

# ESTABLISHING A UNIVERSITY BASED RESUSCITATION TRAINING PROGRAM IN BOTSWANA: PROGRESS REPORT

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## Abstract

The University of Botswana Resuscitation Training Project (UB RTP) was set up in 2011 to train staff, students and other health professionals in Botswana in internationally accredited courses. Initial external funding from a Medical Education Partnership Initiative (BoMEPI) was essential to purchase resuscitation training equipment, train instructors and monitor early progress. Despite challenges in staff retention, maintenance of all the initiated educational courses, ongoing financial support and health professionals spread throughout a sparsely populated country; the UB RTP has trained over 1600 participants, increased courses, training venues and educational experiences for the UB Faculty of Medicine. Now in the seventh year, this article describes how internationally accredited training programs were introduced and sustained in a newly opened medical school in a middle income country.

**Keywords:** Resuscitation, Botswana, emergency medicine, medical education

## 1.0 Introduction

The University of Botswana (UB) opened the country's first and only medical school in 2009 and started post graduate medical programs in 6 specialties in 2010. The Botswana Medical Partnership Initiative (BoMEPI) grant accelerated training and development throughout the medical school and UB. (Mokone et al., 2014). A need was recognized by the UB medical school staff for locally run and accessible internationally accredited resuscitation courses for the undergraduate medical, post graduate students and faculty. The newly formed Department of Emergency Medicine (DEM) at the medical school decided to establish the UB Resuscitation Training Project (RTP) for education and training in resuscitation.

## 2.0 Approach

The UB RTP was set up and accredited in collaboration with the Resuscitation Council of Southern Africa (RCSA) as an American Heart Association (AHA) training Centre to perform resuscitation training courses.

The resuscitation courses initiated in the first year were Basic Life Support (BLS), Advanced Life Support (ACLS) and Paediatric Advanced Life Support (PALS). The support from BoMEPI was vital, as much initial expenditure was required to purchase equipment and bring instructors from out of the country. The UB Medical schools' support of the DEM decision in 2012 to create a specific position of UB resuscitation training coordinator was also crucial. In 2014 a grant from the Australasian College of EM (ACEM) also allowed for the purchase of some promotional and specific new equipment.

**Figure 1: UB RTP staff displaying equipment and supplies from the ACEM grant**



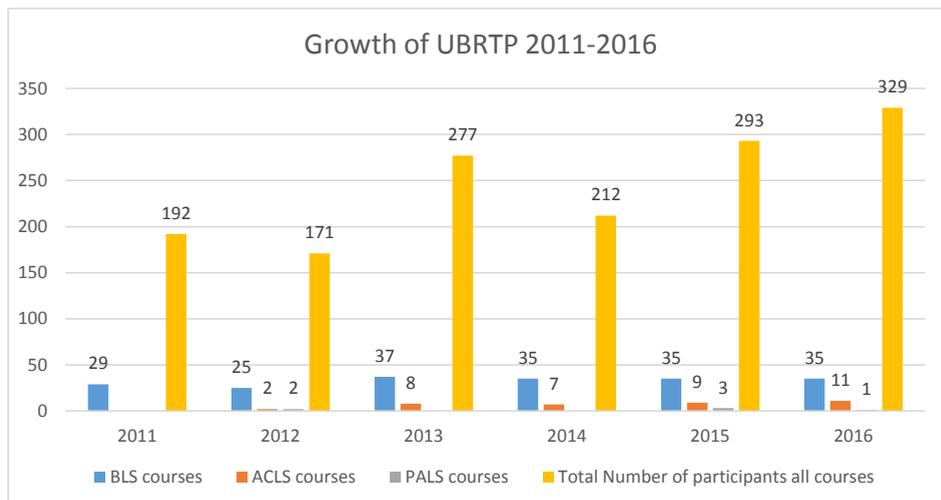
UB RTP is a not for profit entity but does charge participants an upfront fee for costs. The UB administrative system provided a finance vote for the UB RTP where money can be deposited by individuals or sponsors and where money can be withdrawn by UB RTP to pay for manuals, equipment and ongoing consumables. Individual Health Care providers can pay for themselves or apply for Ministry of Health (MoH) or Ministry of Education (MoE) funding depending on whether they work in the public sector or are students.

BLS is a half day course training participants in the basic life support skills of cardiac compressions, rescue breaths as well as the response to choking and sudden collapse in adults, children and infants. ACLS is a 2 day course which integrates BLS skills with advanced expertise with drugs and invasive equipment that would be expected from paramedics; or in an emergency room or critical care area. PALS is also a 2 day course directed at healthcare providers requiring immediate expertise with critically unwell children.

Equipment purchased for all courses had to be approved by the RCSA and is stored in a secure room in a building shared with the Faculty of Health Sciences. As there were no in-country instructor-trainers in 2011, all UB RTP instructors had to be taught by instructor-trainers brought into Botswana. 15 instructors were trained in the first year, predominantly BLS instructors and over 75% were doctors associated with the UB Medical School.

### **3.0 Successes and achievements**

From June 2011 to the end of 2016, the UB RTP has provided resuscitation courses to over 1470 people in 11 places in the country. Botswana is one of the world's most sparsely populated countries and so extending these courses out to the varied healthcare facilities is challenging but imperative. UB's Transport Department was utilized to take instructors and equipment to these places. There have been 196 BLS courses, 37 ACLS courses and 6 PALS courses in this time (cf. Figure 1).

**Figure 2: Growth of UB RTP courses and total participants in 6 years**

Placing the equipment and training room in the Faculty of Health Sciences has led to equipment being utilized for other activities apart from UB RTP courses. Various healthcare professionals including post graduate doctors in training, nurse educators and medical education staff use this equipment for teaching, simulation and exam purposes. The DEM has hosted inter- disciplinary training such as trauma training, basic Ultrasound courses and fundamentals of Paediatric critical care using the UB RTP equipment.

As the UB RTP grows, sponsors, apart from UB staff and students, use our services to train health professionals. These include MoH, District hospitals, MVA fund (a parastatal organization involved in road trauma prevention and care), the Botswana Medical Intern Training Initiative and a private paramedical training school. There are increasing numbers of healthcare professionals self-sponsoring for courses. UB RTP was granted continuing professional development points by the local nursing and medical regulatory boards in 2013 and this may encourage more self-sponsorship. UB RTP raised its fees for the courses in 2014 to continue to cover costs and this is monitored by the DEM and FoM.

The UB RTP Resuscitation training coordinator became Botswana's first BLS Instructor Trainer in 2015— which allows us to be self-sufficient in instructing and monitoring BLS instructors. She trained a further 10 BLS instructors and currently we have 13 active BLS instructors and 4 ACLS instructors, of whom almost 50% are nurses. This interdisciplinary training approach will hopefully lead to better retention and improved health professional teamwork in Botswana. A UB RTP research database is in development with UB DEM and Computer Sciences staff and it is hoped to generate and study fresh questions regarding resuscitation knowledge and education in the country.

#### 4.0 Challenges

Apart from the one fulltime UB RTP coordinator, UB RTP relies on volunteer instructors, who are all in other fulltime employment. Of the original 15 instructors trained in the first year only one remains an active instructor; many have left Botswana. Increasing fees and use of the BoMEPI grant allowed us to train new instructors to replace those who left. UB RTP equipment is placed with other medical school simulation equipment, leading to problems with ownership and maintenance. No Biomedical engineer is employed by the

Medical School and most equipment was purchased out of country with expired warranties.

PALS courses have been the hardest to continue at UB RTP perhaps because of the need for a lower instructor to participant ratio. A partnership started in 2015 with the Children's Hospital of Pennsylvania and Saving Children's Lives program assisted greatly in training and mentoring local instructors from the UB paediatric postgraduate specialty program it supports (Wright et al., 2015)

Botswana is an upper middle income country and the public pre-hospital system and critical care systems are still in their infancies. There are few ICU beds, no public hospital coronary care units, often poorly-defined termination of resuscitation policies in hospitals and no local rehabilitation facilities for those who recover. CPR courses are often widely promoted in LMICs to increase critical care capacity; but we are cognizant of the substantial health-system, ethical and legal issues involved in developing an effective CPR related chain of survival, as seen in high income countries (Friesen et al., 2014)

### **5.0 Future directions**

More local research is required for specific feedback regarding use and maintenance of skills. The established external supports and research links at UB will allow us to survey all current local instructors as to feasibility of new courses and new sites. It is hoped that careful selection of local based instructors from nursing and medical backgrounds, who are especially interested in acute, emergency or critical care medicine; will build up local definitive care and discussion about the ethics of cardiac arrest and resuscitation in Botswana

### **6.0 Conclusion**

The first 6 years of resuscitation courses at the University of Botswana have been successful with the help of several sources of external funding, committed UB and DEM staff and many enthusiastic volunteer instructors.

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