



---

**Title Registration for a Systematic Review:**  
**School-Based Interventions for Improving Academic Success for Early Primary School Students with Established and Emerging Special Health Care Needs: A Systematic Review**

**Jon Quach, Meredith O'Connor, Janet Clinton, John Hattie, Alana Deery, Sharon Goldfeld**

---

Submitted to the Coordinating Group of:

<input type="checkbox"/>	Crime and Justice
<input checked="" type="checkbox"/>	Education
<input checked="" type="checkbox"/>	Disability
<input type="checkbox"/>	International Development
<input type="checkbox"/>	Nutrition
<input type="checkbox"/>	Social Welfare
<input type="checkbox"/>	Other:

Plans to co-register:

<input checked="" type="checkbox"/>	No		
<input type="checkbox"/>	Yes	<input type="checkbox"/> Cochrane	<input type="checkbox"/> Other
<input type="checkbox"/>	Maybe		

Date Submitted:

Date Revision Submitted:

Approval Date:

Publication Date: 01 March 2016

---

## TITLE OF THE REVIEW

---

School-based interventions for improving academic success for early primary school students with established and emerging special health care needs: A systematic review

---

## BACKGROUND

---

Schools increasingly need to cater for children experiencing the ‘millennial morbidities’ (Haggerty, 1995; Palfrey, Tonniges, Green, & Richmond, 2005); chronic and often complex health problems such as obesity, ADHD, and learning issues. Often referred to as children with special health care needs (SHCN), these children have or are at increased risk for a chronic physical, developmental, behavioural, or emotional conditions and require more health and education services than their peers (McPherson et al., 1998). This definition purposely focuses on the difficulties a child experiences due to an ongoing health condition or disability, as opposed to a specific diagnosis. For example, two children with the same diagnosis (e.g., mild intellectual disability) could have very different areas of difficulty and support needs (e.g., behavioural issues could be present or absent). In addition, two children with *different* diagnoses could experience similar factors that impact on their school functioning (e.g., days absent from school, reduced teacher expectations, etc.).

Using the definition of SHCN rather than focusing on specific diagnoses has several advantages. First, it is inclusive and can be applied to children with severe and complex conditions but also to children who are experiencing emerging developmental issues but lack a formal diagnosis. Despite the potential benefits of early identification and intervention (Newacheck, Rising, & Kim, 2006), this latter group tends to be under-represented in discussions of children with additional health or developmental needs, and is at high risk of missing out on services (McDowell & O’Keeffe, 2012). Another advantage of this approach is the conceptualization allows a more flexible approach, recognizing that children’s needs may change over time according to developmental period, response to interventions and environmental resources. The definition also provides a means of addressing processes that are common across many conditions, such as social participation. For these reasons, SHCN has emerged as a useful and valid concept for exploring health and developmental issues in children (Bethell et al., 2002; Davis & Brosco, 2007).

Studies examining outcomes using this broad definition of SHCN have consistently reported poorer outcomes for children’s academic achievement, social relationships and emotional engagement (Forrest, Bevans, Riley, Crespo, & Louis, 2011; Halfon, Houtrow, Larson, & Newacheck, 2012; Lollar, Hartzell, & Evans, 2012) and also greater parent financial stress and mental health problems (Emerson & Llewellyn, 2008; Kuhlthau, Hill, Yucel, & Perrin, 2005; Miller, Nugent, Gaboda, & Russell, 2013). The proportion of children with SHCNs has increased in many countries, with latest research estimates reporting that up to 30% of

children have a SHCN during the early years of school (Goldfeld, O'Connor, Sayers, Moore, & Oberklaid, 2012; Halfon et al., 2012; Perrin, Bloom, & Gortmaker, 2007; Wolfe et al., 2013).

Children with special health care needs can be distinguished as having either established or emerging needs (Goldfeld et al., 2012). Australian data suggests that while 4% of Australian children have established SHCN formally diagnosed and recognized by educational systems, another 18% have emerging SHCNs (Goldfeld et al., 2012). Children with emerging SHCN may have difficulties that are not yet diagnosed, less severe, or lie in diagnostic "grey areas", but nevertheless substantially impact their learning outcomes (Goldfeld, O'Connor, Quach, Tarasuik, & Kvalsvig, 2015). In many countries such as Australia, United States and the United Kingdom, funding systems for school supports target the severe 4% by imposing criteria based on severe impairment in rigid diagnostic categories (McDowell & O'Keeffe, 2012; O'Connor, Howell-Meurs, Kvalsvig, & Goldfeld, 2015). Therefore, children with emerging SHCNs are generally ineligible to receive the additional support they need to establish positive educational pathways. An example of how 'emerging needs' has been operationalised in the literature as provided by Goldfeld et al. (2012). In the Australian Early Development Census, children were categorised as having emerging SHCN if they were not formally recognised as having special needs at school, but nevertheless had areas of difficulty that were impacting on their learning, and/or their teacher felt they were experiencing difficulties that necessitated further assessment. The study also found that the most common areas of difficulty reported by teachers for children with emerging SHCN were speech impairment (36.9%), behavioural (15.8%) and emotional (11.5%) (Goldfeld et al., 2012). Furthermore, it was also reported that 28% of children with emerging needs had two or more difficulties, demonstrating the comorbidities prevalent in this population.

More recent research has reported that children with established and emerging SHCNs commence primary school with lower academic abilities than same aged peers (Forrest et al., 2011; Goldfeld et al., 2015), and these differences tend to persist with a high level of stability into later years (Goldfeld et al., 2015). This echoes the dearth of research that highlights the importance of the early years of primary school in setting children up on positive academic and well-being pathways (Blair & DeBell, 2011; Duncan et al., 2007; High, 2008; Sabol & Pianta, 2012). Therefore, understanding how children's needs can be addressed during the early years of school has the potential to help children reach their academic and well-being potential during a crucial developmental period in their lives.

Given the important role of teachers and schools in supporting these children (Blair & DeBell, 2011), and the known benefits of early intervention and prevention (Oberklaid, Baird, Blair, Melhuish, & Hall, 2013), it is surprising that there is a dearth of empirical data to help understand the types of school-based interventions that can improve academic outcomes for children with both established and emerging SHCNs. These interventions may target specific difficulties, but be suitable for children experiencing a wide range of conditions and sub-clinical issues; for example, an intervention focused on addressing behavioural difficulties in the classroom could be of benefit to students with Autism

Spectrum Disorder (ASD), Attention Deficit Hyperactive Disorder (ADHD), intellectual disability, behavioural disorders, or subclinical externalising issues. Advocacy for these vulnerable children requires empirically-supported school-based interventions to address their poor academic outcomes and therefore improve their long-term development.

---

## **OBJECTIVES**

---

The primary objective of this review is to evaluate and synthesize the effectiveness of school-based interventions that aim to improve academic attainment for children with either established or emerging SHCNs during the early years of primary school.

---

## **EXISTING REVIEWS**

---

To our knowledge, there are no reviews that have sought to understand the effectiveness of school-based interventions for children with either established or emerging SHCNs during the early years of school. Reviews do exist for children with disabilities and/or specific diagnosed conditions such as ADHD (Purdie, Hattie, & Carroll, 2002), ASD (Reed, Osborne, & Corness, 2007), specific learning difficulties (Galuschka, Ise, Krick, & Schulte-Körne, 2014), and poor executive functioning (Jacob & Parkinson, 2015). This review will instead aim to understand whether there are common teacher- or school-based interventions that can be used to support children's learning, regardless of whether the child has a formally diagnosed condition or the type of diagnosis the child may have. This will entail focusing on the indicators of poor learning, such as failing to read, language difficulties and behaviour problems.

---

## **INTERVENTION**

---

We will review and synthesize interventions delivered at a classroom and school level to support children with special health care needs. Interventions may include, but are not limited to, changing teaching pedagogy to better support children in the classroom, modifying classrooms environment, implementation of inclusive school policies, case management, or providing school-based health support services targeting children with established or emerging SHCNs.

The primary distinction will be the interventions will aim to address a particular difficulty that influences children's ability to learn. An example intervention may be teacher's altering teaching pedagogy to support children with behavioural difficulties in the classroom to achieve more inclusive education, whilst children with more severe behavioural difficulties may require small-group teaching support.

---

## **POPULATION**

---

The population of interest is children with established or emerging special health care needs during the first three years of primary (elementary) school.

The definition of SHCN focuses on a child's functional difficulties as a result of ongoing health conditions, rather than their specific diagnosis. By using this broad definition, we will be able to understand whether there are common interventions which can be used by teachers and schools to address children's difficulties, regardless of whether the child has a formally diagnosed condition and which can also be applied to a broad range of children with different diagnoses. This review will focus on interventions aimed to reduce a particular difficulty associated with poorer learning, such as behavioural difficulties, as opposed to specific conditions/disabilities. This approach is also consistent with recent research literature that suggests interventions aimed at improving children's learning should span different diagnoses by focusing on children's functioning conditions/disabilities (Forrest et al., 2011; Goldfeld et al., 2012; Lebeer et al., 2010).

---

## **OUTCOMES**

---

The primary outcome is academic achievement. The secondary outcomes include Health (physical and mental) and wellbeing, learning ability, primary and secondary school engagement, and school completion rates.

---

## **STUDY DESIGNS**

---

Studies that implement an intervention to a randomly or non-randomly assigned intervention or comparison condition will be included. This can include: randomly assigned controlled trials, quasi-randomized controlled trials (e.g., participants assigned via matching) or non-randomized controlled trials (e.g., where participants or groups choose assignment). Studies must demonstrate pre-treatment equality using evidence from key measured variables.

Only studies that have a well-defined comparison group will be included (e.g., wait-list control, treatment-as-usual, straw-man designs). In school-based settings, whole schools often constitute comparison groups. Distinguishing the type of comparison group assembled is therefore an important methodological aspect to code.

---

## REFERENCES

---

- Bethell, C., Read, D., Stein, R., Blumberg, S., Wells, N., & Newacheck, P. (2002). Identifying children with special health care needs: Development and evaluation of a short screening instrument. *Ambulatory Pediatrics*, 2(1), 38-48. doi:10.1367/1539-4409(2002)002<0038:ICWSHC>2.0.CO;2
- Blair, M., & DeBell, D. (2011). Reconceptualising health services for school-age children in the 21st century. *Archives of Disease in Childhood*, 96(7), 616-618. doi:10.1136/adc.2009.178921
- Davis, M. M., & Brosco, J. P. (2007). Being specific about being special: Defining children's conditions and special health care needs. *Archives of Pediatrics & Adolescent Medicine*, 161(10), 1003-1005.
- Duncan, G. J., Dowsett, C. J., Claessens, A., Magnuson, K., Huston, A. C., Klebanov, P., . . . Brooks-Gunn, J. (2007). School readiness and later achievement. *Developmental Psychology*, 43(6), 1428-1446.
- Emerson, E., & Llewellyn, G. (2008). The mental health of Australian mothers and fathers of young children at risk of disability. *Australian and New Zealand Journal of Public Health*, 32(1), 53-59.
- Forrest, C., Bevans, K., Riley, A., Crespo, R., & Louis, T. (2011). School outcomes of children with special health care needs. *Pediatrics*, 128(2), 303-312. doi: 10.1542/peds.2010-3347
- Galuschka, K., Ise, E., Krick, K., & Schulte-Körne, G. (2014). Effectiveness of treatment approaches for children and adolescents with reading disabilities: A meta-analysis of randomized controlled trials. *PloS one*, 9(2), e89900.
- Goldfeld, S., O'Connor, M., Sayers, M., Moore, T., & Oberklaid, F. (2012). Prevalence and correlates of special health care needs in a population cohort of Australian children at school entry. *Journal of Developmental & Behavioral Pediatrics*, 33(4), 319-327.
- Goldfeld, S., O'Connor, M., Quach, J., Tarasuik, J., & Kvalsvig, A. (2015). Learning trajectories of children with special health care needs across the severity spectrum. *Academic pediatrics*, 15(2), 177-184.
- Haggerty, R. J. (1995). Child health 2000: New pediatrics in the changing environment of children's needs in the 21st century. *Pediatrics*, 96(4), 804-812.
- Halfon, N., Houtrow, A., Larson, K., & Newacheck, P. W. (2012). The changing landscape of disability in childhood. *The Future of Children*, 22(1), 13-42.
- High, P. C. (2008). School readiness. *Pediatrics*, 121(4), e1008-e1015.
- Jacob, R., & Parkinson, J. (2015). The potential for school-based interventions that target executive function to improve academic achievement: A review. *Review of Educational Research*, 0034654314561338.
- Kuhlthau, K., Hill, K. S., Yucel, R., & Perrin, J. M. (2005). Financial burden for families of children with special health care needs. *Maternal and Child Health Journal*, 9(2), 207-218.

- Lebeer, J., Struyf, E., De Maeyer, S., Wilssens, M., Timbremont, B., Denys, A., & Vandeveire, H. (2010). Identifying special educational needs: Putting a new framework for graded learning support to the test. *European Journal of Special Needs Education, 25*(4), 375-387.
- Lollar, D. J., Hartzell, M. S., & Evans, M. A. (2012). Functional difficulties and health conditions among children with special health needs. *Pediatrics, 129*(3), e714-722. doi: 10.1542/peds.2011-0780
- McDowell, M., & O'Keeffe, M. (2012). Public services for children with special needs: Discrimination by diagnosis? *Journal of Pediatrics and Child Health, 48*(1), 2-5.
- McPherson, M., Arango, P., Fox, H., Lauver, C., McManus, M., Newacheck, P. W., . . . Strickland, B. (1998). A new definition of children with special health care needs. *Pediatrics, 102*(1), 137-139.
- Miller, J. E., Nugent, C. N., Gaboda, D., & Russell, L. B. (2013). Reasons for unmet need for child and family health services among children with special health care needs with and without medical homes. *PloS One, 8*(12), e82570.
- Newacheck, P. W., Rising, J. P., & Kim, S. E. (2006). Children at risk for special health care needs. *Pediatrics, 118*(1), 334-342.
- O'Connor, M., Howell- Meurs, S., Kvalsvig, A., & Goldfeld, S. (2015). Understanding the impact of special health care needs on early school functioning: a conceptual model. *Childcare, Health and Development, 41*(1), 15-22.
- Oberklaid, F., Baird, G., Blair, M., Melhuish, E., & Hall, D. (2013). Children's health and development: Approaches to early identification and intervention. *Archives of Disease in Childhood, 98*(12), 1008-1011. doi: 10.1136/archdischild-2013-304091
- Palfrey, J. S., Tonniges, T. F., Green, M., & Richmond, J. (2005). Introduction: Addressing the millennial morbidity—the context of community pediatrics. *Pediatrics, 115*(Supplement 3), 1121-1123.
- Perrin, J. M., Bloom, S. R., & Gortmaker, S. L. (2007). The increase of childhood chronic conditions in the United States. *JAMA: Journal of the American Medical Association, 297*(24), 2755-2759.
- Purdie, N., Hattie, J., & Carroll, A. (2002). A review of the research on interventions for attention deficit hyperactivity disorder: What works best? *Review of Educational Research, 72*(1), 61-99.
- Reed, P., Osborne, L. A., & Corness, M. (2007). The real-world effectiveness of early teaching interventions for children with autism spectrum disorder. *Exceptional Children, 73*(4), 417-433.
- Sabol, T. J., & Pianta, R. C. (2012). Patterns of school readiness forecast achievement and socioemotional development at the end of elementary school. *Child Development, 83*(1), 282-299.
- Wolfe, I., Thompson, M., Gill, P., Tamburlini, G., Blair, M., van den Bruel, A., . . . Karanikolos, M. (2013). Health services for children in western Europe. *The Lancet, 381*(9873), 1224-1234.

---

## REVIEW AUTHORS

---

**Lead review author:** The lead author is the person who develops and co-ordinates the review team, discusses and assigns roles for individual members of the review team, liaises with the editorial base and takes responsibility for the on-going updates of the review.

Name:	Jon Quach
Title:	Dr
Affiliation:	Melbourne Graduate School of Education, The University of Melbourne
Address:	Level 4, 100 Leicester Street
City, State, Province or County:	Carlton
Postal Code:	3010
Country:	Australia
Phone:	+61 3 8344 1200
Email:	<a href="mailto:jon.quach@unimelb.edu.au">jon.quach@unimelb.edu.au</a>

### Co-author(s):

Name:	<b>Meredith O'Connor</b>
Title:	Dr
Affiliation:	Murdoch Childrens Research Institute
Address:	50 Flemington Rd
City, State, Province or County:	Parkville, Victoria
Postal Code:	3052
Country:	Australia
Phone:	+61 431482113
Email:	<a href="mailto:Meredith.oconnor@mcri.edu.au">Meredith.oconnor@mcri.edu.au</a>

Name:	<b>Janet Clinton</b>
Title:	Associate Professor
Affiliation:	The University of Melbourne
Address:	Level 4, 100 Leicester Street
City, State, Province or County:	Carlton
Postal Code:	3010
Country:	Australia
Phone:	+61 3 8345 3697
Email:	<a href="mailto:jclinton@unimelb.edu.au">jclinton@unimelb.edu.au</a>

---

Name:	<b>John Hattie</b>
Title:	Professor
Affiliation:	University of Melbourne
Address:	Level 9, 100 Leicester Street
City, State, Province or County:	Carlton
Postal Code:	3010
Country:	Australia
Phone:	+61 3 8344 8285
Email:	<a href="mailto:jhattie@unimelb.edu.au">jhattie@unimelb.edu.au</a>

---

Name:	<b>Alana Deery</b>
Title:	Project Officer
Affiliation:	Murdoch Childrens Research Institute
Address:	50 Flemington Rd
City, State, Province or County:	Parkville, Victoria
Postal Code:	3052
Country:	Australia
Phone:	+61 3 9345 4207
Email:	<a href="mailto:alana.deery@mcri.edu.au">alana.deery@mcri.edu.au</a>

---

Name:	<b>Sharon Goldfeld</b>
Title:	Co-Group Leader, Policy Equity and Translation
Affiliation:	Murdoch Childrens Research Institute
Address:	50 Flemington Rd
City, State, Province or County:	Parkville, Victoria
Postal Code:	3052
Country:	Australia
Phone:	+61 3 9345 6408
Email:	<a href="mailto:Sharon.Goldfeld@rch.org.au">Sharon.Goldfeld@rch.org.au</a>

---

---

## **ROLES AND RESPONSIBILITIES**

---

Please give a brief description of content and methodological expertise within the review team. It is recommended to have at least one person on the review team who has content expertise, at least one person who has methodological expertise and at least one person who

has statistical expertise. It is also recommended to have one person with information retrieval expertise. Please note that this is the *recommended optimal* review team composition.

- Content: Jon Quach, Meredith O'Connor, Sharon Goldfeld, John Hattie, Janet Clinton, Alana Deery
- Systematic review methods: John Hattie, Alana Deery, Sharon Goldfeld, Meredith O'Connor, Jon Quach
- Statistical analysis: Jon Quach, Meredith O'Connor, John Hattie
- Information retrieval: Jon Quach, Meredith O'Connor

---

## **FUNDING**

---

This project will be funding using internal funds in addition to research grants from the Australian Research Council

---

## **POTENTIAL CONFLICTS OF INTEREST**

---

All authors do not have any conflicts of interest involving development of relevant interventions, primary research, or prior published reviews on the proposed topic

---

## **PRELIMINARY TIMEFRAME**

---

Note, if the protocol or review are not submitted within 6 months and 18 months of title registration, respectively, the review area is opened up for other authors.

- Date you plan to submit a draft protocol: 6<sup>th</sup> November 2015
- Date you plan to submit a draft review: 29<sup>th</sup> April 2016

---

## **AUTHOR DECLARATION**

---

### **Authors' responsibilities**

By completing this form, you accept responsibility for preparing, maintaining, and updating the review in accordance with Campbell Collaboration policy. The Coordinating Group will provide as much support as possible to assist with the preparation of the review.

A draft protocol must be submitted to the Coordinating Group within one year of title acceptance. If drafts are not submitted before the agreed deadlines, or if we are unable to contact you for an extended period, the Coordinating Group has the right to de-register the title or transfer the title to alternative authors. The Coordinating Group also has the right to

de-register or transfer the title if it does not meet the standards of the Coordinating Group and/or the Campbell Collaboration.

You accept responsibility for maintaining the review in light of new evidence, comments and criticisms, and other developments, and updating the review every five years, when substantial new evidence becomes available, or, if requested, transferring responsibility for maintaining the review to others as agreed with the Coordinating Group.

### **Publication in the Campbell Library**

The support of the Coordinating Group in preparing your review is conditional upon your agreement to publish the protocol, finished review, and subsequent updates in the Campbell Library. The Campbell Collaboration places no restrictions on publication of the findings of a Campbell systematic review in a more abbreviated form as a journal article either before or after the publication of the monograph version in *Campbell Systematic Reviews*. Some journals, however, have restrictions that preclude publication of findings that have been, or will be, reported elsewhere and authors considering publication in such a journal should be aware of possible conflict with publication of the monograph version in *Campbell Systematic Reviews*. Publication in a journal after publication or in press status in *Campbell Systematic Reviews* should acknowledge the Campbell version and include a citation to it. Note that systematic reviews published in *Campbell Systematic Reviews* and co-registered with the Cochrane Collaboration may have additional requirements or restrictions for co-publication. Review authors accept responsibility for meeting any co-publication requirements.

**I understand the commitment required to undertake a Campbell review, and agree to publish in the Campbell Library. Signed on behalf of the authors:**

**Form completed by:** Dr Jon Quach

**Date:** 22nd December 2015