

# Approaches to the provision of educational support for children and young people with additional health and developmental needs

## Dyslexia

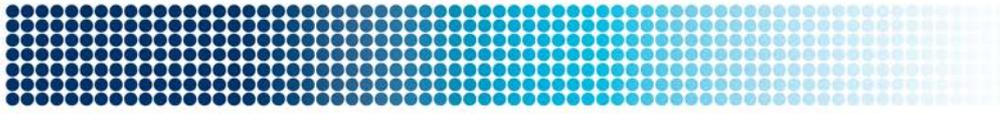
---

Centre for Community Child Health

---

Jon Quach, Meredith O'Connor, Sharon Goldfeld, Lisa Gold, Debra Hopkins, Ruth Beatson, Ruth Aston

August, 2015



## Acknowledgements

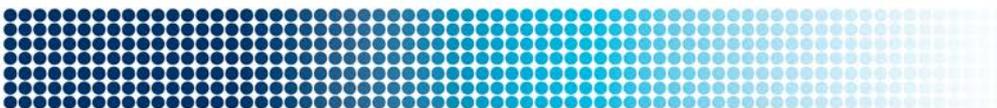
We would particularly like to acknowledge the expert input of David Huggins (Victorian Children's Council), Dr Maria Apostolopoulos (Victorian Children's Council), and Dr Zeffie Poulakis (Royal Children's Hospital).

The PSD Review Unit has funded this review. Responsibility for the research (including any errors and omissions) remains with the authors. The views and opinions contained in this report are those of the authors and do not necessarily reflect the views or opinions of the Department of Education and Training for the State of Victoria.

Suggested citation: Quach, J., O'Connor, M., Goldfeld, S., Gold, L., Hopkins, D., Beatson, R., & Aston, R. (2015). Approaches to the provision of educational support for children and young people with additional health and developmental needs: Dyslexia. Centre for Community Child Health, Melbourne, Victoria.

## TABLE OF CONTENTS

<b>LIST OF TABLES</b> .....	<b>II</b>
<b>LIST OF FIGURES</b> .....	<b>II</b>
<b>LIST OF ACRONYMS</b> .....	<b>III</b>
<b>GLOSSARY</b> .....	<b>V</b>
<b>PREFACE</b> .....	<b>VI</b>
<b>KEY MESSAGES</b> .....	<b>VII</b>
<b>EXECUTIVE SUMMARY</b> .....	<b>VIII</b>
<b>1.0 BACKGROUND</b> .....	<b>1</b>
1.1 SUPPORTING CHILDREN AND YOUNG PEOPLE WITH ADDITIONAL HEALTH AND DEVELOPMENTAL NEEDS (AHDN) AT SCHOOL .....	1
1.2 WHY IS THIS ISSUE IMPORTANT NOW? .....	2
<b>2.0 DYSLEXIA</b> .....	<b>3</b>
2.1 WHAT IS DYSLEXIA?.....	3
2.2 HOW COMMON IS SRD? .....	4
2.3 WHAT ARE THE OUTCOMES FOR CHILDREN AND YOUNG PEOPLE WHO HAVE SRD OVER TIME? .....	5
<b>3.0 WHAT WORKS IN SUPPORTING CHILDREN WITH DYSLEXIA AT SCHOOL?</b> .....	<b>7</b>
3.1 INCLUSIVE EDUCATION AS AN OVERARCHING PHILOSOPHY .....	7
3.2 INTERVENTIONS.....	8
3.3 LIMITATIONS OF THE EVIDENCE TO DATE .....	9
<b>4.0 HOW ARE SUPPORTS FOR CHILDREN AND YOUNG PEOPLE WITH AHDN CURRENTLY PROVIDED?</b> .....	<b>10</b>
4.1 PROGRAM FOR STUDENTS WITH DISABILITIES (PSD).....	10
4.2 EXAMPLES OF OTHER DET RESOURCES .....	16
<b>5.0 POTENTIAL FUNDING MODELS FOR VICTORIA</b> .....	<b>18</b>
5.1 MODELS OF FUNDING .....	18
5.2 CONCEPTUAL FRAMEWORK .....	23
5.3 CORE PRINCIPLES OF AN OPTIMAL APPROACH TO FUNDING .....	25
5.4 UTILISING FUNDING MODELS BASED ON FUNCTIONAL NEEDS .....	29
<b>6.0 RECOMMENDATIONS FOR IMPLEMENTATION AND IMPACT</b> .....	<b>37</b>
6.1 BUILDING WORKFORCE CAPACITY .....	37
6.2 MONITORING AND ACCOUNTABILITY.....	38
6.3 EVIDENCE-BASED APPROACHES TO INTERVENTION.....	38
6.4 EVALUATION AND RESEARCH.....	38
<b>7.0 CONCLUSIONS</b> .....	<b>39</b>
<b>8.0 REFERENCES</b> .....	<b>40</b>
<b>APPENDIX A. DEFINITIONS OF DYSLEXIA</b> .....	<b>48</b>
<b>APPENDIX B: SEARCH STRATEGY AND CODING</b> .....	<b>49</b>
MAIN SEARCH STRATEGY .....	49
SEARCH TERMS.....	49
INFORMATION MANAGEMENT AND REVIEW PROCESS.....	50
SUPPLEMENTARY SEARCH STRATEGY.....	53
CODING PROCESS .....	54



## List of Tables

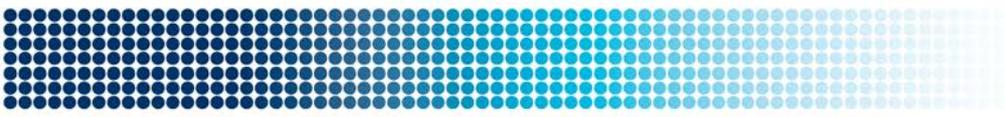
TABLE 1: SUMMARY OF TYPES OF FUNDING MODELS.....	19
TABLE 2: NUMBER OF RECORDS EXTRACTED FOR EACH SEARCH BY DATABASE .....	50
TABLE 3: REASONS FOR STUDY EXCLUSION .....	52
TABLE 4: CODING SHEET.....	54
TABLE 5: SUMMARY OF META-ANALYSES OF SRD INTERVENTIONS .....	55

## List of Figures

FIGURE 1: APPROACH TO SUPPORTING THE SPECTRUM OF LEARNING NEEDS FOR STUDENTS WITH AHDN .....	X
FIGURE 2: TRAJECTORY OF READING SKILLS OVER TIME IN CHILDREN AND ADOLESCENTS WITH READING DIFFICULTIES AND THOSE WITH NO READING DIFFICULTIES.....	6
FIGURE 3: PROGRAM FOR STUDENTS WITH DISABILITIES OVERALL LOGIC .....	12
FIGURE 4: NUMBERS OF STUDENTS FUNDED BY THE PSD BY FUNDING CATEGORY, 2008-2011 .....	13
FIGURE 5: DISTRIBUTION OF NEEDS IN AN AVERAGE SCHOOL OF 100 STUDENTS .....	14
FIGURE 6: SUMMARY OF THE PSD APPLICATION PROCESS .....	14
FIGURE 7: 2015 STUDENTS WITH DISABILITIES RATES .....	15
FIGURE 8: CONCEPTUAL FRAMEWORK FOR UNDERSTANDING THE IMPACT OF AHDN ON CHILDREN AND YOUNG PEOPLE'S SCHOOL OUTCOMES.....	24
FIGURE 9: ACADEMIC PATHWAYS OF CHILDREN AND YOUNG PEOPLE WITH AHDN ACCORDING TO DISADVANTAGE .....	28
FIGURE 10: SPECTRUM OF LEARNING NEEDS FOR CHILDREN AND YOUNG PEOPLE WITH AHDN.....	30
FIGURE 11: ADAPTED LEARNING SUPPORT FRAMEWORK.....	32
FIGURE 12: PRISMA STATEMENT .....	53

## List of Acronyms

ABLES	Abilities Based Learning and Education Support
AEDC	Australian Early Development Census
AHDN	Additional Health and Development Needs
APST	Australian Professional Standards for Teachers
ARACY	Australian Research Alliance for Children and Youth
ASD	Autism Spectrum Disorder
DDA	Disability Discrimination Act
DET	Department of Education and Training (VIC)
DSE	Disability Standards for Education
ENQ	Educational Needs Questionnaire
ICF	International Classification of Functioning, Disability and Health
ICSEA	Index of Community Socio-Educational Advantage
IP	Individual Planning
LSA	Learning Support Aides
NAPLAN	National Assessment Program - Literacy and Numeracy
NCCD	Nationally Consistent Collection of Data
NDIS	National Disability Insurance Scheme
PSD	Program for Students with Disabilities
PSNP	Primary School Nursing Program
RCT	Randomised Controlled Trial
RTI	Response to Intervention
SEHQ	School Entry Health Questionnaire
SEIFA	Socio-economic Indexes for Areas
SFO	Student Family Occupation
SHCN	Special Healthcare Needs
SSG	Student Support Group



SSNP	Secondary School Nursing Program
SSS	Student Support Services
TEMAG	Teacher Education Ministerial Advisory Group
UDL	Universal Design for Learning
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WHO	World Health Organisation

## Glossary

Term	Definition
Additional health and developmental needs (AHDN)	Children and young people with additional health and developmental needs (AHDN), often referred to as special health care needs in the academic literature, are those who have or are at increased risk for a chronic physical, developmental, behavioural, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally. <sup>1</sup>
Specific reading difficulty (SRD)	Specific reading difficulty (SRD) refers to unexpected underachievement in reading, which can be attributed to phonological processing problems. It is neurological in origin and resistant to intervention. <sup>2</sup>
Dyslexia	Dyslexia is a language-based learning disability of neurological origin that primarily affects the skills involved in accurate and fluent word reading and spelling. It is frequently associated with difficulties in phonological processing. It occurs across the range of intellectual abilities with no distinct cut-off points. It is viewed as a lifelong disability that often does not respond as expected to best-practice evidence-based classroom methods for teaching reading. <sup>3</sup>
Inclusive education	A process of addressing and responding to the diversity of needs of all learners through increasing participation in learning, cultures and communities, and reducing exclusion within and from education. <sup>4</sup>
Categorical approach	Assign children and young people according to a list of health conditions that are chronic in nature, and assume that children who carry these diagnoses are in need of additional support.
Non-categorical or functional approach	Focus primarily on the child or young person and their individual needs within their daily environments, rather than on the diagnosis.

## Preface

This report was funded by the Victorian Department of Education and Training to inform the Review of the Program for Students with Disabilities. The aim was to provide recommendations for funding reform that would maximise learning outcomes for children and young people with a disability in Government schools, and in particular, meet the specific needs of students with dyslexia.

The review was undertaken over a very short period (6 weeks) and therefore broad consultation with key government and non-government stakeholders was not possible. While we have sought strategic expert views to inform the report, we recognise that broader expert input would also be needed to ensure that views from the field are well considered. Throughout the report we have also signalled where further policy discussions might be required to determine the details of how the proposed funding models might best be implemented within the current funding and schooling systems.

## Key messages

Children and young people with additional health and developmental needs (AHDN) often require extra support at school to reach their full potential. A common condition among students with AHDN is dyslexia, also known as Specific Reading Difficulties (SRD). About 1 in 10 Australian children and young people are affected by SRD.

## Key principles of an effective approach

Funding supports for students with AHDN, including SRD, can be a contentious and complex issue. Any approach needs to ensure existing resources are used efficiently and effectively. An ideal funding model:

- emphasises student functioning rather than diagnosis
- supports early intervention (early years of school)
- responds to changing needs over the schooling life
- involves families
- respects parental choice
- takes account of disadvantage
- supports multi-disciplinary approaches
- utilises existing education and support resources, and
- reduces incentives for undesirable behaviour (e.g. inflation of diagnoses for funding eligibility).

## Suggested alternative funding model

Students with severe AHDN needs (~1-2% of children) could benefit from individually allocated funding. Basing this funding on eligibility for the National Disability Insurance Scheme (NDIS) would eliminate the need for expensive assessment procedures to determine eligibility. For students with mild or moderate needs (16-18% of students), providing funding to the school can best support flexible and localised responses. The level of funding would need to be adjusted for both the rate of special learning needs and for disadvantage within a school's population.

## Recommendations for implementation

For maximum benefit and effect, changes to the provision of funding in Victorian schools needs to be reinforced by:

- building the capacity of teachers to use evidence-based approaches,
- a more rigorous and in-depth approach to accountability that is practical yet still focussed on improving the educational outcomes of children, and
- ongoing research and evaluation to facilitate development of the evidence base needed for supporting children and young people with AHDN in schools.

## Executive summary

Up to 20% of school students have additional health and developmental needs (AHDN), and require extra support at school in order to reach their full potential.

Dyslexia, also commonly known as Specific Reading Difficulties (SRD), involves difficulties with reading and comprehending text. It affects around 1 in 10 Australian children.

This report outlines potential approaches to the provision of funding support at school for children and young people with AHDN, including those with dyslexia.

## Challenges of the current approach

The best way to achieve optimal learning outcomes for students with AHDN, including children and young people with SRD, is contentious. Inclusive education is a widely accepted theory, but effectively implementing inclusive practices is not always straightforward.

The Victorian Program for Students with Disabilities (PSD, 'the Program') aims to support the learning and wellbeing needs of students with AHDN by providing specific additional funding to Victorian schools. There are concerns that, despite aiming to promote inclusive education, traditional funding models such as the Program can be deficit-focused and have limited impact on learning outcomes.

As a result of these concerns, many education systems internationally are reviewing their funding systems, taking efficiency, equity and return on investment into account; as well as the degree to which the system promotes inclusive education.

## Alternative funding approaches

There are four primary types of funding models across Australian jurisdictions and comparable international education systems. These are: funding that is tied to individual students (input), distributed to schools (throughput), distributed according to student achievement (output), or funding dedicated to a particular purpose (which is often based on a category of disability).

Each approach has strengths and weaknesses. Often a combination is needed because the support needs of students with AHDN are diverse, range from mild through to severe, and impact different developmental domains.

While there are international trends in the preference for particular funding models, there still remains a surprising lack of empirical evidence about the impact of each approach on student learning.

## Guiding principles of an optimal funding approach

While empirical evidence is limited, research into approaches that best support children and young people with AHDN has highlighted key principles that should be considered in developing an effective funding approach:

- Focus supports on the individual learning needs of students, rather than just their diagnosis.
- Load supports in the early years of primary and high school to reduce the likelihood of lasting learning disparities.
- Use flexible funding approaches to respond to children and young people's changing needs over time.
- The best outcomes are achieved through effective partnerships between schools and families.
- Students from disadvantaged backgrounds who have AHDN require more intensive supports.
- Evidence-based approaches to intervention highlight the need for multidisciplinary supports.
- Existing resources should complement and enhance funding approaches (e.g. Student Support Services (SSS), school nurses and visiting teachers).
- The number/proportion of children with AHDN enrolled in particular schools should guide funding distribution.
- Wherever possible, reduce incentives for undesirable behaviour (e.g. inflation of diagnoses for funding eligibility).

### **Proposed alternative funding approach**

In this report we suggest an alternative approach to funding that is commensurate with principles described above, and is illustrated in [Figure 1](#). For children and young people with severe AHDN, we suggest input funding, with eligibility aligned to the National Disability Insurance Scheme (NDIS) to eliminate costly assessment and application procedures.

For children and young people with mild-moderate AHDN, throughput funding is recommended, adjusted for the level of special learning needs (learning adjusted weighting) and disadvantage (equity adjusted weighting) within a school population.

The Department could set benchmarks for the proportion of funding allocated to the early primary and secondary years, or to whole-school interventions. Greater use of resources during the early years of primary (front loading) and secondary school (transition loading) would enable schools to provide support at critical developmental points.

To ensure transparency and accountability, schools should report on how Program funds are used, and demonstrate that their use of these funds resulted in improved student outcomes. Schools or clusters of schools that achieve high levels of value add for students with AHDN could receive additional funding to support their positive school practices.

Finally, discretionary funding should be provided to encourage schools to engage in research and practice-based evaluation that facilitates continued development of the evidence base around what works to support children with AHDN, and effective implementation.

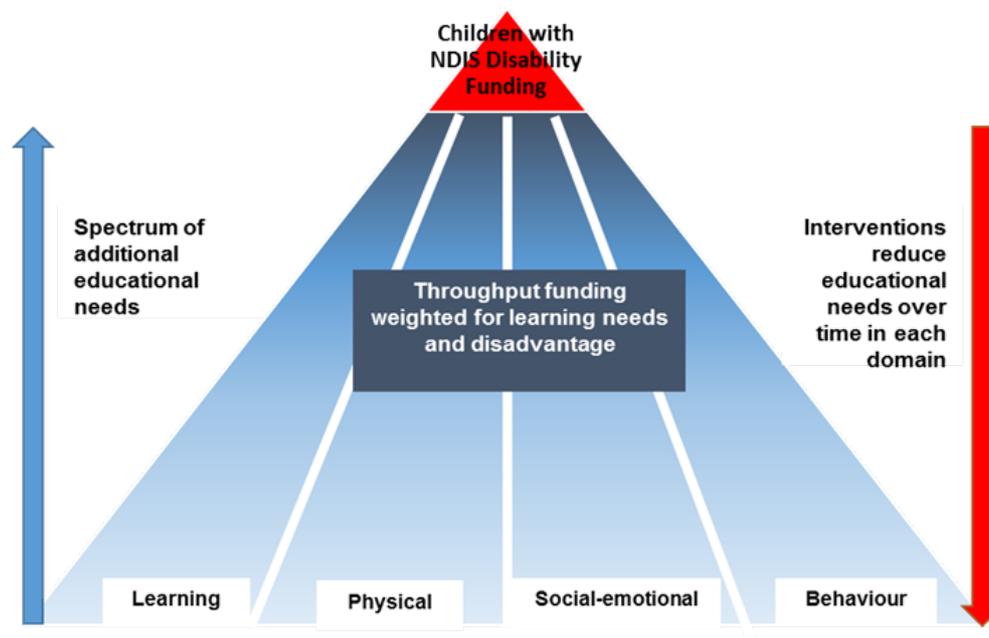


Figure 1: Approach to supporting the spectrum of learning needs for students with AHDN

### Recommendations for implementation and impact

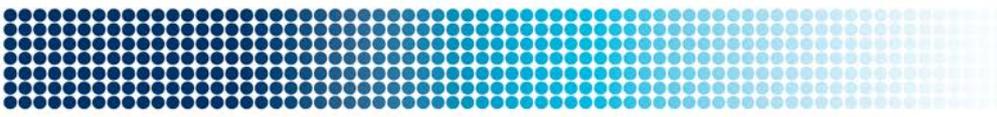
Implementation of this approach is only likely to be effective if reinforced by other key changes to the education system:

- The provision of high quality inclusive education for children with AHDN is dependent on building the capacity of the teaching workforce to use and implement evidence-based practices.
- A greater and more rigorous focus on accountability is required to ensure that funds to support children with AHDN are being utilised in ways that improve student learning.
- Ongoing research and evaluation is needed to grow the evidence base around what works to support children with AHDN, particularly in relation to educational interventions.

### Conclusions

To ensure all children reach their educational potential a different approach to how existing funds are used is required, with greater efficiency and effectiveness to optimise use of current resources.

We have suggested an alternative approach to meeting the needs of children with AHDN, including those with both mild and severe difficulties. Economic modelling



and community consultation will be a critical next step to refining this funding approach and identifying any potential unintended consequences.

Reforms to the funding system should occur in tandem with efforts to further develop the evidence base around the most effective approaches to supporting children in schools, and to upskill the teaching workforce in inclusive practices.

Because the proportion of Victorian students with AHDN is substantial, improving their learning outcomes through the provision of effective support can be expected to generate significant long-term savings across health, education and welfare sectors, and improve productivity.

## 1.0 Background

Research from Australia and the United States suggests that up to 20% of school-aged children and young people experience developmental and/or health problems that necessitate additional supports to allow them to reach their full potential at school.<sup>7,8</sup> It is therefore essential to give thoughtful consideration around how to best meet the needs of these children and young people as they enter and move through the schooling system.

In recent years there has been increasing concern in Australia and internationally about the appropriateness of traditional methods of support allocation for children and young people at school who have additional health and development needs (AHDN).<sup>9,10</sup> Approaches that rely on diagnostic categories have been criticised on a number of grounds. These include poor performance in predicting appropriate interventions, inconsistency in the categories used and the assessments by which children and young people are assigned to them, and failure to capture complexity.<sup>11</sup> These approaches may also incentivise medical practitioners to err on the side of a positive diagnosis, to ensure children and young people receive access to services.<sup>12</sup>

An alternative framework is required to address how educational systems might best (effectively and efficiently) impact on the developmental trajectories of children and young people with additional needs. The aim of this report is to draw on available expertise and relevant literature to determine potential funding models to meet the learning and wellbeing needs of children and young people with AHDN, particularly those with dyslexia.

### 1.1 Supporting children and young people with additional health and developmental needs (AHDN) at school

Children and young people with AHDN, often referred to as ‘special health care needs’ in the academic literature, are those who have or are at increased risk for a chronic physical, developmental, behavioural, or emotional condition; and who also require health and related services of a type or amount beyond that required by children and young people generally.<sup>1</sup> This definition incorporates a wide variety of conditions, including physical health (e.g., diabetes, epilepsy) as well as mental health (e.g., Attention Deficit Hyperactivity Disorder, Autism Spectrum Disorders). Thus, there is a broad range of possible presentations, levels of severity, and associated needs.<sup>13</sup> The most recent prevalence estimates of AHDN in the United States range between 13-19% for 0-17 year olds.<sup>8,14</sup> Similarly, Australian data suggest that around a fifth of children in their first year of schooling experience AHDN.<sup>7</sup>

From the time they begin school, children and young people with AHDN are at risk for academic difficulties and poorer adjustment. Goldfeld et al.<sup>7</sup> drew on data from over 260,000 Australian students in their first year of full-time school in 2009, and found that children and young people with AHDN were more likely to be rated by

their teachers in the bottom 10<sup>th</sup> percentile in pre-literacy and numeracy skills. Similar findings have emerged in other Australian samples<sup>15</sup>, in the United States<sup>16</sup> and Canada.<sup>17,18</sup> As children and young people with AHDN move through the education system these differences persist across a variety of academic skill domains<sup>14,17,19,20</sup>, and manifest in higher rates of grade repetition.<sup>21</sup> Unsurprisingly, children and young people with AHDN also show higher levels of disengagement with the school setting, including lower levels of motivation and willingness to achieve academically.<sup>14,22</sup> Given the high prevalence of AHDN, these problematic school experiences are likely to incur significant costs to society over the life course.<sup>23</sup>

These data suggest that it is critical to effectively support children and young people with AHDN to achieve their full educational potential at school. Allowing children and young people to reach their optimal school outcomes is likely to benefit both individual children, young people and their families, as well as the wider society, by generating savings in health, education, and welfare budgets, and improving productivity.<sup>24,25</sup>

## **1.2 Why is this issue important now?**

The provision of equitable, quality education that is accessible to students with disabilities is not a new policy area. In fact, Australia joined other countries in 2008 in ratifying the United Nations Convention on the Rights of People with Disabilities,<sup>26</sup> recognising that the provision of quality education for all people – including those with disabilities – is a basic right.

How best to meet this aim and achieve a quality education for students with disabilities continues to be highly contentious. Internationally, there have been concerns regarding the ways in which resources for special education have been allocated and utilised, and in particular the perverse incentives that certain funding models can generate.<sup>27</sup> These concerns have been echoed in the Australian context, with evidence that inflation of positive diagnoses of conditions such as ASD is occurring in order to gain access to school and community supports.<sup>12</sup> International education systems are responding to the issues of efficiency, equity and return on investment through reviews of existing funding systems that specifically employ a philosophy of inclusive education, an approach endorsed by the OECD.<sup>28</sup> Australia, and more specifically Victoria, is following a similar path.

International momentum has been reinforced through a number of more local reviews of ways to support students with disabilities in schools. For example, the Teacher Education Ministerial Advisory Group (TEMAG) has released a new directive for education reform associated with strengthening initial teacher education programs to support teacher quality. Similarly, implementation of the National Curriculum and Australian Professional Standards for Teachers is focussed on improving the systems that support teacher quality to ensure that teachers can provide quality education for all.

These policy approaches to improving teacher quality are complemented by concurrent interest in ensuring that systems to collect and collate quality data are enhanced. To address the inconsistency in data collection in accurately establishing the prevalence of disability across Australia, the Nationally Consistent Collection of Data (NCCD) is currently being implemented, together with the National Disability Insurance Scheme (NDIS) (currently being trialled). Both are significant national policies aiming to better support the needs of people with disabilities.

In Victoria, national effort is being reinforced through local advocacy, with organised not-for-profit organisations fulfilling a complex role of navigating research, practice, and lived experience. Organisations such as Disability Advocacy Australia and Autism Victoria, among many others, have provided thoughtful input into how students with disabilities can be supported.

Thus, there are multiple national and international policy drivers informing the review of existing funding models and systems to understand efficiency, equity and impact in the provision of inclusive education for all students, including those with disabilities.

## 2.0 Dyslexia

### 2.1 What is dyslexia?

Learning to read is a complicated process that begins in early childhood, typically when the child begins school. The first skill in reading involves recognising graphemes and morphemes – which can be thought of as the parts that make up words. This skill is referred to as decoding.<sup>29-31</sup> Problems with decoding make it more difficult for the learner to recognise that particular sounds relate to particular words in the written text, which in turn makes it difficult for the learner to understand the text (comprehension).<sup>29</sup> Alternatively, the learner may be able to decode text, but may require more time than other learners to read the same text.

Problems with reading are often referred to as dyslexia. There are a range of recognised definitions of dyslexia (see Appendix A), but experts agree that it is a specific type of learning difficulty related to a child's ability to read and comprehend text. This difficulty usually becomes apparent when the child begins primary school and starts to learn to read.

Definitions of dyslexia overlap with “specific reading difficulty” (SRD), which is recognised in the International Classification of Diseases (ICD) as ‘difficulty learning to read, despite conventional instruction, adequate intelligence and sociocultural opportunity’. SRD is neurological in origin, permanent in nature and resistant to intervention, though with appropriate help children can develop skills that compensate for their difficulties. In this report we use the term SRD in order to align our discussion with the ICD definition of the condition.

There are different types of reading disability, depending on whether the impairment relates primarily to letter-sound learning, becoming familiar with the alphabetic process, or with the process of recognising and storing words.<sup>31</sup> However, regardless of the impairment the result is an unexpected underachievement in reading, compared to peers. Affected children experience difficulties recognising printed words and connecting letters to sounds, along with difficulties in spelling and reading accuracy, fluency and comprehension.<sup>32</sup> Children with SRD can also have problems with memory, grammar, and perception.<sup>33</sup> It is important to note that SRD is not associated with reduced cognitive functioning.<sup>34</sup>

In Australia, the current approach to identifying SRD involves testing in schools if a student is having difficulties with their school work.<sup>2</sup> Individual classroom teachers or other education professionals, including a school psychologist or speech therapist, choose between a range of formal and informal methods to make the diagnosis.<sup>35</sup> Among adolescents, assessments usually focus on reading speed and spelling ability.<sup>29</sup> Following an assessment, the practitioner makes a decision based on the student's performance, in comparison to the performance expected for a child in that age group and school grade.

The lack of a standardised approach to making a diagnosis makes it difficult to accurately identify children with SRD and to ensure that all children who need services receive them. In addition, the nature of SRD is that it lies on a continuum, meaning that any cut off on a standardised test taken to indicate a diagnosis is, to some extent, arbitrary.

## **2.2 How common is Specific Reading Difficulty (SRD)?**

The most recent Australian estimates suggest that 1 in 10 children have SRD.<sup>34</sup> However, estimates vary depending on how SRD is defined. International estimates range from 5-17.5%<sup>29</sup> and vary between languages, with higher rates evident in English-speaking countries.<sup>36</sup> SRD also occurs across a spectrum of severity, which means that reading difficulties can range from more subtle to very severe.<sup>29,37</sup> There is little information currently available in Australia about the prevalence of SRD in the preschool and early school years, or in adolescence, and little data regarding how long children usually experience reading difficulties at school before their condition is recognised.

A number of factors have been identified that are associated with a child's risk of developing an SRD. If a child's parent has an SRD, the child has an increased risk of also having an SRD.<sup>38</sup> Comorbid language and learning difficulties can also affect children's reading ability. Language impairment is associated with the structural components of language, such as grammar or vocabulary, while speech sound disorder refers to difficulties in producing accurate sounds in one's native language.<sup>39,40</sup> While an SRD is not typically identified until the child begins school and formal reading instruction, other language difficulties and ADHD can emerge earlier. Detection of comorbid conditions, such as language difficulties or ADHD,

prior to the commencement of school can act to alert parents and teachers of an increased possibility that the child may experience difficulties with learning to read.<sup>37</sup>

Reading difficulties are also more common among children who are English Language Learners (ELL; not yet proficient in English).<sup>41,42</sup> A British study comparing ELL children with English-only speaking children found those still learning English had difficulties with English reading comprehension from Grade 2 to Grade 6, despite being faster readers.<sup>41</sup> For children who are ELL, diagnosis may be more complex, and these children may be under identified.<sup>41</sup>

As well as language background, additional factors have been identified that appear to impact whether a child with SRD will receive timely identification of their difficulties with reading, and an appropriate diagnosis. More boys than girls are diagnosed with SRD, but this may be because boys are more frequently referred for diagnosis because they have a greater likelihood of having additional, comorbid conditions, such as attention deficit hyperactivity disorder (ADHD).<sup>40,43</sup> As a result, boys' reading difficulties may come to the attention of parents and teachers earlier than girls'.

International evidence also suggests that whether children live in cities or in rural areas can also affect the likelihood of timely identification of reading difficulties.<sup>36</sup> This may relate to the reduced availability of specialist services in rural locations, or to differences in the professional workforce between rural and metropolitan locations.

### **2.3 What are the outcomes for children and young people who have SRD over time?**

Children who experience difficulties with reading can quickly start to fall behind their peers when they start school, and these differences tend to persist over time. Figure 2, below, illustrates the reading trajectories of children with and without reading difficulties. It demonstrates that, while all children's reading performance improves with age, a gap in performance persists between those with SRD and those without SRD. Similarly, another study tracking reading fluency among Grade 1 and Grade 2 children found those 'at risk' of developing SRD were initially less fluent than their peers, and that the gap in reading fluency widened over the course of 20 weeks.<sup>44</sup>

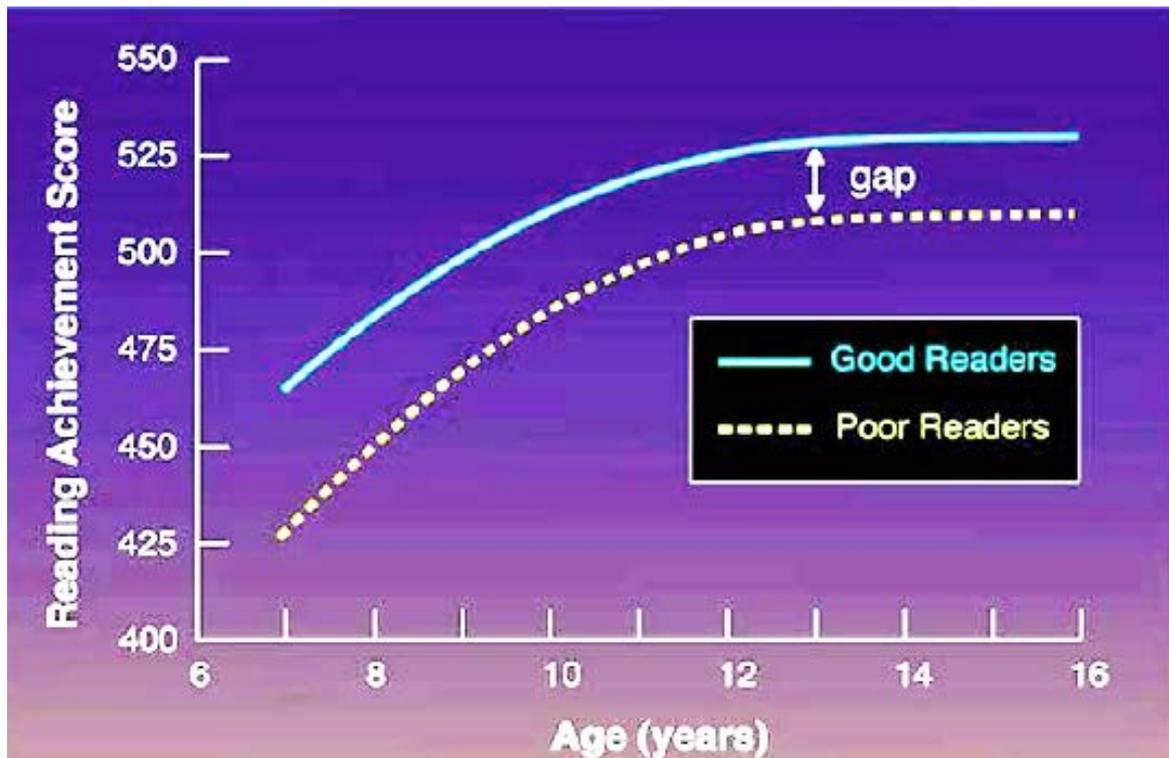


Figure 2: Trajectory of reading skills over time in children and adolescents with reading difficulties and those with no reading difficulties reproduced from Shaywitz 2003 29

Underlying problems with decoding (linking sounds with the word written in the text) continue throughout childhood, into adolescence and adulthood. Children with SRD do not experience a remission or catch up phase.<sup>29</sup> However, children who have SRD may become better at recognising familiar words or words that are of special interest to them. This increased familiarity may explain the common misconception that children can grow out of their reading problems.<sup>29</sup> SRD-affected children may also learn to read unfamiliar words. However, word recognition is not automatic and reading is less fluent.<sup>29,38</sup>

SRD is associated with long-term impact on academic success, with differences in academic achievement observed throughout children's school careers.<sup>38</sup> As well as academic underperformance, adolescents with SRD are more likely to drop out of school.<sup>45,46</sup> Students with SRD may also be less likely to pursue tertiary education; while around 10% of the population experience SRD, only 0.2–0.4% of all students in higher education had SRD.<sup>46-48</sup>

There is also evidence that students with SRD are at risk of emotional problems including anxiety and depression.<sup>43,49</sup> Academic failure can negatively impact children's self-esteem and feelings of self-confidence as a learner.<sup>50</sup> Children with reading difficulties can also experience difficulties with peer relationships, such as teasing and bullying.<sup>51</sup> As such, both the learning outcomes and socioemotional wellbeing of children with SRD should be considered in the provision of school-based supports.<sup>52</sup>

### 3.0 What works in supporting children with dyslexia at school?

#### 3.1 Inclusive education as an overarching philosophy

Inclusive education is central to meeting the needs of children with health and developmental difficulties, such as SRD, at school. While there is no universal agreement on what constitutes inclusive education, UNESCO define inclusive education as “a process of addressing and responding to the diversity of needs of all learners through increasing participation in learning, cultures and communities, and reducing exclusion within and from education.”<sup>4</sup> In this sense, inclusive education is often considered in terms of changing the education system to fit the needs of the student, rather than attempting to change the student to fit the school. Exclusion can be considered not only in terms of disability, but in terms of diversity, taking account of factors such as socioeconomic disadvantage, language, and culture.

In Australia, both Commonwealth and Victorian governments have implemented policies and programs that address the educational needs of students with disabilities as part of their commitment to inclusive education. Schools have been moving steadily towards a more inclusive system of educating children and young people since the early 1990s.<sup>53</sup> A major part of this move towards inclusive education is the preference to include students with disabilities in mainstream schools – ‘mainstreaming’.<sup>54</sup>

Strategies to achieve inclusion have also involved changes to curriculum, teaching approaches, grouping strategies, and service development models to enable all children and young people to participate successfully and equally in the mainstream curriculum.<sup>54</sup> Whole-of-school practices that facilitate inclusion involve adjustments to the school culture, organisational practices and teacher behaviour.<sup>55,56</sup> In turn, teachers require support to engage with the curriculum in a way that facilitates inclusion, and student engagement. Quality classroom teaching requires leadership through school-wide and school-endorsed inclusive policies, and provision of teacher support. Providing IT-assistive teaching technology and specialist staff are examples of such support.

While there is a lack of data addressing the extent to which good inclusive practices are implemented across the Australian jurisdictions, a number of approaches to the provision of best practice inclusive education in Australia have been identified. These approaches have been outlined by the Australian Research Alliance for Children and Youth (ARACY), a brief overview of each approach from their report is provided below.<sup>57</sup>

- **Quality teaching:** This involves coordinating resources in line with goals and opportunities, providing feedback, jointly formulating goal setting and assessment, and creating cohesive learning communities.
- **Inclusive pedagogy:** This relates to the craft of the teacher: ‘the what, why and how they do what they do’.<sup>58</sup> Teachers’ craft knowledge is in turn dependent

on the extent to which they are encouraged and supported to learn, reflect and develop.<sup>59</sup>

- Adapting and differentiating the curriculum: This requires teacher skill and teaching resources.
- Alternative curricula: An example of alternative curricula is the Abilities Based Learning and Education Support (ABLES) resources, which are used in Victoria to support students with disability.
- Assistive and adaptive technologies: These technologies allow teachers to support students to access physical environments, communicate, and participate.
- Universal Design for Learning (UDL): UDL is a pedagogical development that involves designing and delivering lessons in such a way that they allow all students to access and participate in the same curricula.
- Individual planning (IP): IP may involve negotiating a modified curriculum with the parents/carer of a student who is considered to have a need. Although considered the cornerstone of good practice in Australia,<sup>54</sup> IPs are currently not consistently used, and their application is often undertaken more as an administrative requirement rather than as an assistive strategy for inclusion.<sup>60</sup>

### 3.2 Interventions

To inform the potential costs of supporting children with SRD, we undertook a brief review of published research to identify the highest quality and most current literature sources in this area, focusing mainly on systematic reviews and meta-analyses. The available evidence suggests that effective models of evidence-based practice are available to teachers in Victorian schools (how the system can be incentivised to use these strategies is discussed later in [section 5.0](#)). The practices sourced through this review are congruent with the philosophy of inclusive education; that is, they enable children with SRD to participate in education in a way that supports them to reach their learning potential. The interventions outlined here provide a vehicle with which to achieve inclusive education for children with SRD.

Details of the search strategy, and a summary of the key findings of the studies identified, are provided in [Appendix B](#).

If problems with reading are suspected, early intervention should be implemented and may help prevent or minimise the negative outcomes described [above](#).<sup>36,49</sup> The available evidence suggests that the most effective interventions provide intensive and detailed instruction on the alphabetic principle (understanding words as sequences of letters), phonics (teaching children how to link certain letters or chains of letters with the sounds that they make), reading fluency, and reading comprehension.<sup>37-39</sup> The importance of these factors is reiterated in a US National

Reading Panel report covering a large number of research studies that investigated reading in schools.<sup>61</sup>

While early intervention benefits children, effects may be short term, lasting only 1-2 years.<sup>40</sup> Although improvement in coding abilities is evident for some children, other children may successfully compensate by using other abilities (e.g. general intelligence and memory)<sup>39,46</sup> while their underlying problems remain.<sup>37</sup> These children will have ongoing problems with fluency and accuracy, and find learning new vocabulary challenging.<sup>38,39</sup> However, adaptive coping can allow children to manage their situation and succeed in school and beyond – specifically, children who are proactive, flexible and persevere adapt better to their difficulties.<sup>62</sup> Student's use of effective coping strategies might even be a better predictor of success than the severity of their reading difficulties.<sup>62</sup>

Evidence from observational studies suggests the importance of specific teaching strategies in improving outcomes for children with SRD: ongoing and persistent feedback, controlling task complexity, building reading and language-specific skills, working in small groups and pairs, and peer teaching.<sup>63</sup> Allowing extra time, using IT-assisted learning, allowing students to read aloud and presenting information orally to students significantly improve reading comprehension.<sup>64</sup> Randomised controlled trials (RCTs) are required in this area to strengthen the evidence.

Additional assistance at school is also required for inclusion in the classroom and school life. Positive results from an inclusive school-based intervention for Grade 6 students with SRD have been demonstrated.<sup>65</sup> Important drivers of the intervention include promotion of a whole-of-school change, rather than a stand-alone programme that targets particular learners. Promoting professional development and change, and committing to a whole-school approach to mental health promotion are also important.<sup>65</sup>

Strategies that are able to effectively support children with SRD may have a range of follow-on benefits:

- stronger academic outcomes
- better social and emotional health and wellbeing, and positive self-concept as a learner
- greater participation in the classroom and school life.

### **3.3 Limitations of the evidence to date**

Despite evidence that outcomes for students with SRD can be improved, there are gaps in the available evidence, indicating that further research is needed. More is known about effective interventions for younger children than what works for middle school children and adolescents. While there is agreement that early intervention between the ages of 5 and 7 provides children with the best chance of avoiding

repeated reading failure, particularly with reading fluency, there is also evidence that the benefits of these interventions tend to be short term.<sup>37</sup>

It is difficult to know how children with SRD progress through school over long periods of time because there are few longitudinal studies to demonstrate whether effects are enduring or transient.<sup>30</sup> Interventions targeting readers varied considerably in length and intensity, ranging from three weeks to around three months. Additionally, some studies provided the same intervention to children across a wide age range. Some of the RCTs included in the meta-analyses relied on data from as far back as 1996. Studies have been unclear or inconsistent in providing details about how at-risk readers were identified, or intervention duration and intensity, and who delivered the interventions – these are all important considerations.<sup>66</sup> Hence, further work is still needed to understand the best possible approach to supporting the learning and educational engagement of children with SRD in schools.

#### 4.0 How are supports for children and young people with AHDN currently provided?

In Victoria, the Department of Education and Training ('the Department') has committed to the principles of inclusive education, stating "[the Department] is committed to delivering an inclusive education system that ensures all students have access to a quality education that meets their diverse needs." One of the key means through which the Department implements this commitment is through the Program for Students with Disabilities (the Program).

#### 4.1 Program for Students with Disabilities (PSD)

The Program is intended to top-up existing funding allocated to students in government schools in order to increase the school's capacity to support the child or young person's needs and facilitate their learning<sup>67</sup>, and facilitate an inclusive education environment.

Through the Program, there are short, medium and long-term outcomes that the Department aims to achieve; these include both learning outcomes and broader health and social outcomes such as wellbeing.<sup>67</sup> The three main objectives of the Program funding are to improve:<sup>67</sup>

1. student learning
2. student engagement and wellbeing
3. student pathways and transition into future education or employment.

Currently, the Program is targeted towards better supporting the education of those children and young people with moderate to severe needs (about 4% of children and young people). Thus, eligibility, assessment and selection processes are structured towards identifying and supporting those children and young people.<sup>67</sup> To articulate

the logic of the Program, a logic model is provided in Figure 3, below, based on Program documentation.

For each of the Program categories (physical disability, visual or hearing impairment, severe behaviour disorder, intellectual disability, ASD and severe language disorder) applications can be lodged in order to be considered for the top-up funding and the suite of available programs.<sup>68-73</sup> Funding is reviewed during the transition between years 6-7, reappraisals can also be conducted if a child or young person's needs change.

The logic of the Program is founded upon a series of assumptions. The overarching assumption is that an inclusive approach to education will lead to improved student learning, engagement and wellbeing, and better support for transitioning.<sup>57</sup> In addition, at the Program level the key assumption is that the additional resources will be efficiently and effectively used for the benefit of students with disabilities in government schools. The final key assumption is that a multi-disciplinary, integrated approach to the support and management of students with disabilities in government schools is appropriate.

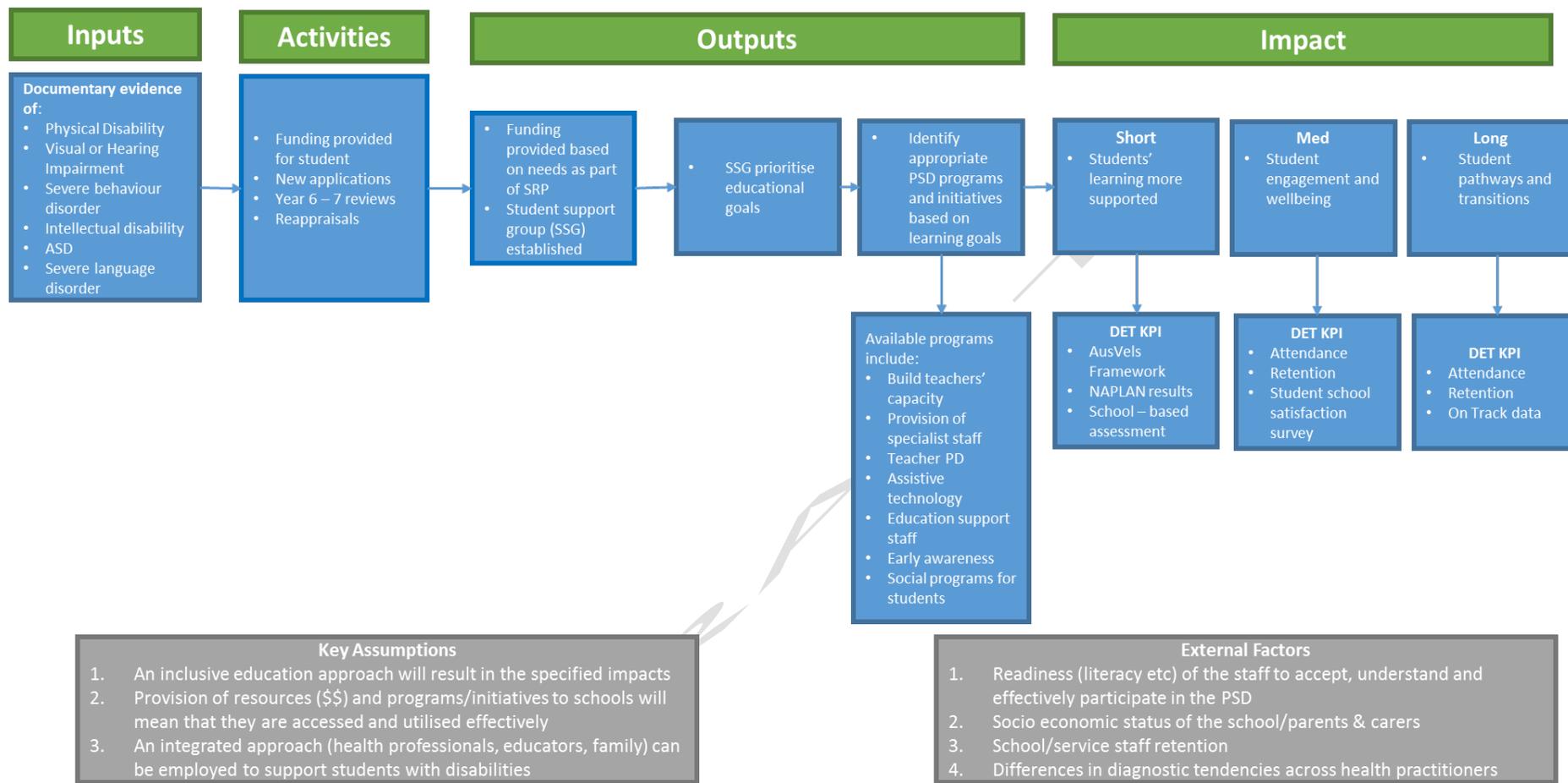


Figure 3: Program for Students with Disabilities overall logic

#### 4.1.1 Eligibility and assessment

Seven categories of disability are provided to define Program eligibility. These categories include criteria informed by World Health Organisation (WHO) guidelines and define the types of disabilities and the degree of need that will be accepted.<sup>67</sup> These categories include: physical disability; visual impairment; hearing impairment; severe behaviour disorders; intellectual disability; autism spectrum disorder (ASD), and severe language disorder with critical educational needs.<sup>67</sup> Intellectual disability accounts for the largest portion of Program funding, followed by ASD.<sup>74</sup>

Disability category	2008	2009	2010	2011	Per cent of 2011 total	Per cent increase since 2008
Autism spectrum disorder	3 028	3 604	4 103	4 396	21.0	45.2
Hearing impairment	600	603	601	608	2.9	1.3
Intellectual disability	12 003	12 583	13 066	13 393	64.1	11.6
Physical disability	1 081	1 072	1 049	976	4.7	-9.7
Severe behaviour disorder	824	891	1 070	1 141	5.5	38.5
Severe language disorder	234	262	284	263	1.3	12.4
Visual impairment	101	101	97	107	0.5	5.9
<b>Total</b>	<b>17 871</b>	<b>19 116</b>	<b>20 270</b>	<b>20 883</b>	<b>100</b>	

Figure 4: Numbers of students funded by the PSD by funding category, 2008-2011<sup>1</sup>

For each criteria described within the categories, there is a description of what kind of evidence would be accepted in the application. The accepted evidence largely consists of information provided by specialised health professionals.<sup>67</sup> The child or young person must meet the specified disability criteria within at least one category to receive the diagnostically based funding (if a child or young person has needs across categories, they must meet the criteria in at least one category).

Children and young people with milder concerns that do not meet the eligibility criteria are not captured within the Program.<sup>74</sup> The Department expects schools to support these students from within their school budget. The figure below from the Victorian Auditor-General's Office<sup>74</sup> shows an approximate breakdown of students in government schools, where it is expected that 4% of students will qualify for the Program, while an additional 16% with additional health or developmental needs will not be eligible for this type of support.

---

<sup>1</sup> Totals may vary due to rounding.

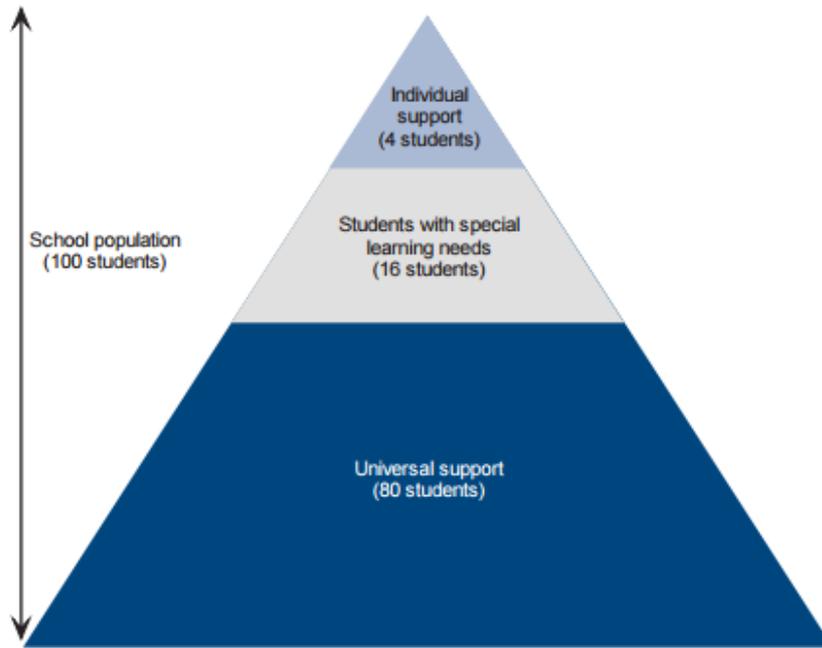


Figure 5: Distribution of needs in an average school of 100 students <sup>74</sup>

If a child or young person is determined eligible for the Program funding, the application process commences with the establishment of the student support group (the Group). This is a collaborative partnership between parents and carers, school staff, and health professionals who work together to determine and support the needs of the child. Overall, the role of the Group is to facilitate the process and develop and regularly review the individual education plan (the Plan) for the student.<sup>67</sup> The figure below articulates the steps involved in the application process for the Program.

Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8
<b>Student enrolls</b> and printed information about school and the Program for Students with Disabilities is provided to parents.	<b>The Group established</b> and existing documentation examined.	<b>Further assessment occurs if necessary.</b> Assessments Australia undertakes eligibility assessment for ID and SLD categories.	<b>The Group meets</b> to check eligibility criteria and complete ENQ. Documentation supporting eligibility and ENQ indicators collated.	<b>Application submitted</b> online and in hard copy following completion of the Application checklist for Principals.	<b>Resources Coordination Group</b> ensures eligibility criteria met. Level of funding determined. School receives notification.	<b>SSG meets</b> to make recommendations to the Principal regarding implementation of the educational plan for student. Funding begins at start of new school year, if eligible.	<b>Student Review</b> occurs at Year 6–7 transition.
<b>Student Support Group (SSG) meets regularly to develop and oversee educational plan for student</b>							

Figure 6: Summary of the PSD application process<sup>67</sup>

There is an annual round in which applications are accepted for additional funding.<sup>67</sup> For students with a worsening condition, applications are accepted at any time. Similarly, applications for students transferring into the government school system are accepted outside the annual round. However, it is important to note that the Group is primarily concerned with assessment and application, rather than intervention to improve outcomes.

If an application is accepted, the student will be allocated a top up for their existing base student resource package (the Package), based on their assessed level of need. There are six levels of need that correspond to the assessed degree of disability and are based on responses provided to the Educational Needs Questionnaire (ENQ).<sup>67,75</sup> For each level of need, a certain rate of funding is applied to the Package (see Figure 7 below for 2015 rates).

Level	Credit (\$)
1	6,641
2	15,358
3	24,242
4	33,086
5	41,863
6	50,686

Figure 7: 2015 Students with disabilities rates <sup>75</sup>

#### 4.1.2 Types of supports provided

The intended purpose of the additional funding provided through the Program is to facilitate students' learning.<sup>67</sup> If a student is deemed eligible for the Program, there are two structures that schools are required to establish to support the student.<sup>74</sup>

The Group: comprises a range of clinical and allied health professionals, parents and guardians, and school teachers and staff members. A key task for the Group is to develop a learning program for the student, and to regularly monitor and review the student's progress.<sup>67</sup>

Individual Education Plan (the Plan): developed by the Group, the Plan is used to identify the learning needs of the student, and record and outline appropriate education strategies to meet these needs. The Plan should also outline the learning goals of the student.<sup>67</sup>

The Department provides a range of other suggested support initiatives and programs for educators to access in order to support the needs of students with disabilities in their schools. Resources and professional development programs are

provided to improve early awareness of signs of needs or developmental delay, and some scholarships are also available as additional support for educators.<sup>76,77</sup> The provision of access to specialist experts in particular areas of disability is also available through the Department.<sup>78</sup>

#### 4.1.3 Cost

In 2011, the Department contributed \$533 million to schools in order to support 20,883 eligible students.<sup>74</sup> The overall Program funding has increased considerably from 2006-07 when \$359 million was allocated to schools. Similarly, the number of students accessing Program support has doubled.<sup>74</sup>

Schools are afforded flexibility to use the funding in ways that best meet the challenges of their particular school environment. The Victorian Auditor-General identified that of the schools audited, those providing effective support had updated Plans for all students that were readily available to all teachers.<sup>74</sup> Similarly, a coordinator was also appointed to oversee the collation of information and profile updates.<sup>74</sup>

Overall, due to a lack of data, information is not currently available to determine whether Program funding is being used efficiently and effectively to support student outcomes.<sup>74</sup> This highlights the need for a review of funding models for supporting children and young people with disabilities, with particular regard to addressing issues associated with a need for greater transparency, accountability and, related to this, the need for data on student outcomes.

## 4.2 Examples of other DET resources

### 4.2.1 Primary and secondary school nursing program

The Primary School Nursing Program (PSNP) aims to promote the health and wellbeing of children and young people, and to assist in early identification of health-related learning difficulties. There are currently 84 primary school nurses (nurses), whose client base is students attending all Victorian Primary Schools and English Language Centres. Nurses are provided through a universal program that is run throughout Victoria targeting children at school entry. The program is built upon the parent-completed School Entrant Health Questionnaire (SEHQ) (the SEHQ is used by nurses working in the PSNP to identify children with health problems that may impact upon learning and wellbeing). The nurses then utilise the information collected in the SEHQ and subsequently provide early referral for children identified as having health-related learning difficulties to interventions that are likely to positively impact upon their schooling life. In addition when the nurses identify health-related learning difficulties, they then provide assessment, advice, information and referral on to other services as needed.

The Secondary School Nursing Program (SSNP) aims to reduce risks to young people and promote better health in the school community. Approximately two thirds of Victorian government secondary schools have a school nurse. The primary role of

the SSNP is in health promotion in areas such as tobacco and drug use, eating disorders, obesity, depression, suicide and injuries. They are also involved in ensuring coordination between the school and community-based health and support services. Importantly, the SSNP is responsible for having a collaborative relationship with the PSNP to support children and young people to experience a successful transition from primary to secondary school.

#### 4.2.2 Student Support Services

Student Support Services (SSS) aim to promote students' educational success and wellbeing through providing support from professionals such as psychologists, speech pathologists, visiting teachers and social workers (Department of Education and Training, 2012).<sup>79</sup> In 2011, the cost of the SSS program was \$66 million.<sup>74</sup> SSS Officers (SSSOs) operate as interdisciplinary teams that focus on building workforce capacity, assessment, individual and group-based intervention, and responding to critical incidents.

SSS are organised according to networks of schools. A network of principals, led by an Executive Chair and Executive Group, manage the SSS budget and workforce, and set the policies and priorities for service delivery. The SSSOs provide services to the network of schools, with professional leadership and support provided by Stream Leaders at a regional level. Priorities are set within the local network, and networks have the flexibility to operate in a manner that they consider will best meet these priorities, documented within an Annual Work Plan. The SSS program is expected to span the service delivery continuum, from primary prevention (e.g. offering professional development to teaching staff) to complex intervention.

Concerns have been raised about the capacity of the SSS program to meet the needs of students, particularly due to increasing numbers of students with AHDN. Similarly, there is a strain on these services to support those students to prepare more Program funding applications, and support those students who may not be eligible for Program funding. Issues associated with understaffing, lengthy referral processes, and the subsequent availability of services have been identified.<sup>80</sup>

#### 4.2.3 Teachers

The role of teachers in supporting children and young people with AHDN is pivotal.<sup>81</sup> The current expectations of teachers with respect to supporting those with AHDN are articulated in the Australian Professional Standards for Teachers (APST).<sup>82</sup> Particularly relevant is the first standard, which states teachers must 'know students and how they learn'. Within this standard, teachers are also expected to be able to 'differentiate teaching to meet the specific learning needs of students across the full range of abilities' and employ 'strategies that support the full participation of students with disability'.<sup>82</sup>

The teacher development program for working with students with disabilities offered by the Department also notes that teachers need to be able to 'effectively assess,

monitor and respond to student's abilities'.<sup>69</sup> In practice, the onus is on the teacher to work with the Group to implement the Plan, while the SSS, and nurses support the non-learning needs of the students. Paraprofessionals, such as learning support aides (LSA) or assistants, also play a role and funding for students with disabilities is often used to gain access to these paraprofessionals.

Within the SSS described above, there are visiting teacher services that are targeted towards supporting children and young people who have AHDN that may prevent them from physically attending school, or who attend school with a physical disability.<sup>83</sup> Visiting teachers work directly with students, and have a role as an advisor to classroom teachers on supporting inclusive engagement, altering the curriculum and teaching practices to appropriately support students with disabilities, and guiding appropriate use of assistive technologies. Importantly they also have a critical coordination role to communicate with other health and education services the student accesses, and work with the families to ensure they are also supported.<sup>77</sup>

Literature on school-based interventions for students with SRD highlights the importance of the education environment in general, but also the teacher. It has been argued that positive effects are achieved when teachers have the awareness and ability to implement interventions and evidence-based practices with the necessary degree and fidelity.<sup>81,84</sup>

## 5.0 Potential funding models for Victoria

### 5.1 Models of Funding

There are many potential models of funding to support students with disabilities in schools. Sharma et al.,<sup>5</sup> identified four primary types of funding models that are applicable within the current Australian context, as summarised in Table 1. Combinations of these funding models are also possible.

It should be noted that while there are international trends evident in the provision of support for students with disabilities, there is currently little empirical evidence to identify which of these funding approaches is most effective in promoting student learning or reducing educational inequities.<sup>5,85</sup> What does seem clear is that high quality inclusive education is more likely to be achieved through the strategic allocation and use of funds, rather than simply increasing the amount of funding, which indeed is not always possible or sustainable.

Table 1: Summary of types of funding models

<b>Model</b>	<b>Description</b>	<b>Strengths</b>	<b>Weaknesses</b>	<b>Examples</b>
Input funding (demand-driven, categorical)	Allocating individual funding based on child or young person's diagnosis and/or severity of need.	<p>Good for students with high needs, who require ongoing intensive support.</p> <p>Need may already be established by other funding supports (e.g. NDIS) which would reduce costs for re-assessment.</p>	<p>Deficit focused.</p> <p>Can incentivise positive diagnosis so that children and young people receive appropriate supports.</p> <p>Drives individual interventions such as integration aides where there is limited evidence of educational impact.</p>	UK (personalised budget), Holland, NZ, AUS (NT, SA, ACT)
Throughput funding (base funding)	<p>Allocating grants to schools/districts.</p> <p>Amount of funding can be made proportionate to need, e.g., by using census data. Appropriate for children and young people with mild-moderate needs (estimated 18% of the population).</p>	<p>More focused on functioning, less-focused on individual child or young person's deficit.</p> <p>Reduces stigma and labelling.</p> <p>Promotes inclusive education.</p> <p>Reduces tendency for inflation of needs/diagnoses.</p> <p>Encourages local responses.</p> <p>Allows for change in student needs over time.</p>	Significant responsibility is on school leaders/district authorities to allocate, utilise and manage funds appropriately.	Belgium

<b>Model</b>	<b>Description</b>	<b>Strengths</b>	<b>Weaknesses</b>	<b>Examples</b>
Output funding	<p>Allocating funds based on achievement scores. For instance, schools with achievement scores in the lowest 10% may receive additional funding.</p> <p>Additional funding based on improved student learning outcomes.</p>	<p>More support for all students.</p> <p>Greater degree of accountability for funds and the use of them to result in positive outcomes.</p>	<p>Larger possibility for perverse incentives as there are high stakes (particularly if national testing is used as a means to determine funding allocation).</p>	
Discretionary funding	<p>Usually this is additional funding allocated based on a category of disability. Can also be based on level of disadvantage, or presence of comorbidity.</p>	<p>Provision of additional support possible for children and young people with added disadvantage as well as a disability.</p> <p>Can support the attainment of more equitable outcomes given the focus on disadvantage.</p>	<p>Relies on quality data, and appropriate weightings for disadvantage.</p>	
Combined model 1: input & throughput	<p>Throughput funding for the majority of children and young people, with some input funding for those with severe needs.</p>	<p>Can be utilised for children and young people with mild to severe needs.</p>	<p>Assessment could be complex and expensive, as there would need to be a combination of functional</p>	<p>Sweden, AUS (QLD, TAS, VIC)</p>

Model	Description	Strengths	Weaknesses	Examples
		Affords a balance of flexibility and autonomy to schools, while still ensuring that children and young people with severe needs have access to intensive, ongoing support.	and needs-based assessment.  Depending on the way in which funds are controlled, educators may need support to be able to manage and distribute funds for children and young people with mild-moderate and severe needs.	
Combined model 2: throughput and output	Throughput funding with an output model for accountability.	Can be utilised for children and young people with mild-moderate needs.  Ensures that schools are focussed on utilising funds in ways that generate an impact on student learning.	Relies on educators implementing and knowing how to implement evidence-based interventions to support students with disabilities.	Ireland
Combined model 3: input, throughput and output	Combination of throughput, input and output funding. For instance, a base amount of funding is allocated to schools, with an additional amount of funding for	Three forms of funding streams address students with severe and mild-moderate	Complex funding formula, would still require parents/schools to apply for categorical funding.	AUS (WA, NSW)

<b>Model</b>	<b>Description</b>	<b>Strengths</b>	<b>Weaknesses</b>	<b>Examples</b>
	students with a disability and, finally, further funding provided via an adjustment that could be for equity purposes.	needs, while also considering equity.	Accountability for the three forms of funding would also be complex.	

Overall, across these models there is a focus on tailoring the provision of support according to a child or young person's severity of need. 'Need' is not exclusively considered as the severity of the condition; it also encompasses disadvantage and comorbidity. A conceptual framework for considering the needs of children and young people with AHDN at school is presented next.

## **5.2 Conceptual framework**

O'Connor et al. have developed a framework that provides an approach for considering the needs of children and young people with AHDN at school, and purposefully considers functional abilities over diagnostic categories.<sup>86</sup> This framework was informed by the International Classification of Functioning, Disability and Health (ICF). The ICF<sup>87,88</sup> was adopted by the World Health Organisation as a means of assessing health and health-related states, and was considered a landmark in acknowledging that disability is multidimensional and manifests in different levels of human functioning, including impairments, performance limitations, and the experience of disadvantage.<sup>89</sup> The framework also distinguishes between the nature of the conditions and the impacts of the presence of the condition for an individual and family. In doing so, it acknowledges the role of the environment in defining human functioning.<sup>89,90</sup>

This conceptual framework is illustrated in Figure 8 and highlights the complexity of the relationship between AHDN and school functioning, suggesting that there may be multiple opportunities for positive interventions to support these students. AHDN can impact on four interrelated domains of a child or young person's functioning at school (see Figure 8): body functions and structures (e.g. intellectual capacities), activities of daily living (e.g. ability to manage self-care skills such as toileting independently), social participation (e.g. interactions between the child or young person and their peers), and educational participation (e.g. school attendance). These domains are overlapping and interrelated. For example, factors that arise in relation to bodily function, such as neurological changes impacting cognitive functioning, will be closely related to a child or young person's educational participation, such as their capacity to access the mainstream curriculum.

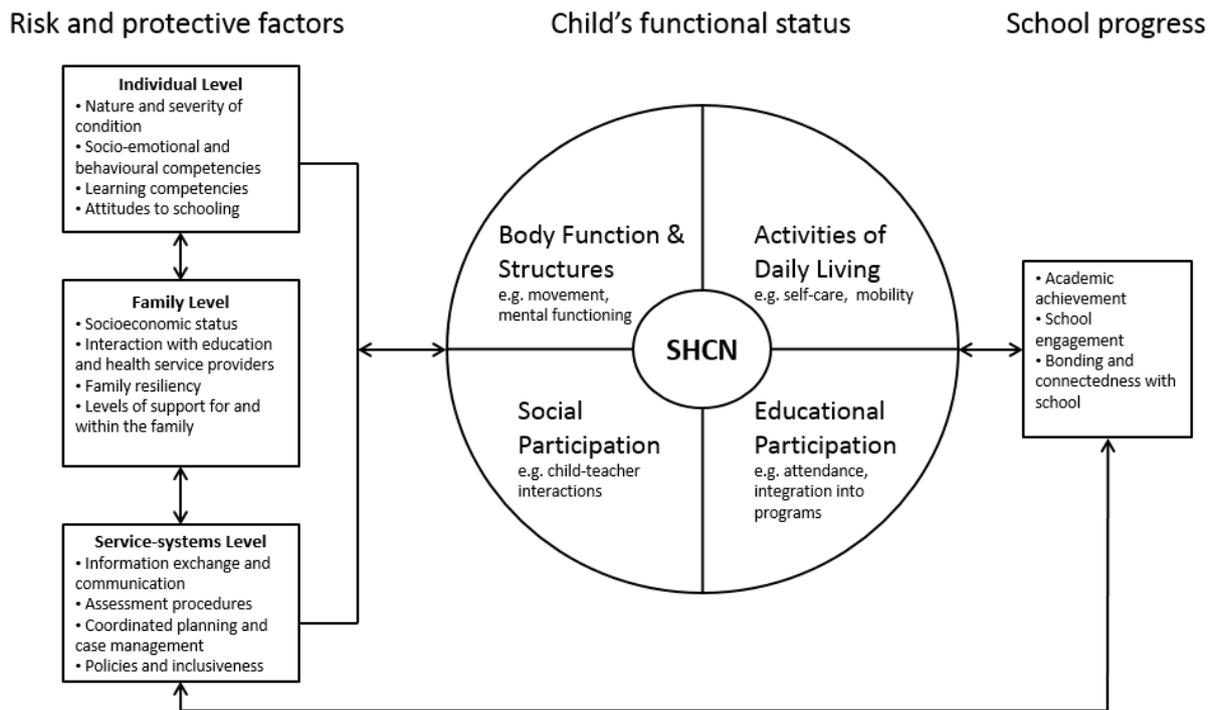


Figure 8: Conceptual framework for understanding the impact of AHDN on children and young people's school outcomes. SHCN=Special Health Care Needs. Reproduced from O'Connor et al86

The framework further proposes that these dimensions of children and young people's functioning are influenced by risk and protective factors at the personal and environmental level, aligning with current understandings of disability and supported by the empirical literature. This includes factors at the individual level (e.g. perceptions of self as a poor learner may operate as a risk factor, whereas positive attitudes towards school can be protective), at the family level (e.g. socioeconomic disadvantage is a significant risk, whereas a strong family-school relationship operates as a buffer), and service systems level (e.g. lack of communication between the school and relevant health professionals operates as a risk, whereas education policies promoting inclusiveness are protective). These risk and protective factors can operate both concurrently and over time; for example, the provision of early intervention services before beginning school could act as a protective factor. In addition, the relationship between risk and protective factors and the child or young person's functional status is likely to be interactive and bidirectional; for example, a child or young person's difficulties in managing activities of daily living may prevent a parent from entering the workforce, furthering socioeconomic disadvantage.

Together, these individual and environmental risk factors and the child or young person's functional status are proposed to contribute to shaping either positive or negative trajectories of school functioning for children and young people with AHDN.

Positive trajectories are characterised by academic skill development, engagement with the school environment, and motivation to learn.<sup>91</sup> In contrast, negative pathways are characterised by academic underachievement, disengagement, disruptive classroom behaviour, bullying, truancy, absenteeism, and school dropout.<sup>92,93</sup> These school pathways are consequently critical in shaping life course outcomes, and carry significant societal costs.<sup>25</sup>

### **5.3 Core principles of an optimal approach to funding**

This conceptual framework highlights the complexity of ways in which AHDN can impact children and young people's functioning at school, and responses to the provision of services to meet these needs is similarly complex. An optimal approach would meet the needs of children and young people across a range of developmental diagnoses, including SRD, by focusing on their functional requirements rather than their diagnosis. There are a number of principles of an effective approach that enhance protective factors and support children and young people's positive school functioning. These guiding principles are also consistent with the Disability Discrimination Act (DDA) and the Disability Standards for Education (DSE), and are informed by best practices for inclusive education (as discussed in section 3.1).

#### **5.3.1 Emphasis on student functioning rather than diagnosis**

Funding to support children and young people with AHDN in Australia is currently distributed along diagnostic lines.<sup>10</sup> Yet the complexity and heterogeneity of ways in which student's school experiences can be impacted by AHDN suggests that a broader classificatory framework centred on children and young people's functioning is likely to be more effective in shifting developmental trajectories over their schooling.<sup>9</sup> An approach that considers the child or young person's needs in relation to their body function, daily living skills, social participation, and educational participation, as well as surrounding risk and protective factors, would allow appropriate matching of services to needs. In taking such an approach, it is important not only to describe and respond to children and young people's limitations, but also to acknowledge the child or young person's capabilities and surrounding protective factors so that these can be leveraged to help the child or young person succeed.<sup>94</sup>

Children and young people's needs and functioning occur across a wide range. Around 4% of children and young people are currently eligible for Program funding. However, a much larger proportion of children and young people experience emerging AHDN (estimated between 16%-18%<sup>7,74</sup>), or additional needs that are milder, not yet formally diagnosed, or lie in diagnostic "grey areas". Even though their concerns are less complex, children and young people with emerging AHDN also begin school with poorer academic and social-emotional skills<sup>7</sup>, and early differences persist over the primary school years.<sup>95</sup> Yet poor outcomes are not inevitable, and

interventions have the potential to promote stronger educational outcomes for these students.<sup>95</sup> Hence, children and young people with both established and emerging needs require additional supports to reach their full potential at school.

### 5.3.2 Importance of early intervention

An additional important consideration is the timing of these supports. Children and young people who, due to AHDN, lack foundational skills when they begin school may be less able to take advantage of learning opportunities, meaning that early disparities are likely to persist or even increase over time.<sup>14,17,19,20</sup> Coordinated and effective interventions to promote better school outcomes for children and young people with AHDN should therefore ideally begin well before children enter the formal educational system, and be sustained throughout the early years of school to have the most benefit. Countries such as Finland provide additional classroom and school assistance for up to 30% of the young school-aged population (aged 6 to 9 years), in recognition of the benefits of intervening early.<sup>96</sup> The importance of early intervention also aligns with current NDIS early intervention funding, where children who qualify for early intervention funding receive services up to age 7 years.

### 5.3.3 Responding to changing needs over time

The needs of children and young people with AHDN change over time according to a range of factors, such as developmental period, response to interventions, and environmental resources. The implication for funding provision is that the impact of AHDN across the course of the child or young person's full educational career needs to be considered, and funding supports must be flexible enough to account for changing needs over time.

The child or young person's needs may be particularly likely to change during transition periods, where there is often a requirement for additional scaffolding and bridging to ensure positive transitions to the new educational environment and its concomitant shifts in demands across academic, behavioural, and social domains. There are two particularly important transition periods to consider: the transition from preschool to formal education (primary school transition) and the transition from primary school to secondary school. Both of these periods are critical for children and young people's later academic and psychosocial outcomes.<sup>97,98</sup> The provision of effective support services during these periods can lead not only to improved outcomes, but potentially the prevention of additional conditions developing in later schooling.

### 5.3.4 Family-school partnerships

An ideal model of support will involve families working in partnership with schools to support their child. Families play a significant role in supporting their child's progress at school. For example, the quality of interactions between the family and school systems are highly relevant to children and young people's outcomes. Factors that

can act as barriers to effective family-school interactions include failure to involve the family in transition planning, lack of recognition of parents' expertise in their child's condition, and poor communication and information exchange between the school and family.<sup>16,99-104</sup>

Care should be taken to ensure that excessive demands and expectations aren't placed on families to advocate for their child or young person at school; disadvantage affects how well families are willing and/or able to advocate for their child or young person, and partner with schools. Similarly, the way in which eligibility for funding is determined, and the allocation and distribution of funding, can impact on the partnership between families and schools. For instance, if a dollar value is placed upon a child or young person and determines the provision of their supports, the stakes for families rise significantly – particularly for disadvantaged families. This can affect the partnership between families and schools. Where barriers are present to effective engagement with families this will require commitment and resources at the school and system level to establish effective partnerships.

#### 5.3.5 Respecting parent choice of school

In Australia, parents are able to choose the school their children attend. This means that an appropriate funding model needs to take into account the possibility of increases or decreases in the number of students with AHDN enrolling at particular schools as their reputation for provision of inclusive education practices grows or diminishes. The overall implications for funding are that funding provision would need to account for characteristics of the school population, and address the potential for change in this population over time.

#### 5.3.6 Taking account of disadvantage

Disadvantaged children and young people with AHDN may have less access to, and lower uptake of, services to support their needs – this is known as the 'inverse care law'.<sup>105</sup> Educational outcomes are particularly poor for this population.<sup>106</sup> For example, children and young people with emerging AHDN who are also disadvantaged are more likely to be in a low academic trajectory (Figure 9 below).<sup>95</sup> Indeed, in this study no children and young people with emerging needs in the lowest SES group were functioning in the high academic trajectory, whereas 20% of those with emerging needs from high SES backgrounds were. This suggests that the combination of both AHDN and disadvantage can create a potential "double jeopardy" for these children and young people.

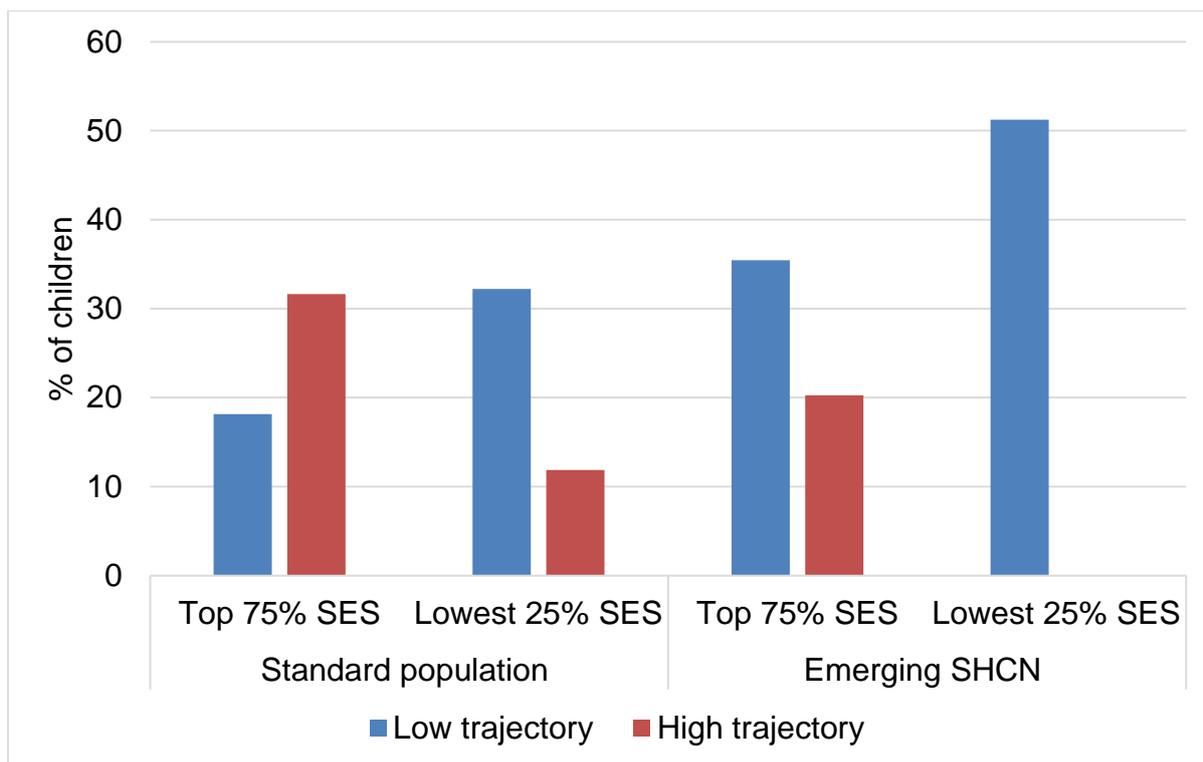


Figure 9: Academic pathways of children and young people with AHDN according to disadvantage<sup>95</sup>

To meet the needs of these children requires not just access to high quality supports for all children with AHDN, but also more intensive supports for those children with AHDN living in disadvantaged circumstances. The concept of proportionate universalism suggests that support should take the form of universal efforts to promote the wellbeing and learning outcomes of children with AHDN, but with an intensity that is proportionate to the level of socioeconomic disadvantage.

### 5.3.7 Need for multidisciplinary supports

Figure 8 above shows the many ways AHDN can impact children and young people's wellbeing and functioning at school. Children and young people with AHDN are likely to benefit from a multi-disciplinary approach to evidence-based intervention that can flexibly respond to their difficulties.<sup>9,100</sup> Within this approach, a common understanding and information exchange needs to be ensured between all stakeholders, coordinating supports over the health, education, and home contexts.<sup>107</sup> For example, the Healthy Learner Model of school-based intervention is an approach that places the school nurse as the coordinator of care bridging between the school, the child or young person and their family, and other service providers; this model has been trialled with promising results in relation to asthma.<sup>108</sup>

### 5.3.8 Use of existing education and support resources

A number of major resources are provided by the Department to support children and young people with AHDN, in addition to the Program (see [section 4.2](#)), including

Student Support Services, school nurses, and visiting teachers. An effective funding approach for children and young people with AHDN should account for these resources, and ensure that they are being used as effectively as possible. For example, SSS would most effectively meet student needs by contributing to program and intervention development, and by conducting assessments that inform the interventions that would be most appropriate for a child or young person, and allow for monitoring of outcomes according to goals. However, much of this resource is currently spent on assessment for eligibility with little relevance to intervention development.<sup>74</sup> In addition to each resource being used effectively, these resources need to work in a coordinated manner to meet the needs of students with AHDN.

### 5.3.9 Reducing perverse incentives

All funding models include incentives for strategic behaviours that may not be in line with the formal policy goals, and these should be reduced where possible. For example, systems attaching funding to individual students who are assessed against eligibility criteria may incentivise practitioners to err on the side of a positive diagnosis and emphasise a student's limitations, which can result in less inclusion, more labelling and rising costs.<sup>109</sup> An ideal funding model would recognise and reduce perverse incentives where possible, particularly those impacting inclusion.

## 5.4 Utilising funding models based on functional needs

The following section will describe and discuss a possible funding model based on the functional needs of students with disabilities, relevant to the Victorian context. The proposed model is consistent with the Disability Discrimination Act and Disability Standards for Education, the philosophy of inclusive education and, finally, the conceptual framework for children and young people with AHDN. It should be noted however that extensive consultation and economic modelling would be required to further test the appropriateness of this proposed approach. Assumed within the proposed approach is that better outcomes for children with AHDN can be achieved within current cost constraints, through improving efficiency and encouraging the implementation of effective interventions.

In summary, for children and young people who have severe diagnosed conditions, input funding can be attached to the individual student. Aligning eligibility for this funding to children and young people who qualify for the NDIS disability funding would minimise: the costs of assessing eligibility, lag time between children starting school and receiving Program funding, and incentives to emphasise children and young people's limitations at school. For children and young people with mild or moderate conditions, throughput funding allows flexible, localised responses to addressing needs, which can be weighted according to education needs and equity indices. To ensure accountability, schools should report on the funds spent according to intervention type and target population, and student outcomes.

This approach is a modification on the Response to Intervention (RTI) framework, which promotes a three-tiered approach. The modified model accounts for the gradient in children and young people’s educational needs, which fluctuate over time, and avoids incentives to emphasise children and young people’s limitations in order to pursue eligibility to a higher tier. This alternative funding approach is illustrated in Figure 10 below.

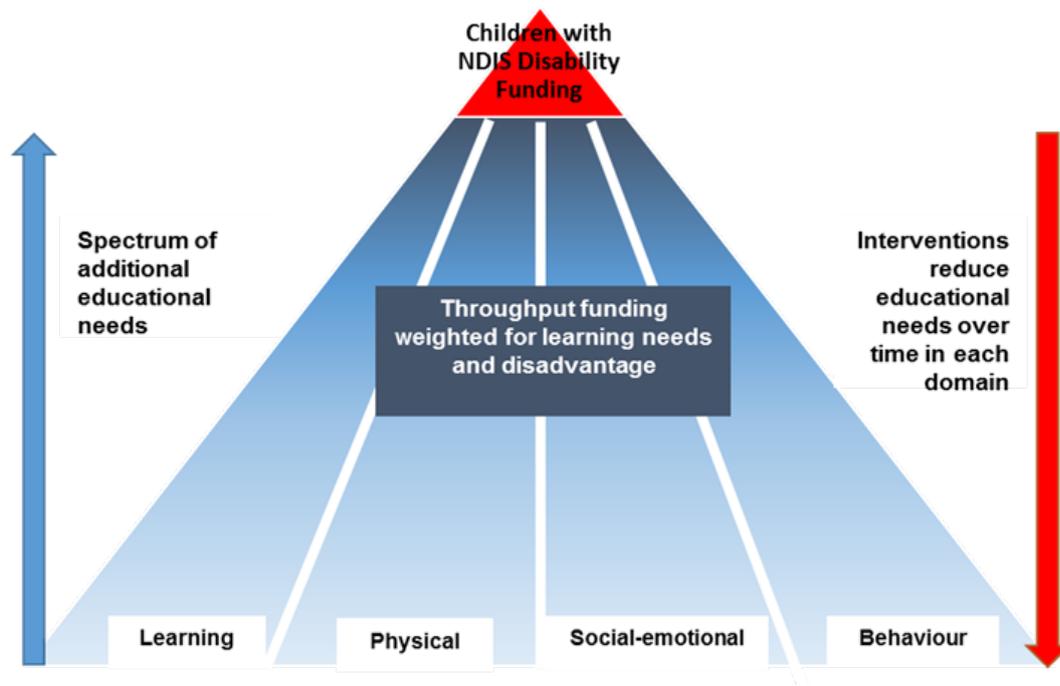


Figure 10: Spectrum of learning needs for children and young people with AHDN

#### 5.4.1 Children and young people with severe diagnosed conditions

Children and young people who have severe health and developmental conditions (high on the spectrum of additional education needs in Figure 10) are unlikely to have radically changing needs over time, or to lie in “grey” areas where it is unclear whether the child or young person has the condition or not. Hence, they may benefit most from input funding attached to the individual student. We suggest the following features for an input funding model for children and young people with severe needs:

- Align eligibility for support with NDIS disability funding

A disadvantage of input funding can be the significant resources spent on assessing children and young people for eligibility. This could be mitigated by aligning eligibility for this funding to children and young people who qualify for the NDIS disability package funding (hereafter referred to as NDIS disability), i.e. those with severe and permanent conditions that impact on everyday life and for whom supports are likely to be needed over the lifetime. The NDIS also includes early intervention funding, but this is focussed specifically on young children (younger than 7 years old) who would benefit from early intervention to reduce their needs in the future.

Current figures are not currently publicly available but it is estimated that approximately 1-2% of children and young people under the age of 18 will qualify for NDIS disability funding.<sup>6</sup> Aligning eligibility for the Program with NDIS disability funding would significantly reduce the costs of defining eligibility, as children and young people will be automatically considered eligible if they have already been deemed eligible under NDIS disability funding criteria. An additional advantage of aligning eligibility to NDIS disability funding is that this could avoid the lag time between children starting school and then waiting for referral, assessment, and an approved Program funding application – all before supports can be provided.

This eligibility approach would also allow the NDIS and the Program to complement each other in the services they provide to children and young people who qualify. The NDIS disability funding support focuses on children and young people's health needs, which could potentially include their participation in the classroom (e.g. an aide). Input funding through the Program could concentrate on the child or young person's education needs within the school setting, with particular emphasis on supporting children and young people to meet their learning potential.

- Align eligibility for support with NDIS early intervention funding

Children and young people with NDIS early intervention funding could also be included in this input funding scheme. For children and young people who qualify for NDIS early intervention while at school, the child or young person is usually eligible to receive funding until they are 7 years old (trial data notes that this proportion of children and young people is higher than those who are eligible for disability funding). Input funding for educational supports could complement the early intervention services funded through NDIS early intervention, and last until age 7. Similar to disability funding, this approach also eliminates the cost of determining eligibility as children will commence school with an established eligibility within NDIS. However, because the needs of these children and young people are not as severe as those eligible for NDIS disability funding, and are expected to fluctuate over time, the flexibility of the throughput system could equally serve them well.

- Consider the child's educational needs

While NDIS disability funding would indicate eligibility for input funding, it would still be important to ensure that the child or young person's specific educational needs were assessed. If such an approach were considered for implementation, further work would need to investigate the alignment and degree of overlap between supports provided through the NDIS, for instance learning support aides, and support that would be provided through the Program.

Teachers and school professionals will be best placed to lead the assessment of children and young people's educational needs. For example, an approach trialled in

Belgium<sup>110</sup> characterises children and young people’s special educational needs according to the level of curriculum adaptation required by the student, rather than according to their medical diagnoses (see Figure 11 below). The purpose of such an assessment in the proposed approach is for the school to determine which interventions are indicated and to monitor children and young people’s progress in relation to intervention goals over time. Thus educational assessment is used to inform intervention development, rather than eligibility for funding.

<b>Assessment of SEN: a system of graded learning support</b>	<b>Cluster 1</b> No diagnosis	<b>Cluster 2</b> Impairment in academic learning	<b>Cluster 3</b> Intellectual / motor / sensory impairment	<b>Cluster 4</b> Disorders in social interaction
<b>Learning support level I</b> Common curriculum – mainstream certificate prevention, differentiation, remediation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Learning support level II</b> Common curriculum – mainstream certificate compensation, dispensation, additional learning objectives, reasonable adjustments	<input type="checkbox"/>	<input type="checkbox"/>	D E F Y	<input type="checkbox"/>
<b>Learning support III</b> Individualized curriculum – alternative certificate individual education programme & more intensive assistance		A B X	C D E F Y	G H Z
<b>Learning support IV</b> Individualized curriculum – alternative certificate Need for intensive assistance & care			C D E F Y	G H Z
<b>Learning support V</b> Not able to participate in school partial education, e.g. hospital		<input type="checkbox"/>		

Figure 11: Adapted learning support framework reproduced from Lebeer et al. 2010:110

- Ensure funding support provides effective education that meets the needs of the child

It is critical to ensure that children and young people are not only provided with support, but that this support is effective in promoting their learning and participation at school. In particular, funding should not automatically defer to schools providing a learning support aide, as is often currently the case. Research suggests that although learning support aides are common, they have a relatively small impact on improving academic outcomes and classroom inclusion.<sup>111,112</sup> This is because responsibility for the child or young person’s learning and classroom participation can transfer from the teacher to the aide, who is often not required to have formal training in education. Furthermore, the presence of the aide does not encourage the child or young person’s classroom teacher to include the child or young person in classroom activities. More effective use of this funding would include, for example: upskilling and resourcing teachers to implement evidence-based classroom teaching practices through professional development (and coaching from lead teachers with

specialised knowledge), and developing and regularly reviewing an Individual Learning Plan for each child.

Program funds should be provided directly to schools to enable them to provide adequate support for the child, in consultation with the child or young person's parents. However, the allocated funds should also be transferred to a child or young person's new school if they move schools. Of course, the transfer of funds would need to be carefully managed and a changeover period implemented to allow for staffing changes and successful transition.

- Accountability

While we have suggested that funds for this group of children and young people be allocated per capita, it is appropriate for schools to report on how the funding has been used.<sup>74</sup> This reporting would include both a transparent description of how the funds have been used, and information about the outcomes of children and young people receiving the funding.

It need not be cumbersome. For example reporting on the use of funds could be across the broad categories of teacher capacity building, allied health support, classroom resources, learning support aides, and specialised programs. This information would ideally be reported in annual reports, as it is critical for the Department to understand how the needs of students are being supported, and how effective these supports are.<sup>74</sup>

To report on the effectiveness of supports, accountability is also needed in relation to monitoring outcomes of individual students. This could provide a lever for quality assurance (i.e. improvement, innovation and accountability), curriculum development, and the provision of evidence-based classroom interventions that are tailored to the requirements of the individual child. However, metrics for this will need to be developed over time, and aligned with each intervention's program logic and intended outcomes.

#### 5.4.2 Children and young people with mild-moderately severe conditions (16-18% of children)

For children and young people with mild or moderate conditions (16-18% of children and young people) who do not qualify for NDIS, throughput funding would allow for localised responses that are flexible and can account for changes in children and young people's functional needs over time. This is particularly important given these children and young people's needs are relatively fluid and can fluctuate within each domain of academic, behaviour, socio-emotional and physical development, and that limitations in one domain do not necessarily mean limitations in others. This approach places greater emphasis on schools' ability to be flexible in their approach to cater for children and young people with different need profiles and does not rely on

specific diagnoses. It also places a greater accountability on schools for effective and efficient management of these funds. This process could be operationalised differently depending on which body is assuming primary responsibility for accountability (school, or cluster of schools).

Effective use of throughput funding could include provisions for: capacity building of teachers to meet the learning needs of a broad group of children and young people; and provision of specialised services within each school to complement teacher capacity in providing support for learning needs. We suggest the following features for a throughput funding model for children and young people with mild to moderate needs:

- Adjust throughput funding to reflect student needs

The amount of funding allocated needs to be adjusted based on the characteristics of the student population within a school or group of schools. Two levels of adjustment are recommended, described below. Further analysis and modelling would be required to test this proposed approach.

Learning-adjusted weighting, which takes into account the proportion of children and young people with specific learning needs within a school or school cluster. For example, weighting on learning needs for primary school could be based on results from data sources such as the Australian Early Development Census (AEDC) and the School Entrant Health Questionnaire (SEHQ). These provide high quality data about the proportion of children and young people with AHDN. In secondary school, weightings could be according to the proportion of students performing low on NAPLAN, and a SEHQ style assessment at Year 7. Alternatively more frequent use of the Victorian Student Health and Wellbeing survey (VSHAWS) could be introduced to assess health and wellbeing beyond the academic domain.

Equity-adjusted weighting, which accounts for the proportion of students within a school or school cluster who come from disadvantaged backgrounds, and the socioeconomic position of the community in which the school is located. The weighting calculation could include three elements of disadvantage:

- (a) area disadvantage, which could utilise Socio-economic Indexes for Areas (SEIFA)
- (b) disadvantage of the school's population, which could utilise the Index of Community Socio-Educational Advantage (ICSEA) and the Student Family Occupation density (SFO), and
- (c) community access to services such as psychologists or speech pathologists in the schools' area, which we know is an added layer of geographic disadvantage.<sup>113</sup>

We also suggest that Aboriginal and Torres Strait Islander and English Language Learner status could be included in the calculation of this weighting.

Used together, learning and equity-adjusted weightings will ensure that the amount of funding is proportionate to the needs and resources within the student body and school. Adjustment of weightings could occur every three years, to align with the AEDC cycle. This could balance changing school demographics over time with the need for schools to know funding provision in advance.

- Accountability

A critical factor in effective throughput models is accountability. Transparency is needed in how the money has been used (transparency of funds, as discussed in [5.4.1](#)) and the benefits for student's outcomes. Careful consideration is needed in regards to how this requirement could be administered with minimal burden for schools. The Department could require schools to report on both the interventions provided, and the target population (whole school or specific year levels).

Another aspect of accountability is monitoring student outcomes to understand the impact of resource use. Effective funding models incentivise evidence-based practices that result in measurable benefits to student outcomes. This can be achieved by incorporating outcome funding within the model. An example of how such an approach could work is to examine the 'value add' a school provides to their student population with AHDN.<sup>114</sup> Once a school reaches a certain level of value add, they could be eligible for additional funding to support and encourage their positive practices. Appropriate metrics that could inform such an approach would require careful consideration within a program logic model, particularly as to the risk of introducing perverse incentives.

- Load funds during transition periods

The Department could set benchmarks as to the proportion of funding that must be allocated to either early years or whole-school interventions. The early years of both primary and secondary school are important developmental periods. Increased funding at these times could bring greater benefits and reduce the number of children and young people who require support in later years. Greater use of resources during the early years of primary (front loading) and secondary school (transition loading) would enable schools to provide support at a critical time when positive pathways are easier to achieve.

- Distribute funds at either a school or school cluster level

There are several options with respect to the distribution of funds. They include (1) allocating funding at the school level, (2) allocating funding at the school-cluster level, or (3) allocating funding at the school level with accountability at the cluster

level. The advantages and disadvantages of each of these options are considered below.

- a) Model 1 – Funds allocated at school level: Adjustments at the school level depend on characteristics of the student body and school that can be averaged across three-year blocks. This model allows for localised decision making by schools and emphasises individual schools catering for the needs of their individual students. It allows schools to determine what support they provide, as well as the scope of capacity building their teaching team requires. This approach accounts for changing school demographics over time, which is particularly important given parental choice regarding the school their children and young people attend. One disadvantage of this approach is diseconomies of scale, in that schools may be limited in their ability to source specialised services given that each individual school may not have sufficient children and young people enrolled who require the services.
- b) Model 2 – Funds allocated at cluster level: At a school cluster level, schools in close geographic proximity are clustered together and weighting occurs at the cluster level; as for example in the organisation of SSS.<sup>79</sup> Through this approach, schools would have the advantage of localised decision making within each school, but would also have collective ability to share resources among the cluster. One important consideration in this approach is how funds are distributed to the cluster and/or schools, and the method of accountability. The first option is to allocate funds at a school level and require accountability at the cluster level (see below). A second model is to distribute funds *and* require accountability at the cluster level. Both approaches could encourage close collaboration among schools within the cluster, although geographical clustering may combine schools with differing student populations, policies and preferences. Any advantage in economies of scale/scope would need to be weighed against a loss of individual school autonomy in decision-making over use of funds, and the risk of bias in the distribution of funds across cluster schools. Appropriate planning, use and management of funds requires a set of professional skills that are often assumed to be more available at a more aggregated level such as a school cluster, but this assumption would need to be tested.
- c) Model 3 – Funds allocated at the school level, accountability at the cluster level: This model implements funding adjustments and distributes funding at the school level; while monitoring and accountability is at the cluster level. This approach would account for each school's change in demographics over time, but would also encourage school clusters to address the learning needs of all children and young people collectively. Thus, this may be the most advantageous way to allocate funds.

- Support ongoing research and evaluation

Funding should be allocated to ensure that research, practice-based evaluation and continuous process improvement occurs. As shown throughout this report, there is little evidence with respect to the efficiency, equity and impact of funding models for supporting children and young people with AHDN. It is imperative that funding is allocated to build this knowledge via regular and efficient evaluation of school activities, to allow for understanding of how funding models are working in practice, and to inform ongoing policy development and practice.

## 6.0 Recommendations for implementation and impact

While we have suggested an alternative approach to allocating funding, it should be noted that unless appropriate structures are in place it is unlikely that the potential benefits of such an approach will be fully realised. Below, we outline key considerations to inform change that will enable better student outcomes to be achieved.

### 6.1 Building workforce capacity

The effectiveness of the proposed approach is contingent on the existence of a sustained, qualified and highly motivated teacher workforce. A key message emerging from current research is that building teachers readiness and ability for inclusive education starts in pre-service training.<sup>115</sup> Opportunities for inclusive school experience during teacher training can lay early foundations for knowledge about inclusive practices and philosophy, foster positive attitudes towards inclusive practice and allay any concerns.<sup>116</sup> The broader discussion around strengthening initial teacher education in Australia should include a focus on targeting teaching practices to promote inclusive education.<sup>117</sup>

Effective pre-service training needs to be coupled with ongoing provision of messages that endorse the value of inclusive education, and provides opportunities for ongoing skill development. There are a number of ways in which teachers can be provided with support to develop positive attitudes about inclusive classrooms, and increase their skill and comfort level in regards to meeting the needs of children and young people with AHDN. This includes ongoing access to resources such as learning support teams<sup>118</sup>, co-teaching<sup>119</sup>, and mentoring from teachers with expertise in inclusive education.<sup>120</sup> It is important that both pre-service teaching students and the existing workforce are exposed to the positive experiences of motivated, competent and inspiring mentors.<sup>121</sup>

A recent report from the Grattan Institute further notes the importance of collecting robust evidence to monitor students' progress, so as to support targeted teaching practice, and monitoring and accountability more broadly.<sup>122</sup> The report calls on governments and systems leaders to invest in building capacity around tracking progress and targeted teaching, and evaluating the impact and cost-effectiveness of

the implementation of such policies. We echo these recommendations, noting that student-learning data should also incorporate health and wellbeing data to complement NAPLAN.

## **6.2 Monitoring and accountability**

The proposed alternative funding model gives considerable autonomy to schools. This makes it imperative that schools monitor and report their activities, including details around how they identify children and young people with AHDN and assess children and young people's learning needs, use of resources and the student outcomes achieved. There should be a mechanism to capture gaps, overlaps and inconsistencies in the system. Targets could be established to monitor alignment of school and classroom practice with best practice, and the broader values and goals of the curriculum. Monitoring and accountability, along with a quality assurance framework and a research and evaluation agenda, represent the mechanism through which lessons are learned, solutions are brokered, and new knowledge and ideas are incorporated into the system.

## **6.3 Evidence-based approaches to intervention**

To realise the potential of an alternative funding model to improve educational outcomes for students with AHDN, it is necessary to use evidence-based approaches to interventions in schools. Further research is required to build the evidence base, but there is also a need for the system to better support teachers to identify, implement and evaluate evidence-based interventions in schools. Building workforce capacity is a part of this, but so too is a greater recognition of the role of educational interventions (as opposed to clinical and therapeutic) for supporting children and young people with AHDN in the classroom.

## **6.4 Evaluation and research**

While there is an international movement towards certain funding models, there is very little empirical data showing causal relationships between types of funding approach and student outcomes. It is imperative that reforms to the provision of support for students with AHDN embed a rigorous and comprehensive ongoing process and impact evaluation, and that this framework is developed in consultation with the teaching community, and with families and communities. Ideally, implementation of a new funding model should include phased roll out in trial sites, as has occurred with the NDIS. This could contribute to an improved approach, and has the advantage of allowing any unintended consequences of the model to be addressed before scaling up.

One of the major issues highlighted internationally is not the lack of resources to support children and young people with AHDN, rather the inefficient use of existing resources. Interventions provided within schools to support children and young people with AHDN – including efforts to upskill the teaching workforce – should be

evidence based, but this evidence base also needs to be further developed. The Nationally Consistent Collection of Data may provide an opportunity to contribute to an evidence base about how students with disabilities are being supported, and can best be supported at the school, state/territory, and national level.

## 7.0 Conclusions

The Victorian Government's review of the Program for Students with a Disability offers the opportunity to better consider the provision of support for children and young people with a range of additional health and developmental needs (AHDN). This is particularly relevant to children and young people with SRD who, like other children with milder conditions, are not currently captured within the Program.

This report has detailed an overview of inclusive education for children and young people with AHDN, provided a summary of effective approaches and school-based interventions for children and young people, and presented an alternative funding approach and accompanying recommendations. The alternative model suggested is based on a reorganisation of the way funds are currently distributed and used to meet children and young people's learning needs, and does not necessarily involve additional cost – despite benefiting many more children. The proposed model purposefully takes into account the feasibility of shifting to a strength-based functional needs approach, the need to support children and young people as they transition to new educational settings, and the capacity to promote excellence in inclusive education.

A funding model that includes best-practice principles of inclusive education, alongside guiding principles for effective implementation, offers an opportunity to better support the needs of Victorian children and young people with AHDN. Through this, Victoria's children and young people will be better able to realise their potential, both in terms of classroom participation, and in a manner that equips them for future education and employment opportunities.

## 8.0 References

1. Newacheck P, Strickland B, Shonkoff J, et al. An epidemiologic profile of children with special health. *Pediatrics*. 1998;102(1):117.
2. Skues JL, Cunningham EG. A contemporary review of the definition, prevalence, identification and support of learning disabilities in Australian schools. *Australian Journal of Learning Difficulties*. 2011;16(2):159-180.
3. Barton B, Mitra A. *A review of formal tools to assess literacy difficulties in primary school aged children: Guidelines for a tiered approach*. NSW, Australia: CHERI;2011.
4. The United Nations Educational SaCOU. *Policy Guidelines on Inclusion in Education* Paris, France2009.
5. Sharma U, Forlin C. Contemporary models of funding inclusive education for students with Autism Spectrum Disorder (ASD). Monash University2015.
6. National Disability Agency. Access requirements. 2015; <http://www.ndis.gov.au/people-disability/access-requirements>. Accessed 18/06, 2015.
7. Goldfeld S, O'Connor M, Sayers M, Moore T, Oberklaid F. Prevalence and correlates of special health care needs in a population cohort of Australian children at school entry. *Journal of Developmental & Behavioral Pediatrics*. 2012;33(4):319-327.
8. Bethell CD, Read D, Blumberg SJ, Newacheck PW. What is the prevalence of children with special health care needs? Toward an understanding of variations in findings and methods across three national surveys. *Maternal and Child Health Journal*. 2008;12(1):1-14.
9. Janus M. Impact of Impairment on Children with Special Needs at School Entry: Comparison of School Readiness Outcomes in Canada, Australia, and Mexico. *Exceptionality Education International*. 2011;21(2):29-44.
10. McDowell M, O'Keeffe M. Public services for children with special needs: Discrimination by diagnosis? *Journal of Paediatrics and Child Health*. 2012;48(1):2-5.
11. Desforges M, Lindsay G. *Procedures used to Diagnose a Disability and to Assess Special Educational Needs: An International Review*. UK: National Council for Special Education;2010.
12. Skellern C, Schluter P, McDowell M. From complexity to category: responding to diagnostic uncertainties of autistic spectrum disorders. *Journal of Paediatrics and Child Health*. 2005;41(8):407-412.
13. Bramlett M, Read D, Bethell C, Blumberg S. Differentiating subgroups of children with special health care needs by health status and complexity of health care needs. *Maternal and Child Health Journal*. 2009;13(2):151-163.
14. Forrest C, Bevans K, Riley A, Crespo R, Louis T. School Outcomes of Children With Special Health Care Needs. *Pediatrics*. 2011;128(2):303-312.
15. Whiteford C, Walker S, Berthelsen D. Australian children with special health care needs: Socio-emotional and learning competencies in the early years. *International Journal of Early Childhood*. 2012;45(1):35-50.
16. McIntyre L, Eckert T, Fiese B, DiGennaro Reed F, Wildenger L. Family Concerns Surrounding Kindergarten Transition: A Comparison of Students in Special and General Education. *Early Childhood Education Journal*. 2010;38(4):259-263.

17. Lloyd JEV, Irwin LG, Hertzman C. Kindergarten school readiness and fourth-grade literacy and numeracy outcomes of children with special needs: a population-based study. *Educational Psychology*. 2009;29(5):583-602.
18. Janus M, Hughes D, Duku E. *Patterns of school readiness among selected subgroups of Canadian children: Children with special needs and children with diverse language backgrounds*. Canada: Offord Centre for Child Studies, McMaster University;2010.
19. Carlson E, Jenkins F, Bitterman A, Keller B. *A longitudinal view of receptive vocabulary and math achievement of young children with disabilities*. U.S. Department of Education. Washington, DC: National Centre for Special Education Research;2011.
20. Greenbaum PE, Dedrick RF, Friedman RM, et al. National Adolescent and Child Treatment Study (NACTS) Outcomes for Children with Serious Emotional and Behavioral Disturbance. *Journal of Emotional and Behavioral Disorders*. 1996;4(3):130-146.
21. Reuben CA, Pastor PN. The effect of special health care needs and health status on school functioning. *Disability and Health Journal*. 2013;6(4):325-332.
22. Bethell C, Forrest C, Stumbo S, Gombojav N, Carle A, Irwin C. Factors promoting or potentially impeding school success: disparities and state variations for children with special health care needs. *Matern Child Health J*. 2012;16(Suppl 1):S35-43.
23. Peters-Scheffer ND, Robert;Korzilius, Hubert;Matson, Johnny. Cost Comparison of Early Intensive Behavioral Intervention and Treatment as Usual for Children with Autism Spectrum Disorder in the Netherlands. *Research in Developmental Disabilities: A Multidisciplinary Journal*. 2012;33(6-):1763-1772.
24. Spencer N. European Society for Social Pediatrics and Child Health (ESSOP) Position Statement: Social inequalities in child health – towards equity and social justice in child health outcomes. *Child: Care, Health and Development*. 2008;34(5):631-634.
25. Belfield C. *The cost of early school-leaving and school failure*. World Bank;2008.
26. Australian Research Alliance for Children and Youth (ARACY). *Inclusive Education for Students with Disabilities: A review of the best evidence in relation to theory and practice*. 2013.
27. Mitchell D. *Education that Fits: Review of International Trends in the Education of Students with Special Education Needs*. New Zealand2015.
28. OECD. *Sustaining inclusive education: Including students with special needs in mainstream schools*. Paris1999.
29. Shaywitz SE, Shaywitz BA. Dyslexia (specific reading disability). *Biological psychiatry*. 2005;57(11):1301-1309.
30. Suggate SP. Why what we teach depends on when: Grade and reading intervention modality moderate effect size. *Developmental Psychology*. 2010;46(6):1556.
31. Seymour PH, Evans HM. Foundation-Level Dyslexia Assessment and Treatment. *Journal of learning disabilities*. 1999;32(5):394-405.
32. Stein J, Richardson A, Fowler M. Monocular occlusion can improve binocular control and reading in dyslexics. *Brain*. 2000;123(1):164-170.

33. Joanisse MF, Manis FR, Keating P, Seidenberg MS. Language deficits in dyslexic children: Speech perception, phonology, and morphology. *Journal of experimental child psychology*. 2000;77(1):30-60.
34. Australian Dyslexia Association. Dyslexia in Australia. 2014; <http://dyslexiaassociation.org.au/index.php?page=what-is-dyslexia>. Accessed June 18, 2015.
35. Rivalland J, House H. Mapping system provision for learning difficulties. In: Louden W, Chan LKS, Elkins J, Greaves D, House H, Milton M, eds. *Mapping the territory: Primary school students with learning difficulties in literacy and numeracy*. Vol 2. Canberra: Department of Education, Training and Youth Affairs; 2000:125-159.
36. Barbiero C, Lonciari I, Montico M, et al. The submerged dyslexia iceberg: how many school children are not diagnosed? Results from an Italian study. 2012.
37. Peterson RL, Pennington BF. Developmental dyslexia. *The Lancet*. 2012;379(9830):1997-2007.
38. O'Hare A. Dyslexia: what do paediatricians need to know? *Paediatrics and Child Health*. 2010;20(7):338-343.
39. Pennington BF, Bishop DV. Relations among speech, language, and reading disorders. *Annual review of psychology*. 2009;60:283-306.
40. Peterson R, Pennington B, Bruce F. Developmental dyslexia. *Lancet*. 2012;379:1997-2007.
41. Hutchinson JM, Whiteley HE, Smith CD, Connors L. The early identification of dyslexia: Children with English as an additional language. *Dyslexia*. 2004;10(3):179-195.
42. Cline T, Shamsi T. Language needs or special needs?: the assessment of learning difficulties in literacy among children learning English as an additional language: a literature review. 2000.
43. Willcutt EG, Pennington BF. Comorbidity of reading disability and attention-deficit/hyperactivity disorder differences by gender and subtype. *Journal of learning disabilities*. 2000;33(2):179-191.
44. Speece DL, Ritchey KD. A longitudinal study of the development of oral reading fluency in young children at risk for reading failure. *Journal of Learning Disabilities*. 2005;38(5):387-399.
45. Daniel SS, Walsh AK, Goldston DB, Arnold EM, Reboussin BA, Wood FB. Suicidality, school dropout, and reading problems among adolescents. *Journal of learning disabilities*. 2006;39(6):507-514.
46. MacCullagh L. Participation and experiences of students with dyslexia in higher education: a literature review with an Australian focus. *Australian Journal of Learning Difficulties*. 2014;19(2):93-111.
47. Stampoltzis A, Polychronopoulou S. Dyslexia in Greek higher education: a study of incidence, policy and provision. *Journal of Research in Special Educational Needs*. 2008;8(1):37-46.
48. Richardson JT, Wydell TN. The representation and attainment of students with dyslexia in UK higher education. *Reading and Writing*. 2003;16(5):475-503.
49. Mugnaini D, Lassi S, La Malfa G, Albertini G. Internalizing correlates of dyslexia. *World Journal of Pediatrics*. 2009;5(4):255-264.
50. Singer E. Coping with academic failure, a study of Dutch children with dyslexia. *Dyslexia*. 2008;14(4):314-333.

51. Bryan T, Burstein K, Ergul C. The social-emotional side of learning disabilities: A science-based presentation of the state of the art. *Learning Disability Quarterly*. 2004;27(1):45-51.
52. Riddick B. Dyslexia friendly schools in the UK. *Topics in Language Disorders*. 2006;26(2):144-156.
53. Westwood P. Differentiation'as a strategy for inclusive classroom practice: Some difficulties identified. *Australian Journal of Learning Difficulties*. 2001;6(1):5-11.
54. Dempsey I, Foreman P, Jenkinson J. Educational enrolment of students with a disability in New South Wales and Victoria. *International Journal of Disability, Development and Education*. 2002;49(1):31-46.
55. Shaddock T. Students with disabilities in the mainstream. What works for teachers and students? Cheri conference May 2006; 2006; Westmead, NSW.
56. Shaddock AJ, Neill, J., van Limbeek, C. and Hoffman-Raap, L. *What adaptations do classroom teachers make for students with disability in their classrooms and why/why not? Report to the Australian Government Department of Education, Science & Training*. Canberra 2007.
57. ARACY. *Inclusive Education for Students with Disability: A review of the best evidence in relation to theory and practice*. Australian Research Alliance for Children & Youth;2013.
58. Florian L. Preparing Teachers to Work in Inclusive Classrooms Key Lessons for the Professional Development of Teacher Educators from Scotland's Inclusive Practice Project. *Journal of Teacher Education*. 2012;63(4):275-285.
59. Boyle C, Scriven B, Durning S, Downes C. Facilitating the learning of all students: The 'professional positive'of inclusive practice in Australian primary schools. *Support for Learning*. 2011;26(2):72-78.
60. Dempsey I. The use of individual education programs for children in Australian schools. *Australasian Journal of Special Education*. 2012;36(1):21-31.
61. Development NIOCHaH. *Report of the National reading Panel Teaching Children to Read. An Evidence Based Assessment of the Scientific Literature on Reading and its Implications for Reading Instruction*. Washington, DC: US Government Printing Office;2000. NIH Publication No 00-4769.
62. Firth NV, Frydenberg E, Bond L. An evaluation of Success and Dyslexia—a multi component school-based coping program for primary school students with learning disabilities: Is it feasible? *Australian Journal of Learning Difficulties*. 2012;17(2):147-162.
63. Vaughn S, Gersten R, Chard DJ. The Underlying Message in LD Intervention Research: Findings from Research Syntheses. *Exceptional Children*. 2000;67(1):99-114.
64. Fuchs LS, Fuchs D, Capizzi AM. Identifying Appropriate Test Accommodations for Students With Learning Disabilities. *Focus on Exceptional Children*. 2005;37(6):1-8.
65. Firth N, Frydenberg E, Steeg C, Bond L. Coping Successfully with Dyslexia: An Initial Study of an Inclusive School - Based Resilience Programme. *Dyslexia*. 2013;19(2):113-130.

66. Galuschka K, Ise E, Krick K, Schulte-Körne G. Effectiveness of treatment approaches for children and adolescents with reading disabilities: a meta-analysis of randomized controlled trials. *PloS one*. 2014;9(2):e89900.
67. Department of Education and Training. *Program for Students with Disabilities - Guidelines for schools 2016*. Melbourne: State of Victoria (Department of Education and Training);2015.
68. Department of Education and Training. Autism Friendly Learning. 2015. Accessed 17/06/2015, 2015.
69. Department of Education and Training. ABLES - Abilities Based Learning and Education Support. 2015. Accessed 17/06, 2015.
70. Department of Education and Training. Inclusive Classroom School Resource. 2014. Accessed 17/06, 2015.
71. Department of Education and Training. Bar None Community Awareness Kit for School. 2014. Accessed 17/06, 2015.
72. Department of Education and Training. Positive Education Planning. 2014. Accessed 17/06, 2015.
73. Department of Education and Training. Family-centred practice, Person-centred practice. 2014. Accessed 17/06, 2015.
74. Victorian Auditor-General's Office. *Programs for Students with Special Learning Needs*. Victoria, Australia: Victorian Auditor-General's Office;2012.
75. Department of Education and Training. Program for Students with Disabilities Levels 1-6 2014;  
<http://www.education.vic.gov.au/school/principals/finance/pages/srpref015level.s.aspx>. Accessed 18/06, 2015.
76. Department of Education and Training. Workforce Development 2014. Accessed 17/06, 2015.
77. Department of Education and Training. Early Childhood Intervention Services. 2013. Accessed 17/06, 2015.
78. Department of Education and Training. Specialist Expertise. 2015. Accessed 17/06, 2015.
79. Department of Education and Training. *Student Support Services Guidelines*. Melbourne, Australia: Department of Education and Training;2012.
80. Victorian Principals Association. *VPA Position Paper: Student Support Services*. Melbourne, Victoria: Victorian Principals Association;2012.
81. Crosland K, Dunlap G. Effective strategies for the inclusion of children with autism in general education classrooms. *Behavior Modification*. 2012;36(3):251-269.
82. AITSL. Australian Professional Standards for Teachers. 2014;  
<http://www.aitsl.edu.au/australian-professional-standards-for-teachers/standards/list>. Accessed 15.07, 2015.
83. Independent Schools Victoria. *State Support Services Funding Independent Schools Victoria*, ;2015.
84. Alexander JL, Ayres KM, Smith KA. Training Teachers in Evidence-Based Practice for Individuals With Autism Spectrum Disorder A Review of the Literature. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*. 2015;38(1):13-27.

85. Sigafoos J, Moore D, Brown D, Green V, O'Reilly M, Lancio G. Special education funding reform: A review of impact studies. *Australasian Journal of Special Education*. 2010;34(1):17-35.
86. O'Connor M, Howell-Meurs S, Kvalsvig A, Goldfeld S. Understanding the impact of special health care needs on early school functioning: A conceptual model. *Child: Care Health and Development*. 2014;41(1):15-22.
87. WHO. *International classification of functioning disability and health (ICF)*. World Health Organization;2001.
88. WHO. *International Classification of Functioning, Disability, and Health: Children & Youth Version: ICF-CY*. World Health Organization; 2007.
89. Simeonsson RJ, Leonardi M, Lollar D, Bjorck-Akesson E, Hollenweger J, Martinuzzi A. Applying the International Classification of Functioning, Disability and Health (ICF) to measure childhood disability. *Disability and Rehabilitation*. 2003;25(11-12):602-610.
90. Üstün TB, Chatterji S, Bickenbach J, Kostanjsek N, Schneider M. The International Classification of Functioning, Disability and Health: a new tool for understanding disability and health. *Disability & Rehabilitation*. 2003;25(11-12):565-571.
91. Fredricks J, Blumenfeld P, Paris A. School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*. 2004;74(1):59-109.
92. Osterman KF. Students' need for belonging in the school community. *Review of educational research*. 2000;70(3):323-367.
93. Reyes MR, Brackett MA, Rivers SE, White M, Salovey P. Classroom emotional climate, student engagement, and academic achievement. *Journal of Educational Psychology*. 2012;104(3):700.
94. Kvalsvig A, O'Connor M, Redmond G, Goldfeld S. The Unknown Citizen: Epidemiological challenges in child mental health. *Journal of Epidemiology and Community Health*. accepted.
95. Goldfeld S, O'Connor M, Quach J, Tarasuik J, Kvalsvig A. Learning trajectories of children with special health care needs across the severity spectrum. *Academic Pediatrics*. 2015;15(2):177–184.
96. Hancock L. Why are Finland's schools successful? *Smithsonian. com*. 2011:1-5.
97. Entwisle DR, Alexander KL, Olson LS. First Grade and Educational Attainment by Age 22: A New Story1. *American Journal of Sociology*. 2005;110(5):1458-1502.
98. Foulder-Hughes L, Prior C. Supporting pupils with DCD and ASD with the transition to secondary school. *Research in Education*. 2014;92(1):79-92.
99. Dockett S, Perry B, Kearney E. Starting school with special needs: Issues for families with complex support needs as their children start school. *Exceptionality Education International*. 2011;21(2):45-61.
100. Janus M, Kopechanski L, Cameron R, Hughes D. In Transition: Experiences of Parents of Children with Special Needs at School Entry. *Early Childhood Education Journal*. 2008;35(5):479-485.
101. Hains A, Rosenkoetter S, Fowler SA. Transition planning with families in early intervention programs. *Infants & Young Children*. 1991;3(4):38-47.

102. Johnson T. What Are Parents Saying about Family Involvement in School Transitions? A Retrospective Transition Interview. *Journal of the Division for Early Childhood*. 1986;11(1):10-17.
103. Fowler S, Schwartz I. Perspectives on the transition from preschool to kindergarten for children with disabilities and their families. *Exceptional children*. 1991;58(2):136-145.
104. Anderson LS. Mothers of children with special health care needs: documenting the experience of their children's care in the school setting. *The Journal of School Nursing*. 2009;25(5):342-351.
105. Tudor Hart J. The inverse care law. *The Lancet*. 1971;297(7696):405-412.
106. Blackorby J, Knokey A-M, Wagner M, et al. *What makes a difference? Influences on outcomes for students with disabilities*. USA: SEELS;2007.
107. Medical Home Initiatives for Children With Special Needs Project Advisory Committee. The medical home. *Pediatrics*. 2002;110(1):184-186.
108. Erickson C, Splett P, Mullett S, Jensen C, Belseth S. The healthy learner model for student chronic condition management—part II: the asthma initiative. *The Journal of school nursing*. 2006;22(6):319-329.
109. Meijer C. *Financing of Special Needs Education: A seventeen-country Study of the Relationship between Financing of Special Needs Education and Inclusion*. Denmark: European Agency for Development in Special Needs Education;1999.
110. Lebeer J, Struyf E, De Maeyer S, et al. Identifying special educational needs: putting a new framework for graded learning support to the test. *European Journal of Special Needs Education*. 2010;25(4):375-387.
111. Alborz A, Pearson D, Farrell P, Howes A. *The impact of adult support staff on pupils and mainstream schools: A systematic review of evidence*. London: Department for Children, Schools, and Families; 2009.
112. Giangreco M, Doyle M. Teacher assistants in inclusive schools. *The SAGE handbook of special education*. London: Sage; 2007:429-439.
113. Community Affairs References Committee. *Prevalence of different types of speech, language and communication disorders and speech pathology services in Australia*. Canberra2014.
114. Communities NDoEa. *Value added models for NSW government schools*. Centre for Education Statistics and Evaluation, Strategic Information and Reporting, Office of Education, NSW Department of Education and Communities;2014.
115. Forlin C. Developing and implementing quality inclusive education in Hong Kong: implications for teacher education. *Journal of Research in Special Educational Needs*. 2010;10:177-184.
116. Pierce AP. *A Handbook for Ontario J/I Pre-Service Teachers Developing Inclusive Pedagogy: Understanding Pre-Service Teachers' Thoughts and Feelings About Diversity*, Department of Graduate and Undergraduate Studies in Education Submitted in partial fulfillment of the requirements for the degree of Master of Education Faculty of Education, Brock University; 2014.
117. Department of Education and Training. *Action Now: Classroom Ready Teachers, Australian Government Response*. 2015.
118. Tsui K, Sin K, Yu H. Research report of the inclusive education implementation in Hong Kong primary schools. *HKSES and HKPERA, Hong Kong*. 2007.

119. Forlin C, Sin K-f. Developing Support for Inclusion: A Professional Learning Approach for Teachers in Hong Kong. *International Journal of Whole Schooling*. 2010;6(1):7-26.
120. Savolainen H, Engelbrecht P, Nel M, Malinen O-P. Understanding teachers' attitudes and self-efficacy in inclusive education: implications for pre-service and in-service teacher education. *European Journal of Special Needs Education*. 2012;27(1):51-68.
121. Slee R. *The irregular school: Exclusion, schooling and inclusive education*. Taylor & Francis; 2011.
122. Goss P, Hunter J, Romanes D, Parsonage H. *Targeted teaching: How better use of data can improve student learning*. Grattan Institute 2015.
123. Goodwin AP, Ahn S. A meta-analysis of morphological interventions: Effects on literacy achievement of children with literacy difficulties. *Annals of Dyslexia*. 2010;60(2):183-208.

## Appendix A. Definitions of dyslexia

Definition	Source
<p>A specific learning disability that is neurobiological in origin. It is characterised by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge.</p>	<p>International Dyslexia Association, also used by the National Institute of Child Health and Human Development</p> <p><a href="http://eida.org/definition-of-dyslexia/">http://eida.org/definition-of-dyslexia/</a>, accessed 17.6.2015</p>
<p>Dyslexia is a specific learning disability ('difference' – ADA adapted) that is neurological in origin. It is characterised by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities.</p>	<p>Australian Dyslexia Association</p> <p><a href="http://dyslexiaassociation.org.au/index.php?page=what-is-dyslexia">http://dyslexiaassociation.org.au/index.php?page=what-is-dyslexia</a>, accessed 18.6.2015</p>
<p>Dyslexia is a language-based learning disability of neurological origin that primarily affects the skills involved in accurate and fluent word reading and spelling. It is frequently associated with difficulties in phonological processing. It occurs across the range of intellectual abilities with no distinct cut-off points. It is viewed as a lifelong disability that often does not respond as expected to best-practice evidence-based classroom methods for teaching reading.</p>	<p>Barton, B. and Mitra, A. (2011). A review of formal tools to assess literacy difficulties in primary school aged children: Guidelines for a tiered approach. Sydney: Kingsgrove Press.</p>
<p>Dyslexia is a language-based learning disability. Dyslexia refers to a cluster of symptoms, which result in people having difficulties with specific language skills, particularly reading. Students with dyslexia may experience difficulties in other language skills such as spelling, writing, and speaking</p>	<p>Held Back, the experiences of children with disabilities in Victoria. (2012). Melbourne: Victorian Equal Opportunities and Human Rights Commission.</p>

## Appendix B: Search strategy and coding

This literature review utilised a rapid evidence assessment (REA) methodology. This methodology is similar to a systematic review but makes concessions to the breadth and depth of the process, in order to meet a short timeframe. The search strategy employed in REAs often limits the selection of studies to those that were (a) published in the last 10 years, (b) peer-reviewed, and (c) available in the English language. The process of identifying and evaluating relevant literature is therefore highly efficient, making the REA process particularly useful to policy and decision makers. This search strategy relates to both dyslexia and Autism Spectrum Disorders (ASD), which were both focus conditions of the review of the Program for Students with Disabilities.

### Main search strategy

The following databases were used to identify literature relevant to education funding models for children with SHCN, ASD, or dyslexia: Ovid MEDLINE, PsycInfo, and Education Resource Information Centre (ERIC). In each database, three advanced searches were conducted; one each for SHCN, ASD and dyslexia.

Search terms were created for 'children', 'funding', 'education', 'SHCN', 'ASD', and 'Dyslexia'. Knowledge of the language in academic literature, along with MeSH terms, was utilised to create the search term lists. The specific terms used for each of the categories are listed below.

Search terms were entered under 'keywords' in MEDLINE and PsycInfo and limited to 'subject' in ERIC. 'Education' terms were included in MEDLINE and PsycInfo searches for SHCN and ASD, but not in ERIC. For example, in PsycInfo, the SHCN search combined terms for SHCN with terms for children, funding and education. In ERIC, the SHCN terms were combined with children and funding only.

Results from all searches were limited to literature published from 2005 to 2015 in English.

### Search terms

The search terms for each of the categories are listed below:

**Children terms:** Children, Children with disabilities, Early childhood, Learning disabled children, Students, Teenagers

**Funding Models terms:** Economics, Financing, Costs, Funding, Monetary Support

**Education terms:** Education, School, Learning, Primary School, Elementary School, Secondary School, High School, Students, Teaching, Training Support

**Special health care needs terms:** Health conditions, Chronic illness, Special Health Problems, Disabilities, Multiple disabilities, Mild disabilities, Severe disabilities,

Special health care needs, Special needs, Additional needs, Special education needs

**ASD terms:** Autistic Disorder, Asperger Syndrome, Pervasive Developmental Disorder, PDD, ASD

**Dyslexia terms:** Dyslexia, Reading disorder, Alexia, Learning difficulties, Dyscalculia

Table 2: Number of records extracted for each search by database

<b>Condition</b>	<b>Database</b>	<b>Number of Records Extracted</b>
Special Health Care Needs	MEDLINE	120
	PSYCINFO	347
	ERIC	183
ASD	MEDLINE	25
	PSYCINFO	29
	ERIC	27
Dyslexia	MEDLINE	11
	PSYCINFO	26
	ERIC	3

### **Information management and review process**

The total number of search records identified through the implementation of the search strategy outlined above yielded 649 results (excluding duplicates). Records were exported to EndNote bibliographic software and then imported into an Excel sheet.

A screening process was adopted to ensure that only high quality and relevant publications were included for data extraction. Qualified reviewers examined content from the title and abstract to determine which records were relevant according to the following eligibility criteria:

**Included:**

1. Preschool, Primary and Secondary School Children with SHCN (broadly defined), ASD or Dyslexia,
2. Peer-reviewed papers, published reports (English language)
3. Evaluations of intervention(s) delivered within an educational setting for children with SHCN, ASD, or dyslexia
4. Publications including a cost analysis for interventions noted above

**Excluded:**

1. Very early childhood (before preschool) or tertiary student or adult population
2. Publications focussing on health costs only
3. Publications focussing on individual, family, or societal burden of relevant conditions
4. Dissertations, Books, Book Reviews, Editorials and Reports that were difficult to obtain
5. Theoretical, legal and political commentaries
6. Purely qualitative studies
7. Clinical and community interventions
8. Interventions not targeting SHCN/ASD/Dyslexia

Each article was identified as falling into one of three categories:

1. Meets search criteria
2. Could meet criteria, further review of study is necessary to determine this
3. Does not meet search criteria

21 studies were put into the first category, with 49 and 579 in the latter two categories respectively.

The main reasons for exclusion are outlined in the table below.

Table 3: Reasons for study exclusion

<b>Reason for Elimination</b>	<b>Justification</b>
Qualitative studies	The REA was focussed upon understanding the effectiveness of interventions, qualitative and exploratory studies that did not include any information about outcomes were excluded.
Theoretical, legal commentaries	The REA was focussed upon collating information on the relative effectiveness of interventions, while these sources provide rich information about approaches to support the target population, they do not usually provide information on the effectiveness of interventions.
Dissertations	These documents are very long, and tend to focus on multiple areas within a topic.
Post-secondary interventions	The population of interest are those children and young people with SHCN/Autism/ASD/dyslexia in school.
Pre-natal interventions	The population of interest are those children and young people with SHCN/Autism/ASD/dyslexia in school.
Pre early-childhood interventions	The population of interest are those children and young people with SHCN/Autism/ASD/dyslexia in school.
Editorials	These are tertiary research sources and usually consist of a discussion from the editor of a publication on a particularly topic.
Book reviews	These are tertiary sources that depict the reviewers appraisal and review of a particularly book, they do not usually contain information about interventions and outcomes.
Non- English language	Feasibility reasons, the provision for translation of sources was not within the scope of this REA.
Clinical interventions (outside of the school)	The REA was focussed upon education interventions.
Community interventions- these were usually clinical (outside of the school)	The REA was focussed upon education interventions.
Interventions not targeting SHCN/Autism/ASD/Dyslexia	The REA was focussed upon education interventions targeted children and young people with SHCN/Autism/ASD/Dyslexia.
No full-text readily available	The time constraints of the REA meant that sourcing articles from interstate libraries was not feasible.

The process of identifying relevant records is summarised in the diagram below.

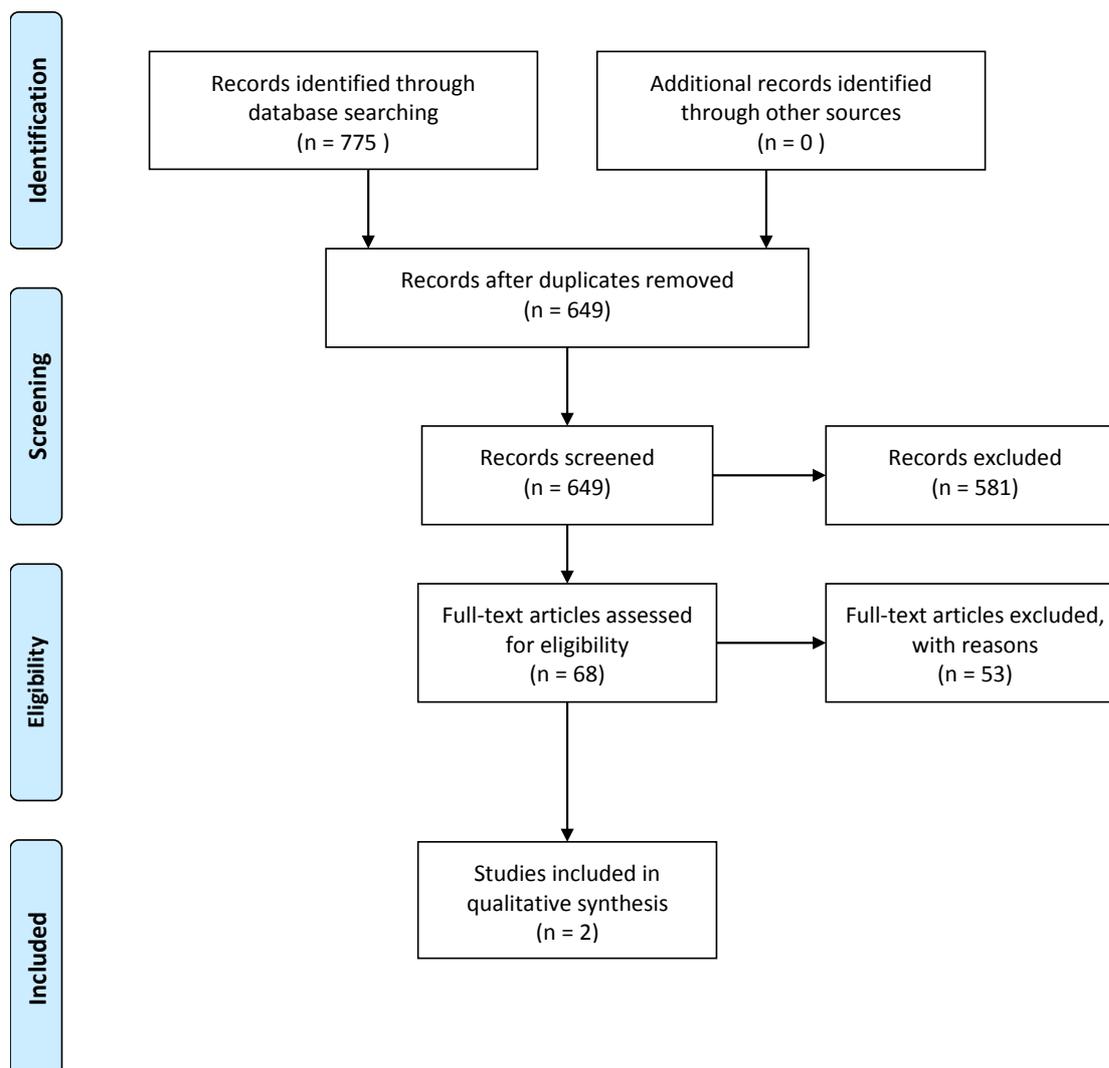


Figure 12: PRISMA statement

### Supplementary search strategy

A supplementary search specifically targeting publications with a focus on evaluation of ASD and dyslexia interventions was then conducted. This search utilised the MEDLINE, PsychInfo, and ERIC databases.

Search terms for ‘intervention’ included ‘intervention’, ‘treatment’, ‘program’, and ‘therapy’. Search terms to capture review level publications included ‘metaanalysis’, ‘meta-analysis’, ‘review’, and ‘systematic review’. These terms were combined with those listed above for ‘children’, ‘education’ and ‘ASD’ or ‘Dyslexia’.

The supplementary search initially yielded 508 records. After discarding duplicates and records identified in the main search, 434 records were eligible for screening. Of these, 120 records met inclusion criteria. Due to time constraints, not all records

could be fully assessed. Meta-analyses published from 2010 to 2015 were prioritised, followed by literature reviews with an education focus.

### Coding process

Those studies that were included based on their alignment with the search criteria were reviewed, and information was extracted from these studies according to a coding sheet developed by the researchers. An overview of this sheet is provided in the diagram below.

Table 4: Coding sheet

Area	Information coded
<b>Study characteristics</b>	Year of publication
	Author
	Date
	Study design
	Country/state/international
<b>Population</b>	Target age group
	Condition type
	Status of Diagnosis/assessed need
	Diagnostic/assessment tool
	Diagnostic/assessment process
	Diagnostician/assessor
	Intervention/funding eligibility
	Transition to primary/secondary school
<b>Intervention</b>	Inputs/activities
	Multidisciplinary approach
	Coordination Mechanism
	Controller of funds
	Reach
	Universal/needs-based approach
	Cost/currency/year of investment
<b>Outcome</b>	Reported/not reported
	School absenteeism
	Academic achievement
	School participation/engagement (inclusion)
	School completion
	Physical health outcomes
	Psychosocial health outcomes
	Other outcomes reported

Information was extracted from the included studies and recorded into the coding sheet. The coding was completed by three personnel, and reliability checks were conducted on approximately 10% of reviewed studies, and the resultant rating was 100% agreement between coders.

Table 5: Summary of meta-analyses of SRD interventions

Reference	Population	Intervention	Target outcome	Main findings
<b>Galuschka et al, (2014)<sup>66</sup></b>	Children and adolescents	School-based interventions comprising various treatment approaches. Examined impact of interventions according to: <ul style="list-style-type: none"> <li>- Activities included</li> <li>- Duration (weeks)</li> <li>- Total intervention amount (hrs)</li> <li>- Setting (e.g. individual, group, computer)</li> <li>- Conductor (professional/non professional)</li> </ul>	Reading and Spelling	Small effects were observed for interventions that: <ul style="list-style-type: none"> <li>- Used phonics instruction</li> <li>- Targeted children and adolescents with milder SRD</li> <li>- Had a duration of 12 weeks or greater</li> <li>- Involved group, individual, or teacher with computer based format</li> <li>- Were administered by researchers</li> </ul>
<b>Suggate (2010)<sup>30</sup></b>	Preschool to Year 7	Examined impact of school based interventions according to: <ul style="list-style-type: none"> <li>- Grade of students targeted</li> <li>- Risk status</li> <li>- Skills targeted</li> </ul>	Reading improvement	Overall, the interventions were associated with reading improvement (moderate effect size).  Improvements were evident for: <ul style="list-style-type: none"> <li>- Students of all ages and grades examined</li> <li>- Both at risk readers and struggling readers</li> </ul>

---

				<ul style="list-style-type: none"> <li>- Interventions focusing on phonics, comprehension, and mixed approaches</li> <li>- Interventions targeting phonological awareness had a larger impact for younger children up to Grade 1</li> <li>- Comprehension-based and mixed interventions showed moderate size effects in children in Grades 5-7</li> </ul>
<b>Goodwin and Ahn (2010)<sup>123</sup></b>	Kinder to Year 12	<p>Examined morphological interventions for children with literacy difficulties. Examined impact of:</p> <ul style="list-style-type: none"> <li>- Intensity of intervention (duration in hrs)</li> <li>- Type of learner (struggling reader/reading disabled/English Language Learner)</li> <li>- Skills targeted (e.g. vocabulary, reading, spelling)</li> <li>- Format (individual, small group, large group, combined)</li> </ul>	Range of literacy skills, such as decoding, fluency, phonological awareness, comprehension, vocabulary and spelling	<p>Overall, the interventions showed improved outcomes for learners with a range of literacy difficulties (with a moderate effect size).</p> <p>Interventions were most effective when they:</p> <ul style="list-style-type: none"> <li>- Were administered over at least 10 hours</li> <li>- Focused on reading and vocabulary,</li> <li>- Targeted children with emerging reading difficulties</li> </ul>

---