

Starting of Free Dialysis in Nepal: Logistical Challenges Explored

John "Jack" McGee¹, Theodore MacKinney, MD, MPH, FACP^{1,2} Bimal Pandey, MBBS, MD²
 Medical College of Wisconsin¹, Patan Academy of Health Sciences²

Introduction

- The incidence of end stage renal disease (ESRD) is increasing worldwide; increased rates of diabetes mellitus & hypertension are primary causes of rising incidence¹
- To increase access to renal replacement therapy (RRT), in 2016 Nepal's Ministry of Health began financing free lifetime hemodialysis (HD) & continued support for kidney transplantation²
- Nepal's health system is fee-for-service with limited private insurance or free government health services
- Nepal has a population of 28.5 million & a per capita GDP of US\$837 – its GDP ranks 197 out of 229 countries measured worldwide³
- It is not clear how logistically & financially feasible free HD is, & if equity in access to service exists across the diverse regions of Nepal
- The last known Nepal RRT data was published in 2010; at that time, the government provided no financial support for RRT⁴

Specific Aims

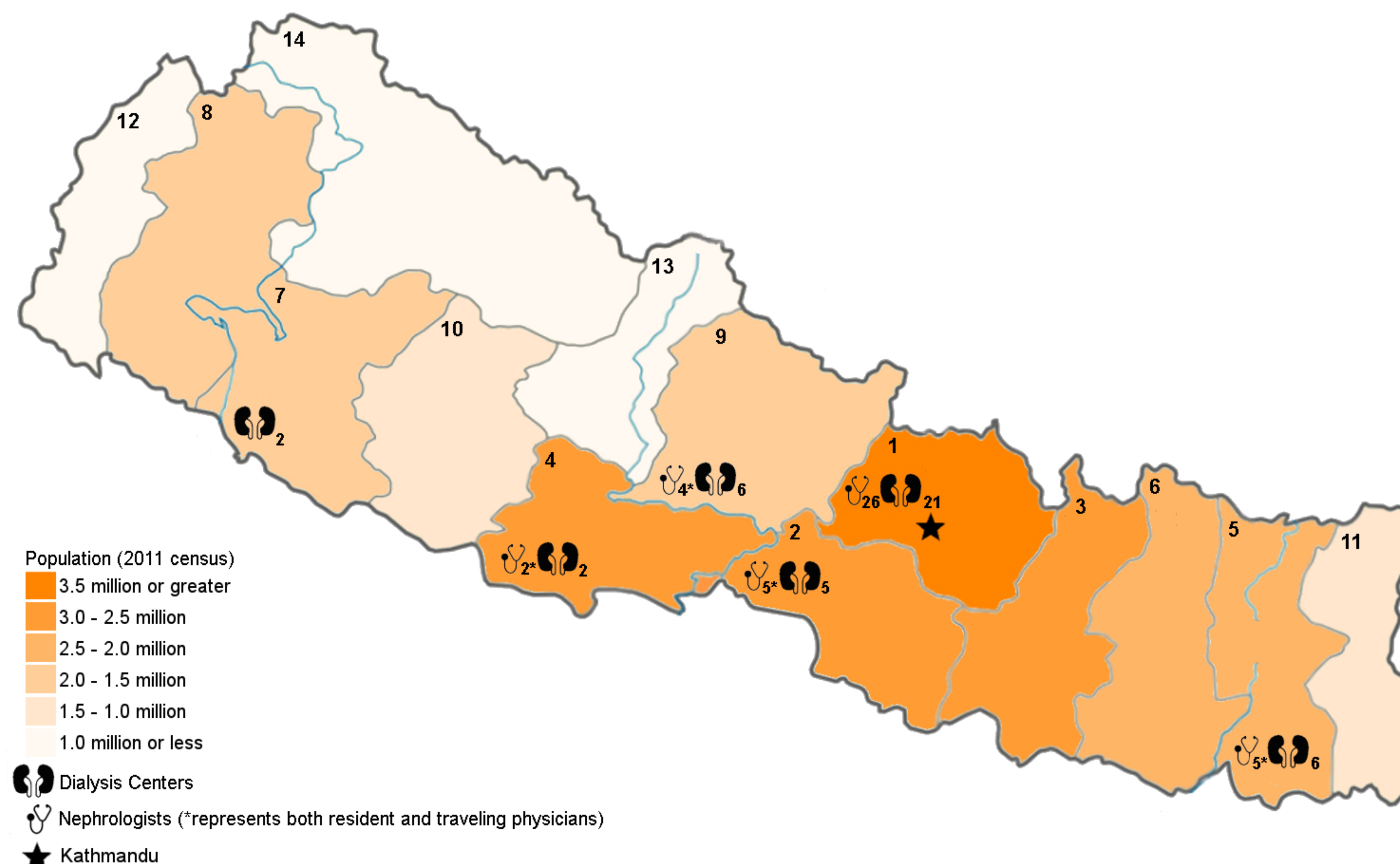
- Survey the current statistics of RRT & estimate the incidence and prevalence of ESRD In Nepal
- Assess the current state & regional distribution of nephrology services in Nepal
- Review the costs associated with RRT in Nepal to determine the financial burden the government could experience in supporting all incident ESRD patients

Methods

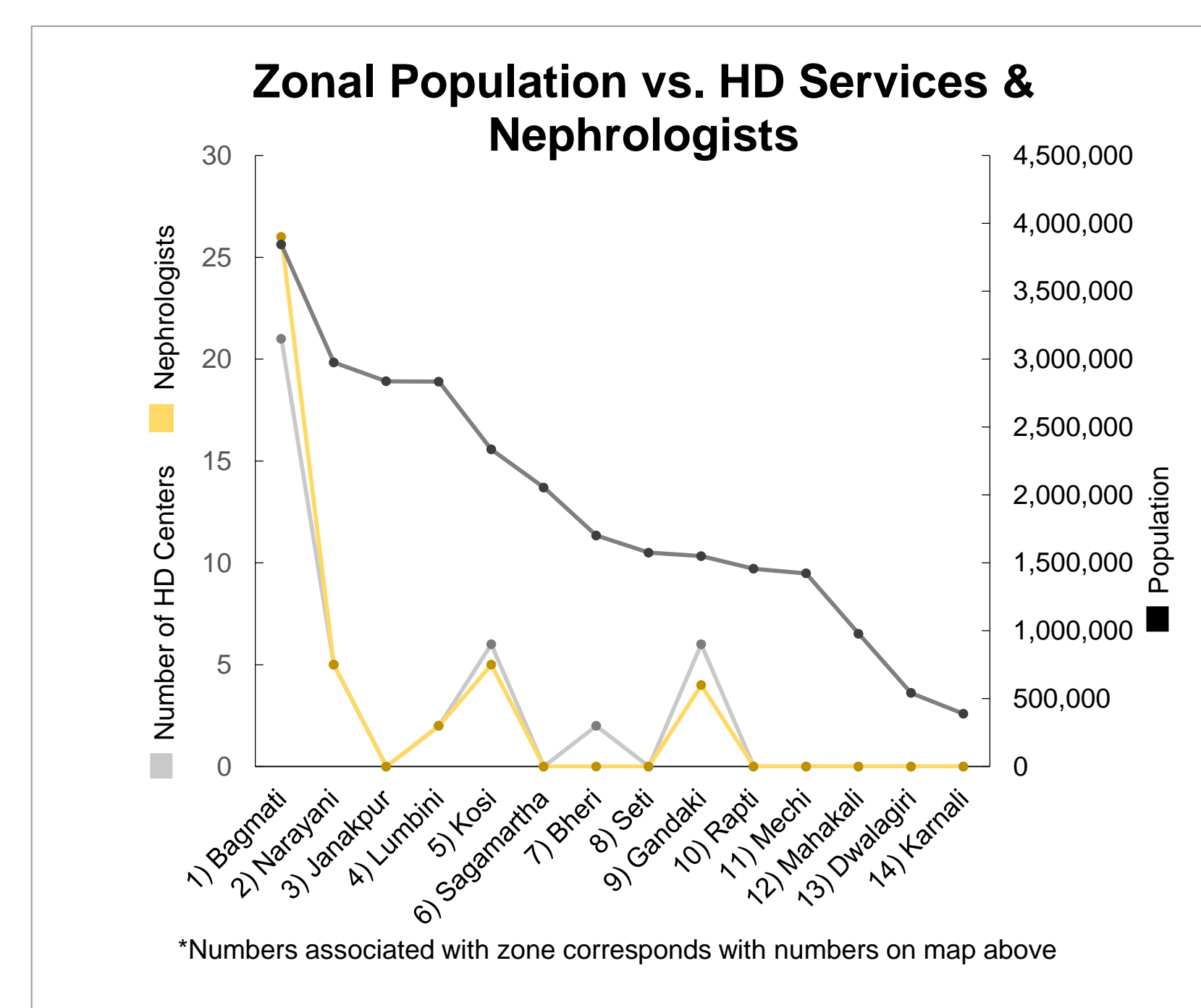
- From July – August 2016:
 - Conducted a literature review
 - Conducted key informant interviews with leaders in the field of nephrology including members of Nepal's Ministry of Health, the National Kidney Center, the Nepal Society of Nephrology, & practicing physicians
 - Collected the number of HD machines, technicians, nurses, nephrologists, hospitals offering HD and kidney transplant, & number of RRT patients

Results

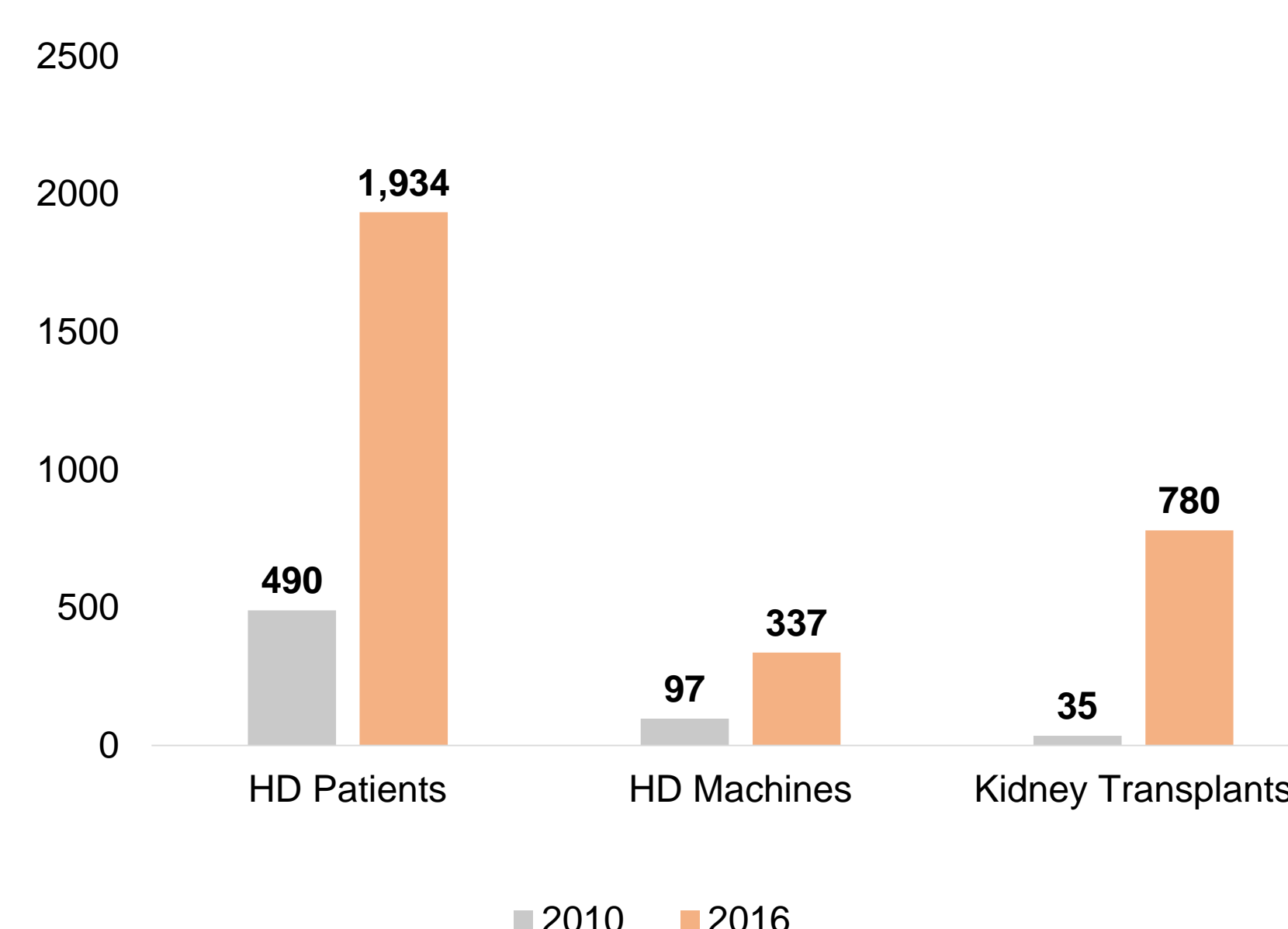
Hemodialysis Centers, Nephrologists & Zonal Populations of Nepal



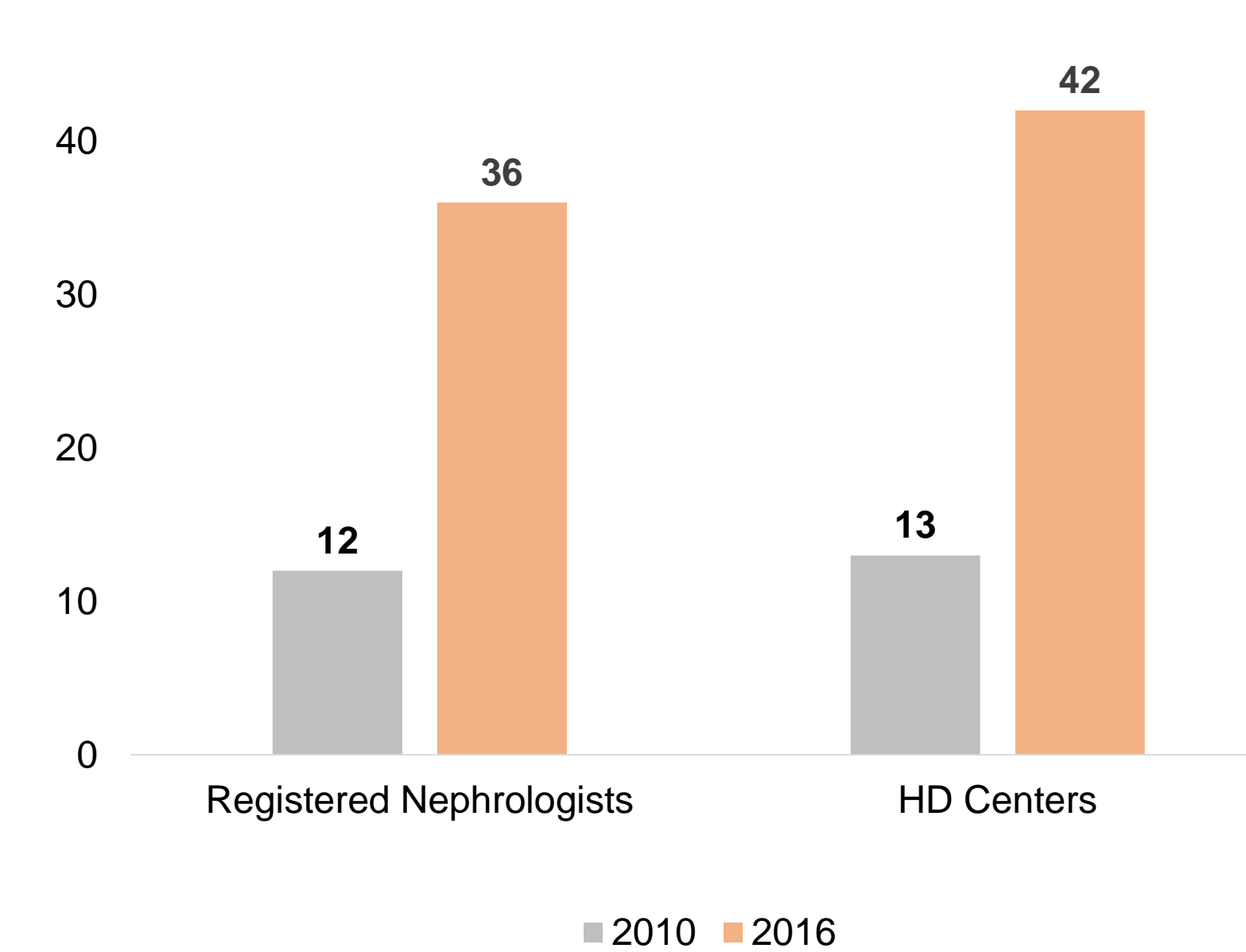
| Timeline of Cash Assistance for RRT in Nepal | | |
|--|---------------------------|--|
| | Cash Assistance for HD | Cash Assistance for Kidney Transplant & Transplant Medication |
| 2010 | None | None |
| 2011 | US\$94 | None |
| 2012 | US\$471 | None |
| 2013 | US\$471 | None |
| 2014 | 1 year of HD (US\$2,453) | US\$1,887 for Kidney Transplant, US\$943 for Transplant Medication |
| 2015 | 2 years of HD (US\$4,906) | |
| 2016 | Free Dialysis | |



Growth of HD Patients, HD Machines & Total Kidney Transplants from 2010-2016



Growth of Nephrologists & HD Centers from 2010 - 2016



Discussion

- Since 2010, there has been a 223% increase in the amount of HD centers, a 294% increase of RRT patients, and a 200% increase in the number of registered nephrologists (12 trained in transplantation)
- South Asian predictions were used to estimate an ESRD incidence of 100 per million population - 2,850 newly diagnosed patients per year; prevalence is also estimated to be 100 per million population
- The Bagmati zone (including Kathmandu - the capital city), has 15% of the total population & 50% of the HD centers in Nepal; 48% of the population (13 million) live in zones with no HD service

Conclusion

- HD has an average annual cost of approx. US\$2,400 per dialysis patient; costs to the government could be >US\$6.8 million per year. Cost of kidney transplantation in Nepal ranges from US\$4,700 - US\$9,400⁵
- In 2014/15 the Nepal health sector budget was US\$316 million; if the government supports each newly diagnosed ESRD patient, 2.2% of the annual health budget would be allocated to 0.01% of the population⁶
- With 48% of the population living in zones with no RRT services, logistical challenges in access to RRT do exist in Nepal

Acknowledgements

The Dr. Elaine Kohler Summer Academy of Global Health Research, the Medical College of Wisconsin Office of Global Health, the National Kidney Center of Nepal, & Patan Academy of Health Sciences

Citations

- Anand, S., Bitton, A., Gaziano, T. "The Gap between Estimated Incidence of End-Stage Renal Disease and Use of Therapy." *Public Library of Science*. 8 (2013): electronic source.
- Upirey, S., Lamichhane, B. "Health Budgeting and Financing in Nepal: Policy Perspectives." *Health Research and Development Forum*. (2016): 2.
- "UN World Statistics Pocketbook, 2016 edition." *United Nation Publications*. 40 (2016): 144.
- Hirachan, P. Kharel, T., Shah, D., Ball, J. "Renal Replacement Therapy in Nepal." *Hemodialysis International*. 14 (2010): 383 – 386.
- Dulal, RK., Karki, S., Dahal, A. "A Cross Sectional Survey of Kidney Transplantation Cost." *Nepal Health Resource Council*. 12 (2008): 5-10.
- "DOHS Annual Report 2014/2015." *Government of Nepal Ministry of Health*. (2014): 243.