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TABLES

The following tables are intended to provide a quick guide to the literature reviewed and annotated here, particularly regarding the magnitude of the effects described. Review articles and those not reporting an effect size are not represented in the tables. Although the table formats vary, depending on the outcome, the last two columns in every case are “effect size” and “comments.” In “effect size” we provide the authors’ quantitative estimate of the effect of breastfeeding on the outcome in question. As the effect size takes many forms (e.g., relative risk, odds ratio, correlation coefficient, absolute measure, etc.) we use the “comments” column to specify the meaning of the numbers provided and to provide other explanatory remarks. Unless otherwise stated, the differences given are statistically significant.

The “BF Practices” column uses the following abbreviations:

BF	Breastfed
EBF	Exclusively breastfed
FBF	Fully breastfed
PBF	Partially breastfed
NBF	Not breastfed
FF	Formula fed

1.1 Effect of Breastfeeding on Diarrheal Morbidity

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE		COMMENT
Kramer et al., 2001	Belarus Urban/rural	Randomized controlled trial	0–12 mo	intervention control	0.60 1		Adjusted odds ratio for GI tract infection
				intervention control	0.54 1		Adjusted odds ratio for atopic eczema
Clemens et al., 1999	Egypt Rural	Prospective	< 6 mo	EBF PBF FF	0.67 0.72 1		Adjusted rate ratios of diarrhea. Infants who initiated BF early (within the first 3 days after birth) had 26% lower rate of diarrhea than those who initiated BF late (after the third day), $p < 0.05$
Nacify et al., 1999	Egypt Rural	Prospective (population-based)	< 36 mo	BF FF	0.30 1		Adjusted hazard ratios for the association of incidence of rotavirus diarrhea and infant feeding mode for children aged < 1 year
Meremikwu et al., 1997	Nigeria Calabar	Case-control (clinic-based)	< 5 yrs	BF FF	<u>PD</u> 0.4% 1.9%	<u>UW</u> 35.9% 49.6%	Percent of children with persistent diarrhea (PD) or underweight (UW)
Scariati et al., 1997	United States Nationwide	Longitudinal	2–7 mo (diarrhea)	EBF PBF FF	1 0.9-1.3 1.8		Adjusted odds ratio of experiencing diarrhea
			2–7 mo (ear infection)	EBF PBF FF	1 1.2-1.6 1.7		Adjusted odds ratio of experiencing ear infections
Mølbak et al., 1997	Guinea-Bissau Peri-urban	Longitudinal		EBF FF	1 1.34		Adjusted rate ratio
Mondal et al., 1996	India Rural	Prospective	< 12 mo	EBF \geq 4 mo BF \leq 3 mo	3.02 1		Incidence rate ratio
Bohler et al., 1995	Bhutan Rural	Prospective	12–36 mo	BF Non-BF	0.51 1		Odds ratio for diarrheal disease

1.1 Effect of Breastfeeding on Diarrheal Morbidity (continued)

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE	COMMENT
Dewey et al., 1995	United States Urban	Prospective	0–12 mo	BF FF	0.14 0.31	Adjusted incidence of number of diarrhea episodes per 100 days at risk FF included infants who breastfed < 3 mo
			12–24 mo	BF FF	No Difference	
Mazrou et al., 1995	Saudi Arabia Urban/rural	Cross-sectional	< 5 yrs	EBF PBF FF Foods	18.5% 23.3% 17.7% 13%	Prevalence of diarrhea
Long et al., 1994	Mexico Urban	Prospective	3–50 wk	EBF PBF FF	1 1.5 3	Incidence ratio of diarrhea
Mølbaek et al., 1994	Guinea-Bissau Urban	Longitudinal	12–23 mo	BF Weaned	1 1.41	Relative risk of diarrhea
			24–35 mo	BF Weaned	1 1.67	
VanDerslice et al., 1994	Philippines	Prospective	< 6 mo	EBF Full BF PBF FF	0.1 0.1 0.13 0.25	Predicted probabilities of diarrhea Adjusted for potentially confounding factors
Clemens et al., 1993	Bangladesh Rural	Case-control	0–11 mo	EBF PBF FF	0.06 0.44 1	Relative risk for severe rotavirus diarrhea Overall no protective effect of BF for severe rotavirus infection in first 2 years of life Authors suggest that BF temporarily postponed rather than prevented infection
			12–23 mo	BF FF	Not signif	
Ahmed et al., 1992	Bangladesh Matlab surveillance area	Case-control	0–11 mo	BF FF	0.02 1	Adjusted odds ratio of episodes of shigellosis and culture-negative dysentery The odds ratio for an overall protective association was 0.27 (95% CI = 0.20 – 0.38; $p < 0.001$). The protective association appeared to be stronger in children who were most stunted (Z score ≤ -3.0).
			12–23 mo	BF FF	0.19 1	
			24–35 mo	BF FF	0.48 1	

1.1 Effect of Breastfeeding on Diarrheal Morbidity (continued)

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE	COMMENT
Hossain et al., 1992	Egypt Rural	Prospective	0–2.9 mo	Prelacteals No prelateals	1.4 1	Incidence density ratio of diarrheal disease
			3–5.9 mo	Prelacteals No prelateals	Not signif	
			6–8.9 mo	Prelacteals No prelateals	Not signif	
			9–12 mo	Prelacteals No prelateals	Not signif	
Morrow et al., 1992	Mexico Urban	Prospective	< 18 mo	EBF PBF FF	1 3 5	Adjusted rate ratios for incidence of giardia infection
Ruuska, 1992	Finland Urban	Prospective	0–6 mo	BF < 6 mo BF ≥ 6 mo	2.42 1	Odds ratio of occurrence of acute diarrhea
			7–12 mo	BF < 6 mo BF ≥ 6 mo	Not signif	
			13–24 mo	BF < 6 mo BF ≥ 6 mo	Not signif	
Howie et al., 1990	Scotland (Dundee)	Prospective/ retrospective	0–13 wk 14–26 wk 27–39 wk 40–52 wk	See Comment	6.6–16.8% 4.0–16.2% 2.5–16.1% 5.1–18.5%	Confidence interval for risk difference (% point reduction in risk) among BF vs. FF infants Shows a protective effect after BF ceased
Ketsela et al., 1990	Ethiopia Rural	Cross-sectional	< 6 mo	EBF PBF	1 5–5.42	Age adjusted relative risk of developing diarrhea Effect only significant at age 2–4 and 4–6 mo
Megraud et al., 1990	Algeria Urban/rural	Case-control	< 6 mo	EBF PBF	0.1 1	Odds ratio for presence of campylobacter in stool Few infants > 6 mo breastfed
Popkin et al., 1990	Philippines Urban/rural	Prospective	< 6 mo	EBF FBF PBF FF	1 2.0–3.2 4.7–13.1 4.7–16.8	Range of adjusted relative risks for diarrhea, depending on age Risk greatest for infants < 2 mo
			> 6 mo	PBF FF	Not signif	Relative risk not significant

1.1 Effect of Breastfeeding on Diarrheal Morbidity (continued)

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE	COMMENT
Rubin et al., 1990	Denmark Urban	Prospective	< 12 mo	breast>formula vs. breast formula	Not signif	Misclassification may be a problem Large drop-out rate
Brown et al., 1989	Peru Urban	Prospective	< 6 mo	EBF BF & liquids BF & milk BF & solids FF	1 1.2–1.4 1.3–1.8 1.6–1.8 2.8–3.1	Adjusted relative risk for diarrhea incidence Relative risks are higher for prevalence (reported in text summary)
			> 6 mo	PBF FF	1 1.2–1.5	
Jalil et al., 1989	Pakistan Urban slum	Prospective	< 24 mo	Poorly defined	No association found Poorly defined feeding modes and diarrheal episodes	
Mahmood et al., 1989	Iraq Urban	Case-control	2–3 mo	EBF PBF FF	1 6.2 36.7	Adjusted relative risk of hospitalization for severe diarrhea
			4–5 mo	EBF PBF FF	1 Not signif 23.8	
			6–7 mo	PBF FF	1 3.9	
			8–11 mo	PBF FF	Not signif	
Campbell & Latham, 1988	Rural Mexico	Prospective	< 8 mo	Not reported	Not reported	BF had a significant protective effect, but magnitude cannot be quantified from data presented
Oyejide & Fagbami, 1988	Nigeria Urban	Prospective	< 24 mo	BF FF	No associations found Poor definition of feeding modes and diarrheal episodes Within the first month, 90% of infants were partially breastfed	
Unni & Richard, 1988	India Urban	Prospective	< 6 mo	EBF PBF	<u>6 wk</u> 2% 24% <u>14 wk</u> 0% 7.5%	Percent infants with diarrhea
Clemens et al., 1986	Bangladesh Rural	Case-control	< 36 mo	BF FF	0.38 1	Adjusted odds ratio for severe infection

1.1 Effect of Breastfeeding on Diarrheal Morbidity (continued)

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE		COMMENT
Duffy et al., 1986	United States Urban	Prospective	< 4 mo	EBF Any formula	Not signif		Relative risk of nonspecific gastroenteritis
			≥ 4 mo	EBF Any formula	0.29 1		
Scott-Emuakpor & Okafor, 1986	Nigeria Urban	Cross-sectional	< 24 mo	EBF PBF FF	35% 76% 74%	Percent of infants with diarrheal disease with or without vomiting in the first 24 months of life	
Feachem & Koblinsky, 1984	14 developed and developing countries Various settings	Review	< 6 mo	EBF vs. FF EBF vs. PBF PBF vs. FF	3.5 – 4.9 1.4- 2.6 1.7-1.9	Relative risk for morbidity of diarrhea	
			6–11 mo	PBF vs. FF	1.3- 1.5		
			12–23 mo	PBF vs. FF	Not signif		
Clavano, 1982	Philippines Urban	Cross-sectional	Neonatal period	EBF PBF FF	4% 6% 90%	Percent infants with diarrhea	
Paine & Coble, 1982	United States Rural	Retrospective	< 6 mo	BF FF	1.5 12.1	Office visits/100 infant months of observation	
Kumar et al., 1981	India Urban and rural	Prospective	0–4 mo	BF BF & formula FF	<u>Urb.</u> 1 5.3 5.7	<u>Rural</u> 1 4.1	Relative risk of diarrhea Insufficient number of FF infants in rural areas to compare
			5–12 mo	BF BF & formula FF	1 1.3 1.4	Not signif	
Fergusson et al., 1978	New Zealand Urban	Prospective	< 4 mo	EBF FF	1 31.6	Relative risk of diarrhea	
Cunningham, 1977	United States Rural	Retrospective	< 12 mo	BF FF	2.0 4.9	Episodes of vomiting/diarrhea per 1000 patient – weeks, not corrected for age	

1.2 Effect of Breastfeeding on Respiratory Infection Morbidity

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE		COMMENT
César et al., 1999	Brazil Urban (Pelotas)	Nested case-control	< 3 mo	EBF PBF FF	1 2.9 61.1		Adjusted odds ratio for developing pneumonia
			3–6 mo	EBF PBF FF	1 3.4 10.1		
			6–12 mo	EBF PBF FF	1 3.7 9.2		
Levine et al., 1999	United States and Canada Urban	Case-control	2–11 mo	Current BF	0.27		Adjusted odds ratio for invasive pneumococcal disease (IPD), separated for age groups 2–11, 12–23, and 24–59 months Only significant inverse association between breastfeeding and IPD found was in the 2–11 months age group
Perera et al., 1999	Sri Lanka Urban	Descriptive recall (hospital-based)	< 12 mo	EBF ≥ 4 mo EBF to 3 mo Never BF	0.09 0.39 0.60		Risk of first acute respiratory infection in the period after the period of exclusive breastfeeding Shows that EBF delays respiratory illness
Silfverdal et al., 1999	Sweden Urban/rural	Ecologic	5–10 yrs	BF FF	0.6		Strong negative correlation between BF and <i>Haemophilus influenzae</i> infection incidence 5–10 years later
Nafstad et al., 1996	Norway Urban (Oslo)	Prospective	< 12 mo	BF FF	<u>AI</u> 1 2.2	<u>HI</u> 1 4.6	Adjusted odds ratio of all infections (AI) and hospitalized infections (HI) of infants whose mothers smoked by feeding mode
Cushing et al., 1998	United States Urban	Prospective	< 6 mo	Full BF FF	0.81 1		Adjusted odds ratio for incidence of lower respiratory illness
Lopez-Alarcón et al., 1997	Mexico Urban	Prospective	0–6 mo	Full BF duration	<u>Inc</u> -0.17	<u>Prev</u> -0.16	Coefficient of correlation between full BF duration and incidence (Inc) and prevalence (Prev) of acute respiratory infection
Scariati et al., 1997	United States Nationwide	Longitudinal	2-7 mo	EBF PBF FF	1 1.2–1.6 1.7		Adjusted odds ratio of experiencing ear infections

1.2 Effect of Breastfeeding on Respiratory Infection Morbidity (continued)

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE		COMMENT
Silfverdal, 1997	Sweden (1 county)	Prospective Case-control HI infection		EBF ≤ 12 wks	3.6		Odds ratio of <i>Haemophilus Influenza</i> (HI) infection by duration of EBF
				EBF > 13 wks	1		
				PBF ≤ 20 wks	2.9		Odds ratio of <i>Haemophilus Influenza</i> (HI) infection by duration of PBF
				PBF > 21 wks	1		
Zaman et al., 1997	Bangladesh Rural	Cohort (community-based)	0–59 mo	EBF ≥ 4mo EBF to 3 mo Never BF	Few More Most		Number of hospital admissions for an acute respiratory infection
Beaudry et al., 1995	Canada New Brunswick	Retrospective	0–6 mo	BF FF	<u>RI</u> 0.78 1	<u>HA</u> 0.32 1	Adjusted incidence density ratio for respiratory illnesses (RI) and hospital admissions (HA)
Bohler et al., 1995	Bhutan Rural	Prospective	12–36 mo	BF Non-BF	0.63 1		Odds ratio for respiratory tract infection
Dewey et al., 1995	United States Urban	Prospective	0–12 mo	BF FF	Not signif		Adjusted incidence of number of days with respiratory illnesses per 100 days at risk Formula-fed included infants who breastfed < 3 mo
			12–24 mo	BF FF	Not signif		
Wright et al., 1995	United States Urban	Prospective/ retrospective	6 years	BF < 1 mo FF	1 3.03		Adjusted odds ratio of recurrent wheezing at 6 yrs of age for nonatopic children only No effect for atopic children
Douglas et al., 1994	Australia Urban	Prospective	< 24 mo	PBF duration	<u>Mo</u> 0 1-3 4-6 7-12 >12	<u>OR</u> 5.6 6.1 6.5 6.5 7.0	Adjusted odds ratio of respiratory illness in second year, corresponding with different breastfeeding durations in months (P=0.006)
Pisacane et al., 1994	Italy	Case-control, Hospital-based	< 6 mo	BF FF	0.22 1		Odds ratio for hospitalization with pneumonia or bronchiolitis
Howie et al., 1990	Scotland Community setting	Prospective	< 24 mo	Full BF PBF FF	25.6% 24.2% 37%		Adjusted rates of respiratory infection and full, partial or no breastfeeding during the first 13 weeks of life

1.2 Effect of Breastfeeding on Respiratory Infection Morbidity (continued)

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE	COMMENT
Launer et al., 1990	Indonesia Rural	Prospective	3–12 mo	Q1 Q2 Q3 Q4	2.4 1.7 1.3 0.9	Mean number of days with respiratory tract illness per 3-week period by quartiles of time spent breastfeeding from lowest (Q1) to highest (Q4)
Rubin et al., 1990	Denmark Urban	Prospective	0–12 mo	EBF BF > FF vs. BF < FF & FF	Not signif	Misclassification may be a problem. Large drop-out rate
Brown et al., 1989	Peru Urban	Prospective	< 6 mo	EBF BF & liquids BF & milk BF & solids FF	1 1.8 1.4 2.7 4.1	Adjusted relative risk for incidence of acute respiratory infection
Jalil et al., 1989	Pakistan Urban slum	Prospective	< 24 mo	Age at weaning	Not signif	Poorly defined feeding variable, outcome measure and analytical methods
Wright et al., 1989	United States Urban	Prospective/ Retrospective	< 12 mo	BF FF	Not signif	Odds ratio for hospitalization with pertussis-like illness
			< 4 mo	BF > 1 mo BF < 4 mo	1 1.7	Adjusted odds ratio of wheezing during infancy Only age interval < 4 mo was significant
Chen, et al. 1988	China Urban	Community-based retrospective	< 18 mo	Ever BF Never BF	1 2.11	Adjusted odds ratio for hospitalization with respiratory infection
Forman et al., 1984	United States Rural (American Indians)	Retrospective	> 6 mo	PBF FF	1 1.2	Calculated relative risk from data presented
			< 4 mo	EBF FF	0.3 1	
Campbell & Latham, 1988	Mexico Rural	Prospective	0–8 mo	BF FF	Not signif	Negative association for frequency of breastfeeding and respiratory infections at 2 of 3 rounds of data collection ($p < 0.5$)

1.2 Effect of Breastfeeding on Respiratory Infection Morbidity (continued)

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE	COMMENT
Kumar et al., 1981	India Urban/rural	Prospective	5–12 mo	BF BF and bottle	7.6 16.0	Episodes/100 child-mo of observations No effects detected in urban cohort or among rural infants < 4 mo
			< 4 mo	EBF FF	Not signif	
Fergusson et al., 1978	New Zealand Urban	Prospective	< 4 mo	EBF FF	Not signif	No association was found after controlling for confounding variables
Cunningham, 1977	United States Rural	Retrospective	< 12 mo	EBF Bottle-fed	0.5 1	Episodes of respiratory infections/1,000 weeks of observation
			< 12 mo	BF Bottle-fed	1.1 5.6	

1.3 Effect of Breastfeeding on Otitis Media and Ear Infection

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE	COMMENT
Daly et al., 1999	United States Rural	Prospective cohort (community-based)	0–59 mo	EBF ≥ 3 mo Yes No	0.8 1	Relative risk for otitis media No significant differences found between infants EBF for at least 3 months or for greater than 6 months and infants who were not EBF.
				EBF = 6 mo Yes No	0.7 1	
Duffy et al., 1997	United States Suburban	Prospective cohort	< 3 mo	EBF Mixed feeding FF	1 Not reported 1.22	Overall relative risk of first episode of acute otitis media and otitis media with effusion during the first 12 months of life
			3–6 mo	EBF Mixed feeding FF	1 1.28 1.59	
			> 6 mo	EBF Mixed feeding FF	1 1.30 1.70	
Dewey et al., 1995	United States Urban	Prospective	< 12 mo	BF	0.45	Adjusted episodes/100 days at risk
			> 12 mo	FF BF FF	0.53 Not signif	

1.3 Effect of Breastfeeding on Otitis Media and Ear Infection (continued)

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE			COMMENT
Aniansson et al., 1994	Sweden Urban	Prospective	< 12 mo	EBF PBF weaned	<u>1-3</u> 1% 5%* 6%	<u>4-7</u> 4% 7% 14%*	<u>8-12</u> 0% 9% 20%*	Percent of children with acute otitis media by age group (in months) *significantly different (p < 0.05) in comparison with EBF
Duncan et al., 1993	United States Urban	Retrospective review of medical records	< 12 mo	FF & BF<4mo suppl <4 mo suppl 4-6 mo suppl 6 mo	<u>ROM</u> 1 0.73 0.54 0.39	<u>AOM</u> 1 0.85 0.72 0.61		Adjusted odds ratio for recurrent otitis media (ROM) and acute otitis media (AOM)

1.4 Effect of Breastfeeding on Other Aspects of Infant Health

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN & OUTCOME	AGE GROUP	BF PRACTICES	EFFECT SIZE				COMMENT
Bertini et al., 2001	Italy Urban	Prospective Jaundice	72 hrs after birth	EBF Mixed feeding FF	2.7 5.9 13.1				Percent of infants with total serum bilirubin (TSB) > 12.9 mg/dL Mixed feeding value not statistically different from EBF
Oddy et al., 1999	Australia	Prospective Asthma and atopy	< 6 yrs	EBF ≥ 4 mo EBF < 4 mo	<u>As</u> 1 1.25	<u>Wh</u> 1 1.41	<u>SP</u> 1 1.30		Adjusted odds ratio for asthma (As), wheezing ≥ 3 times since age 1 year (Wh), and positive skin prick test (SP) by age of introduction of other milks
Raisler et al., 1999	United States Nationwide	Retrospective Illness	< 6 mo	EBF BF > FF BF = FF BF < FF Non-BF	<u>D</u> 0.54 0.83 NS NS 1	<u>C/W</u> 0.83 0.81 0.68 NS 1	<u>V</u> 0.71 NS NS NS 1	<u>TI</u> 0.78 NS NS NS 1	Adjusted odds ratio for diarrhea (D), cough/ wheeze (C/W), vomiting (V) and total illness (TI) NS = not signif

1.4 Effect of Breastfeeding on Other Aspects of Infant Health (continued)

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE			COMMENT		
					RI	WZ	PBF	OM	GE	BL
Wilson, et al., 1998	United Kingdom Urban (Scotland)	Follow-up Respiratory illness, growth, body composition and blood pressure	6-9 yrs	EBF ≤ 15 wk Solid feeding before 15 wks	17% 32%	10% 21%	17% 19%	Estimated probabilities of ever having respiratory illness (RI), wheeze (WZ), and percent body fat (PBF) presented Children who were EBF had higher systolic blood pressure; diastolic blood pressure was not influenced.		
Wright et al., 1998	United States (Navajo community)	Prospective Childhood illness	< 12 mo	EBF FF	0.70 1	0.52 1	0.39 1	0.77 1	0.65 1	Relative risk of otitis media (OM), gastroenteritis (GE), bronchiolitis (BL), nasopharyngitis (NP) and fever > 100.4°F (FV)
Chandra RK., 1997	Canada (Newfoundland)	Prospective Atopy	< 5 yrs	EBF ≥ 4 mo FF whey FF soy FF cow's milk	0.422 0.322 0.759 1	Odds ratio of cumulative incidence of allergic disease in high-risk infants by feeding mode				
Wang & Wu, 1996	China	Prospective Childhood illness	< 12 mo	EBF ≥ 4 mo BF ≥ 4 mo	2.58 ± 1.38 3.10 ± 1.65	Mean ± standard deviation of cumulative incidence of infection (p < 0.05)				
Brown et al., 1989	Peru Urban	Prospective Skin infections	< 6 mo	EBF BF & liquids BF & milk BF & solids	1 3.8 1.9 2.8	Relative risk of skin infections				
			6-11 mo	BF FF	1 5.7					

2.1 Effect of Breastfeeding on Infant Diarrheal Mortality

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE	COMMENT
Arifeen et al., 2001	Bangladesh Urban (slums)	Prospective	<12 mo	EBF Predominant PBF + FF	1 Not signif 3.94	Adjusted hazard ratio BF practices measured <4 m
Betran et al., 2001	Latin America and the Caribbean Urban/rural	Ecological	< 3 mo	EBF PBF FF	1 4.1 15.1	Relative risk of death from diarrheal disease
			4–11 mo	PBF FF	1 2.2	
WHO collaborators, 2000	Brazil, Pakistan, Philippines	Meta analysis	0–5 mo	BF FF	1 6.1	Adjusted odds ratio
			6–12 mo	BF FF	1 1.9	
Yoon et al., 1996	Philippines Urban	Prospective	< 5 mo	BF FF	1 9.7	Adjusted rate ratio No associations were found for children 6-11 mo or 12-23 mo
Victora et al., 1992	Brazil Urban	Case-control	< 12 mo	EBF Any BF FF	1 3.7 9.6	Age-adjusted relative risk
Sachdev et al., 1991	India Urban	Prospective Hospital-based	0–6 mo	Any BF FF	1 6.0	Adjusted odds ratio
			7–12 mo	Any BF FF	1 2.6	
			13–18 mo	Any BF FF	1 1.8	

2.1 Effect of Breastfeeding on Infant Diarrheal Mortality (continued)

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE	COMMENT
Victoria et al., 1989	Brazil Urban	Case-control	< 2 mo	EBF FF	1 23.3	Adjusted odds ratio
			< 12 mo	EBF Any BF FF	1 4.2 14.2	
Feachem & Koblinsky, 1984	14 developed and developing countries Various settings	Review	< 6 mo	EBF vs. FF EBF vs. PBF PBF vs. FF	25 8.6 3.5	Relative risk of diarrhea mortality
Robinson M, 1951	England Urban/rural	Review	1–7 mo	BF BF + formula FF	0 2.0 7.0	Diarrhea deaths per 1000 infants Statistical significance not tested

2.2 Effect of Breastfeeding on Infant Respiratory Infection Mortality

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE	COMMENT
Arifeen et al., 2001	Bangladesh Urban (slums)	Prospective	<12 mo	EBF Predominant PBF & FF	1 Not signif 2.40	Adjusted hazard ratio BF practices measured < 4 mo
Betran et al., 2001	Latin America and the Caribbean Urban/rural	Ecological	< 3 mo	EBF PBF FF	1 2.9 4.0	Relative risk of death from acute respiratory infections
			4 – 11 mo	PBF FF	1.0 2.1	
WHO collaborators, 2000	Brazil, Pakistan, Philippines	Meta-analysis	0 – 5 mo	Any BF FF	1 2.4	Adjusted odds ratio
			6–12 mo	Any BF FF	1 2.5	

2.2 Effect of Breastfeeding on Infant Respiratory Infection Mortality (continued)

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE		COMMENT
Yoon et al., 1996	Philippines Urban	Prospective	< 24 mo	Any BF vs. FF	Not signif		No associations were found for children 0-5, 6-11, or 12-23 mo.
Victora et al., 1989	Brazil Urban	Case-control	< 12 mo	EBF PBF FF	1 Not signif 3.59		Odds ratio of mortality from respiratory infections
Robinson M, 1951	England Urban and rural	Review	1-7 mo	BF BF + formula FF	<u>RI</u> 8.2 15.9 31.6	<u>OM</u> 0.0 2.0 8.1	Deaths due to respiratory infection (RI) and otitis media (OM) per 1,000 infants Statistical significance not tested

2.3 Effect of Breastfeeding on All-cause Infant Mortality

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE	COMMENT
Arifeen et al., 2001	Bangladesh Urban (slums)	Prospective	< 12 mo	EBF Predominant PBF + FF	1 Not Signif 2.23	Adjusted hazard ratio BF practices measured <4 m
Manda, 1999	Malawi Nationwide	Retrospective	0 - 11 mo	BF Weaned	1 10.12	Adjusted relative risk of mortality
			12 - 59 mo	BF Weaned	1 not signif	
Terra de Souza et al., 1999	Brazil Urban and rural	Ecological	< 12 mo	EBF ≥ 4 mo	5.9	Percentage reduction in infant mortality for every 10% increase in rate of EBF (≥ 4 mo)
Augustine & Bhatia, 1994	India Hospital-based	Retrospective	< 7 days	EBF PBF FF Not yet fed	29% 43% 43% 64%	Mortality rate
Mølbak et al., 1994	Guinea-Bissau Urban	Prospective	12-25 mo	BF Weaned	1 3.5	Relative risk of mortality

2.3 Effect of Breastfeeding on All-cause Infant Mortality (continued)

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE			COMMENT
Shahidullah, 1994	Bangladesh	Prospective	< 5 y	EBF BF + suppl	1 2.1			Adjusted relative risk of mortality
Srivastava et al., 1994	India Urban	Prospective Hospital-based	< 6 mo	BF FF	<u>E</u> 7.8 9.37	<u>L</u> 2.14 3.12	<u>P</u> 15.5 23.0	Mortality rates (%) during the early neonatal (E), late neonatal (L) and post neonatal to 6 mo (P) periods by feeding mode in infants with birth weight > 2.5 kg No tests of statistical significance
Singh & Srivastava, 1992	India Urban and rural	Cross-sectional	Neonatal (NN) Postnatal (PN)	Colostrum No colostrum	Urban <u>NN</u> <u>PN</u> 0 1.7 4.3 5.3	Rural <u>NN</u> <u>PN</u> 2.2 3.7 5.7 4.3	Percent infant deaths *Only results for high urban and medium rural socioeconomic levels are shown here.	
Awathi et al., 1991	India Urban	Prospective	1–6 mo	Premature BF FF Postnatal BF FF	<u>>2.5kg</u> 0.47 1.1	<u><2.5kg</u> 6.94 1.96 <u><2.5kg</u> 2.7 3.7	Percent dying by birth weight and feeding mode	
Briend & Bari, 1989	Bangladesh Rural	Prospective	12–17 mo 18–23 mo 24–29 mo	Any BF FF Any BF FF Any BF FF	1 6.1 1 4.5 1 3.7		Unadjusted relative risk of death Risk for the 30- to 36-mo period were not signif	
Molteno & Kibel, 1989	South Africa Urban	Case-control	< 12 mo	BF vs. FF	Deaths: 66.7 Controls: 92.8		Breastfeeding rates among infants who died (cases) and lived (controls). Odds ratio not calculated	
Retherford et al., 1989	Nepal Urban/rural	Cross-sectional	< 18 mo 18–60 mo	Any BF FF Any BF FF	0.19 1 0.45 1		Adjusted relative risks	
Habicht et al., 1988	Malaysia Urban and rural	Retrospective	< 12 mo	Bf FF	<u>NTW</u> 1 5.20	<u>T</u> 1 2.67	<u>T&W</u> 1 2.51	Adjusted relative risk of all cause mortality according to living conditions: neither toilet nor water (NTW), toilet only (T), both toilet and water in the home (T&W)

2.3 Effect of Breastfeeding on All-cause Infant Mortality (continued)

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE	COMMENT
Habicht et al., 1986	Malaysia Urban/rural	Retrospective	8-28 days	Full BF	68.6	Adjusted reduction in deaths per 1,000 infants per added mo of breastfeeding
			29 days - 6 mo	Full BF PBF	24.9 11.2	
			7-12 mo	Full BF PBF	3.4 1.7	
Butz et al., 1984	Malaysia Urban and rural	Retrospective	< 12 mo	EBF>1 wk vs. PBF EBF>4 wk vs. FF EBF=6 mo vs. FF	16 25 20	Reduction in deaths per 1,000 in days 8 – 28, months 2 – 6 and months 7- 12, respectively
Plank & Milanesi, 1973	Chile Rural	Cross-sectional	1-12 mo	EBF Any BF Bottle	29.2 56.0 60.5	Unadjusted mortality rate/1,000 living at beginning of interval
			3-12 mo	EBF Any BF Bottle	13.8 37.5 38.7	
			6-12 mo	EBF Any BF Bottle	10.0 14.0 19.9	

3 Effect of Breastfeeding on Intellectual and Motor Development

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE		COMMENT
Mortensen et al., 2002	Denmark	Prospective	18–34 yrs	Duration (mo): 1 2-3 4-6 7-9 >9	<u>WAIS</u> 99.4 101.7 102.3 106.4 104.0	<u>BPP</u> 38.0 39.2 39.9 40.1 40.1	Adjusted test scores for the Wechsler Adult Intelligence Scale (WAIS), and the Børge Priens Prøve (BPP)
Dewey et al., 2001	Honduras	Prospective/ observational	0–4 mo	EBF to 6 mo SF at 4 mo	<u>Crwl</u> 6.3 m 7.3 m	<u>Wlk</u> 60% 41%	Mean age (mo) for ability to crawl and percent infants walking by 12 mo according to BF pattern: EBF for 6 mo or EBF for 4 mo + solid foods (SF) from 4–6 mo
Horwood et al. 2001	New Zealand Nationwide	Prospective	7-8 yrs	FF BF < 4 mo BF 4-7 mo BF > 8 mo	<u>VIQ</u> 96.1 98.1 100.1 102.1	<u>PIQ</u> 99.6 100.8 102.1 103.3	Adjusted verbal (VIQ) and performance (PIQ) intelligence quotient scores by BF duration among surviving very low birthweight children Only VIQ differences are statistically significant (p<0.05)
Anderson et al., 1999	Multicountry Urban/rural	Meta-analysis	6–23 mo 2–5 yrs 6–9 yrs 10–15 yrs	BF vs FF BF vs FF BF vs FF BF vs FF	3.11 2.53 3.01 3.19		Weighted mean difference in cognitive developmental score between breastfed and formula-fed children by age at measurement
Horwood & Fergusson, 1998	New Zealand Urban	Longitudinal	8–18 yrs	FF BF < 4 mo BF 4-7 mo BF > 8 mo	<u>IQ</u> 98.7 99.7 100.6 101.5	<u>RC</u> 98.9 99.8 100.7 101.6	Adjusted scores of mean cognitive ability, WISC-R total IQ, at 8 years of age by BF practice (IQ) and mean standardized achievement test scores for reading comprehension (RC) at 10 years of age
Wang & Wu, 1996	China	Prospective	< 1 yr	EBF ≥4 mo Non-EBF ≥ 4 mo	47.37 30.68		% of infants passing all Gross Motor items in the Denver Developmental Screening Test (p < 0.05)
Florey et al., 1995	Scotland Urban (Dundee)	Prospective/ Retrospective	< 18 mo	BF FF	110.2 102.5		Mental development scores assessed with Bayleys Indices; mean difference = 7.7 points
Greene et al., 1995	England (South Tees)	Retrospective	11-16 yrs	BF ≤ 12 wk vs BF > 12 wk	<u>V-IQ</u> 6.0	<u>R-IQ</u> 5.4	Adjusted point advantage in verbal (V) and reasoning (R) IQ- (p<0.01)
Lucas et al., 1994	England Neonatal clinics	Prospective	< 18 mo	BF vs FF	8.8		Increased points scored by BF infants on the Bayley index of psychomotor development

3 Effect of Breastfeeding on Intellectual and Motor Development (continued)

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE			COMMENT	
Pollock, 1994	England Nationwide	Prospective/ Retrospective	5 yrs	EBF vs FF	1.5			Adjusted odds ratio for English picture vocabulary scores above the mean	
			10 yrs	EBF vs FF	1.64	1.49	1.55	1.64	Adjusted OR for total British Ability Scales (BAS) above the mean Adjusted OR for picture leanguage test above mean Adjusted OR for word definition (BAS) above mean Adjusted OR for similarities (BAS) above mean
Rogan & Gladen, 1993	United States North Carolina	Prospective	2 yrs	BF long vs. short	6.7			Adjusted difference in Bayley Mental Score	
			5 yr	BF long vs. short	3.9			Adjusted difference in McCarthy Quantitative score	
				BF long vs. FF	3.5	4.8	0.24	Adjusted difference in McCarthy Quantitative score Adjusted difference in McCarthy Memory score Adjusted difference in English report card grade	
Lucas et al., 1992	England Neonatal clinics	Prospective	< 8 yrs	BM FM	Verb 102 92	Perf 103 93	IQ 103 93	Unadjusted verbal, performance and overall IQ scores in preterm infants receiving breastmilk (BM) or formula milk (FM). IQ advantage after adjustments continued to be significant (7.5 points, $p < 0.001$).	
Morrow-Tlucak et al., 1988	United States Inner city	Prospective	< 2 yrs	BF > 4 mo vs BF < 4 mo	2.5			Increased Bayley Mental Developmental Index scores	
Taylor & Wadsworth, 1984	United Kingdom	Prospective/ Retrospective	5 yrs	NBF BF < 1 mo BF 1-2 mo BF > 3 mo	<u>PVT</u> -0.05 -0.05 0.08 0.12	<u>CD</u> 4.62 4.76 4.93 4.95	<u>RCB</u> 0.01 0.04 0.03 -0.03	Adjusted English Picture Vocabulary Test (PVT), Copying Design (CD), and Rutter Child Behavior (RCB) scores by BF duration. PVT and CD trends are statistically significant ($p < 0.001$), non-linear RCB trend is also significant ($p < 0.05$)	
Fergusson et al., 1982	New Zealand Dunedin	Prospective	3 yrs	BF>4 mo FF	<u>I</u> 101.4 99.0	<u>C</u> 100.9 98.2	<u>E</u> 100.6 98.8	<u>A</u>	Adjusted mean intelligence (I), comprehension (C), expression (E), and articulation (A) scores All differences shown are statistically significant.
			5 yrs	BF>4 mo FF	100.9 98.5	100.7 98.8	100.2 98.7	100.6 99.7	
			7 yrs	BF>4 mo FF	101.1 98.8	100.1 98.8	100.1 99.7	101.0 99.1	

3 Effect of Breastfeeding on Intellectual and Motor Development (continued)

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE			COMMENT
Rodgers, 1978	England Nationwide	Prospective	8 yrs	EBF vs FF	<u>PI</u> 1.76	<u>WR</u> Not signif		Difference in scores on different tests between breastfed and bottle-fed group, uncorrected for background factors Picture intelligence (PI) and Word Reading (WR) scores at 8 yrs, non-verbal ability (NV), mathematics (Math), and sentence completion (SC) scores at 15 years of age.
			15 yrs	EBF vs FF	<u>NV</u> 1.76	<u>Math</u> 1.55	<u>SC</u> 1.73	

4.1 Effect of Breastfeeding on Obesity

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE	COMMENT	
Gillman et al., 2001	United States Nationwide	Cohort	9–14 yrs	Mostly BF for first 6 mo	0.78	Adjusted odds ratio for risk of being overweight as an adolescent, according to feeding pattern of first 6 mo of life	
				Only formula for first 6 mo	1		
Hediger et al., 2001	United States Nationwide	Cross-sectional (NHANES III)	3–5 yrs	BF ≥ 7 mo	0.80	Adjusted odds ratio for risk of being overweight as an adolescent, according to BF duration	
				BF < 3 mo	1		
von Kries et al., 1999	Germany Rural	Cross-sectional	5–6 yrs	Ever BF	0.63	Adjusted odds ratio of being “at risk” (85 th -94 th percentile) of overweight according to feeding pattern. Odds ratio of being overweight (95 th percentile) was not statistically significant.	
				Never BF	1		
von Kries et al., 1999	Germany Rural	Cross-sectional	5–6 yrs	Ever BF	0.75	Adjusted odds ratio of risk of being obese, according to BF duration	
				Never BF	1		
				EBF ≤ 2 mo	0.90*		*CIs include 1 (not statistically significant)
				EBF 3–5 mo	0.65		
BF 6–12 mo	0.57						
BF > 12 mo	0.28*						

4.2 Effect of Breastfeeding on Risk of Diabetes

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE	COMMENT
Jones et al., 1998	United Kingdom Urban	Case-control	< 20 yrs	Ever BF Never BF	1 1.33	Relative risk
Pettitt et al., 1997	United StatesR	Longitudinal	10-40 yrs	EBF PBF FF	0.64 0.41 1	Odds ratio of noninsulin-dependent diabetes before age 40 years by feeding mode during first 2 months
Norris and Scott, 1996	Multicountry Europe & United States	Meta-analysis	Lifetime	Ever BF Never BF	1 1.13	Odds ratio for risk of IDDM associated with ever being breastfed or never being breastfed.
				BF 3 mo BF < 3 mo	1 1.23	Odds ratio for risk of IDDM for being breastfed for less than 3 months
Samuelsson et al., 1993	Sweden	Case-control	< 15 yrs	EBF PBF	Not signif	Slight association with shorter duration of breastfeeding and risk of developing diabetes

4.3 Effect of Breastfeeding on Later Risk of Cancer

AUTHOR & YEAR	OUTCOME	COUNTRY	DESIGN	BF PRACTICES	EFFECT SIZE	COMMENT	
Shu et al., 1999	Childhood acute leukemia	Multicountry	Case-control	BF > 6 mo 1-6 mo any BF FF	0.70 not signif 0.79 1	Odds ratio for childhood acute leukemia	
Titus-Ernstoff et al., 1998	Breast cancer	United States	Case-control	Any BF FF	Not signif	Examined both pre- and post-menopausal breast cancer but pre-menopausal women not well represented in sample	
Potischman et al., 1995	Premenopausal breast cancer	United States	Case-control	Any BF FF	0.76 1	Adjusted odds ratio. Not statistically significant (95% CI: 0.54-1.08)	
Fruedenheim et al., 1994	Breast cancer	United States	Case-control	Any BF FF	0.74 1	Odds ratio for pre- and post-menopausal breast cancer combined. Similar odds ratios were observed for each type separately (pre-: 0.76; post-: 0.73) but these were not statistically significant	
Davis et al., 1988	Childhood cancer	United States	Case-control	BF > 6 mo BF 6 mo FF	<u>All</u> 1 1.89 1.75	<u>L</u> 1 8.19 5.62	Odds ratios for all cancers (All) and lymphoma (L) from 1.5 to 15 years of age

4.4 Effect of Breastfeeding on Development of Other Chronic Diseases

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	OUTCOME	BF PRACTICES			EFFECT SIZE	COMMENT
Singhal et al., 2001	United Kingdom	Cohort	Blood pressure at 13–16 yrs	Banked breastmilk			81.9	All study children were born preterm. Mean arterial blood pressure (mm Hg) at 13–16 yrs, according to feeding pattern
				Preterm formula			86.1	
				Term formula			85.5	
Ravelli et al., 2000	Netherlands Urban	Cohort	Adult outcomes: glucose tolerance, lipid profile, blood pressure, and obesity	EBF	<u>Glu</u> 5.69	<u>Ins</u> 46.4	<u>L:H</u> 2.86	Adjusted geometric means of glucose tolerance (Glu), insulin (Ins), LDL:HDL ratio (L:H) No differences on blood pressure or anthropometry were found between infants who were EBF and those who were bottlefed.
				Bottle	5.87	52.7	3.14	
Saarinen & Kajosarri, 1995	Finland	Prospective	Atopic disease	BF ≥ 6 mo BF 1–6 mo BF < 1 or FF			42% 36% 65%	Prevalence
Wingard et al., 1994	United States	Prospective (population-based)	Adult longevity	BF 12–36 mo BF 6–11 mo BF 1–5 mo FF				No associations found
Koletzko et al., 1991	Canada	Case-control	Ulcerative colitis	EBF PBF				No associations found
Koletzko et al., 1989	Canada	Case-control	Crohn's disease in childhood	EBF PBF			1 3	Odds ratio

5.1 Effect of Breastfeeding on Maternal Risk of Breast Cancer¹

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE	COMMENT
Tryggvadottir et al., 2001	Iceland	Case-control	<40 yrs 40-55 yrs > 55 yrs 25-90 yrs	Ever vs Never BF	0.09 0.51* 0.32 0.33	Adjusted odds ratio (relative to never breastfed) * not signif (CI includes 1)
Gao et al., 2000	China Urban	Case-control	25-64 yrs	BF ≥ 24 mo Ever BF Never BF	0.6 0.9 1	Adjusted odds ratio for breast cancer
Zheng et al., 2000	China (less industrialized community)	Case-control	20-80 yrs	BF 1-36 mo BF 37-72 mo BF 73-108 mo BF ≥ 109 mo FF	1.00 1.01* 0.47 0.24 0.84*	Adjusted odds ratio for risk of breast cancer by duration of lactation * not signif (CI includes 1)
Furberg et al., 1999	United States	Case-control	20-74 yrs	Ever vs Never BF	0.7	Adjusted odds ratio for breast cancer
Marcus et al., 1999	United States North Carolina	Case-control	20-74 yrs	BF ≥ 1 yr Ever BF Never BF	0.1 0.2 1	Adjusted odds ratio for breast cancer for women who breastfed before 20 yrs of age
Newcomb et al., 1999	United States Multicenter	Case-control	50-79 yrs	BF ≥ 24 mo Ever BF Never BF	0.73 0.87 1	Adjusted relative risk of breast cancer
Romieu et al., 1996	Mexico Urban	Case-control	Lifetime duration	Ever BF BF > 60 mo BF 37-60 mo BF 25-36 mo BF 13-24 mo BF 4-12 mo BF 1-3 mo Never BF	0.54 0.23 0.27 0.60 0.47 0.59 0.48 1	Adjusted odds ratio presented BF associated with risk of breast cancer for both pre- and postmenopausal women Most of protective effect was associated with the first live birth

¹ All effects are significant unless otherwise noted.

5.1 Effect of Breastfeeding on Maternal Risk of Breast Cancer (continued)

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE	COMMENT
Brinton et al., 1995	United States	Case-control	Lifetime duration	BF > 72 wk BF > 2 wk FF	0.67 (0.4–1.1) 0.87 (0.7–1.0) 1	Adjusted relative risks and CIs. Although CIs include 1, the trend to greater protection with increasing duration was significant (p=0.04). Women who first BF < 22 y had the greatest reduction in risk.
Mayberry, 1994	United States	Case-control	< 40 yrs 40–54 yrs	BF > 8 mo BF 4–7 mo BF < 4 mo	No association	Adjusted odds ratio Small sample size
Newcomb et al., 1994	United States	Case-control	Lifetime duration	FF BF BF > 24 mo BF 13–24 mo BF 4–12 mo BF < 3 mo < 20 y at first lactation and BF > 6 mo	1 0.78 0.72 0.66 0.78 0.85 0.54	Adjusted relative risk presented for premenopausal women only Associations not significant for postmenopausal women Younger age at first lactation was associated with reduced risk
Kelsey et al., 1993	Multicountry	Review (case-control and cohort studies)	Pre- and postmenopausal	BF	0.21–0.77	Odds ratios for the protective effect of BF on late breast cancer development in case-control but not in cohort studies
Thomas et al., 1993	Multinational	Case-control	Pre- and postmenopausal	BF < 3 mo vs 3 mo	No effect	Women who breastfed < 3 mo were used as reference, possibly minimizing ability to find effect
Yoo et al., 1992	Japan	Case-control	Lifetime duration	FF Any BF BF > 13 mo BF 10–12 mo BF 7–9 mo BF 4–6 mo BF 1–3 mo	1 0.62 0.53 0.59 0.47 0.75 0.71	Adjusted odds ratios Most odds ratios have confidence intervals that include 1; however, trends are significant. Similar associations found for both pre- and postmenopausal women
London et al., 1990	United States	Prospective (cancer incidence)/ Retrospective (BF history)	Associations are examined by BF duration stratified by both age and parity		No effect	No independent association between lactation and risk of breast cancer. Associations did not differ by age or menopausal status.

5.1 Effect of Breastfeeding on Maternal Risk of Breast Cancer (continued)

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE	COMMENT	
Layde et al., 1989	United States	Case-control	Not reported	BF > 24 mo FF	0.67 1	Odds ratio for breast cancer	
Siskind et al., 1989	Australia	Case-control	Not reported	Any BF FF	No effect	No effect for either pre- or postmenopausal women	
Rosero-Bixby et al., 1987	Costa Rica	Case-control	Not reported	Lifetime duration of BF	No effect	Adjusted relative risk	
Byers et al., 1985	United States Urban	Case-control	Lifetime duration	BF > 12 mo BF 7–11 mo BF 1–6 mo BF < 1 mo FF	0.21 0.63 0.57 0.98 1	Adjusted relative risk presented for premenopausal women only Associations not significant for postmenopausal women Cases more likely than controls to report lactation failure due to insufficient milk	
Raksasook, 1985	Thailand	Case-control	Not reported	% BF BF duration (mean)	<u>NBD</u> 86.2 9.33	<u>CA</u> 90.1 15.3	Percent ever breastfed and mean BF duration for women with no breast disease (NBD) or with breast cancer (CA). Association not tested for significance. Includes many non-parous women.
Brinton et al., 1983	United States Urban	Case-control	Not reported	Ever BF Never BF	0.94 (0.8–1.1) 1	Adjusted relative risks (and CI)	
MacMahon et al., 1982	Estonian Republic Urban	Case-control	Lifetime duration	Not reported	No effect	Adjusted odds ratio	
Kalache et al., 1980	England	Case-control	16–50 yrs	Ever BF BF > 16 wk	No effect	Analyses adjusted only for parity	
Ing et al., 1977	Hong Kong	Retrospective	> 55 yrs postmenopausal	BF duration	No effect	No test of significance provided. Only chose women who breastfed from 1 side.	
MacMahon et al., 1970	Multicountry	Case-control	Not reported	BF duration	No effect	Hospital-based controls	
Valaoras et al., 1969	Greece Urban	Case-control	Lifetime duration	BF > 24 mo	No effect	Relative risk adjusted for age and parity	
MacMahon & Feinleib, 1960	United States	Case-control	Not reported	BF duration	No effect	Hospital-based controls	

5.2 Effect of Breastfeeding on Maternal Risk of Ovarian Cancer

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE	COMMENT
Ness et al., 2000.	United States	Case-control	20–69 yrs	BF ≥ 24 mo FF	0.6 1	Adjusted odds ratio for ovarian cancer (CI includes 1)
Siskind et al., 1997	Australia	Case-control	Pre- and post-menopause	Total duration of un-suppl. BF	0.98	Adjusted odds ratio per month of total un-supplemented BF among premenopausal women only
Rosenblatt et al., 1993	Multicountry	Case-control	Duration of BF/ pregnancy	BF > 13 mo BF 8–12 mo BF 3–7 mo BF < 3 mo	0.68 0.80 0.75 1	Adjusted odds ratios Most of the reduction in risk occurred with short-term lactation, with no further reduction with long-term lactation.
Whittemore et al., 1992	United States	Case-control	Not reported	Ever BF Never BF	0.73 hospital 0.81 comm.	Adjusted odds ratio for hospital and community-based studies Trend to decreasing risk with increasing duration of breastfeeding
Gwinn et al., 1990	United States	Case-control	Lifetime duration	Never BF Ever BF BF > 24 mo BF 12–23 mo BF 6–11 mo BF 3–5 mo BF 1–2 mo	1 0.6 0.3 0.7 0.8 0.8 0.6	Adjusted relative risk Most protection occurred with first lactation
Booth et al., 1989	England	Case-control	Not reported	BF > 2 yr Ever BF	3 1	Risk of ovarian cancer ($p < 0.05$), but no overall significant trend for longer duration of breastfeeding
Risch et al., 1983	United States	Case-control	Lifetime duration	BF > 3 mo BF < 2 mo	0.69 1	Adjusted relative risk

5.3 Effect of Breastfeeding on Other Maternal Outcomes

AUTHOR & YEAR	COUNTRY & SETTING	DESIGN	AGE GROUP	BF PRACTICES	EFFECT SIZE			OUTCOME & COMMENT
Dewey et al., 2001	Honduras	Randomized Controlled Trial	0–4 mo	EBF to 6 mo EBF to 4 mo	<u>Kg</u> 52.7 53.2	<u>BMI</u> 22.0 22.6	Statistically significant reduced body weight (Kg) and body mass index (BMI) after 2 months of intervention among mothers randomized to EBF for 6 months, compared with those who gave solid foods with or without breastmilk from 4 months	
Gigante et al., 2001	Brazil Urban	Longitudinal	20–40 + yrs	EBF PBF Weaned	<u>BMI</u> 24.4 26.4 26.2	<u>WH</u> 0.80 0.82 0.81	<u>FM</u> 34.4 40.1 39.8	Crude mean values according to breastfeeding duration for body mass index (BMI), waist:hip ratio (WH) and percent fat mass (FM) Mean values were higher for women who BF <1 mo and tended to decrease with increased BF duration, but increased again in women who BF for > 12 mo BMI and % FM tended to be lower for mothers who BF for 6–11.9 mo
Michaëlsson et al., 2001	Sweden Nationwide	Case-control	50–81 yrs	Never BF BF 1–5 mo BF 6–10 mo BF 11–6 mo BF > 16 mo	1 0.86 0.94 0.92 0.98		Adjusted odds ratio for hip fracture, according to breastfeeding duration in postmenopausal women All CIs included 1 No association found for duration of BF with hip fracture risk	
Motil et al., 1998	United States	Longitudinal	2-38 yrs	Lactating Nonlactating Nulliparous	68 72 76		Lean body mass percentage; no significant difference observed at end of study period; however, body fat % decreased throughout the study period in lactating women (35% at first visit and 32% at fifth visit)	