

Dental Caries Risk

Assessment:

What Is It? Why Do It ?

National Oral Health Conference

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Outline

- Strength of Single Caries Risk Factors in Preschoolers
- Strength of Multiple Caries Risk Factors in Preschoolers
- Preventive and Restorative Care Based on Caries Risk Assessment
- Value of Caries Risk Assessment in Public Health and Clinical Practice

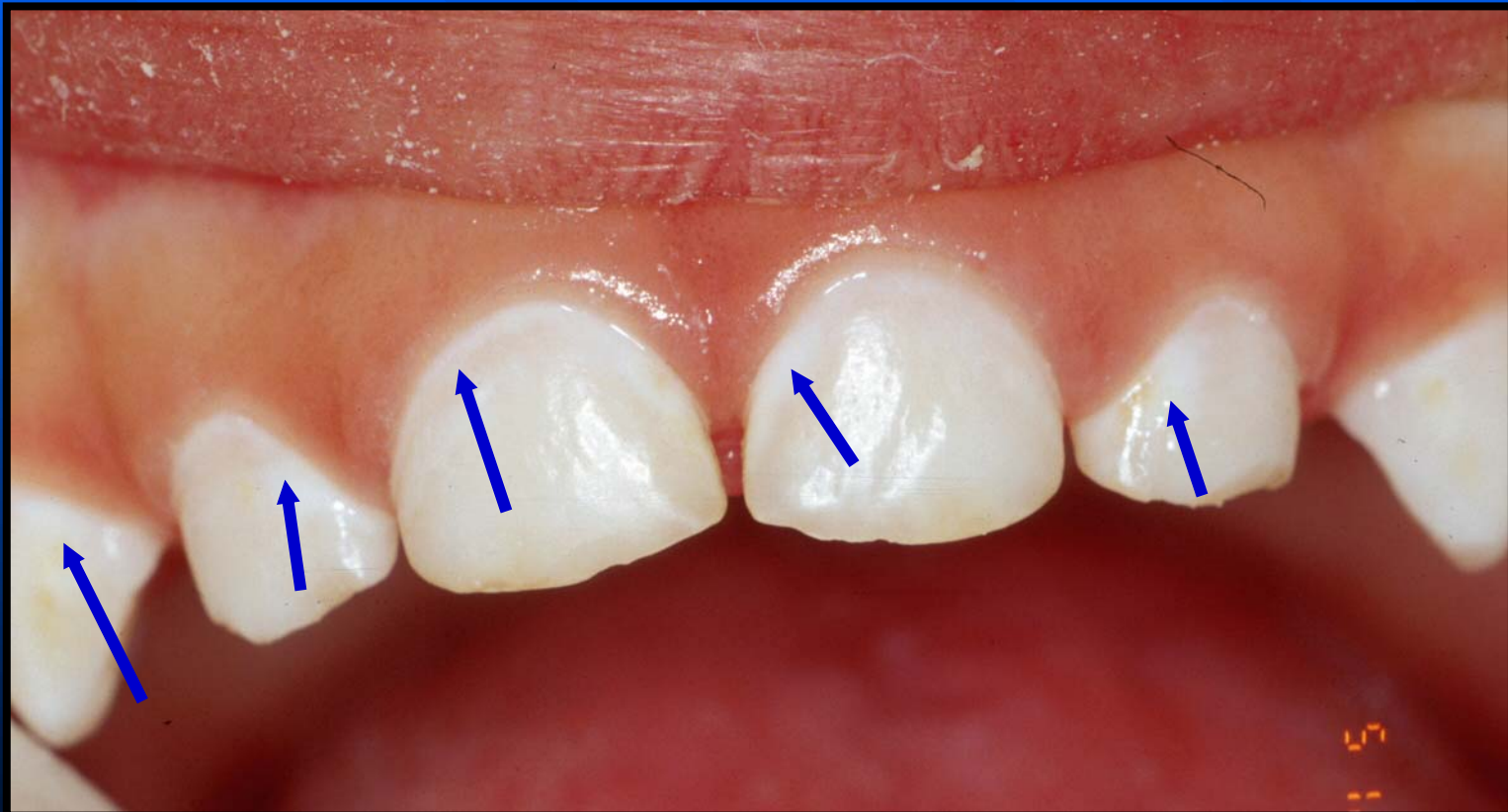
Single Risk Factors

- caries/white spot prevalence
- mutans streptococci
- income/education
- plaque

**Relationship of initial caries pattern to caries incidence
in 142, 3- to 4-year-old (at baseline) inner city children**

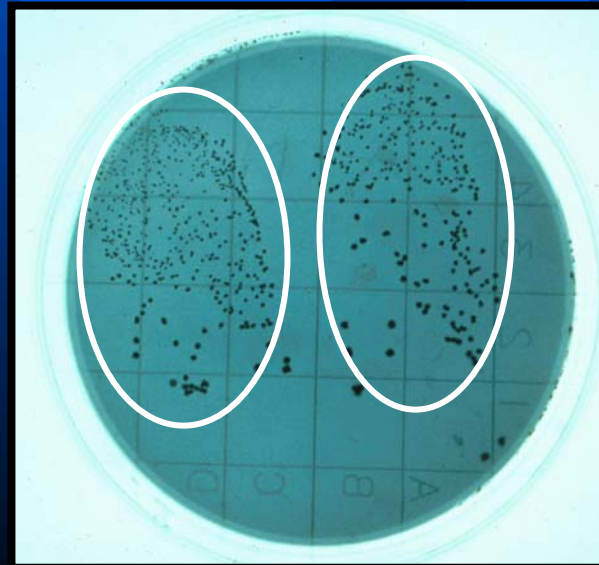
initial caries patterns	baseline	year 2
caries free	0.0	1.4
pit and fissure	3.0	5.9
maxillary anterior	5.0	10.1

Does not take a dental scientist
to know this child is high risk



Single Risk Factors

- caries/white spot prevalence
- **mutans streptococci**
- income/education
- plaque



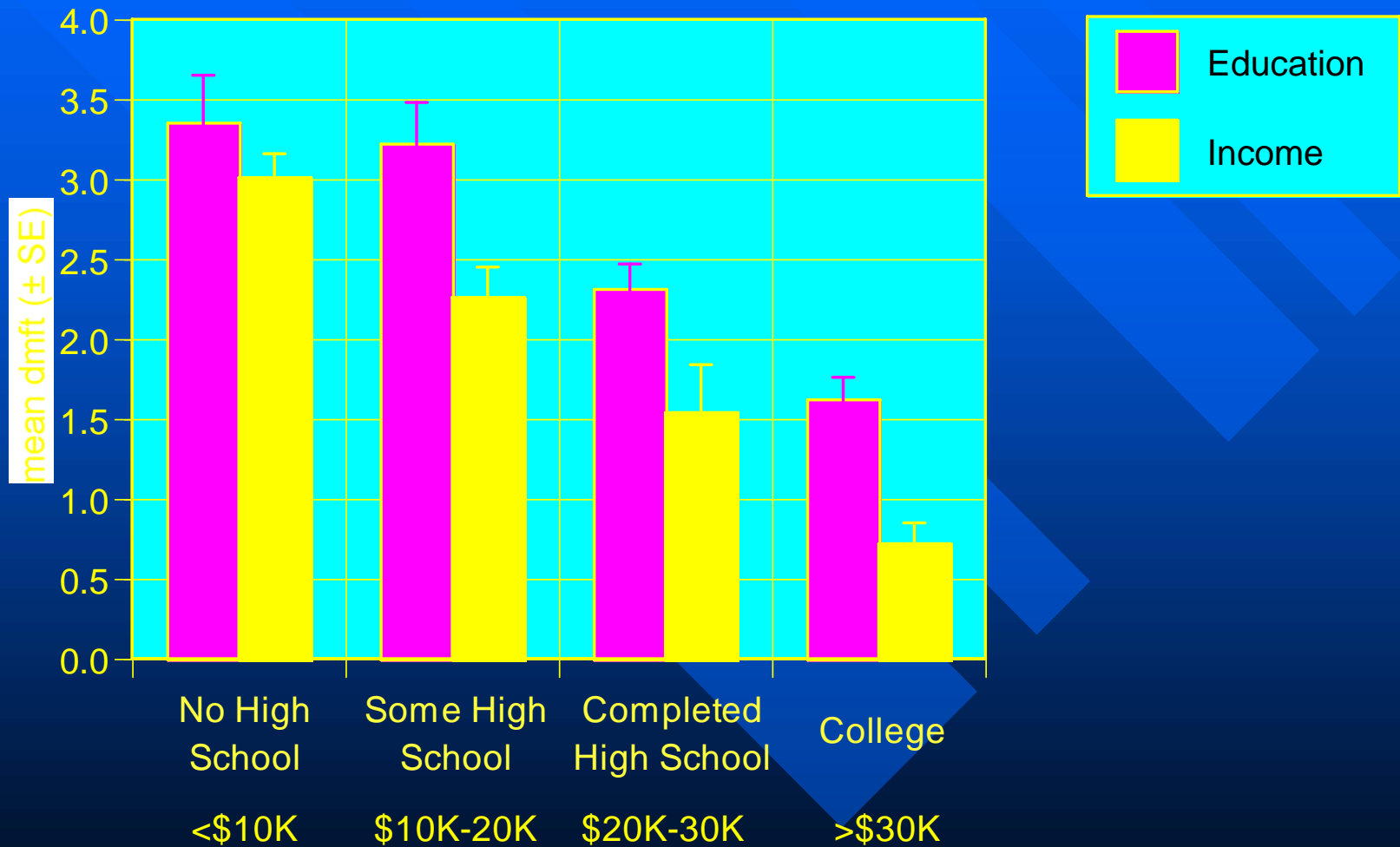
Relationship of mutans streptococci levels to caries incidence
in 148, 3- to 4-year-old (at baseline) inner city children

Mutans Strep range	baseline dmfs	year 2 dmfs
low	0.2	1.2
moderate	1.4	3.1
high	3.4	7.9

Risk Factors

- caries/white spot prevalence
- mutans streptococci
- **income/education**
- plaque

Correlation of caries prevalence to SES indicators in 1,539 4-year-old Arizona children



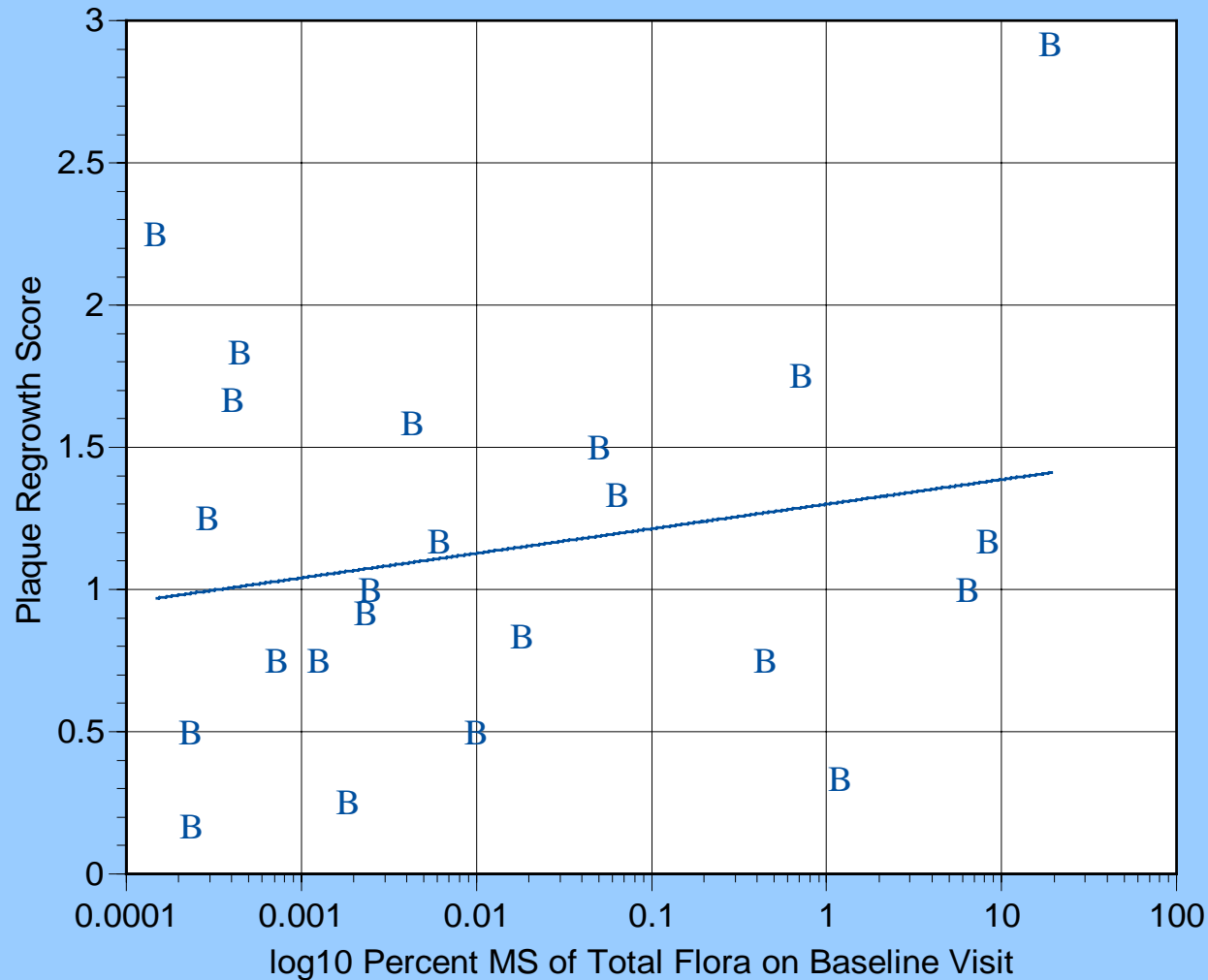
Risk Factors

- caries/white spot prevalence
- mutans streptococci
- income/education
- plaque

Adapted from Alaluusua and Malmivirta, Comm Dent Oral Epi 22: 273-276, 1994

Variable	Category	Mean dt at 36 months
Mother's DMFT	low	0.3
	high	1.3
Mother's mutans strep *	low	0.5
	high	1.2
Use of nursing bottle (19 months) *	no	0.1
	yes	1.4
Presence of plaque (19 months old)	no	0.1
	yes	2.8

Correlation of plaque to Mutans strep (mean age 24.7 mo)



Pearson's $r = 0.51$; $p=0.013$

Multiple Risk Factors

The background of the slide features several thick, parallel diagonal stripes in a medium blue color, extending from the top-left towards the bottom-right. The stripes are set against a dark blue gradient background.

Risk = child reportedly took bottle to bed + had high levels of MS
Condition = caries after 2 years

		Condition		Total
		Yes	No	
Risk	Yes	30	4	34
	No	7	73	80
		37	77	114

Sensitivity = 81%

Specificity = 95%

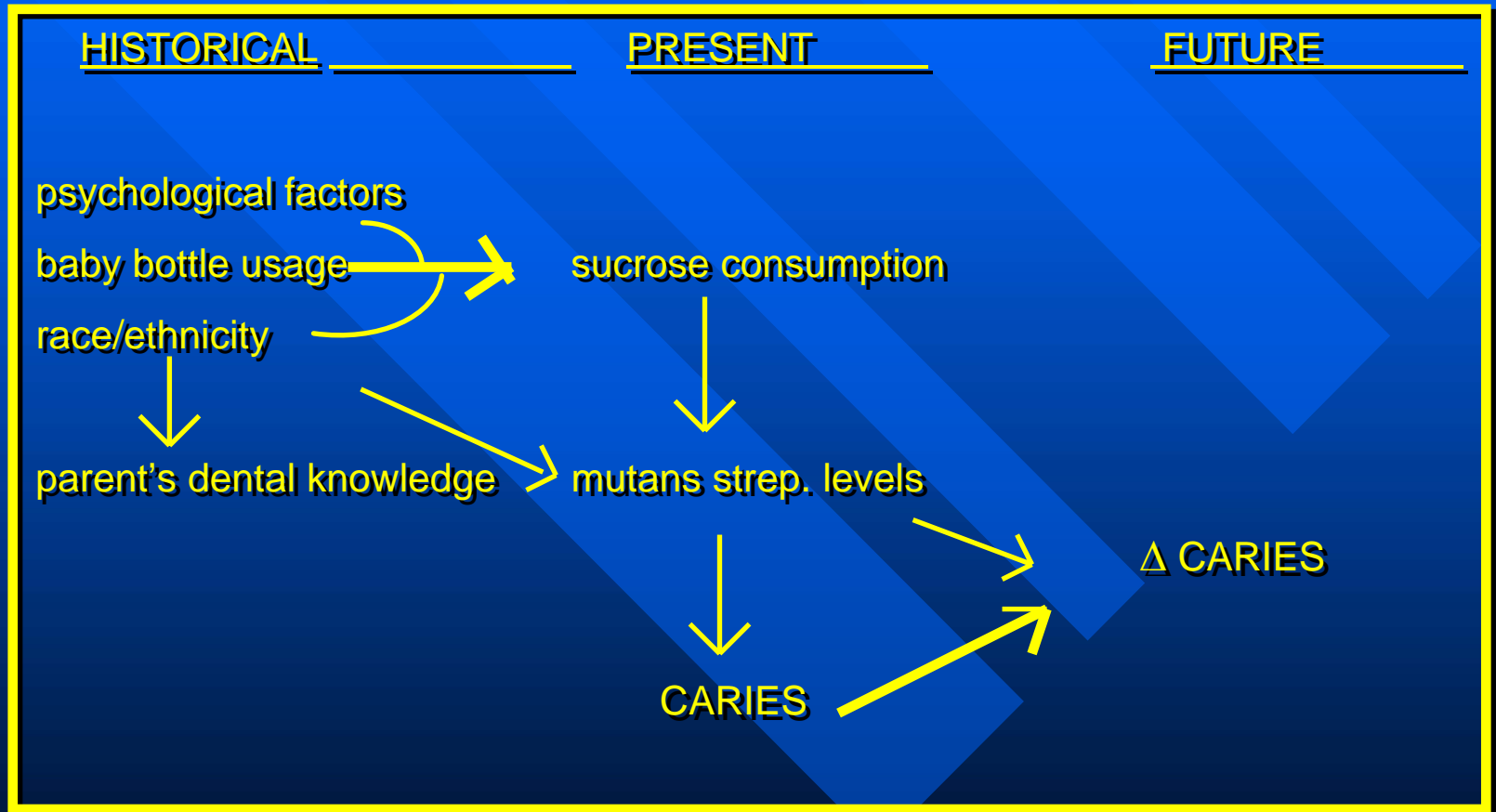
PPV = 88%

NPV = 91%

Effect of Baseline Criteria (age 4) on Caries Years 6 Yrs. Later (age 10)

	Criteria Present	Criteria Absent
Baseline Criteria	Year 6 DFMS (prevalence)	Year 6 DMFS (prevalence)
Caries Present	2.21 (73%)	0.85 (44%)
High Mutans Strep.	2.18 (68%)	1.03 (51%)
Caries Present + High Mutans Strep.	2.68 (84%)	1.03 (48%)

Litt et al. Public Health Reports 110: 607-617, 1995



Evidence-based Recommendation for Professionally Applied Topical Fluoride ADA, 2006

Age

Risk Category	<6	6-18	18+
Low	None	None	None
Moderate	Varnish or Foam at 6 month intervals	Varnish or Gel at 6 month intervals	Varnish or Gel at 6 month intervals
High	Varnish or Foam at 3 or 6 month intervals	Varnish or Gel at 3 or 6 month intervals	Varnish or Gel at 3 or 6 month intervals

Low Risk

Assessment

- Child - no lesions in 2 yrs.
- Adult - no lesions in 5 yrs.
- DMFS 0
- No white spot lesions
- Low mutans
- Low risk SES

Suppression Strategies

- Fluoridated dentifrice
- 1-2 yr. recall

Moderate Risk

Assessment

- Child - 1+ lesions in 2 yrs.
- Adult - 1+ lesions in 5 yrs.
- DMFS >0; < pt. age
- Infrequent white spots
- Moderate mutans
- Moderate risk SES

Suppression Strategies

- Fluoridated dentifrice
- Fluoride supplements
- 6 mo. recall with prof. F
- Sealants

High Risk

Assessment

- Child - >2 lesions in 1 yr.
- Adult - >2 lesions in 5 yrs.
- DMFS > pts. age
- Numerous white spots
- High mutans
- High risk SES

Suppression Strategies

- Fluoridated dentifrice
- Fluoride supplements
- 3-6 mo. recall, with F
- Daily F/antimicrobial
- Varnish F/antimicrobial
- Xylitol gum
- Monitor mutans
- restore progressing white spots
- lower risk → definitive restorative

Value of Caries Risk Assessment

- Makes prevention strategies cost-effective
- Strongest correlations with caries prevalence/incidence and mutans strep.
- Serves as a guide for selecting preventive and restorative procedures
- Helps one understand prognosis
- Broadens the understanding of the disease process
- Fosters treatment of caries instead of cavities