ERUPTION OF DECIDUOUS TEETH IN AMERICAN INDIAN CHILDREN:
A HISTORICAL COMPARISON

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Challenges in the study of deciduous tooth eruption

- Often not the primary focus of research
- Studies frequently start after tooth eruption begins
  - Early Childhood Caries – how early?
- Of interest because of the possibility that longer exposure may lead to greater levels of decay in young children.

Sample population

- Northern Plains tribe
- 228 children from eligible 239
- Hygienist and interviewer visited families at 4 month intervals after baseline:
  - 1 month (mean = 0.93, SD = 0.81)
  - 4 months (mean = 3.88, SD = 0.58)
  - 8 months (mean = 7.85, SD = 0.63)
  - 12 months (mean = 11.64, SD = 0.40)
  - 16 months (mean = 15.42, SD = 0.40)

Measuring eruption: 3 common approaches

- Age at first tooth
- Counts of teeth at different time points (or ages)
- Patterns of tooth eruption

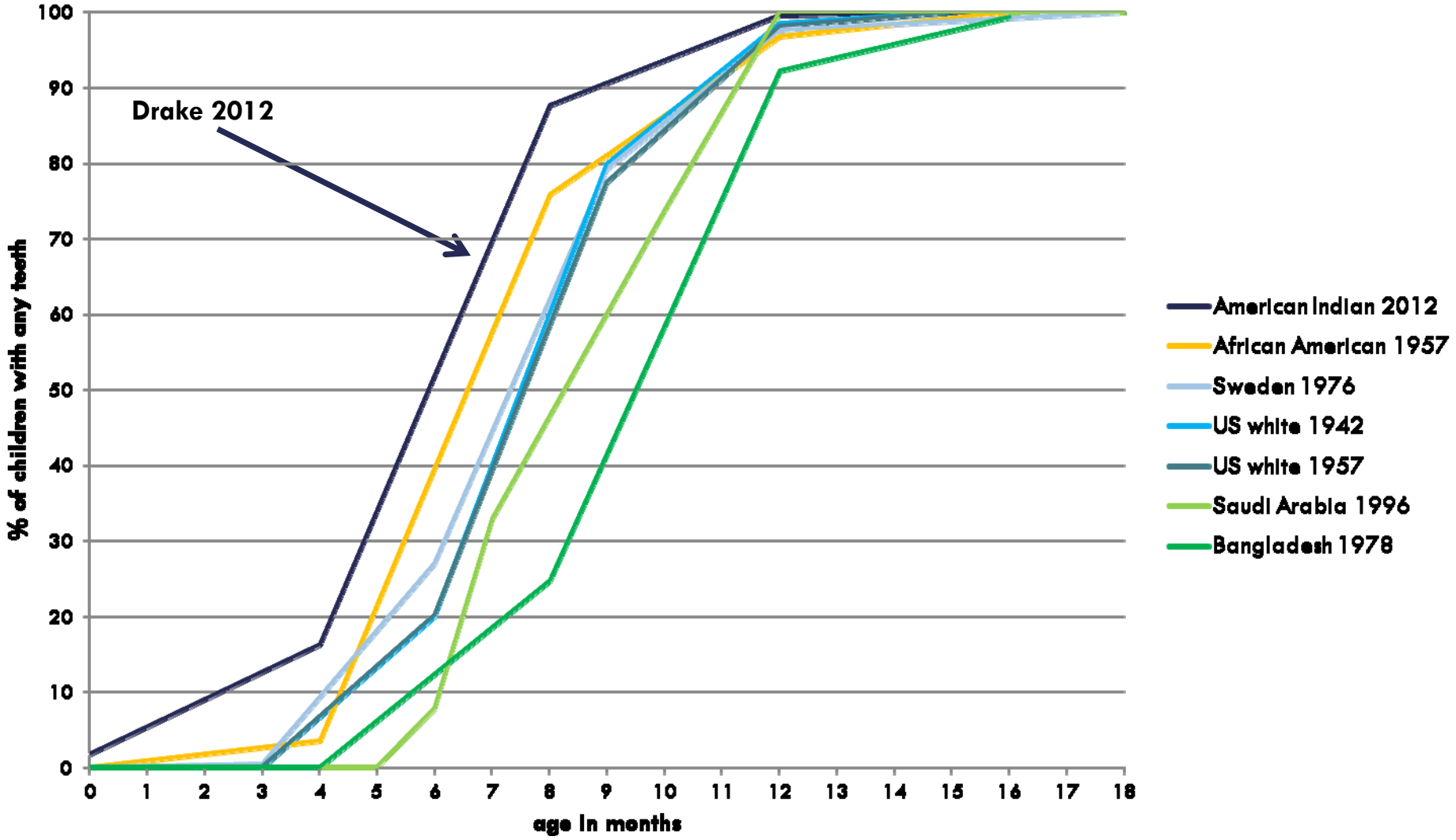
Measurement considerations

- Current study design
  - Longitudinal follow-up
  - Eruption documented by trained hygienists
  - Visits at four-month intervals
  - Data collected as status at time of visit: exact times of tooth eruption not recorded
  - Missed visits = missing data

Timing of 1st tooth eruption

1st tooth erupted before	frequency	percent	cumulative percent
1 month	4	1.75	1.75
4 months	33	14.47	16.22
8 months	163	71.49	87.71
12 months	27	11.84	99.55
16 months	1	0.45	100.00

Historical comparison of timing of first tooth eruption



Numbers of teeth in current study

Number of teeth at each of 5 visits

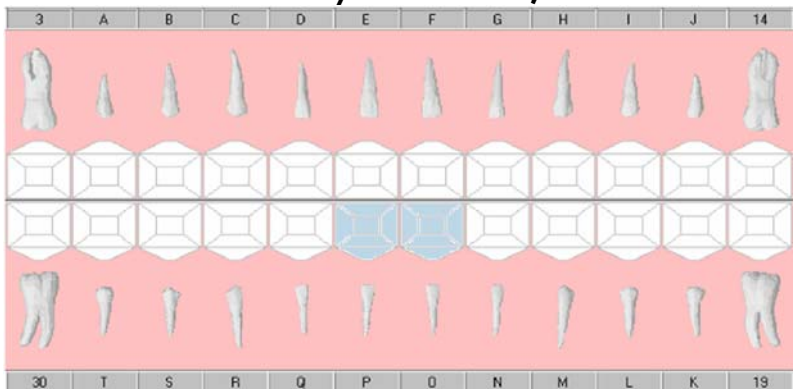
	N	mean	SD	median	25th, 75th	min, max
1 month	228	0.03	0.24	0	0, 0	0, 2
4 months	227	0.30	0.70	0	0, 0	0, 3
8 months	228	3.56	2.50	2	2, 6	0, 8
12 months	227	7.73	2.36	8	7, 8	0, 16
16 months	224	12.46	3.41	12	10, 16	2, 20

Average number of teeth at 12 months – *American Indian mean significantly greater ($p < 0.001$, Student's T-test) than the mean in each of the other populations.

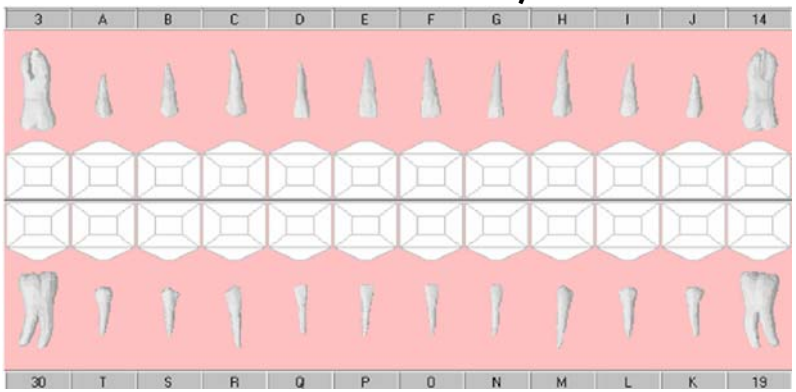
	AI	W ('42)	W ('42)	AA ('57)	W ('57)	PNG ('64)	G ('68)	S ('76)	UK ('87)	F ('00)	B ('07)
N	227	239	268	530	124	76	86	205	239	129	359
mean	7.7*	6.1	5.8	6.0	6.7	5.2	4.5	6.1	6.2	6.1	5.5
SD	2.4	2.2	2.1	2.7	2.3	0.3	2.5	2.2	2.5	2.4	2.5

Comparing Patterns of Eruption: 1 or 3 months

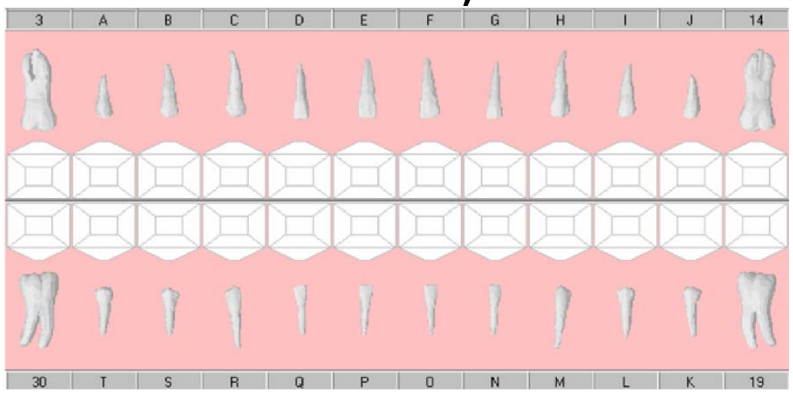
Current study: 1 month, N=228



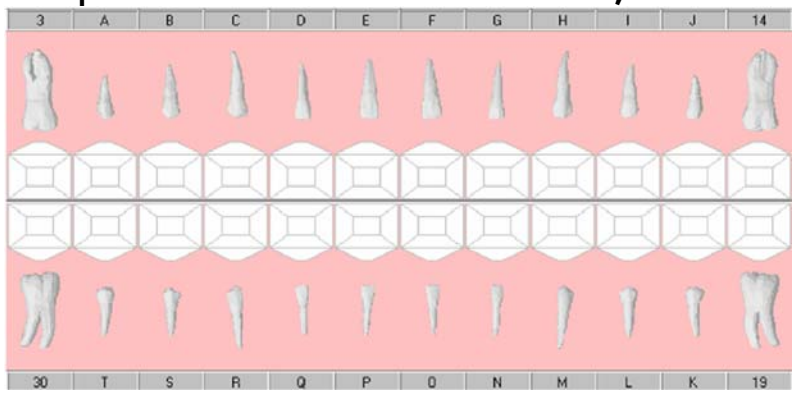
US whites: 3 months[3], N=270



Korea: 1 month[14], N=1141



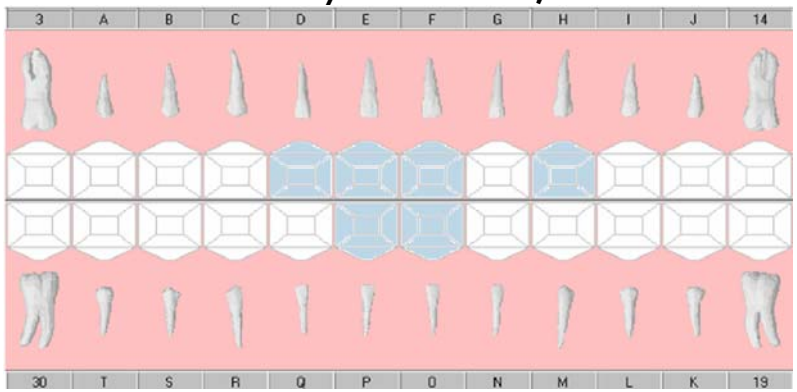
Papua New Guinea: 1 month[12], N=239



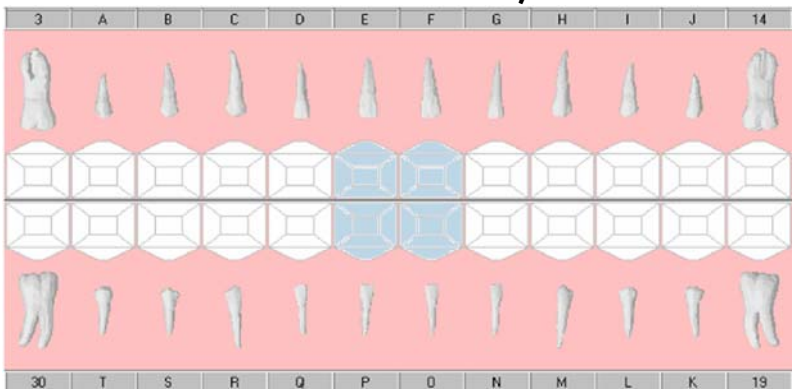
Light blue	>0-25% have teeth	Medium blue	>50-75% have teeth
Slate blue	>25-50% have teeth	Dark blue	>75-100% have teeth

Comparing Patterns of Eruption: 4 or 6 months

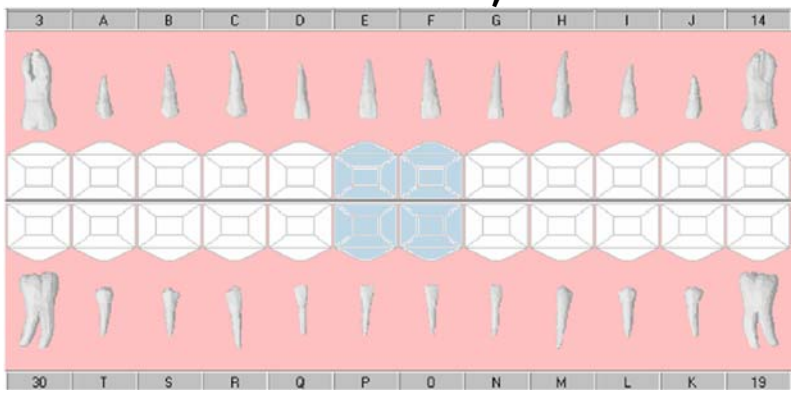
Current study: 4 months, N=228



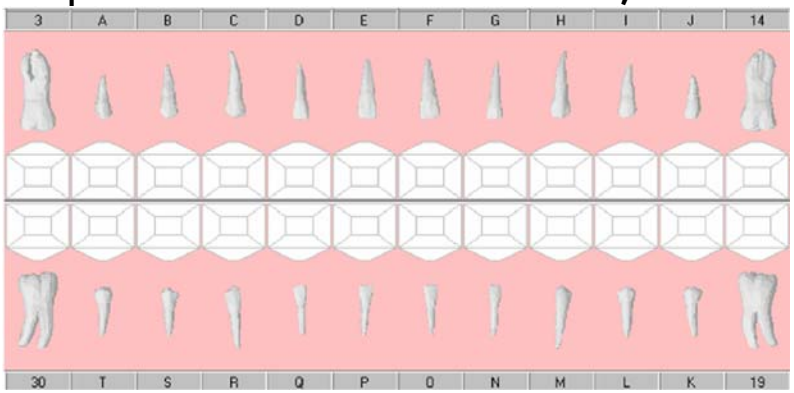
US whites: 6 months[3], N=270



Korea: 4 months[13,14], N=2211



Papua New Guinea: 4 months[12], N=239



Light blue	>0-25% have teeth	Medium blue	>50-75% have teeth
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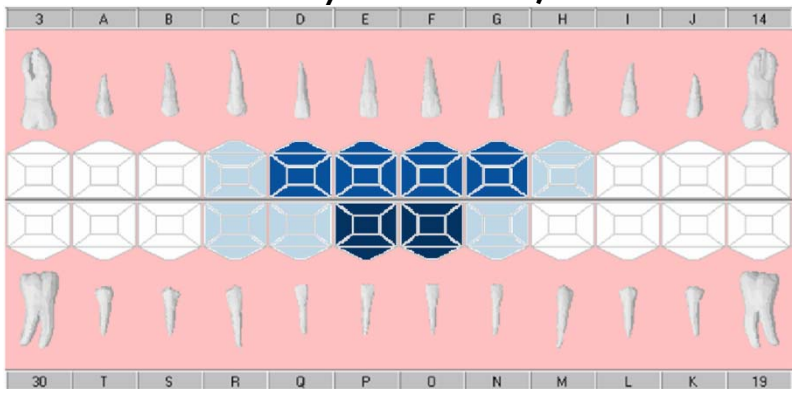
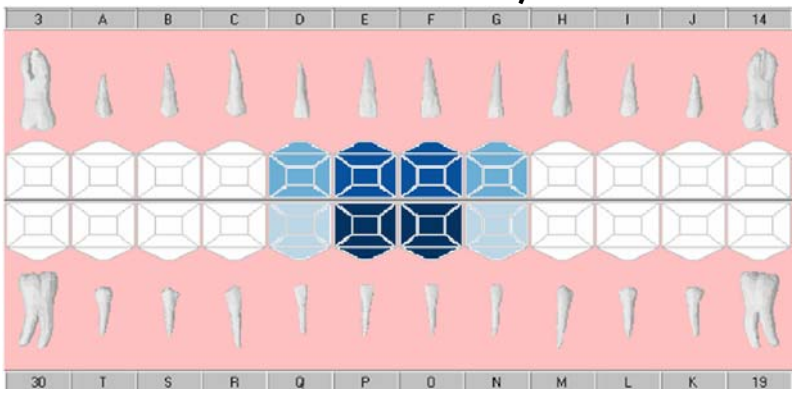
Comparing Patterns of Eruption: 8 or 9 months

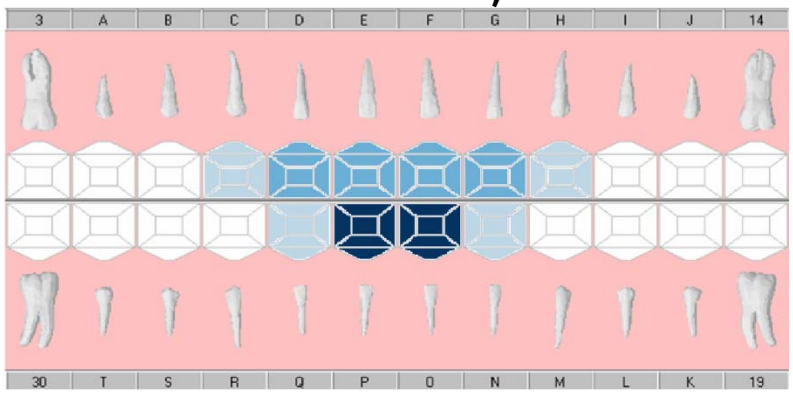
Current study: 8 months, N=228



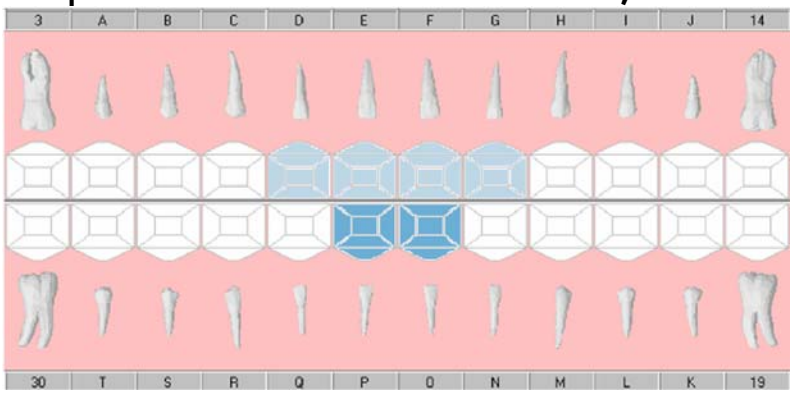
US whites: 9 months[3], N=263



Korea: 8 months[13,14], N=2211



Papua New Guinea: 8 months[12], N=239



Light blue	>0-25% have teeth	Medium blue	>50-75% have teeth
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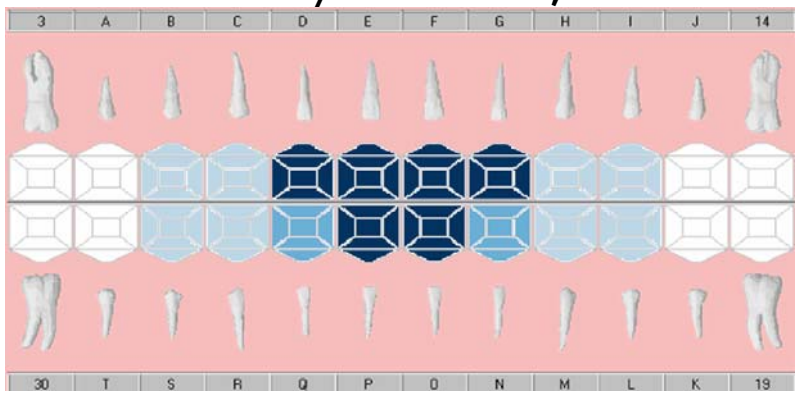
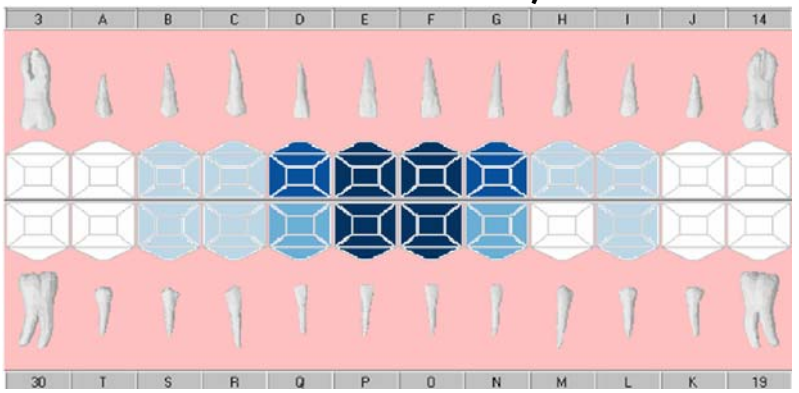
Comparing Patterns of Eruption: 12 months

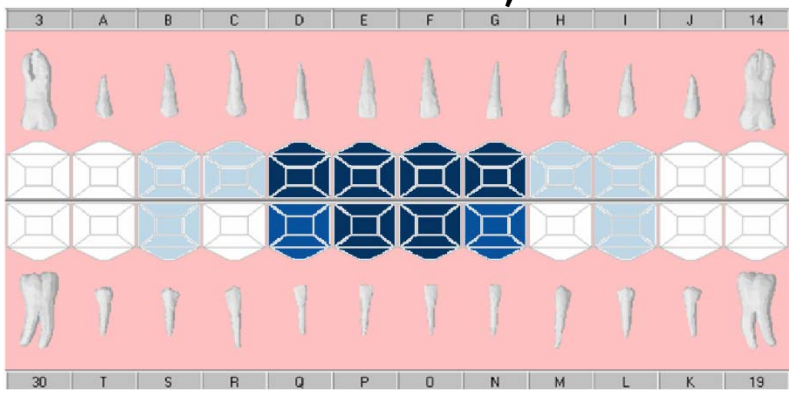
Current study: 12 months, N=228



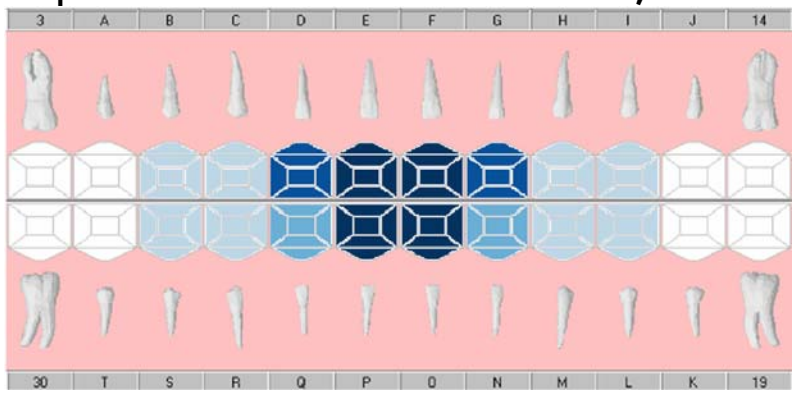
US whites: 12 months[3], N=268



Korea: 12 months[13,14], N=2211



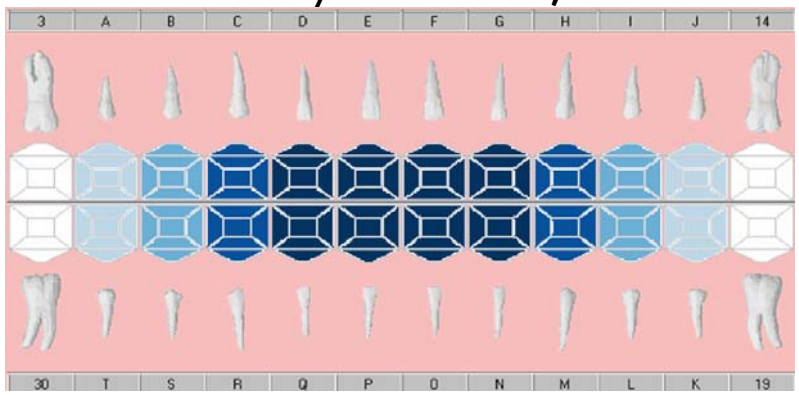
Papua New Guinea: 12 months[12], N=239



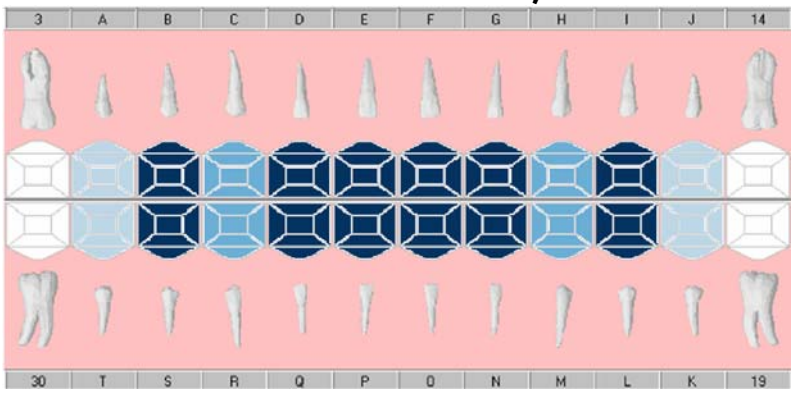
Light blue	>0-25% have teeth	Medium blue	>50-75% have teeth
Slate blue	>25-50% have teeth	Dark blue	>75-100% have teeth

Comparing Patterns of Eruption: 16 or 18 months

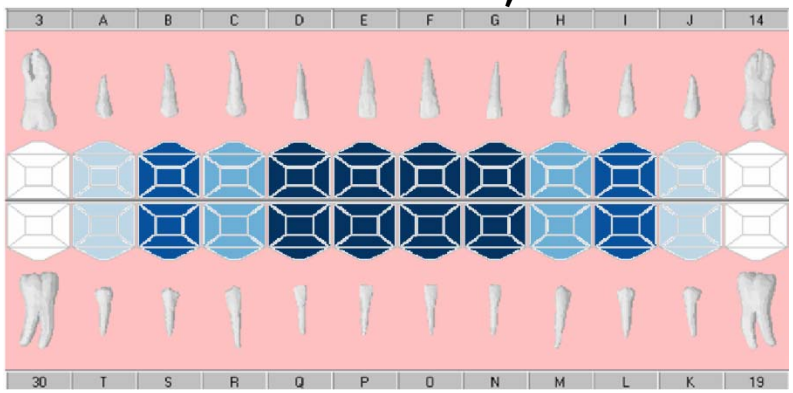
Current study: 16 months, N=228



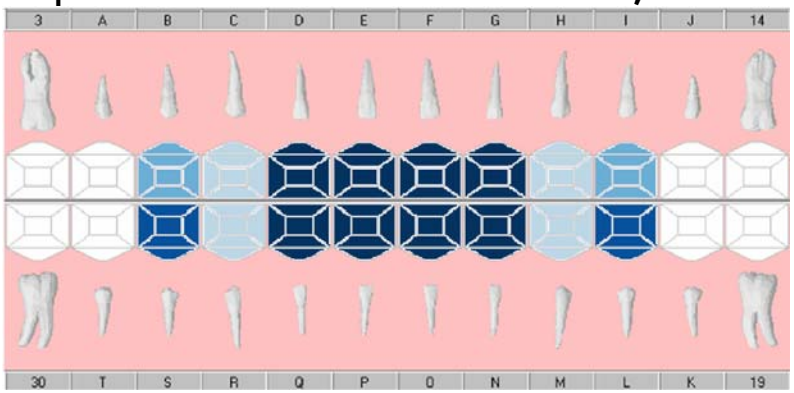
US whites: 16 months[3], N=241



Korea: 16 months[13,14], N=2211



Papua New Guinea: 16 months[12], N=239



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Conclusions

- These comparisons suggest that the time to first tooth eruption is earlier in this American Indian population.
- Comparisons with available data demonstrated that the mean number of teeth erupted at 12 months in this population was greater than in 10 other populations.
- Patterns of tooth eruption appeared to differ in this population, notably with respect to earlier timing and canine eruption.
- Hypothesis for future investigation: Is greater exposure (i.e. early eruption) associated with increased risk of early childhood caries?

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