

M3S12 BIOSTATISTICS - EXERCISE 1

STANDARDIZATION

This analysis concerns infant deaths (for children less than 1 year of age) in Colorado and Louisiana in 1987.

- Colorado: 527 deaths out of 53808 live births
- Louisiana: 872 deaths out of 73967 live births

(a) Compare the crude mortality rates for the two states.

In the US, infant mortality depends on race

Race	USA 1987			
	Number of Live Births	% of live Births in US	Number of Infant Deaths	Infant Death Rate ($\times 10^3$)
Black	641567	16.8	11461	17.9
White	2992488	78.6	25810	8.6
Other	175339	4.6	1137	6.5
Total	3809394	100.0	38408	10.1

Table 1: Race specific numbers of live births and infant mortality rate for the whole of the US

The distribution of race of new-born children is different in the two states, and as infant mortality rates depend on race, race is a *confounder*., and we need to compare race-specific infant mortality rates.

Race	Colorado			Louisiana		
	Number of Infant Deaths	Number of Births	% of live Births in Co	Number of Infant Deaths	Number of Births	% of live Births in La
Black	52	3166	5.9	526	29670	40.1
White	469	48805	90.7	343	42749	57.8
Other	6	1837	3.4	3	1548	2.1
Total	527	53808	100.0	872	73967	100.0

Table 2: Race-specific numbers of live births Colorado (Co) and Louisiana (La)
(WITH NUMBER OF INFANT DEATHS BY STATE)

- (b) Compute the race-specific mortality rates for the two states.
- (c) Compute and compare the **direct** and **indirect** standardized rates for the two states, using the figures for the entire population of the US as the mechanism for standardization.