

## Appendix 2: Comparative results illustrating the estimates of the fixed effect variables based on the fixed effect and mixed effect logistic regression models

Variables	Unadjusted - Odds Ratio			Adjusted - Odds Ratio (Multivariate LR, model 2)			Adjusted - Odds Ratio (Multilevel LR, model 1)			
	OR	95% CI		OR	95% CI		OR	95% CI		
<b>Year windows</b>										
2008-09		Ref			Ref			Ref		
2010-12	1.0176	1.0041	1.0313	<b>0.9783</b>	0.9623	0.9946	<b>0.9788</b>	0.9629	0.9949	
2013-15	1.0209	1.0074	1.0347	<b>0.9595</b>	0.9398	0.9795	<b>0.9602</b>	0.9408	0.9800	
2016-18	1.0513	1.0374	1.0654	<b>0.9653</b>	0.9404	0.9909	<b>0.9664</b>	0.9418	0.9916	
<b>Age - group</b>										
0-1 Year		Ref			Ref			Ref		
1-2 Years	0.8274	0.8178	0.8371	<b>0.8250</b>	0.8153	0.8347	<b>0.8250</b>	0.8153	0.8347	
2-4 Years	0.7666	0.7591	0.7741	<b>0.7668</b>	0.7593	0.7744	<b>0.7668</b>	0.7593	0.7744	
<b>Gender</b>										
Female		Ref			Ref			Ref		
Male	1.1984	1.1880	1.2089	<b>1.1977</b>	1.1873	1.2083	<b>1.1977</b>	1.1873	1.2083	
<b>Ethnicity (Prioritized)</b>										
NMNP		Ref			Ref			Ref		
Maori	1.9669	1.9476	1.9864	<b>1.7465</b>	1.7277	1.7655	<b>1.7466</b>	1.7278	1.7656	
Pacific	2.2482	2.2209	2.2758	<b>2.0556</b>	2.0274	2.0843	<b>2.0553</b>	2.0270	2.0839	
<b>Deprivation (Index of Multiple Deprivation) - 3 categories</b>										
IMD 1 (deciles 1-4)		Ref			Ref			Ref		
IMD 2 (deciles 5-6)	1.3949	1.3785	1.4114	<b>1.2158</b>	1.2007	1.2311	<b>1.2158</b>	1.2007	1.2311	
IMD 3 (deciles 7-10)	1.9852	1.9641	2.0066	<b>1.4664</b>	1.4476	1.4854	<b>1.4664</b>	1.4477	1.4855	
<b>Urban-Rural locality</b>										
Non-Urban		Ref			Ref			Ref		
Urban	1.3754	1.3580	1.3930	<b>1.2506</b>	1.2335	1.2680	<b>1.2506</b>	1.2335	1.2679	
<b>Finance (Annual Health Expe per Capita, rescaled)</b>										
AHE PP*	1.4547	1.4233	1.4869	<b>1.4250</b>	1.3085	1.5519	<b>1.4190</b>	1.3056	1.5422	

**Notes:** Model  $p < 0.001$ , Model co-variates: model 1(multilevel logistics regression) = age, ethnicity, gender, deprivation, rurality, year-window, and finance; model 2 (multivariate logistics regression) = age, DHBs, ethnicity, gender, deprivation, rurality, year-window, and finance. CI = Confidence Interval; LR = Logistics Regression; Deprivation: Index of Multiple Deprivation (IMD1 = decile 1-4, IMD2 = decile 5-6, IMD3 = decile 7-10; finance (AHE-PP): Annual Health Expenditure Per Capita rescaled (0-1)