REPORT

Plan for a Pilot Program to Incorporate Additional Diagnostic Tools into Reading Diagnostic Tests Used for Screening K-3 Students, as required by SB 1718 (2019)

DECEMBER 1, 2019

OFFICE OF SPECIAL EDUCATION AND STUDENT SERVICES
DIVISION OF SCHOOL QUALITY, INSTRUCTION AND PERFORMANCE

Table of Contents

EXECUTIVE SUMMARY

In 2019, the General Assembly passed Senate Bill 1718 (SB 1718) which stated the following:

The Department of Education, in consultation with appropriate stakeholders, including a parent of a currently enrolled public school student diagnosed with dyslexia, shall develop a plan to implement a pilot program to incorporate additional diagnostic tools into reading diagnostic tests used for screening students in kindergarten through grade three. Such plan shall consider the appropriate interventions and services for students identified through such additional diagnostic tools and the resources that are necessary for the implementation of such interventions and services. The Department of Education shall submit such plan to the Chairmen of the House Committee on Education, the Senate Committee on Education and Health, the House Committee on Appropriations, and the Senate Committee on Finance no later than December 1, 2019

The Virginia Department of Education (VDOE) convened a workgroup, consisting of parents, practitioners, and dyslexia advocates, which considered several options to address the study mandate in SB 1718 for additional diagnostic tools into the current system required by Early Intervention Reading Initiative (EIRI). The options included: stand-alone measures commonly identified when discussing assessment of students experiencing difficulty with reading. For example, the Rapid Automatized Naming (RAN) is a task that measures how quickly individuals can name aloud objects, pictures, colors or symbols. Adding such a component to the current Phonological Awareness and Literacy Screening (PALS) that is used in the majority of school divisions across the Commonwealth of Virginia is recommended. The workgroup also discussed enhancing current PALS' measures: phonological processing, oral reading fluency of connected text, and single-word reading to strengthen the current assessment with components that are more sensitive to assessing a student's reading skill development.

The legislation also required that appropriate interventions and services be considered. Based on a review of other states' initiatives and a review of literature, VDOE identified the types of interventions used by other states and the characteristics of effective interventions identified in the literature. Lastly, the legislation required that resources necessary for implementation, including the costs of implementation and training, be considered.

To address the legislative requirements of SB 1718, VDOE recommends the development of a three-year pilot program that supports and requires the updating and enhancing of PALS with additional measures (PALS 2.0) that are more sensitive to identifying students with, or at risk for, reading difficulties, such as dyslexia. This update will build on the current assessment familiar to local school divisions in Virginia and will include measures that assess areas considered predictive of reading difficulties. This process will include steps designed to ensure that PALS 2.0 is valid and reliable to be better able to identify students experiencing or at-risk for reading difficulties. This recommendation is based on the review of reading research and the use of screening tools and external expert analysis and input. Factors such as the cost of the enhancement of the current assessment, retraining and ongoing professional development needs,

instructional implications, and technology/data support are also noted and presented with corresponding budget information when available.

BACKGROUND

Enacted in 1997, the Early Intervention Reading Initiative (EIRI) allocates resources to Virginia schools to assess children's literacy skills and provide early intervention if needed. Phonological Awareness Literacy Screening (PALS) is used in 131 out of 132 divisions across the Commonwealth to screen children in grades K-3 for reading difficulties. Divisions are required to administer the PALS or another approved literacy screening tool at a minimum of four time-points across K-3 with the goal of providing data to support instructional decisions to ameliorate early reading difficulties. Currently, high-stakes decision-making rests on PALS, as the allocation of state dollars for reading improvement intervention begins when a child falls below the criterion ("sum score") on PALS. The results of PALS serve as the eligibility criterion for services and is the basis for state expenditures, both of which require adherence to rigorous, contemporary standards for reliability and validity, and the provision of data to inform instruction. The PALS measure is deeply established in Virginia schools and reflects an important state-level initiative that emphasizes data-use as a critical piece of high-quality reading instruction. According to the University of Virginia (UVA), PALS was developed as a state-wide screener well before there was any emphasis nationally on state-wide screening and positioned Virginia as a leader. Since its development, researchers have learned even more about the development of reading skills, the attainment of reading proficiency, and how best to measure skill development across the early years (PK-3).

Acknowledging the history of the EIRI initiative and use of the PALS screening tool, Senate Bill 1718 (2019) required VDOE, in consultation with stakeholders, to develop a pilot program that incorporates additional diagnostic tools into reading diagnostic tests used for screening K-3 students. The plan also required VDOE to consider appropriate interventions and resources for students identified through the additional diagnostic tools and the resources that are necessary for the implementation of such interventions and services.

To address the requirement of SB 1718, VDOE reviewed literature on screening tools and state dyslexia screening initiatives nationwide. VDOE formed and convened a diverse stakeholder workgroup (Refer to Appendix C), including representatives from VDOE, higher education, parents, general education professionals, administrators, special education directors and teachers, and dyslexia awareness support groups and organizations. The goal of the workgroup was to provide input into the development of a plan to address the requirements of SB 1718.

Based on the stakeholder group recommendations, VDOE created an internal workgroup that consulted with experts in the area of screening for reading difficulties, such as dyslexia, for guidance and resources. These experts included researchers and several state dyslexia specialists. VDOE acknowledges the support of the staff from the Appalachia Regional Comprehensive Center (ARCC) for their faciliation of stakeholder meetings and brokering an outside consultant to review and provide information on the options for additional screening measures (Refer to Appendix D).

To further the work, VDOE, in collaboration with ARCC, developed a logic model, designed to clarify and connect the scope of the work for the components of SB 1718 to the desired goal. The goal of the legislation is to increase K-3 student reading achievement by reducing the number of children with reading problems through early diagnosis and immediate intervention. To reach this goal, three components are necessary for the pilot program plan: 1) identification of an additional diagnostic measure; 2) consideration of intervention; and 3) resources. Each component is addressed in the following recommended pilot program.

PILOT PROGRAM

This section describes the recommended elements of the pilot program by each component of SB 1718.

Component 1: Additional diagnostic tools

The workgroup reviewed screening tools, commercial products, and the PALS 2.0 proposal by University of Virginia (UVA). Three options were considered for the additional screener, including a stand-alone RAN, PALS 2.0, and PALS+RAN. To enhance transparency during the review process, VDOE requested technical assistance from ARCC to assist in identifying an expert consultant who would provide a brief comparative review of the three screening options. Subsequently, this expert consultant reviewed factors such as the timing of assessments, development issues, cost considerations, training and professional development needs, infrastructure considerations, and technical standards and classification accuracy (Refer to Appendix A). As a result, VDOE recommends the implementation of a three-year pilot program using the PALS 2.0, a revision by UVA to the current PALS screener that would add additional measures that are sensitive to the profile of struggling readers with characteristics of dyslexia (Refer to Appendix B).

According to the UVA proposal, new measures would be developed prior to the implementation of the pilot project to address the legislative expectations at no cost to the Commonwealth. It would enhance and update the PALS assessment, which is viewed as a reliable and valid screening tool based on a review by the National Center of Intensive Intervention (2019). The PALS 2.0 will be aligned with the Standards of Learning and will be feasible for teachers to administer accurately within a reasonable timeframe. The PAL 2.0 system will offer data to teachers to guide instruction. The PALS center will continue to provide opportunities for ongoing professional development along with additional implementation resources. Furthermore, while adding the additional measures, it provides an opportunity for UVA to update PALS to ensure its approach to reliability and validity is consistent with contemporary measures. The goal is to develop an updated screener that will serve all students in the Commonwealth, including subgroups of children who are at-risk for reading difficulties, such as dyslexia. The updates to the current PALS reading screener include:

- Adding up-to-date subcomponent skills of early reading shown to be predictive of later reading achievement. These skills include phonological processing and oral reading

fluency of connected text, single-word reading, and rapid automatized naming of objects (kindergarten) and /or letters and letter sounds in the later grades. The new subtests will be based on contemporary knowledge, reading research, and assessments; these new measures will be validated and normed across multiple subgroups of children using well-established standardized measures.

- Re-evaluating the sum score(s) currently used to indicate risk status to ensure that the appropriate children are identified and instructional resources are used to address specific skill deficits. This process will require the application of contemporary statistical and analytic approaches to evaluate measurement properties of scores derived from PALS and its consistency with the varied uses of these scores. Additionally, this process will compare the rate of identifying at-risk status for PALS 2.0 as compared to the current PALS, and as compared to other, research-based literacy screeners.
- Investigating the reliability and validity of the PALS screener for subgroups of children known to be at heightened risk for reading difficulties, including English Language Learners (ELL), low-Socio-Economic Status (SES), children with dyslexia, and other literacy-related disabilities.

Timeline /Proposed Cost for Measure Development and Pilot

The current PALS measure, administrative and data portal infrastructure (for online testing and reporting as well as user authentication and data security/management) provide the foundation from which to begin the proposed revision. Planned (and necessary) revisions will require an iterative development process that occurs in two phases.

The pre-pilot plan would emphasize critical areas of development that are particularly salient to the state, given the requirement in SB 1718 for this initiative to focus on adding measures that are sensitive to specific profiles of struggling readers, including children with dyslexia.

At present, there is no identified funding for the work. A team of content experts and a measurement expert/psychometrician is poised to engage in this effort. The proposed work will leverage content, management, and technology/coding staff in place at PALS.

Pre-Pilot (July 1, 2019-June 30, 2020)

The pre-pilot work will accomplish two large goals. First, current PALS items will be analyzed to determine fit and suitability for inclusion in a new enhanced version of PALS (PALS 2.0). Second, the PALS team will begin item development on the proposed new subtests for inclusion in an expanded and refreshed version of PALS (PALS 2.0).

Activities completed during this phase could include:

- ***Analysis of current PALS items.*** Statistical analysis will be conducted to determine the appropriate fit of current PALS items (e.g., items from B & C phonological awareness subtests, non-word reading from Quick Checks) to determine their fit and appropriateness for inclusion in a new and expanded version of PALS.

- ***Item development for phonological processing tasks.*** This includes items that span the full range of phonological awareness through phonemic manipulation and also involves the inclusion of items from the current PALS awareness tasks (rhyme and initial sound). The phonological processing task framework is still being developed but is expected to reflect tasks that involve detection, blending, segmenting and/or manipulation of various units of sound. It will span from awareness of rhyme and initial sounds to awareness and manipulation of syllables, and sounds within closed syllable words.
- ***Item development for nonsense and real word decoding.*** This will include a list of decodable word patterns for both real and nonsense words and will vary vowel patterns (long/short patterns that also include complex vowels such as 'ea' or 'ai' or 'oo'). This task will build upon the nonsense decoding Quick Checks of PALS but broaden and expand the lists that are there into a fully developed task.
- ***Protocol development for rapid automatized naming tasks, to include an object naming task for kindergarten, and letter name and letter sound tasks for later grades.*** This will include a protocol that is guided by creating a form that can span a range of ages and balances letters that are easier and harder for children to learn (based on the extant literature and an item-level analysis of PALS data). Specific protocols for this will be developed to balance consistency with other contemporary approaches as well as approaches that allow for an online testing format.
- ***Oral Reading Fluency screening passages.*** The current PALS measure has oral reading tasks that emphasize placement of children in reading 'levels.' These data are seen as useful to instructional planning but they do not allow oral reading fluency metrics to be considered in the identification of children below the benchmark/at risk. An important revision for grades 1-3 is the development of screening passages and metrics on rate and accuracy that can be factored into a screening benchmark and sum score.
- ***Face-validity testing***. Items will be given to a small convenience sample of children by researchers from the PALS office. We will prioritize grades K and 1 but will work to get a full K-3 sample depending on availability and funding.

Funding: There is no funding external to UVA for this work. The funding provided reflects the 'in-kind' contribution of UVA's resources to support the activities in preparation for a state-funded pilot, including 10-15 percent of staff time from three UVA research professors, 10-20 percent of staff time from four fulltime PALS staff members, and 10 data collectors to assist in the face-validity testing. Consultants may be engaged as necessary who have experience developing similar state-level screeners. The expected in-kind contribution that UVA is making to this effort for time, materials and travel is approximately $225,000.

State-Funded Pilot: Year One: July 1, 2020- June 30, 2021

This phase of the work will build on the pre-pilot with two main goals. First, the UVA PALS office will continue to pilot the new tasks with a larger group of divisions and schools. Second, appropriate data analysis will be conducted to determine the adequacy of the new subtests and

their fit with current PALS subtests as well as their ability to screen for children at risk for reading difficulties.

Activities in Year One include:

- ***Recruitment.*** Support VDOE in recruiting divisions/schools to participate in the pilot (including stipends for divisions/schools or other incentives).
- ***Design a rigorous comparison study.*** *(Refer to Appendix D).*
- ***Pilot new tasks with 300-500 children per grade per time point per condition.*** Pilot new tasks and new subcomponent skills (below) for grades K-3. Researchers will collect data during the same windows as PALS testing; teachers will continue to conduct PALS as usual. Additionally, external and nationally validated measures will be collected to ensure PALS new tasks show validity/consistency with these measures. The new tasks for which data will be collected will require fall and spring data collection. The tasks to be administered/collected include, at a minimum:
    - Phonological Processing
    - Decodable word and non-word reading
    - Object naming fluency (K only)
    - Alphabet fluency
    - Oral Reading Fluency
- Data analysis for PALS 2.0
    - Reliability and validity of subtests
    - Determine the relationship between new tests to existing PALS and external measures
    - Determine the relationship between PALS 2.0 identification patterns and identification patterns found in other conditions
    - Item level analysis to allow for vertical alignment between K and 1, at a minimum.

Funding: The expectation is funding external to UVA and in addition to the money required to administer and implement PALS in its current form is required for this pilot. The costs are for piloting and analyzing at least three new tasks (phonological processing, decodable word/non-words, alphabet fluency) with 1,200-1,500 children K-3 per condition (total of approximately 3,000 children), collect concurrent measures for test validity and reliability (approximately one hour per child), incentivize participation, analyze data. This requires a full-time project manager, project coordinator, 10 data collectors, 20 percent of staff time from three UVA research professors each, a full-time data manager, as well as incentives for participation. Total cost: $500,000 -$700,000 depending on specific decisions around size and incentives.

State-Funded Pilot: Year Two: July 1, 2021 - June 30, 2022

The remainder of this plan is written with the assumption that the state selects PALS 2.0 as the option for enhanced screening and this information reflects our estimates of costs to take this to scale. The logic and costs are consistent with other, recent efforts to create a state-wide screener

in K around social-emotional and math (e.g., VKRP). The decision to go with another assessment approach besides PALS 2.0 would also require significant investments by the state around infrastructure building and data integration and reporting. (Refer to Appendix E).

There are three main goals for this year:

- First, a larger pilot of the new subtests will be conducted. This larger pilot will be designed to gather state representative samples on the new PALS tasks.
- Second, analyses will be conducted to determine how to merge the new tasks with the traditional PALS for a truly integrated and refreshed PALS 2.0 in grades K-3. This work of integrating new tasks with traditional PALS tasks will need to result in a screener that has 'value-added' over the current PALS measure. This means it must be more sensitive to varied profiles of reading difficulties, will provide increasingly relevant information to teachers for instructional planning for all children, and is seen as more or equally efficient by teachers and schools.
- Third, the online data portal infrastructure will be expanded to allow school-based implementation of the new PALS 2.0 form. Although aspects of this infrastructure exist, this revision will require a platform that can accommodate the new PALS 2.0 while also allowing for the traditional PALS to be administered concurrently (because the PALS 2.0 will not be in every school and every division). This data portal infrastructure update will also require the creation of new professional outreach around administration and data interpretation, as well as new reports. Building on this extension to the current PALS infrastructure will require additional supports to the existing PALS technology team; however, the expectation is that the current PALS team will be able to maintain this infrastructure should PALS 2.0 replace PALS and go statewide.

Activities in Year Two include:

- ***Recruitment***. Recruit divisions/schools to participate in the pilot (including stipends for divisions/schools or other incentives) for a state-representative sample
- ***Implement the Pilot***. Pilot PALS 2.0 with 300-500 children per grade per time point so that longitudinal performance can be examined (i.e., including some of the same children as the previous year's pilot) while also ensuring point in time data collection allows for a state-representative sample. As in Year 1, researchers will collect data during the same windows as PALS testing; teachers will continue to conduct PALS as usual. Additionally, external and nationally validated measures will be collected to ensure PALS new tasks show validity/consistency with these measures. The new tasks for which data will be collected will require fall and spring data collection. The tasks to be administered/collected include, at a minimum:
    - Phonological Processing
    - Decodable word and non-word reading
    - Object naming fluency (K only)
    - Alphabet fluency
    - Oral Reading Fluency

- ***Data analysis:***
    - Reliability/validity; longitudinal analytics; item-response theory and test construction
    - Feasibility of implementation with current PALS online system
    - Threshold of risk status for subgroups of children with reading difficulties (e.g., ELL, low SES, children with disabilities)
- ***Online System***. Create a platform within the PALS online system for item bank and new subset development and enhancement of current online testing portal to allow for item bank/alternative forms/new task and targeted rollout
- ***Finalize***. Finalize test items/subtest forms in the online testing portal for scaled dissemination and to prepare for school-based implementation.

Funding: Pilot and analyze three new tasks (phonological processing, decodable word/non-words, alphabet fluency) with 1,500 children in grades K-3, per condition (total of 3,000) in a state-representative sample, incentivize participation, analyze data, enhance data portal, and prepare training and support for school-based implementation in Year 3. The projected cost would be $500,000-$700,000, depending upon decisions regarding the extent of online platform supports required and the size of the pilot.

State-Funded Pilot: Year Three: July 1, 2022- June 30, 2023
This phase of the project will include a pilot of the fully revised PALS 2.0 with a state representative sample (e.g., 40 divisions; 300-500 schools) in which administration for pilot schools and teachers will replace the use of the traditional PALS measure and will be conducted through a revised online testing system and data portal.

Activities for Year Three include:

- Pilot PALS 2.0 in 40 divisions, 300-500 schools' grades K-3 across the state
- Provide hotline support (separate from current PALS hotline and support)
- Provide in-person training around measurement implementation and online training for measurement certification
- Provide data reporting, parent data sharing and resources, and data use supports to teachers across the year through the online portal for understanding children's profiles
- Provide printed materials and supports to teachers and schools for assessment administration

***Funding*:** Support school-based implementation and administrative structure through an online portal for a state-representative sample. The projected cost would be $800,000-$1,000,000.

Component 2: Appropriate interventions and services for students identified through such additional diagnostic tools

The EIRI requires that all K-3 students who identified as at risk of reading difficulties (as measured on PALS) receive appropriate support and intervention. The EIRI furnishes incentive funds for school divisions to provide identified students with an additional two and a half hours of reading instruction per week. Localities are obligated to match these funds based upon the composite index of local ability-to-pay. The EIRI provides the division the discretion to determine the intervention, which may include the use of special reading teachers, trained aides, volunteer tutors under the supervision of a certified teacher, computer-based tutorial programs, and extended instruction time in the school day or school year.

Based on the review of state initiatives and a review of research related to foundational skills of reading, VDOE recommends:

- A structured literacy approach (as defined by HB 1265/SB368 2018) students who do not meet the benchmark for PALS 2.0.
- The intervention should be implemented as described in the section below, State Funded Pilot: Years One-Three (July 1 2020-June 30, 2023).

***Funding*:** Project costs to be determined, but begins to allow for cost-sharing with ongoing EIRI /PALS funding.

State-Funded Pilot: Years One-Three (July 1, 2020 - June 30, 2023)

Activities during the state-funded pilot include:

- ***Intervention Selection:*** An evidence-based intervention with a structured literacy instructional approach that is explicit, systematic, sequential and cumulative is recommended.
    - For the pilot divisions, in consultation with the division's dyslexia advisor, curriculum specialist, building level principal, and reading specialist, the division will determine the appropriate intervention that meets the needs of the students based on student data.
    - The cost of interventions and/or programs and/or products will vary.
- ***Intervention Implementation:*** It is recommended that the intervention be provided through a tiered system of support based on the individual needs of the student.
    - Selected pilot participants should have knowledge of or familiarity with Virginia's Tiered System of Support (VTSS). A problem-solving team should be established to coordinate intervention-related activities, including accessing and interpreting student data and ensuring the implementation of evidence-based practices.
    - Strong core reading instruction in Tier 1 is required that is based on the principles of VTSS and reflects the components of reading as identified by the National Reading Panel, to meet the needs of all students. Strong core reading instruction to include structured literacy approaches will provide a solid base to support students showing the most risk for reading difficulties.

- Under the tiered system, school teams review other existing data sources to help identify students who will receive targeted, skills-based small group intervention (Tier 2 or Tier 3) in addition to core reading instruction.
- The intervention should be delivered under the direction of or by a professional who has completed structured literacy-related training.
- Ongoing progress monitoring of student reading performance and response to instruction should be documented.
  - Students' progress should be monitored regularly using the appropriate progress monitoring tools as determined by the school and/or division. Alignment of the progress monitoring tools with the intervention, and/or program, and/or product used will be encouraged.
  - The data should be analyzed regularly to determine the effectiveness of the intervention and guide instructional and programmatic changes as needed.
  - Parents should be notified of student progress. Working with parents, VDOE will assist divisions with the development of guidelines and procedures for parent notification.

Component 3: Resources necessary for the implementation of such interventions and services

Virginia schools are allocated resources to assess children's entry literacy skills and provide early intervention (when indicated). To implement this pilot, additional funding will be required beyond the EIRI and the VDOE dyslexia initiative funding. Funding necessary for the additional screening tool has been described in the proposal. (Refer to earlier PALS 2.0 proposal) The funding and resources needed are described below.

Services

1. ***Site Recruitment:*** In collaboration with university partners and/or outside evaluators, the Virginia Department of Education will select school divisions to participate through an application process.
   - Participation from urban, rural, and suburban sites will be encouraged.
   - The selected site will receive an incentive for participation in Year 1 and Year 2 as described in the proposal for the additional screening tool.

2. ***Site Selection:*** The selected pilot school divisions must:
   - Meet the student enrollment requirements as described in phase II of the PALS 2.0 proposal
   - Have current or previous experience with the Virginia Tiered System of Support (VTSS currently partners with 54 school divisions to support VTSS implementation with fidelity. For a list, go to VTSS: Participating Divisions.)
   - Have teachers who have participated in the Multi-Sensory Language Instruction and/or LETRS initiative sponsored by VDOE
   - Have a person identified as the division's dyslexia advisor

- Identify their Tier 1/Core reading program and progress monitoring system

3. ***Professional Development:*** To ensure the quality of instructional staff, professional development will include:
    - *Assessment training requirement:* Teachers will be trained to conduct the assessments through a collaborative effort with UVA's research team and PALS support team as described in the plan or outside vendor if a commercial product is used.
    - *Intervention training requirement:* For pilot implementation, school divisions will be required to provide professional development for teachers or interventionists in evidence-based reading and structured literacy instruction serving students in K-3. Divisions will be given two options for professional development for their staff, division, or state-driven initiative:
        - *Division professional development initiative*: In consultation with its dyslexia advisor and reading specialist, the division must ensure teachers in grades K-3 in each K-5 school participating in the pilot complete structured literacy training within 6-12 months of the pilot participation. During the review of states with similar legislation, the following examples of interventions where identified: Language Essentials for Teachers Reading and Spelling (LETRS), Orton-Gillingham (OG), Wilson, and The Lindamood Phoneme Sequencing (LiPS).
        - When not participating VDOE's State Structured-Literacy Initiative, the division will identify or document the division-developed professional development being provided as part of the pilot.
        - The cost for professional development for structured literacy range from $300-$2,000 or more/teacher. Funding allocation should be based on the number of teachers/divisions who are participating in the year 1 and 2 pilots. On average, the cost is $1,000/teacher.
        - *State Structured-Literacy Initiative:* Through VDOE's current on-going structured literacy initiative, priority participation will be given to the pilot sites. VDOE's initiatives include:
            - hybrid course (80 hours) for K-3 teachers in the LETRS by Voyager Sopris
            - 4 days (30 hours) Multi-Sensory Language Institute

The VDOE's Initiative is contingent upon continued state funding. ($300,000-500,000/year). This does not include the follow-up support and coaching currently provided by the Training and Technical Assistance Centers (TTAC).

- *Professional Learning Community:* Divisions/schools are encouraged to build a professional learning community by utilizing teachers who have participated in the State Structured-Literacy Initiative as resources for others new to the instructional process.

- *Technical Assistance and Resources:* The Dyslexia Advisor and reading specialist(s) will be encouraged to facilitate monthly updates, share resources, and provide technical assistance as necessary to teachers within the division.

Parent Notification and Guidance

The EIRI currently requires a partnership between the school and parents for rising third graders who have reading deficiencies and parents participate in the development of a plan for remediation and retesting.

- Pilot sites in partnership with UVA will provide a parent education program for the parents/guardians of students participating in the assessment pilot and intervention. The program should include awareness of characteristics of reading difficulties; information on the additional assessment; information on effective strategies for teaching reading.
- Progress monitoring updates should be provided to parents at regular intervals.
- It should be noted that as part of the *Individual with Disabilities Education Act* (IDEA) Child Find requirements, a referral to special education should be made if the parent and/ or the teacher suspects a disability.

SUMMARY

After considering several options including a stand-alone rapid automatized naming assessment, the PALS with a stand-alone rapid automatized naming assessment, or the updated PALS 2.0 screening tool, VDOE recommends a three-year pilot plan to address SB 1718 using the updated PALS 2.0 screening tool. The pilot plan is as follows:

- The PALS 2.0 will be designed to assess K-3 student's early reading skills and provide an in-depth analysis of instructional design for teachers, with insightful information for parents.
- The updated PALS 2.0 will include measures that address rapid automatized naming (RAN) and other measures to assess areas considered predictive of reading difficulties.
- During the implementation of the pilot, the PALS 2.0 will be normed in a manner to ensure that the assessment is reliable, valid and has greater classification accuracy.
- Teachers will be provided professional development in the implementation of the PALS 2.0 assessment, interpretation of the results, and provided the opportunity to participate in structured literacy training.
- Data will be provided to support instructional and intervention decision-making to instructional leadership, teachers and parents.
- Parents will be notified and made aware of assessment outcomes, including ongoing progress monitoring, and any interventions that occur beyond the core curriculum. Parents will be encouraged to participate in the development of their child's intervention plan.

The VDOE's recommendation is based on current reading research, the cost for development and implementation of an additional diagnostic tool, training and professional development needs of staff for assessment administration and intervention implementation. At the completion of the pilot, a decision will be needed regarding statewide implementation. Consideration of statewide implementation is beyond the scope of this legislation.

APPENDICES

APPENDIX A: EXTERNAL REVIEWER'S REPORT

VDOE Screening External Reviewer Report by:

Dr. Yaacov Petscher
Associate Professor, College of Social Work
Director, Quantitative Methodology and Innovation Division
Associate Director, Florida Center for Reading Research
Florida State University

VDOE CONSIDERATIONS: Screener for SB 1718

The benefits of screening processes in schools have long been lauded in the scientific literature (e.g., Jenkins, Hudson, & Johnson, 2007; Snow, Burns, & Griffin, 1998; Torgesen, 2000) as a mechanism by which the early identification of those individuals who are at-risk for protracted reading difficulties can be routed to targeted instruction and intervention to remediate reading skill deficits. A host of considerations should inform the creation or selection, and use of quality of screener assessments that may be broadly categorized as including **the usability features of the assessment, technical standards**, and **classification accuracy of scores**. Examples of usability features are:

- The administration format (i.e., individual or group administered);
- Total administration and scoring time;
- Scoring format (e.g., hand scoring or computerized scoring, types of decision rules in the assessment (e.g., intervention levels or benchmark cut-points); and
- Whether the assessment uses fixed or dynamic stimulus formats (e.g., fixed number of items or computer-adaptive items).

Technical standards for a screener describe the presence and level of core statistical analysis results to document the reliability of scores, validity of scores, sample representativeness, and bias analysis. Classification accuracy is the ability of a screener assessment to correctly classify individuals as at-risk or not at-risk for poor outcomes.

For each of the usability features, technical standards, and classification accuracy areas there are varying degrees of standards that may or may not exist to guide the evaluation of quality. Usability features, by and large, do not maintain standards of evaluation as the decision to use individual versus group administration formats depends on the context and goals of local and state education agencies. Likewise, where screening systems should be brief there is no agreed upon standard for administration and scoring time. A number of different resources exist that each provide recommendations for evaluating the quality of technical standards and classification accuracy of screeners (e.g., Glover & Albers, 2007; National Center on Intensive Interventions, 2019; Petscher et al., 2019; Streiner, 2003).

It should be noted that the three broad categories reported here – usability features, technical standards, and classification accuracy - presume the presence of other foundational components of the assessment including:

- An existing operational definitions of risk;
- A well-defined and validated criterion for the screener;
- That content measured by the screener is based on defensible, scientific literature on the acquisition and development of literacy skills;
- That the cut-point for failure on the criterion matches the operational definition of risk and the literature of base rates related to failure; and
- That the norming of the screener cut-points relative to the criterion have appropriate

The purpose of this report is to provide a brief comparative review of three potential proposals related to screening in the state of Virginia focusing on six primary areas: 1) timing of assessments, 2) development issues, 3) cost considerations, 4) training and professional development needs, 5) infrastructure considerations, and 6) technical standards and classification accuracy.

PALS2

The SB 1718 Workgroup Meeting (May 15, 2019) noted that "PALS was developed as a result of a partnership between VDOE and UVA for the creation of a statewide screening…It has been statewide (except Fairfax) since 1997." A specific advantage of the PALS is that "Given the length of time that PALS has been in place in Virginia, many local school divisions are familiar with PALS." The *Proposal for Revision of PALS K and PALS 1-3* documented proposed updates to PALS Screening including:

- Adding sub-component skills of early reading shown to be predictive of later reading achievement (i.e., phonological processing and oral reading fluency of connected text, comprehension, and single-word reading).
- Re-evaluating the sum scores used to indicate risk status to ensure that the appropriate children are being identified and that instructional resources are being used to address specific skill deficits.
- Apply contemporary statistical and analytic approaches to best evaluate measurement properties of scores derived from PALS and consistent with the varied use of the scores
- Investigate the reliability and validity of the PALS screener for subgroups children known to be heightened risk for reading difficulties (e.g., ELL, low-SES, children with disabilities).

It is assumed that the *Proposal for Revision of PALS K and PALS 1-3* document is a **preliminary** documentation of proposed changes rather than a definitive proposal. With this perspective in mind, key pros and cons are described below:

Timing of assessments. According to the National Center on Intensive Interventions (2019), the current version of PALS in K-3 maintains benchmarks for risk according to a spring administration of the PALS where PALS K uses the iStation Reading Scores as a criterion and PALS 1-3 has benchmarks related to the MAP, STAR, and Reading SOL assessments. It is presently unclear if the spring benchmarks are applied at the fall for early identification;

therefore, it is unknown how the fall PALS has demonstrated technical adequacy as a screener for students. This limitation appears to be recognized in the UVA proposal, as a strength of the PALS2 proposal is to collect data on new tasks in both the fall and the spring along with, "external and nationally validated measures…to ensure PALS new tasks show validity/ consistency with these measures." By building item banks in the fall and spring, UVA would have the opportunity to develop longitudinal risk benchmarks (i.e., fall PALS to spring external measures) and concurrent risk benchmarks (i.e., spring PALS to spring external measures).

Development issues. The relative timelines for each phase outlined in this preliminary proposal are reasonable pending the overall purview of the assessment. The phases are thoughtful and commensurate with conventional practices of item development. The pre-pilot phase allows the team to determine the appropriateness of current content into PALS 2 as well as preliminary development activities to set the foundation for item tryouts during proposed state-funded pilot phases.

The proposed sample sizes of 300-500 per grade are appropriate for within-year psychometric evaluation of item pools and allow for the project to consider planned missing data designs to enhance item bank development should this be part of a full proposal. The use of item response theory and computerized delivery for the final product suggests that UVA may be interested in computer-adaptive applications. Should computer-adaptive applications be desired, more time should be built into the item writing and item banking process.

The overall scope and sequence of skills to be measured in PALS 2 are consistent with scientific literature with attention to phonological processing, alphabetic fluency, and word reading. A full proposal would likely document how phonological processing would be assessed in developmentally appropriate ways across K-3 via phonological awareness (e.g., blending, deletion, onset-rime), phonological working memory (e.g., non-word repetition), and phonological retrieval (e.g., rapid automatized naming of letters or numbers).

Pending the use of computer-adaptive applications, added language assessments would likely enhance the classification accuracy of PALS2. The proposal is generally sensitive to aspects of the usability features of the assessment, technical standards, and classification accuracy of scores and a full proposal would expand its detail and specificity.

Cost considerations. Personnel costs are generally adequate given the scope of the project. A detailed project proposal should likely include an independent technical working group of experts in the area of literacy and screening so that the content, design, and overall scope of the PALS2 screener can be informed by independent parties. Further, funding for audio recording and potential artwork for language tasks would be needed commensurate with a technological application of PALS2.

Training and professional development needs. The proposal rightly notes the critical importance of training and professional development via costs in Years 2 and 3 for new report

development, implementation support, and administrative structures via an online portal. If PALS 2 move to computer-adaptive technologies it will be necessary to build in additional costs of training and modules to educate teachers and professionals both on the merit of adaptive technologies and the interpretation of scores that come from them.

Infrastructure considerations. A key infrastructure element that was not considered in this preliminary proposal is the technology infrastructure that would be needed for a computer-adaptive assessment of PALS 2. Computer-adaptive tests require the development and coding of algorithms for how content gets dynamically matched to individual students. Additionally, there are programming needs for how a student starts, moves, and terminates in a computer-adaptive task and test as well as the need to connect individual child results to stored predictive algorithms for risk computation and reference tables that contain normative information about child-level performance (e.g., developmental scaled scores, percentile ranks, standard scores).

Technical standards and classification accuracy. Drs. McGinty, Solari, and Soland have noted the importance of using advanced psychometric theory (i.e., item response theory) to evaluate the item quality and precision of scores. A full proposal should document the types of evidences of reliability (e.g., marginal reliability, internal consistency, test-retest) and validity (e.g., convergent, discriminant, predictive) they wish to study for PALS2 as well as their goals in classification accuracy (e.g., maximizing sensitivity, specificity, predictive power).

Alternatives to PALS2

VDOE has expressed interest in exploring the extent to which one of several other options may be viable to satisfy the first portion of SB 1718 including:

- Current PALS with a stand-alone RAN measure added
- Using an existing stand-alone screening assessment with RAN
- Development of a new screener system

There are several merits and drawbacks to each of these considerations, yet it should be noted that all three alternatives require that a one-year, school-based implementation study is conducted to link scores from the combination of assessments to the selected criterion. A one-year implementation study is necessary to determine how the screener and RAN measures work together to predict the criterion and to establish new cut-points for risk on screener and RAN measures together. Simply adding RAN to an existing measure without validating its statistical value-added to classification accuracy can result in misclassification and increased error rates in early identification.

Current PALS with a stand-alone RAN measure added. The benefit of using current PALS is that it is already widely used in the state of Virginia, requires no new training of materials beyond what exists, and has documented evidence of its usability, technical standards, and classification accuracy. By adding a RAN measure to the PALS assessment, there are necessary steps including:

- Training teachers and data teams to administer both assessment systems;

- Creating online portal interfaces and associated infrastructures for data storage and ancillary technological considerations; and
- Critically, both PALS and RAN would need to be administered during the fall and spring of an upcoming school year along with a criterion during the spring so that individual or composite cut-points could be developed to screen for risk. This work could take place during one academic year, but VDOE should also plan for data analysis, reporting updating, and integration time prior to wide-scale deployment across the state.

Using an existing stand-alone screening assessment with RAN. The benefit of using an existing stand-alone assessment system is the full validation that comes with the system, documentation of usability features, technical standards, and classification accuracy of scores and the likely intact professional development and technical assistance for the assessment. Limitations of this approach include:

- Moving away from a well-known and widely used screening system in PALS;
- Training teachers and data teams to use the new assessment system; and
- If the stand-alone system does not include RAN, and VDOE desires a RAN task in addition to the stand-alone system, a one-year, school-based implementation study would be needed to combine scores across the systems to determine risk thresholds.

Development of a new screener system. Of the three options listed as alternatives to PALS2, the development of a new screener system will be the most costly and time-intensive alternative. New screener systems entail new scope and sequence development for content, content and technology creation, multiple years of item piloting and implementation studies, large-scale school recruitment, the development of training modules, report and dissemination development, and significant time in vetting content among stakeholders in the state and investing time in technical working groups involving experts in literacy skills, measurement, diagnostic accuracy, and implementation sciences.

Summary

Four current proposals are under preliminary consideration by VDOE to meet the first portion of SB 1718:

1) A proposal by UVA to update the PALS to PALS2,
2) Using the current PALS with a measure of RAN
3) Using an existing stand-alone assessment with a measure of RAN
4) Creating a new screening assessment system

The totality of the working groups for SB 1718 shows a strong working relationship between VDOE and UVA. In this reviewers' professional recommendation, the confluence of data elements that should be considered in creating, choosing, and using of screeners should be taken in tandem with the long-term working partnership between the state educational agency and the public university. This blending of educational policy oversight and management at VDOE and scientific inquiry and advancement at UVA is an example of strong SEA-university partnerships that have historically innovated in policy and science for the betterment of education (e.g.,

Texas, Oregon, and Florida). The costs associated with blending vendor assessments or creating new assessments are not unreasonable in its scope and could be advantageous in the absence of a historical relationship that has produced a widely used screening measure for the state of Virginia and in academia. Moreover, potential costs for alternatives to PALS2 will need to account for the significant retraining and ongoing professional develop, database considerations, data access and privacy issues, and how to balance the integration of assessments in alternative choices when new versions of vendor assessments become available (i.e., retesting the cut-points for stand-alone assessments + RAN)

References

Glover, T. A., & Albers, C. A. (2007). Considerations for evaluating universal screening assessments. *Journal of School Psychology*, *45*(2), 117-135.

Jenkins, J. R., Hudson, R. F., & Johnson, E. S. (2007). Screening for at-risk readers in a response to intervention framework. *School Psychology Review*, *36*(4), 582-600.

National Center on Intensive Interventions (2019). *Academic screening rating rubric.* Retrieved from:
https://charts.intensiveintervention.org/chart/academicscreening/headers#field_as_reliability
Petscher, Y., Fien, H., Stanley, C., Gearin, B., Gaab, N., Fletcher, J.M., & Johnson, E. (2019).

Screening for dyslexia. Retrieved from improvingliteracy.org
Snow, C.E., Burns, M.S., & Griffin, P. (1998). *Preventing reading difficulties in young children.*

Washington, DC: National Academy Press.
Streiner, D. L. (2003). Diagnosing tests: Using and misusing diagnostic and screening tests. *Journal of Personality Assessment*, *81*(3), 209-219.

Torgesen, J. K. (2000). Individual differences in response to early interventions in reading: The lingering problem of treatment resisters. *Learning Disabilities Research & Practice*, *15*(1), 55- 64.

APPENDIX B: PILOT OVERVIEW

	Year 1	Year 2	Year 3
Component 1 Requires the development of a plan to implement a pilot program to incorporate additional diagnostic tools into reading diagnostic tests for screening students k-3.	Assessment Tasks •Recruitment of division/schools •Design comparison study •Pilot new tasks with children •Data analysis of PALS 2.0 •2,000 students/100classrooms •41 schools/16 divisions Assessment Cost: $500-000-$700,000 (includes parent notification, pilot incentive)	Assessment Tasks •Recruitment of divisions/ schools •Pilot PALS 2.0 •Data analysis Create platform within the PALS online system •Finalize test items/subtest forms in the online portal •9,800 students/533 classrooms •135 schools/21 divisions Assessment Cost: $500,000-$700,00 (includes parent notification, pilot incentive)	Assessment Tasks •Recruitment of divisions/schools •Provide hotline support for pilot and online •Provide in-person training for measurement implementation and certification •Provide data reporting and sharing of resources through portal •Provide printed materials and • 12,000 students/ 661 classrooms • 154 school/ 45 divisions Assessment Cost: $800,000-$1,000,000 (includes parent notification, pilot incentive)
Component 2 Requires that such plan consider the appropriate interventions and services identified through additional diagnostic tools	Intervention •Teachers selected to participate in VDOE's current structured literacy initiatives Or •Schools select to receive funding of 1,000 per teacher to provide training in structured literacy approach or program Cost of VDOE Intervention: current	Intervention • Teachers selected to participate in VDOE's current structured literacy initiatives contingent upon funding Or • Schools select to receive funding of 1,000 per teacher to provide training in structured literacy approach or program	Intervention • Teachers selected to participate in VDOE's current structured literacy initiatives contingent upon funding Or • Schools select to receive funding of 1,000 per teacher to provide training in structured literacy approach or program

	VDOE initiative funding of $290,000 * Estimated cost for Structured Literacy training: $1,000 x 5 teachers per school=5,000 per school l41 schools x$ 5,000= $205,000	Cost of VDOE Intervention: contingent upon funding of $290,000 * Estimated cost for Structured Literacy training: $1,000 x 5 teachers per school =$ 5,000 per school 94 schools x $5,000 = $475,000	Cost of VDOE Intervention: contingent upon funding of $290,000 * Estimated Cost for Structured Literacy training: $1000 x 5 teachers per school = $5,000 per school, 19 schools x $5,000= $95,000
Component 3 Requires the identification of resources that are necessary for the implementation of such intervention and services	**Estimated Total Cost for Year 1** **$995,000- $1,195,000**	**Estimated Total cost for Year 2** **$1,265,000- $1,465,000**	**Estimated Total Cost for Year 3** **$1,185,000- $1,385,000**

* Federal IDEA funds are supplementing the current initiative.

APPENDIX C: WORKGROUP PARTICIPANTS

Workgroup participants included the following:
Kristen Kane, Parent, Loudoun County
Melinda Mansfield, Parent, Loudoun County
Rebecca Warner, Parent, Chesterfield County
Lorraine Hightower, Parent, Loudoun County
Carrie Martell, Dyslexia Advisor, Harrisonburg City Public Schools
Jennifer Whitaker, Dyslexia Advisor, Amelia County Public Schools
Lynn Dunn, Dyslexia Advisor, Culpeper County Public Schools
Rebecca Hodell, Dyslexia Advisor, Henrico County Public Schools
Darla Toler, School Psychologist, Chesterfield County Public Schools
Dr. Lynn Prince, Special Education Director, Powhatan County Public Schools
Dr. Zenia Burnett, Special Educator Coordinator, Chesterfield County Public Schools
Lori Silver, ELA Department Supervisor, Arlington County Public Schools
Dr. Elaine Gould, Special Education Director, York County Public Schools
Wayne Lyle, Supervisor of Literacy, Early Childhood, and Federal Programs, Amherst County Public Schools
Anita S. McGinty, Ph.D., Director and PI of PALS, Research Associate Professor, Curry School of Education/CISE, University of Virginia

Virginia Department of Education (VDOE) Staff
Martha Montgomery, School Psychology Specialist, Office of Student Services
Carmen Kurek, Elementary English/Reading Specialist, Office of Humanities
Jill Nogureras, Coordinator of English, Office of Humanities
Kim Bausum-Brown, Dyslexia and Specialized Reading Specialist, Office of Instructional Services
Dr. Pat Abrams, Director, Office of Instructional Services
Dr. Teresa Lee, Special Education Instruction Coordinator, Office of Instructional Services
Mary Stowe, Training and Technical Assistance Center at William and Mary

APPENDIX D: RESEARCHERS AND EXTERNAL EXPERTS

Acknowledgement to:
Dyslexia State Advisors:

- Carrie Thomas Beck, Ph.D., Dyslexia Specialist
  State of Oregon
- Peggy McDonald, Deputy Asst. Commission
  Department of Student Services
  State of New Jersey
- Wendy Stoica, Department of Education Assistant Director for Support and Services for Diverse Learners
  State of Ohio

Researcher Consultants:

- David Kilpatrick. Ph.D, Associate Professor
  Department of Psychology
  State University of New York at Cortland
- Louisa Moats, Ed.D.
  Moats Associates Consulting, Inc.
- Nadine Gaab, Ph.D., Associate Professor of Pediatrics
  Boston Children's Hospital/Harvard Medical School
  Department of Medicine/Division of Developmental Medicine
- Elizabeth Baton, Virginia State Coordinator
  Appalachia Regional Comprehensive Center
- Sarah Savko, M.ED, West Virginia Coordinator
  Appalachia Regional Comprehensive Center
  Deputy Director of National Center for Improving Literacy (NCIL)
- Emily J. Solari, Ph.D., Professor, Reading Education
  Department of Curriculum, Instruction, and Special Education
  Curry School of Education/CISE
  University of Virginia
- Yaacov Petscher, Ph.D., Associate Professor, College of Social Work
  Director, Quantitative Methodology and Innovation Division
  Associate Director, Florida Center for Reading Research
  Florida State University

APPENDIX E: DESIGN OPTIONS FOR SB 1718 PILOT

Table 1. Design Options for SB 1718 Pilot

	PALS vs. PALS 2.0	**PALS 2.0 vs PALS+RAN/RAS**	**PALS 2.0 vs standalone NCII screener (e.g., DIBELS)**
Number of children	300 per grade (K-3) per condition for PALS 2.0, (all children receive PALS per EIRI) Total 1,500 children for PALS 2.0	300 per grade (K-3) per condition for PALS 2.0, PALS+RAN/RAS Total 3,000 children (1,500 PALS 2.0) (1,500 PALS + RAN/RAS)	300 per grade (K-3) per condition for PALS 2.0, PALS+RAN/RAS Total 3,000 children (1,500 PALS 2.0) (1,500 NCII standalone)
Data Collection method	PALS 2.0 collected by researchers (not teachers) in Years 1 and 2 1-hour testing for children	PALS 2.0 collected by researchers in years 1 and 2 RAN/RAS collected by researchers (in year 1 and 2) 1-hour testing for children for PALS 2.0 paper/pencil 15-20 minutes testing for RAN/RAS paper/pencil	PALS 2.0 collected by researchers in years 1 and 2 Independent NCII measure collected by researchers (in year 1 and 2) 1-hour testing for children for PALS 2.0 paper/pencil 15-20 minutes testing for RAN/RAS paper/pencil
Additional External measures collected	To support PALS 2.0 validation (e.g., CTPOPP, WJ) 1-hour testing for children paper pencil	To support PALS 2.0 validation (e.g., CTPOPP, WJ) 1-hour testing for children paper pencil	To support PALS 2.0 validation (e.g., CTPOPP, WJ) 1-hour testing for children paper pencil
Online Infrastructure/ Teacher administration	Built in Year 3 (teacher administered year 3)	IF PALS 2.0 selected, built in Year 3 (teacher administered year 3) If PALS + RAN/RAS selected, state will need to determine/negotiate the rights and costs to have	IF PALS 2.0 - selected, built in Year 3 (teacher administered year 3) If Independent NCII selected, state will work with that vendor. And

	PALS vs. PALS 2.0	PALS 2.0 vs PALS+RAN/RAS	PALS 2.0 vs standalone NCII screener (e.g., DIBELS)
		RAN/RAS built into the PALS data portal. Costs for data integration/integrated scoring for a single benchmark, viability of a single online platform for data collection, rights to data sharing, revised reporting	will need to determine what is run through the vendor vs. through the state; determine degree of proprietary rights (around kinds of reports, data sharing, integration into a state-led outreach portal, etc.)
Long-term expectation	PALS 2.0, long-term usage leverages current infrastructure but replaces PALS	IF PALS 2.0 selected, it leverages current infrastructure and replaces PALS IF PALS + RAN/RAS is selected, long-term roles need to be determined. Must assume vendor provides training, materials, ongoing outreach for RAN/RAS, whereas UVA supports PALS. Potential gaps and lack of integration issues to work through.	If PALS 2.0, long-term usage leverages current infrastructure and replaces PALS. If stand-alone selected, the state needs to determine roles with the vendor vs. in-state roles around test costs for yearly replenishing, training/certification, with the vendor. UVA's role is likely minimal.
COSTS Year 1 and 2	$500-700K per year (see detailed proposal)	$500-700 K per year (see detailed proposal)	$500-700 K per year (see detailed proposal)
Costs Year 3 and 4 (statewide rollout and online infrastructure)	See the detailed proposal	TBD. Significant costs for integrating RAN/RAS into the online data portal, need to design reports for integration of data, costs for acquiring rights to use RAN/RAS within state's proprietary online system? Or costs for API between RAN/RAS and state data portal (PALS)	TBD. External vendor may provide the online testing mechanism but likely does not have the hotline support, consistent state-wide outreach, data sharing agreements/procedures, reporting/state report capacity. These things will need to be negotiated with the vendor or a determination made

	PALS vs. PALS 2.0	PALS 2.0 vs PALS+RAN/RAS	PALS 2.0 vs standalone NCII screener (e.g., DIBELS)
			around how the vendor shares data and testing/material rights for a different partner to play that role.
Long-term maintenance costs	Consistent with current EIRI + cost for ongoing maintenance/reinvestment Minimal change to long-term budget	Needs to support integration and ongoing use/purchase/training of a new measure by a vendor (RAN/RAS) in addition to ongoing maintenance costs of PALS, as well as ongoing rights to integrate RAN/RAS data into the online PALS data system	TBD. The state will no longer have a proprietary system/test if it goes with an external vendor. Long-term maintenance costs under this option are unknown at this time.