

2006 WHO report, the number of doctors that emigrated to New Zealand and Australia is almost half of the doctors reported to be working in PNG.³⁶ Importantly, PNG has the worst doctor- and nurse-to-patient ratios in the region, and was declared an HRH crisis country in 2006.⁴ It has a density of 0.05 per 1000 population for doctors and 0.53 per 1000 population for nurses,³⁶ and the widest gap in terms of both nurses and doctors compared to the minimum required number of health workers.

Samoa also has low doctor and nurse densities, yet the Samoan health workers in New Zealand and Australia rank third in population among other Pacific Islanders. Whereas in Samoa there were only 120 physicians and 346 nurses in 2006³⁶, 42 Samoan-born doctors and 461 Samoan-born nurses were working in Australia and New Zealand.³⁵ Such migration drove the health worker densities lower than the internationally acceptable levels and thus created a negative balance and a gap in health service delivery.

In the census data on specialized health workers emigrated to Australia and New Zealand, Tongan doctors constituted 26 while nurses numbered 421.³⁵ Tonga has only 35 doctors and 322 nurses working in its health system, giving rise to a doctor density of only 0.34 and a nurse density of 3.16 per 1000 population.³⁶ In simple terms, more Tongan doctors were working in Australia and New Zealand relative to those available in Tonga itself. Such a

trend was also common in other Pacific Islands such as the Cook Islands, where there are only 14 doctors and 49 nurses in the health system. This is equivalent to doctor and nurse densities of 0.78 and 2.72 per 1000 population, respectively.³⁶ Yet 14 doctors and 77 nurses born in the Cook Islands were working in Australia and New Zealand.³⁵ Migration of these specialized health workers could have been a factor that contributed to the gap in the health workforce of the Cook Islands.

Other Pacific Island-born doctors and nurses working in Australia and New Zealand were from Niue, a country that had only 4 doctors and 12 nurses by the year 2006, while 7 Niue-born doctors and 47 Niue-born nurses were found in New Zealand and Australia in the same year.³⁵ Although, due to its small population size, the country was not regarded as a crisis country in the WHR 2006, such a trend left unchecked may collapse the entire health system of the Island. Kiribati had 20 doctors by 2006 and had also exported 6 to both countries; it also had 370 nurses working in the country while 18 were working in Australia and New Zealand.²⁸ Kiribati has a doctor density of 0.2, which is lower than the minimum recommended density by international standards.

Shortages of specialized health workers in the Pacific Islands may be at least partially explained by migration. There were as many doctors and nurses working in just two

developed countries (i.e. Australia and New Zealand) as there were practicing in the Islands themselves. Such a trend is still not static; instead, many more health workers are still migrating, thus creating even a wider gap. If left unaddressed, it may lead to an HRH crisis in most of the small Pacific Islands, where even departure of a single physician or nurse may lead to the closure of a health facility.

Human resources for health after the political declaration in Samoa

The Pacific Code of Practice for Recruitment of Health Workers in the Pacific Region was developed in 2007.³³ This move was in response to the WHR 2006⁴ that called for governments, development partners, and the WHO to step into the crisis to address critical HRH: international health workers migration; national health workforce strategic planning, management and support; scaling up of health workers production; and building partnerships and alliances in supporting national's plans. The code was also created because of concern over the emigration of specialized health workers from the Pacific Islands, further weakening their health systems. Therefore, in addressing the health resources problem in the region, health ministers formulated the Samoa Commitment³⁷, to manage migration, encourage health workers' return, scale up health worker production, and retain these health workers within their respective countries. The Samoa Commitment ultimately gave rise to the Pacific Code of Practice for Recruitment of Health Personnel from the Pacific region. Along with the

code of practice, the process of developing a regional HRH strategy for 2006-2015 was set into motion.³⁸ Both strategic plans and the declaration aimed to improve the health workforce situation in the Pacific Island region.

Despite the Samoa Commitment that led to the Pacific Code of Practice and a regional HRH strategy for 2006-2015, which has been in action for years now, the PICTs have continued to bleed their scarce specialized health workers to the wealthier nations. In this sense, the Code and thus its regional strategy have not been successful in stemming the brain drain catastrophe in the health sector.

Compared to the time before the Samoa Commitment, the Pacific Code of Practice, and the HRH strategy for 2006-2015, doctor and nurse densities in some islands continue to fall even to this date. This has created a further negative drift in demand and in the real availability of health workers. PICTs that reported lower density of nurses post-Samoa Commitment included the Marshall Islands, Palau, and Vanuatu. A lower density of doctors was recorded in Fiji, Micronesia, Palau, Vanuatu, and PNG.³⁶ Nevertheless, in the wake of the Code of Practice, many Pacific Islands have observed increases in health workforce densities. An increase in the density of doctors was recorded in Kiribati, the Marshall Islands, Nauru, Niue,

Solomon, Tonga, and Tuvalu. Similarly, the density of nurses also increased in Fiji, Kiribati, Micronesia, Samoa, Niue, Tonga, and Tuvalu.³⁶

Against such a backdrop, political determination within the countries themselves, as well as regional planning and strategies, may help forge a way to address the HRH crisis and have a common goal in achieving better health worker densities. Such a plan, if well designed and implemented across islands and wealthier recipient countries, it may be possible to halt the deterioration of the health workforce in the Pacific Islands.

Conclusion

At present, PNG, Samoa, and Vanuatu are facing critical HRH crises. Some PICTs have increased their overall densities of doctors, nurses and midwives; however, the number of countries in the region facing critical shortages has increased from 2006. Migration of skilled health personnel from the region is a major factor contributing to this situation. To ameliorate the deficit, support from destination countries to strengthen HRH in PICTs would make migration a win-win situation. In addition, the Pacific Island region must devote more resources to strengthen this key health system building block. To this end, efforts should focus on training new personnel and on retaining them with financial and non-financial incentives. The Asia-Pacific Academic Consortium for Public Health (APACPH) can provide

a platform for knowledge exchange and enhance the research capacity in the region.³⁹

Regional political commitment will play an important role to sustain and enhance these

efforts toward universal access to skilled health workers in the Pacific Islands.

References

1. Samb B, Desai N, Nishtar S, et al. Prevention and management of chronic disease: a litmus test for health-systems strengthening in low-income and middle-income countries. *Lancet*. 2010;376(9754):1785-97.
2. Global Health Workforce Alliance. Negotiating for access to health workers for all. In: Sheikh M, Afzal M, editors. *Negotiating and navigating global health: case studies in global health diplomacy*. London: World Scientific/Imperial College; 2011.
3. McMichael AJ, Lindgren E. Climate change: present and future risks to health, and necessary responses. *J Intern Med*. 2011;270(5):401-13.
4. World Health Organization. *The World Health Report 2006: Working together for health*. Geneva, Switzerland: World Health Organization, 2006.
5. Scheffler RM, Liu JX, Kinfu Y, Dal Poz MR. Forecasting the global shortage of physicians: an economic- and needs-based approach. *Bull World Health Organ*. 2008;86(7):516-23B.
6. Mills EJ, Kanfers S, Hagopian A, et al. The financial cost of doctors emigrating from sub-Saharan Africa: human capital analysis. *BMJ*. 2011;343:d7031.
7. Connell J. *Migration of Health Workers in the Asia-Pacific Region*. Human Resources for Health Knowledge Hub, 2010.

8. Fulton BD, Scheffler RM. Health care professional shortages and skill-mix options using community health workers: new estimates for 2015 [working paper]. 2009.
9. University of New South Wales. Mapping Human Resources for Health Profiles from 15 Pacific Island Countries. Report to the Pacific Human Resources for Health Alliance from the Human Resources for Health Knowledge Hub. UNSW, 2009.
10. World Health Organization for the Western Pacific Region (WPRO). Western Pacific Regional Action Plan for Noncommunicable Diseases: a region free of avoidable NCD deaths and disability. Manila, Philippines: World Health Organization, 2009.
11. World Health Organization. Health in Asia and the Pacific. World Health Organization Regional Offices for South-East Asia and the Western Pacific. Manila, Philippines: World Health Organization, 2008.
12. Anand S, Bärnighausen T. Health workers and vaccination coverage in developing countries: an econometric analysis. *Lancet*. 2007;369(9569):1277-85.
13. Anand S, Bärnighausen T. Human resources and health outcomes: cross-country econometric study. *Lancet*. 2004;364(9445):1603-9.
14. Chen L, Evans T, Anand S, et al. Human resources for health: overcoming the crisis. *Lancet*. 2004;364(9449):1984-90.
15. World Health Organization. Western Pacific Country Health Information Profiles. 2011

- Revision. Geneva, Switzerland: World Health Organization, 2011.
16. World Health Organization. Global Health Observatory Data Repository. Geneva, Switzerland: World Health Organization.
 17. World Health Organization. Western Pacific Country Health Information Profiles. 2006 Revision. Geneva, Switzerland: World Health Organization, 2006.
 18. World Health Organization. Western Pacific Country Health Information Profiles. 2007 Revision. Geneva, Switzerland: World Health Organization, 2007.
 19. World Health Organization. Western Pacific Country Health Information Profiles. 2008 Revision. Geneva, Switzerland: World Health Organization, 2008.
 20. World Health Organization. Western Pacific Country Health Information Profiles. 2009 Revision. Geneva, Switzerland: World Health Organization, 2009.
 21. World Health Organization. Western Pacific Country Health Information Profiles. 2010 Revision. Geneva, Switzerland: World Health Organization, 2010.
 22. Scheffler RM, Mahoney CB, Fulton BD, Dal Poz MR, Preker AS. Estimates of health care professional shortages in sub-Saharan Africa by 2015. *Health Aff (Millwood)*. 2009;28(5):w849-62.
 23. WHO Regional Office for the Western Pacific. The migration of skilled health personnel in the Pacific Region. Manila, Philippines: World Health Organization, 2004.

24. Diallo K. Data on the migration of health-care workers: sources, uses, and challenges. Bull World Health Organ. 2004;82(8):601-7.
25. Connell J, Brown RP. The remittances of migrant Tongan and Samoan nurses from Australia. Hum Resour Health. 2004;2(1):2.
26. Maron N, Connell J. Back to Nukunuku: employment, identity and return migration in Tonga. Asia Pacific Viewpoint. 2008;49:168-84.
27. Stilwell B, Diallo K, Zurn P, Vujicic M, Adams O, Dal Poz M. Migration of health-care workers from developing countries: strategic approaches to its management. Bull World Health Organ. 2004;82(8):595-600.
28. Brown RP, Connell J. The migration of doctors and nurses from South Pacific Island Nations. Soc Sci Med. 2004;58(11):2193-210.
29. Oman KM, Moulds R, Usher K. Professional Satisfaction and Dissatisfaction Among Fiji Specialist Trainees: What Are the Implications for Preventing Migration? Qual Health Res. 2009;19(9):1246-58.
30. Henderson LN, Tulloch J. Incentives for retaining and motivating health workers in Pacific and Asian countries. Hum Resour Health. 2008;6:18.
31. Willis-Shattuck M, Bidwell P, Thomas S, Wyness L, Blaauw D, Ditlopo P. Motivation and retention of health workers in developing countries: a systematic review. BMC

- Health Serv Res. 2008;8:247.
32. Oman KM, Moulds R, Usher K. Specialist training in Fiji: Why do graduates migrate, and why do they remain? A qualitative study. *Hum Resour Health*. 2009;7:10.
 33. WHO Regional Office for the Western Pacific. Human Resources for Health: The Pacific Code of Practice for Recruitment of Health Workers in the Pacific Region and the Regional Strategy on Human Resources for Health 2006-2015. Port Vila (VUT): World Health Organization Regional Office for the Western Pacific, 2007.
 34. Wyber R, Wilson N, Baker M. New Zealand's impact on health in the South Pacific: scope for improvement? *N Z Med J*. 2009;122(1291):60-8.
 35. Negin J. Australia and New Zealand's contribution to Pacific Island health worker brain drain. *Aust N Z J Public Health*. 2008;32(6):507-11.
 36. World Health Organization. Global atlas of the health workforce. Geneva, Switzerland: World Health Organization, c2003-2007.
 37. World Health Organization. Samoa Commitment. Achieving Healthy Islands: Conclusions and Recommendations. Manila, Philippines: World Health Organization, 2006.
 38. World Health Organization. The Health Workforce Issues in the Western Pacific Region. Manila, Philippines: World Health Organization, 2005.

39. Binns, C, Hokama T, Low WY. Island Health: Hope and Challenges for Public Health.

Asia Pac J Public Health. 2010;22(1):19-24.

Table 1. Maternal mortality ratio per 100,000 live births in Pacific Islands Countries and Territories

Country	1999-2002	2003-2006	2007-2010
American Samoa	123.0	NA	NA
Cook Island	0.0	0.0	0.0
Federation of Micronesia	159.7	317.0	0.0
Fiji	35.3	50.5	27.5
French Polynesia	21.1	0.4	22.6
Guam	0.0	0.0	NA
Kiribati	103.0	158.0	0.0
Marshall Islands	73.8	0.0	143.0
Nauru	300.0	NA	NA
New Caledonia	NA	NA	0.0
Niue	NA	0.0	NA
Northern Mariana Islands	0.0	NA	NA
Palau	NA	11.6	0.0
Papua New Guinea	330.0	733.0	NA
Samoa	19.6	3.0	NA
Solomon Islands	125.0	236.0	103.0
Tokelau	0.0	NA	0.0
Tonga	78.2	83.3	36.4
Tuvalu	0.0	0.0	NA
Vanuatu	NA	70.0	86.0

NA = Not available

No data available for Pitcairn Island and Wallis and Futuna

Presented the most updated data during the mentioned period

Table 2: Under-five mortality rate per 1,000 live births in Pacific Islands Countries and Territories

Country	1999-2002	2003-2006	2007-2010
American Samoa	4.9	NA	NA
Cook Island	10.2	11.0	7.1
Federation of Micronesia	NA	41.0	39.0
Fiji	22.4	25.8	23.2
French Polynesia	9.0	14.7	6.5
Guam	12.3	10.0	NA
Kiribati	69.0	69.0	61.0
Marshall Islands	48.0	NA	28.0
Nauru	19.1	37.9	37.9
New Caledonia	9.1	NA	NA
Niue	NA	0.0	NA
Northern Mariana Islands	7.4	NA	NA
Palau	29.0	23.1	12.2
Papua New Guinea	88.0	74.7	NA
Samoa	13.7	13.0	15.0
Solomon Islands	73.0	52.0	37.0
Tokelau	0.0	NA	0.0
Tonga	13.9	NA	19.7
Tuvalu	25.4	32.4	24.6
Vanuatu	NA	36.0	31.0

NA = Not available

No data available for Pitcairn Island and Wallis and Futuna

Presented the most updated data during the mentioned period

Table 3: Latest data on density of doctors, nurses and midwives in the Pacific Island Countries and Territories

Country	Density of doctors, nurses and midwives per 1000 population
American Samoa*	2.69
Cook Island**	3.65
Federation of Micronesia	3.04
Fiji	2.48
French Polynesia	6.72
Guam***	0.84
Kiribati	4.30
Marshall Islands	2.92
Nauru	7.41
New Caledonia	7.13
Niue	12.67
Northern Mariana Islands	3.09
Palau	7.26
Papua New Guinea	0.52
Pitcairn islands	No available data
Samoa****	1.21
Solomon Islands	2.32
Tokelau	13.61
Tonga	4.43
Tuvalu	5.11
Vanuatu	1.73
Wallis and Futuna	5.21

All data corresponds to densities after the year 2006

*Data from 2003

**Data from 2004

***Density only for doctors

****Data from 2005

Figure 1: Trends in doctor density during 1996-2010 in the Pacific Island Countries and Territories

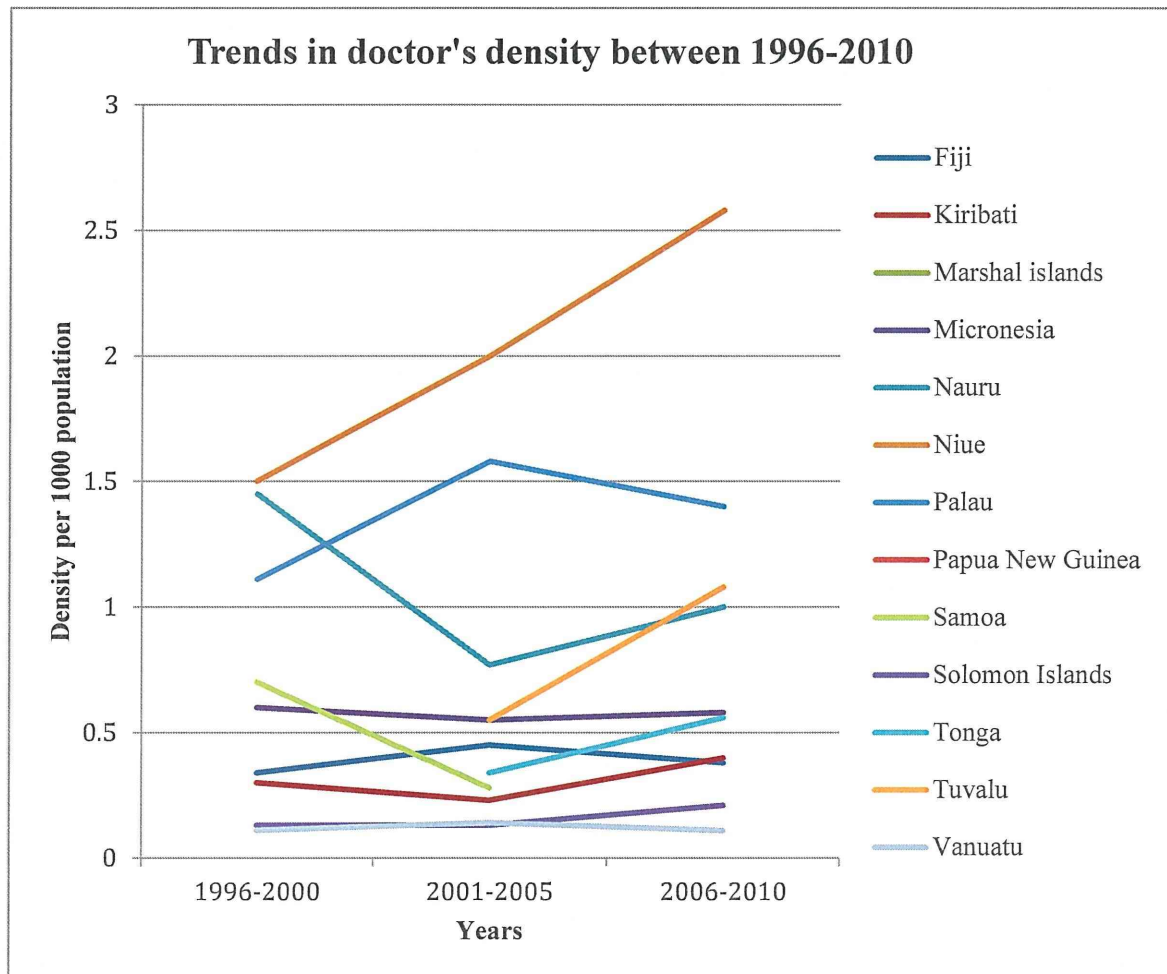


Figure 2: Trends in nurse density during 1997-2010 in the Pacific Island Countries and Territories

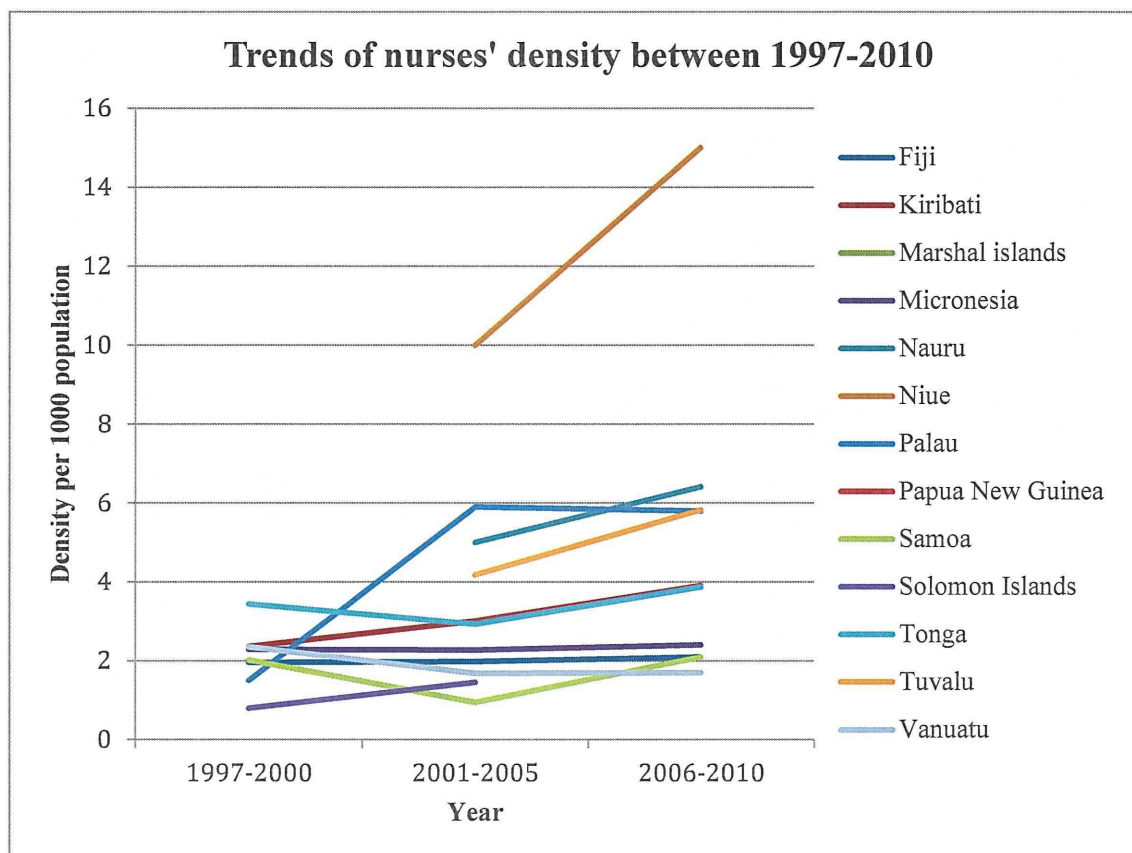


Figure 3: Doctor density levels in relation to the minimum threshold among the Pacific Island Countries and Territories

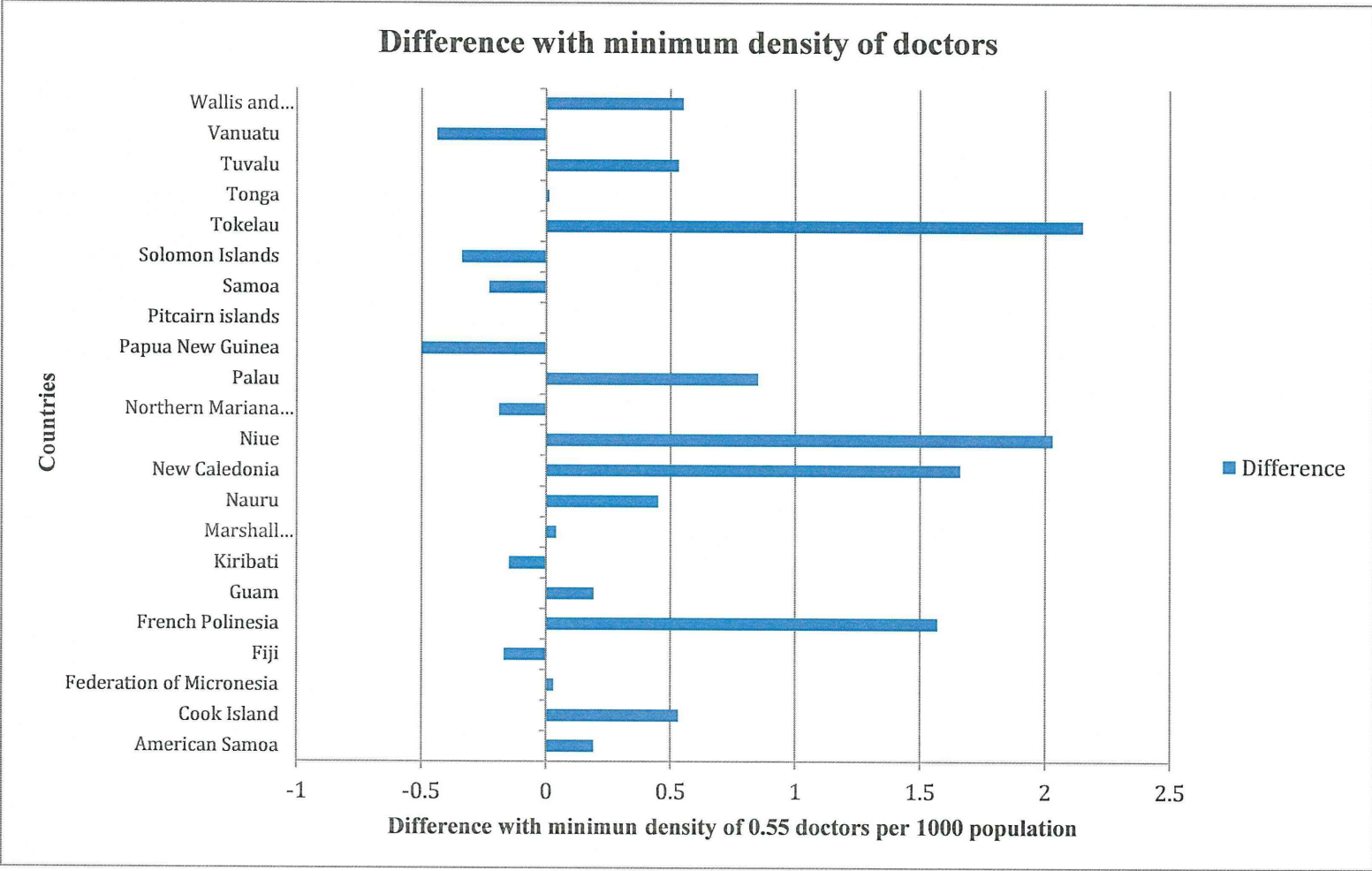
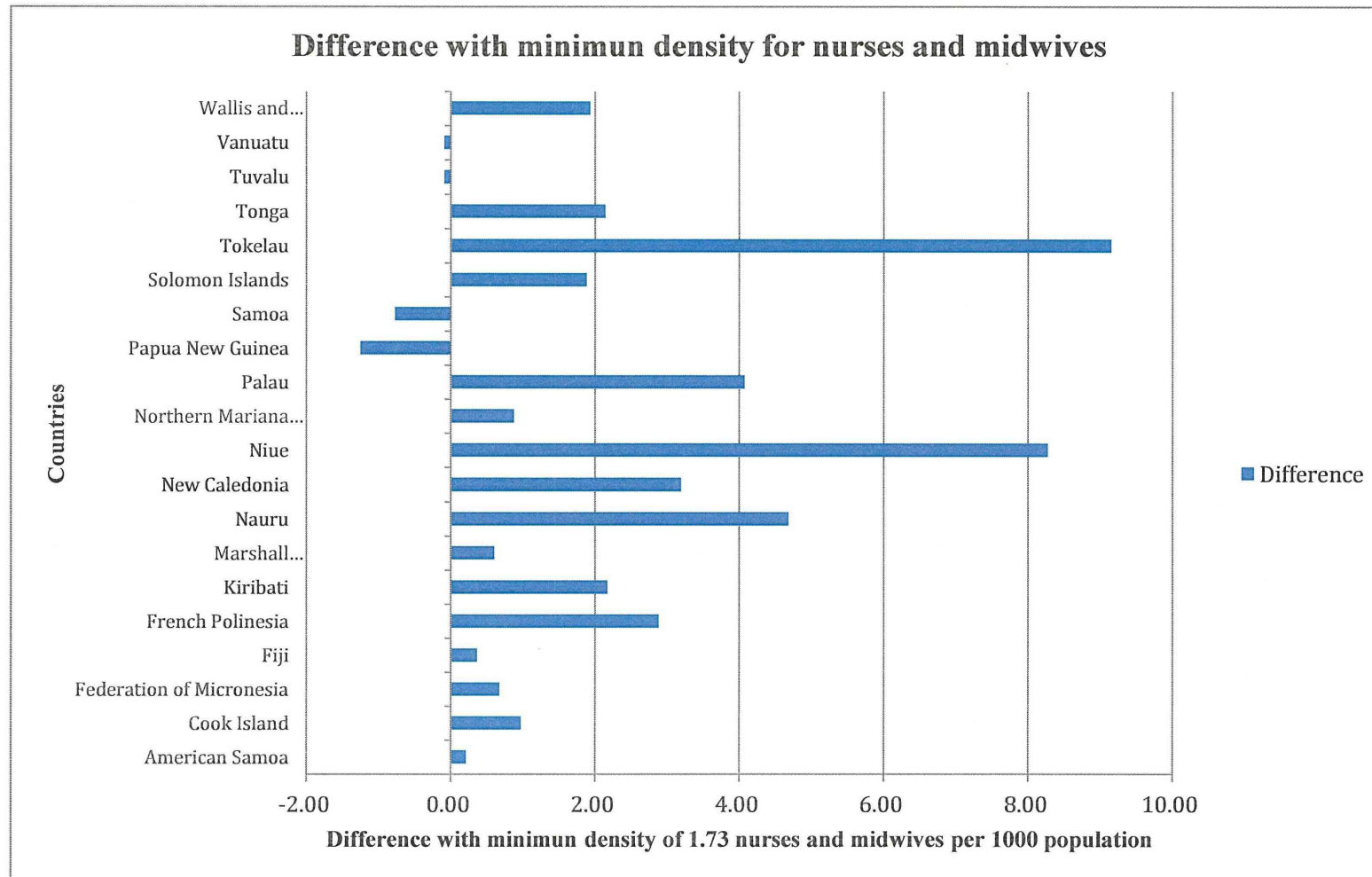


Figure 4: Nurse and midwife density levels in relation to the minimum threshold among the Pacific Island Countries and Territories



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12 April 2012

Prof Masamine Jimba

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Dear Prof Masamine Jimba,

Re: APJPH Special Section of July 2012 Issue: Migration of Health Workers in the Pacific Islands: A Bottleneck to Health Development.

We are pleased to inform you that your manuscript has been accepted for publication and it will be published in the APJPH Special Section of July 2012 Issue.

Thank you for your contribution. On behalf of the Editors of the Asia-Pacific Journal of Public Health, we look forward to your continued contributions to the Journal.

Yours Sincerely,

A handwritten signature in black ink, appearing to read "Wah-Yun Low", written over a horizontal line.

Prof Wah-Yun Low
Editor-in-Chief

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