

patients is rendered accessible through the registry. The recent quality assessment demonstrated the good quality of data found in the registry, making iTrauma™ a valuable and reliable method for characterizing trauma across the world.

**Source of Funding:** Centre for Global Surgery.

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### Ready or Not? Service Readiness of Health Facilities in High-Mortality Countries

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**Background:** Health systems in lower income countries face substantial challenges in meeting population health needs, including a growing burden of non-communicable disease. Existing research suggests that health facilities may be poorly equipped to provide high-quality care, yet systematic assessment of health facility readiness has been limited to date. We define and compare service readiness in nine high-mortality countries.

**Methods:** We used all Service Provision Assessments conducted in the past decade to provide nationally representative assessments of health systems in nine countries: Bangladesh, Haiti, Kenya, Malawi, Namibia, Rwanda, Senegal, Tanzania, and Uganda. We calculated the service readiness index (SRI) for each health facility following the 2014 World Health Organization guidelines, which define 50 readiness indicators in five domains: basic infrastructure, basic equipment, infection prevention, diagnostics, medication. We compared SRI within hospitals and non-hospitals (health centers) in each country and assessed whether readiness differed by facility ownership or location. We used linear regression to test the explanatory power of national characteristics such as total health expenditure per capita.

**Findings:** 7,480 facilities were surveyed, including 548 (7%) hospitals. Average service readiness was low, with hospitals scoring 76% and non-hospitals only 52%. Basic equipment was the most likely domain to be completely present and essential medications the least (25% of facilities with all equipment vs. 0.7% with all medications). Among non-hospitals, private facilities and those in urban areas scored higher on service readiness across most countries; these differences were weaker and less consistent among hospitals. Health expenditure per capita was associated with greater facility service readiness, but over 60% of variation in SRI was not explained in any model.

**Interpretation:** Health facilities in high-mortality settings are insufficiently equipped to address population health needs, particularly public clinics in rural areas. Hospitals are better and more uniformly equipped in most countries, though critical deficiencies persist. While higher spending on health per capita was associated with greater readiness, much of the variability in health facility readiness remains unexplained. Further research on efficient conversion of health spending into readiness and, ultimately, population health, is required to strengthen health systems for the many challenges of the Sustainable Development Goal era.

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### Redefining the role of Army Medicine in Global Health: Transformation in the Indo-Asia Pacific

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**Program/Project Purpose:** The recent US Army medical transformation aligns medical capabilities with Regional Combatant Commands to further enhance delivery of medical services to the warfighter and beneficiary population. Regional Health Command - Pacific (RHC-P) is one of four regional Army Medicine Commands and is aligned to directly support US Army Pacific and US Pacific Commands. This area of operation includes 36 countries, 17 percent of the earth's landmass, and 60 percent of the earth's population. Based out of Honolulu, HI with nine direct reporting units (e.g. Tripler Army Medical Center, Public Health Command - Pacific, Medical Centers Japan and Korea), approximately 11,000 employees, and an operating budget over \$1.2 billion USD in support of over 229,000 beneficiaries, RHC-P developed an innovative health engagement strategy to assist partner nations in developing capability, increasing capacity, and enhancing interoperability while generating US Army military medical readiness.

**Structure/Method/Design:** The strategy is the first of its kind and in direct support of the US Army Medical Command 2017 Campaign Support Plan; synchronized with US Army Pacific Command, US Pacific Command, and other US Government strategies; and is informed by host nation priorities and requirements. Implementation occurs across three lines of effort and ten primary functional areas based on doctrine and includes Army Health System Support, Health Service Support, and Force Health Protection. The functional areas include casualty care (e.g. medical treatment, dental, behavioral health), combat stress control, laboratory services, medical evacuation, medical logistics, preventive medicine, and veterinary services among others.

**Outcome & Evaluation:** RHC-P leverages the Army medical enterprise in the Pacific across these health lines of effort through myriad military-to-military and military-to-civilian health engagements to enhance the host nation capability and capacity, achieve DoD security objectives, and increase the readiness of the military medical community to operate in all phases of operations.

**Going Forward:** Early successes have been achieved and are being measured by the Uniformed Services University Center for Global Health Engagement; however, changes to existing DoD medical structures and funding authorities could further empower DoD in supporting the National Security Strategy through global health engagements.

**Source of Funding:** None.

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### Training Health Workers to Provide Cervical Cancer Screening: Comparison of Educational Strategies in Liberia, South Africa and Grenada

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**Program/Project Purpose:** In preparation for regional cancer screening programs in Liberia, South Africa and Grenada a program to educate local nursing staff in performing gynecologic examinations, including speculum exams, collecting smears, performing visual inspection with acetic acid and cryotherapy procedures training was implemented in each country.

**Structure/Method/Design:** Educational Intervention consisting of didactic curriculum training, program manual, training tools utilizing simulation models and one-on-one supervision. Pretest followed by a workshop and post-test to assess impact were performed for all 3 groups of nurses.

All trainees were supervised in performing 50 VIAs and 10 cryotherapy procedures before they screened independently.

Six-month interventions at all three sites were used to assess quality, and reinforce training.

**Outcome & Evaluation:** In South Africa 5 nurses were trained. Post test assessment showed increase in knowledge regarding HPV, its association with HIV, prevention and treatment strategies. Five trained nurses screened 596 HIV positive/at risk patients with VIAs over one year. Clinical assessment showed improved skills in speculum examination and cryotherapy treatment procedures.

In Liberia 14 nurses were trained. Post test assessment showed increase in knowledge regarding HPV, prevention and treatment strategies. Fourteen trained nurses screened 978 patients over a period of 2 years and performed VIAs on all patients. Clinical assessment showed improved skills in speculum examination, visual inspection of the cervix and cryotherapy treatment.

In Grenada 60 nurses were trained. Post test assessment showed increase in knowledge and clinical assessment showed increase in clinical skills. 60 trained nurses screened 500 women over one year.

In South Africa and Liberia, training improved nurses' clinical skills and knowledge, improved interaction with patients and all nurses reported a sense of empowerment and ownership of the programs. In Grenada nurses reported increased clinical skills and ownership; training resulted in a change in country wide policy that allowed nurses to perform procedures independently. The program in Grenada is still ongoing.

**Going Forward:** Educational programs in cervical cancer screening should be tailored to meet the gaps in knowledge of trainees and available resources. Supervision and interval reinforcement of training is essential to the sustainability of these programs.

**Source of Funding:** The Women Global Cancer Initiative [www.thewomen.org](http://www.thewomen.org).

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### Developing a Comprehensive Cancer Education Program to Increase Clinical And Research Capacity in Mozambique

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**Program/Project Purpose:** In 2011, cancer surpassed coronary heart disease and stroke as the leading cause of death worldwide. 14.1 million new cancer cases and 8.2 million cancer-related deaths

occur annually worldwide. 57% of new cases and 65% of cancer deaths occur in Low and Middle Income Countries (LMICs), and some cancers occur primarily in LMICs. For example, 90% of cervical cancer deaths occur in LMICs and cervical cancer is the most frequent cause of cancer mortality among women in Sub-Saharan Africa. Currently there are not enough medical specialists to provide prevention, screening and treatment services. For example, there are 245 physicians per 100,000 people in the US and 4 physicians per 100,000 people in Mozambique.

The aim of this program is to increase clinical capacity and to improve cancer prevention and treatment services, ultimately reducing cancer mortality, and to build on these partnerships to develop joint research projects.

**Structure/Method/Design:** Our cancer education program has three complementary components: 1) Strong partnerships with four academic institutions in Brazil, the Ministry of Health of Mozambique, Maputo Central Hospital and the General Hospital of Mavalane to develop educational programs and collaborative research; 2) Use of video-technology to deliver a regular telementoring program; and 3) In country, hands-on training twice a year. Collaboration with Brazilian institutions facilitates communication, and provides clinical expertise and opportunities for additional partnerships through provider exchanges. The telementoring component uses the Project ECHO® model, a program developed at the University of New Mexico, to engage providers in a horizontal manner, through videoconferencing and regular case-based discussions.

**Outcome & Evaluation:** To date 113 training hours have been provided through videoconferences to an average of 11 participants in breast, cervical and head & neck cancers. Two in-country workshops have provided an average of 1,000 training hours to about 100 providers in diagnosis and surgical management of breast cancer, pathology, colposcopy, LEEP (Loop Electrosurgical Excision Procedure) and surgical management of cervical cancer, medical oncology, surgical management of head and neck cancer, oncology nursing, palliative care support and radiation physics.

**Going Forward:** A funded joint research project is underway to demonstrate the feasibility of using HPV DNA testing for cervical cancer screening.

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### Exchange the World: Clinical and Research Exchanges as a Means to Promote Understanding of Other Health Care Systems in Medical Students

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**Program/Project Purpose:** The Quebec chapter of the International Federation of Medical Students' Associations (IFMSA-Quebec) organizes annually over 130 nonprofit, student-run clinical and research exchanges in 39 countries, which are recognized as credited courses in 3 of 4 medical faculties. Its objective is to