Teacher Reported Prevalence of Special Needs, Functional Impairments, and Health Diagnoses in Kindergarten Children: Preliminary Data from the Canadian Children's Health in Context Study (CCHIS)

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Introduction

Background
- Some children who are entering school lack the skills necessary to succeed in the typical school environment because of:
  1. *Special Needs* (i.e. Chronic medical, physical or mentally disabling condition)
  2. *Functional Impairments* (i.e. A problem influencing the child's ability to work in a regular classroom)
  3. *Health Disorder Diagnoses* (i.e. A mental or physical illness)
- This creates a lack of equitable access to education.
- The prevalence of these are not currently known for the Canadian population.

Purpose
- To address the knowledge gap by using the Canadian Children's Health in Context (CCHICS) study EDI (Early Development Instrument) database to estimate the population level prevalence of special needs, functional impairments and health disorder diagnoses among Canadian children entering school.

Methods

The Early Development Instrument
- Population-based measure of children's developmental health at school entry.
- 103 items across 5 domains: (1) physical health and well-being, (2) social competence, (3) emotional maturity, (4) language and cognitive development, and (5) communication skills and general knowledge.
- Completed for individual children by their kindergarten teachers, these data are then aggregated to the community-level.
- Collected in 10 provinces and 2 territories (excludes Nunavut).

The CCHICS Database
- Contains EDI data for 881,896 children collected between 2004-2015 according to the implementation schedule in Figure 1.

Inclusion Criteria
- (1) Child is at the senior kindergarten (or provincial equivalent) level, (2) the child has been in the classroom for more than 1 month (to insure the teacher has adequate knowledge of the individual child), and (3) the EDI was filled out correctly (EDI's missing more than one domain are considered invalid).

Analysis
- The functional impairment (originally 11 response options) and the health disorder diagnoses (originally 37 response options) were re-coded into separate binary variables (yes/no) indicating the presence or absence of a designation.
- Descriptive statistics were used to determine the prevalence of special needs, functional impairments and disorder diagnosis.

EDI Implementation Schedule

	AB	BC	MB	NB	NL	NT	NS	ON	PEI	QC	SK	Y
2004/2005	P	F	P	P						P	P	
2005/2006			F	P			P			P	P	
2006/2007			F	P				F		P	P	
2007/2008	P	F	P		P		P		F	P	P	
2008/2009	F		F	F			P			P	F	
2009/2010		F		P			P	F				F
2010/2011			F		P		P					F
2011/2012		F			P	F	P			F	P	F
2012/2013			F		F	F	F				P	F
2013/2014		F			F	F	P					

Figure 1 (EDI Implementation Schedule) depicts when and where the EDI was implemented. The heading shows which provinces implemented and the left hand runner indicates in which school year. Where the letter 'P' is indicated in a blue box it indicates that province or territory only did a partial implementation that year. The boxes in yellow with an 'F' indicate full implementations which means the entire province completed the EDI that year. In situations where a full implementation spans over multiple years it means that the province or territory did a full implementation in waves.

Results

Special Needs Among Canadian Children at School Entry
- According to reports of kindergarten teachers 3.6% (n=29,680) of children have a special need.

Functional Impairments Among Canadian Children at School Entry
- Teacher reports of children estimate that 14.8% (n=75,868) have at least one functional impairment.
- In the sub-population of children with special needs (n=29,680), 85.6% (n=14,476) also have a functional impairment compared to their non-special needs classmates who have a prevalence rate of 12.2% (n=59,781) for functional impairments.

Health Disorder Diagnoses Among Canadian Children at School Entry
- Of the total Kindergarten population eligible for analysis, 7.3% (n=20,988) have at least one health disorder diagnosis as indicated by parent knowledge or medical information.
- In the sub-population of children with special needs (n=29,680), 71.4% (n=8995) of children also have at least one diagnosis, this is compared to their non-special needs counterparts who have a prevalence for diagnoses of 4.3% (n=11,959).

Overlap of Special Needs, Functional Impairments and Health Disorder Diagnoses in Canadian Children at School Entry
- While 68.8% (n=220,039) of the total population of students face *none* of these obstacles, 23.4% (n=74,744) face *at least one* and 0.7% (n=2110) face *all* three.

Percentage of Special Needs

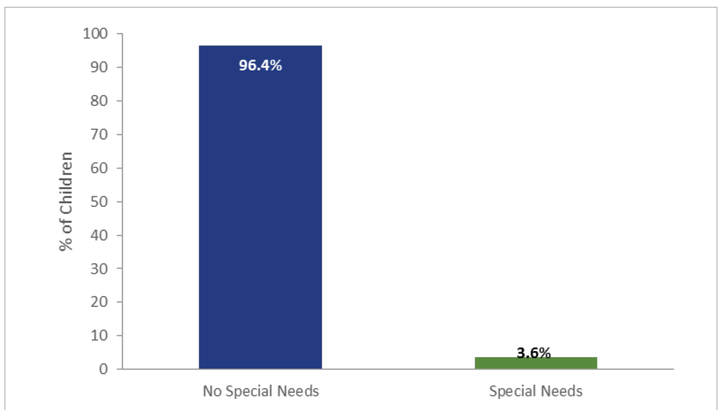

Figure 2 (Special Needs) shows the percentage of children entering the school system (at around age 5) whose teachers have indicated as having special needs compared to the percentage of their classmates with no special needs.

Percentage of Functional Impairments & Health Disorder Diagnoses

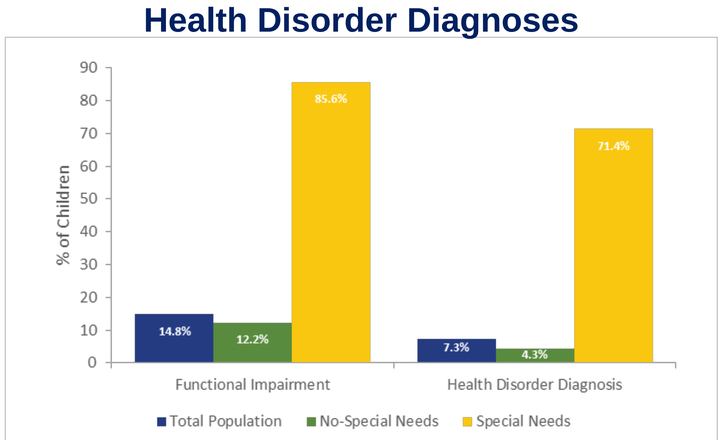

Figure 3 (Functional Impairments & Health Disorder Diagnoses) depicts the percentage of students entering the school system who have been identified by their teaching as having a functional impairment or a health disorder diagnosis. These are compared between the total population of students (blue) and the sub-populations of those students with (yellow) and without (green) special needs.

Percentage of Overlap Between Special Needs, Functional Impairments & Health Disorder Diagnoses

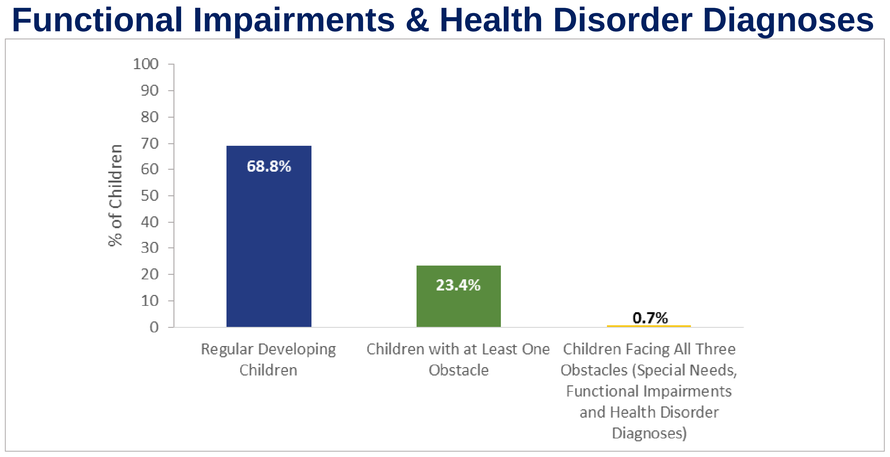

Figure 4 (Interplay) shows the percentage of typically developing children (blue; children without special needs, functional impairments or disorder diagnoses), compared to those children who suffer from at least one developmental educational obstacle (green) and those who struggle with all three designations (yellow).

Conclusions

Take Away Message
- Canadian children who have special needs, functional impairments and/or health disorder diagnoses at school entry face more challenges in obtaining equitable education than typically-developing children.
- While these obstacles can exist for all students the sub-population of students with special needs is particularly at risk for facing combination of challenges. They are over 7 times more likely to also have a functional need and over 16 times more likely to have a health disorder diagnosis in addition to their special needs.

Implications
- To facilitate equal and equitable access to education for all children, regardless their health status, it is important to investigate whether the contextual determinants of their development vary according to their health status. Such an investigation was not possible thus far due to lack of population data on children with health issues.
- The Canadian Children's Health in Context Study (CCHICS) will build on these findings and investigate the determinants of the development of children with health disorders using data-linkages between EDI, Census and tax filer data.

Strengths & Limitations

Strengths
- EDI data provide population-level assessment.
- EDI data make it possible to compare both across the country and across time.
- With over 35 possible diagnoses and the option to specify others the EDI provides an opportunity to assess special health concerns and diagnoses in detail.

Weaknesses
- Responses reflect teacher knowledge and awareness.
  - Teachers may not be aware of a child's special needs, functional impairments or disorder diagnoses.
  - The child may not yet be identified at this early stage.

References

1. Janus, M., Hughes, D., & Duku, E. (2010). Patterns of school readiness among selected subgroups of Canadian children: Children with special needs and children with diverse language backgrounds. *The Canadian Council on Learning*.
2. Janus, M., & Offord, D. R. (2007). Development and psychometric properties of the Early Development Instrument (EDI): A measure of children's school readiness. *Canadian Journal of Behavioural Science*, *39*(1), 1-22. doi: 10.1037/cjbs2007001

EDI EARLY DEVELOPMENT INSTRUMENT

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