasible during the WC visit.

Figure A. IHI PDSA Tool Worksheet

Appendix E

IRB Exemption from University of Vermont

Thank you for completing the Research Not Requiring IRB Review Self-Determination Tool. The **proposed activity DOES NOT meet the regulatory definition of research** under 45 CFR 46.102(d):

(d) Research means a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge.

Therefore, this research **does not require IRB review and approval**.

Note: If this is a sponsored project (projects that are managed through SPA), please be prepared to provide a copy of this document to the SPA Award Acceptance Officer.

Determinations made utilizing the self-determination tool require that for any publications, conferences, sponsors, etc., the project be accompanied by the following statement "According to the policy defining activities which constitute research at the University of Vermont/University of Vermont Health Network, this work met criteria for operational improvement activities exempt from IRB review."

Figure A. IRB Exemption

Appendix F

Stetler Model

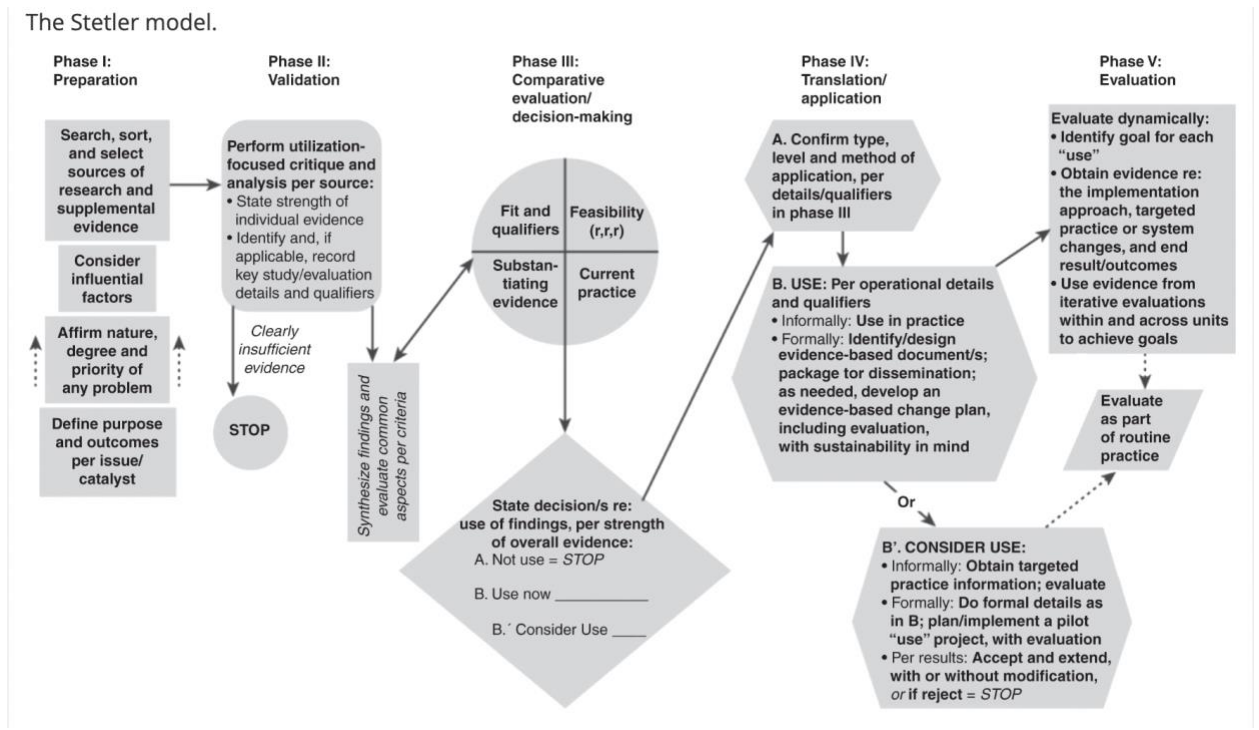


Figure A. Stetler Model (Stetler, 2010)