

# Ambulatory sensitive hospitalisations in New Zealand, 2001-2009

COMPASS Colloquium  
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FACULTY OF ARTS  
**THE UNIVERSITY OF AUCKLAND**

Whare Wānanga o Tāmaki Makaurau

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- Ambulatory sensitive hospitalisations
- Research Questions
- Methods
- Results
- Conclusions

# Ambulatory Sensitive Hospitalisations (ASH)

- ❑ Some hospitalisations thought to be preventable by timely and effective primary health care
  - Ambulatory Sensitive Hospitalisations (ASH)
  - Ambulatory Care Sensitive Hospitalisations (ACSH)
  - Avoidable Hospitalisations (AH)
  
- ❑ ASH often used as measure of primary health care effectiveness
  - Better primary health care -> lower ASH

# Ambulatory Sensitive Hospitalisations (ASH)

- ❑ Atlas of Avoidable Hospitalizations in Australia list
- ❑ Chronic ASH
  - ❑ Diabetes complications, nutritional deficiencies, iron deficiency anaemia, hypertension, congestive heart failure, angina, COPD, asthma
- ❑ Acute ASH
  - ❑ Dehydration & gastroenteritis, convulsions/epilepsy, ear nose and throat infections, perforated ulcer, ruptured appendix, pyelonephritis, pelvic inflammatory disease, cellulitis, gangrene
- ❑ Vaccine preventable ASH
  - ❑ Influenza and pneumonia, other vaccine preventable

# Ambulatory Sensitive Hospitalisations (ASH)



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- ❑ Access to primary health care associated with ASH
  - Self-rated better access -> lower ASH
  - Physician supply -> lower ASH
  - High number of health care visits -> lower ASH
  - Greater travel time to primary health care provider -> higher ASH
  
- ❑ Ethnic and socio-economic inequalities in ASH, and suggestion this partly due to inequalities in access



- ❑ Restructuring of NZ primary health care following Primary Health Care Strategy in 2001
  - Establishment of Primary Health Organisations (PHO) to oversee planning and delivery of primary health care services
  - Funding increased, and changed from fee-for-service at practice level to capitation funding at PHO level
  - As a result, fees reduced; consultation rates increased; unmet need reduced; inequalities in access reduced (proportion Māori visiting GP below national average in 2001; at national average in 2006)



- ❑ Given NZ has experienced an intervention to improve primary health access, and disparities in primary health care access...
  - ❑ With some success
  
- ❑ Have ASH rates reduced since 2001?
  
- ❑ Have ASH inequalities reduced since 2001?

- ❑ NMDS data 2001-9
- ❑ ASH (Chronic, Acute, Vaccine-preventable) indicators developed
  - 1<sup>st</sup> edition of ICD-10AM used across all years
- ❑ Merged with population counts for
  - DHB (21) by year (9), sex (2), 5-yr age band (19), ethnicity (3: Māori, Pacific, non-Māori/non-Pacific) & deprivation quintile (5)
    - $21 \times 9 \times 2 \times 19 \times 3 \times 5 = 107730$  (potential) cells
  - Allows measure of “number of ASH events” for every person in NZ for a particular year
  - Cannot assess health need; rurality



- ❑ Number of ASH events regressed against year, deprivation, ethnicity, sex, age, DHB, readmission rate, length of stay rate
  - ❑ Separately by ASH subtype
  - ❑ Negative binomial regression models
- ❑ Time trends assessed
- ❑ Deprivation effect assessed
  - ❑ Time trends assessed
- ❑ Ethnicity effect assessed
  - ❑ Time trends assessed

# Results I: Time series by ASH type



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## ASH Admissions, N (% of total admissions)

	Total	Chronic	Acute	Vaccine preventable
<b>2001</b>	67234 (13.2)	45188 (8.9)	30665 (6.0)	2470 (0.49)
<b>2002</b>	71125 (14.1)	48500 (9.6)	31556 (6.3)	2283 (0.45)
<b>2003</b>	72171 (14.3)	49790 (9.9)	32065 (6.4)	2162 (0.43)
<b>2004</b>	73952 (14.6)	51117 (10.1)	33463 (6.6)	1988 (0.39)
<b>2005</b>	73577 (14.5)	51158 (10.1)	32505 (6.4)	2027 (0.40)
<b>2006</b>	77335 (14.8)	53696 (10.3)	34661 (6.6)	2060 (0.39)
<b>2007</b>	79261 (14.8)	54756 (10.3)	35899 (6.7)	2111 (0.40)
<b>2008</b>	81167 (14.8)	55451 (10.1)	37580 (6.9)	2257 (0.41)
<b>2009</b>	86076 (15.1)	59248 (10.4)	38957 (6.9)	4174 (0.73)
<b>Δ 2001-9</b>	<b>11.0%</b>	<b>13.7%</b>	<b>10.2%</b>	<b>46.5%</b>

# Results II: Person-level time series

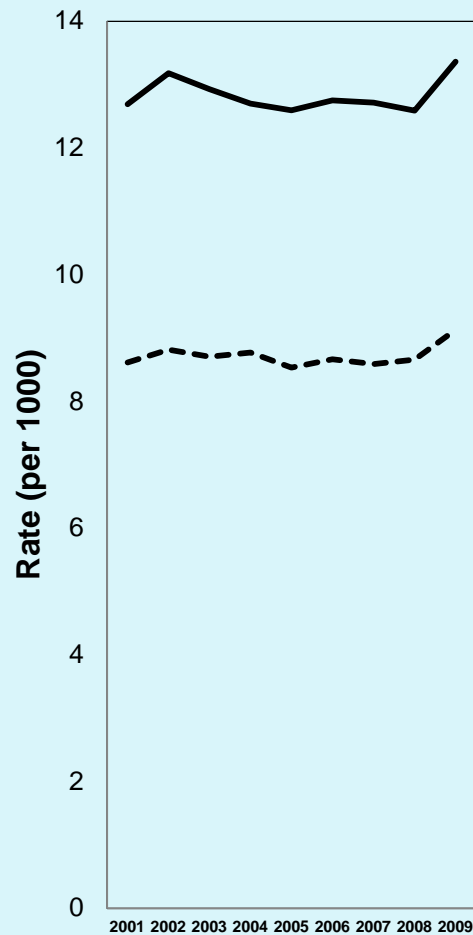


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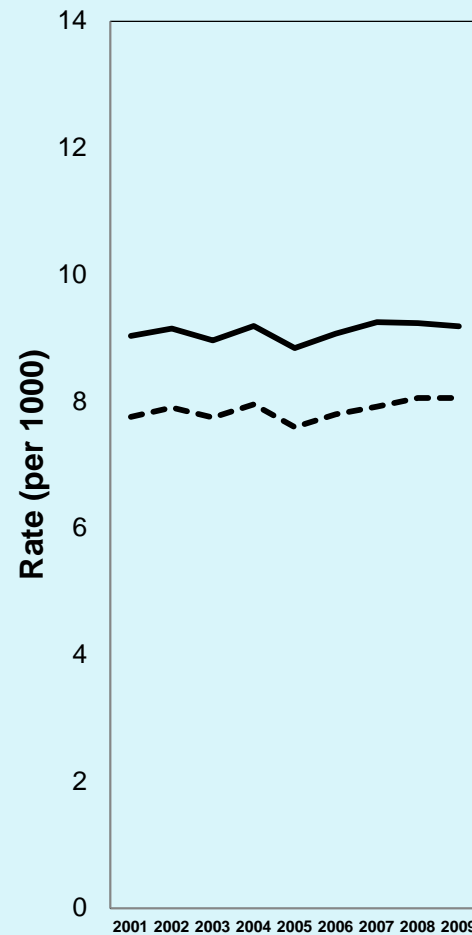
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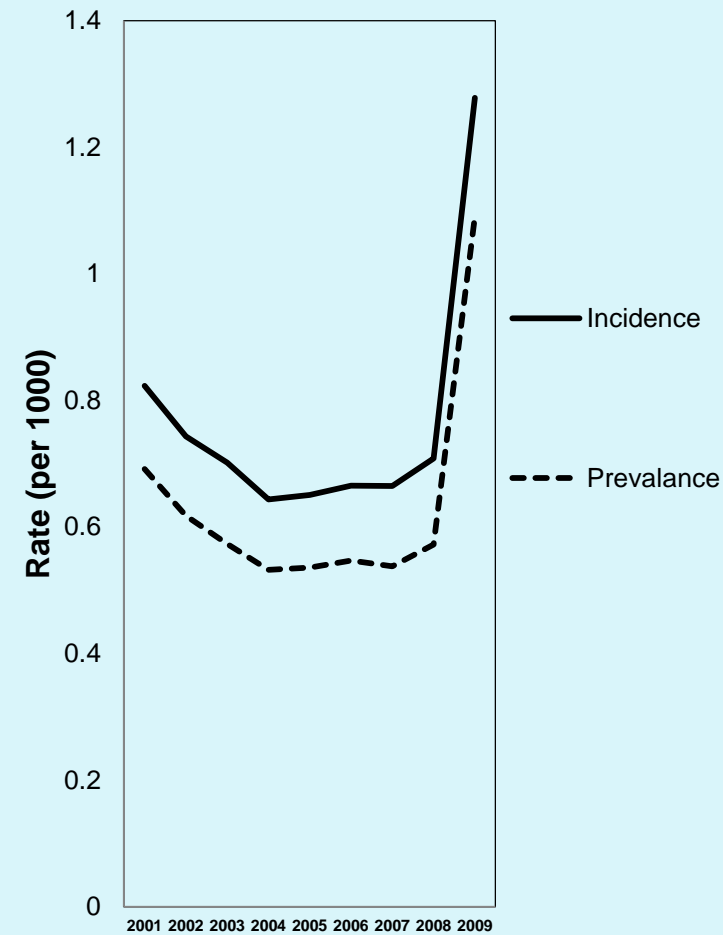
### Chronic



### Acute

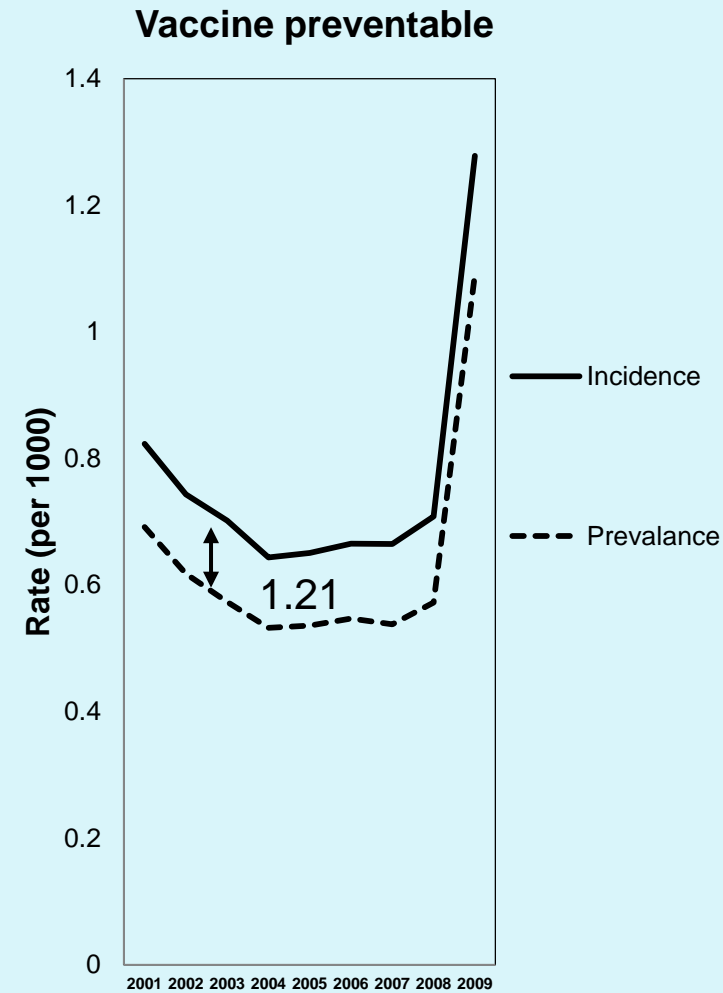
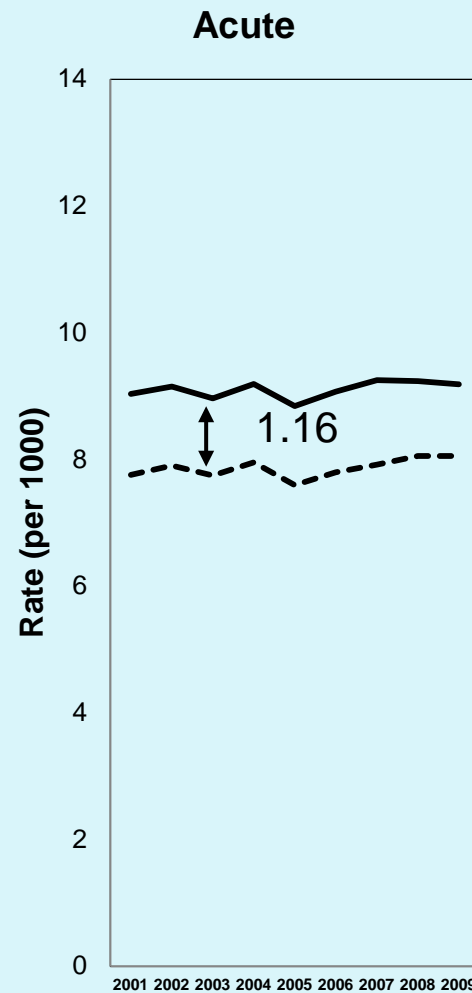
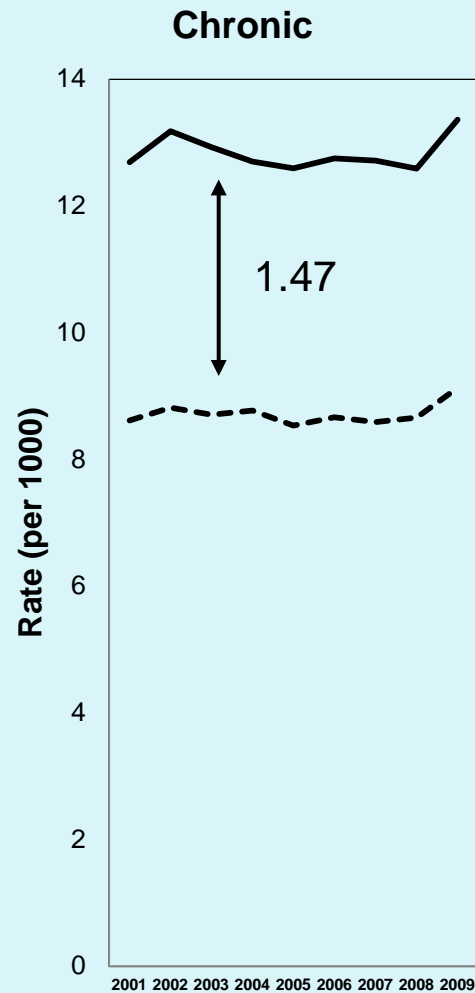


### Vaccine preventable



— Incidence  
- - - Prevalence

# Results II: Person-level time series



# ASH Results III: Equity models

	A. Chronic		B. Acute		C. Vaccine preventable	
	Incidence per 1000	IRR (95% CI)	Incidence per 1000	IRR (95% CI)	Incidence per 1000	IRR (95% CI)
<b>Deprivation</b>						
<b>1 (least deprived)</b>	7.7	--	6.1	--	0.55	--
<b>2</b>	9.6	1.25 (1.23-1.27)	7.0	1.16 (1.14-1.17)	0.61	1.12 (1.06-1.17)
<b>3</b>	12.5	1.62 (1.60-1.65)	8.7	1.44 (1.41-1.46)	0.72	1.31 (1.24-1.37)
<b>4</b>	17.0	2.22 (2.18-2.25)	11.3	1.86 (1.83-1.89)	0.86	1.56 (1.49-1.64)
<b>5 (most deprived)</b>	22.1	2.88 (2.84-2.92)	14.7	2.42 (2.38-2.46)	1.14	2.08 (1.98-2.18)
<b>Ethnicity</b>						
<b>Non-Maori, Non-Pacific</b>	7.3	--	7.3	--	0.44	--
<b>Māori</b>	16.7	2.30 (2.27-2.32)	10.4	1.41 (1.40-1.43)	0.84	1.92 (1.85-1.99)
<b>Pacific</b>	17.3	2.38 (2.34-2.42)	9.9	1.35 (1.33-1.38)	1.14	2.60 (2.48-2.72)

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# ASH Results IV: Deprivation effect 2001-9

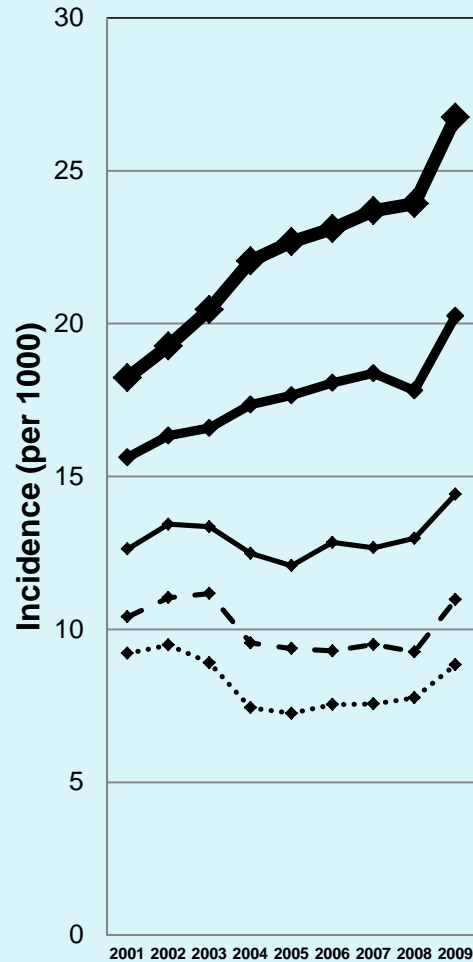


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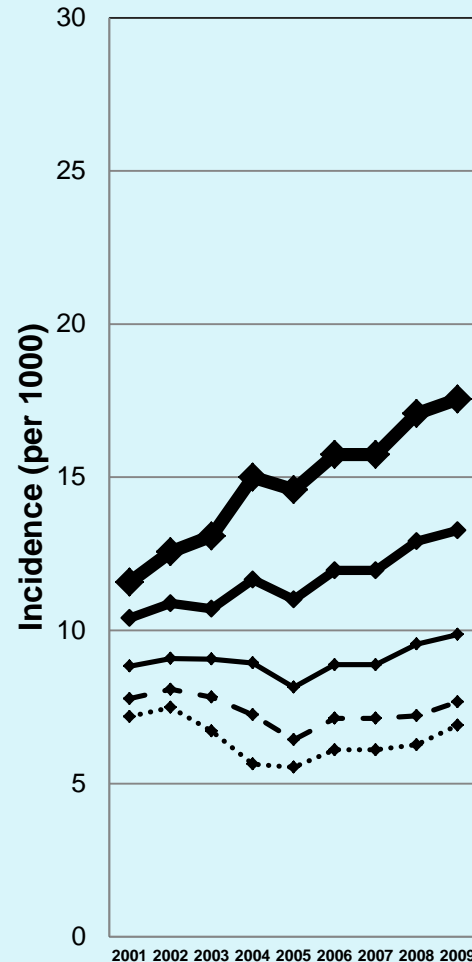
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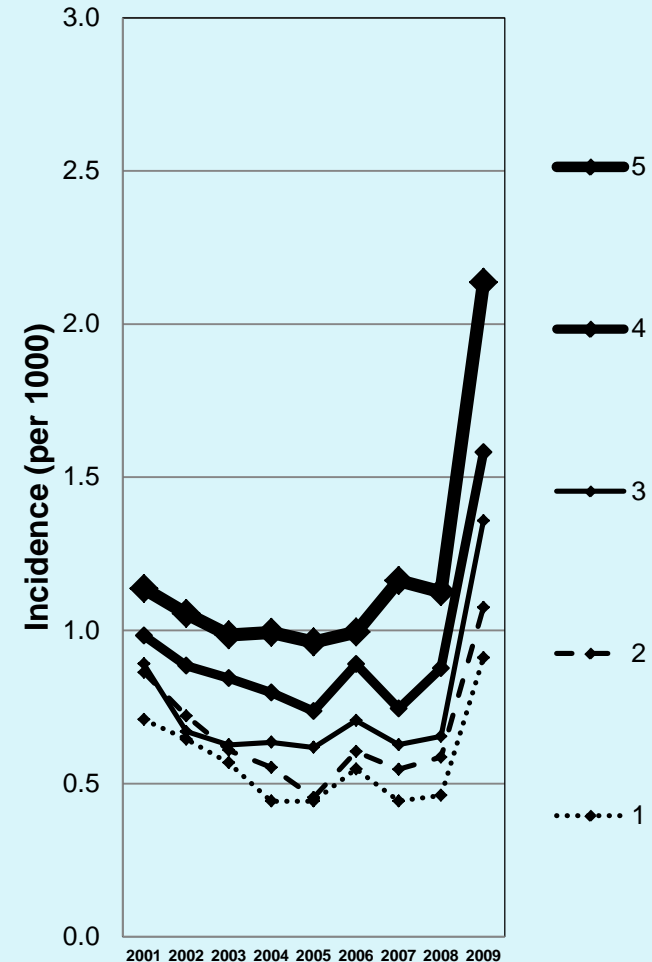
Chronic



Acute



Vaccine preventable



# ASH Results V: Ethnicity effect 2001-9

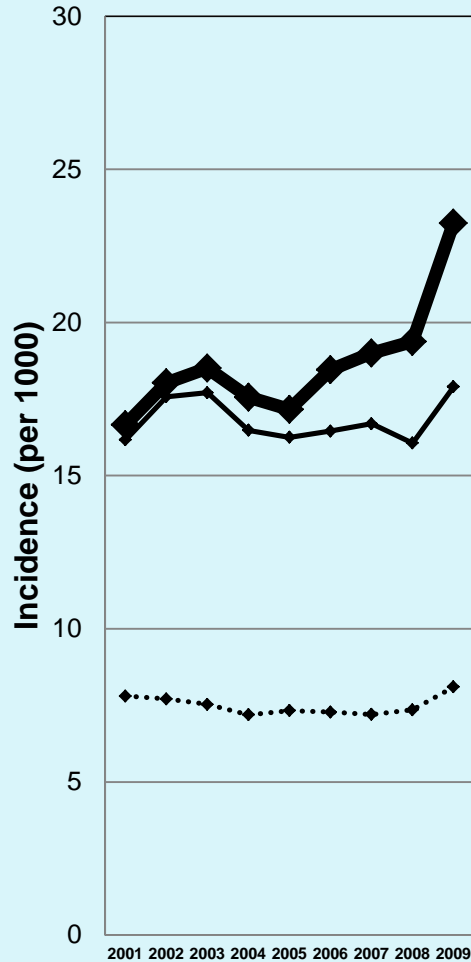


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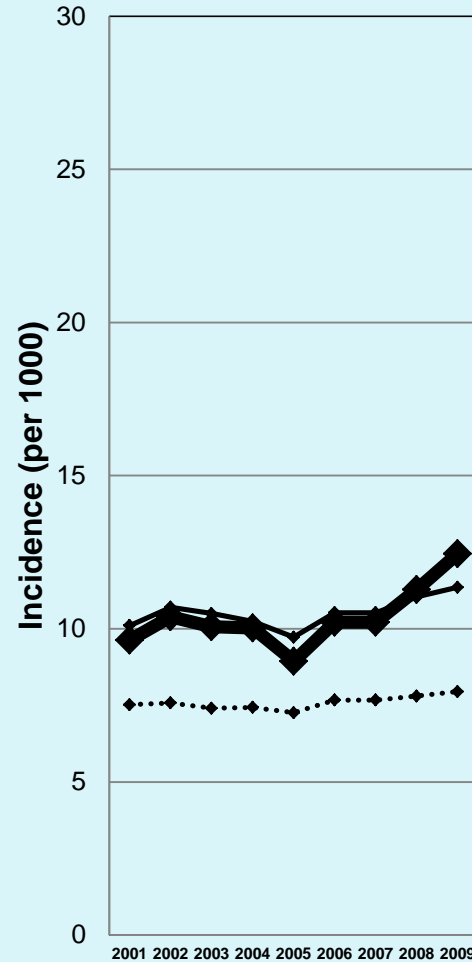
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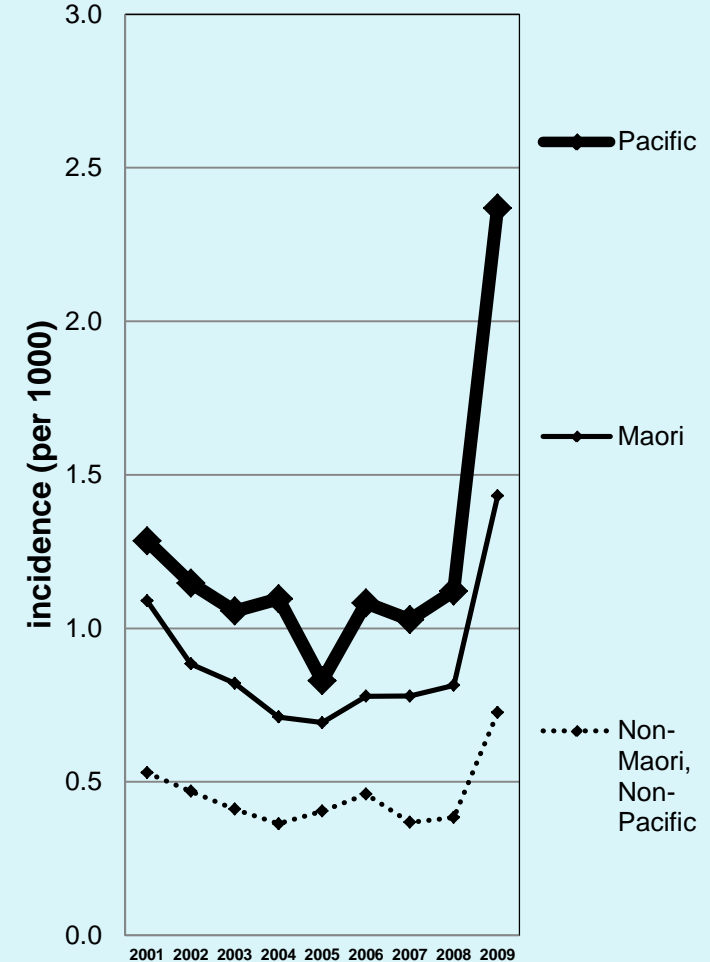
Chronic



Acute



Vaccine preventable



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# ASH Paper - Conclusions



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- ASH rates largely stable over time
  - Downward trend to 2008 for vaccine preventable ASH
- Strong ethnic and deprivation gradients
- Deprivation disparities increased 2001-2009 for chronic and acute ASH
- Ethnic disparities also increased 2001-2009, though not as markedly



# ASH Paper - Conclusions



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- ❑ Contrary to access hypothesis
- ❑ Policy that (successfully) improved access did not reduce ASH and did not decrease disparities
- ❑ Interventions to improve access will not necessarily reduce ASH rates
  - ❑ Access may not be the most important determinant of ASH.