

governing bodies comprise one million governing roles involving health officials and representatives of health workers, communities, civil society organizations and private sector. Our country estimates were validated by ministries of health in Benin, Burkina Faso, Liberia and Nigeria and the ministry's partner organization in Kenya.

**Going Forward:** Research shows that governing bodies have a potential to contribute to improved health services and health status of populations but often do not get necessary support. To realize their promise, they need to be supported in terms of clear mandates, authority, and resources. Revitalizing them, clarifying their responsibilities, authority and resources, and establishing a system of governance orientation and ongoing education will add capable hands to deck to achieve the sustainable health goal. USAID-funded Leadership, Management, and Governance Project has created a suite of tools, models, approaches, and governance learning resources for the orientation of these one million trustees.

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### Hand hygiene knowledge and practice of haitian nurses

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**Program/Project Purpose:** Hand washing is widely accepted as one of the most effective public health interventions for reducing healthcare associated infections. However, in Haiti's low resource context, there are many challenges that impact upon a nurse's ability to perform effective hand hygiene at the recommended times during care delivery. It is important to understand the current practice to determine where efforts can be best applied to improve practices. The objective of this project was to evaluate the hand hygiene knowledge and practices of Haitian nurses across all 10 regions of the country.

**Structure/Method/Design:** The WHO's "Hand Hygiene Knowledge Questionnaire for Health-Care Workers" was modified for contextual issues and a French version was used to evaluate nursing knowledge and practices. Additionally, observational data was collected by two Haitian nurses assessing hand washing technique. The project received ethical approval from the Haitian Ministry of Health (MSPP) as a quality improvement project.

**Outcome & Evaluation:** A total of 101 hand hygiene observations were recorded and 568 questionnaires were completed by nursing staff (57% nurses, 35% auxiliary nurses and, 5.6% midwives) in 12 hospitals representing each of the 10 regions. Findings revealed 99% used water and soap (when available) to wash their hands. Only 4% washed their hands for the recommended minimum of 40 seconds and only 2% dried their hands (related to lack of resources). Identified challenges included: absent or irregular access to water, lack of interest to perform hand hygiene, and absence of soap or hand sanitizer. The questionnaire revealed that only 57% of all participants were able to answer >50% of the 29 knowledge-based questions correctly. Nurses had

the strongest result with 67% achieving a passing grade. Ongoing education on hand hygiene in the last 3 years had a significant effect ( $p < 0.001$ ) on the knowledge of the nursing staff.

**Going Forward:** The Haitian context brings many resource and infrastructure challenges. Future steps include developing interventions aimed at improving the practice of hand hygiene in a low resource setting.

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### Increased risk of hepatotoxicity and hyperuricemia in elderly Taiwanese multidrug-resistant tuberculosis patients taking pyrazinamide

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**Background:** Multidrug-resistant tuberculosis (MDR-TB) cases in Taiwan has increased 3-fold between 2009 and 2013. In 2012, Taiwan had a 10 times higher rate of TB compared to western countries. Current standard of care, a stepwise drug selection process that is stopped until liver transaminase levels normalize, increases risk of developing drug resistance to the anti-TB regimen.

We assessed patients taking ethionamide with pyrazinamide (PZA), a combination that a prior study has shown to worsen hepatotoxicity under short term use. We hypothesize that older patients on PZA (>60 years old) are more susceptible to developing hepatotoxicity during long term MDR-TB treatment. The goal of this study is to help establish favorable treatment regimens for patients to prevent additional disease burden and treatment interruption.

**Methods:** All patients in the study were diagnosed between 2012–2014 with MDR-TB at Taipei Hospital ( $n = 14$ ). Data was collected through a retrospective study of patients' medical records. Data for each patient included: age, hepatitis B and C status, history of smoking or alcoholism, date and result of renal and liver function tests (BUN, Cr, UA, total bilirubin, ALT, and AST), and anti-TB drug regimen at the time of each lab test. Time to hepatotoxicity was defined as the days from onset of PZA treatment until hepatotoxicity.

**Findings:** Older patients had higher rates of hepatotoxicity (> 60 years: 42% (3/7) patients developed hepatotoxicity. < 60 years, 14% (1/7) developed hepatotoxicity). 84% (11/13) of patients taking PZA had elevated UA. Average treatment time for all patients was  $606 \pm 39.6$  days versus patients with hepatotoxicity  $702 \pm 34$  days. Average age of all MDR-TB patients was  $59.9 \pm 5.65$  years ( $n = 14$ ) whereas patients with hepatotoxicity averaged  $77.5 \pm 7.88$  years ( $n = 4$ ).

**Interpretation:** Our data suggests that patients > 60 years had an increased risk for hepatotoxicity while taking PZA and ethionamide. High rate of hyperuricemia suggests PZA avoidance for elderly patients with gout or arthralgia. Avoiding PZA for patients > 60 years may shorten treatment duration. The lapses in treatment increases the risk of developing further drug resistance and worsens prognosis.

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