

**Going Forward:** Ultimately, natural compounds that are responsible for the anti-cancer activity may be identified in the extracts, but the effects of the mixtures contained in extracts are anticipated to be stronger than those of individual compounds. Inclusion of additional sites in West Africa is being explored.

**Funding:** Support is provided by local funding from the four Nigerian Universities and from UIC.

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### Lessons from the establishment of Nepal's first skin bank

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**Program/Project Purpose:** In January 2014, our team partnered with ReSurge International to examine peri-operative burn care in Nepal. In Nepal, burn trauma remains an extremely common source of injury and disability, causing more than 55,000 injuries annually. Unfortunately, patients in Nepal who sustain burns on over 35% of their body cannot be successfully treated and typically die from infections. To combat this challenge, our team worked with the local Nepali team at Kirtipur Hospital to establish the country's first ever skin bank and offer these burn patients another chance at life.

**Structure/Methods/Design:** With the ultimate goal of creating a sustainable skin banking program, we identified four major tasks: 1) Identify and acquire the minimum set of equipment needed to collect, process, store, and graft cadaveric skin for burn injuries; 2) Develop feasible and safe donation protocols and documentation for low-resource settings; 3) Pilot test the end-to-end donation system with donors and patients; and 4) Develop a long-term awareness program to introduce the novel concept of skin donations to the Nepali people.

**Outcome & Evaluation:** Since January 2014, the skin bank program has made tremendous strides. The hospital acquired all of the necessary equipment and materials for the skin bank through a combination of local and international fundraising efforts. In collaboration with US-based tissue distribution organizations, existing US skin banking protocols were adapted for the Nepali setting and tested with potential patients, donors, and physicians. These successes have culminated in 3 skin donations this year, which have been successfully used to save the lives for 4 severe burn patients.

**Going Forward:** Long-term sustainability now depends on spreading awareness and education in the Kathmandu Valley to overcome religious and cultural barriers that have slowed widespread adoption. New partnerships with the Nepali cornea donation program and an Indian skin bank will provide valuable lessons on creating a culturally sensitive awareness campaign. Given the low cost and the high utility of this skin bank, we eventually hope to expand this system to the rest of ReSurge's international partner hospital network.

**Funding:** Stanford University School of Medicine, Stanford University Design for Extreme Affordability, and ReSurge International.

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### The role of distance-learning partnerships in building local undergraduate and postgraduate psychiatry capacity in resource-poor contexts

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**Program/Project Purpose:** Unstable geopolitical environments present barriers to medical education and healthcare systems development. In Palestine, the Separation Wall, numerous checkpoints, and ongoing political volatility have made psychiatric disease particularly prominent. Cultural attitudes towards mental illness, lack of postgraduate education, and limited resources result in poor provision of psychiatric care. OxPal Medlink, established in 2011, is a synchronous web-based, distance-learning partnership aiming to address these deficits in medical education for Palestinian students and postgraduate trainees.

**Structure/Methods/Design:** Using an online virtual classroom, participants attend tutorials with clinicians at Oxford University Hospitals. Tutor- and student-provided cases act as the focus for developing undergraduate clinical reasoning. Postgraduate tutorials focus on sub-specialities including forensic and child psychiatry. Evaluation is via online questionnaires. A yearly field trip to the West Bank provides an opportunity to host face-to-face focus groups and semi-structured interviews with students, psychiatric trainees and clinical faculty, allowing ongoing needs assessment. During the 2015 trip, OxPal also collaborated with the Palestinian Ministry of Health, and charity IMET, to host a teaching conference in mental health attended by over 50 healthcare workers.

**Outcome & Evaluation:** In the past two years, 16 undergraduate psychiatry tutorials have been delivered, engaging 49 students at four universities. Students stated that OxPal positively modified their current practice with 92% rating tutorials "Fairly" or "Very" relevant to their future practice. In the last 15 months, 4 postgraduate psychiatry tutorials have also been delivered to 8 psychiatry residents at various stages of training at Bethlehem Mental Hospital. All trainees reported greater confidence in subject areas following tutorials. 66% stated that tutorials were relevant to psychiatric practice in Palestine and 100% expressed intent to register for further tutorials. All OxPal participants rated tutorials "Good" or "Excellent".

**Going Forward:** OxPal is a unique educational intervention using web-based distance learning to facilitate delivery of high-quality and locally-relevant teaching in psychiatry, with potential to strengthen local educational capacity. The programme has demonstrated that long-distance collaboration at both undergraduate and postgraduate level is increasingly feasible using online platforms. OxPal will continue delivering psychiatry seminars in topics requested by trainees, whilst also extending teaching to other clinical specialities such as psychology.

**Funding:** Our thanks are extended to MedicineAfrica ([www.medicineafrica.com](http://www.medicineafrica.com)), the Al Quds Foundation for Medical Schools in Palestine ([www.fqms.org](http://www.fqms.org)), the International Medical Education Trust ([www.IMET2000.org](http://www.IMET2000.org)) and the British Medical Association

Charitable Purposes Subcommittee for development grants to support our work and field visit to the West Bank.

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### Dried blood spots: An evaluation of utility in the field

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**Background:** Dried blood spots (DBS) offer several advantages over serum samples when resource and environmental conditions are challenging. Many analytes, including antibodies, are stabilized, once dried on filter paper, despite fluctuating temperatures and extended storage time.

**Methods:** From November 2011 to May 2015 we interviewed and collected a DBS sample from 3318 people, age 0–49 in Tianjin, China. From each participant, we collected five spots on a single, filter paper card. Each of the five spots were evaluated and rated “good” or “bad.” A good spot was one that completely filled the pre-printed circle on the filter paper ( $\geq 11$ mm in diameter), and was deemed large enough for analyte testing. Each card was scored based on the number of good spots. We examined the number of good spots per card by participant age and by year of collection.

**Findings:** DBS quality data were available for 3316 of the 3318 blood spot cards. Among those, 22.8% were had zero good spots, 5.7% had 1 good spot, 8.6% had 2 good spots, 17.6% had 3 good spots, 21.3% had 4 good spots, and 24.1% had 5 good spots.

When compared to those aged 30–39 years, the mean number of good blood spots (3.15) was significantly lower among those aged <12 months (1.68,  $p < .0001$ ) and aged 1–9 years (2.57,  $p < .0001$ ). Participants aged 20–29 years had the most good spots (3.52,  $p < .0001$ ).

The mean number of good spots improved with training. Compared to 2012, the first full year of data collection, which had a mean of 2.52 good spots per card, 2014 was worse (mean = 2.22,  $p = 0.0002$ ) and 2011 was significantly worse (mean = 1.21,  $p < .0001$ ), but 2013 (mean = 3.98,  $p < .0001$ ), and 2015 (mean = 3.62,  $p < .0001$ ) were better.

**Interpretation:** While DBS may be easier to collect and transport than serum samples, they may not be as good for young children, especially those under age 1 year. DBS collection requires training and practice to ensure that DBS are large enough for analyte testing. Despite challenges, DBS yielded good results and proved an acceptable alternative to serum samples in a resource limited environment.

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### Arizona Sonora Border Projects for Inclusion (ARSOBO), a US-Mexico NGO collaboration, develops a sustainable social business to train, employ and assist individuals with disabilities

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**Purpose:** ARSOBO’s binational program opened in 2010 with a construction shop in Nogales, Sonora. Individuals with disabilities are trained and employed to construct medical devices they use. Two wheelchair users construct all-terrain wheelchairs. An amputee fabricates limbs for others. Hearing-impaired assist with hearing aid fitting. The workers contribute to the regional economy by buying materials locally. This serves to promote ARSOBO and increase community positive awareness of disabilities.

**Structure:** Eleven million Mexicans need a wheelchair. Most commercial wheelchairs are not appropriate for individuals living in rural areas where the terrain is rough. Children with developmental disabilities typically need customized wheelchairs adapted to their physical structure. Approximately 786,100 individuals with an amputation live in northern Mexico, most the result of diabetic complications, some from traumatic limb loss. Access to prosthetics is very limited and cost-prohibitive. Approximately 7% of the population is hearing-impaired; most have no hearing aid. ARSOBO has developed over 17 bi-national public-academic and private partnerships including faculty and students from 5 different colleges/departments from the University of Arizona. Makers and recipients of these devices are recruited locally or referred from Sonoran partner organizations.

**Outcome:** Since early 2011, 225 all terrain wheelchairs have been constructed, one-third customized. Since April 2013, 179 individuals have received a prosthetic limb. Since January 2015, 292 individuals have received hearing aids. A Sonoran company provides ARSOBO a rent-free 4200 square foot building where construction is done and clinics held. The City of Nogales, Sonora gave ARSOBO land where a building will be constructed to carry on this work. In summer 2015 binational interdisciplinary university students conducted a qualitative survey of 35 device recipients.

**Going Forward:** ARSOBO is committed to make this program a sustainable ‘social business’ engaging local businesses to support the work, relying less on assistance from the American side.

**Funding:** Support and volunteers come from both sides of the border. Recipients and families pay what they can afford for the medical device. Various donations come from companies in Mexico while grants and cash donations come mainly from the US side.

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### The development of a mobile phone based intervention to improve adherence to secondary prevention of coronary heart disease in China

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