



VITAL ANAESTHESIA SIMULATION TRAINING

VAST and ACLS courses report

Kibagaba, Masaka, and Kiziguro, Rwanda

30th/05/2022 - 17th/06/2022

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Executive summary

Situation

The Vital Anesthesia Simulation Training (VAST) course has been successfully conducted at Kibagabaga, Masaka, and Kiziguro District Hospitals. Out of 48 participants, 47 completed all days of the full course.

Background

There are ongoing efforts by the Anesthesia Critical Care and Emergency Medicine department at the University of Rwanda and its partners including the VAST Ltd and the Initiative for Medical Equity and Global Health (IMEGH) Ltd to improve resuscitation capacity and the quality of anesthesia care in district hospitals in Rwanda. Participants' satisfaction and improvement were key signs of successful conduct of the VAST course at these 3 district hospitals.

Assessment

Participants reported that they gained more confidence and skills in resuscitation and they were engaged in implementing lessons learned to improve the quality of resuscitation and anesthesia practice at these 3 District Hospitals.

Recommendation

- Implement the lessons learned in clinical practice by initiating the rapid response team
- Ensure availability of resuscitation team, guidelines and equipment/supplies within all departments
- Measure the quality of resuscitation and outcomes to evaluate the ongoing improvements
- Organize recommended ACLS and VAST courses for clinical staff every 2 years

Acknowledgments

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Background

In a collaboration between Dalhousie University and the University of Rwanda Department of Anesthesiology, VAST was developed to teach and reinforce essential clinical skills and non-technical skills for perioperative teams including surgeons, anesthesia providers and nurses. The course content is based on common challenging situations found in the low resource district hospital.

To make it happen, VAST utilizes active teaching methodologies including group discussion and low-cost simulation. The clinical focus is on safe anesthesia, pain management and resuscitation in scenarios spanning obstetrics, pediatrics, trauma, pre- and post-operative care.

VAST is adapted to the local context of resource limited healthcare. Participants are encouraged to use teamwork and decision making to solve problems using the typical resources found in district hospitals.

This new model of combining VAST with the ACLS course aims to improve performance of resuscitation teams working in low resource settings. These courses conducted at Kibagabaga, Masaka and Kiziguro district hospitals, build on our previous experience conducting VAST courses in Rwanda since January 2018 (four courses at Rwanda Military Hospital, one course at Nyagatare, two courses at CHUK, one course at Rwamagana, and one course at Kabutare). On top of VAST courses, multiple resuscitation courses have been conducted in different district hospitals (two courses at Kirehe, one course at Kibagabaga, two courses at Kiziguro, and two courses at Kabaya) by IMEGH Ltd since January 2020.

A separate VAST Facilitator Course and mentorship have been implemented to train Rwandan facilitators leading to building local capacity to conduct VAST courses without external faculty.

Course facilitators

Name	Professional role	Course role	Institution
SENEZA Celestin	Anesthesiologist	Course director	Kibagabaga DH
Terri Skelton	Anesthesiologist	Facilitator	Toronto, Canada
KWIZERA N Jackson	Anesthesiologist	Facilitator	Kibogora DH
NIZEYIMANA Francoise	Anesthesiologist	Facilitator	CHUK
UZAMUKUNDA Claudine	Anesthesiologist	Facilitator	CHUK
IRAKOZE Alain	Anesthesiologist	Facilitator	KFH
TUYISHIME H.J de Dieu	Anesthesiologist	Facilitator	Kibungo RH
MIZERO Laurence	Sim coordinator	Sim facilitator	UR

Venue and Equipment

The courses were conducted at Kibagabaga district hospital, Masaka district hospital, and East Gate Hotel (for Kiziguro District Hospital). Catering services for breakfast, lunch, and afternoon tea were provided by Le POETE Ltd for courses in Kigali (Kibagabaga and Masaka). Kiziguro District Hospital arranged the venue of the courses at East Gate Hotel through their existing collaboration.

There are two VAST kits with all needed equipment except two stretchers and sheets which were provided by the hosting hospitals.

The additional resuscitation mannequins for ACLS course were provided by the IMEGH Ltd.

Course conduct

The ACLS training was conducted for the first two days at each site: 30th-31st May, 2022 (Kibagabaga), 6th-7th June, 2022 (Masaka), and 13th-14th June, 2022 (Kiziguro).

The VAST course was conducted for the next 3 days at each site: 1-3rd June, 2022 (Kibagabaga), 8-10th June, 2022 (Masaka), and 15-17th June, 2022 (Kiziguro).

There are unique challenges faced while conducting these courses in district hospitals, however, appropriate strategies were put in place to ensure successful training:

Language barrier: Most participants were more comfortable in Kinyarwanda and French with limited level of English. As a solution, most of the training was conducted in Kinyarwanda with slides in English. In addition, participants were allowed to ask questions and to express themselves in different languages (Kinyarwanda, French and English). This contributed to better comprehension and satisfaction.

Familiarity with simulation: As most of participants had no prior experience with simulation, the team organized a detailed orientation and allowed enough time for questions. The preparation time and explanation for role play was increased before starting each scenario. In addition, during debriefing there was time for micro-teaching and answering clinical questions as appropriate.

New version of VAST course: The new version of VAST was well received by facilitators. New books and other course materials were shared ahead of time allowing good preparation. Dr Jackson and Dr Eugene were available to support other facilitators as needed (they participated in the VAST Instructor course in Halifax, Canada, few weeks prior to this training in Rwanda).

Time management: One facilitator was assigned to keep time with help of the quality improvement officer. This allowed to be efficient despite conducting multiple activities simultaneously especially the study scenarios 3 times on 3 separate days for each site.

Summary of participant evaluations

The participants found the course valuable and expressed their satisfaction. There was a high level of engagement and motivation to acquire more new knowledge from the VAST course and to prepare other sessions for the rest of every hospital team. The amount of the course content was at times overwhelming. Participants requested continuous training at least once a year mainly with the VAST Course concepts.

Participants recognized the essential need to create a safe space for learners, including attention to putting materials into Kinyarwanda and allowing time for thinking during scenarios.

Suggested course improvements were to keep mentorship on VAST for every hospital and expending the course to the administration team and every healthcare provider. Participants expressed that it would have been helpful to keep VAST equipment at their hospitals and have more time to practice for continued engagement with VAST and for lifelong learning of simulation skills.

The VAST courses have been successfully conducted at these 3 District Hospitals.

One participant missed one day of training at Masaka district hospital; therefore, 47 participants completed the full training.

Challenges and lessons learnt

- Starting time has been an issue for participants specifically due to combining their daily duties (ward round, morning handover) with the training especially for onsite courses (Kibagabaga and Masaka).
- Most of the VAST Course scenarios were designed to be conducted by the anesthesia provider. The solution was to assign scenarios based on the team leader's background and to encourage everyone to use systematic approach for all cases.
- Hierarchical tendencies that govern their daily work. Some tasks are conducted by only doctors, and not by a nurse or anesthetist (prescribing vasopressors for example). The solution to that was to tell them that in a crisis they may be the ones responsible to take care of the patient.
- Simulation was a new concept and difficult to understand: One of the solutions was to give enough time for orientation and pre-briefing and allowing participants to ask questions in Kinyarwanda specifically on their roles and communication.

Future directions

- Implement the lessons learned in clinical practice by initiating the rapid response team
- Ensure availability of resuscitation team, guidelines and equipment/supplies within all departments
- Measure the quality of resuscitation and outcomes to evaluate the ongoing improvements

Appendices

Appendix I - Participants' evaluation for VAST course

The most take-home message

Course content	Improve communication x12 Burnout is common among healthcare providers x5 Management of trauma patient x4 Non-technical skills x15 Overcoming hierarchical barriers x3 Patient assessment is very important x8 PPH management and helping bay breathe x5 Use clinical frameworks is helpful (algorithm, crisis resource management cards) x9 ECG use x3 Simulation is helpful x1
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Areas to improve for next VAST course

Course delivery	Increase time for practice x9 Mentorship x1 Expand the course to the other healthcare providers x1 More trainings x2 Scenario were too rapid (time) x1
Course contents	Crisis management x1 Trauma management including burn x2 More case scenarios x1 Non-technical skills x1 Communication for healthcare providers x1 ECG use and interpretation x1

Other comments regarding VAST Course

- Duration should be increased x7
- Great appreciation of the course (nice, very good, great, thank you) x14
- Well organized course x8
- Extend the VAST Course to the other clinical staff x3
- Organize a facilitator course to the champions x1
- Burnout is very crucial content of the course x2

Appendix II – Participants' evaluation for ACLS course

Table II.1 Number of participants per site (N:48)

Hospital name	N
Kibagabaga	16
Masaka	16
Kiziguro	16
Total	48

Table II.2: Participants' self-reported confidence after ACLS (Overall, N: 48)

Ability to:	Level of confidence <u>Prior</u> to the Course (Mean, SD)	Level of confidence <u>After</u> the Course (Mean, SD)	P-Value
Gather relevant information during a medical crisis	3.78 (0.65)	4.44 (0.62)	<0.001
Communicate effectively with my team during crisis	3.69 (0.82)	4.31 (0.67)	<0.001
Work effectively with my team during crisis	3.75 (0.65)	4.53 (0.50)	<0.001
Make adequate decision during crisis	3.47 (0.92)	4.14 (0.76)	0.002
Lead the resuscitation team during crisis	3.47 (0.92)	4.14 (0.84)	<0.001

Table 3: Participants' feedback about their learning experience (N:48)

	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
The educational objectives were achieved	5				
The course was relevant	5				
The method of instruction was conducive to learning		4			
The course improved my skills	5				
The facilitators were knowledgeable about the subject	5				
The facilitators allowed time for questions/discussions	5				

Table 4: Reported potential changes of practice after ACLS course completion
<ol style="list-style-type: none"> 1. Communication during my daily activity will be a cornerstone of everything I do 2. SBAR during handover and leadership will help me during my practice 3. I will use the crisis resource management during my regular work 4. Mentorship is needed to keep-up with the updated information 5. There is a need time for more simulation practice

Appendix III – Courses' photos



The Hospital administration giving course opening remarks at Kibagabaga Hospital



Dr Celestin, the course facilitator during teaching session at Kibagabaga Hospital



Laurence (simulation technician in green) explaining the use of equipment, Kibagabaga Hospital



Dr Jackson during debrief after simulation, Kiziguro Hospital



Prebrief session about simulation with Dr Claudine, Kibagabaga Hospital



Opening remarks by the clinical director at Masaka hospital before the course



Masaka Hospital team after the course



Debriefing by Dr Jackson at East Gate hotel with Kiziguro Hospital Staff



Simulation scenario at East Gate Hotel, Kiziguro hospital



Tea/coffee was enjoyable



Lunch was always on time

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