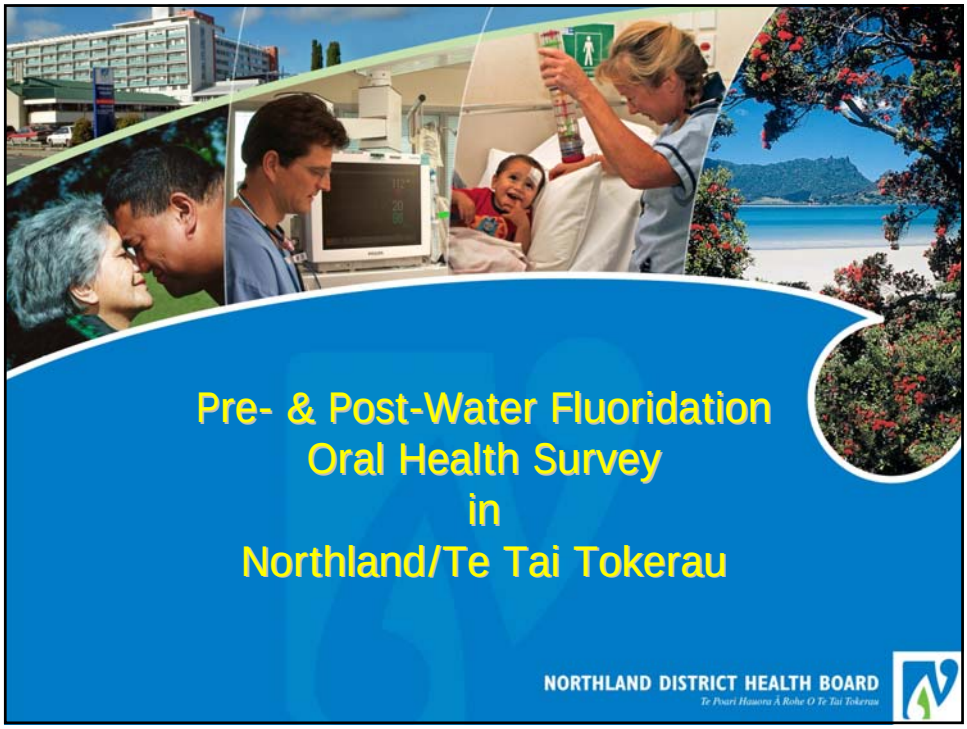

Pre- & Post-Water Fluoridation Oral Health Survey in Northland/Te Tai Tokerau

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Considering fluoridation

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- Effectiveness — Does fluoridation work? ✓
- Efficiency — Is fluoridation worth doing? ✓
- Equity — Is fluoridation fair? ✓
- Appropriateness — Is it suitable? ✓
- Acceptability — Does it upset anyone?
- Safety — Is fluoridation safe? ✓

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Acceptability

- Fluoridation can be controversial!
- Māori values with respect to water
  - Wai ora, wai kino, wai mate
- "Compulsory medication"
- Impurities
- Recent referenda
  - "No" in Westport, "Yes" in Hamilton
- Recent decisions
  - "Yes" in Dunedin and in Central Hawkes Bay

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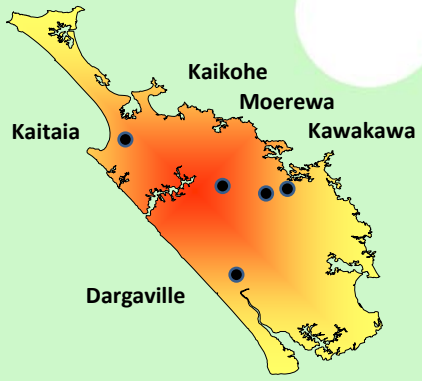
Background

- Tooth decay (dental caries) in Northland is very, very high
  - 88% of 5-6-year-olds
    - 6 affected teeth
  - 85% of 12-13-year-olds
    - 4 affected teeth



Gowda et al, *New Zealand Dental Journal* 105: 116-120, 2009

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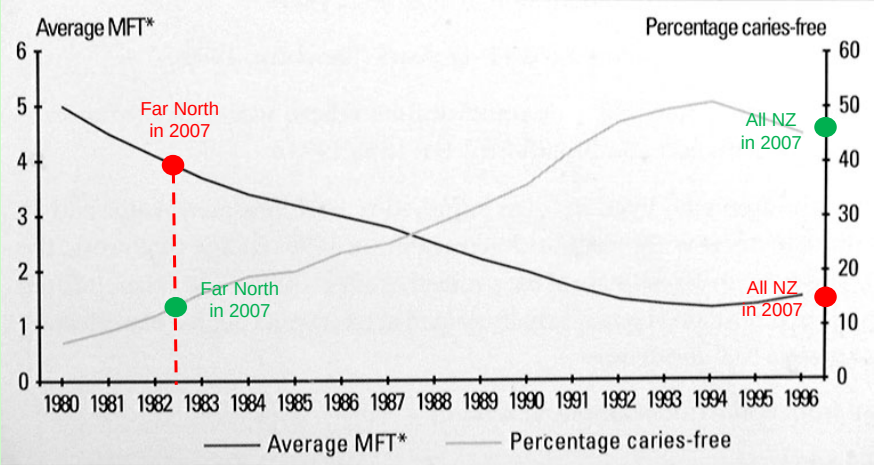
Historical comparison – Year 8



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Background

- On 20 July 2006, the Far North District Council resolved to fluoridate Kaitaia and Kaikohe
  - The first such initiative by a TLA for 23 years
- Fluoridation was to begin in April 2007
  - Two-year trial
  - Effectiveness to be monitored by health authorities (NDHB and MoH)

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The Northland surveys

Kaikohe
Kaitaia

Fluoridation undertaken

Baseline survey
(pre-fluoridation)

Follow-up survey
(post-fluoridation)

2007

2009

Dargaville
Kawakawa/
Moerewa

Fluoridation not undertaken

5-6-year-olds – deciduous dentition
12-13-year-olds – permanent dentition

NB: the same children were not examined in 2007 and 2009

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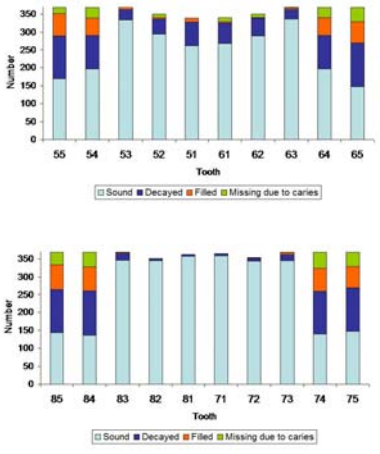
Caries at baseline: 5-6-yr-olds

- 88% had caries experience
  - 91% in Kaitaia, 96% in Kaikohe, 97% in Kawakawa/Moerewa, 74% in Dargaville
- An average 6 teeth affected per child
  - 23% had had teeth out



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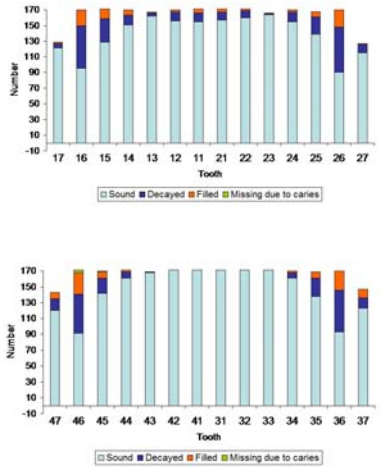
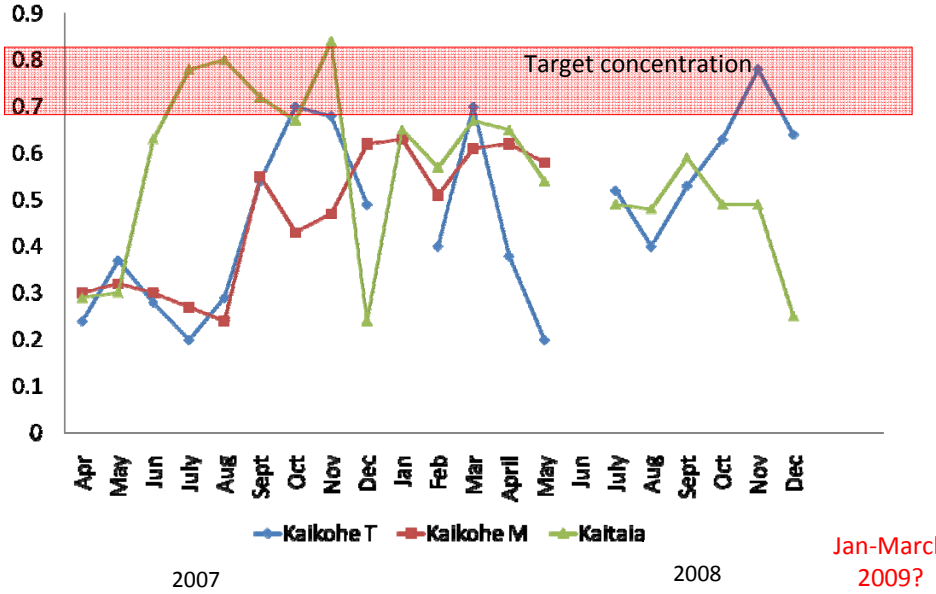
Caries at baseline: 12-13-yr-olds

- 85% had caries experience
  - 88% in Kaitaia, 85% in Kaikohe, 90% in Kawakawa/Moerewa, 78% in Dargaville
- An average 4 teeth affected per child



Actual water fluoride levels



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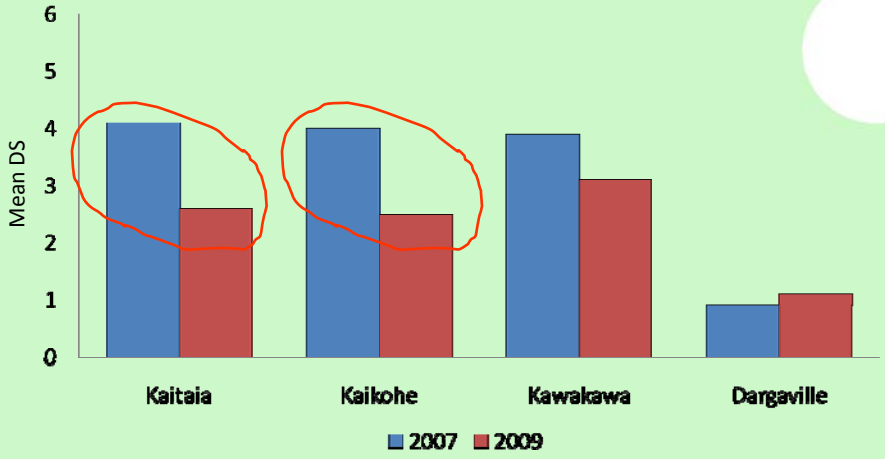
Changes in average number of decayed surfaces – 12-13-year-olds



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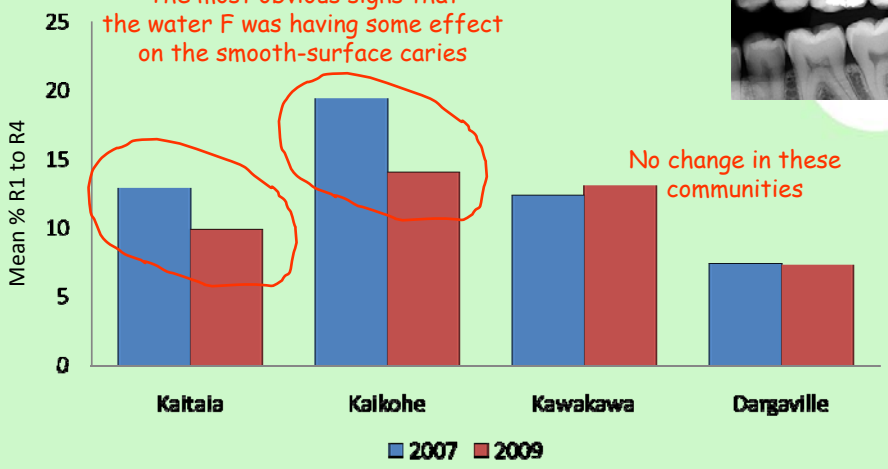
Changes in carious lesions on x-rays



Effect sizes:	0.23	0.37	-0.08	0.01

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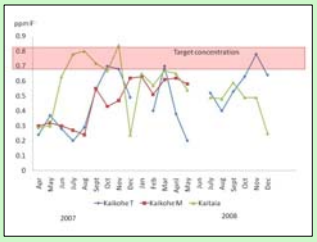
Things to take into account

- Study design
  - Randomised control trial not ethically possible
  - Longitudinal study before and after would be better than 2 cross-sectional surveys, but time and funding constraints precluded that
- Fluoridation levels
  - Of the 2 Kaikohe plants, 1 managed to reach the target on only 4 occasions, the other not at all



- Sample representativeness
- Statistical power
- Length of the assessment period

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Strengths of the study

- Surface-level caries information
  - Subtle differences able to be detected earlier than otherwise
- Use of radiography
- Robust survey methods used
  - Highly calibrated and reliable examiners

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Concluding remarks

- FNDC to be commended for fluoridating the 2 communities
  - Some beneficial oral health effects were seen
    - 12-13-year-olds had less caries, as well as fewer lesions visible on x-rays
- However:
  - 2 years not long enough
  - The fluoridation needs to be consistent
- FNDC may wish to consider:
  - Continuation of fluoridation in Kaitaia and Kaikohe
  - Extension of it to other Northland communities