Supporting Information

Title The Indian Ocean Dipole and cryptosporidiosis in Australia: Short-term and non-linear associations

Authors: Aparna[1]* Lal, Masahiro Hashizume[2], Simon Hales[3]

Addresses: [1]National Centre for Epidemiology and Population Health, Building 62, Research School of Population Health, Australian National University, Acton, Canberra Australia 2602. Email: Aparna.lal@anu.edu.au

[2]Department of Pediatric Infectious Diseases, Institute of Tropical Medicine, Nagasaki University, 1-12-4, Sakamoto, Nagasaki, Japan 852-8523

[3]Department of Public Health, University of Otago School of Medical and Health Sciences, Wellington, New Zealand 2343

Number of pages: 7

Number of figures: 4

Number of tables: 1

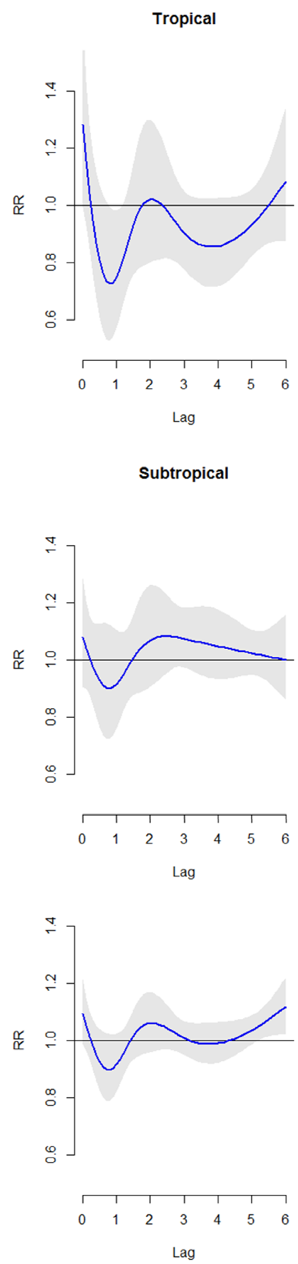

Figure S1 Estimated relative risk of reported cryptosporidiosis in association with 95th percentile of weekly Dipole Mode Index (DMI value =0.85) over a 6 week lag across three climatic regions in Australia, 2001-2012

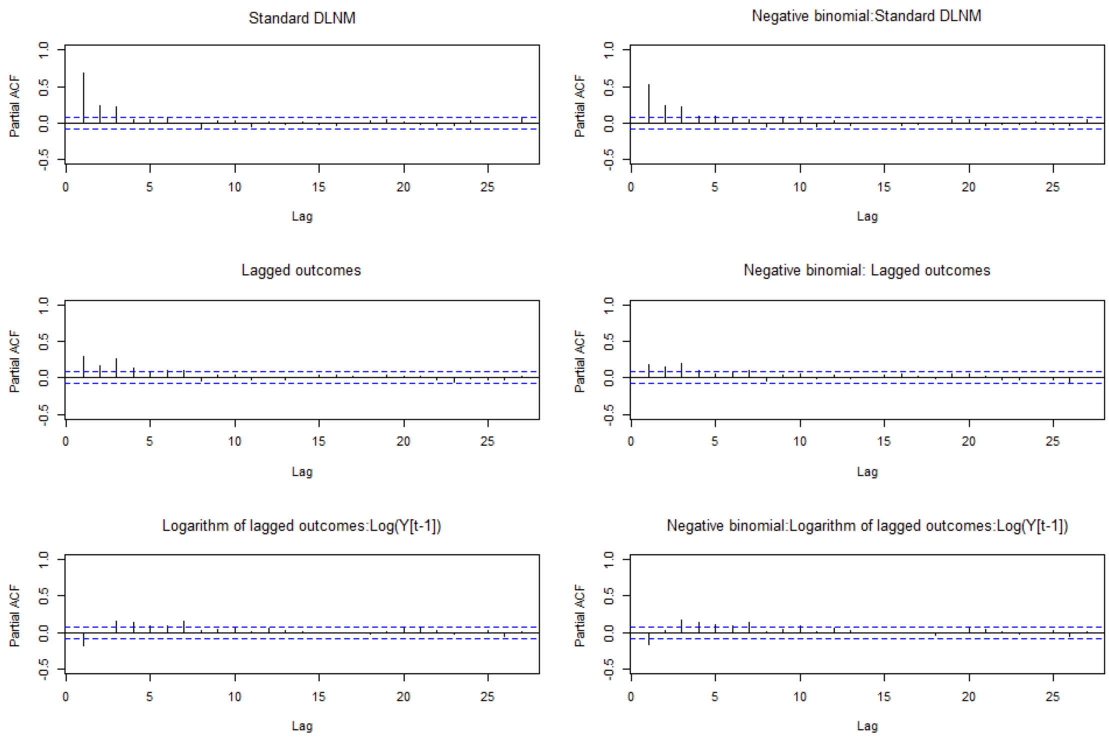

Figure S2. The partial autocorrelation function (PACF) of the residuals of the standard DLNM models with and without autocorrelation adjustments and using alternate distributions for the Tropical region

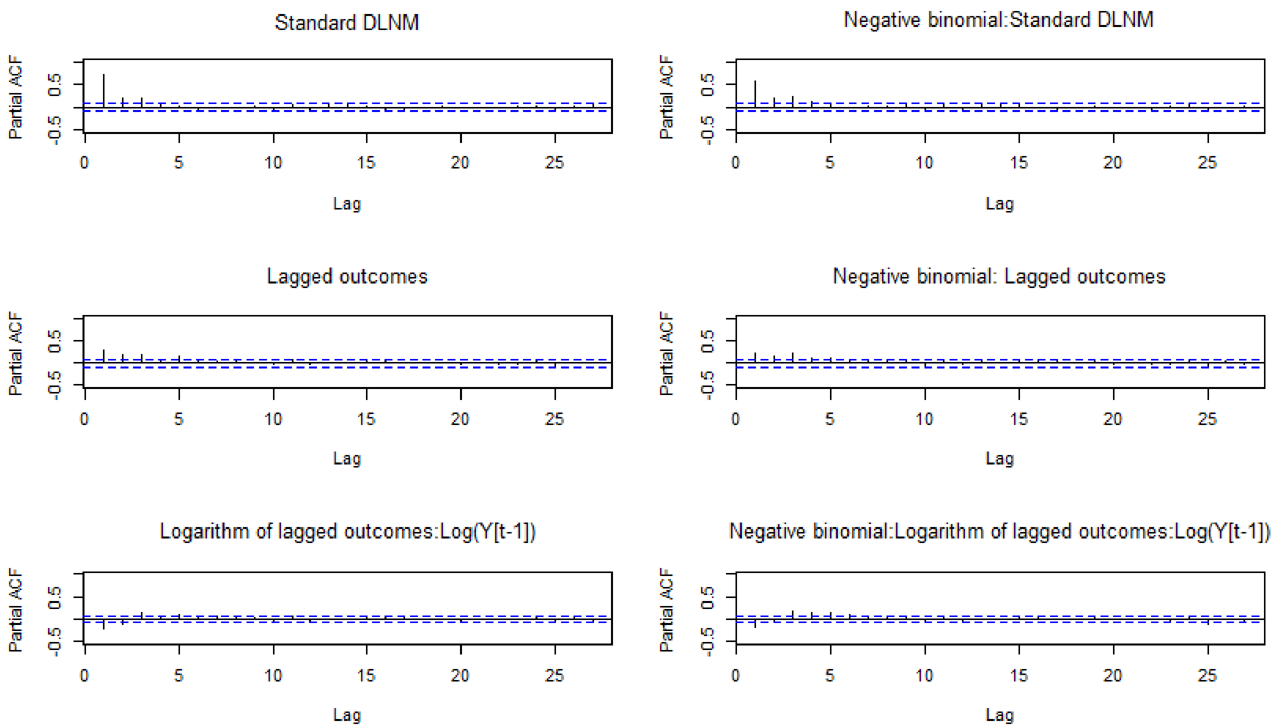

Figure S3. The partial autocorrelation function (PACF) of the residuals of the standard DLNM models with and without autocorrelation adjustments and using alternate distributions for the Subtropical region

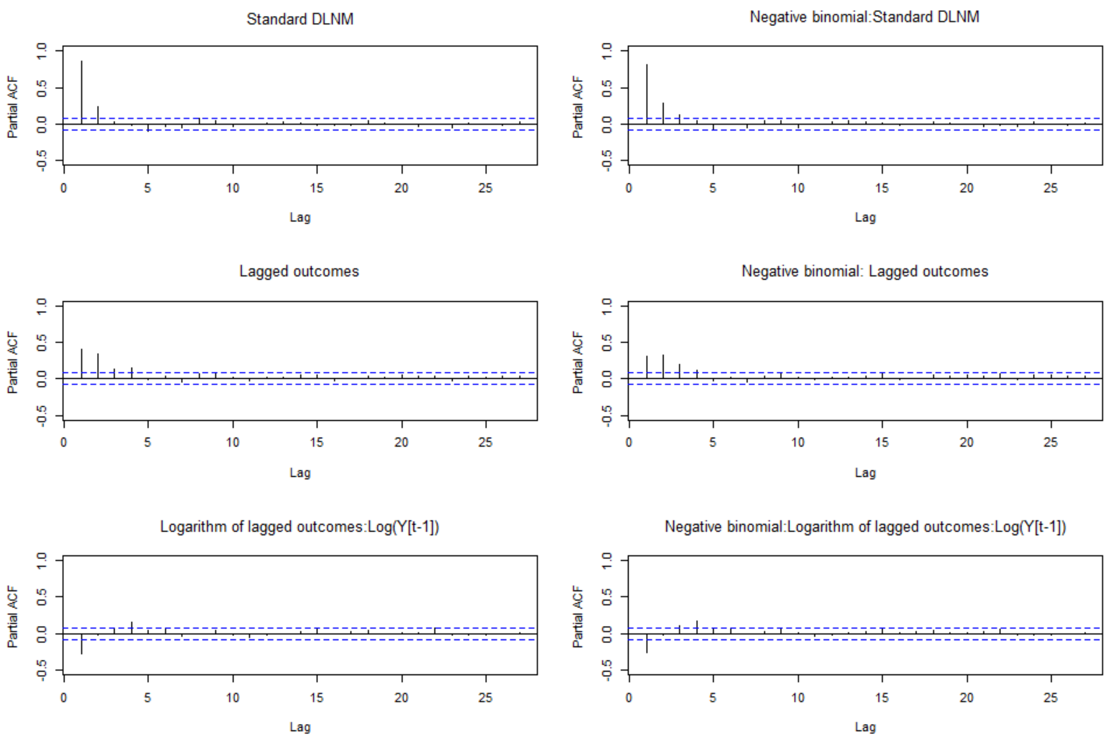

Figure S4. The partial autocorrelation function (PACF) of the residuals of the standard DLNM models with and without autocorrelation adjustments and using alternate distributions for the Temperate region

Table S1. Time series regression (TSR) model comparison for cryptosporidiosis

Models		Outcome (Y)	Predictors	Distribution	Dispersion Parameter	Model AIC
TSR with quasi-Poisson (Temperate)						
	Standard DLNM	count		QP	n.a	9748.6
	Standard DLNM + Autocorrelation (AC)	count	Y_{t-1}	QP	2.1	5121.5
	Standard DLNM + AC	count	$\log(Y_{t-1}+1)$	QP	1.8	4312.9
TSR with negative binomial (Temperate)						
	Standard DLNM	count		NB	n.a.	9184.7
	Standard DLNM + AC	count	Y_{t-1}	NB	n.a.	6054.1
	Standard DLNM + AC	count	$\log(Y_{t-1}+1)$	NB	n.a.	4379.0
TSR with quasi-Poisson (Subtropical)						
	Standard DLNM	count		QP	n.a	7554.4
	Standard DLNM + AC	count	Y_{t-1}	QP	4	5505.0
	Standard DLNM + AC	count	$\log(Y_{t-1}+1)$	QP	3.4	4276.5
TSR with negative binomial (Subtropical)						
	Standard DLNM	count		NB	n.a.	7931.4
	Standard DLNM + AC	count	Y_{t-1}	NB	n.a.	4996.1
	Standard DLNM + AC	count	$\log(Y_{t-1}+1)$	NB	n.a.	4290.7
TSR with quasi-Poisson (Tropical)						
	Standard DLNM	count		QP	n.a	3862.3
	Standard DLNM + AC	count	Y_{t-1}	QP	3.4	2874.0
	Standard DLNM + AC	count	$\log(Y_{t-1}+1)$	QP	2.3	2556.1
TSR with negative binomial (Tropical)						

	Standard DLNM	count		NB	n.a.	3725.8
	Standard DLNM + AC	count	Y_{t-1}	NB	n.a.	3290.9
	Standard DLNM + AC	count	$\log(Y_{t-1}+1)$	NB	n.a.	2564.5