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Review

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Increasing airway obstruction through life following bronchopulmonary dysplasia: a meta-analysis

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Summary: This meta-analysis describes increased airway obstruction in survivors of preterm birth, with those diagnosed with bronchopulmonary dysplasia as infants having worse obstruction which also increases with age.

Abstract

Few studies exist investigating lung function trajectories of those born preterm, however growing evidence suggests some individuals experience increasing airway obstruction throughout life. Here we use the studies identified in a recent systematic review to provide the first meta-analysis investigating the impact of preterm birth on airway obstruction measured by the FEV_1/FVC ratio.

Cohorts were included for analysis if they reported FEV_1/FVC in survivors of preterm birth (<37 weeks' gestation) and control populations born at term. Meta-analysis was performed using a random effect model, expressed as standardised mean difference (SMD). Meta-regression was conducted using age and birth year as moderators.

55 cohorts were eligible, 35 of which defined groups with bronchopulmonary dysplasia (BPD). Compared to control populations born at term, lower values of FEV_1/FVC were seen in all individuals born preterm (SMD -0.56), with greater differences seen in those with BPD (SMD -0.87) than those without BPD (SMD -0.45). Meta-regression identified age as a significant predictor of FEV_1/FVC in those with BPD with the FEV_1/FVC ratio moving -0.04 SDs away from the term control population for every year of increased age.

Survivors of preterm birth have significantly increased airway obstruction compared to those born at term with larger differences in those with BPD. Increased age is associated with a decline in FEV_1/FVC values suggesting increased airway obstruction over the life course.

Introduction

Lung disease remains a significant complication of preterm birth despite temporal changes in the underlying pathology of bronchopulmonary dysplasia (BPD) [1]. Advances in neonatal care during the 1990s, particularly the routine use of antenatal corticosteroids and exogenous surfactant [2] have increased survival of infants born very and extremely preterm (<32 weeks' gestation), and the emergence of "new" BPD. As such, there are more survivors of preterm birth than ever before, and those born in the contemporary era with new BPD are born at an earlier stage of lung development with large and simplified alveoli [2] compared to the thick-walled alveoli initially described by Northway et al [3]. Despite this, our understanding of the long-term implications of preterm lung disease remains limited.

We recently published an updated and extended systematic review and meta-analysis demonstrating that survivors of preterm birth have persistent deficits in spirometry measured forced expiratory volume expired in 1 second (FEV_1) [4]. The greatest deficits were seen in those with BPD having a percent predicted FEV_1 16% lower than those born at term. However, increased airway obstruction, measured using FEV_1/forced vital capacity (FVC), is also reported in survivors of preterm birth [5]. Furthermore a progressive decline in FEV_1/FVC values has been noted throughout childhood and adolescence in longitudinal studies by Simpson et al [6] and Doyle et al [7] in preterm survivors of the post-surfactant era, and extending into the sixth decade of life in those born in the pre-surfactant era [8]. As such, there is a growing recognition that very preterm birth may represent a significant risk factor for early-onset chronic obstructive pulmonary disease (COPD) [9, 10], with COPD characterised by progressive airway obstruction and commonly defined as post-bronchodilator $FEV_1/FVC < 0.70$ [11].

To test the hypothesis that survivors of preterm birth have increased airway obstruction compared to those born at term, and that preterm birth and BPD are risk factors for developing COPD, here we will perform a post-hoc analysis to expand on the findings from our recent systematic review on FEV_1 to provide what is to the best of our knowledge the first meta-analysis on FEV_1/FVC in survivors of preterm birth.

Methods

Research questions

This post-hoc meta-analysis was designed to answer the following questions

1. Do those born preterm (with and without a diagnosis of BPD) have increased airway obstruction, as measured by FEV_1/FVC, compared to individuals born at term
2. Does airway obstruction, as measured by FEV_1/FVC, increase with age in those born preterm (with and without BPD) compared with those born at term

The forced mid-expiratory flow (FEF_{25-75}) has previously been used a marker of small airway obstruction, however due to concerns about highly variable and poorly reproducible measurements cited in the latest European Respiratory Society and American Thoracic Society technical standard [12] it has not been used as an outcome in this review. FEF_{25-75} values have, however, been provided for reference from extracted studies.

Study identification and selection

Studies were identified using the systematic review methods described previously by Kotecha et al [4, 13] which followed the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines [14]. Briefly, 86 studies in total met inclusion criteria for analysis of FEV_1. Although this systematic review was designed to capture studies to answer questions specifically related to FEV_1, the search criteria were subsequently deemed acceptable to appropriately capture other spirometry measures including FVC, FEV_1/FVC ratio and FEF_{25-75}. Studies were included for this analysis if they fulfilled the following criteria: 1) FEV_1/FVC reported in survivors of preterm birth (with or without BPD) and those born healthy at term, or if 2) FEV_1/FVC were reported separately in survivors of preterm birth with and without BPD.

Publication bias and study quality

The effects of publication bias were measured subjectively using funnel plots and objectively using Egger's test. Study quality was assessed using a modified version of the Newcastle-Ottowa scale as previously described [4].

Data collection

Data were extracted from published manuscripts into the electronic data capture database REDCap (Research Electronic Data Capture) [15]. If data were not presented in an appropriate format the manuscript's authors were contacted to see if they could provide the additional required data. Where available, data were collected as mean and standard deviation (SD). Where variances were presented as standard error, 95% confidence intervals (95% CI), interquartile range (IQR), or range (minimum and maximum values), values were converted to standard deviations using the methods outlined in the

Cochrane Handbook [16]. Where data were presented as medians, it was first checked for skewness using the methods outlined by Shi et al [17] and if found to be significantly skewed not included in the analysis. For included data, mean was estimated using the methods of Luo et al [18] and IQR and range were estimated using the methods of Wan et al [19]. Spirometry values were preferably collected as standard (Z) scores and percent predicted (% predicted) respectively to adjust for variations in height and gender of individuals over raw ratios. Each group extracted from a study was assigned one of the following statuses: 1) Preterm with BPD, 2) preterm without BPD, 3) preterm with mix of participants (both with and without BPD) or BPD status not specified, or 4) term. BPD diagnostic criteria were recorded, and it was considered acceptable to have BPD status classified on diagnostic criteria appropriate for the time of study publication. Groups were also banded by gestational age (extremely preterm: less than 28 weeks' gestation, very preterm: 28 – 32 weeks' gestation, and moderate-late preterm: >32 weeks' gestation) to allow for subgroup analysis.

Data analysis

Statistical analysis was performed in R (version 4.1.2) using the *meta (version 5.1-1), metafor (version 3.0-2),* and *dmetar. (version 0.0.9)* packages using previously documented techniques [20]. Data was extracted directly from REDCap to minimise the possibility for transcription errors during analysis. If necessary, study groups were pooled using the methods described in *The Cochrane Handbook* [16] into Preterm (All), Preterm (BPD), Preterm (no BPD), or Term groups for analysis. If a summary group of all preterm participants was not reported by the study, all individual preterm groups were combined to provide the value for Preterm (All).

As studies presented results using varying continuous measures (Z-scores, % predicted, or raw values), standardised mean difference (SMD) was calculated between groups in each study to allow for cross-study comparison as per Cochrane recommendations [16]. Heterogeneity was calculated using the Restricted-Maximum Likelihood Method, appropriate for continuous outcomes, with Knapp-Hartung adjustments used to control for uncertainty in between study heterogeneity. Use of fixed verses random effects models for meta-analysis was determined by between study heterogeneity (I^2). The *Hedges' g* method was used in calculating the SMD to correct for overestimation with small sample sizes.

Meta-regression analysis was conducted to investigate the effect of age and birth year on the SMD calculated for each group comparison. While age was the primary variable of interest, birth year was investigated to account for changes in lung function which may have occurred due to changes in medical care over time. A variance inflation factor (VIF) was calculated using the *vif.rma* function of the *metafor* to measure any effects of collinearity between age and birth year. Average participant age was rounded to the nearest whole number for each study due to studies presenting varying degrees of detail for the age of each group. F-tests were used to calculate the significance of age and birth year as moderators in reducing heterogeneity and thus having a significant effect on regression models against SMD.

Results

Study selection and study quality

Of the 86 preterm cohorts identified with spirometry data from the systematic review, 55 were identified with FEV_1/FVC data meeting inclusion criteria with 35 defined groups born preterm diagnosed with BPD and 31 defined groups born preterm without BPD [5, 8, 21-115]. Average quality score for studies with FEV_1/FVC data was 14.4 of a total score of 20, ranging from 7 to 19 (Supplementary Table 1). Summarised lung function data extracted and converted to pooled mean (SD) values is available in Supplementary Table 2.

Publication bias

Publication bias was observed when comparing Preterm (All) with Term groups subjectively with an asymmetrical distribution noted on funnel plots, and objectively with Egger's test reaching significance ($p < 0.01$). When preterm groups were separated into those with and without BPD, however, a symmetric distribution was noted on all funnel plots and Egger's test did not reach significance (Supplementary Figure 1). This could imply that asymmetry seen in the combined preterm group may be due to the heterogeneity of having two different disease populations defined by the presence or absence of BPD.

Meta-analysis

All spirometry outcomes were reduced in those born preterm compared with term controls (Table 1). Moderate to high levels of heterogeneity were noted in all groups necessitating the use of random-effects meta-analysis. However, heterogeneity was reduced when BPD status was considered.

Those born preterm had an FEV_1/FVC ratio 0.56 SDs lower than term born controls (95% CI -0.68 to -0.45). BPD status had a significant impact on airflow obstruction, such that those with BPD had reductions in FEV_1/FVC ratio of -0.87 SDs (-1.02 to -0.71) below term, while survivors of preterm birth without BPD had less severe but still significant airflow obstruction at -0.45 SDs (-0.62 to -0.27) below term.

Lower gestation was associated with a greater lung function deficit. Subgroup analysis conducted by average gestational age identified that those born <28 weeks' gestation had the most substantial airflow obstruction with FEV_1/FVC values 0.72 SDs (-0.86 to -0.59) below term controls, with less obstruction seen in those born 28 to 32 weeks' (-0.58 SDs, -0.79 to -0.37) and moderate-to-late preterm >32 weeks' (-0.21 SDs, -0.35 to -0.07).

Identification and removal of outliers to data was not found to have a significant effect on the overall outcomes of the meta-analysis.

Meta-regression

Meta-regression analyses comparing spirometry values in preterm children to term controls, accounting separately for age and birth year, are presented in Table 2. In those with BPD increased airflow obstruction was associated with increasing age, with the FEV_1/FVC ratio moving -0.04 SDs away from the term control population for every year of increased age (R^2=48.8, $p < 0.001$, Figure 2). Over a 25-year period this amounts to the FEV_1/FVC ratio being 1 SD below those born healthy at term. The FEV_1/FVC ratio was also noted to increase by 0.02 SDs for every annual increase in birth year (R^2=11.7, $p = 0.04$) relative to the term control group.

Cohorts with lung function data collected at older ages were noted to have come from those born at earlier birth years, and a significant correlation was noted between age and birth year ($p < 0.001$), however in regression models accounting for both age and birth year the VIF for age was low (1.42). Additionally, ANOVA of two mixed effects models, one accounting for age alone and the other accounting for both age and birth year, was performed with results showing that after accounting for age, birth year did not significantly improve the model ($p = 0.91$) where conversely after accounting for birth year, age was found to remain a significant predictor ($p = 0.001$). This suggests despite the noted collinearity, age primarily accounted for the changes seen in FEV_1/FVC ratios.

No significant associations were noted in meta-regression analysis between FEV_1/FVC and age or birth year in the combined preterm group or in those born preterm without BPD. The FEV_1/FVC ratio in those with BPD was however also noted to decline by -0.03 SDs annually with age relative to those born preterm without BPD (R^2=62.6, $p = 0.01$). The relationship between FEV_1 and birth year has been discussed in our prior manuscript.

Discussion

This meta-analysis consolidates the current literature on airway obstruction in individuals born preterm. We show that survivors of preterm birth, both with and without a diagnosis of BPD, have increased airway obstruction (FEV_1/FVC) compared with those born healthy at term. Additionally, those diagnosed with BPD have more profound airway obstruction. Meta-regression analysis show that airway obstruction increases more rapidly with aging in those with BPD. Therefore, a diagnosis of BPD during infancy represents a significant risk factor for lifelong preterm lung disease.

To our knowledge no previous meta-analysis has been published investigating FEV_1/FVC in those born preterm across all gestational ages < 37 weeks' gestation. A recent systematic review and meta-analysis by Du Berry et al [116] investigated people born at moderate-late gestational ages (32 to < 37 weeks' gestation) reporting modest but significant overall decreases in FEV_1/FVC in this group compared to those born at term. Our analysis extends these findings, to show that individuals born very (28 - 32 weeks' gestation) and extremely (<28 weeks' gestation) preterm have progressively more profound degrees of airway obstruction reported later in life, with those diagnosed with BPD as infants at the highest risk.

Results of the meta-regression analysis reported here correlate with longitudinal data demonstrating an accelerated decline in FEV_1/FVC suggestive of increased airway obstruction following preterm birth previously reported in pre-surfactant era cohorts reported by Bårdsen et al [117], and post-surfactant era cohorts by Simpson et al [6] and Doyle et al [7]. Additionally, a recently published study by Bui et al [8] on a pre-surfactant era cohort of middle-aged survivors of preterm birth reported declining FEV_1/FVC trajectories across middle age in those born 28 to <32 weeks' gestation compared to those born late preterm or at term, and a significant association with COPD diagnosis. Preterm birth and BPD have been gaining growing recognition as risk factors for later developing a COPD-like phenotype, identified in both the recent *Lancet* commission on COPD [118] and Global Initiative for Chronic Obstructive Lung Disease (GOLD) report [119]. With findings of increasing airway obstruction associated with age, the results of this study support the suggestion that those diagnosed with BPD as infants are at significant risk of lifelong preterm lung disease, and are more likely to follow a trajectory to an early onset COPD-like disease later in life.

The mechanisms underpinning increasing airway obstruction following preterm birth are incompletely understood though likely multifactorial. Structural abnormalities of the airways are a well-recognised feature of BPD at birth, noted to persist into adolescence and adulthood on CT imaging and on histopathology [5][120]. Persistent inflammation is also likely to play a role in ongoing airway remodelling with evidence of CD8 T-lymphocyte predominant chronic inflammation seen in adults previously diagnosed with BPD, resembling patterns observed in COPD [121]. In addition, genetic factors may also play a role, with a significant association noted between COPD-associated genes and FEV_1 and FEV_1/FVC in preterm-born children at five years [122]. As our understanding of the mechanisms underlying the disease improves, it may provide opportunities to target treatments to slow, arrest, or reverse any associated decline in lung function, and as such should be targeted as a priority in research moving forward.

With substantial changes in neonatal practice over the last several decades it may be anticipated that long-term respiratory outcomes may have changed, as evident by improvements in FEV_1 noted in our previous paper [4], however after adjusting for the effects of age, birth year was not significantly associated with airway obstruction in this analysis. Interpretation of this finding is complicated, however, by the changing nature of BPD over the same few decades as while neonatal care has improved in the “post-surfactant era”, those diagnosed with BPD are now born at significantly lower gestational ages and have a different airway pathology at birth to those born in the “pre-surfactant era” [2]. It is feasible to consider that when considering the long-term respiratory consequences of preterm birth, improvements in neonatal care may have been somewhat offset by increased numbers of children surviving extreme preterm birth. Conversely, not all longitudinal cohorts in the post-surfactant era demonstrate the increase in airway obstruction described by Simpson et al [6] and Doyle et al [7]. In addition to their pre-surfactant era cohorts, Bårdsen et al [117] also report on a post-surfactant era cohort where airway obstruction appears to improve between mid-childhood and early adulthood. Notably the pre-surfactant era cohorts in the same region show increased airway obstruction through adolescence. Ongoing follow up of other longitudinal cohorts in the post-surfactant era will be critical to improve our understanding of any effects changes in neonatal practice have had on long-term lung health.

Limitations must be noted too in the data available for this analysis, as it reflects cross-sectional data from a highly heterogenous group of studies across multiple decades using different laboratory equipment and populations. Additionally, as has been previously noted, there have been significant changes in neonatal care over time which have changed the characteristics of preterm lung disease over time most notably with “classic-” and “new-BPD”, while the diagnosis of BPD has also changed significantly over the last several decades, likely contributing to the high levels of heterogeneity noted in our data. The strengths of this study parallel those described by Kotecha et al [4] in that we have provided the largest analysis to date of FEV_1/FVC in those born preterm with 5 511 preterm-born and 12 648 term-born individuals included in this analysis. While limiting this analysis to only include studies with term-born reference populations did result in several studies being excluded, it also provides confidence in the accuracy of differences noted between preterm and term populations which may not be possible if reference equations were used as a standard to measure against.

This study identifies an urgent need to better understand the life-long lung health trajectories of those born preterm due to the implications associated with an ever-growing population of survivors of preterm birth and the potential life-long impacts of preterm lung disease. Identification of individuals at risk for early decline in lung health trajectories will facilitate appropriate follow up and intervention at an earlier time point, something which has been demonstrated to be essential in other forms of COPD. Additionally, there is a need to better understand the underlying mechanisms behind preterm lung disease such that we can better identify treatments to halt or reverse this trajectory towards COPD.

In conclusion, this meta-analysis provides the first comprehensive review of airway obstruction measured using spirometry in survivors of preterm birth. It raises significant concerns of progressive airway obstruction in a growing population of individuals, which is only now starting to be reflected in the adult healthcare system. It is a necessity that ongoing longitudinal follow up of cohorts of survivors of preterm birth continue as they enter adulthood so that we can better understand the long-term respiratory consequences of prematurity, and ultimately so that we can identify treatments to halt or reverse preterm associated lung disease.

Points for clinical practice

- With a growing number of survivors of preterm birth entering adulthood, patients should be screened for a history of preterm birth, particularly if they have respiratory symptoms or evidence of chronic obstructive pulmonary disease.

Questions for future research

- Further longitudinal studies on cohorts of survivors of preterm birth are essential to track lung function trajectories into adulthood, and investigate the neonatal and life course factors which may be associated with poorer lung health later in life.
- Do those born in the post-surfactant era of neonatal care have different lung health trajectories to those born in the pre-surfactant era?
- What are the mechanisms which drive persistent lung disease in survivors of preterm birth beyond the neonatal period?

Table 1: Meta-analysis of all spirometry variables

	n_{Cohort}	n_1	n_2	*SMD* [95% CI]	I^2 [95% CI]	95% Prediction Interval
FEV_1						
Preterm (All) vs. Term	90	7235	17436	-0.67 [-0.75, -0.58]*	80% [76, 84]*	[-1.33, -0.00]
Preterm (BPD) vs. Term	55	1745	2856	-1.24 [-1.38, -1.10]*	66% [54, 74]*	[-1.97, -0.51]
Preterm (No BPD) vs. Term	50	2342	2742	-0.46 [-0.55, -0.38]*	46% [25, 61]*	[-0.85, -0.07]
Preterm (BPD) vs. Preterm (No BPD)	57	1963	2743	-0.67 [-0.78, -0.57]*	51% [34, 64]*	[-1.21, -0.14]
FVC						
Preterm (All) vs. Term	77	6635	15401	-0.36 [-0.43, -0.29]*	65% [56, 73]*	[-0.81, 0.08]
Preterm (BPD) vs. Term	50	1683	2769	-0.69 [-0.80, -0.58]*	54% [37, 67]*	[-1.23, -0.14]
Preterm (No BPD) vs. Term	46	2219	2663	-0.21 [-0.29, -0.13]*	35% [7, 55]â€¡	[-0.53, 0.12]
Preterm (BPD) vs. Preterm (No BPD)	52	1907	2605	-0.42 [-0.51, -0.33]*	35% [8, 54]â€	[-0.79, -0.05]
FEV_1/FVC						
Preterm (All) vs. Term	55	5501	12648	-0.56 [-0.68, -0.45]*	83% [78, 86]*	[-1.29, 0.16]
Preterm (BPD) vs. Term	35	1326	1851	-0.87 [-1.02, -0.71]*	72% [61, 80]*	[-1.64, -0.09]
Preterm (No BPD) vs. Term	31	1606	1727	-0.45 [-0.62, -0.27]*	79% [70, 85]*	[-1.28, 0.39]
Preterm (BPD) vs. Preterm (No BPD)	36	1359	1902	-0.38 [-0.50, -0.25]*	52% [29, 67]*	[-0.87, 0.12]
FEF_{25-75}						
Preterm (All) vs. Term	50	4625	9540	-0.82 [-0.96, -0.68]*	85% [80, 88]*	[-1.65, 0.00]
Preterm (BPD) vs. Term	35	1224	1758	-1.33 [-1.50, -1.15]*	61% [44, 73]*	[-1.94, -0.71]
Preterm (No BPD) vs. Term	30	1458	1610	-0.60 [-0.72, -0.47]*	47% [20, 66]â€	[-0.97, -0.23]
Preterm (BPD) vs. Preterm (No BPD)	38	1394	1972	-0.66 [-0.81, -0.51]*	60% [43, 72]*	[-1.28, -0.04]

*n_{cohort}: number of cohorts, n_1: number of individuals in group 1, n_2: number of individuals in group 2, SMD: standardised mean difference as measured by Hedges' g, I^2: Heterogeneity, *$p < 0.001$, ,†$p < 0.01$, ‡$p < 0.05$*

Table 2: Meta-regression analysis moderating for Age and Birth Year

	Age			Birth Year		
	R^2 (I^2)	***β (95% CI)***	**p**	**R^2 (I^2)**	***β (95% CI)***	**p**
FEV1						
Preterm (All) vs. Term	1.6 (78.5)	0.01 (-0.01, 0.02)	0.39	0.0 (79.3)	0.00 (0.00, 0.01)	0.39
Preterm (BPD) vs. Term	0.0 (66.0)	-0.01 (-0.04, 0.02)	0.50	20.3 (60.7)	0.02 (0.00, 0.03)	**0.02**
Preterm (No BPD) vs. Term	0.0 (43.4)	0.00 (-0.01, 0.02)	0.61	0.0 (44.2)	0.00 (0.00, 0.01)	0.27
Preterm (BPD) vs. Preterm (No BPD)	7.4 (50.7)	-0.01 (-0.04, 0.01)	0.18	22.9 (49.3)	0.02 (0.00, 0.03)	**0.01**
FVC						
Preterm (All) vs. Term	2.2 (63.5)	0.01 (-0.01, 0.02)	0.32	0.0 (64.3)	0.00 (-0.01, 0.01)	0.83
Preterm (BPD) vs. Term	0.0 (56.6)	0.00 (-0.02, 0.02)	0.99	0.0 (52.9)	0.00 (-0.01, 0.02)	0.57
Preterm (No BPD) vs. Term	0.0 (35.8)	0.00 (-0.01, 0.02)	0.67	0.0 (36.9)	0.00 (-0.00, 0.01)	0.34
Preterm (BPD) vs. Preterm (No BPD)	0.0 (36.6)	-0.00 (-0.02, 0.01)	0.58	0.0 (39.5)	0.00 (-0.01, 0.02)	0.37
FEV1/FVC						
Preterm (All) vs. Term	1.6 (82.7)	-0.01 (-0.03, 0.01)	0.36	0.0 (83.0)	0.00 (-0.01, 0.01)	0.99
Preterm (BPD) vs. Term	48.8 (56.6)	-0.04 (-0.07, -0.02)	**0.001**	11.7 (67.7)	0.02 (0.00, 0.04)	**0.04**
Preterm (No BPD) vs. Term	2.1 (77.0)	-0.01 (-0.04, 0.02)	0.41	0.0 (78.2)	0.01 (-0.01, 0.03)	0.57
Preterm (BPD) vs. Preterm (No BPD)	62.6 (27.8)	-0.03 (-0.05, -0.01)	**0.01**	9.0 (48.5)	0.01 (-0.01, 0.03)	0.19
FEF 25-75						
Preterm (All) vs. Term	0.0 (84.8)	0.01 (-0.02, 0.03)	0.61	1.2 (83.5)	0.01 (-0.01, 0.02)	0.22
Preterm (BPD) vs. Term	0.0 (59.2)	0.00 (-0.03, 0.04)	0.79	5.2 (44.8)	0.01 (-0.01, 0.03)	0.29
Preterm (No BPD) vs. Term	0.0 (37.8)	0.01 (-0.01, 0.03)	0.49	0.0 (45.2)	-0.00 (-0.02, 0.01)	0.96
Preterm (BPD) vs. Preterm (No BPD)	0.0 (62.3)	-0.00 (-0.03, 0.02)	0.75	17.7 (58.1)	0.02 (0.00, 0.04)	**0.03**

R^2: Heterogeneity accounted for by moderator (as percentage), I^2: Residual heterogeneity remaining after accounting for moderator, β: Regression coefficient, p: P-value for influence of moderator on effect size of study, calculated using F-test

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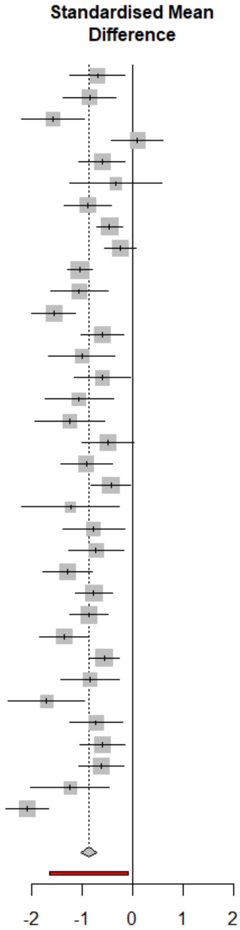
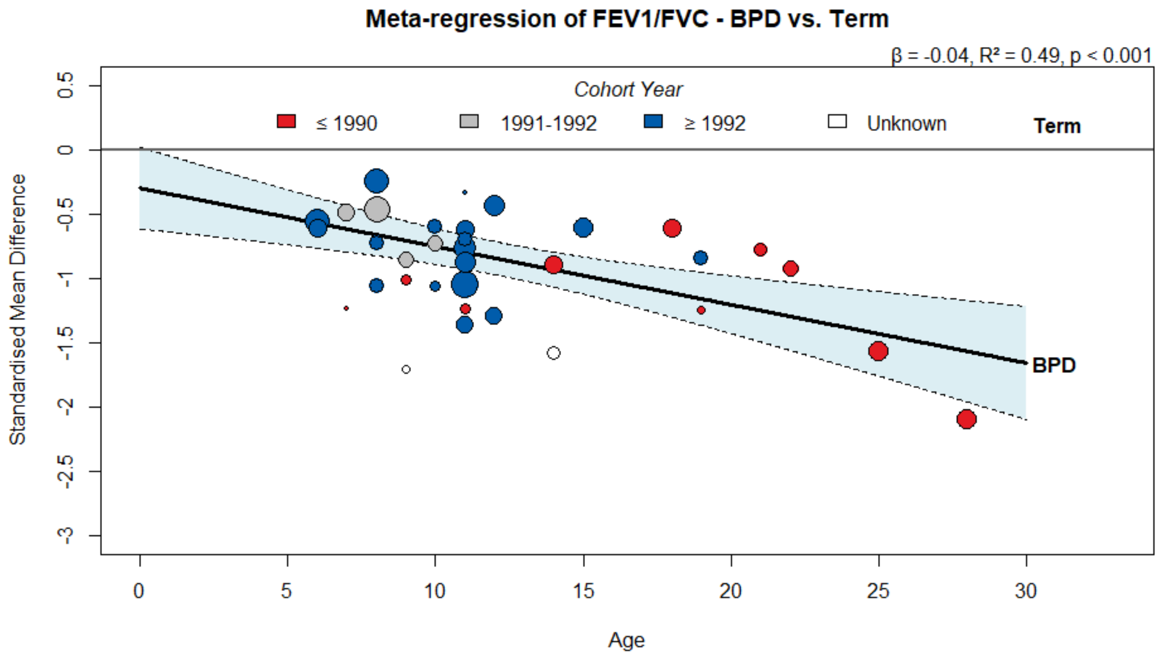
Study	BPD Total	BPD Mean	BPD SD	Term Total	Term Mean	Term SD	SMD	95%-CI	Weight
Arigliani 2020	17	-0.41	0.92	60	0.09	0.64	-0.70	[-1.25; -0.15]	2.7%
Baraldi 2005	31	81.80	11.14	31	89.40	5.57	-0.85	[-1.37; -0.33]	2.8%
Bozzetto 2016	27	-1.35	1.40	27	0.60	1.00	-1.58	[-2.20; -0.96]	2.5%
Cazzato 2013	22	0.12	1.23	46	0.03	0.78	0.09	[-0.41; 0.60]	2.9%
Chang 2020	55	-0.32	1.29	29	0.39	0.85	-0.61	[-1.07; -0.15]	3.1%
Di Filippo 2021	5	0.40	0.60	55	0.70	0.90	-0.34	[-1.25; 0.58]	1.7%
Doyle 2001 (1977-1982 cohort)	39	78.60	11.10	39	87.00	7.00	-0.90	[-1.36; -0.43]	3.0%
Doyle 2006 (1991-1992 cohort)	89	87.90	9.40	208	91.40	6.60	-0.46	[-0.71; -0.21]	3.8%
Doyle 2017 (1997 cohort)	56	-0.31	1.39	149	0.01	1.27	-0.24	[-0.55; 0.06]	3.6%
Fawke 2010	129	-1.40	1.30	161	-0.20	1.00	-1.05	[-1.29; -0.80]	3.9%
Fortuna 2016	28	-0.40	0.95	27	0.57	0.85	-1.06	[-1.63; -0.49]	2.7%
Gough 2013	56	-0.68	0.22	55	0.34	0.89	-1.57	[-2.00; -1.14]	3.2%
Hadchouel 2018	49	-0.60	1.40	44	0.20	1.20	-0.61	[-1.02; -0.19]	3.2%
Hakulinen 1996	20	95.50	7.60	20	102.90	6.71	-1.01	[-1.67; -0.35]	2.3%
Kaplan 2012	28	88.00	10.00	23	93.00	5.00	-0.60	[-1.17; -0.04]	2.7%
Karila 2008	20	73.20	16.30	18	86.40	4.10	-1.06	[-1.75; -0.38]	2.3%
Kilbride 2003	16	81.00	8.00	25	89.00	5.00	-1.24	[-1.93; -0.55]	2.3%
Korhonen 2004	29	88.00	9.00	33	92.00	7.00	-0.49	[-1.00; 0.01]	2.9%
Landry 2016	31	70.00	12.00	35	79.00	7.00	-0.92	[-1.43; -0.41]	2.9%
MacLean 2016	47	-1.14	1.50	64	-0.57	1.14	-0.43	[-0.82; -0.05]	3.4%
Mitchell 1998	10	77.00	11.00	10	88.00	5.00	-1.23	[-2.21; -0.26]	1.5%
Molgat-Seon 2019	25	-1.62	1.30	20	-0.76	0.72	-0.78	[-1.39; -0.17]	2.5%
Praprotnik 2015	23	78.30	18.60	33	87.50	5.00	-0.73	[-1.28; -0.18]	2.7%
Prenzel 2020	39	-0.63	1.24	40	0.98	1.22	-1.30	[-1.78; -0.81]	3.0%
Ronkainen 2015	49	92.90	8.50	88	98.90	7.30	-0.77	[-1.13; -0.41]	3.4%
Simpson 2017	70	-1.14	1.04	48	-0.27	0.92	-0.87	[-1.25; -0.49]	3.4%
Sorensen 2018	42	-1.33	1.08	38	0.02	0.86	-1.36	[-1.85; -0.87]	3.0%
Thunqvist 2018	82	-0.45	1.17	98	0.20	1.14	-0.56	[-0.86; -0.26]	3.7%
Um-Bergstrom 2018	26	-0.79	1.60	24	0.34	0.91	-0.85	[-1.43; -0.26]	2.6%
Vardar-Yagli 2015	18	73.70	13.10	20	91.10	5.90	-1.71	[-2.46; -0.95]	2.1%
Vollsaeter 2013 (1991-1992 cohort)	26	-0.72	1.05	35	0.01	0.95	-0.73	[-1.25; -0.20]	2.8%
Vollsaeter 2013 (1982-1985 cohort)	37	-0.12	1.04	46	0.53	1.08	-0.61	[-1.05; -0.16]	3.1%
Vollsaeter 2015 (1999-2000 cohort)	31	-0.90	1.05	54	-0.30	0.90	-0.62	[-1.07; -0.17]	3.1%
Vrijlandt 2006	8	78.80	8.10	48	87.40	6.60	-1.24	[-2.03; -0.46]	2.0%
Yang 2020	46	-1.67	1.28	100	0.65	1.01	-2.10	[-2.52; -1.67]	3.2%
Random effects model	**1326**			**1851**			**-0.87**	**[-1.02; -0.71]**	**100.0%**
Prediction interval								**[-1.64; -0.09]**	

Heterogeneity: $I^2 = 72\%$, $\tau^2 = 0.1379$, $p < 0.01$



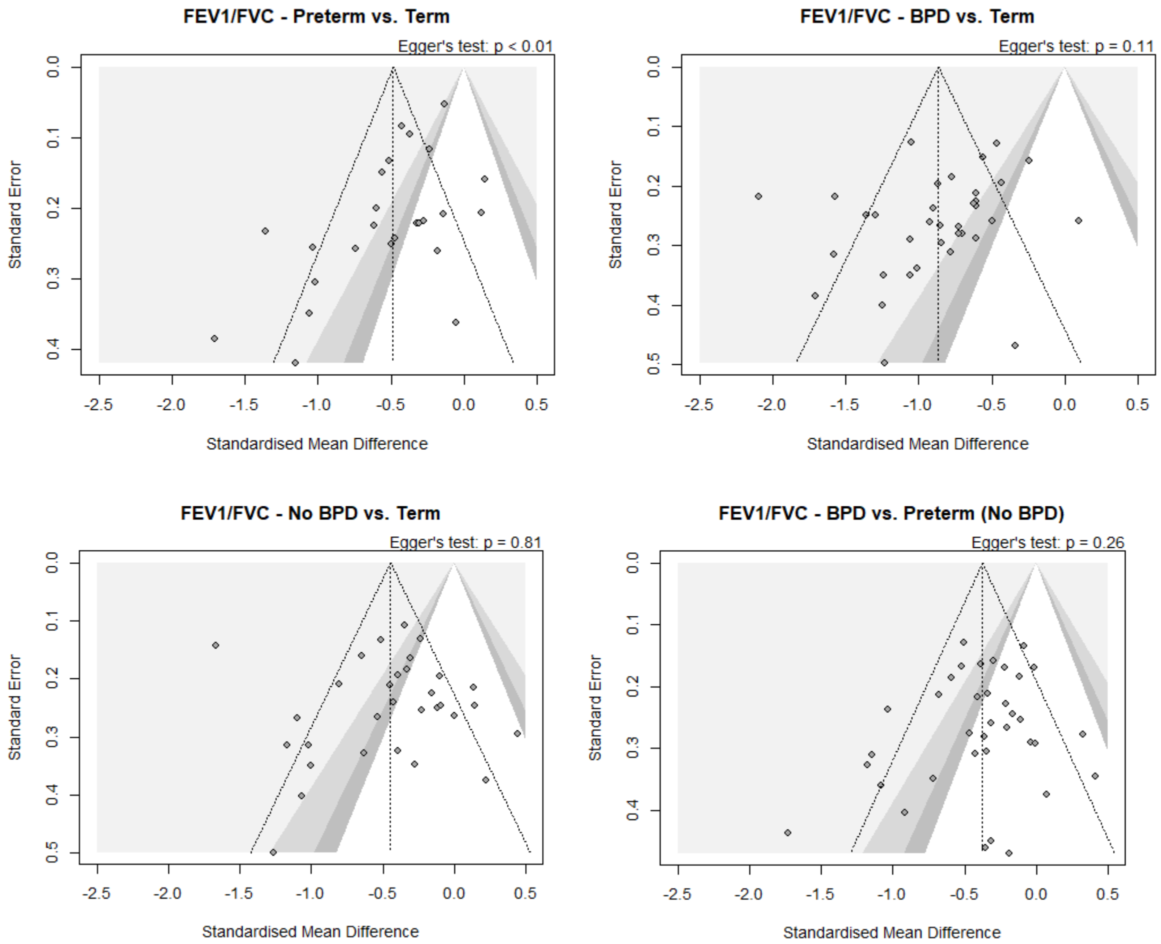
Forest plot comparing FEV1/FVC ratios of those born preterm with BPD to healthy term born individuals



Meta-regression of the effects of age on FEV1/FVC ratios in those born preterm with BPD compared to healthy term born individuals

Increasing airway obstruction through life following bronchopulmonary dysplasia: a meta-analysis - Online Supplemental Material

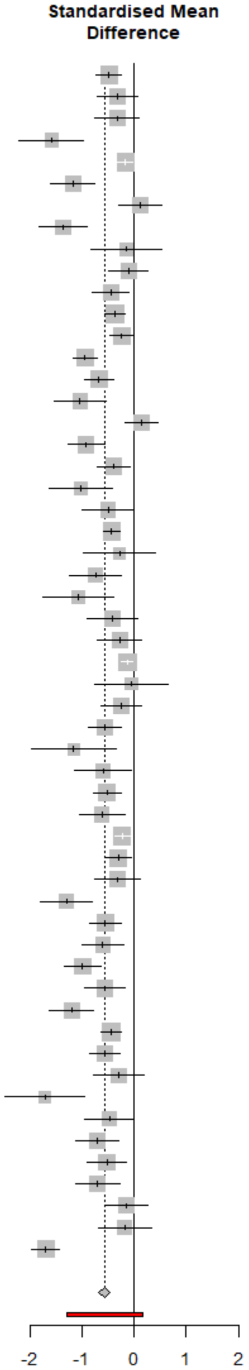
Supplementary Figure 1 – Funnel plots for publication bias in FEV_1/FVC



Supplementary Figure 2 – Forest plot of Preterm (All) vs Term

Study	Preterm Total	Preterm Mean	Preterm SD	Term Total	Term Mean	Term SD	SMD	95%-CI	Weight
Anand 2003	128	87.00	9.04	128	90.80	6.40	-0.48	[-0.73; -0.24]	2.2%
Arigliani 2020	47	-0.18	1.05	60	0.09	0.64	-0.32	[-0.70; 0.07]	1.9%
Baraldi 2005	62	83.05	23.25	31	89.40	5.57	-0.33	[-0.76; 0.11]	1.8%
Bozzetto 2016	27	-1.35	1.40	27	0.60	1.00	-1.58	[-2.20; -0.96]	1.4%
Bui 2022	218	0.76	0.07	1227	0.77	0.06	-0.16	[-0.31; -0.02]	2.3%
Burns 2009	53	93.26	7.84	51	101.55	6.05	-1.17	[-1.59; -0.75]	1.8%
Cazzato 2013	48	0.15	1.14	46	0.03	0.78	0.12	[-0.28; 0.53]	1.8%
Chang 2020	85	-0.22	0.16	29	0.39	0.85	-1.36	[-1.81; -0.90]	1.7%
Debevec 2019	21	85.00	6.00	14	86.00	7.00	-0.15	[-0.83; 0.52]	1.3%
Di Filippo 2021	55	0.60	1.00	55	0.70	0.90	-0.10	[-0.48; 0.27]	1.9%
Doyle 2001 (1977-1982 cohort)	169	82.91	9.64	39	87.00	7.00	-0.44	[-0.79; -0.09]	1.9%
Doyle 2006 (1991-1992 cohort)	240	88.40	9.20	208	91.40	6.60	-0.37	[-0.56; -0.18]	2.3%
Doyle 2017 (1997 cohort)	150	-0.29	1.29	149	0.01	1.27	-0.23	[-0.46; -0.01]	2.2%
Fawke 2010	182	-1.30	1.30	161	-0.20	1.00	-0.94	[-1.16; -0.72]	2.2%
Flahault 2020	101	-1.08	1.27	105	-0.35	0.87	-0.67	[-0.95; -0.39]	2.1%
Fortuna 2016	48	-0.40	0.97	27	0.57	0.85	-1.03	[-1.53; -0.53]	1.6%
Gaffin 2020	47	88.00	7.00	250	87.00	7.00	0.14	[-0.17; 0.45]	2.0%
Gough 2013	96	-0.45	0.84	55	0.34	0.89	-0.92	[-1.26; -0.57]	1.9%
Hadchouel 2018	274	-0.30	1.30	44	0.20	1.20	-0.39	[-0.71; -0.07]	2.0%
Hakulinen 1996	31	95.29	7.72	20	102.90	6.71	-1.02	[-1.62; -0.42]	1.4%
Hamon 2013	42	-0.12	1.36	27	0.47	0.81	-0.50	[-0.99; -0.00]	1.6%
Hart 2021	544	0.84	0.07	195	0.87	0.07	-0.43	[-0.59; -0.26]	2.3%
Kaczmarczyk 2017	12	-0.39	1.02	27	-0.14	0.82	-0.28	[-0.96; 0.41]	1.2%
Kaplan 2012	53	87.00	9.00	23	93.00	5.00	-0.74	[-1.24; -0.24]	1.6%
Karila 2008	20	73.20	16.30	18	86.40	4.10	-1.06	[-1.75; -0.38]	1.2%
Kilbride 2003	50	86.00	8.00	25	89.00	5.00	-0.42	[-0.90; 0.07]	1.6%
Korhonen 2004	60	89.55	9.57	33	92.00	7.00	-0.28	[-0.70; 0.15]	1.8%
Kotecha 2012	382	-0.12	1.03	6144	0.01	1.00	-0.13	[-0.23; -0.03]	2.4%
Kung 2021	8	91.60	5.00	157	91.90	5.90	-0.05	[-0.76; 0.66]	1.2%
Landry 2016	88	76.53	10.76	35	79.00	7.00	-0.25	[-0.64; 0.14]	1.8%
MacLean 2016	100	-1.22	1.18	64	-0.57	1.14	-0.56	[-0.88; -0.24]	2.0%
Mitchell 1998	20	78.50	9.10	10	88.00	5.00	-1.15	[-1.97; -0.33]	1.0%
Molgat-Seon 2019	44	-1.40	1.19	20	-0.76	0.72	-0.59	[-1.13; -0.05]	1.5%
Morata-Alba 2019	116	108.40	8.30	116	112.30	6.70	-0.52	[-0.78; -0.25]	2.1%
Morsing 2011	62	-0.93	1.24	31	-0.17	1.20	-0.61	[-1.05; -0.17]	1.7%
Nasanen-Gilmore 2018	378	-0.44	0.98	341	-0.23	0.84	-0.23	[-0.38; -0.08]	2.3%
Odberg 2010	134	82.00	10.00	135	85.00	10.00	-0.30	[-0.54; -0.06]	2.2%
Praprotnik 2015	56	83.07	17.37	33	87.50	5.00	-0.31	[-0.74; 0.12]	1.8%
Prenzel 2020	39	-0.63	1.24	40	0.98	1.22	-1.30	[-1.78; -0.81]	1.6%
Ronkainen 2015	88	94.70	7.80	88	98.90	7.30	-0.55	[-0.85; -0.25]	2.1%
Siltanen 2004	50	84.00	7.80	54	88.00	5.40	-0.60	[-0.99; -0.20]	1.8%
Simpson 2017	131	-1.25	1.01	48	-0.27	0.92	-0.99	[-1.34; -0.64]	2.0%
Smith 2008	126	82.10	8.30	34	86.40	3.70	-0.57	[-0.95; -0.18]	1.9%
Sorensen 2018	70	-1.25	1.15	38	0.02	0.86	-1.19	[-1.62; -0.77]	1.8%
Thunqvist 2016	106	82.67	5.75	1686	85.59	6.66	-0.44	[-0.64; -0.24]	2.3%
Thunqvist 2018	90	-0.43	1.10	98	0.20	1.14	-0.56	[-0.85; -0.27]	2.1%
Um-Bergstrom 2018	49	-0.06	1.53	24	0.34	0.91	-0.29	[-0.78; 0.20]	1.6%
Vardar-Yagli 2015	18	73.70	13.10	20	91.10	5.90	-1.71	[-2.46; -0.95]	1.1%
Vollsaeter 2013 (1991-1992 cohort)	35	-0.47	1.07	35	0.01	0.95	-0.47	[-0.94; 0.01]	1.7%
Vollsaeter 2013 (1982-1985 cohort)	48	-0.22	1.04	46	0.53	1.08	-0.70	[-1.12; -0.28]	1.8%
Vollsaeter 2015 (1999-2000 cohort)	57	-0.80	1.00	54	-0.30	0.90	-0.52	[-0.90; -0.14]	1.9%
Vrijlandt 2006	42	82.20	8.20	48	87.40	6.60	-0.70	[-1.12; -0.27]	1.8%
Winck 2016	48	-0.38	1.13	45	-0.23	0.95	-0.14	[-0.55; 0.27]	1.8%
Yaacoby-Bianu 2019	29	91.00	6.00	30	92.00	5.00	-0.18	[-0.69; 0.33]	1.6%
Yang 2020	224	-1.21	1.13	100	0.65	1.01	-1.70	[-1.97; -1.43]	2.1%
Random effects model	**5501**			**12648**			**-0.56**	**[-0.68; -0.45]**	**100.0%**
Prediction interval								**[-1.29; 0.16]**	

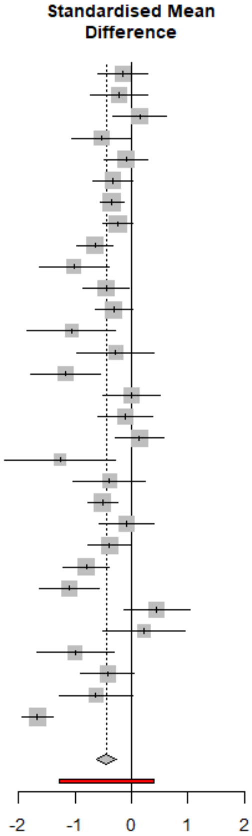
Heterogeneity: $I^2 = 83\%$, $\tau^2 = 0.1275$, $p < 0.01$



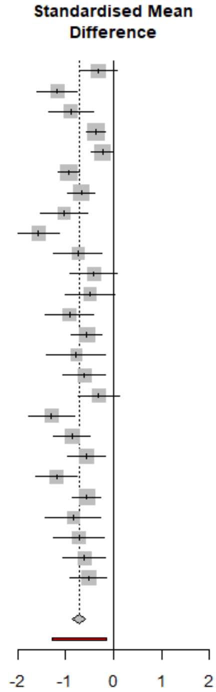
Supplementary Figure 3 – Forest plot of Preterm (No BPD) vs Term

Study	No BPD Total	No BPD Mean	No BPD SD	Term Total	Term Mean	Term SD	SMD	95%-CI	Weight
Arigliani 2020	30	-0.04	1.11	60	0.09	0.64	-0.16	[-0.60; 0.28]	3.4%
Baraldi 2005	31	84.30	31.18	31	89.40	5.57	-0.22	[-0.72; 0.27]	3.2%
Cazzato 2013	26	0.16	1.07	46	0.03	0.78	0.14	[-0.34; 0.63]	3.3%
Chang 2020	30	-0.07	0.84	29	0.39	0.85	-0.54	[-1.06; -0.02]	3.1%
Di Filippo 2021	50	0.60	1.10	55	0.70	0.90	-0.10	[-0.48; 0.28]	3.6%
Doyle 2001 (1977-1982 cohort)	130	84.20	8.80	39	87.00	7.00	-0.33	[-0.69; 0.03]	3.7%
Doyle 2006 (1991-1992 cohort)	151	88.70	9.00	208	91.40	6.60	-0.35	[-0.56; -0.14]	4.2%
Doyle 2017 (1997 cohort)	94	-0.29	1.24	149	0.01	1.27	-0.24	[-0.50; 0.02]	4.1%
Fawke 2010	53	-0.90	1.30	161	-0.20	1.00	-0.65	[-0.96; -0.33]	3.9%
Fortuna 2016	20	-0.39	1.02	27	0.57	0.85	-1.02	[-1.64; -0.40]	2.8%
Gough 2013	40	-0.13	1.22	55	0.34	0.89	-0.45	[-0.86; -0.04]	3.5%
Hadchouel 2018	225	-0.20	1.30	44	0.20	1.20	-0.31	[-0.63; 0.01]	3.8%
Hakulinen 1996	11	94.90	8.29	20	102.90	6.71	-1.07	[-1.86; -0.28]	2.2%
Kaczmarczyk 2017	12	-0.39	1.02	27	-0.14	0.82	-0.28	[-0.96; 0.41]	2.6%
Kaplan 2012	25	85.00	8.00	23	93.00	5.00	-1.17	[-1.78; -0.55]	2.8%
Kilbride 2003	34	89.00	6.00	25	89.00	5.00	0.00	[-0.52; 0.52]	3.1%
Korhonen 2004	31	91.00	10.00	33	92.00	7.00	-0.12	[-0.61; 0.38]	3.2%
Landry 2016	57	80.09	8.14	35	79.00	7.00	0.14	[-0.28; 0.56]	3.5%
Mitchell 1998	10	80.00	7.00	10	88.00	5.00	-1.26	[-2.24; -0.28]	1.8%
Molgat-Seon 2019	19	-1.11	1.00	20	-0.76	0.72	-0.40	[-1.03; 0.24]	2.7%
Morata-Alba 2019	116	108.40	8.30	116	112.30	6.70	-0.52	[-0.78; -0.25]	4.1%
Praprotnik 2015	33	86.40	15.90	33	87.50	5.00	-0.09	[-0.58; 0.39]	3.3%
Ronkainen 2015	39	96.10	6.60	88	98.90	7.30	-0.39	[-0.77; -0.01]	3.6%
Simpson 2017	52	-1.02	0.93	48	-0.27	0.92	-0.80	[-1.21; -0.40]	3.5%
Sorensen 2018	28	-1.14	1.25	38	0.02	0.86	-1.10	[-1.62; -0.57]	3.1%
Um-Bergstrom 2018	23	0.76	0.95	24	0.34	0.91	0.44	[-0.14; 1.02]	2.9%
Vollsaeter 2013 (1991-1992 cohort)	9	0.22	0.83	35	0.01	0.95	0.22	[-0.51; 0.96]	2.4%
Vollsaeter 2013 (1982-1985 cohort)	11	-0.55	0.99	46	0.53	1.08	-1.00	[-1.69; -0.32]	2.5%
Vollsaeter 2015 (1999-2000 cohort)	26	-0.69	0.93	54	-0.30	0.90	-0.42	[-0.90; 0.05]	3.3%
Vrijlandt 2006	12	82.50	11.10	48	87.40	6.60	-0.63	[-1.27; 0.01]	2.7%
Yang 2020	178	-1.09	1.06	100	0.65	1.01	-1.66	[-1.95; -1.38]	4.0%
Random effects model	**1606**			**1727**			**-0.45**	**[-0.62; -0.27]**	**100.0%**
Prediction interval								**[-1.28; 0.39]**	

Heterogeneity: $I^2 = 79\%$, $\tau^2 = 0.1587$, $p < 0.01$

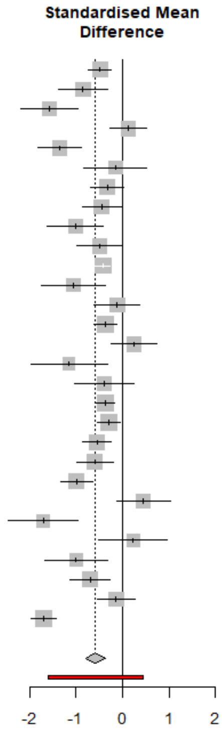


Supplementary Figure 4: FEV_1/FVC in extremely, very, and moderate-late preterm individuals



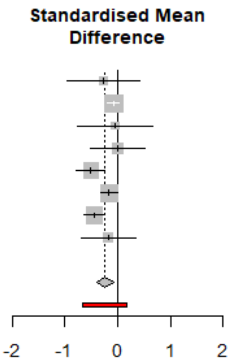
Study	<28 weeks Total	Mean	SD	Term Total	Mean	SD	SMD	95%-CI	Weight
Arigliani 2020	47	-0.18	1.05	60	0.09	0.64	-0.32	[-0.70; 0.07]	4.0%
Burns 2009	53	93.26	7.84	51	101.55	6.05	-1.17	[-1.59; -0.75]	3.8%
Doyle 2001 (1977-1982 cohort)	39	78.60	11.10	39	87.00	7.00	-0.90	[-1.36; -0.43]	3.5%
Doyle 2006 (1991-1992 cohort)	240	88.40	9.20	208	91.40	6.60	-0.37	[-0.56; -0.18]	5.5%
Doyle 2017 (1997 cohort)	150	-0.29	1.29	149	0.01	1.27	-0.23	[-0.46; -0.01]	5.2%
Fawke 2010	182	-1.30	1.30	161	-0.20	1.00	-0.94	[-1.16; -0.72]	5.3%
Flahault 2020	101	-1.08	1.27	105	-0.35	0.87	-0.67	[-0.95; -0.39]	4.8%
Fortuna 2016	48	-0.40	0.97	27	0.57	0.85	-1.03	[-1.53; -0.53]	3.2%
Gough 2013	56	-0.68	0.22	55	0.34	0.89	-1.57	[-2.00; -1.14]	3.7%
Kaplan 2012	53	87.00	9.00	23	93.00	5.00	-0.74	[-1.24; -0.24]	3.2%
Kilbride 2003	50	86.00	8.00	25	89.00	5.00	-0.42	[-0.90; 0.07]	3.3%
Korhonen 2004	29	88.00	9.00	33	92.00	7.00	-0.49	[-1.00; 0.01]	3.2%
Landry 2016	31	70.00	12.00	35	79.00	7.00	-0.92	[-1.43; -0.41]	3.2%
MacLean 2016	100	-1.22	1.18	64	-0.57	1.14	-0.56	[-0.88; -0.24]	4.5%
Molgat-Seon 2019	25	-1.62	1.30	20	-0.76	0.72	-0.78	[-1.39; -0.17]	2.6%
Morsing 2011	62	-0.93	1.24	31	-0.17	1.20	-0.61	[-1.05; -0.17]	3.6%
Praprotnik 2015	56	83.07	17.37	33	87.50	5.00	-0.31	[-0.74; 0.12]	3.7%
Prenzel 2020	39	-0.63	1.24	40	0.98	1.22	-1.30	[-1.78; -0.81]	3.3%
Simpson 2017	70	-1.14	1.04	48	-0.27	0.92	-0.87	[-1.25; -0.49]	4.0%
Smith 2008	126	82.10	8.30	34	86.40	3.70	-0.57	[-0.95; -0.18]	4.0%
Sorensen 2018	70	-1.25	1.15	38	0.02	0.86	-1.19	[-1.62; -0.77]	3.7%
Thunqvist 2018	90	-0.43	1.10	98	0.20	1.14	-0.56	[-0.85; -0.27]	4.7%
Um-Bergstrom 2018	26	-0.79	1.60	24	0.34	0.91	-0.85	[-1.43; -0.26]	2.8%
Vollsaeter 2013 (1991-1992 cohort)	26	-0.72	1.05	35	0.01	0.95	-0.73	[-1.25; -0.20]	3.1%
Vollsaeter 2013 (1982-1985 cohort)	37	-0.12	1.04	46	0.53	1.08	-0.61	[-1.05; -0.16]	3.6%
Vollsaeter 2015 (1999-2000 cohort)	57	-0.80	1.00	54	-0.30	0.90	-0.52	[-0.90; -0.14]	4.1%
Random effects model	**1863**			**1536**			**-0.72**	**[-0.85; -0.58]**	**100.0%**
Prediction interval								**[-1.29; -0.15]**	

Heterogeneity: $I^2 = 68\%$, $\tau^2 = 0.0715$, $p < 0.01$



Study	28 to 32 weeks Total	Mean	SD	Term Total	Mean	SD	SMD	95%-CI	Weight
Anand 2003	128	87.00	9.04	128	90.80	6.40	-0.48	[-0.73; -0.24]	4.0%
Baraldi 2005	31	81.80	11.14	31	89.40	5.57	-0.85	[-1.37; -0.33]	3.3%
Bozzetto 2016	27	-1.35	1.40	27	0.60	1.00	-1.58	[-2.20; -0.96]	3.0%
Cazzato 2013	48	0.15	1.14	46	0.03	0.78	0.12	[-0.28; 0.53]	3.7%
Chang 2020	85	-0.22	0.16	29	0.39	0.85	-1.36	[-1.81; -0.90]	3.5%
Debevec 2019	21	85.00	6.00	14	86.00	7.00	-0.15	[-0.83; 0.52]	2.9%
Doyle 2001 (1977-1982 cohort)	130	84.20	8.80	39	87.00	7.00	-0.33	[-0.69; 0.03]	3.8%
Gough 2013	40	-0.13	1.22	55	0.34	0.89	-0.45	[-0.86; -0.04]	3.6%
Hakulinen 1996	31	95.29	7.72	20	102.90	6.71	-1.02	[-1.62; -0.42]	3.1%
Hamon 2013	42	-0.12	1.36	27	0.47	0.81	-0.50	[-0.99; -0.00]	3.4%
Hart 2021	544	0.84	0.07	195	0.87	0.07	-0.43	[-0.59; -0.26]	4.2%
Karila 2008	20	73.20	16.30	18	86.40	4.10	-1.06	[-1.75; -0.38]	2.8%
Korhonen 2004	31	91.00	10.00	33	92.00	7.00	-0.12	[-0.61; 0.38]	3.4%
Kotecha 2012	65	-0.36	1.18	6144	0.01	1.00	-0.37	[-0.61; -0.12]	4.1%
Landry 2016	31	81.00	9.00	35	79.00	7.00	0.25	[-0.24; 0.73]	3.4%
Mitchell 1998	20	78.50	9.10	10	88.00	5.00	-1.15	[-1.97; -0.33]	2.5%
Molgat-Seon 2019	19	-1.11	1.00	20	-0.76	0.72	-0.40	[-1.03; 0.24]	3.0%
Nasanen-Gilmore 2018	139	-0.55	0.95	341	-0.23	0.84	-0.37	[-0.56; -0.17]	4.1%
Odberg 2010	134	82.00	10.00	135	85.00	10.00	-0.30	[-0.54; -0.06]	4.1%
Ronkainen 2015	88	94.70	7.80	88	98.90	7.30	-0.55	[-0.85; -0.25]	3.9%
Siltanen 2004	50	84.00	7.80	54	88.00	5.40	-0.60	[-0.99; -0.20]	3.7%
Simpson 2017	131	-1.25	1.01	48	-0.27	0.92	-0.99	[-1.34; -0.64]	3.8%
Um-Bergstrom 2018	23	0.76	0.95	24	0.34	0.91	0.44	[-0.14; 1.02]	3.1%
Vardar-Yagli 2015	18	73.70	13.10	20	91.10	5.90	-1.71	[-2.46; -0.95]	2.6%
Vollsaeter 2013 (1991-1992 cohort)	9	0.22	0.83	35	0.01	0.95	0.22	[-0.51; 0.96]	2.7%
Vollsaeter 2013 (1982-1985 cohort)	11	-0.55	0.99	46	0.53	1.08	-1.00	[-1.69; -0.32]	2.8%
Vrijlandt 2006	42	82.20	8.20	48	87.40	6.60	-0.70	[-1.12; -0.27]	3.6%
Winck 2016	48	-0.38	1.13	45	-0.23	0.95	-0.14	[-0.55; 0.27]	3.7%
Yang 2020	224	-1.21	1.13	100	0.65	1.01	-1.70	[-1.97; -1.43]	4.0%
Random effects model	**2230**			**7855**			**-0.58**	**[-0.79; -0.37]**	**100.0%**
Prediction interval								**[-1.59; 0.43]**	

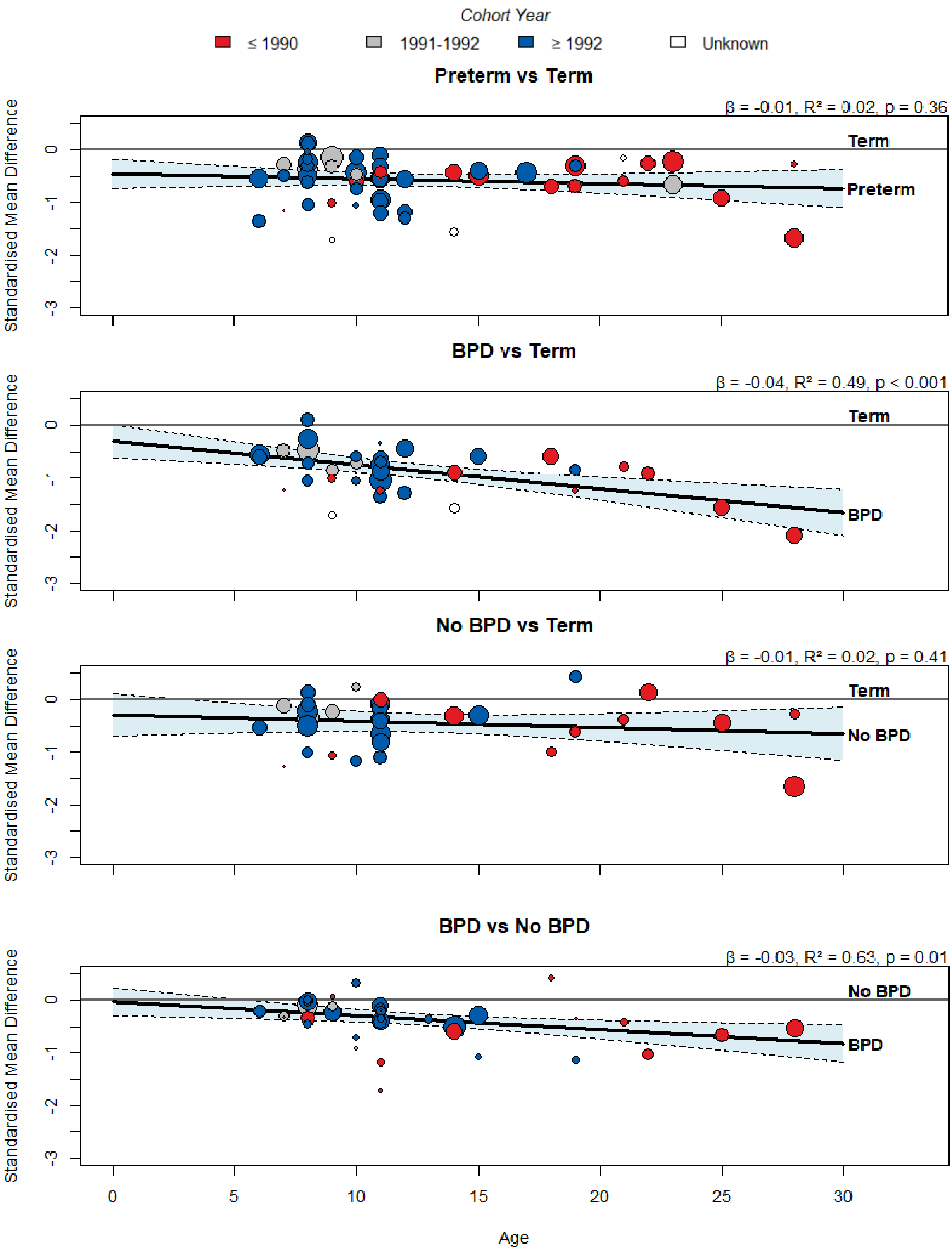
Heterogeneity: $I^2 = 84\%$, $\tau^2 = 0.2328$, $p < 0.01$



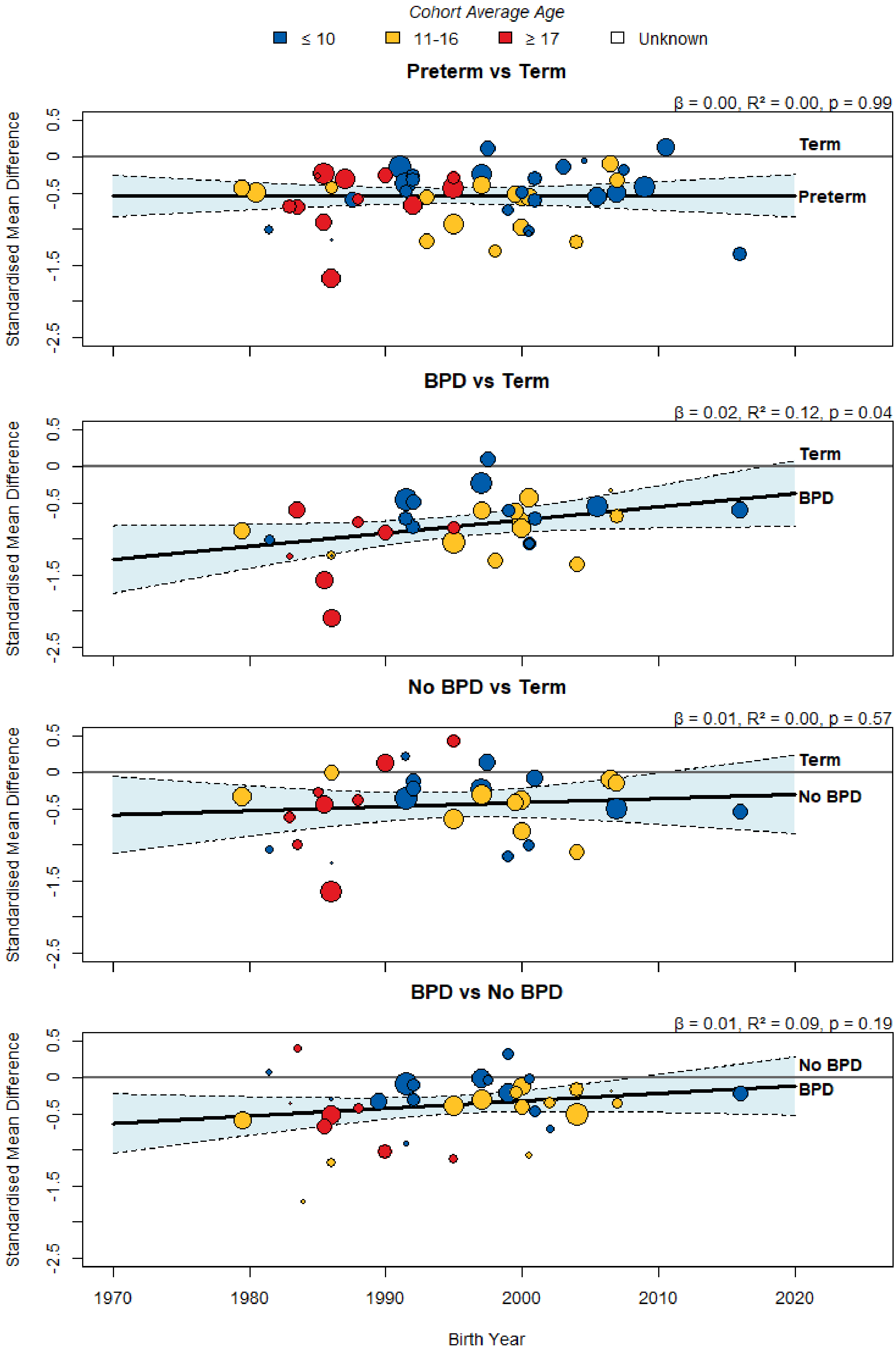
Study	>32 weeks Total	Mean	SD	Term Total	Mean	SD	SMD	95%-CI	Weight
Kaczmarczyk 2017	12	-0.39	1.02	27	-0.14	0.82	-0.28	[-0.96; 0.41]	4.3%
Kotecha 2012	317	-0.07	0.99	6144	0.01	1.00	-0.08	[-0.19; 0.03]	23.5%
Kung 2021	8	91.60	5.00	157	91.90	5.90	-0.05	[-0.76; 0.66]	4.0%
Landry 2016	26	79.00	7.00	35	79.00	7.00	0.00	[-0.51; 0.51]	6.9%
Morata-Alba 2019	116	108.40	8.30	116	112.30	6.70	-0.52	[-0.78; -0.25]	15.2%
Nasanen-Gilmore 2018	239	-0.38	0.99	341	-0.23	0.84	-0.17	[-0.33; 0.00]	20.5%
Thunqvist 2016	106	82.67	5.75	1686	85.59	6.66	-0.44	[-0.64; -0.24]	18.7%
Yaacoby-Bianu 2019	29	91.00	6.00	30	92.00	5.00	-0.18	[-0.69; 0.33]	6.8%
Random effects model	**853**			**8536**			**-0.24**	**[-0.40; -0.08]**	**100.0%**
Prediction interval								**[-0.66; 0.18]**	

Heterogeneity: $I^2 = 58\%$, $\tau^2 = 0.0231$, $p = 0.02$

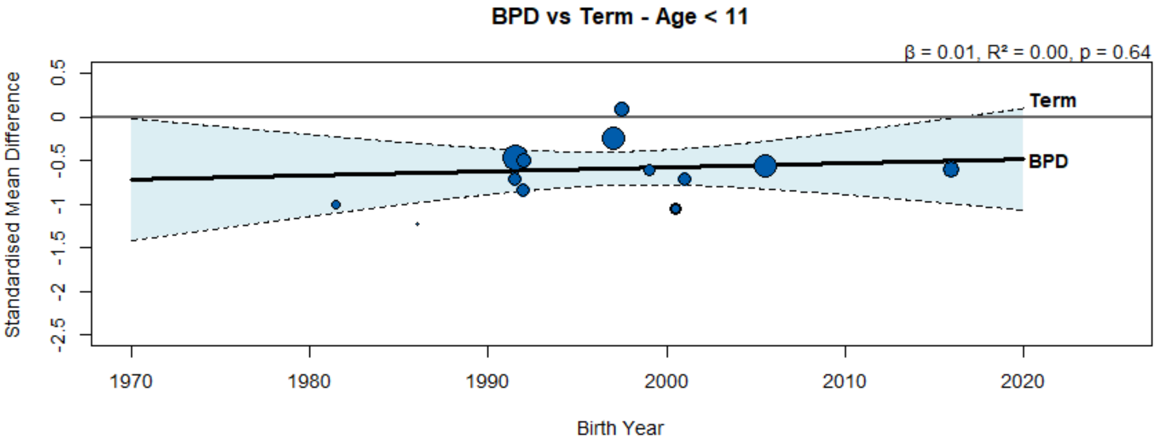
Supplementary Figure 5 – Meta-regression analysis of FEV_1/FVC vs age

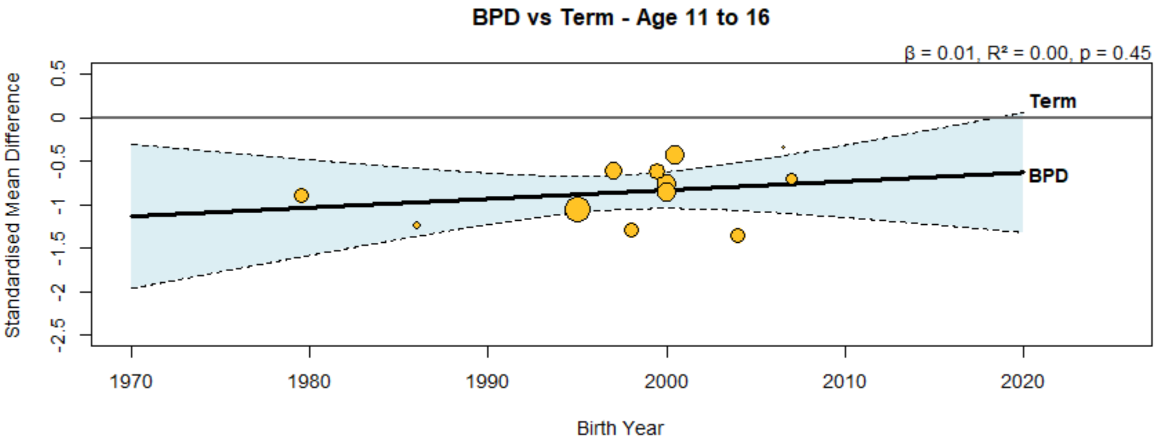


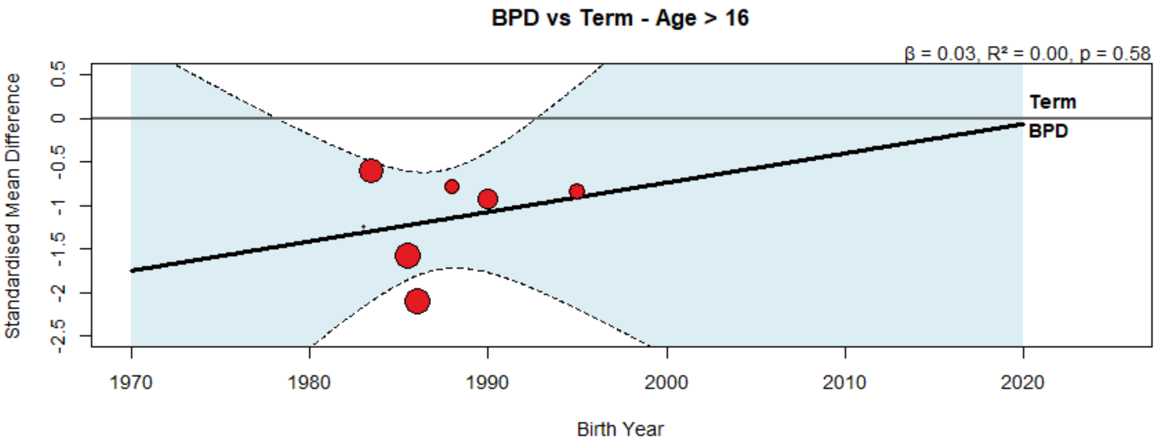
Supplementary Figure 6 – Meta-regression analysis of FEV_1/FVC vs year of birth



Supplementary Figure 7 – Age banded meta-regression analysis of FEV_1/FVC BPD vs Term







Supplementary Table 1

	Country	Participant Age (Rounded)	Birth Year	BPD Definition	Quality (/20)
Abreu 2007 [1]	Brazil	8	1993 - 1996	1) Positive pressure ventilation during the first week of life for at least three days 2) Clinical signs of chronic respiratory disease - tachypnea, respiratory discomfort 3) Oxygen supplement necessity for over 28 days in order to keep an oxygen arterial pressure over 50 mmHg or pulse oxymetry over 90% 4) Trunk radiographies abnormalities, showing persistent grooves in both lungs, alternating with radio-luminescence areas; these formations may coalesce, giving it a bubble aspect.	14
Anand 2003 [2]	United Kingdom	15	1980 - 1981	Not defined	16
Arigliani 2020 [3]	Italy	11	2004 - 2010	Supplemental oxygen at 36 weeks postmenstrual age	16
Bader 1987 [4]	USA	10	1973 - 1973	Radiologic findings (hyperinflation or multiple cystic areas) compatible with diagnosis of BPD as described by Northway.	12
Baraldi 2005 [5]	Italy	9	1990 - 1994	BPD was defined as clinical signs of respiratory distress, chest radiograph abnormalities, and oxygen dependence at 28 days of life	11
Barker 2003 [6]	Germany	10	1983 - 1989	Neonatal chest X-rays were reviewed by an experienced pediatric radiologist for characteristic features of BPD. Regardless of their length of oxygen requirement, all subjects with a history of mechanical ventilation were assigned to groups BPD+ or BPD- according to radiologic criteria at one month of age. Non-ventilated preterm children were included in BPD-.	16
Bertrand 1985 [7]	Canada	10	Unknown	Not defined	14
Bozzetto 2016 [8]	Italy	14	Unknown	Need for at least 28 days supplemental oxygen	12

Brostrom 2010 [9]	Sweden	7	1992 - 1997	Based on need for supplementary oxygen at 28 days, severity of BPD determined at 36 weeks gestational age.	8
Bui 2022 [10]	Australia	53	1961 - 1961	Not defined	Unable to score
Burns 2009 [11]	Australia	12	1992 - 1994	Not defined	16
Cazzato 2013 [12]	Italy	8	1996 - 1999	Supplemental oxygen at 36 weeks postmenstrual age	18
Chang 2020 [13]	Taiwan	6	2015 - 2017	Defined according to the National Heart, Lung, and Blood Institute workshop criteria [14]	15
Choukroun 2013 [15]	France	9	1997 - 2001	Defined according to the National Institute of Child Health and Human Development consensus definition [14]	15
de Kleine 1990 [16]	The Netherlands	13	1967 - 1977	BPD diagnosed on the basis of dependence of oxygen therapy for more than 28 days after intermittent positive pressure ventilation hyaline membrane disease	18
Debevec 2019 [17]	Slovenia	21	Unknown	Not defined (BPD not referenced)	13
Devakumar 2015 [18]	Nepal	8	2002 - 2004	Not defined	19
Di Filippo 2021 [19]	Italy	11	2006 - 2007	The diagnosis of BPD was based on the oxygen need for 28 days and additional oxygen or ventilation requirements at 36 weeks' postmenstrual age.	17
Doyle 2017 [20] (1997 cohort)	Australia	8	1997 - 1997	Not defined	16
Doyle 2001 [21] (1977-1982 cohort)	Australia	14	1977 - 1982	Oxygen requirement at 28 days of age	19
Doyle 2006 [22] (1991-1992 cohort)	Australia	8	1991 - 1992	BPD was defined as clinical signs of respiratory distress with an oxygen requirement at 36 weeks of postmenstrual age	17
Durlak 2021 [23]	Poland	7	2008 - 2010	Supplemental oxygen at 36 weeks postmenstrual age	14

Evensen 2009 [24]	Norway	18	1986 - 1988	Oxygen requirement >28 days, and days on respirator in the neonatal period.	19
Fawke 2010 [25]	United Kingdom	11	1995 - 1995	Supplemental oxygen at 36 weeks postmenstrual age	16
Flahault 2020 [26]	Canada	23	1987 - 1997	Supplemental oxygen at 36 weeks postmenstrual age	12
Fortuna 2016 [27]	Italy	8	1999 - 2002	Supplemental oxygen at 36 weeks postmenstrual age	14
Gaffin 2020 [28]	USA	8	2008 - 2013	Not defined (No BPD group)	10
Galdes-Sebaldt 1989 [29]	USA	11	1973 - 1977	The diagnosis of HMD was made according to the following criteria: 1) evidence of respiratory distress in the first hours of life, 2) deteriorating respiratory status and increasing oxygen dependence until 48 to 72 hours of life, 3) supplemental oxygen requirements above an inspired fractional concentration of 40%, 4) a bilateral reticulogranular pattern on chest radiograph, and 5) the absence of clinical or laboratory evidence of bacterial infection	11
Giacoia 1997 [30]	USA	12	1978 - 1986	Diagnosis of BPD (defined as need for supplemental oxygen, ventilator dependency, or both, at or beyond 36 weeks of postconceptional age and diagnostic clinical and radiologic findings on chest radiographs) in premature infants with previous positive-pressure ventilation	12
Goncalves 2016 [31]	Brazil	10	2000 - 2004	The diagnosis of BPD was established in infants who, after 28 days of life, had respiratory failure and depended on oxy- gen at over 21% concentration to maintain partial pressure of oxygen >50mmHg.	13
Gough 2013 [32]	United Kingdom	25	1978 - 1993	The requirement for supplemental oxygen at 28 post-natal days and radiographic changes and severity (mild, moderate or severe) according to oxygen requirements at 36 weeks post-menstrual age	16
Gross 1998 [33]	USA	7	1985 - 1986	Supplemental oxygen at 28 days	19

Guimaraes 2011 [34]	Portugal	7	2002 - 2004	Supplemental oxygen at 36 weeks postmenstrual age	8
Hadchouel 2018 [35]	France	15	1997 - 1997	The need for supplemental oxygen and/or ventilatory support at 36 weeks of postmenstrual age	16
Hagman 2021 [36]	Sweden	13	2001 - 2003	Supplemental oxygen at 36 weeks postmenstrual age	12
Hakulinen 1996 [37]	Finland	9	1978 - 1985	BPD was diagnosed according to 1) a requirement for intermittent positive-pressure ventilation during the first week of life, and for a minimum of 3 days 2) clinical signs of chronic respiratory disease persisting for more than 28 days 3) a requirement for supplementary oxygen beyond age 1 month 4) chronic changes in the chest x-ray at age 1 month.	13
Halvorsen 2005 [38] (1982-1985 cohort)	Norway	18	1982 - 1985	Mild or moderate/severe BPD if requiring supplemental oxygen at a post-natal age ≥ 28 days or a post-menstrual age (PMA) ≥36 weeks, respectively	15
Halvorsen 2005 [38] (1991-2 Cohort)	Norway	10	1991 - 1992	Not defined	15
Hamon 2013 [39]	France	7	1999 - 2001	Supplemental oxygen at 36 weeks postmenstrual age	13
Hart 2021 [40]	United Kingdom	10	2005 - 2013	Diagnosis of BPD was based on oxygen requirement at 28 days of age or at 36 weeks post-conceptual age.	18
Hirata 2015 [41]	Japan	8	1990 - 2004	Defined according to the National Institute of Child Health and Human Development consensus definition [14]	17
Jacob 1998 [42]	Canada	11	1981 - 1987	Supplemental oxygen at 36 weeks postmenstrual age	15
Joshi 2013 [43]	United Kingdom	10	Unknown	CLD was diagnosed pragmatically and would have been classified as moderate to severe using the National Institutes of Health's definition of BPD [14].	15

Kaczmarczyk 2017 [44]	Poland	28	1983 - 1987	The need for oxygen or respiratory support at 28 days after birth	12
Kaplan 2012 [45]	Israel	10	1997 - 2001	Defined according to the National Institute of Child Health and Human Development consensus definition [14]	12
Karila 2008 [46]	France	10	2000 - 2001	Supplemental oxygen at 28 days	7
Karnaushkina 2017 [47]	Not stated, authors from Russia	21		Not defined (No BPD group)	7
Kennedy 2000 [48]	Australia	11	1981 - 1982	Not defined (No BPD group)	15
Kilbride 2012 [49]	not stated, authors from USA	13	1993 - 1995	Not defined (No BPD group)	7
Kilbride 2003 [50]	USA	11	1983 - 1989	Need for supplemental oxygen at 28 days of life	14
Konefal 2013 [51]	Poland	10	1995 - 1999	Requiring supplemental oxygen beyond 36 weeks postmenstrual age or discharge home to maintain oxygen saturation in the 88-95% range by pulse oximetry measurement	14
Korhonen 2004 [52]	Finland	7	1990 - 1994	Criteria for BPD diagnosis at 28 days postnatal age (BPD) and 36 week corrected gestational age (severe BPD) were the requirement of supplemental oxygen and chest X-ray findings typical of BPD, interpreted by a paediatric radiologist.	16
Kotecha 2012 [43]	United Kingdom	9	1990 - 1992	Not defined (No BPD group)	15

Kulasekaran 2007 [53]	Australia	8	1989 - 1990	An infant who had radiological changes of chronic lung disease of prematurity and had a requirement for supplemental oxygen at 36 weeks PMA	14
Kung 2021 [54]	Taiwan	8	2004 - 2005	Not defined (No BPD group)	14
Kwinta 2013 [55]	Poland	7	2002 - 2004	Defined as at least 28 days of oxygen therapy, moderate and severe BPD defined as oxygen therapy at 36 weeks post menstrual age	15
Landry 2016 [56]	Canada	22	1987 - 1993	Definition based on hospital coding for BPD, which was based on ICD-9 diagnostic code (770.7)	12
MacLean 2016 [57]	Canada	12	1997 - 2004	Defined according to the National Institute of Child Health and Human Development consensus definition [14]	15
Mai 2003 [58]	Sweden	12	1987 - 1988	Not defined	11
Mieskonen 2002 [59]	Finland	8	1989 - 1991	Supplemental oxygen at 36 weeks postmenstrual age	13
Mitchell 1998 [60]	USA	7	1985 - 1987	The BPD survivors subgroup included children with a history of neonatal respiratory distress, exposure to mechanical ventilation, radiographic features of BPD (1), and dependence on supplemental oxygen at 4 wk of postnatal age or older.	11
Molgat-Seon 2019 [61]	Canada	21	1979 - 1997	Bronchopulmonary dysplasia was considered present if the infant received oxygen therapy of >21% oxygen for ≥ 28 days after birth. Severity of bronchopulmonary dysplasia was determined based on the percent of oxygen breathed at 36 weeks postmenstrual age (if born ≥ 32 weeks gestational age) or at 56 days postnatal age (if born ≥ 32 weeks gestational age) or at discharge, whichever occurred first	13
Morata-Alba 2019 [62]	Spain	8	2006 - 2008	Not defined (No BPD group)	16
Morris 2018 [63]	United Kingdom	17	Unknown	Not defined	7

Morsing 2011 [64]	Sweden	8	1998 - 2004	Need for supplemental oxygen requirement (FiO2 > 0.30) at 36 weeks' gestation	19
Narayanan 2013 [65]	United Kingdom	12	Unknown	Chronic lung disease: GA <32 weeks and oxygen dependent beyond 4 weeks	11
Nasanen-Gilmore 2018 [66]	Finland	23	1985 - 1986	By paediatrician's diagnosis, or defined according to the National Institute of Child Health and Human Development consensus definition [14]	17
Northway 1990 [67]	USA	18	1964 - 1973	Chest radiograph consistent with bronchopulmonary dysplasia	12
Odberg 2010 [68]	Norway	19	1986 - 1988	Not defined (No BPD group)	12
Palta 2007 [69]	USA	10	1988 - 1991	BPD was defined as use of supplemental oxygen at 36 weeks postmenstrual age (PMA)	15
Panagiotounakou 2019 [70]	Greece	8	2007 - 2009	Defined according to the National Institute of Child Health and Human Development consensus definition [14]	13
Perez-Tarazona 2021 [71]	Spain	14	2003 - 2005	The accepted definitions of BPD used by each center at the time of diagnosis were as follows: (1) Supplementary oxygen requirements for ≥ 28 days, regardless of the situation at 36 weeks post-menstrual age. (2) National Heart, Lung and Blood Institution Workshop definition: (3) Requirement for supplemental oxygen at 36 weeks post-menstrual age.	13
Pianosi 2000 [72]	Canada	8	1986 - 1987	BPD was defined as a need for supplemental oxygen on the 28th postnatal day, for more than 21/28 of the first days of life, and compatible chest radiograph abnormalities at 28 post-natal days.	11
Praprotnik 2015 [73]	Slovenia	8	2000 - 2002	The use of supplemental oxygen at 36 weeks of postmenstrual age	14
Prenzel 2020 [74]	Germany	12	1994 - 2002	Defined according to the National Institute of Child Health and Human Development consensus definition [14]	14

Ronkainen 2015 [75]	Finland	11	1997 - 2003	BPD was defined as oxygen dependence for ≥ 28 days and it was severity-graded by oxygen requirement at 36 weeks postmenstrual age	15
Ruf 2019 [76]	Germany	10	1997 - 2001	Defined according to the National Institute of Child Health and Human Development consensus definition [14]	14
Santuz 1995 [77]	Italy	8	1981 - 1987	Defined according to the National Institute of Child Health and Human Development consensus definition [14]	11
Siltanen 2004 [78]	Finland	10	1987 - 1988	The diagnosis of chronic lung disease (CLD) was not used at that time, but a need for oxygen supplementation at 36 postconceptional weeks was recorded, referring to CLD.	12
Simpson 2017 [79]	Australia	11	1997 - 2003	Defined according to the National Institute of Child Health and Human Development consensus definition [14]	17
Smith 2008 [80]	Australia	11	1992 - 1994	Not defined	14
Sorensen 2018 [81]	Denmark	11	2002 - 2006	Defined according to the National Institute of Child Health and Human Development consensus definition [14]	16
Teig 2012 [82]	Germany	11	1988 - 1991	Defined according to the National Institute of Child Health and Human Development consensus definition [14]	15
Thunqvist 2018 [83]	Sweden	6	2004 - 2007	Defined according to the National Institute of Child Health and Human Development consensus definition [14]	16
Thunqvist 2016 [84]	Sweden	16	1994 - 1996	Not defined (No BPD group)	15
Turner 2011 [85]	United Kingdom	5	1997 – 1999	Not defined (No BPD group)	Unable to score
Um-Bergstrom 2018 [86]	Sweden	19	1992 - 1998	Defined according to the National Institute of Child Health and Human Development consensus definition [14]	15
Vanhaverbeke 2021 [87]	Belgium	15	1999 - 2002	Defined according to the National Institute of Child Health and Human Development consensus definition [14]	15

Vardar-Yagli 2015 [88]	Turkey	9	Unknown	The need for oxygen supplementation for at least 28 days and chronic changes on chest radiography (Bhandari 2011)	7
Vollsaeter 2015 [89] (1999-2000 cohort)	Norway	11	1999 - 2000	Defined according to the National Institute of Child Health and Human Development consensus definition [14]	17
Vollsaeter 2013 [90] (1991-1992 cohort)	Norway	10	1991 - 1992	A diagnosis of BPD was assigned if supplemental oxygen was required at 28 postnatal days (mild BPD) or postmenstrual age ‚â•36 weeks (moderate/severe BPD) [14]	16
Vollsaeter 2013 [90] (1982-1985 cohort)	Norway	18	1982 - 1985	Not defined (No BPD group)	17
von Mutius 1993 [91]	Germany	10	1989 - 1990	Not defined.	12
Vrijlandt 2018 [92]	The Netherlands	14	2002 - 2003	Not defined (No BPD group)	14
Vrijlandt 2006 [93]	The Netherlands	19	1983 - 1983	Bronchopulmonary dysplasia (BPD) was identified by the need for oxygen for more than 28 days and by chronic changes on the chest X-ray.	14
Wheeler 1984 [94]		7	Unknown	Not defined	7
Winck 2016 [95]	Brazil	10	2001 - 2005	Not defined (No BPD group)	15
Yaacoby-Bianu 2019 [96]	Israel	8	2005 - 2010	Not defined (No BPD group)	12
Yang 2020 [97]	New Zealand	28	1986 - 1986	Supplemental oxygen at 36 weeks postmenstrual age	17

Supplementary Table 2

	FEV1	FVC	FEV1/FVC	FEF 25-75
Abreu 2007 [1]	% Predicted - n, mean (SD) All Preterm: 23, 99.43 (12.61) -BPD: 13, 99 (12) -No BPD: 10, 100 (14) Term: 17, 102 (15)			
Anand 2003 [2]	% Predicted - n, mean (SD) All Preterm: 128, 94.9 (13.8) Term: 128, 96.5 (10.8)	% Predicted - n, mean (SD) All Preterm: 128, 109.5 (14.6) Term: 128, 106 (12.2)	% - n, mean (SD) All Preterm: 128, 87 (9.04) Term: 128, 90.8 (6.4)	% Predicted - n, mean (SD) All Preterm: 128, 88.1 (25.6) Term: 128, 100.5 (20)
Arigliani 2020 [3]	Z-score - n, mean (SD) All Preterm: 47, -0.41 (1.13) -BPD: 17, -1.18 (0.85) -No BPD: 30, 0.02 (1.05) Term: 60, 0.26 (0.83)	Z-score - n, mean (SD) All Preterm: 47, -0.31 (1) -BPD: 17, -0.98 (0.71) -No BPD: 30, 0.07 (0.95) Term: 60, 0.16 (0.76)	Z-score - n, mean (SD) All Preterm: 47, -0.18 (1.05) -BPD: 17, -0.41 (0.92) -No BPD: 30, -0.04 (1.11) Term: 60, 0.09 (0.64)	
Bader 1987 [4]	% Predicted - n, mean (SD) All Preterm: 10, 73 (19) -BPD: 10, 73 (19) Term: 8, 93 (12.6)			% Predicted - n, mean (SD) All Preterm: 10, 55 (28.4) -BPD: 10, 55 (28.4) Term: 8, 55 (28.4)
Baraldi 2005 [5]	% Predicted - n, mean (SD) All Preterm: 62, 84.05 (15.49) -BPD: 31, 77.8 (12.81) -No BPD: 31, 90.3 (15.59) Term: 31, 100.1 (12.81)	% Predicted - n, mean (SD) All Preterm: 62, 91.05 (14) -BPD: 31, 85.9 (13.92) -No BPD: 31, 96.2 (12.25) Term: 31, 101.7 (13.92)	% - n, mean (SD) All Preterm: 62, 83.05 (23.25) -BPD: 31, 81.8 (11.14) -No BPD: 31, 84.3 (31.18) Term: 31, 89.4 (5.57)	% Predicted - n, mean (SD) All Preterm: 62, 73.45 (28.54) -BPD: 31, 63.9 (22.27) -No BPD: 31, 83 (31.18) Term: 31, 110.9 (28.4)

Barker 2003 [6]	% Predicted - n, mean (SD) All Preterm: 26, 95.5 (15.28) -BPD: 13, 90 (14) -No BPD: 13, 101 (15) Term: 13, 106 (11)	% Predicted - n, mean (SD) All Preterm: 26, 87.5 (13.57) -BPD: 13, 83 (12) -No BPD: 13, 92 (14) Term: 13, 97 (6)		
Bertrand 1985 [7]	% Predicted - n, mean (SD) All Preterm: 22, 76 (13.74) Term: 22, 84 (10.46)			
Bozzetto 2016 [8]	Z-score - n, mean (SD) All Preterm: 27, -2 (1.4) -BPD: 27, -2 (1.4) Term: 27, 0.69 (0.9)	Z-score - n, mean (SD) All Preterm: 27, -1.29 (1.23) -BPD: 27, -1.29 (1.23) Term: 27, 0.33 (1.07)	Z-score - n, mean (SD) All Preterm: 27, -1.35 (1.4) -BPD: 27, -1.35 (1.4) Term: 27, 0.6 (1)	Z-score - n, mean (SD) All Preterm: 27, -2.12 (1.45) -BPD: 27, -2.12 (1.45) Term: 27, 0.66 (0.96)
Brostrom 2010 [9]	% Predicted - n, mean (SD) All Preterm: 60, 85.94 (13.13) -BPD: 32, 78.18 (11.19) -No BPD: 28, 94.81 (8.95)	% Predicted - n, mean (SD) All Preterm: 60, 91.16 (14.49) -BPD: 32, 83.98 (12.07) -No BPD: 28, 99.36 (12.68)	% - n, mean (SD) All Preterm: 4, 77.76 (8.58) -BPD: 4, 77.76 (8.58)	L - n, mean (SD) All Preterm: 60, 77.39 (25) -BPD: 32, 65.77 (23.57) -No BPD: 28, 90.65 (19.63)
Burns 2009 [11]	% Predicted - n, mean (SD) All Preterm: 53, 88.98 (13.47) Term: 51, 97.73 (10.89)	% Predicted - n, mean (SD) All Preterm: 53, 96.96 (12.48) Term: 51, 98.88 (11.02)	% Predicted - n, mean (SD) All Preterm: 53, 93.26 (7.84) Term: 51, 101.55 (6.05)	
Bui 2022 [10]	Z-score - n, mean (SD) All preterm: 218, -0.16 (1.1) Term: 1227, -0.05 (2.6)		% - n, mean (SD) All preterm: 218, 0.76 (0.07) Term: 1227, 0.77 (0.06)	

Cazzato 2013 [12]	Z-score - n, mean (SD) All Preterm: 48, -1.13 (1.13) -BPD: 22, -1.37 (0.77) -No BPD: 26, -0.93 (1.33) Term: 46, 0.18 (0.89)	Z-score - n, mean (SD) All Preterm: 48, -1.24 (1.14) -BPD: 22, -1.46 (0.93) -No BPD: 26, -1.06 (1.26) Term: 46, 0.11 (1.08)	Z-score - n, mean (SD) All Preterm: 48, 0.15 (1.14) -BPD: 22, 0.12 (1.23) -No BPD: 26, 0.16 (1.07) Term: 46, 0.03 (0.78)	Z-score - n, mean (SD) All Preterm: 48, -0.72 (1.2) -BPD: 22, -0.97 (1.05) -No BPD: 26, -0.53 (1.29) Term: 46, 0.15 (0.8)
Chang 2020 [13]	Z-score - n, mean (SD) All Preterm: 85, -0.73 (1.12) -BPD: 55, -0.96 (1.08) -No BPD: 30, -0.31 (1.1) Term: 29, 0.04 (1.18)	Z-score - n, mean (SD) All Preterm: 85, -0.6 (1.2) -BPD: 55, -0.78 (1.23) -No BPD: 30, -0.29 (1.1) Term: 29, -0.12 (1.14)	Z-score - n, mean (SD) All Preterm: 85, -0.22 (0.16) -BPD: 55, -0.32 (1.29) -No BPD: 30, -0.07 (0.84) Term: 29, 0.39 (0.85)	Z-score - n, mean (SD) All Preterm: 85, -0.93 (1.14) -BPD: 55, -1.18 (1.14) -No BPD: 30, -0.46 (1.01) Term: 29, 0 (1.23)
Choukroun 2013 [15]	% Predicted - n, mean (SD) All Preterm: 151, 96.9 (13.4) -BPD: 55, 94.91 (13.88) -No BPD: 96, 98.1 (13)	% Predicted - n, mean (SD) All Preterm: 151, 93.9 (13.3) -BPD: 55, 92.73 (14.24) -No BPD: 96, 94.6 (12.7)	% Predicted - n, mean (SD) All Preterm: 151, 98.6 (8) -BPD: 55, 97.51 (10.06) -No BPD: 96, 99.3 (6.7)	% Predicted - n, mean (SD) All Preterm: 151, 82.8 (19.8) -BPD: 55, 81.35 (20.95) -No BPD: 96, 83.7 (19.2)
de Kleine 1990 [16]	% Predicted - n, mean (SD) All Preterm: 76, 87.83 (17.32) -BPD: 11, 73 (17) -No BPD: 65, 90.34 (16.2) Term: 39, 95 (12)			
Debevec 2019 [17]	L - n, mean (SD) All Preterm: 21, 4.3 (0.6) Term: 14, 4.7 (0.8)	L - n, mean (SD) All Preterm: 21, 5.1 (0.6) Term: 14, 5.5 (0.8)	% - n, mean (SD) All Preterm: 21, 85 (6) Term: 14, 86 (7)	
Devakumar 2015 [18]	Z-score - n, mean (SD) All Preterm: 48, -1.22 (0.84) Term: 697, -1.12 (0.79)	Z-score - n, mean (SD) All Preterm: 48, -1.15 (0.83) Term: 697, -1.04 (0.81)		Z-score - n, mean (SD) All Preterm: 48, -0.59 (0.82) Term: 697, -0.46 (0.99)

Di Filippo 2021 [19]	Z-score - n, mean (SD) All Preterm: 55, 0.5 (1.3) -BPD: 5, 0.1 (1.1) -No BPD: 50, 0.6 (1.3) Term: 55, 0.7 (0.9)	Z-score - n, mean (SD) All Preterm: 55, 0.2 (1.2) -BPD: 5, -0.1 (1.1) -No BPD: 50, 0.2 (1.2) Term: 55, 0.2 (0.6)	Z-score - n, mean (SD) All Preterm: 55, 0.6 (1) -BPD: 5, 0.4 (0.6) -No BPD: 50, 0.6 (1.1) Term: 55, 0.7 (0.9)	Z-score - n, mean (SD) All Preterm: 55, 0.3 (0.9) -BPD: 5, -0.1 (0.5) -No BPD: 50, 0.3 (0.9) Term: 55, 0.5 (0.7)
Doyle 2017 [98] (1997 cohort)	Z-score - n, mean (SD) All Preterm: 150, -0.72 (1.2) -BPD: 56, -1.19 (1.25) -No BPD: 94, -0.43 (1.09) Term: 149, 0.19 (1.22)	Z-score - n, mean (SD) All Preterm: 150, -0.52 (1.18) -BPD: 56, -1.02 (1.26) -No BPD: 94, -0.23 (1.02) Term: 149, 0.12 (1.17)	Z-score - n, mean (SD) All Preterm: 150, -0.29 (1.29) -BPD: 56, -0.31 (1.39) -No BPD: 94, -0.29 (1.24) Term: 149, 0.01 (1.27)	Z-score - n, mean (SD) All Preterm: 150, -1.34 (1.09) -BPD: 56, -1.7 (1.11) -No BPD: 94, -1.12 (1.03) Term: 149, -0.38 (1.12)
Doyle 2001 [21] (1977-1982 cohort)	% Predicted - n, mean (SD) All Preterm: 169, 94.81 (14.45) -BPD: 39, 88.5 (18.2) -No BPD: 130, 96.7 (12.6) Term: 39, 104.6 (13.2)	% Predicted - n, mean (SD) All Preterm: 169, 100.66 (12.62) -BPD: 39, 98.2 (14.4) -No BPD: 130, 101.4 (12) Term: 39, 104.8 (12)	% - n, mean (SD) All Preterm: 169, 82.91 (9.64) -BPD: 39, 78.6 (11.1) -No BPD: 130, 84.2 (8.8) Term: 39, 87 (7)	
Doyle 2006 [22] (1991-1992 cohort)	% Predicted - n, mean (SD) All Preterm: 480, 84.89 (12.67) -BPD: 89, 81.1 (13.7) -No BPD: 151, 87.1 (11.5) Term: 208, 97.9 (11.8)	% Predicted - n, mean (SD) All Preterm: 480, 86.1 (14.07) -BPD: 89, 82.9 (15.4) -No BPD: 151, 88 (12.9) Term: 208, 95.2 (12.6)	% Predicted - n, mean (SD) All Preterm: 480, 88.4 (9.16) -BPD: 89, 87.9 (9.4) -No BPD: 151, 88.7 (9) Term: 208, 91.4 (6.6)	% Predicted - n, mean (SD) All Preterm: 480, 65.16 (21.69) -BPD: 89, 60.4 (20.3) -No BPD: 151, 67.9 (22.1) Term: 208, 85.6 (20.2)
Durlak 2021[23]	Z-score - n, mean (SD) All Preterm: 28, -0.55 (1.27) -BPD: 6, -1.15 (1.12) -No BPD: 22, -0.39 (1.28) Term: 30, -0.06 (0.85)	Z-score - n, mean (SD) All Preterm: 19, -0.07 (1.39) -BPD: 4, -0.63 (0.95) -No BPD: 15, 0.08 (1.47) Term: 30, -0.11 (0.87)		

Evensen 2009 [24]	% Predicted - n, mean (SD) All Preterm: 37, 85.2 (10.95) Term: 63, 98.1 (11.11)			
Fawke 2010 [25]	Z-score - n, mean (SD) All Preterm: 182, -1.4 (1.2) -BPD: 129, -1.7 (1.1) -No BPD: 53, -0.8 (1.3) Term: 161, 0 (1)	Z-score - n, mean (SD) All Preterm: 182, -0.7 (1.2) -BPD: 129, -0.8 (1.2) -No BPD: 53, -0.3 (1.2) Term: 161, 0.1 (1.1)	Z-score - n, mean (SD) All Preterm: 182, -1.3 (1.3) -BPD: 129, -1.4 (1.3) -No BPD: 53, -0.9 (1.3) Term: 161, -0.2 (1)	% Predicted - n, mean (SD) All Preterm: 182, -2 (1.3) -BPD: 129, -2.2 (1.2) -No BPD: 53, -1.5 (1.4) Term: 161, -0.5 (1.1)
Flahault 2020 [26]	Z-score - n, mean (SD) All Preterm: 101, -0.83 (1.02) Term: 105, -0.02 (0.89)	Z-score - n, mean (SD) All Preterm: 101, -0.09 (0.99) Term: 105, 0.22 (0.92)	Z-score - n, mean (SD) All Preterm: 101, -1.08 (1.27) Term: 105, -0.35 (0.87)	
Fortuna 2016 [27]	Z-score - n, mean (SD) All Preterm: 48, -0.94 (1.04) -BPD: 28, -1.27 (1.07) -No BPD: 20, -0.47 (0.82) Term: 27, 0.5 (0.8)	Z-score - n, mean (SD) All Preterm: 48, -0.72 (1.01) -BPD: 28, -1.03 (1.08) -No BPD: 20, -0.28 (0.73) Term: 27, 0.18 (0.93)	Z-score - n, mean (SD) All Preterm: 48, -0.4 (0.97) -BPD: 28, -0.4 (0.95) -No BPD: 20, -0.39 (1.02) Term: 27, 0.57 (0.85)	Z-score - n, mean (SD) All Preterm: 48, -0.85 (1) -BPD: 28, -1.17 (0.9) -No BPD: 20, -0.41 (0.99) Term: 27, 0.46 (0.78)
Gaffin 2020 [28]	% Predicted - n, mean (SD) All Preterm: 47, 98.5 (17.3) Term: 250, 102.1 (18.5)	% Predicted - n, mean (SD) All Preterm: 47, 95.3 (18.1) Term: 250, 101.5 (17)	% - n, mean (SD) All Preterm: 47, 88 (7) Term: 250, 87 (7)	
Galdes-Sebaldt 1989 [29]	% Predicted - n, mean (SD) All Preterm: 30, 82.37 (7.91) Term: 27, 92 (5.2)			% Predicted - n, mean (SD) All Preterm: 30, 84.98 (19.75) Term: 27, 104 (15.59)

Giacoia 1997 [30]	% Predicted - n, mean (SD) All Preterm: 24, 79.3 (9.07) -BPD: 12, 72.7 (6.1) -No BPD: 12, 85.9 (6.3) Term: 12, 97.2 (4.6)			% Predicted - n, mean (SD) All Preterm: 24, 57.88 (11.89) -BPD: 12, 49.5 (6) -No BPD: 12, 66.27 (10.3) Term: 12, 88.5 (7.1)
Gonçalves 2016 [31]	Z-score - n, mean (SD) All Preterm: 43, -0.29 (1.12) -BPD: 12, -0.42 (1.52) -No BPD: 31, -0.24 (0.96)	Z-score - n, mean (SD) All Preterm: 43, -0.17 (0.96) -BPD: 12, -0.03 (1.39) -No BPD: 31, -0.23 (0.76)	Z-score - n, mean (SD) All Preterm: 43, -0.23 (0.95) -BPD: 12, -0.72 (0.8) -No BPD: 31, -0.05 (0.96)	Z-score - n, mean (SD) All Preterm: 43, -0.63 (1.07) -BPD: 12, -0.99 (1.1) -No BPD: 31, -0.49 (1.04)
Gough 2013 [32]	Z-score - n, mean (SD) All Preterm: 96, -0.9 (1.35) -BPD: 56, -1.41 (1.25) -No BPD: 40, -0.19 (1.16) Term: 55, 0.14 (0.96)	Z-score - n, mean (SD) All Preterm: 96, -0.39 (1.17) -BPD: 56, -0.79 (1.14) -No BPD: 40, 0.17 (0.98) Term: 55, 0.12 (0.94)	Z-score - n, mean (SD) All Preterm: 96, -0.45 (0.84) -BPD: 56, -0.68 (0.22) -No BPD: 40, -0.13 (1.22) Term: 55, 0.34 (0.89)	Z-score - n, mean (SD) All Preterm: 96, -1.52 (1.11) -BPD: 56, -1.8 (1.1) -No BPD: 40, -1.13 (1.02) Term: 55, -0.56 (1.45)
Gross 1998 [33]	% Predicted - n, mean (SD) All Preterm: 96, 91.28 (19.01) -BPD: 43, 83 (17) -No BPD: 53, 98 (18) Term: 108, 97 (12)	% Predicted - n, mean (SD) All Preterm: 96, 99.07 (16.33) -BPD: 43, 93 (16) -No BPD: 53, 104 (15) Term: 108, 103 (11)		% Predicted - n, mean (SD) All Preterm: 96, 75.94 (27.1) -BPD: 43, 66 (24) -No BPD: 53, 84 (27) Term: 108, 88 (21)
Guimaraes 2011 [34]	% Predicted - n, mean (SD) All Preterm: 77, 86.87 (15.99) -BPD: 13, 78.63 (11.96) -No BPD: 64, 88.55 (16.26)	% Predicted - n, mean (SD) All Preterm: 77, 89.71 (13.52) -BPD: 13, 86.71 (15.84) -No BPD: 64, 90.32 (13.05)		% Predicted - n, mean (SD) All Preterm: 77, 98.12 (44.22) -BPD: 13, 91.06 (29.89) -No BPD: 64, 99.55 (46.65)

Hadchouel 2018 [35]	Z-score - n, mean (SD) All Preterm: 274, -0.6 (1.3) -BPD: 49, -1.4 (1.2) -No BPD: 225, -0.4 (1.2) Term: 44, -0.1 (1)	Z-score - n, mean (SD) All Preterm: 274, -0.3 (1.2) -BPD: 49, -1.1 (1.4) -No BPD: 225, -0.2 (1.1) Term: 44, -0.2 (0.8)	Z-score - n, mean (SD) All Preterm: 274, -0.3 (1.3) -BPD: 49, -0.6 (1.4) -No BPD: 225, -0.2 (1.3) Term: 44, 0.2 (1.2)	Z-score - n, mean (SD) All Preterm: 274, -0.6 (1.2) -BPD: 49, -1.4 (1.2) -No BPD: 225, -0.4 (1.2) Term: 44, 0 (1.2)
Hagman 2021[36]	% Predicted - n, mean (SD) All Preterm: 52, 92.513603396861 (11.069997342822) -BPD: 23, 92.38 (12.44) -No BPD: 29, 92.61 (12.09)	% Predicted - n, mean (SD) All Preterm: 52, 98.0856005661435 (11.2913972896784) -BPD: 23, 99.97 (11.15) -No BPD: 29, 96.03 (9.87)	% - n, mean (SD) All Preterm: 52, 80 (9.75) -BPD: 23, 79 (8.25) -No BPD: 29, 82 (8.25)	% Predicted - n, mean (SD) All Preterm: 52, 72.054413587444 (21.2543948982182) -BPD: 23, 67.9 (21.52) -No BPD: 29, 77.7 (23.2)
Hakulinen 1996 [37]	% Predicted - n, mean (SD) All Preterm: 31, 88.24 (15.98) -BPD: 20, 87.7 (11.24) -No BPD: 11, 89.22 (22.91) Term: 20, 100.34 (8.3)	% Predicted - n, mean (SD) All Preterm: 31, 93.7 (14.04) -BPD: 20, 92.1 (9.39) -No BPD: 11, 96.6 (20.23) Term: 20, 98.6 (9.84)	% Predicted - n, mean (SD) All Preterm: 31, 95.29 (7.72) -BPD: 20, 95.5 (7.6) -No BPD: 11, 94.9 (8.29) Term: 20, 102.9 (6.71)	
Halvorsen 2005 [38] (1982-1985 cohort)	% Predicted - n, mean (SD) All Preterm: 46, 95.18 (13.74) -BPD: 36, 93.33 (13.11) -No BPD: 10, 101.8 (14.6) Term: 46, 108.1 (13.8)	% Predicted - n, mean (SD) All Preterm: 46, 105.48 (17.87) -BPD: 36, 102.53 (16.43) -No BPD: 10, 116.1 (19.7) Term: 46, 111.1 (14.9)		
Halvorsen 2005 [38] (1991-2 Cohort)	% Predicted - n, mean (SD) All Preterm: 35, 79.2 (9.1) Term: 35, 87 (8.7)	% Predicted - n, mean (SD) All Preterm: 35, 87.5 (9.1) Term: 35, 92.2 (8)		

Hamon 2013 [39]	Z-score - n, mean (SD) All Preterm: 42, 0.18 (1.05) Term: 27, 0.68 (0.81)	Z-score - n, mean (SD) All Preterm: 42, 0.31 (1.04) Term: 27, 0.41 (0.71)	Z-score - n, mean (SD) All Preterm: 42, -0.12 (1.36) Term: 27, 0.47 (0.81)	
Hart 2021[40]	% Predicted - n, mean (SD) All Preterm: 544, 91.16 (12.54) Term: 195, 95.7 (9.97)	% Predicted - n, mean (SD) All Preterm: 544, 94.31 (11.49) Term: 195, 96.2 (10.33)	Ratio - n, mean (SD) All Preterm: 544, 0.84 (0.07) Term: 195, 0.87 (0.07)	% Predicted - n, mean (SD) All Preterm: 544, 77 (20.57) Term: 195, 86.4 (19.59)
Hirata 2015 [41]	% Predicted - n, mean (SD) All Preterm: 183, 86.24 (15.36) -BPD: 143, 85.11 (15.14) -No BPD: 40, 90.27 (15.67)	% Predicted - n, mean (SD) All Preterm: 201, 90.4050736113272 (15.0561713675352) -BPD: 161, 90.49 (13.75) -No BPD: 40, 92.85 (15.37)	% Predicted - n, mean (SD) All Preterm: 18, 78.1 (12.3) -BPD: 18, 78.1 (12.3)	
Jacob 1998 [42]	% Predicted - n, mean (SD) All Preterm: 30, 74.35 (19.51) -BPD: 15, 63.6 (20.6) -No BPD: 15, 85.1 (10.8) Term: 13, 94.3 (8.3)	% Predicted - n, mean (SD) All Preterm: 30, 88.4 (14.91) -BPD: 15, 83.1 (18.2) -No BPD: 15, 93.7 (8.3) Term: 13, 99.1 (9.4)	% - n, mean (SD) All Preterm: 30, 76.65 (11.19) -BPD: 15, 69.2 (9) -No BPD: 15, 84.1 (7.7)	% Predicted - n, mean (SD) All Preterm: 30, 59.5 (30.33) -BPD: 15, 40.3 (24.5) -No BPD: 15, 78.7 (22.7)
Joshi 2013 [43]	% Predicted - n, mean (SD) All Preterm: 62, 87.28 (14.26) -BPD: 29, 81.9 (12.62) -No BPD: 33, 92 (14.1) Term: 30, 97.5 (11.25)	% Predicted - n, mean (SD) All Preterm: 62, 99.91 (11.19) -BPD: 29, 98.9 (11.04) -No BPD: 33, 100.8 (11.42) Term: 30, 102 (12.85)		% Predicted - n, mean (SD) All Preterm: 62, 59.85 (23.25) -BPD: 29, 49.2 (16.17) -No BPD: 33, 69.2 (24.68) Term: 30, 80 (17.14)
Kaczmarczyk 2017 [44]	Z-score - n, mean (SD) All Preterm: 12, -0.36 (1.23)	Z-score - n, mean (SD) All Preterm: 12, -0.13 (1.17)	Z-score - n, mean (SD) All Preterm: 12, -0.39 (1.02)	Z-score - n, mean (SD) All Preterm: 12, 0.11 (1.33)

	-No BPD: 12, -0.36 (1.23) Term: 27, 0.24 (1.08)	-No BPD: 12, -0.13 (1.17) Term: 27, 0.29 (1.01)	-No BPD: 12, -0.39 (1.02) Term: 27, -0.14 (0.82)	-No BPD: 12, 0.11 (1.33) Term: 27, 0.66 (1.11)
Kaplan 2012 [45]	% Predicted - n, mean (SD) All Preterm: 53, 85 (10) -BPD: 28, 85 (11) -No BPD: 25, 85 (10) Term: 23, 94 (11)	% Predicted - n, mean (SD) All Preterm: 53, 91 (10) -BPD: 28, 89 (11) -No BPD: 25, 93 (9) Term: 23, 93 (9)	% Predicted - n, mean (SD) All Preterm: 53, 87 (9) -BPD: 28, 88 (10) -No BPD: 25, 85 (8) Term: 23, 93 (5)	% Predicted - n, mean (SD) All Preterm: 53, 77 (26) -BPD: 28, 81 (28) -No BPD: 25, 73 (23) Term: 23, 99 (22)
Karila 2008 [46]	% Predicted - n, mean (SD) All Preterm: 20, 79.1 (19.3) -BPD: 20, 79.1 (19.3) Term: 18, 106.3 (11.3)	% Predicted - n, mean (SD) All Preterm: 20, 89.8 (18.8) -BPD: 20, 89.8 (18.8) Term: 18, 101.7 (10.3)	% Predicted - n, mean (SD) All Preterm: 20, 73.2 (16.3) -BPD: 20, 73.2 (16.3) Term: 18, 86.4 (4.1)	
Karnaushkina 2017 [47]	% Predicted - n, mean (SD) All Preterm: 10, 79.4 (8.54) Term: 9, 91.2 (13.8)			% Predicted - n, mean (SD) All Preterm: 10, 70.1 (16.44) Term: 9, 83.8 (13.8)
Kennedy 2000 [48]	% Predicted - n, mean (SD) All Preterm: 102, 91 (14.9) -BPD: 26, 78.4 (17) -No BPD: 76, 95.4 (11.4) Term: 82, 102.1 (10.2)	% Predicted - n, mean (SD) All Preterm: 102, 99.1 (10.6) -BPD: 26, 92.8 (11.5) -No BPD: 76, 101.2 (9.5) Term: 82, 104.2 (9.6)		% Predicted - n, mean (SD) All Preterm: 102, 70.1 (25.7) -BPD: 26, 54.5 (29.2) -No BPD: 76, 75.5 (22.1) Term: 82, 90.7 (21.8)
Kilbride 2012 [49]	% Predicted - n, mean (SD) All Preterm: 30, 100.6 (16.24) Term: 9, 107 (13)			% Predicted - n, mean (SD) All Preterm: 30, 93 (26.8) Term: 9, 103 (25)

Kilbride 2003 [50]	% Predicted - n, mean (SD) All Preterm: 50, 85 (14) -BPD: 16, 72 (15) -No BPD: 34, 89 (13) Term: 25, 91 (9)	% Predicted - n, mean (SD) All Preterm: 50, 93 (14) -BPD: 16, 90 (16) -No BPD: 34, 94 (14) Term: 25, 96 (11)	% Predicted - n, mean (SD) All Preterm: 50, 86 (8) -BPD: 16, 81 (8) -No BPD: 34, 89 (6) Term: 25, 89 (5)	% Predicted - n, mean (SD) All Preterm: 50, 84 (25) -BPD: 16, 67 (22) -No BPD: 34, 92 (22) Term: 25, 100 (17)
Konefal 2010	% Predicted - n, mean (SD) All Preterm: 31, 95.07 (17.54) Term: 19, 96.2 (20.2)			
Konefal 2013 [51]	% Predicted - n, mean (SD) All Preterm: 58, 89 (20.24) Term: 90, 98.3 (14.04)	% Predicted - n, mean (SD) All Preterm: 58, 79.7 (15.58) Term: 90, 87.5 (12.24)		
Korhonen 2004 [52]	% Predicted - n, mean (SD) All Preterm: 60, 92.58 (14.11) -BPD: 29, 90 (14) -No BPD: 31, 95 (14) Term: 33, 99 (11)	% Predicted - n, mean (SD) All Preterm: 60, 99.03 (15.9) -BPD: 29, 98 (16) -No BPD: 31, 100 (16) Term: 33, 102 (8)	% Predicted - n, mean (SD) All Preterm: 60, 89.55 (9.57) -BPD: 29, 88 (9) -No BPD: 31, 91 (10) Term: 33, 92 (7)	
Kotecha 2012 [99]	Z-score - n, mean (SD) All Preterm: 382, -0.18 (0.97) Term: 6144, 0.01 (1)	Z-score - n, mean (SD) All Preterm: 382, -0.09 (0.98) Term: 6144, 0 (1)	Z-score - n, mean (SD) All Preterm: 382, -0.12 (1.03) Term: 6144, 0.01 (1)	Z-score - n, mean (SD) All Preterm: 382, -0.19 (0.96) Term: 6144, 0.01 (1)
Kulasekaran 2007 [53]	% Predicted - n, mean (SD) All Preterm: 91, 84.72 (13.19) -BPD: 47, 82.3 (13.9) -No BPD: 44, 87.3 (12)	% Predicted - n, mean (SD) All Preterm: 91, 90.34 (12.75) -BPD: 47, 88.7 (13.5) -No BPD: 44, 92.1 (11.8)	% Predicted - n, mean (SD) All Preterm: 91, 85.26 (7.72) -BPD: 47, 84 (9.1) -No BPD: 44, 86.6 (5.7)	% Predicted - n, mean (SD) All Preterm: 91, 75.42 (23.36) -BPD: 47, 70.1 (24.8) -No BPD: 44, 81.1 (20.5)

Kung 2021 [54]	mL - n, mean (SD) All Preterm: 8, 1561.2 (248.8) Term: 157, 1685.5 (242.7)	mL - n, mean (SD) All Preterm: 8, 1708.8 (283.9) Term: 157, 1842.2 (294.5)	% - n, mean (SD) All Preterm: 8, 91.6 (5) Term: 157, 91.9 (5.9)	
Kwinta 2013 [55]	% Predicted - n, mean (SD) All Preterm: 22, 81.3 (13) Term: 20, 95.8 (8)	Z-score - n, mean (SD) All Preterm: 22, 79 (13) Term: 20, 89 (7)		
Landry 2016 [56]	% Predicted - n, mean (SD) All Preterm: 88, 89.07 (16.21) -BPD: 31, 80 (18) -No BPD: 57, 94 (12.83) Term: 35, 98 (9)	% Predicted - n, mean (SD) All Preterm: 88, 100.83 (12.9) -BPD: 31, 100 (15) -No BPD: 57, 101.28 (11.71) Term: 35, 109 (10)	% Predicted - n, mean (SD) All Preterm: 88, 76.53 (10.76) -BPD: 31, 70 (12) -No BPD: 57, 80.09 (8.14) Term: 35, 79 (7)	% Predicted - n, mean (SD) All Preterm: 88, 82.66 (25.91) -BPD: 31, 68 (26) -No BPD: 57, 90.63 (22.3) Term: 35, 96 (18)
MacLean 2016 [57]	Z-score - n, mean (SD) All Preterm: 100, -0.7 (1.24) -BPD: 47, -0.92 (1.36) Term: 64, 0.09 (1.01)	Z-score - n, mean (SD) All Preterm: 100, -0.21 (1.57) -BPD: 47, -0.85 (1.67) Term: 64, 0.47 (0.9)	Z-score - n, mean (SD) All Preterm: 100, -1.22 (1.18) -BPD: 47, -1.14 (1.5) Term: 64, -0.57 (1.14)	Z-score - n, mean (SD) All Preterm: 100, -1.44 (1.05) -BPD: 47, -1.6 (1.22) Term: 64, -0.48 (1.12)
Mai 2003 [58]	% Predicted - n, mean (SD) All Preterm: 72, 92 (12) Term: 62, 95 (10)	% Predicted - n, mean (SD) All Preterm: 72, 84 (13) Term: 62, 87 (10)		
Mieskonen 2002 [59]	% Predicted - n, mean (SD) All Preterm: 40, 84.1 (14.3) -BPD: 9, 73.5 (12) -No BPD: 18, 89.8 (13) Term: 14, 101.7 (8.4)	% Predicted - n, mean (SD) All Preterm: 40, 90.2 (11.2) -BPD: 9, 84.9 (10) -No BPD: 18, 94 (9.2) Term: 14, 104.5 (10.9)		

Mitchell 1998 [60]	% Predicted - n, mean (SD) All Preterm: 20, 81.5 (18.12) -BPD: 10, 78 (21) -No BPD: 10, 85 (15) Term: 10, 91 (14)	% Predicted - n, mean (SD) All Preterm: 20, 92.5 (15.68) -BPD: 10, 90 (19) -No BPD: 10, 95 (12) Term: 10, 93 (15)	% - n, mean (SD) All Preterm: 20, 78.5 (9.1) -BPD: 10, 77 (11) -No BPD: 10, 80 (7) Term: 10, 88 (5)	% Predicted - n, mean (SD) All Preterm: 20, 70 (30.91) -BPD: 10, 45 (22) -No BPD: 10, 95 (12) Term: 10, 87 (24)
Molgat-Seon 2019 [61]	Z-score - n, mean (SD) All Preterm: 39, -1.26 (1.26) -BPD: 25, -1.61 (1.3) -No BPD: 19, -0.9 (1.13) Term: 20, -0.13 (0.75)	Z-score - n, mean (SD) All Preterm: 39, -0.36 (1.01) -BPD: 25, -0.54 (1.07) -No BPD: 19, -0.17 (0.92) Term: 20, 0.34 (0.8)	Z-score - n, mean (SD) All Preterm: 39, -1.37 (1.1) -BPD: 25, -1.62 (1.16) -No BPD: 19, -1.11 (1) Term: 20, -0.76 (0.8)	Z-score - n, mean (SD) All Preterm: 39, -1.65 (1.19) -BPD: 25, -1.96 (1.25) -No BPD: 19, -1.33 (1.05) Term: 20, -0.46 (0.75)
Morata-Alba 2019 [62]	% Predicted - n, mean (SD) All Preterm: 116, 90.2 (13.9) -No BPD: 116, 90.2 (13.9) Term: 116, 96 (13)	% Predicted - n, mean (SD) All Preterm: 116, 85.3 (16.6) -No BPD: 116, 85.3 (16.6) Term: 116, 88.3 (14.7)	% Predicted - n, mean (SD) All Preterm: 116, 108.4 (8.3) -No BPD: 116, 108.4 (8.3) Term: 116, 112.3 (6.7)	
Morris 2018 [63]	Z-score - n, mean (SD) All Preterm: 59, -1.03 (1.42) -BPD: 34, -1.41 (1.44) -No BPD: 25, -0.52 (1.23)	Z-score - n, mean (SD) All Preterm: 59, -0.26 (1.46) -BPD: 34, -0.54 (1.36) -No BPD: 25, 0.13 (1.53)		Z-score - n, mean (SD) All Preterm: 59, -1.55 (1.26) -BPD: 34, -1.88 (1.42) -No BPD: 25, -1.1 (0.84)
Morsing 2011 [64]	Z-score - n, mean (SD) All Preterm: 62, -0.81 (1.06) Term: 31, -0.15 (1.21)	Z-score - n, mean (SD) All Preterm: 62, -0.44 (1.38) Term: 31, 0.01 (0.98)	Z-score - n, mean (SD) All Preterm: 62, -0.93 (1.24) Term: 31, -0.17 (1.2)	Z-score - n, mean (SD) All Preterm: 62, -1.45 (1.07) Term: 31, -0.4 (1.2)
Narayanan 2013 [65]	Z-score - n, mean (SD) All Preterm: 58, -0.17 (1.08) -BPD: 18, -0.51 (0.98)	Z-score - n, mean (SD) All Preterm: 58, -0.05 (1) -BPD: 18, -0.28 (1.09)		

	-No BPD: 40, -0.01 (1.1) Term: 61, 0.15 (0.91)	-No BPD: 40, 0.06 (0.95) Term: 61, 0.04 (1.02)		
Nasanen-Gilmore 2018 [66]	Z-score - n, mean (SD) All Preterm: 378, -0.22 (1.02) Term: 341, 0.02 (0.93)	Z-score - n, mean (SD) All Preterm: 378, 0.05 (0.91) Term: 341, 0.14 (0.85)	Z-score - n, mean (SD) All Preterm: 378, -0.44 (0.98) Term: 341, -0.23 (0.84)	Z-score - n, mean (SD) All Preterm: 378, 0.37 (2.44) Term: 341, 0.95 (2.3)
Northway 1990 [67]	% Predicted - n, mean (SD) All Preterm: 51, 85.91 (16.55) -BPD: 25, 74.8 (14.5) -No BPD: 26, 96.6 (10.2) Term: 53, 100.4 (10.92)	% Predicted - n, mean (SD) All Preterm: 51, 100.98 (14.05) -BPD: 25, 96.8 (16) -No BPD: 26, 105 (10.71) Term: 53, 105.4 (12.38)		% Predicted - n, mean (SD) All Preterm: 51, 63.63 (26.36) -BPD: 25, 46.5 (18) -No BPD: 26, 80.1 (22.44) Term: 53, 87.8 (19.66)
Odberg 2010 [68]	% Predicted - n, mean (SD) All Preterm: 134, 106.8 (13.5) Term: 135, 110.2 (14.2)	% Predicted - n, mean (SD) All Preterm: 134, 115.4 (13.5) Term: 135, 115.7 (14.8)	% - n, mean (SD) All Preterm: 134, 82 (10) Term: 135, 85 (10)	
Palta 2007 [69]	% Predicted - n, mean (SD) All Preterm: 265, 86 (14) -BPD: 59, 78 (13) -No BPD: 206, 88 (14) Term: 360, 97 (12)	% Predicted - n, mean (SD) All Preterm: 265, 85 (26) -BPD: 59, 79 (18) -No BPD: 206, 87 (43) Term: 360, 99 (27)		
Panagiotounakou 2019 [70]	% Predicted - n, mean (SD) All Preterm: 85, 91 (10.1) -BPD: 42, 89.8 (9.2) -No BPD: 43, 92.2 (10.9) Term: 62, 92.6 (12.38)	% Predicted - n, mean (SD) All Preterm: 85, 88.1 (10.5) -BPD: 42, 87.8 (9.3) -No BPD: 43, 88.5 (11.6) Term: 62, 88.1 (11.6)		

Perez-Tarazona 2021 [71]	Z-score - n, mean (SD) All Preterm: 286, -0.64 (1.23) -BPD: 92, -1.22 (1.25) -No BPD: 194, -0.37 (1.13)	Z-score - n, mean (SD) All Preterm: 286, -0.39 (1.19) -BPD: 92, -0.71 (1.29) -No BPD: 194, -0.23 (1.11)	Z-score - n, mean (SD) All Preterm: 286, -0.4 (1.25) -BPD: 92, -0.82 (1.31) -No BPD: 194, -0.2 (1.17)	Z-score - n, mean (SD) All Preterm: 286, -0.97 (1.26) -BPD: 92, -1.49 (1.31) -No BPD: 194, -0.72 (1.15)
Pianosi 2000 [72]	% Predicted - n, mean (SD) All Preterm: 32, 84.59 (13.41) -BPD: 17, 86 (14) -No BPD: 15, 83 (13) Term: 15, 90 (8)	% Predicted - n, mean (SD) All Preterm: 32, 97.12 (11.47) -BPD: 17, 99 (11) -No BPD: 15, 95 (12) Term: 15, 96 (9)		% Predicted - n, mean (SD) All Preterm: 32, 70.12 (21.96) -BPD: 17, 72 (24) -No BPD: 15, 68 (20) Term: 15, 86 (12)
Praprotnik 2015 [73]	% Predicted - n, mean (SD) All Preterm: 56, 83.84 (13.06) -BPD: 23, 75.3 (10.7) -No BPD: 33, 89.8 (11.2) Term: 33, 91.1 (9.5)	% Predicted - n, mean (SD) All Preterm: 56, 94.64 (12.63) -BPD: 23, 89.1 (12.2) -No BPD: 33, 98.5 (11.6) Term: 33, 100.1 (9.4)	% Predicted - n, mean (SD) All Preterm: 56, 83.07 (17.37) -BPD: 23, 78.3 (18.6) -No BPD: 33, 86.4 (15.9) Term: 33, 87.5 (5)	% Predicted - n, mean (SD) All Preterm: 56, 72.87 (20.67) -BPD: 23, 58.9 (17.5) -No BPD: 33, 82.6 (16.9) Term: 33, 90.1 (21.9)
Prenzel 2020 [74]	Z-score - n, mean (SD) All Preterm: 39, -0.75 (1.38) -BPD: 39, -0.75 (1.38) Term: 40, 0.52 (0.91)	Z-score - n, mean (SD) All Preterm: 39, -0.38 (1.13) -BPD: 39, -0.38 (1.13) Term: 40, 0.01 (0.87)	Z-score - n, mean (SD) All Preterm: 39, -0.63 (1.24) -BPD: 39, -0.63 (1.24) Term: 40, 0.98 (1.22)	Z-score - n, mean (SD) All Preterm: 39, -1.48 (1.17) -BPD: 39, -1.48 (1.17) Term: 40, 0.25 (1.05)
Ronkainen 2015 [75]	% Predicted - n, mean (SD) All Preterm: 88, 86.4 (11.8) -BPD: 49, 84.3 (11.4) -No BPD: 39, 89.4 (11.1) Term: 88, 94.9 (10.1)	% Predicted - n, mean (SD) All Preterm: 88, 91 (11.8) -BPD: 49, 90.4 (11) -No BPD: 39, 92.4 (11.5) Term: 88, 95 (10.2)	% Predicted - n, mean (SD) All Preterm: 88, 94.7 (7.8) -BPD: 49, 92.9 (8.5) -No BPD: 39, 96.1 (6.6) Term: 88, 98.9 (7.3)	

Ruf 2019 [76]	% Predicted - n, mean (SD) All Preterm: 22, 91.27 (17.41) -BPD: 9, 83 (22) -No BPD: 13, 97 (11) Term: 15, 105 (8)	% Predicted - n, mean (SD) All Preterm: 22, 98.55 (14.69) -BPD: 9, 95 (17) -No BPD: 13, 101 (13) Term: 15, 106 (7)		
Santuz 1995 [77]	% Predicted - n, mean (SD) All Preterm: 12, 83 (13) -BPD: 12, 83 (13) Term: 16, 100 (8)	% Predicted - n, mean (SD) All Preterm: 12, 87 (10) -BPD: 12, 87 (10) Term: 16, 96 (8)		% Predicted - n, mean (SD) All Preterm: 12, 77 (30) -BPD: 12, 77 (30) Term: 16, 110 (14)
Siltanen 2004 [78]	% Predicted - n, mean (SD) All Preterm: 50, 92 (13.1) Term: 54, 96 (12.6)	% Predicted - n, mean (SD) All Preterm: 50, 96 (12.6) Term: 54, 102 (9.6)	% Predicted - n, mean (SD) All Preterm: 50, 84 (7.8) Term: 54, 88 (5.4)	% Predicted - n, mean (SD) All Preterm: 50, 87 (24) Term: 54, 114 (21.2)
Simpson 2017 [79]	Z-score - n, mean (SD) All Preterm: 131, -0.72 (1.13) -BPD: 70, -1.06 (1.09) -No BPD: 52, -0.21 (0.99) Term: 48, 0.04 (0.9)	Z-score - n, mean (SD) All Preterm: 131, 0.13 (1.04) -BPD: 70, -0.07 (1.11) -No BPD: 52, 0.43 (0.86) Term: 48, 0.17 (0.95)	Z-score - n, mean (SD) All Preterm: 131, -1.25 (1.01) -BPD: 70, -1.14 (1.04) -No BPD: 52, -1.02 (0.93) Term: 48, -0.27 (0.92)	Z-score - n, mean (SD) All Preterm: 131, -1.46 (1.11) -BPD: 70, -1.75 (1.08) -No BPD: 52, -1.06 (1.02) Term: 48, -0.42 (0.9)
Smith 2008 [80]	% Predicted - n, mean (SD) All Preterm: 126, 85 (12.4) Term: 34, 95 (10.2)	% Predicted - n, mean (SD) All Preterm: 126, 96.3 (13.6) Term: 34, 102.1 (10.1)	% - n, mean (SD) All Preterm: 126, 82.1 (8.3) Term: 34, 86.4 (3.7)	% Predicted - n, mean (SD) All Preterm: 126, 71.8 (22.9) Term: 34, 91.4 (15.7)
Sorensen 2018 [81]	Z-score - n, mean (SD) All Preterm: 70, -0.81 (1.22) -BPD: 42, -1.07 (1.18) -No BPD: 28, -0.43 (1.2) Term: 38, 0.23 (1.05)	Z-score - n, mean (SD) All Preterm: 70, 0.01 (0.9) -BPD: 42, -0.23 (0.84) -No BPD: 28, 0.38 (0.88) Term: 38, 0.18 (0.92)	Z-score - n, mean (SD) All Preterm: 70, -1.25 (1.15) -BPD: 42, -1.33 (1.08) -No BPD: 28, -1.14 (1.25) Term: 38, 0.02 (0.86)	Z-score - n, mean (SD) All Preterm: 70, -1.54 (1.26) -BPD: 42, -1.71 (1.23) -No BPD: 28, -1.29 (1.29) Term: 38, -0.27 (1.01)

Teig 2012 [82]	Z-score - n, mean (SD) All Preterm: 16, -0.71 (0.61) Term: 11, 0.75 (2.23)	Z-score - n, mean (SD) All Preterm: 16, -0.24 (1.36) Term: 11, 0.2 (1.33)	Z-score - n, mean (SD) Term: 11, 0.47 (1.43)	Z-score - n, mean (SD) All Preterm: 16, -1.05 (1.41) Term: 11, 0.44 (1.33)
Thunqvist 2016 [84]	Z-score - n, mean (SD) All Preterm: 106, -0.35 (1.01) Term: 1686, -0.01 (0.92)	mL - n, mean (SD) All Preterm: 106, 4623.9 (952.66) Term: 1686, 4669.44 (938.01)	% Predicted - n, mean (SD) All Preterm: 106, 82.67 (5.75) Term: 1689, 85.59 (6.66)	
Thunqvist 2018 [83]	Z-score - n, mean (SD) All Preterm: 90, -0.72 (1) -BPD: 82, -0.75 (1.22) Term: 98, 0.41 (1)	Z-score - n, mean (SD) All Preterm: 90, -0.44 (1) -BPD: 82, -0.47 (1.15) Term: 98, 0.3 (1)	Z-score - n, mean (SD) All Preterm: 90, -0.43 (1.1) -BPD: 82, -0.45 (1.17) Term: 98, 0.2 (1.14)	
Turner [85]	% Predicted - n, mean (SD) All Preterm: 37, 96.98 (13.25) Term: 563, 98.28 (13.98)			
Um-Bergstrom 2018 [86]	Z-score - n, mean (SD) All Preterm: 49, -0.27 (1.31) -BPD: 26, -0.86 (1.17) -No BPD: 23, 0.41 (1.15) Term: 24, 0.66 (1.02)	Z-score - n, mean (SD) All Preterm: 49, -0.3 (1.04) -BPD: 26, -0.48 (1.08) -No BPD: 23, -0.09 (0.98) Term: 24, 0.34 (0.81)	Z-score - n, mean (SD) All Preterm: 49, -0.06 (1.53) -BPD: 26, -0.79 (1.6) -No BPD: 23, 0.76 (0.95) Term: 24, 0.34 (0.91)	
Vanhaverbeke 2021 [87]	% Predicted - n, mean (SD) All Preterm: 37, 99.93 (12.98) -BPD: 22, 99.27 (11.78) -No BPD: 15, 100.9 (14.95)	% Predicted - n, mean (SD) All Preterm: 22, 108.22 (15.97) -BPD: 22, 108.22 (15.97)	% Predicted - n, mean (SD) All Preterm: 37, 92.02 (10.84) -BPD: 22, 87.71 (11.26) -No BPD: 15, 98.34 (6.32)	

Vardar-Yagli 2015 [88]	% Predicted - n, mean (SD) All Preterm: 18, 78 (21.2) -BPD: 18, 78 (21.2) Term: 20, 98 (11.7)	% Predicted - n, mean (SD) All Preterm: 18, 98 (14.1) -BPD: 18, 98 (14.1) Term: 20, 98.3 (10.5)	% Predicted - n, mean (SD) All Preterm: 18, 73.7 (13.1) -BPD: 18, 73.7 (13.1) Term: 20, 91.1 (5.9)	% Predicted - n, mean (SD) All Preterm: 18, 57 (25.9) -BPD: 18, 57 (25.9) Term: 20, 101.5 (20.8)
Vollsaeter 2015 [89] (1999-2000 cohort)	Z-score - n, mean (SD) All Preterm: 57, -0.65 (0.923358545599633) -BPD: 31, -0.73 (1) -No BPD: 26, -0.56 (0.87) Term: 54, -0.31 (0.97)	Z-score - n, mean (SD) All Preterm: 57, -0.17 (0.90451449364862) -BPD: 31, -0.17 (1.01) -No BPD: 26, -0.17 (0.76) Term: 54, -0.16 (0.93)	Z-score - n, mean (SD) All Preterm: 57, -0.8 (0.998734753403684) -BPD: 31, -0.9 (1.05) -No BPD: 26, -0.69 (0.93) Term: 54, -0.3 (0.9)	Z-score - n, mean (SD) All Preterm: 57, -1.14 (0.942202597550645) -BPD: 31, -1.22 (0.97) -No BPD: 26, -1.04 (0.89) Term: 54, -0.53 (0.95)
Vollsaeter 2013 [90] (1991-1992 cohort)	Z-score - n, mean (SD) All Preterm: 35, -0.84 (0.8) -BPD: 26, -1.05 (0.75) -No BPD: 9, -0.25 (0.64) Term: 35, -0.05 (0.74)	Z-score - n, mean (SD) All Preterm: 35, -0.56 (0.68) -BPD: 26, -0.62 (0.69) -No BPD: 9, -0.38 (0.67) Term: 35, -0.12 (0.76)	Z-score - n, mean (SD) All Preterm: 35, -0.47 (1.07) -BPD: 26, -0.72 (1.05) -No BPD: 9, 0.22 (0.83) Term: 35, 0.01 (0.95)	Z-score - n, mean (SD) All Preterm: 35, -1.06 (0.99) -BPD: 26, -1.3 (0.94) -No BPD: 9, -0.36 (0.77) Term: 35, -0.16 (0.87)
Vollsaeter 2013 [90] (1982-1985 cohort)	Z-score - n, mean (SD) All Preterm: 48, -1.08 (1.25) -BPD: 37, -1.28 (1.21) -No BPD: 11, -0.41 (1.17) Term: 46, 0.22 (1.28)	Z-score - n, mean (SD) All Preterm: 48, -0.95 (1.43) -BPD: 37, -1.22 (1.37) -No BPD: 11, -0.04 (1.31) Term: 46, -0.16 (1.43)	Z-score - n, mean (SD) All Preterm: 48, -0.22 (1.04) -BPD: 37, -0.12 (1.04) -No BPD: 11, -0.55 (0.99) Term: 46, 0.53 (1.08)	Z-score - n, mean (SD) All Preterm: 48, -0.85 (0.96) -BPD: 37, -0.91 (0.98) -No BPD: 11, -0.63 (0.92) Term: 46, 0.47 (0.99)
von Mutius 1993 [91]	% Predicted - n, mean (SD) All Preterm: 118, 98.7 (11.4) Term: 2113, 100.4 (9.19)	% Predicted - n, mean (SD) All Preterm: 118, 98.94 (10.61) Term: 2113, 100.5 (9.19)		

Vrijlandt 2018 [92]	Z-score - n, mean (SD) All Preterm: 37, -0.6 (1) -No BPD: 37, -0.6 (1) Term: 34, -0.2 (0.8)	Z-score - n, mean (SD) All Preterm: 37, -0.72 (1.2) -No BPD: 37, -0.72 (1.2) Term: 34, -0.49 (1)		
Vrijlandt 2006 [93]	% Predicted - n, mean (SD) All Preterm: 42, 95.4 (15.9) -BPD: 8, 90.1 (19.8) -No BPD: 12, 99.2 (17.9) Term: 48, 109.6 (13.4)	% Predicted - n, mean (SD) All Preterm: 42, 97.7 (13.7) -BPD: 8, 96.4 (13.1) -No BPD: 12, 99.2 (13.7) Term: 48, 106 (10.8)	% - n, mean (SD) All Preterm: 42, 82.2 (8.2) -BPD: 8, 78.8 (8.1) -No BPD: 12, 82.5 (11.1) Term: 48, 87.4 (6.6)	
Wheeler 1984 [94]	% Predicted - n, mean (SD) All Preterm: 14, 82 (20) -BPD: 14, 82 (20) Term: 11, 104 (15)			% Predicted - n, mean (SD) All Preterm: 14, 55 (23) -BPD: 14, 55 (23) Term: 11, 103 (21)
Winck 2016 [95]	Z-score - n, mean (SD) All Preterm: 48, 0.4 (1.62) Term: 45, 0.71 (1.12)	Z-score - n, mean (SD) All Preterm: 48, 0.66 (1.44) Term: 45, 0.83 (1.03)	Z-score - n, mean (SD) All Preterm: 48, -0.38 (1.13) Term: 45, -0.23 (0.95)	Z-score - n, mean (SD) All Preterm: 48, -0.14 (1.37) Term: 45, -0.69 (1.04)
Yaacoby-Bianu 2019 [96]	L - n, mean (SD) All Preterm: 29, 1.59 (0.48) Term: 30, 1.8 (0.39)	L - n, mean (SD) All Preterm: 29, 1.73 (0.45) Term: 30, 1.99 (0.49)	% - n, mean (SD) All Preterm: 29, 91 (6) Term: 30, 92 (5)	L - n, mean (SD) All Preterm: 29, 2.15 (0.9) Term: 30, 2.35 (0.48)
Yang 2020 [97]	Z-score - n, mean (SD) All Preterm: 224, -0.67 (1.2) -BPD: 46, -1.34 (1.41) -No BPD: 178, -0.5 (1.08) Term: 100, -0.13 (1.17)	Z-score - n, mean (SD) All Preterm: 224, 0.18 (0.99) -BPD: 46, -0.14 (1.1) -No BPD: 178, 0.26 (0.95) Term: 100, 0.31 (1.03)	Z-score - n, mean (SD) All Preterm: 224, -1.21 (1.13) -BPD: 46, -1.67 (1.28) -No BPD: 178, -1.09 (1.06) Term: 100, 0.65 (1.01)	Z-score - n, mean (SD) All Preterm: 224, -1.29 (1.28) -BPD: 46, -1.9 (1.45) -No BPD: 178, -1.13 (1.19) Term: 100, -0.52 (1.18)

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