

Breakthrough Strategies for Preventing Early Childhood Caries

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Innovations in the Prevention and Management of ECC

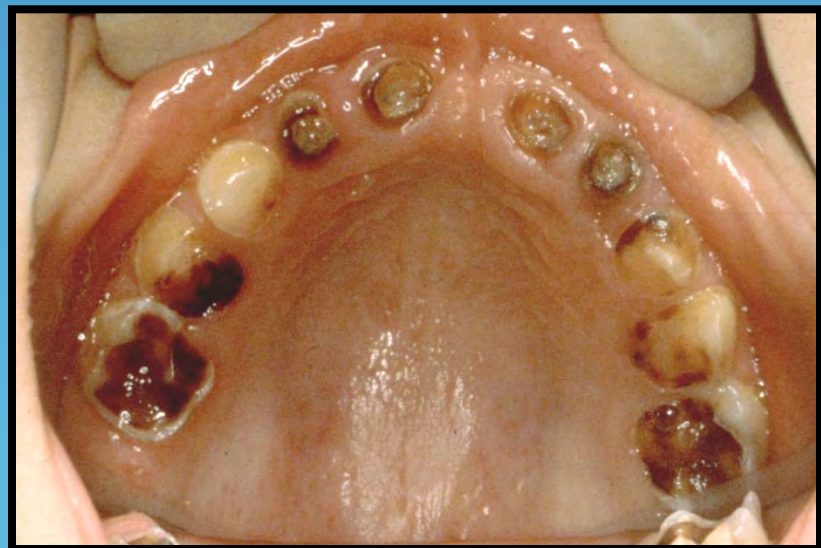
Oct. 23-24, 2014

- This conference goals were to assess the evidence, as well as the potential, of emerging approaches that can reduce ECC.
- The conference also convened a panel to review the literature assessments and conference discussions in order to start the process of developing evidence-based clinical recommendations that will reduce the incidence and improve the management of ECC.

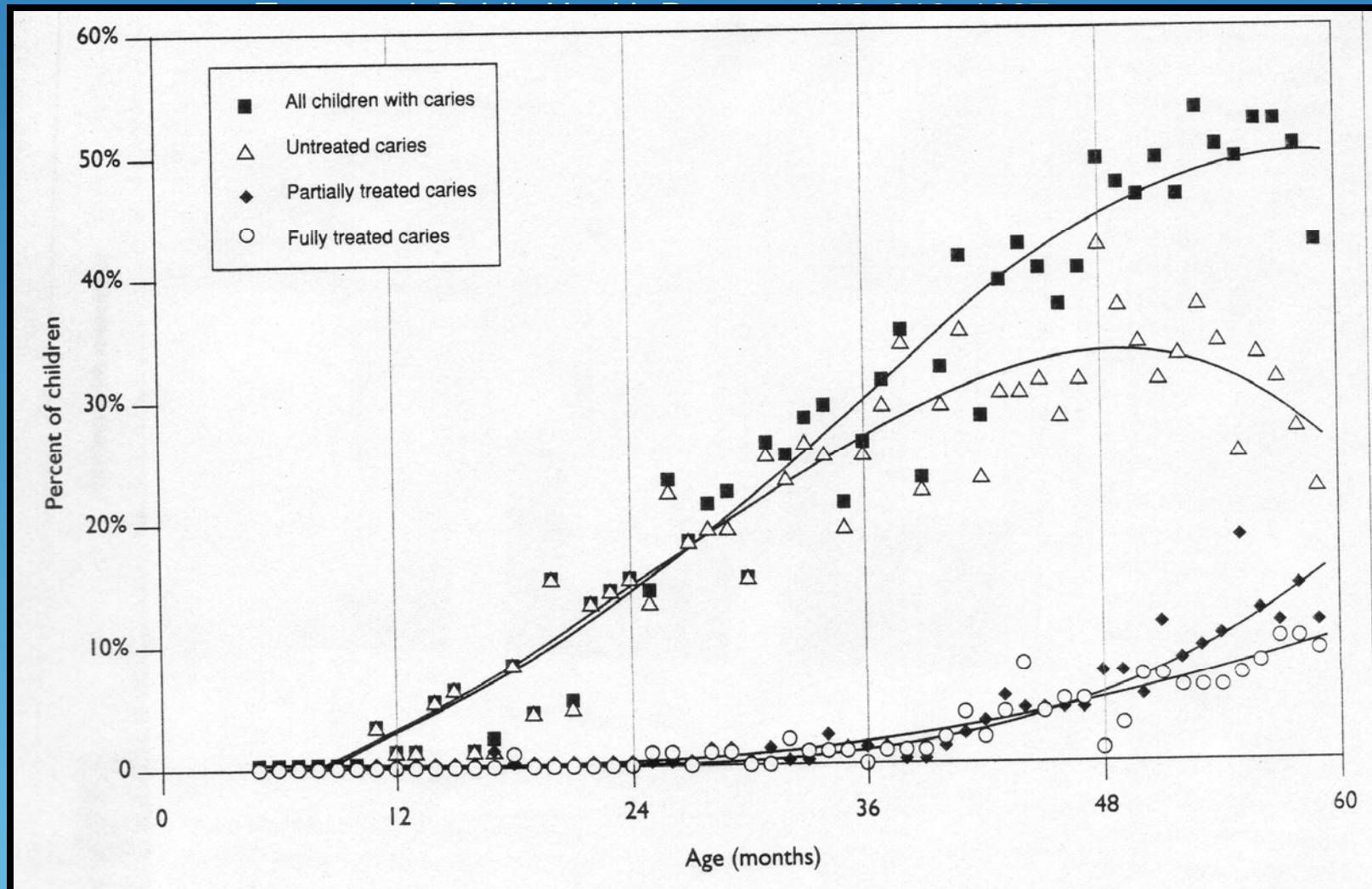
12 month old



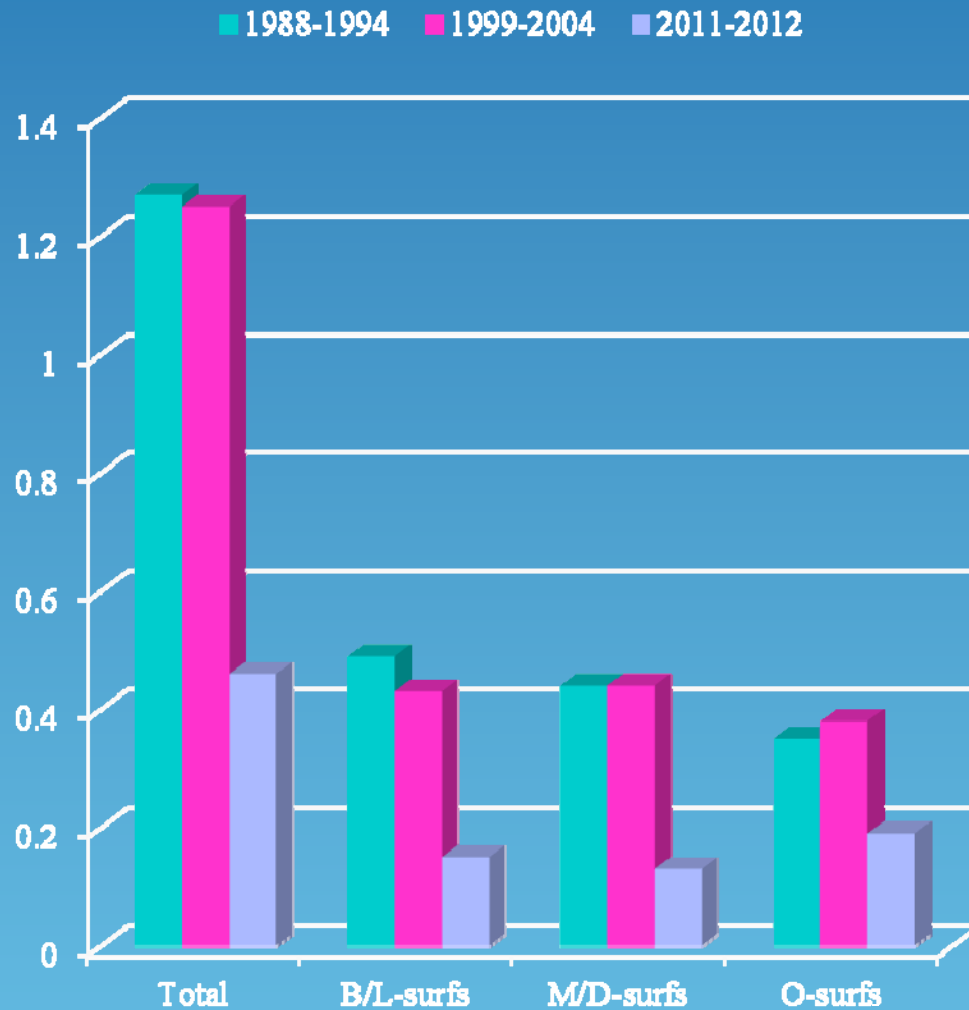
36 month old



Caries and Treatment Levels in 5,171 Arizona Preschool Children



NHANES Surveys: Mean number of decayed surfaces in primary teeth by surface type for children, age 2-5 years



Dye and Hsu, 2015 (in press)

Conventional Wisdom

- Oral health risk assessment is an important component of ECC prevention
- Antimicrobial interventions (chlorhexidine, iodine, xylitol) reduced cariogenic microorganisms and ECC.
- Fluoride toothpaste and fluoride varnish greatly reduce ECC.
- Restorative dentistry is effective in disease management of ECC.
- Education and behavioral change strategies are an important component of ECC prevention.

Value of Some Risk Assessment Strategies

- Previous caries experience 2++
- Mutans streptococci colonization 2++
- Dentists subjective judgment 2++
- Frequent sugar consumption --
- Presence of tooth defects 2++
- Maternal factors 2+
- Socioeconomic status 2++

2++ from high quality studies; 2+ well conducted studies







Caries Risk Assessment for 0-5 Year Olds (AAPD, 2015)

	High Risk	Moderate Risk	Protective Factors
Biological Factors			
Mother/primary caregiver has active caries	Yes		
Parent/caregiver has low SES	Yes		
Child has >3 between meal sugar snacks	Yes		
Put to bed with a bottle containing sweets	Yes		
Child has special health care needs		Yes	
Child is a recent immigrant		Yes	
Protective Factors			
Child exposed to fluoridated drinking water			Yes
Child has teeth brushed daily with F toothpaste			Yes
Child receives professional topical fluoride			Yes
Additional home measures			Yes
Child has dental home/regular dental care			Yes
Clinical Findings			
Child has white spot lesions or enamel defects	Yes		
Child has visible caries	Yes		
Child has elevated mutans streptococcus	Yes		
Child has plaque on teeth		Yes	

AAP Risk Assessment Tool

Patient Name: _____ Date of Birth: _____ Date: _____
 Visit: 6 month, 9 month, 12 month, 15 month, 18 month, 24 month, 30 month, 3 years,
 4 years, 5 years, 6 years, other _____








RISK FACTORS

-  Mother or primary caregiver had active decay in the past 12 months
Yes No
-  Mother or primary caregiver does not have a dentist
Yes No
-  Continual bottle/sippy cup use with fluid other than water
Yes No
-  Frequent snacking
Yes No
-  Special health care needs
Yes No
-  Medicaid eligible
Yes No





Self Management Goals:

- Regular dental visits
- Dental treatment for parents
- Healthy snacks
- Brush with fluoride toothpaste 2X/day
- No soda
- Less/No juice
- Wean off bottle
- Only water in sippy cup

CLINICAL FINDINGS

-  White spots or visible decalcifications in the past 12 months
Yes No
-  Obvious decay
Yes No
-  Restorations (fillings) present
Yes No
-  Visible plaque accumulation
Yes No
-  Gingivitis (swollen/bleeding gums)
Yes No
-  Teeth present
Yes No
-  Healthy teeth
Yes No

PROTECTIVE FACTORS

-  Existing dental home
Yes No
-  Drinks fluoridated water or takes fluoride supplements
Yes No
-  Fluoride varnish in the last 6 months
Yes No
-  Has teeth brushed twice daily
Yes No

ASSESSMENT/PLAN

Caries Risk:

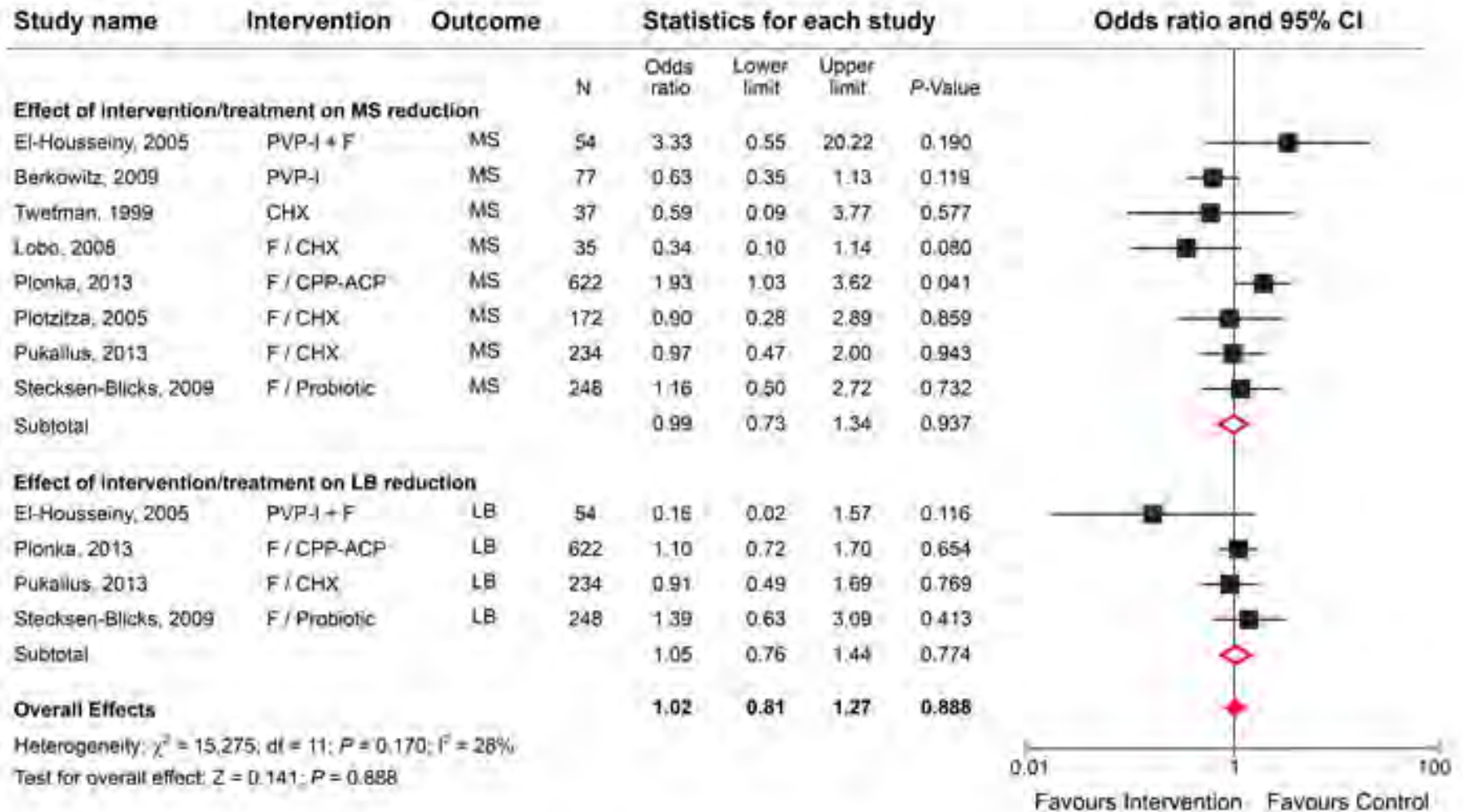
- Low High

Completed:

- Anticipatory Guidance
- Fluoride Varnish
- Dental Referral

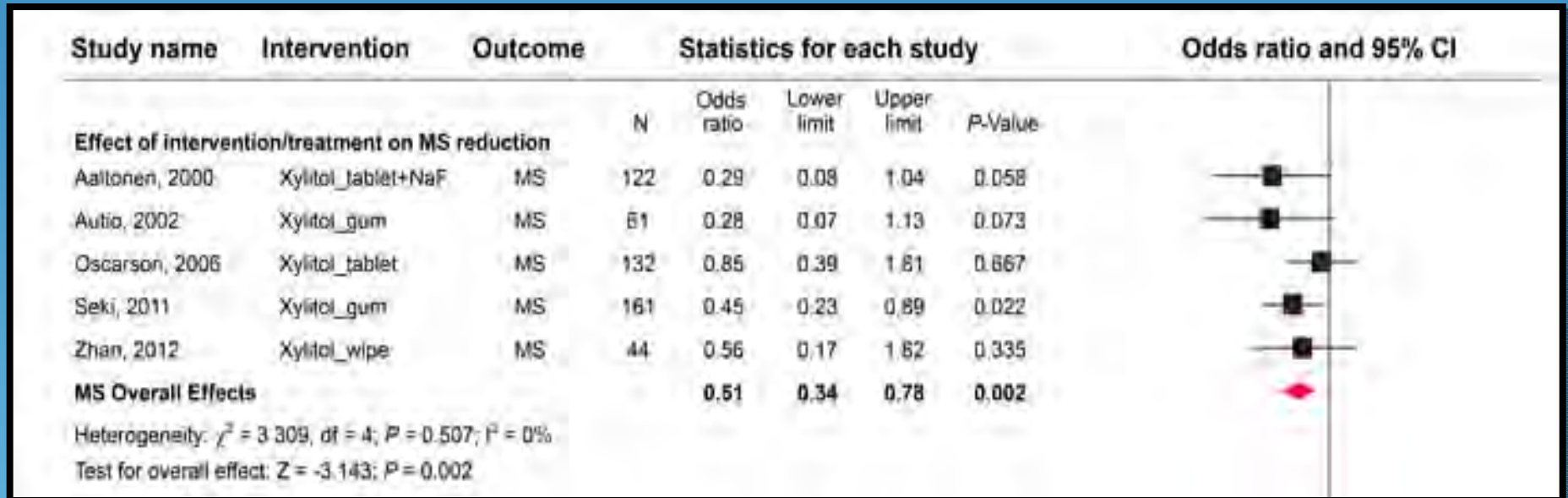
- Xylitol
- Drink tap water
- Less/No junk food or candy

Effect of CHX or PVP on MS and LB



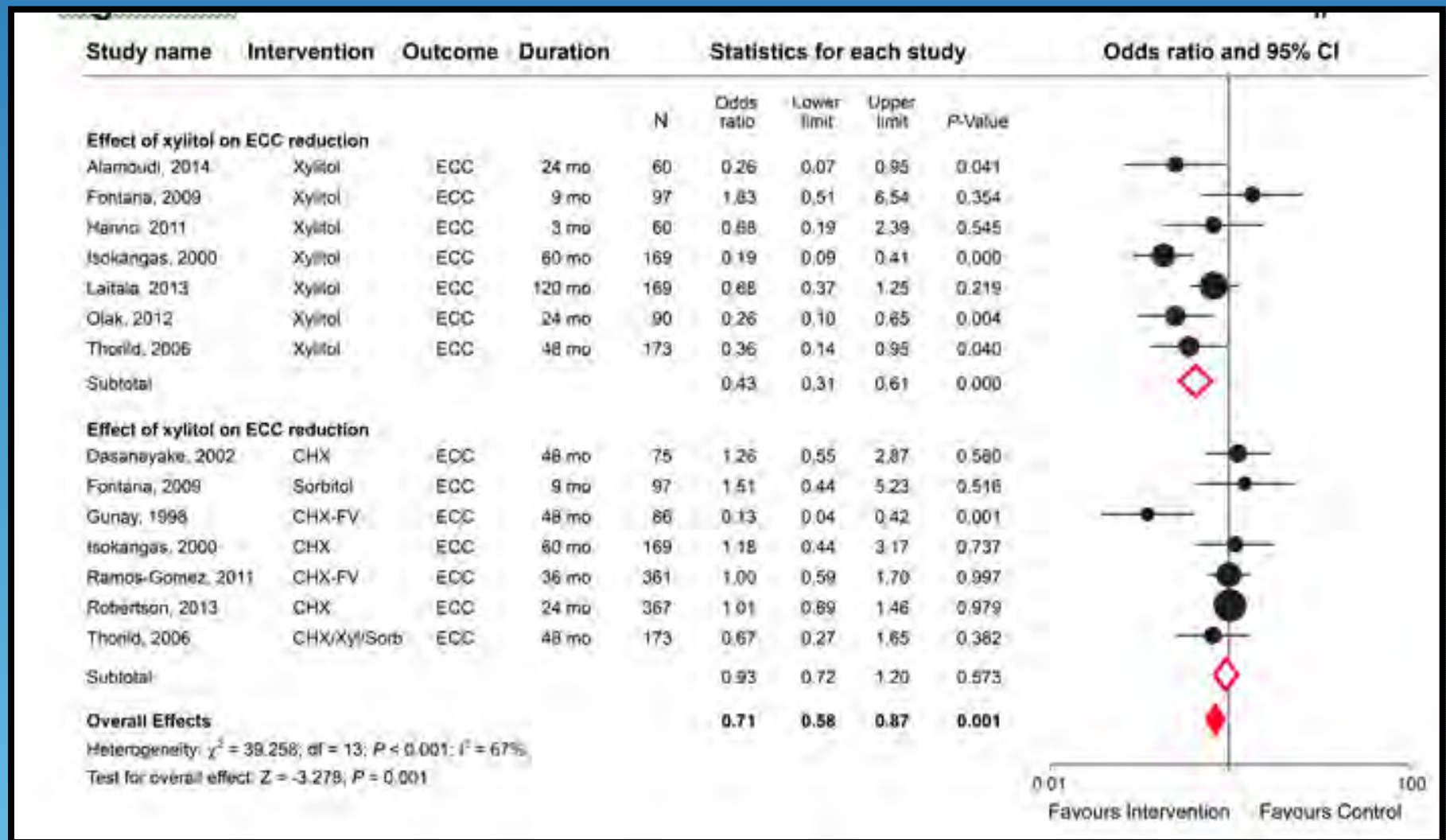
Li and Tanner, 2015 (in press)

Effect of Xylitol on MS



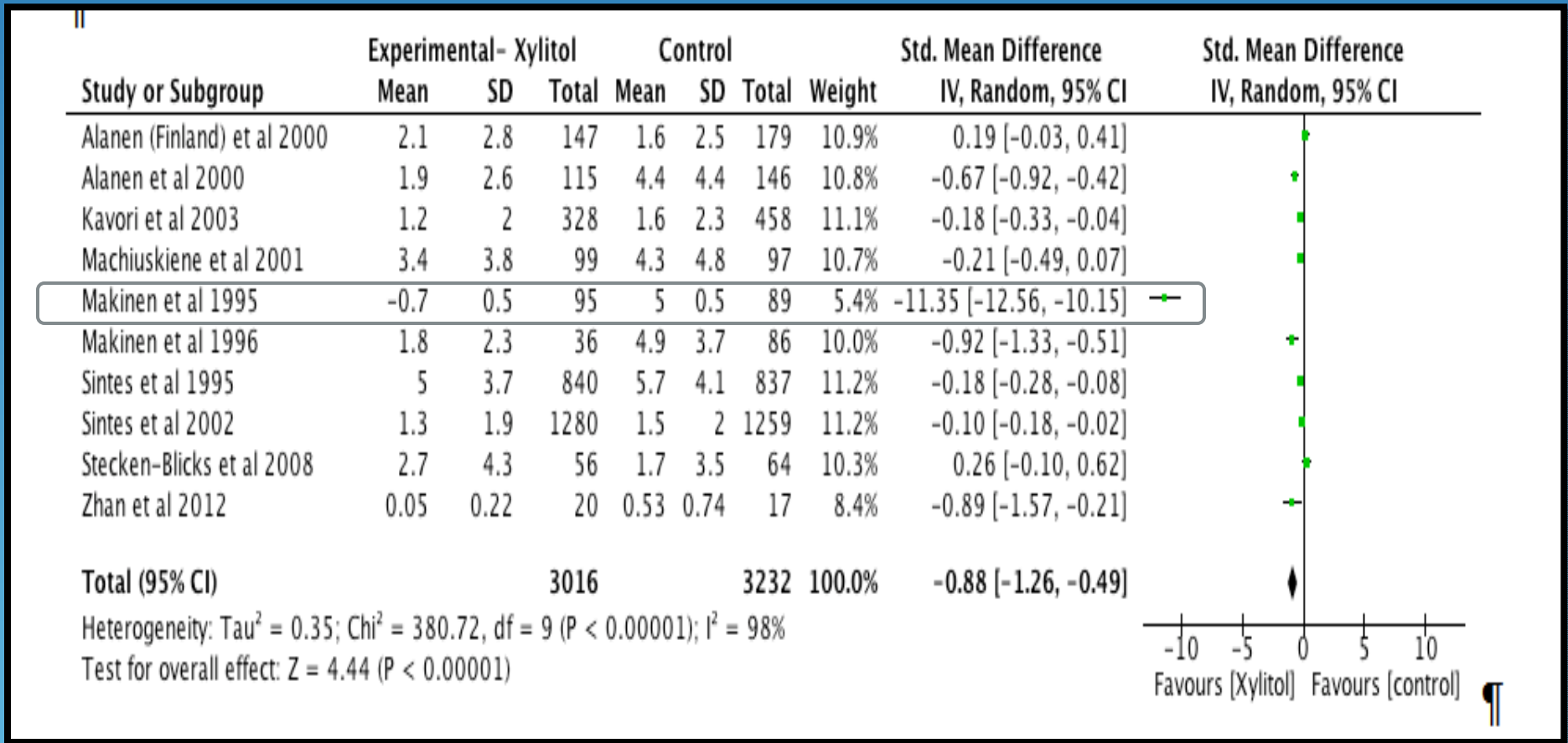
Li and Tanner, 2015 (in press)

Effect of Antimicrobial Maternal Interventions on ECC



Li and Tanner, 2015 (in press)

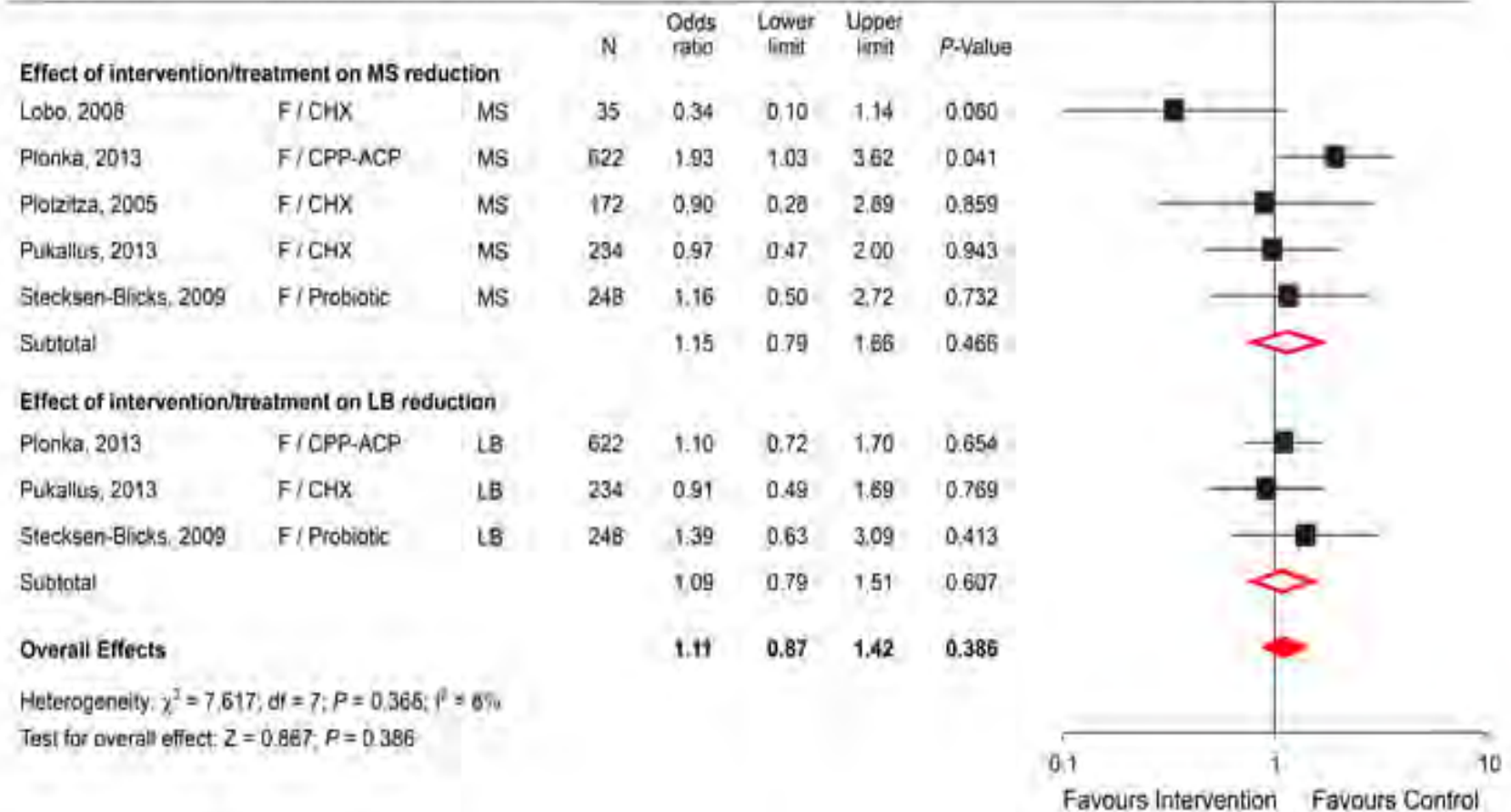
Effect of Xylitol on Caries



Guinto, et al, 2015 (in preparation)

Effect of Fluoride on MS and LB

Study name Intervention Outcome Statistics for each study Odds ratio and 95% CI



Lee and Tanner, 2015 (in press)

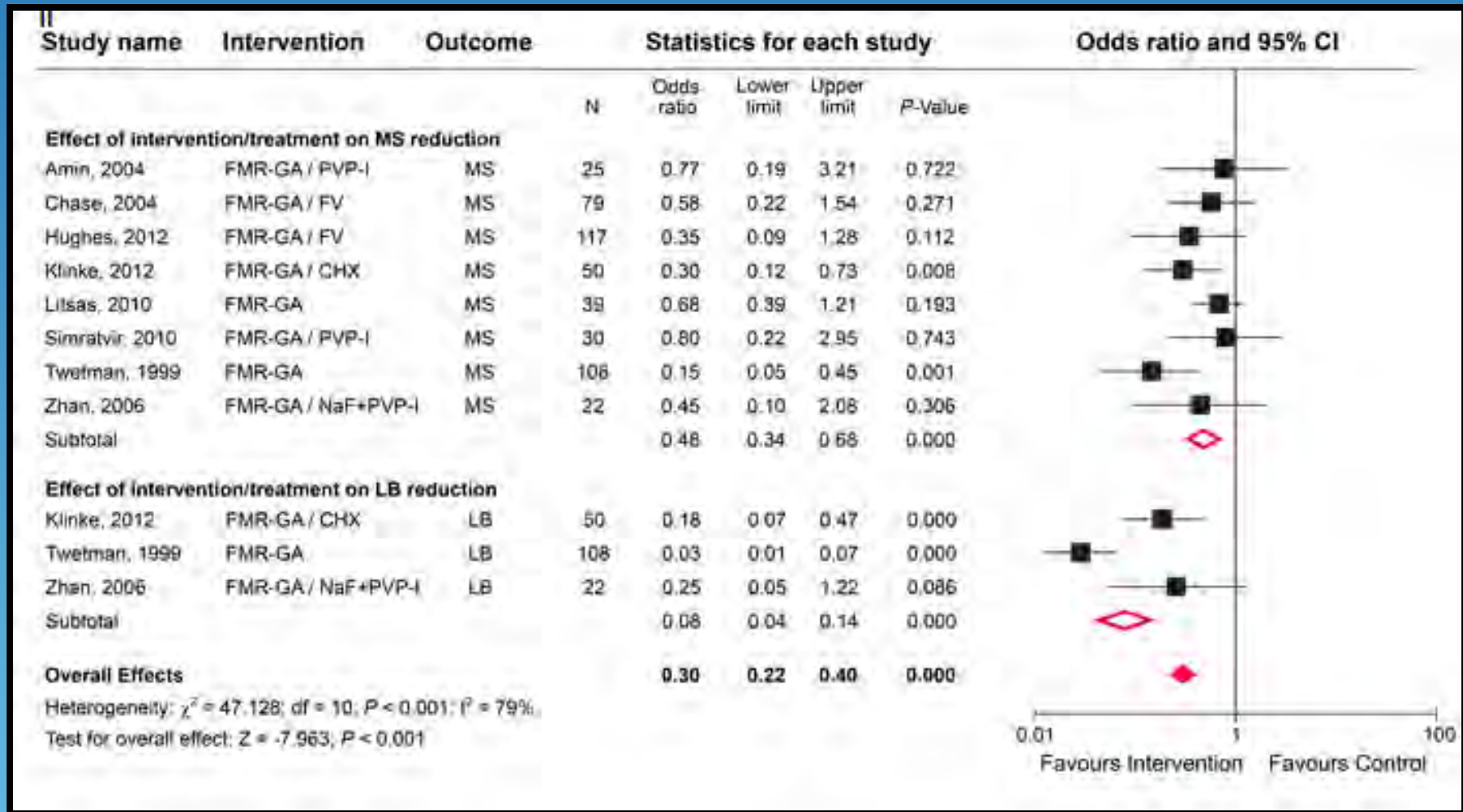
Effect of Fluoride Toothpaste on Caries

Author and Year	Preventive Fraction, Significance
Schwarz, 1998	42.7, Significant
You, 2002	16.1, Significant
Rong, 2003	30.6, Significant
Jackson, 2005	11.9, Non-Significant
Fan, 2008	41.9, Significant
	Overall 30.9, Significant

Effect of Fluoride Varnish on Caries

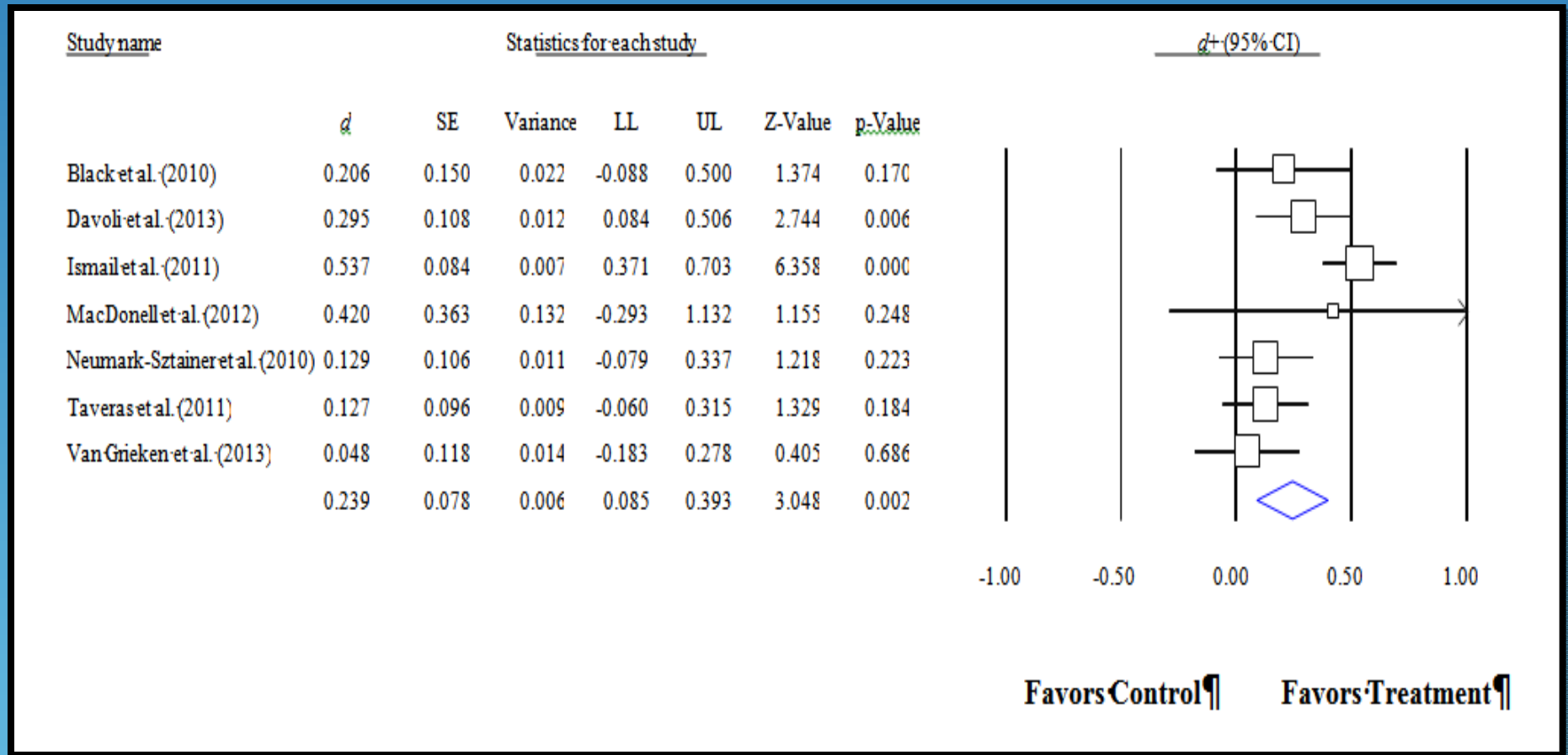
Author and Year	Std. Mean Difference/Significance
Holm, 1979	-.43, Significant
Grodzka, 1982	-.07, Non-Significant
Clark, 1985	-.18, Non-Significant
Frostell, 1991	-.38, Significant
Audio-Gold, 2001	-.34, Non-Significant
Weintraub, 2006	-.33, Significant
Hartman, 2007	.03, Non-Significant
Lawrence, 2008	-.08, Non-Significant
	Overall -.19, Significant

Effect of Restorative Care on MS and LB



Lee and Tanner, 2015 (in press)

Effect of Motivational Interviewing on Diet



Borrelli et al, 2015 (in press)

Effect of Chronic Disease Management

Outcomes	Boston Children's Hospital			St. Joseph Hospital		
	ECC (403) %	Baseline (N=129) %	Improvement %	ECC (234) %	Baseline (N=80) %	Improvement %
New cavitation	26	75	▼65	41	71	▼58
Pain	13	22	▼38	7	31	▼23
Referral to Operating Room	11	21	▼48	15	25	▼68

Ng et al., 2012

Conventional Wisdom

- Oral health risk assessment is an important component of ECC prevention (there are good associations; does using risk assessment affect caries incidence?)
- Antimicrobial interventions (chlorhexidine, iodine, xylitol) reduced cariogenic microorganisms (small effect) and ECC (no effect).
- Fluoride toothpaste (good) and fluoride varnish (modest) reduce ECC.
- Restorative dentistry is effective in disease management of ECC (affects microbiology short term, no effect on caries incidence).
- Education and behavioral change strategies are an important component of ECC prevention (evidence for motivational interviewing).

Breakthrough Strategies for Preventing Early Childhood Caries

2015 NOHC, April 29, 2015

Presenters: Bill Maas, Jane Koppelman, Norman Tinanoff, Man Wai Ng

Resources

American Academy of Pediatric Dentistry. Guideline on Caries-risk Assessment and Management for Infants, Children, and Adolescents. Available at: <http://www.aapd.org/policies>.

DentaQuest Institute. Early Childhood Caries (ECC) Collaborative. Available at <https://www.dentaquestinstitute.org/learn/quality-improvement-initiatives/early-childhood-caries-ecc-collaborative>.

Ng M, Ramos Gomez F, Lieberman M, et al. Disease management of Early Childhood Caries: ECC collaborative project. *Int J Dent* 2014 doi:10.1155/2014/327801

Tinanoff N. Proceedings of the Symposium, “Innovations in the Prevention and Management of Early Childhood Caries”. *Pediatric Dentistry* (May/June 2015)

Tinanoff N and Tillis T. Early Childhood Caries Resource Center, Elsevier Publishing. <http://earlychildhoodcariesresourcecenter.elsevier.com/>

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