Supplementary Appendices

Supplementary Table 1: Victorian School Entrant Health Questionnaire (SEHQ) and Tasmanian Kindergarten Development Check (KDC) Measures

Measure	Description
Tasmanian KDC items	
KDC achievement:	Proportions of children who met 21 or 20 of the 21 KDC binary (yes/no) items.
Speech, language, listening and speaking (7 items)	All "Yes" in the items of: Talks fluently without stuttering, Asks questions, Uses normal voice and pitch, Responds to questions, Speaks in a manner that can be easily understood by adults, Recounts a personal experience in logical sequence, Understands most classroom instructions.
Cognitive development (7 items)	All "Yes" in the items of: Predicts and understands, Recognizes first name in print, Counts to 5 with 1:1 correspondence, can copy and continue a pattern using two items, Can complete an 8-to-12-piece jigsaw puzzle, Sustains attention to complete a variety of tasks, Draws a person with a head, arms and legs.
Personal and social behavior (4 items)	All "Yes" of four items of: Engages in imaginative play, Separates comfortably form parent/carer, Is independent in their toilet routine, Increasingly cooperates with other students in extended play
Gross motor (1 item)	One holistic item representing achievement on 13 indicators "Yes" compared with "No". Examples of indicators included: Walks upstairs one foot to a step; Jumps from a step, box or similar (40 cm high) and lands on two feet, with bent knees; Balances on each foot for 3 to 5 seconds; Uses two hands to catch a beanbag that has been thrown from at least a meter; Kicks a stationary ball in a stipulated direction (e.g. small soccer ball). The Educator makes a holistic assessment that considers all 13 items, including when 1 or 2 indicators are not achieved.
Fine motor (2 items)	All "Yes" in the items of: Constructs a model with 4 to 8 interlocking pieces, Copies a circle (0) and a cross (+) with accuracy.
SEHQ family issues and stressors	
Child affected by:	
divorce/separated parents	0 "Not at all", "Not stated" or "Not Applicable" 1 "A little" or "A lot"
death of relative/friend	0 "Not at all", "Not stated" or "Not Applicable" 1 "A little" or "A lot"
remarriage of parent	0 "Not at all", "Not stated" or "Not Applicable" 1 "A little" or "A lot"
illness of parent	0 "Not at all", "Not stated" or "Not Applicable" 1 "A little" or "A lot"
illness of sibling	0 "Not at all", "Not stated" or "Not Applicable" 1 "A little" or "A lot"
parent change of job	0 "Not at all", "Not stated" or "Not Applicable" 1 "A little" or "A lot"
parent loss of job	0 "Not at all", "Not stated" or "Not Applicable" 1 "A little" or "A lot"
move to new house	0 "Not at all", "Not stated" or "Not Applicable" 1 "A little" or "A lot"
new baby in home	0 "Not at all", "Not stated" or "Not Applicable" 1 "A little" or "A lot"
History of:	
alcohol or drug related problems in family	0 "No" 1 "Yes"
abuse to parent	0 "No" 1 "Yes"
abuse to child	0 "No" 1 "Yes"

Continued

Supplementary Table 1: Continued

Measure	Description
child witnessing violence	0 "No" 1 "Yes"
gambling problem in the family	0 "No" 1 "Yes"
mental illness of parent	0 "No" 1 "Yes"
SEHQ speech and language	
Child has difficulties with speech or language	0 "No" 1 "Yes"
unclear to others	0 "No" 1 "Yes"
difficulty putting words together	0 "No" 1 "Yes"
voice sounds unusual	0 "No" 1 "Yes"
stutters or stammers	0 "No" 1 "Yes"
SEHQ development, behavior, and emotional wellbeing	
Strengths and Difficulties Questionnaire (SDQ) Total behavior problems	25-item Strengths and Difficulties Questionnaire (SDQ, 4-to 10-year-old version) [42] assessing Total Difficulties and five subscales: emotional symptoms; conduct problems; hyperactivity; peer problems; and prosocial problems. In its original scale, higher scores indicate worse behavior. The scores are trichotomised into three categories: low, moderate and high risk, which we further dichotomized into "low risk" (0) versus "moderate/high risk"(1) to compare with the SEHQ state-wide report and between trial groups. The cut-points were not available from the Department of Education, but are likely to reflect the original three-band categorization of normative data representing normal, borderline and abnormal scores [43].
SEHQ child health	
Parent concerned about child's:	Ten items drawn from the Parental Evaluation of Developmental Status (PEDS), designed for children aged 0-8 years as a developmental screening test or an informal means to elicit and respond to parent concerns [44].
oral health	0 "No" 1 "Yes"
eyesight	0 "No", if "Blank" 1 "Yes", if "Information provided"
learning, development and behavior	0 "No" 1 "Yes"
talking and making speech sounds	0 "No" 1 "Yes" or "A little"
understanding of what parent says	0 "No" 1 "Yes" or "A little"
use of hands and fingers to do things	0 "No" 1 "Yes" or "A little"
use of arms and legs	0 "No" 1 "Yes" or "A little"
behavior	0 "No" 1 "Yes" or "A little"
getting along with others	0 "No" 1 "Yes" or "A little"
learning to do things for themselves	0 "No" 1 "Yes" or "A little"

Continued

Supplementary Table 1: Continued

Measure	Description
learning preschool or school skills	0 "No" 1 "Yes" or "A little"
intellectual disability, developmental delay or learning disability	0 "No" 1 "Yes"
SEHQ health service access	
Child diagnosed with asthma	0 "No" 1 "Yes"
Child diagnosed with allergy	0 "No" 1 "Yes" Note, the above two SEHQ variables about children's diagnoses (asthma and allergy) and, because these involve access to health services, they are categorized as health services rather than health outcomes, although they technically relate to both.
Child attended:	
maternal and child health 3.5-year check	0 "No" 1 "Yes"
early childhood intervention services therapist or practitioner	0 "No" 1 "Yes"
dentist (including orthodontist, periodontist etc.)	0 "No" 1 "Yes"
paediatrician	0 "Not stated" (for whom answered other questions in the survey) 1 "Yes"
optometrist/eye doctor	0 "No" 1 "Yes"
audiologist/hearing specialist	0 "No" 1 "Yes"
speech pathologist/speech therapist	0 "No" 1 "Yes"
kinder in a childcare center or sessional preschool	0 "No" 1 "Yes"

Supplementary Material: Missing data

The primary analysis was performed on an intention-to-treat basis including all children who consented to follow-up, with inverse probability weighting (IPW) and multiple imputation (MI) techniques used to handle the missing data. Around 50% of children did not have linked data, due to non-consent to data linkage, withdrawal, moving to other jurisdictions, and linkage not possible by educational authorities. Therefore, many women from the original sample of 722 had all outcomes missing. In such situations, using both MI combined with IPW techniques is recommended (Seaman, S.R., White, I.R., Copas, A.J. and Li, L., 2012. Combining multiple imputation (MI) and inverse-probability weighting (IPW). *Biometrics*, 68(1), pp.129-137.) [33]. A technique that combines IPW and MI was adopted, following these two major steps:

Step 1. Calculation of weights: Inverse probability weights were calculated by group and state using the samples of 485 (Victoria) and 237 (Tasmania) mothers/children, and adopting a logistic regression model predicting consent to data linkage and successful match, using the following baseline variables (with no missing values): marital status, employment status (yes vs no), nurse (clustering) in the intervention group and LGA in the control group, antenatal risk ($<=2$ risk factors vs >2 risk factors), maternal age, parity (first child vs second or more), LGA, Mental health (Below vs above 85th centile for mental health), DASS Anxiety sub-score, DASS Depression sub-score, and DASS Stress sub-score. Once inverse probability weights were obtained, only children who completed the SEHQ or KDC survey were included in the following step, and in the final analyses.

Step 2. Multiple imputation of missing data for those who participated in the school transition follow-up. This was for Victorian data only as there were no missing values in the Tasmanian linked data. Multiple imputation models were specified including all variables used in the analysis models as well as all the outcomes collected at the school transition follow-up. 30 completed data sets were imputed using multivariate normal regression including all the women who participated in the school transition follow-up. Each dataset resulting from the multiple imputation model (a "quasi-complete dataset" because the data are complete for the included women, but not for those excluded from MI due to not participating in the school follow up) was then analyzed using IPW derived at step 1. IPW reweights data so that it accounts for characteristics of excluded women (those whose children's educators did not participate in the school transition follow-up and are missing all outcome data).

For Victorian data, by imputing for women with few missing values, while using inverse probability weights to account for excluded women with all missing outcome data, IPW/MI should maintain the efficiency advantage of MI while avoiding possible bias from incorrectly imputing larger blocks of data. Compared with complete case analysis, the variance estimates given by IPW/MI are generally larger as the latter induces uncertainty from the imputation procedure. For Tasmanian data, MI was unnecessary to conduct and IPW was implemented. There were only two records with partially observed outcomes for those with linked data, so these were omitted from the analysis. Lastly, analysis results may be biased if the outcome missingness was dependent on the outcome itself.

Supplementary Table 2: Proportions (available cases) of children experiencing family issues and stressors (Victoria), state-wide in 2020, and for the right@home Usual Care group

Victoria school entrant health Questionnaire (SEHQ) family issues and stressors	2020 State-wide comparison	right@home usual care group
	% (n/53,967)[a]	n/114 (%)
Child affected by:		
divorce/separated parents	4.2	18 (17.5)
death of relative/friend	6.9	9 (8.8)
remarriage of parent	1.5	1 (1.0)
serious illness of parent	2.5	12 (10.5)
serious illness of sibling	1.1	2 (2.0)
parent change of job	4.1	9 (8.7)
parent loss of job	1.7	1 (1.0)
move to new house	6.4	8 (7.8)
new baby in home	3.8	5 (5.0)
History of:		
alcohol or drug related problems in family	3.6	15 (13.6)
abuse to parent	5.4	21 (19.4)
abuse to child	1.9	9 (8.3)
child witnessing violence	3.5	16 (14.8)
gambling problem in the family	0.6	3 (2.8)
mental illness of parent	8.8	25 (22.7)

Summary statistics exclude missing data.
[a]n for rows not published for state-wide data.

Supplementary Table 3: Proportions for the state and the right@home trial groups (Tasmania), and adjusted regression analyses comparing the two trial groups on child outcomes, using available cases

Tasmanian kindergarten development check (KDC) items (age 4 years)[a]	Descriptive statistics			Adjusted odds ratio comparing the Intervention with the usual care group			
	State-wide comparison	Usual care	r@h NHV intervention	Odds ratio	95% Confidence interval		p-value
					Lower	Upper	
	%[b]	n/118 (%)	n/119 (%)				
Achieved 20 indicators	75.9%	21 (36.8)	41 (54.7)	2.60	1.28	5.28	0.01
Achieved 21 indicators	60.7%	12 (21.1)	27 (36.0)	3.08	1.07	8.83	0.04
Achieved development domains:							
Speech, language, listening and speaking	n/a	28 (49.1)	46 (61.3)	1.83	0.82	4.12	0.14
Cognitive development	n/a	21 (36.8)	46 (61.3)	3.35	1.35	8.31	0.01
Personal and social behavior	n/a	44 (75.9)	58 (77.3)	1.29	0.36	4.65	0.70
Gross motor	n/a	25 (43.1)	45 (60.0)	3.01	1.45	6.27	0.00
Fine motor	n/a	46 (79.3)	68 (90.7)	4.01	0.99	16.30	0.05

r@h NHV: right@home Nurse Home Visiting, n/a: state-wide data not available.
Descriptive statistics exclude missing data. Models were adjusted for stratification factors used during randomization (parity, site) and baseline covariates: child gender, family Socio-Economic Index for Areas (SEIFA) score of neighborhood-level disadvantage, maternal age, education antenatal risk count (2 or more of 10 factors), self-efficacy and mental health at baseline. Maternal language other than English was also included for child language outcomes. All regression analyses accounted for effects of nurse clustering using robust estimation.
[a]Child scored 'yes' (achieving) to all items in Tasmanian Kindergarten Development Check (KDC) domain items.
[b]Denominator and numerator not available. Note, the 2020 KDC outcome was impacted by COVID-19, as only one assessment was conducted. As a result, comparisons with 2021 and previous years should be exercised with caution. In 2019, 67.8% of the assessed cohort achieved all 21 indicators.

Supplementary Table 4: Proportions for the state and the right@home trial groups (Victoria), and adjusted regression analyses comparing the two trial groups on child outcomes, using available cases

Victoria school entrant health questionnaire (SEHQ) (age 5-6 years)	Descriptive statistics			Adjusted odds ratio comparing the intervention with the usual care group			
	State-wide comparison	Usual care	r@h NHV intervention	Odds ratio	95% Confidence interval Lower	Upper	p-value
	n/53,967 (%)	n/114 (%)	n/137 (%)				
Child has difficulties with speech or language (any)	8,645 (16.0)	20 (17.5)	31 (22.6)	1.38	0.90	2.10	0.14
unclear to others	6,495 (12.0)	14 (12.3)	27 (19.7)	1.75	1.08	2.83	0.02
difficulty putting words together	3,271 (6.1)	11 (9.6)	9 (6.6)	0.70	0.38	1.28	0.24
voice sounds unusual	1,273 (2.4)	5 (4.4)	3 (2.2)	0.40	0.10	1.61	0.20
stutters or stammers	2,246 (4.2)	9 (7.9)	10 (7.3)	0.73	0.37	1.46	0.38
Behavior and emotional wellbeing[a]							
SDQ Total difficulties: moderate risk	3,145 (5.8)	10 (8.9)	12 (9.0)	0.84	0.49	1.44	0.53
SDQ Total difficulties: high risk	3,982 (7.4)	21 (18.8)	22 (16.4)				
SDQ Emotional problems: moderate risk	7144 (13.2)	11 (9.8)	16 (11.9)	1.08	0.70	1.66	0.74
SDQ Emotional problems: high risk		17 (15.2)	21 (15.7)				
SDQ Conduct problem: moderate risk	11,969 (22.2)	21 (18.8)	24 (17.9)	0.69	0.38	1.26	0.23
SDQ Conduct problem: high risk		27 (24.1)	26 (19.4)				
SDQ Hyperactivity: moderate risk	7,951 (14.7)	11 (9.8)	7 (5.2)	0.95	0.57	1.57	0.83
SDQ Hyperactivity: high risk		18 (16.1)	29 (21.6)				
SDQ Peer problems: moderate risk	9,848 (18.2)	17 (15.2)	23 (17.2)	1.03	0.74	1.42	0.87
SDQ Peer problems: high risk		17 (15.2)	19 (14.2)				
SDQ Prosocial problems: moderate risk	4,151 (7.7)	12 (10.7)	10 (7.5)	0.98	0.77	1.24	0.85
SDQ Prosocial problems: high risk		4 (3.6)	7 (5.2)				
Child health and development							
PEDS Parent concerned about child's:							
oral health	8,754 (16.2)	20 (18.0)	23 (17.4)	0.80	0.52	1.21	0.29
eyesight	4,531 (8.4)	18 (16.2)	15 (11.3)	0.73	0.45	1.19	0.21
learning, development and behavior	n/a	56 (49.1)	50 (36.5)	0.56	0.43	0.72	0.00
talking and making speech sounds	n/a	31 (27.9)	34 (25.6)	0.87	0.59	1.29	0.49
understanding of what parent says	n/a	10 (8.9)	13 (9.8)	1.02	0.53	1.96	0.96
use of hands and fingers to do things	n/a	11 (9.9)	11 (8.2)	0.80	0.41	1.56	0.52
use of arms and legs	n/a	6 (5.4)	8 (6.0)	1.32	0.55	3.18	0.53
behavior	n/a	30 (27.0)	32 (24.2)	0.83	0.48	1.45	0.52
getting along with others	n/a	17 (15.2)	26 (19.7)	1.62	0.69	3.80	0.26
learning to do things for themselves	n/a	11 (9.8)	7 (5.2)	0.53	0.21	1.36	0.19
learning preschool or school skills	n/a	12 (10.9)	12 (9.0)	0.68	0.34	1.35	0.27
intellectual disability, developmental delay or learning disability	n/a	17 (15.5)	13 (9.8)	0.59	0.30	1.16	0.13

PEDS: Parental Evaluation of Developmental Status; r@h NHV: right@home Nurse Home Visiting. SDQ: Strengths and Difficulties Questionnaire. n/a: state-wide data not available.

Descriptive statistics exclude missing data. Subscale scoring (SDQ, PEDS) was completed by school nurses and subscale scores were not available for linkage. Models were adjusted for stratification factors used during randomization (parity, site) and baseline covariates: child gender, family Socio-Economic Index for Areas (SEIFA) score of neighborhood-level disadvantage, maternal age, education antenatal risk count (2 or more of 10 factors), self-efficacy and mental health at baseline. Maternal language other than English was also included for child language outcomes. All regression analyses accounted for effects of nurse clustering using robust estimation.

[a]n for rows not published for state-wide SDQ data. SDQ dichotomized as moderate/high versus low risk for analysis.

Supplementary Table 5: Proportions for the state and the right@home trial groups (Victoria), and adjusted regression analysis comparing the trial groups on child health service use, using available cases

Victoria school entrant health questionnaire (SEHQ) (age 5–6 years)	Descriptive statistics			Adjusted odds ratio comparing the intervention with the usual care group			
	State-wide comparison	Usual care	r@h NHV intervention	Odds ratio	95% Confidence interval Lower	Upper	p-value
	n/53,967 (%)	n/114 (%)	n/137 (%)				
Child diagnosed with asthma	5,502 (10.2)	21 (18.9)	29 (21.6)	1.02	0.65	1.60	0.94
Child diagnosed with allergy	4,614 (8.6)	9 (8.0)	18 (13.4)	2.53	1.20	5.33	0.01
Child attended:							
maternal and child health preschool check	38,073 (70.5)	89 (86.4)	110 (90.9)	1.62	1.17	2.24	0.00
early childhood intervention services therapist or practitioner	2,786 (5.2)	8 (7.0)	11 (8.0)	1.16	0.64	2.09	0.62
dentist (including orthodontist, periodontist etc)	26,932 (49.9)	54 (47.4)	76 (55.5)	1.59	1.16	2.18	0.00
paediatrician	6,638 (12.3)	16 (14.0)	20 (14.6)	1.37	0.87	2.17	0.17
optometrist/eye doctor	8,753 (16.2)	27 (23.7)	33 (24.1)	0.93	0.51	1.68	0.80
audiologist/hearing specialist	4,113 (7.6)	12 (10.5)	17 (12.4)	1.32	0.63	2.76	0.45
speech pathologist/speech therapist	6,071 (11.2)	19 (16.7)	28 (20.4)	1.38	0.84	2.25	0.20
early learning center or kindergarten	46,788 (86.7)	106 (93.0)	125 (91.2)	0.79	0.38	1.66	0.54

r@h NHV: right@home Nurse Home Visiting.
Descriptive statistics exclude missing data. Models were adjusted for stratification factors used during randomization (parity, site) and baseline covariates: child gender, family Socio-Economic Index for Areas (SEIFA) score of neighborhood-level disadvantage, maternal age, education antenatal risk count (2 or more of 10 factors), self-efficacy and mental health at baseline. Maternal language other than English was also included for child language outcomes. All regression analyses accounted for effects of nurse clustering using robust estimation.