Scaling up and Implementing Mind, Exercise, Nutrition, Do It! (MEND 7-13) in British Columbia: three year evaluation results

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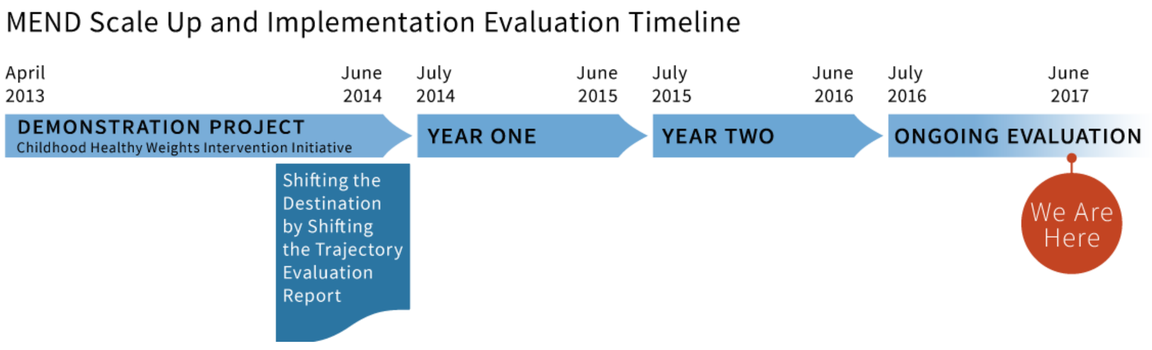
Introduction

- In British Columbia (BC), approximately 26 percent of children aged two to 17 are overweight or obese[1].
- There is a growing body of evidence pointing to the benefits of family-based intervention programs for children who are departing from the healthy weight trajectory[2].
- A family based intervention, MEND, was offered in BC across two Phases (see Figure 1).
- MEND is an efficacious[3], age-specific, family and community-based healthy weights intervention developed in the United Kingdom and offered in BC between 2013 and 2017.
- MEND helps overweight children and their families adopt and maintain a healthy lifestyle and is one component of BC's province-wide intervention programming for children above a healthy weight.

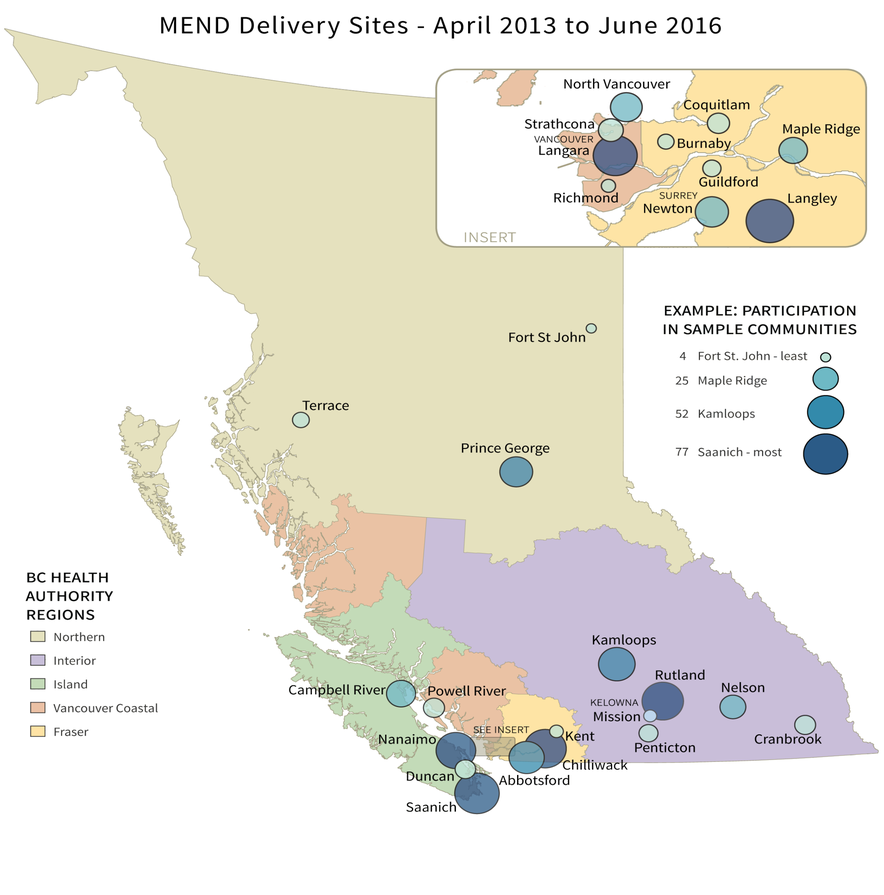
Figure 1. Evaluation Timeline: Demonstration Project (Phase One) and Year One & Year Two (Phase Two)



Background

- MEND 7-13 is for children with a BMI-for-age above the 85th percentile. BC also offers MEND 5-7 programming.
- MEND 7-13 is 20 sessions over 10 weeks and offered for free by trained leaders with recreation and/or health backgrounds through recreation facilities. Participating families are given free passes to their local recreation centres.
- 27 sites (Figure 2) delivered 105 MEND 7-13 programs (Table 1).

Figure 2. Delivery Sites



Objective

Our aim was to evaluate the scale up and implementation of MEND 2013-2016 over two phases

Table 1. MEND 7-13 interventions delivered by cycle and regional health authority

	Demonstration Project April 2013 to June 2014					Post-Demonstration Year One July 2014 to June 2015				Post-Demonstration Year Two July 2015 to June 2016				
	Apr - Jun 2013	Sep - Dec 2013	Jan - Mar 2014	Apr - Jun 2014	***Sub-Total***	Sep - Dec 2014	Jan - Mar 2015	Apr - Jun 2015	***Sub-Total***	Sep - Dec 2015	Jan - Mar 2016	Apr - Jun 2016	***Sub-Total***	**TOTAL**
Northern (3 sites)	1	1	1	1		0	0	1		0	2	1		**8**
Interior (6 sites)	1	2	2	2		3	0	2		3	5	3		**23**
Island (5 sites)	1	2	3	2		2	2	4		2	3	2		**23**
Fraser (9 sites)	1	2	3	3		3	3	3		4	9	5		**36**
Vancouver Coastal (4 sites)	1	2	0	2		1	1	2		2	2	2		**15**
	5	9	9	10	**33**	9	6	12	**27**	11	21	13	**45**	**105**

Methods

The evaluation used multiple lines of evidence and both process and outcome evaluation practices. RE-AIM framed the evaluation: reach, effectiveness, adoption, implementation and maintenance were assessed. Qualitative and quantitative sources included physical measures, participant surveys, reports, MEND's Operations Management and Monitoring System (OMMS) database, and stakeholder interviews.

Results

- Most participants had a BMI-for-age above the 97th percentile
- Parents of participants had varying education levels
- Girls and boys participated almost equally
- Participants' families represented a variety of family structures, ethnicities and annual household income levels
- 78% of all participants completed the program (across the two phases)
- Parents were highly satisfied (~ 90% and > ratings)
- Participants learned of MEND from posters/flyers followed by referrals
- Families reported positive lifestyle changes
- Select results presented in Tables 2, 3 and Figures 3, 4, 5, 6

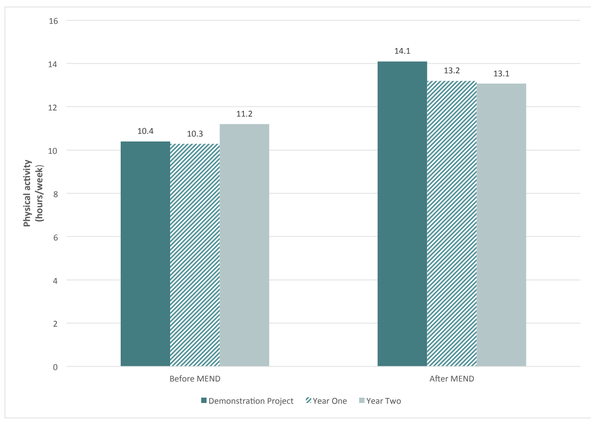
Table 2: MEND 7-13 Participation April 2013- June 2016

	Demonstration Project	Year One	Year Two	Total
# of Programs	33	27	45	**105**
Recruited participants	400	275	548	**1223**
Eligible confirmed participants [with Healthy Growth Check (HGC) 1 measures]	319	185	304	**808**
% Eligible confirmed participants (with HGC1 measures) of recruited participants	80%	67%	55%	**66%**

Table 3: MEND 7-13 Participation April 2013 - June 2016

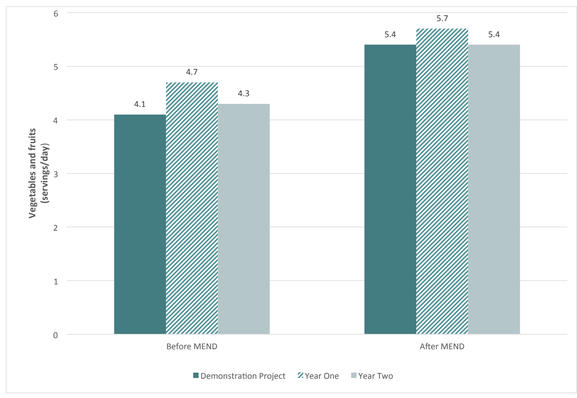
Effectiveness (statistical significance at p-value < .05)
Among those participating in MEND and for whom both a pre-and post-measures were available, the analysis found statistically significant positive changes in the following:
Nutrition: ○ nutrition score (measured using the MEND nutrition questionnaire) ○ servings of vegetables and fruit
Physical activity: ○ hours of physical activity per week (parent reported) ○ physical activity score (child reported, using the PAQ-C[4])
Sedentary behaviour: ○ hours of screen time per week (parent reported)
Psychological well-being: ○ emotional distress (measured using the Strength and Difficulties Questionnaire[5]) ○ body-esteem (measured using the Body-Esteem Questionnaire[6] during Demonstration Project and Year One only) ○ self-esteem (measured using the Rosenberg Self-Esteem Scale[7])
Anthropometry: ○ child BMI and BMI z-score ○ child waist circumference (measured at the umbilicus)
Results varied across years for parent BMI, fitness (recovery heart rate), and sedentary activity score (child reported, using the PAQ-C)

Figure 3: Physical activity



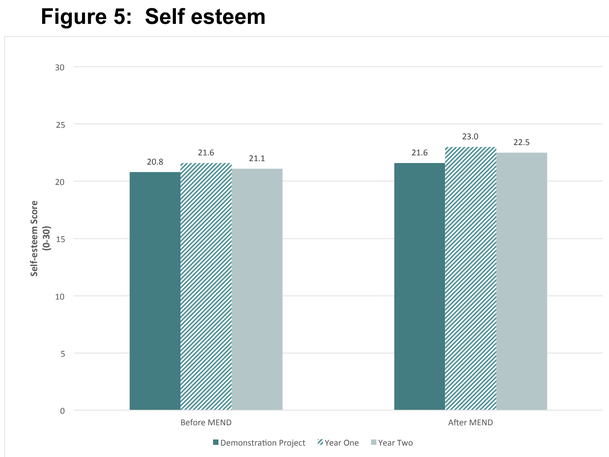
n = eligible children with parents reporting pre- and post-measures – Demonstration Project (230), Year One (136) and Year Two (222). p-value of < .05

Figure 4: Vegetables and fruit consumption



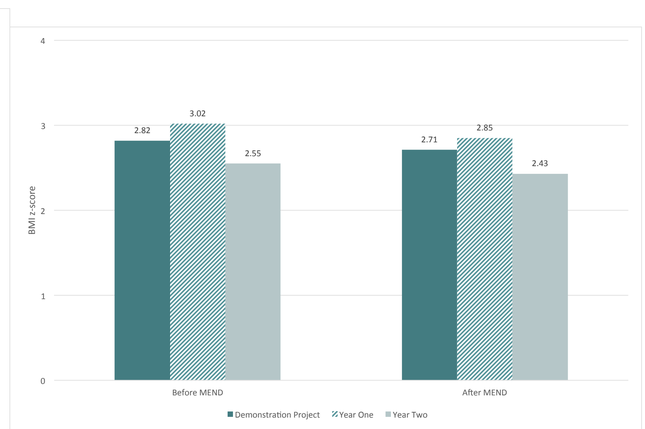
n = eligible children with parents reporting pre- and post-measures – Demonstration Project (234), Year One (137) and Year Two (219). p-value of < .05

Figure 5: Self esteem



n = eligible children reporting pre- and post-measures – Demonstration Project (231), Year One (134) and Year Two (206). Note: Higher scores indicate higher esteem; lower scores indicate lower esteem. p-value of < .05

Figure 6: Child BMI z-score



n = eligible children with pre- and post-measures – Demonstration Project (232), Year One (137) and Year Two (231). Note: The size of the effect is small which is to be expected over a 10-week program. p-value of < .05

Conclusion

During the scale up period July 2014 to June 2016, MEND 7-13 broadened the reach and sustained the positive healthy lifestyle impacts observed during the Demonstration Project. There is consistent evidence of the program's effectiveness – in terms of both positive physical and mental health outcomes – while children participated in programs. MEND 7-13 reached a broad demographic. Participant retention and satisfaction was high. Recruitment was an ongoing challenge.

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