Family integrated care -

the general paediatrician's perspective

Kai König, Lucerne

FiCare in the paediatric practice

No conflict of interest to declare.

https://www.srf.ch/news/regional/zentralschweiz/museggmauer-die-restaurierung-ist-vollbracht

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Family integrated care in the paediatric practice - what’s the evidence?

What's the evidence?

no research/studies so far published

but core principle of FiCare of an active parental role in the care of their infant is always present in the outpatient setting

A quick recap of paediatric outpatient care:

- regular visitis in the paediatric practice with 1, 2, 4, 6, 9 months,
- then with 1, 1.5, 2, 3, 4, 6, 10, 12, 14 years (all voluntary)

- school medical examination with 6, 10, 14 years (compulsory)

- for very preterm infants: SSN-recommended developmental follow-up with 1.5-2 years and 5-6 years, offered by tertiary neonatal centres

A quick recap of public support services, offered by the canton for all comunities and all children:

- Mütter-Väter-Beratung for general care advice (until 5 years)

- early intervention services/Heilpädagogische Früherziehung and speech therapy (until 5 years)

- with start of compulsory Kindergarten, school-based/-associated services: school social work, school psychologist, speech therapy, psychomotor therapy

- → waiting times occur (of variable duration)

A quick recap of specialist services covered by public health insurance or Invalidenversicherung:

- physiotherapy, occupational therapy etc.:
- → waiting times usually 1-3 months

- medical specialist services (respiratory, neuro, gastro etc.): usually based in children's hospitals, more or less multidisciplinary:
- → waiting times usually 1-6 months

- psychiatric services, usually one psychiatric hospital per region and a number of outpatient psychologists:
- → waiting times up to 12 months (in other cantons even longer)

Ongoing support and network:

- reasonable support network in the first 5-6 years
- also later for school-related issues
- for health issues that emerge later in childhood and adolescence, the network is less well structured and mainly to be organised by the family themselves, supported by their paediatrician or GP as their ‘anchor’ in the health system
- a strong relationship between child/parents and their doctor becomes even more relevant

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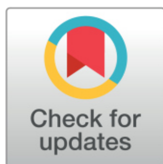
PLOS MEDICINE

RESEARCH ARTICLE

Gestational age at birth and body size from infancy through adolescence: An individual participant data meta-analysis on 253,810 singletons in 16 birth cohort studies

Published: January 26, 2023

Johan L. Vinther[1]*, Tim Cadman[2], Demetris Avraam[3], Claus T. Ekstrøm[4], Thorkild I. A. Sørensen[1,5], Ahmed Elhakeem[2], Ana C. Santos[6,7], Angela Pinot de Moira[1], Barbara Heude[8], Carmen Iñiguez[9,10,11], Costanza Pizzi[12], Elinor Simons[13,14], Ellis Voerman[15,16], Eva Corpeleijn[17], Faryal Zariouh[18], Gilian Santorelli[19], Hazel M. Inskip[20,21], Henrique Barros[6,7], Jennie Carson[22,23], Jennifer R. Harris[24], Johanna L. Nader[25], Justiina Ronkainen[26], Katrine Strandberg-Larsen[1], Loreto Santa-Marina[10,27,28], Lucinda Calas[8], Luise Cederkvist[1], Maja Popovic[12], Marie-Aline Charles[18], Marieke Welten[15,16], Martine Vrijheid[10,29,30], Meghan Azad[13,31,32], Padmaja Subbarao[33,34,35], Paul Burton[3], Puishkumar J. Mandhane[36], Rae-Chi Huang[22,37], Rebecca C. Wilson[38], Sido Haakma[39], Sílvia Fernández-Barrés[29,30,40], Stuart Turvey[41], Susana Santos[15,16], Suzanne C. Tough[42], Sylvain Sebert[26], Theo J. Moraes[33], Theodosia Salika[21], Vincent W. V. Jaddoe[15,16], Deborah A. Lawlor[2,43], Anne-Marie Nybo Andersen[1]



Citation: Vinther JL, Cadman T, Avraam D,

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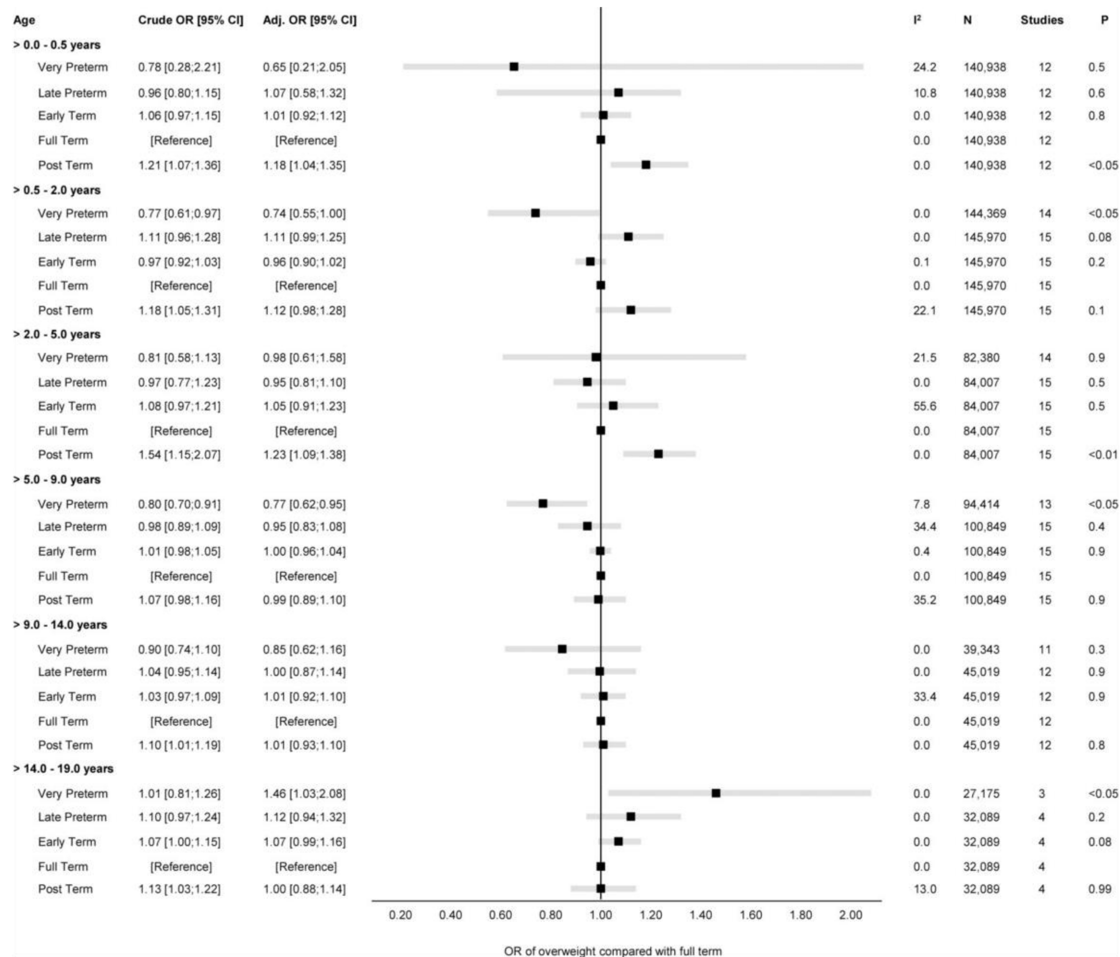

Fig 4. Forest plot of associations between GA (clinical categories) and odds of overweight. Overall unadjusted and

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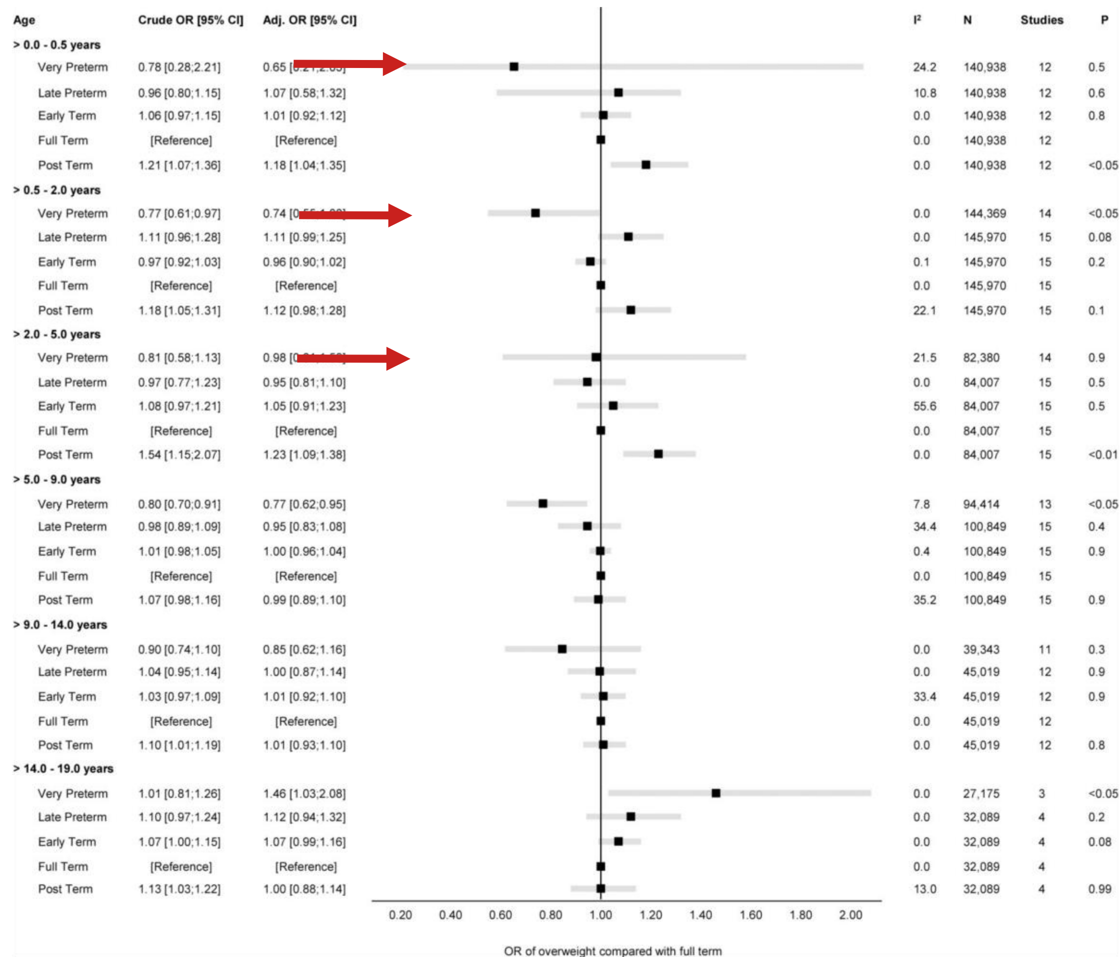

Age	Crude OR [95% CI]	Adj. OR [95% CI]	I²	N	Studies	P
> 0.0 - 0.5 years						
Very Preterm	0.78 [0.28;2.21]	0.65 [illegible]	24.2	140,938	12	0.5
Late Preterm	0.96 [0.80;1.15]	1.07 [0.58;1.32]	10.8	140,938	12	0.6
Early Term	1.06 [0.97;1.15]	1.01 [0.92;1.12]	0.0	140,938	12	0.8
Full Term	[Reference]	[Reference]	0.0	140,938	12	
Post Term	1.21 [1.07;1.36]	1.18 [1.04;1.35]	0.0	140,938	12	<0.05
> 0.5 - 2.0 years						
Very Preterm	0.77 [0.61;0.97]	0.74 [illegible]	0.0	144,369	14	<0.05
Late Preterm	1.11 [0.96;1.28]	1.11 [0.99;1.25]	0.0	145,970	15	0.08
Early Term	0.97 [0.92;1.03]	0.96 [0.90;1.02]	0.1	145,970	15	0.2
Full Term	[Reference]	[Reference]	0.0	145,970	15	
Post Term	1.18 [1.05;1.31]	1.12 [0.98;1.28]	22.1	145,970	15	0.1
> 2.0 - 5.0 years						
Very Preterm	0.81 [0.58;1.13]	0.98 [illegible]	21.5	82,380	14	0.9
Late Preterm	0.97 [0.77;1.23]	0.95 [0.81;1.10]	0.0	84,007	15	0.5
Early Term	1.08 [0.97;1.21]	1.05 [0.91;1.23]	55.6	84,007	15	0.5
Full Term	[Reference]	[Reference]	0.0	84,007	15	
Post Term	1.54 [1.15;2.07]	1.23 [1.09;1.38]	0.0	84,007	15	<0.01
> 5.0 - 9.0 years						
Very Preterm	0.80 [0.70;0.91]	0.77 [0.62;0.95]	7.8	94,414	13	<0.05
Late Preterm	0.98 [0.89;1.09]	0.95 [0.83;1.08]	34.4	100,849	15	0.4
Early Term	1.01 [0.98;1.05]	1.00 [0.96;1.04]	0.4	100,849	15	0.9
Full Term	[Reference]	[Reference]	0.0	100,849	15	
Post Term	1.07 [0.98;1.16]	0.99 [0.89;1.10]	35.2	100,849	15	0.9
> 9.0 - 14.0 years						
Very Preterm	0.90 [0.74;1.10]	0.85 [0.62;1.16]	0.0	39,343	11	0.3
Late Preterm	1.04 [0.95;1.14]	1.00 [0.87;1.14]	0.0	45,019	12	0.9
Early Term	1.03 [0.97;1.09]	1.01 [0.92;1.10]	33.4	45,019	12	0.9
Full Term	[Reference]	[Reference]	0.0	45,019	12	
Post Term	1.10 [1.01;1.19]	1.01 [0.93;1.10]	0.0	45,019	12	0.8
> 14.0 - 19.0 years						
Very Preterm	1.01 [0.81;1.26]	1.46 [1.03;2.08]	0.0	27,175	3	<0.05
Late Preterm	1.10 [0.97;1.24]	1.12 [0.94;1.32]	0.0	32,089	4	0.2
Early Term	1.07 [1.00;1.15]	1.07 [0.99;1.16]	0.0	32,089	4	0.08
Full Term	[Reference]	[Reference]	0.0	32,089	4	
Post Term	1.13 [1.03;1.22]	1.00 [0.88;1.14]	13.0	32,089	4	0.99

Fig 4. Forest plot of associations between GA (clinical categories) and odds of overweight. Overall unadjusted and

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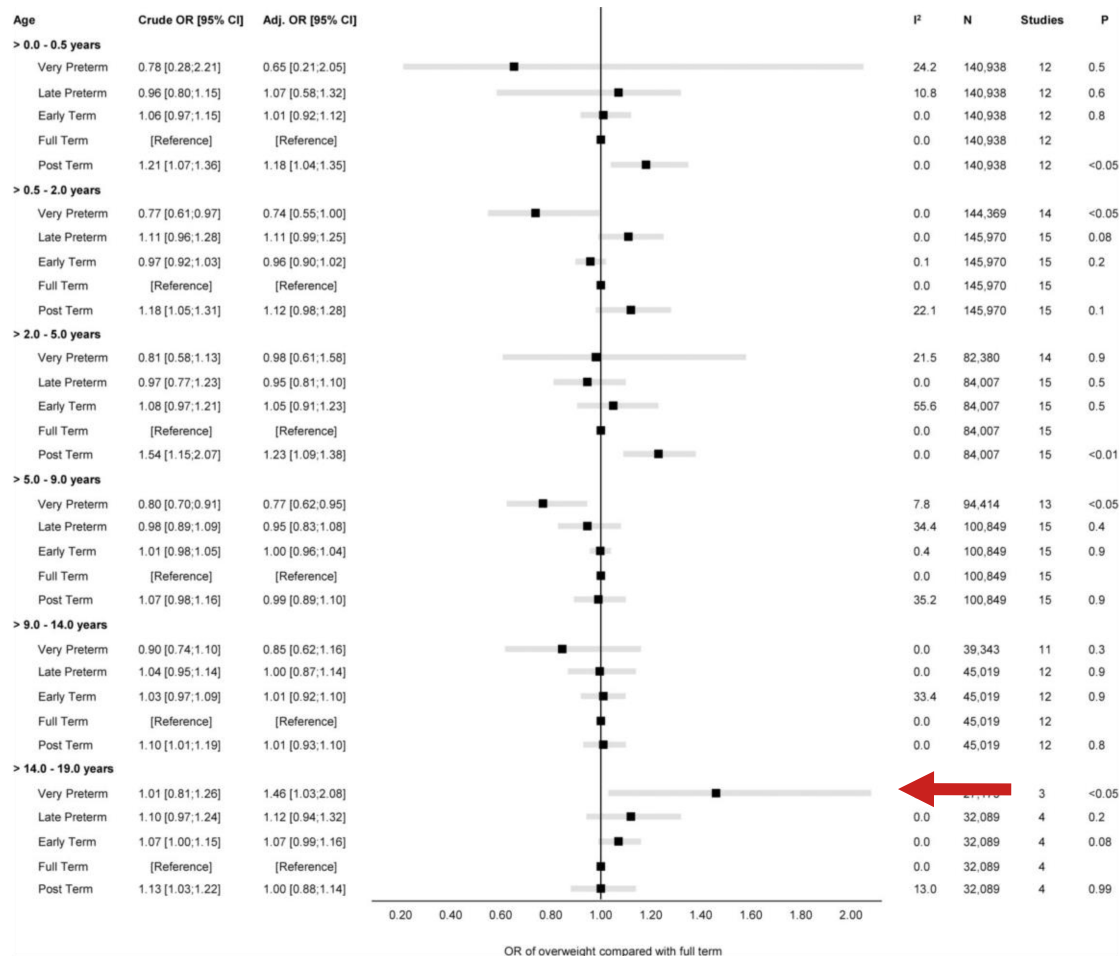

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?

Fig 4. Forest plot of associations between GA (clinical categories) and odds of overweight. Overall unadjusted and

Association of Preterm Birth With Risk of Ischemic Heart Disease in Adulthood

Crump et al. JAMA Pediatrics 2019

- population-based cohort study
- 2141709 persons born as singleton live births in Sweden during 1973 to 1994
- Ischemic heart disease that was identified from nationwide inpatient and outpatient diagnoses through 2015

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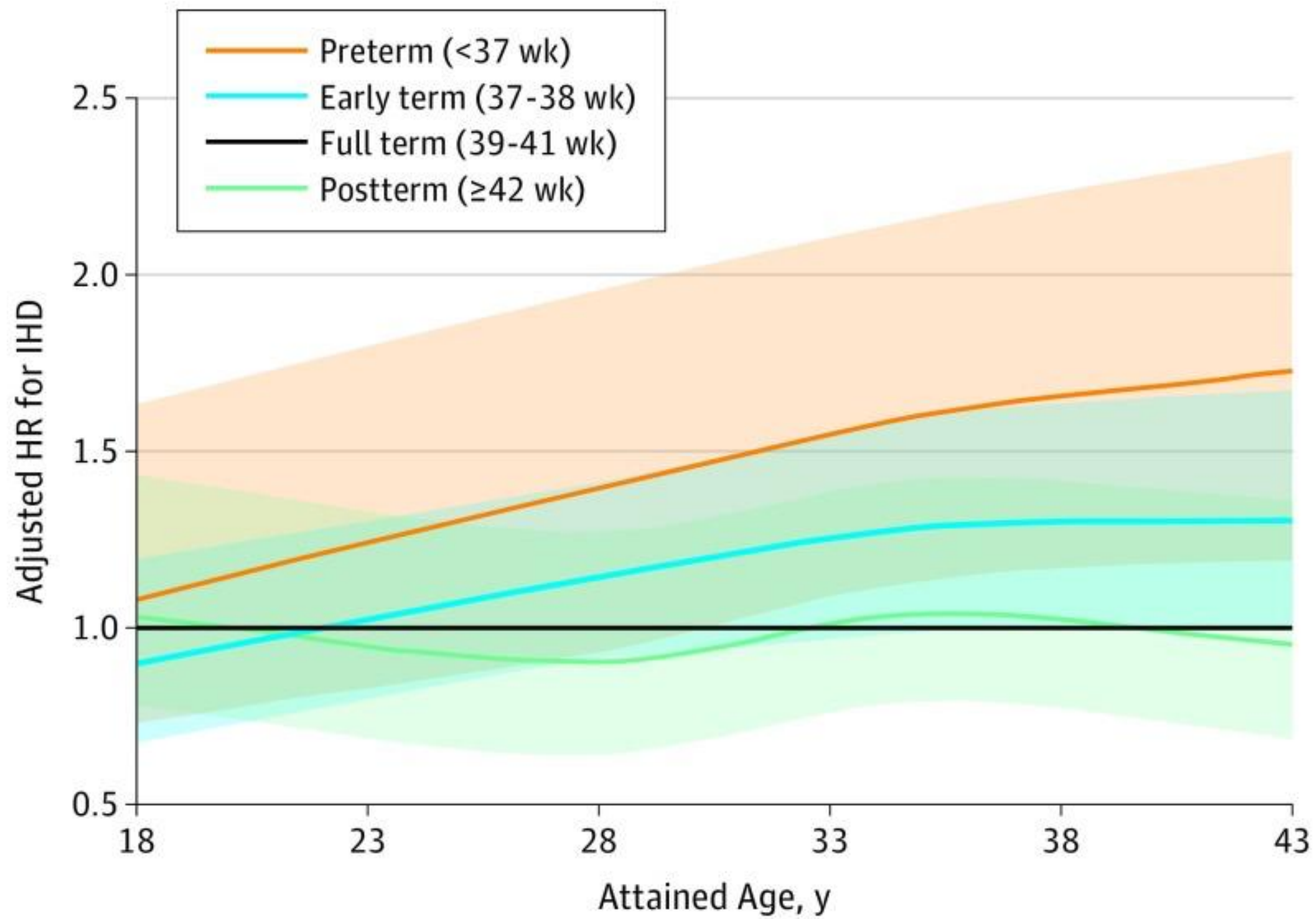

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Paediatric lung disease

ORIGINAL ARTICLE

Effect of preterm birth on later FEV_1: a systematic review and meta-analysis

Sarah J Kotecha,[1] Martin O Edwards,[1] W John Watkins,[1] A John Henderson,[3] Shantini Paranjothy,[2] Frank D Dunstan,[2] Sailesh Kotecha[1]

Thorax 2013: systematic review of 59 studies reporting FEV_1, with or without a term-born control group, in later life for preterm-born subjects (<37 weeks gestation)

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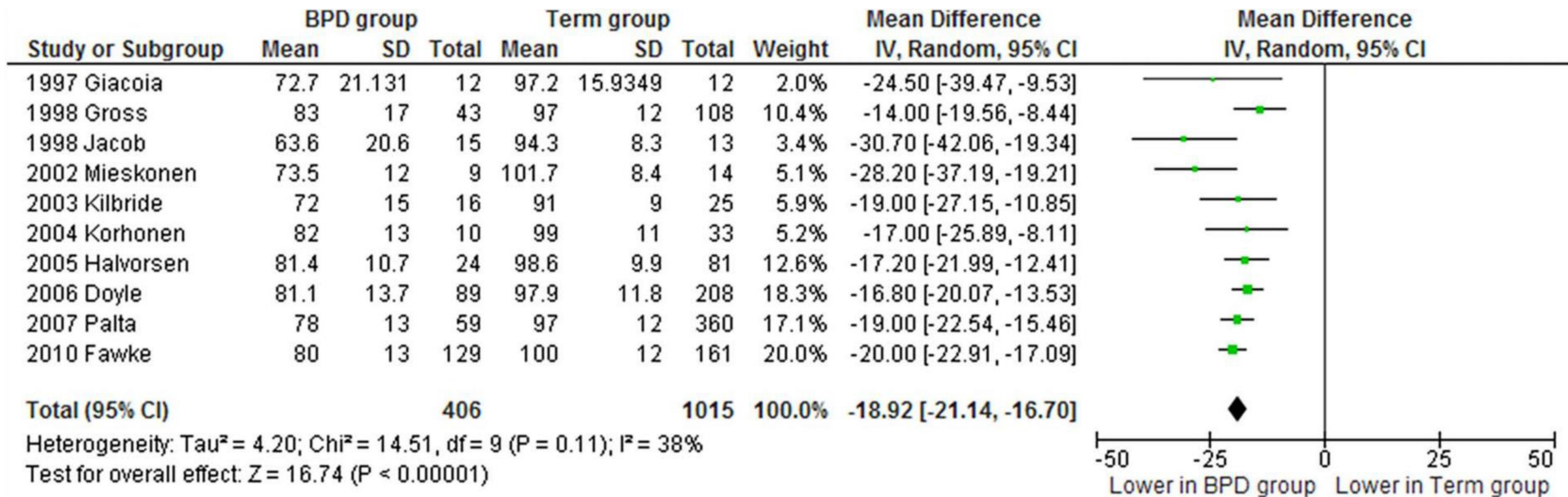

Study or Subgroup	BPD group Mean	SD	Total	Term group Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
1997 Giacoia	72.7	21.131	12	97.2	15.9349	12	2.0%	-24.50 [-39.47, -9.53]
1998 Gross	83	17	43	97	12	108	10.4%	-14.00 [-19.56, -8.44]
1998 Jacob	63.6	20.6	15	94.3	8.3	13	3.4%	-30.70 [-42.06, -19.34]
2002 Mieskonen	73.5	12	9	101.7	8.4	14	5.1%	-28.20 [-37.19, -19.21]
2003 Kilbride	72	15	16	91	9	25	5.9%	-19.00 [-27.15, -10.85]
2004 Korhonen	82	13	10	99	11	33	5.2%	-17.00 [-25.89, -8.11]
2005 Halvorsen	81.4	10.7	24	98.6	9.9	81	12.6%	-17.20 [-21.99, -12.41]
2006 Doyle	81.1	13.7	89	97.9	11.8	208	18.3%	-16.80 [-20.07, -13.53]
2007 Palta	78	13	59	97	12	360	17.1%	-19.00 [-22.54, -15.46]
2010 Fawke	80	13	129	100	12	161	20.0%	-20.00 [-22.91, -17.09]
Total (95% CI)			**406**			**1015**	**100.0%**	**-18.92 [-21.14, -16.70]**

Heterogeneity: Tau² = 4.20; Chi² = 14.51, df = 9 (P = 0.11); I² = 38%
Test for overall effect: Z = 16.74 (P < 0.00001)

Figure 4 Percentage predicted forced expiratory volume in 1 s (%FEV_1) of the bronchopulmonary dysplasia (BPD) group (supplemental oxygen dependency 36 weeks postmenstrual age) compared with term control group.

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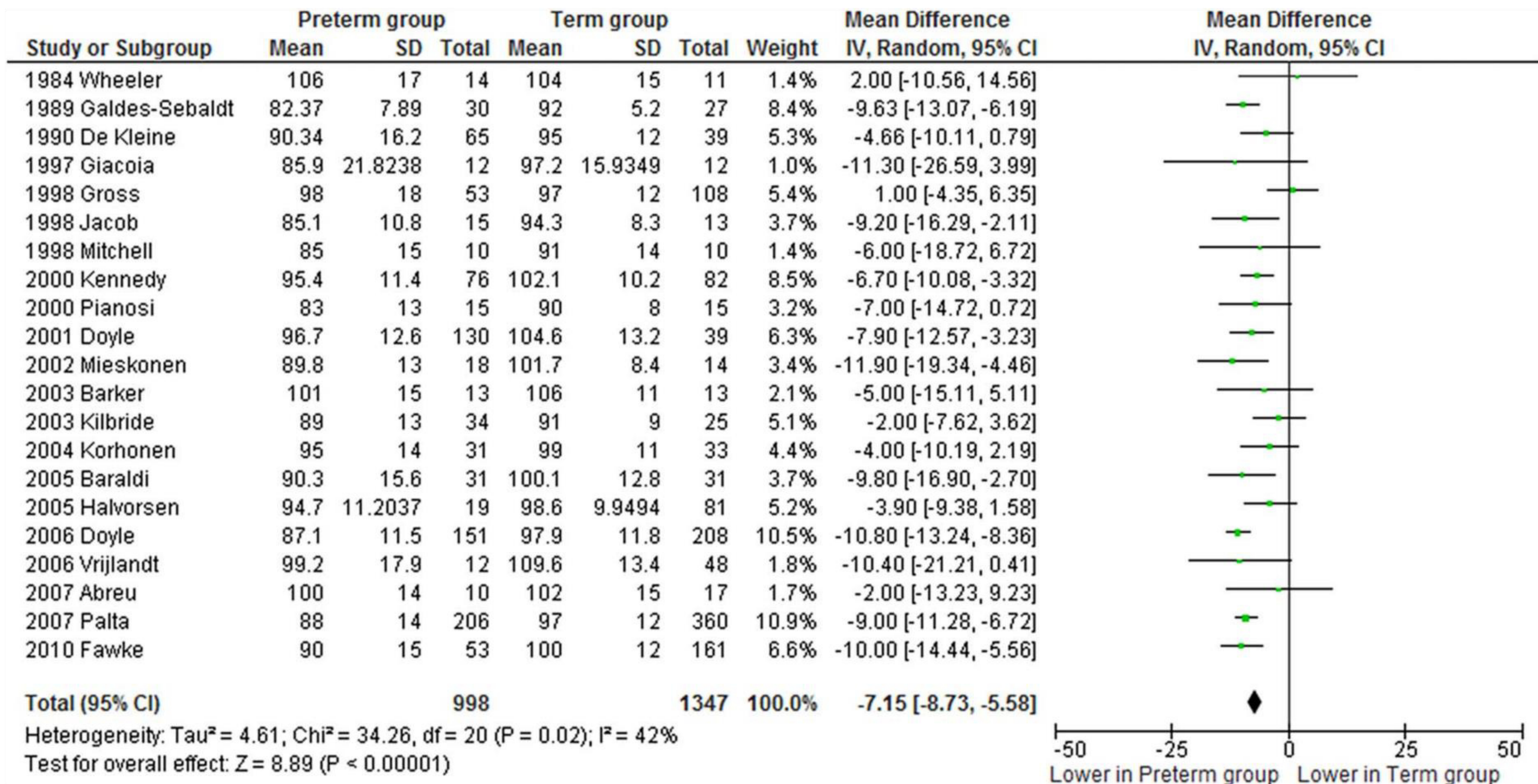

Study or Subgroup	Preterm group Mean	Preterm group SD	Preterm group Total	Term group Mean	Term group SD	Term group Total	Weight	Mean Difference IV, Random, 95% CI
1984 Wheeler	106	17	14	104	15	11	1.4%	2.00 [-10.56, 14.56]
1989 Galdes-Sebaldt	82.37	7.89	30	92	5.2	27	8.4%	-9.63 [-13.07, -6.19]
1990 De Kleine	90.34	16.2	65	95	12	39	5.3%	-4.66 [-10.11, 0.79]
1997 Giacoia	85.9	21.8238	12	97.2	15.9349	12	1.0%	-11.30 [-26.59, 3.99]
1998 Gross	98	18	53	97	12	108	5.4%	1.00 [-4.35, 6.35]
1998 Jacob	85.1	10.8	15	94.3	8.3	13	3.7%	-9.20 [-16.29, -2.11]
1998 Mitchell	85	15	10	91	14	10	1.4%	-6.00 [-18.72, 6.72]
2000 Kennedy	95.4	11.4	76	102.1	10.2	82	8.5%	-6.70 [-10.08, -3.32]
2000 Pianosi	83	13	15	90	8	15	3.2%	-7.00 [-14.72, 0.72]
2001 Doyle	96.7	12.6	130	104.6	13.2	39	6.3%	-7.90 [-12.57, -3.23]
2002 Mieskonen	89.8	13	18	101.7	8.4	14	3.4%	-11.90 [-19.34, -4.46]
2003 Barker	101	15	13	106	11	13	2.1%	-5.00 [-15.11, 5.11]
2003 Kilbride	89	13	34	91	9	25	5.1%	-2.00 [-7.62, 3.62]
2004 Korhonen	95	14	31	99	11	33	4.4%	-4.00 [-10.19, 2.19]
2005 Baraldi	90.3	15.6	31	100.1	12.8	31	3.7%	-9.80 [-16.90, -2.70]
2005 Halvorsen	94.7	11.2037	19	98.6	9.9494	81	5.2%	-3.90 [-9.38, 1.58]
2006 Doyle	87.1	11.5	151	97.9	11.8	208	10.5%	-10.80 [-13.24, -8.36]
2006 Vrijlandt	99.2	17.9	12	109.6	13.4	48	1.8%	-10.40 [-21.21, 0.41]
2007 Abreu	100	14	10	102	15	17	1.7%	-2.00 [-13.23, 9.23]
2007 Palta	88	14	206	97	12	360	10.9%	-9.00 [-11.28, -6.72]
2010 Fawke	90	15	53	100	12	161	6.6%	-10.00 [-14.44, -5.56]
Total (95% CI)			**998**			**1347**	**100.0%**	**-7.15 [-8.73, -5.58]**

Heterogeneity: $Tau^2 = 4.61$; $Chi^2 = 34.26$, $df = 20$ ($P = 0.02$); $I^2 = 42\%$
Test for overall effect: $Z = 8.89$ ($P < 0.00001$)

Figure 2 Percentage predicted forced expiratory volume in 1 s (%FEV_1) of the premature group (no bronchopulmonary dysplasia, BPD) compared with term control group.

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DOI: 10.1056/EVIDoa2200279

ORIGINAL ARTICLE

Lung Function of Preterm Children Parsed by a Polygenic Risk Score for Adult COPD

Gyde Nissen, M.D.,[1,2] Svenja Hinsenbrock,[1] Tanja K. Rausch,[3] Guido Stichtenoth, M.D., Ph.D.,[1] Isabell Ricklefs, M.D.,[1,2] Markus Weckmann, Ph.D.,[1,2,4] Andre Franke, Ph.D.,[5] Egbert Herting, M.D., Ph.D.,[1] Inke R. König, Ph.D.,[2,3] Matthias V. Kopp, M.D.,[2,6] Klaus F. Rabe, M.D., Ph.D.,[2,7] and Wolfgang Göpel, M.D.[1]

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Table 1. Characteristics until Discharge from the Hospital.*

Characteristic	COPD Polygenic Risk Score Decile		
	1 (n=195)	2–9 (n=1567)	10 (n=195)
At birth			
Gestational age — week completed	28.0 (25.9–29.6)	28.1 (26.6–29.7)	28.3 (26.4–29.4)
Birth weight — g	990 (780–1265)	985 (790–1240)	1030 (715–1230)
Male sex	99 (50.8)	792 (50.5)	102 (52.3)
Multiple birth	71 (36.4)	599 (38.2)	75 (38.5)
Small for gestational age	23 (11.8)	228 (14.6)	27 (13.8)
Antenatal glucocorticoids	184 (94.4)	1459 (93.1)	180 (92.3)
Maternal smoking during pregnancy	17 (8.7)	165 (10.5)	25 (12.8)
Maternal or paternal asthma	15 (7.7)	159 (10.2)	28 (14.4)
At discharge			
Mechanical ventilation within the first 72 hours of life	93 (47.7)	747 (47.7)	83 (42.6)
Bronchopulmonary dysplasia	29 (14.4)	248 (15.8)	31 (15.9)
Pneumothorax	9 (4.1)	87 (5.6)	3 (1.5)
Intraventricular hemorrhage	29 (14.9)	249 (15.9)	29 (14.9)
Sepsis with positive blood culture	24 (12.3)	208 (13.3)	26 (13.3)
Breastfeeding	166 (85.1)	1303 (83.2)	157 (80.5)

* Data are presented as median (interquartile range) or no. (%), unless otherwise noted. COPD denotes chronic obstructive pulmonary disease.

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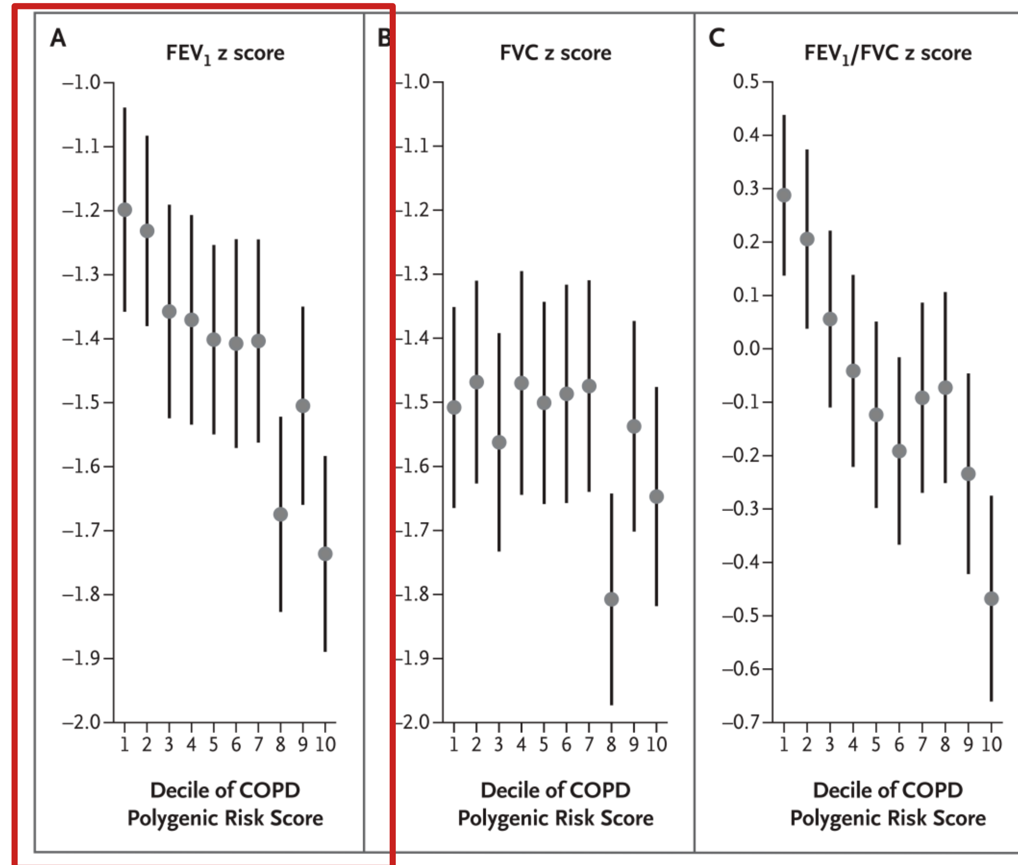

Figure 1. COPD Polygenic Risk Score Decile and Spirometry Z Scores.

Forced expiratory volume within 1 second (FEV_1) z score is shown in Panel A. Forced vital capacity (FVC) z score is shown in Panel B. FEV_1/FVC z score is shown in Panel C. Data are given as mean and 95% confidence interval of the mean. COPD denotes chronic obstructive pulmonary disease.

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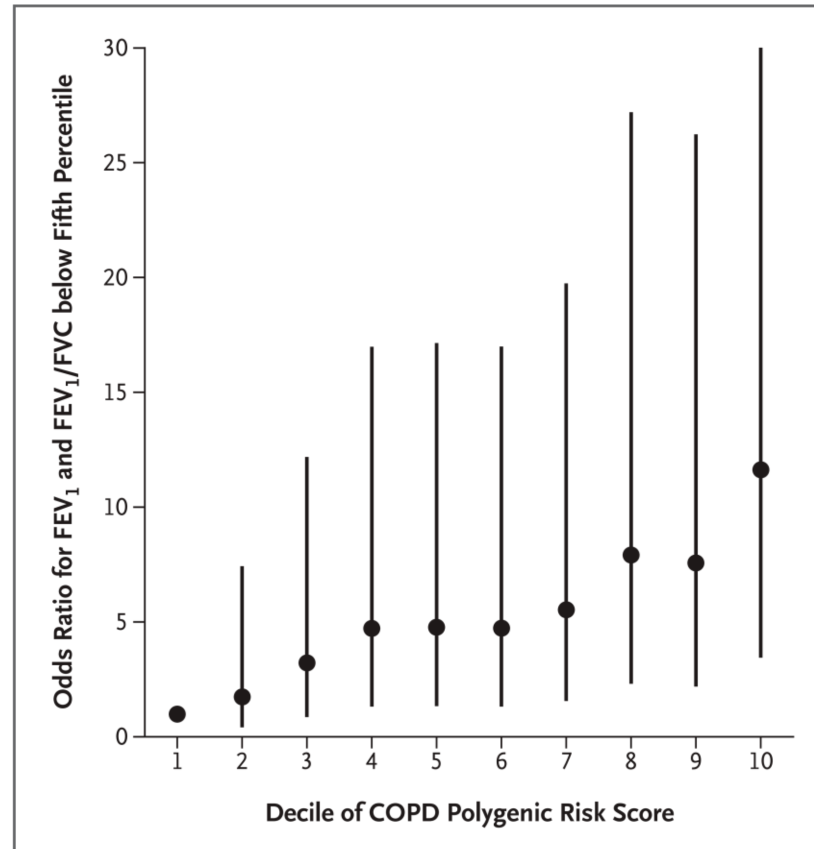

Figure 2. COPD Polygenic Risk Score Decile and Odds Ratio for FEV_1 below the Fifth Percentile and FEV_1/FVC below the Fifth Percentile.

This is where limited capacity of paediatric services results in a serious problem:

- approx. 100 very preterm infants per year born in central Switzerland
- waiting times for a respiratory specialist appointment 3-4 months

→ 100 preterm infants requiring a minimum of one respiratory appointment per year adds 3-4 weeks of general waiting time for all infants

Psycho-social problems:

- shyness and introversion
- anxiety
- difficulties finding peers/friends in childhood/adolescence
- difficulties in finding a partner/ romantic relationship/ having a family

FiCare in the paediatric practice

Original Investigation | **Pediatrics**

Association of Preterm Birth and Low Birth Weight With Romantic Partnership, Sexual Intercourse, and Parenthood in Adulthood

A Systematic Review and Meta-analysis

Marina Mendonça, PhD; Ayten Bilgin, PhD; Dieter Wolke, PhD

JAMA Network Open. 2019;

FiCare in the paediatric practice

IMPORTANCE Social relationships are important determinants of well-being, health, and quality of life. There are conflicting findings regarding the association between preterm birth or low birth weight and experiences of social relationships in adulthood.

CONCLUSIONS AND RELEVANCE These findings suggest that adults born preterm or with low birth weight are less likely to experience a romantic partnership, sexual intercourse, or to become parents. However, preterm birth or low birth weight does not seem to impair the quality of relationships with partners and friends. Lack of sexual or partner relationships might increase the risk of decreased well-being and poorer physical and mental health.

Where to go from here:

- prematurity = risk for lower quality of life in some aspects
- outcome measures in early years (e.g. BISD) have limited value for relevant longterm outcomes
- the patient group of very preterm infants increases by approx. 1000 per year
- Health care workers not only in paediatrics need to be aware
- → neonatologists – please speak at paediatricians' and GP's conferences!

Despite all challenges - the outlook is bright!