

**Determinants of hospital quality using infant morbidity in Namibia - an instrumental variable approach on 2009 SPA data**

**Abstract**

**Background:** Hospital quality of care is of importance to any health care system. High quality care contributes significantly to improved population health as well as reducing health costs. Hospital readmissions or revisits are potential indicators of health care quality.

**Rationale:** Despite the complexities found in measuring hospital quality, it remains of paramount importance. In developing countries there is paucity of evidence on the determinants of health care quality within health facilities. Availability of a skilled health care workforce has been identified as a challenge affecting health service delivery and there is limited knowledge on its causal effect. Governments need data -driven evidence to establish good and sound health frameworks and policies that seek to address the existing gaps.

**Objectives:** To determine prevalence of child readmissions by socio-demographic and health systems characteristics of health facilities in Namibia and further establish the effect of the type of qualification of the provider on child readmissions as a proxy of quality of care.

**Methods:** The cross-sectional study design used data drawn from the Namibia Service Provision Assessment (SPA). The data was collected from the sick child caregiver using a standardized interview questionnaire and a separate questionnaire was used for the Health Worker/Provider Interviews. The study restricted analysis to child health service provision data collected in 2009 from 411 facilities and a total of 816 individual observations. Probit and Instrumental Variable (IV) probit analysis, accounting for unobserved confounding factors, was used to explore the causal effects observed and control unobserved treatment variables on the outcome of interest (child readmissions)

**Results:** The IV probit results showed that the overall probability of a child revisiting for the same illness at the facility after the first encounter was 0.3. Highly skilled medical officers or physicians and medical assistants had a positive effect (increase) on readmission (medical officer coefficient (p value); 0.272 (0.737), medical assistant coefficient (p value); 1.522(0.135) though insignificant. The

type of visit by the child had a strong effect on readmission (at less one percent level); marginal effects showed that a follow up visit increased the probability of readmission by 35%. The relationship of the caregiver to the child had statistically significant effect on child readmission ( $p < 0.001$ ). The age of the provider and sex of provider had significant effect on child readmission (at five percent level). Other factors associated with child readmission were type of health facility, number of years the facility has been providing child health care services and the type of visit.

**Conclusion:** While health system related factors; sex, age of provider, type of health facility and type of visit were the most significant factors, socio-demographic factors were also noted. Our study findings highlight the influence of health personnel on health outcomes which can be addressed from a policy perspective. We conclude that if health policies are directed toward improving the skills of health care providers, then the quality of health care will be improved.