

Measuring inequalities in the distribution of the Fiji Health Workforce

Virginia Wiseman^{1,2}, Mylene Lagarde^{2,3}, Neha Batura⁴, Sophia Lin¹, Wayna Irava⁵, and Graham Roberts⁶

¹ University of New South Wales; ² London School of Hygiene and Tropical Medicine; ³ London School of Economics and Political Science; ⁴ University College London; ⁵ Fiji National University; ⁶ Human Resources for Development Alliance



Introduction

- The planning, production and management of human resources for health remains underdeveloped in many low- and middle-income countries despite the centrality of health workers to the population's health.
- This is especially true for countries like Fiji, which face a major challenge in distributing its health workforce across more than 100 inhabited islands.
- In Fiji, the estimated health worker density ratio is only 0.4 practicing physicians and 2.2 nurses and midwives per 1000 people, far below WHO's recommended threshold of 2.3 per 1000 (WHO, 2006).
- Addressing the maldistribution of health workers must be informed by the level of 'need'.

Aim

To measure inequalities in the distribution of the existing stock of health workers across divisions and provinces in Fiji.

Table 2: Measures of inequality in health worker distribution

	Measures across divisions			Measures across provinces		
	p90/p10	Gini coefficient	Thiel's L index	p90/p10	Gini coefficient	Thiel's L Index
Nurses	1.52	0.077	0.011	13.57	0.412	0.513
Doctors	1.51	0.088	0.013	21.11	0.532	1.038
All health workers	1.39	0.059	0.008	15.91	0.434	0.581

Methods

- We use data from three sources:
 - Population census, 2007 and projections for 2011;
 - Ministry of Health (MoH) records of crude all-cause death rates across divisions and provinces in 2011; and
 - MoH personnel records of health workers (age, sex, location, qualifications, place of work, position title, specialisation), 2011
- We group cadres of health workers according to the International Labour Organisation's International Standard Classification of Occupations (ISCO-08).
- We calculate measures of inequality for all 4 divisions and 15 provinces:
 - Health worker density per 1000 population for nurses, doctors, and allied health workers;
 - Decile dispersion ratio, Gini Coefficient and Theil – L index;
 - Decompose Theil – L index to measure between province and division inequalities; and
 - Lorenz curve for the distribution of health workers according to level of need (mortality)

Table 3: Measures of inequality in health worker distribution

	Between-division inequalities	Between-province inequalities
Nurses	0.011	0.278
Doctors	0.012	0.441
All health workers	0.008	0.302

Results

- In 2011, healthworker densities in 9 of the 15 provinces were below the recommended minimum ratio for nurses, and all were below the minimum ratio for doctors.
- Of the four divisions, one was below the recommended minimum ratio for nurses, and all were below for doctors.
- Overall inequality in the distribution of the health workforce was much higher at the lower level (provinces) compared to higher level (divisions) (Table 2).
- Overall inequality in the distribution of the health workforce between provinces was much higher compared to overall inequality between divisions for all categories of health workers (Table 3).
- At the divisional level, the share of health workers increased almost in proportion with need (Fig 1).
- At the provincial level too, the share of health workers increased almost in proportion with need but there are some slight inequalities (Fig 2).

Fig 1: Lorenz curve, distribution of health workers according need, division level

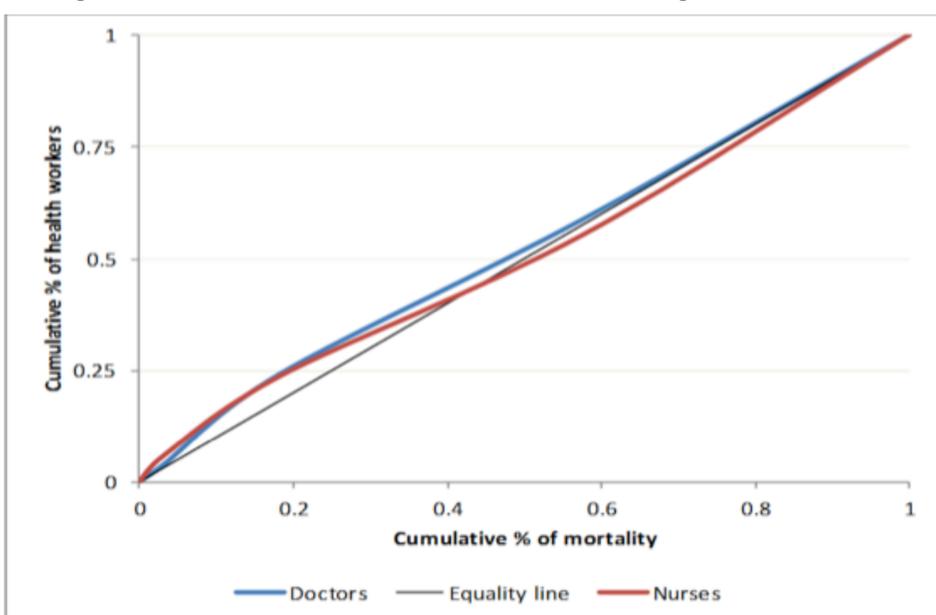
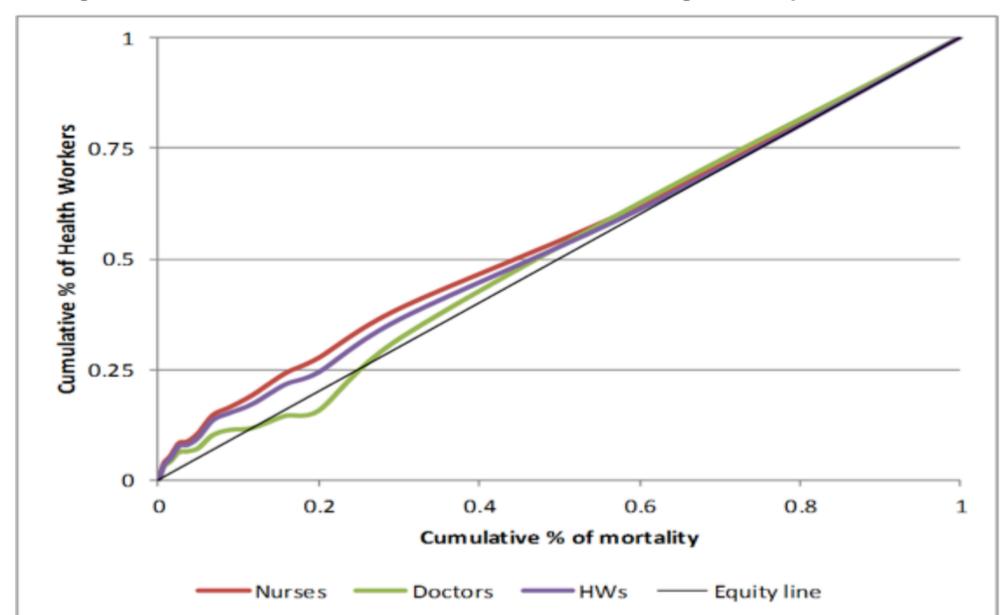


Fig 2: Lorenz curve, distribution of health workers according to need, provincial level



Discussion

- There is a significant shortage of health workers at the provincial level in Fiji.
- With respect to the distribution of health workers, the decile dispersion ratio, Gini co-efficient, and Theil – L index together form a consistent picture that while inequalities exist at the provincial level in Fiji, mainly with respect to the distribution of doctors, these inequalities are relatively small.
- Using a measure of need defined in terms of mortality, we find that health workers tend to be located in areas where need is greatest.
- This suggests that the Fijian government is responding to health care needs as best it can, using the available stock of health workers.
- Efforts must focus on decreasing national shortages, most notably of doctors and specialists at the provincial level.