Appendix 1 (as supplied by the authors): Supplemental tables and figures

Supplemental Table S1: Sensitivity analyses model inputs

	Base case	Low estimate	High estimate
Disease prevalence			
Iron deficiency, general	0.121	0.091	0.308
Data Source	<12mg/L, from Target Kids! Unpublished data	Maguire et al., 2013	<18mg/L, from Target Kids! Unpublished data
Iron deficiency, at-risk	0.250	0.11	0.51
Data Source	<12mg/L, from Target Kids! Unpublished data	<12mg/L, from Target Kids! Unpublished data	<18mg/L, from Target Kids! Unpublished data
Probability of poor functional outcomes			
Due to ID, untreated	0.235	0.084	0.475
Data Source	Lozoff et al., 2000	<18mg/L, from Target Kids! Unpublished data	Carroll & Downs, 2006*
Not ID, untreated	0.095	0.034	0.13
Data Source	Idiradinata and Pollitt, 1993	Simpson et al, 2003†	Rosenberg et al., 2008‡
After iron supplement treatment, not ID	0.095	0	0.095
Data Source	Idiradinata and Pollitt, 1993	Expert opinion	Idiradinata and Pollitt, 1993
After iron supplement treatment, ID	0.095	0.05	0.235
Data Source	Idiradinata and Pollitt, 1993	Idiradinata and Pollitt, 1993	Lozoff et al., 2000
Proportion of at-risk children in the targeted screening program			
Proportion of at-risk children	0.355	0.085	0.42
Data Source	OpTEC trial; 2 or more risk factors	OpTEC Trial; 3 or more risk factors	OpTEC Trial; 1 risk factor
Test accuracy			
Sensitivity	0.586	0.293	1
Data Source	Guyatt et al., 1992	Base case * 0.5	-
Specificity	0.989	0.495	1
Data Source	Guyatt et al., 1992	Base case * 0.5	-

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Cost ($)			
Total test cost, universal screening program	28.48	17.52	37.03
Data Source	include CRP, Ferritin, and CBC; urban location	w/o CBC or CRP; pick-up only	base case * 1.3, to include the base case targeted cost
Total test cost, targeted screening program	35.00	24.04	45.50
Data Source	include CRP, Ferritin, and CBC; urban	w/o CBC or CRP; pick-up only	base case * 1.3
Total treatment cost	170.00	0	260.00
Data Source	Prescription price (including dispensing fee): $168.63	Ontario Drug Benefit program	Over-the-counter price (including tax): $259.79
Patient-borne cost, universal screening program	116.33	6.5	219.54
Data Source	Driving, 1/2 day off	Using the TTC (roundtrip), no day off	Driving, full-day off
Patient-borne cost, targeted screening program	116.33	4.55	285.40
Data Source	same with base case universal screen	Low estimate for universal screen * 0.7	High estimate for universal screen * 1.3
Utility measures			
Utility of living with poor functional outcomes	0.84	0.61	0.95
Data Source	Ekman et al., 2007	Ekman et al., 2007	Ekman et al., 2007
Utility of having iron supplementation (4-mo)	0.815	0.73	1
Data Source	Considering utility loss by constipation, NICE 2010	base case * 0.9	No change in life quality during the 4-month time
Discounting rate			
Discounting rate	0.015	0	0.05
Data Source	CADTH	undiscounted	expert opinion
Remaining life expectancy after 18 months			
Remaining life expectancy after 18 months (years)	80.5	68.8	83.1
Data Source	Statistics Canada**	Nunavut male life expectancy, 70.3	BC female life expectancy, 84.6

*Carroll AE, Downs SM. Comprehensive cost-utility analysis of newborn screening strategies. Pediatrics. 2006;117(5 Pt 2):S287-95.
†Simpson GA, Colpe L, Greenspan S. Measuring functional developmental delay in infants and young children: prevalence rates from the NHIS-D. Paediatric and perinatal epidemiology. 2003;17(1):68-80.
‡Rosenberg SA, Zhang D, Robinson CC. Prevalence of developmental delays and participation in early intervention services for young children. Pediatrics. 2008;121(6):e1503-9.
**Statistics Canada. Life tables, Canada, provinces and territories, catalogue no. 84-537-X. https://www150.statcan.gc.ca/n1/pub/84-537-x/2018002/xls/2014-2016_Tbl-eng.xlsx

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Supplemental Table S2: Parameter Distributions for Probability Sensitivity Analyses

Parameter	Variable Name	Point Estimate	Probability Distribution
Costs			
Cost of test, universal screen	CostTestUni	28.48	Gamma
Cost of test, targeted screen	CostTestTar	35.00	
Patient-borne, universal screen	CostPatientUni	116.33	
Patient-borne, targeted screen	CostPatientTar	116.33	
Cost of treatment	CostTreat	170.00	
Prevalence of ID			
General population	PrevGen	0.121	Beta
At-risk population	PrevAtR	0.25	
Proportion of children included in the targeted screen	PropAtR	0.355	Beta
Probability of developing poor functional outcomes			
Due to ID, untreated	pPoorFunOut	0.235	Beta
Not due to ID, untreated	pPoorFunOutNotID	0.095	
Due to ID, treated	pPoorFunOutIDTreat	0.095	
Not due to ID, treated	pPoorFunOutNotIDTreat	0.095	
Test efficacy			
Sensitivity	Sen	0.586	Beta
Specificity	Spe	0.989	
Utility			
Living with poor functional outcomes	utilityPoorFunOut	0.84	Beta
Having iron supplementation treatment	utilityTreat	0.815	
Remaining life expectancy after 18 months	RemainLifeExp	80.5	Gamma

Supplemental Tables S3-S5: One-way sensitivity analyses lowest and highest ICES values corresponding to Figure 3

Universal vs. no screening:

Variable name (range)	Lowest ICER	Highest ICER
pPoorFunOutID (0.084-0.475)	1003.41	11679.36
pPoorFunOutIDTreat (0.05-0.235)	1845.53	8882.02
Discount (0-0.05)	957.28	5244.06
utilityPoorFunOut (0.61-0.95)	1101.63	4705.88
CostPatientUni (6.5-219.54)	745.56	3733.71
Sen (0.293-1)	1449.20	4246.47
PrevAtRisk (0.11-0.51)	1567.76	3124.59
PrevGen (0.091-0.308)	1438.46	2547.31
PropAtR (0.085-0.42)	2190.33	2421.02
CostTreat (0-260)	2031.14	2421.02
Spe (0.495-1)	1425.76	1685.98
utilityTreat (0.73-1)	2095.20	2385.92
CostTestUni (17.52-37.03)	2132.33	2405.98
pPoorFunOutNotID (0.034-0.13)	2246.79	2357.90
pPoorFunOutNotIDTreat (0-0.095)	2182.91	2286.06
RemainLifeExp (68.8-83.1)	2285.06	2321.06
CostTestTar (24.04-45.5)	2286.06	2286.06
CostPatientTar (4.55-285.4)	2286.06	2286.06

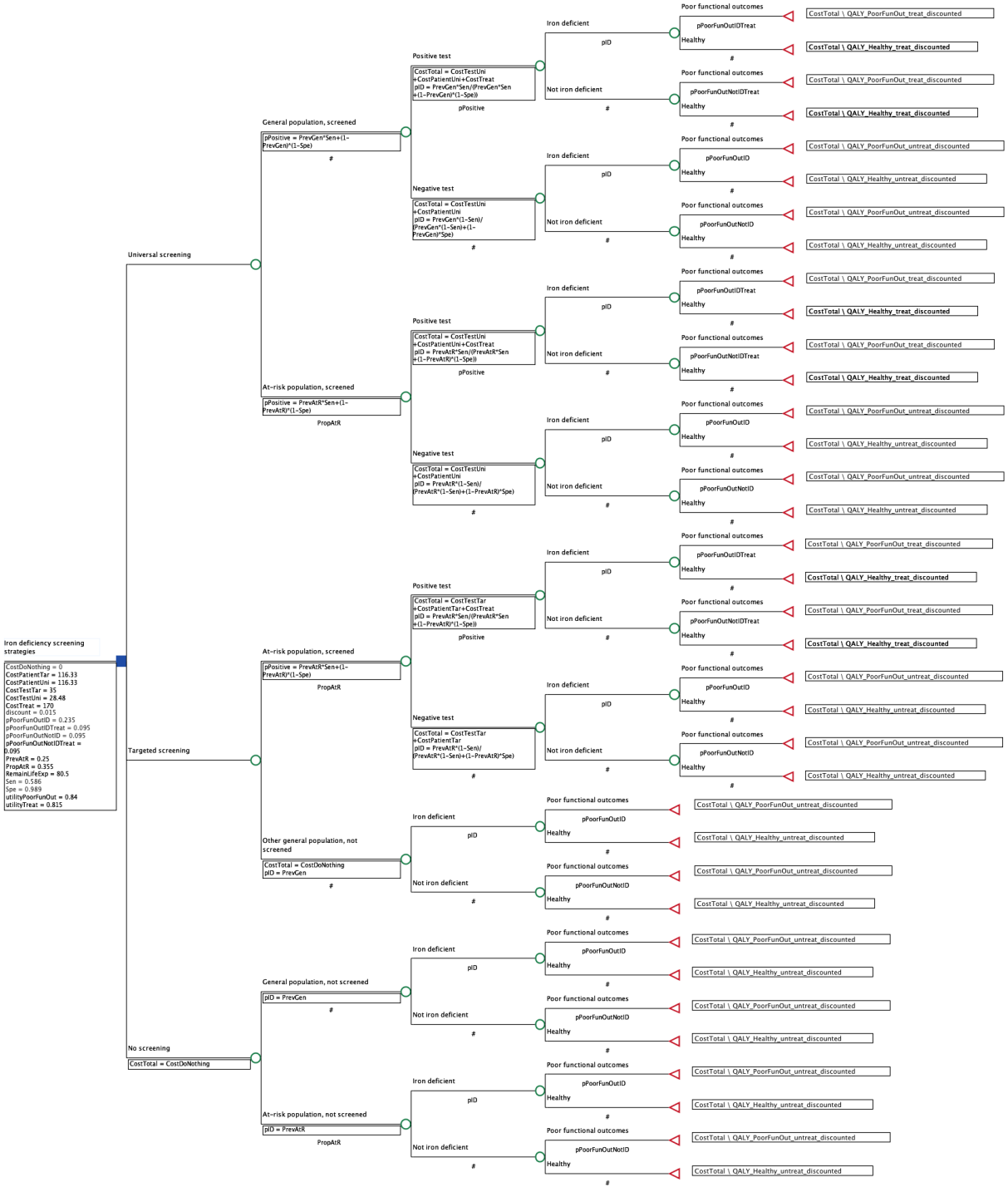
Targeted vs. no screening:

Variable name (range)	Lowest ICER	Highest ICER
pPoorFunOutID (0.084-0.475)	732.44	8888.30
pPoorFunOutIDTreat (0.05-0.235)	1361.51	6684.89
Discount (0-0.05)	695.26	3932.93
utilityPoorFunOut (0.61-0.95)	804.48	3484.03
CostPatientTar (4.55-285.4)	621.71	3273.01
PrevAtRisk (0.11-0.51)	948.15	3440.50
Sen (0.293-1)	1085.96	3078.12
CostTreat (0-260)	1428.60	1808.42
Spe (0.495-1)	1425.76	1685.98
utilityTreat (0.73-1)	1540.25	1748.23
CostTestTar (24.04-45.5)	1573.48	1776.07
pPoorFunOutNotID (0.034-0.13)	1659.37	1708.48
pPoorFunOutNotIDTreat (0-0.095)	1630.27	1676.94
RemainLifeExp (68.8-83.1)	1676.53	1701.18
PropAtR (0.085-0.42)	1676.94	1676.94
PrevGen (0.091-0.308)	1676.94	1676.94
CostTestUni (17.52-37.03)	1676.94	1676.94
CostPatientUni (6.5-219.54)	1676.94	1676.94

Universal vs. targeted screening

Variable name (range)	Lowest ICER	Highest ICER
pPoorFunOutID (0.084-0.475)	1309.03	14565.99
pPoorFunOutIDTreat (0.05-0.235)	2398.95	11206.53
CostPatientUni (6.5-219.54)	-294.07	6029.49
Discount (0-0.05)	1256.01	6641.33
utilityPoorFunOut (0.61-0.95)	1436.47	6043.47
Sen (0.293-1)	1857.74	5527.59
CostPatientTar (4.55-285.4)	1184.42	4143.82
PrevGen (0.091-0.308)	1331.56	3824.07
Spe (0.495-1)	1817.12	3029.61
CostTestUni (17.52-37.03)	2640.64	3219.74
CostTreat (0-260)	2703.71	3104.79
utilityTreat (0.73-1)	2711.82	3099.41
CostTestTar (24.04-45.5)	2855.32	3081.45
pPoorFunOutNotID (0.034-0.13)	2893.13	3102.05
pPoorFunOutNotIDTreat (0-0.095)	2777.04	2965.96
PropAtR (0.085-0.42)	2944.27	3023.07
RemainLifeExp (68.8-83.1)	2964.04	3014.21
PrevAtR (0.11-0.51)	2965.96	2965.96

Supplemental Figure S1: Decision Tree Model



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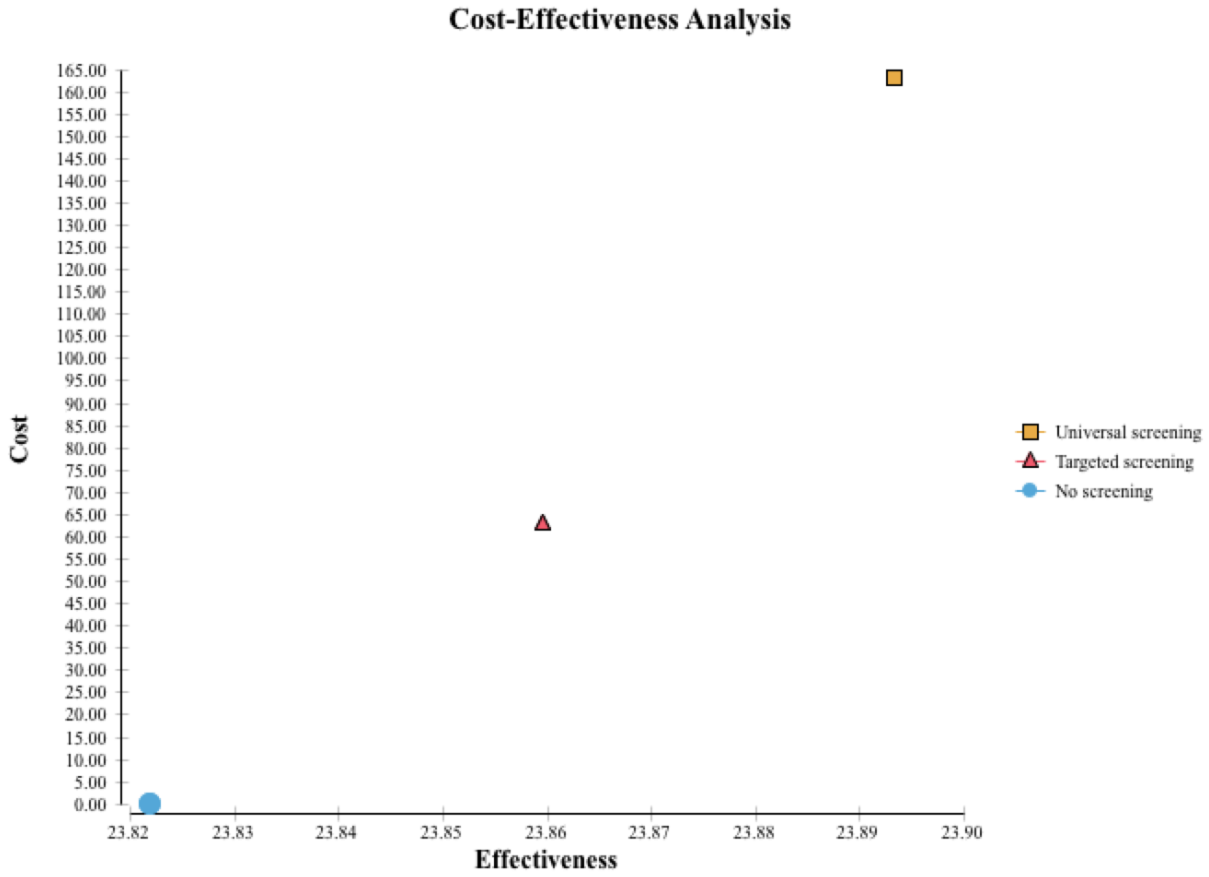
Supplemental Figure S2: Cost-Effectiveness Plane for Three Screening Strategies



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