What is Needed to Achieve New Zealand's Smokefree Nation Goal: Results from a Forecasting Model

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Background

To achieve the National Smokefree 2025 Goal (<5% smoking prevalence) – NZ may need to consider additional plans beyond current activities

This is to benefit the health of all NZers but there is a particular need to reduce health inequalities by improving health for the Māori population[1].

Daily smoking prevalence in 2012 was 17% in NZ adults, but was over 40% for Māori.

1. Blakely et al. *N Z Med J* 2010; 123(1320): 26-36.

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Background

To inform considerations around achieving a smokefree nation goal, our research questions were:

1. **What will the smoking prevalence be in 2025 under current trends?**

2. **What annual changes in initiation and net annual cessation rates will be required to achieve <5% by 2025?**

Methods

- Detailed methods now published: Ikeda et al 2013[1]

- Adapted a dynamic forecasting tobacco model for Australia[2] to NZ[1]

- Markov model designed in MS Excel

- Input data (by age, sex, ethnicity):
  - Smoking prevalence from Census and Health Survey data (1981 to 2012)
  - Annual birth projections
  - Life tables
  - Smoking relative risks from NZCMS
  - Population

1 Ikeda et al. *Tob Control* Publ. Online First: [26 Sep 2013]
2 Gartner et al. *Tob Control* 2009; 18(3): 183-89.

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Methods

Modelling steps:

1) Establish recent trends with the 'base model'
   - Changes in initiation
   - Annual cessation rates

2) Use outputs from (1) as inputs in the 'forecasting model' for future business-as-usual (BAU) projections and other scenarios.

"*Initiation*" in this model is the proportion of people at age 20 who smoke. Then the model derives how initiation changes over time.

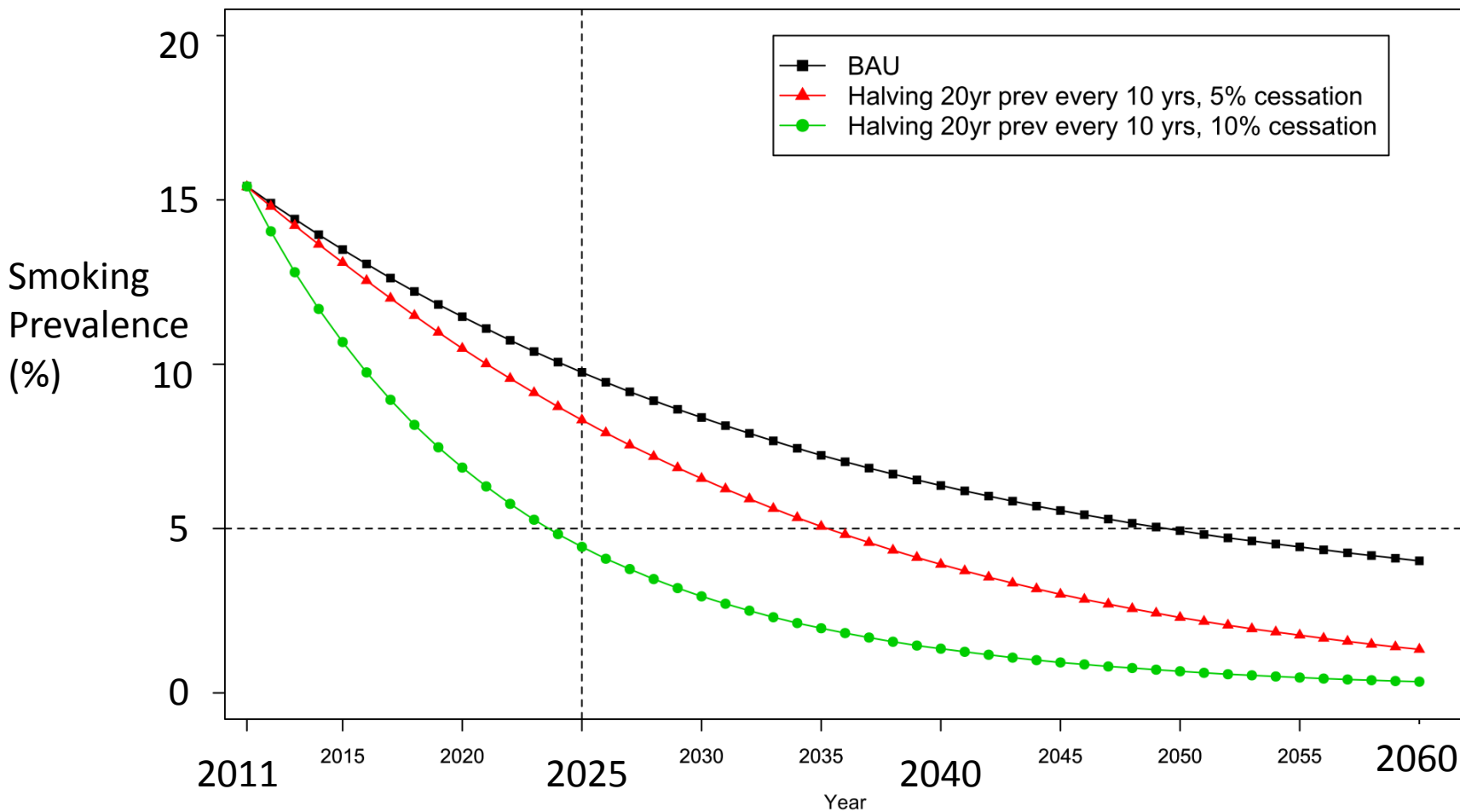"*Cessation*" is a 'simple' cessation rate, which is a balance of:

- Number of quit attempts
- Success of each quit attempt (i.e. current → ex)
- Relapse (i.e. ex → current)

Results

- Initiation rates decreased annually for most demographic groups (up to ~5%), except for Māori females.

- Annual net cessation rates ranged from -3 to 6% across demographic groups.

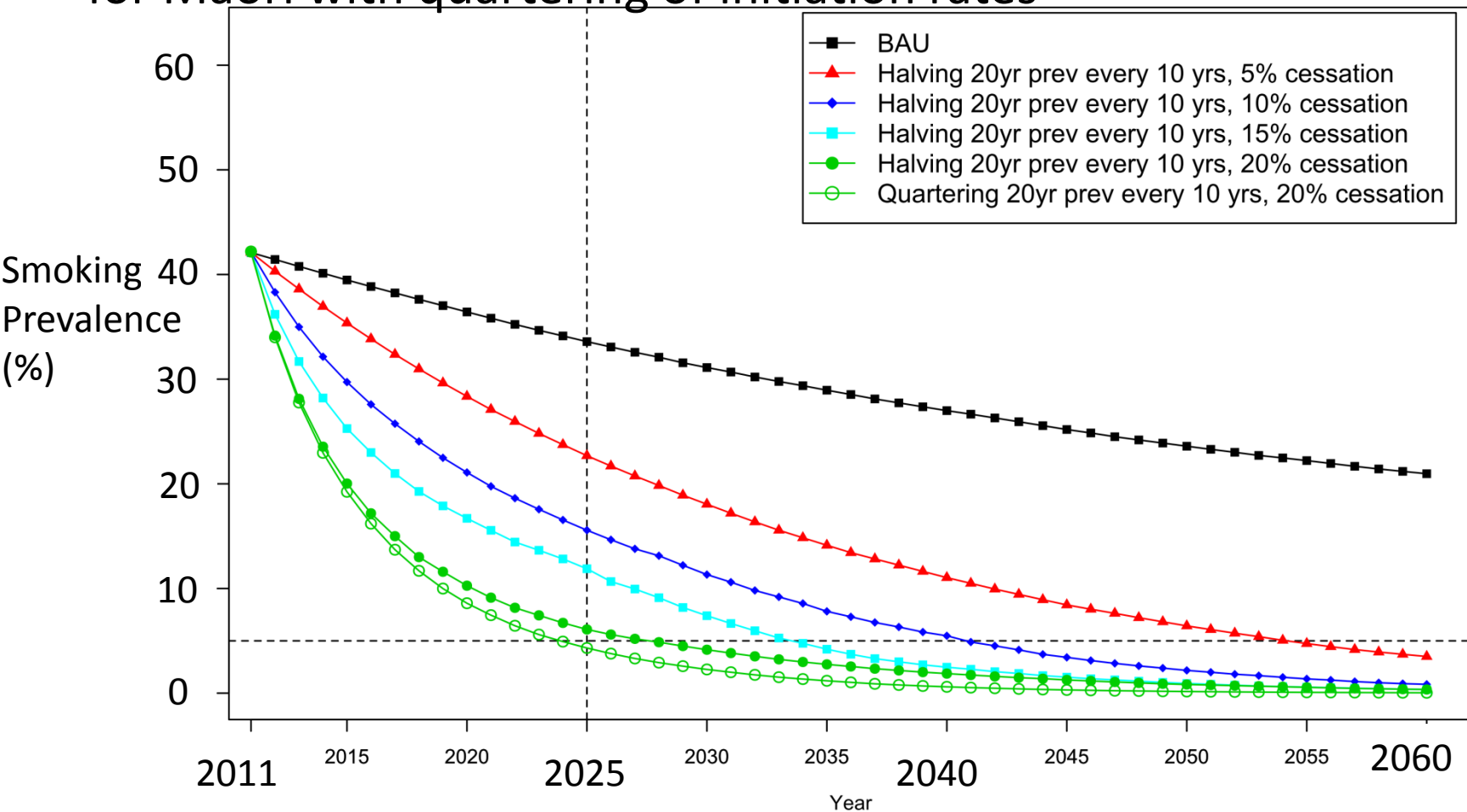- Under BAU, smoking prevalence by 2025 was

	Non-Māori	Māori
Male	11% (10-12%)	30% (25-36%)
Female	9% (8-10%)	37% (33-42%)

Achieving <5% by 2025 requires net annual cessation rates of **10%** for non-Māori with halving of initiation rates

Ikeda et al. *Tob Control* Published Online First: [26 Sep 2013]

Achieving <5% by 2025 requires net annual cessation rates of **20%** for Māori with quartering of initiation rates

Ikeda et al. *Tob Control* Published Online First: [26 Sep 2013]

Limitations

- Census data might slightly underestimate prevalence
- No consideration of migration and socio-economic differences
- Future trends might be influenced by unknowns (e.g. economic downturn, greater use of e-cigarettes etc).
- For more details, see Ikeda et al 2013.

Conclusions

- Achieving <5% smoking prevalence by 2025 appears feasible but will require increases in cessation among non-Māori (to ~10% pa), and large increases for Māori (to ~20% pa), in both instances accompanied by strong reductions in initiation.

- Will probably require well-established evidence-based tobacco control interventions , such as tobacco tax increases, and supplementary interventions for population groups with highest smoking rates (e.g. intensive mass media campaigns)

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Conclusions

- For countries with indigenous politicians, it will be important that they are also key leaders in tobacco control policy at the national and local-level.

- Major new endgame approaches may also need to be adopted, such as:
  - a sinking lid on tobacco supply/outlet numbers
  - a phase-down of nicotine levels in tobacco
  - a smoker's licensing system

Thank you.

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