VITAL ANAESTHESIA SIMULATION TRAINING

VAST Course report – Dar Es Salaam

Jan 20 – 24th 2020

Dr Adam Mossenson

Executive summary

Situation
The VAST Course and associated Facilitator Course was successfully delivered in Tanzania in January 2020.

Background
Vital Anaesthesia Simulation Training (VAST) was developed to teach and reinforce essential clinical practices and non-technical skills for both anaesthesia providers and perioperative teams. VAST was first piloted in 2018. This offering of VAST was the first time it has been delivered in Tanzania and is the first of several courses financially supported by the Laerdal Foundation. Organisational and strategic support was provided by the WFSA, Society of Anaesthesiologists of Tanzania (SATA) and VAST leadership.

Assessment
VAST was well suited to the Tanzanian context. The Tanzanian project leads successfully recruited a multi-professional participant mix, promoting dynamic scenarios and generation of excellent discussion during the debriefing sessions. The VAST Course trained 17 participants. There were 9 participants in the Facilitator Course, including two being mentored in the role of course co- ordinator. The trainee-facilitator group valued the methodology and development of new skills in the Facilitator Course. Trainee-facilitators were enthusiastic and demonstrated great aptitude in applying their facilitation and debriefing skills over the 3-day VAST Course. This first course in Tanzania has increased awareness for VAST and established its value as a means of refining essential anaesthesia and perioperative practice in order to promote safe patient care.

Recommendation
The momentum generated from this first course will be followed up with short refresher course for previous participants, followed by a 3-day VAST Course in Mbeya during June 2020. A qualitative exploration of the trainee-facilitator experience will also occur at this time. The possibility of implementation of the VAST Curriculum for anaesthesia trainees at Muhimbili University of Health and Allied Sciences (MUHAS) will also be explored. At the culmination of the course, trainee-facilitators were encouraged to develop their debriefing skills during daily encounters, for example whilst supervising trainees or following critical incidents in their workplace.

Contents

Acknowledgements

We gratefully acknowledge:

1. The Laerdal Foundation for course funding
2. The WFSA for organisational support and project management
3. The warm welcome of our Tanzanian colleagues
4. The enthusiasm and support of our international volunteer network.

Background

Vital Anaesthesia Simulation Training (VAST) was developed to teach and reinforce essential clinical practices and non-technical skills for both anaesthesia providers and perioperative teams. First piloted in Rwanda in January 2018, VAST provides anaesthesia providers, surgical, nursing, and medical colleagues with an immersive simulation environment for managing common clinical cases; there is a focus on safe anaesthesia and resuscitation for obstetrics, paediatrics, trauma, general surgery, and pre- and post-operative care. In addition to role-play in 15 simulated scenarios, there are targeted case-based discussions and skills stations covering non-technical skills, trauma primary survey, difficult airway management, neonatal resuscitation, pain management, and complex decision making. The accompanying VAST Facilitator Course, aims to develop a local facilitator network, who are mentored to develop their skills in simulation facilitation over subsequent courses. The course is designed to be portable, locally adaptable and affordable.

Since its inception, VAST has been a project endorsed by the WFSA. This offering of VAST in Tanzania is the first of several courses financially supported by the Laerdal Foundation with organisation and strategic support of the WFSA, Society of Anaesthesiologists of Tanzania (SATA) and VAST. Extensive implementation planning and preparation by the Tanzanian partners set the scene for a highly successful week of teaching. Course delivery was aided by the wonderful contribution of VAST's international volunteer network.

Attendees

Faculty and observers		
Name	**Background**	**Role**
Dr Adam Mossenson	Specialist anaesthesiologist	Course Instructor
Dr Tom Druitt	Specialist anaesthesiologist	Facilitator
Dr Gaston Nyirigira	Specialist anaesthesiologist	Facilitator
Christophe Niyongombwa	CASIEF support officer	Course co-ordinator
Amal Poanskar	WFSA project officer	Observer

Facilitator Course participants		
Name	**Clinical background**	**Role**
Dr Rebecca Samwell	Anaesthesiologist	Trainee-facilitator
Dr Amos Zacharia	Anaesthesiologist	Trainee-facilitator
Dr Peter Saria	Anaesthesiologist	Trainee-facilitator
Dr Edwin Lugazia	Anaesthesiologist	Trainee-facilitator
Dr Naima Yusuf	Anaesthesiologist	Trainee-facilitator
Dr Karima Khalid	Anaesthesiologist	Trainee-facilitator

		Course director
Dr Bronwyn Rae	Anaesthesiologist	Trainee-facilitator
Asha Karuma	NPA	Trainee co-ordinator
Hashim Ngajimah	Gradian sim lab coordinator	Trainee co-ordinator

VAST Course participants	
Name	**Clinical background**
Dr Nsia Mushi	Anaesthesiologist
Dr Asha Abdullah	Anaesthesiologist
Dr Hellen Machage	Surgeon
Lucas Makwisa	NPA
Amani Lugwisa	Nurse
Kulwa Wilbrand	NPA
Dr Franco Henjelvele	Anaesthesia trainee
Dr Goodluck Augustino	Surgeon
Dr Gertrude Mwangamba	Anaesthesiologist
Dr Faustina Mbuya	Anaesthesiologist
Anna Kuzenza	NPA
Dr Eva Shanga	Anaesthesiologist
Lameck Malekela	Nurse
Dr Lukansola Mabusi	Anaesthesiologist
Dr Mariam Msimbe	Anaesthesiologist
Dr Taha Karimjee	Surgeon
Dr Roza Tadess	Anaesthesia trainee

Venue and equipment

The week of training was conducted at Muhimbili University of Health and Allied Sciences (MUHAS) in the Gradian Simulation Lab, Dar Es Salaam, Tanzania. With some minor rearranging of equipment, the space was set up efficiently on the Sunday immediately prior to the Facilitator Course getting underway. The venue worked extremely well; two simulation rooms were established with separate debriefing rooms. A larger room was utilised for group sessions and presentations. The Gradian Simulation Lab was well equipped with the majority of the materials and mannequins required for the course. Through the financial support of the Laerdal Foundation,

the WFSA were able to purchase two paediatric intubation trainers, refurbished iPads and all of the VAST teaching resources. In order to streamline the process of future VAST delivery, a large storage box was purchased towards the end of the week, with all ancillary equipment and teaching resources packed away ready for future use.

Reflections

The week started with the two-day Facilitator Course. Six trainee-facilitators and two trainee-course co-ordinators completed the facilitator training and subsequently delivery of the VAST Course. A new technique was included in facilitator training to more efficiently develop experience with the stages and principles of debriefing. Pre-recorded scenarios were utilised, with course faculty playing the role of the scenario participants in real time. This allowed the trainee-facilitators to observe a scenario and practice the various elements of debriefing without the need to setup and conduct a scenario. This technique proved to be effective, however the process could be significantly improved with the use of dedicated, professionally recorded scenarios taken directly from the VAST Course scenario bank.

The VAST Course was followed and was well attended by a varied mix of physician, non-physician and trainee anaesthesia providers, surgeons and nurses. The multidisciplinary group allowed for in-depth exploration of the factors that promote effective teamwork and some of the barriers faced in clinical practice. Delayed participant arrival on Day 1 necessitated the omission of the neonatal resuscitation workshop. Prompt arrival on days 2 and 3, as well as more dedicated focus to timekeeping amongst the faculty, allowed for completion of all remaining sessions according to the timetable. The element of time management was reflected in the participants' evaluations and should be an ongoing focus of facilitator training and mentorship throughout course delivery.

Summary of evaluations

VAST Course:

During the introduction session of VAST, participants are encouraged to express their desired learning outcomes for the course. There was great concordance between these desired outcomes and subsequent participant feedback. Daily evaluation forms asked participants to reflect on what they liked about the day, key take home messages and suggestions for change in the future.

Key themes emerged:

1. Participants valued the warm, safe and interactive learning environment and recognised the value of simulation training as a learning tool
2. There was appreciation of the focus on non-technical skills as well as the targeted and easy to follow presentations and course materials
3. The take home messages centred on core elements of non-technical skills and principles of effective crisis management, including effective teamwork and use of algorithms and checklists
4. As seen with other courses, the session on wellbeing and burnout, resonated strongly with participants.
5. There was a strong desire for ongoing and expanded delivery of VAST in Tanzania
6. An area for focus during subsequent course delivery should be strategies to encourage prompt starting of the course each day and more effective time management.

VAST Facilitator Course:

Trainee-facilitators are encouraged to complete daily evaluation forms asking for reflection on what they liked about the day, key take home messages and suggestions for change in the future.The trainee-facilitator group appreciated elements of course design such as the ability to role play, repeated practise across multiple scenarios with the ability to sense improved improvement in their skills as the course progressed. The trainee-facilitators began to appreciate to utility of the structured and systematic teaching materials and advocated debriefing methodology. The open, interactive and supportive mentorship of the visiting faculty was valued. Having international faculty from Rwanda helping with

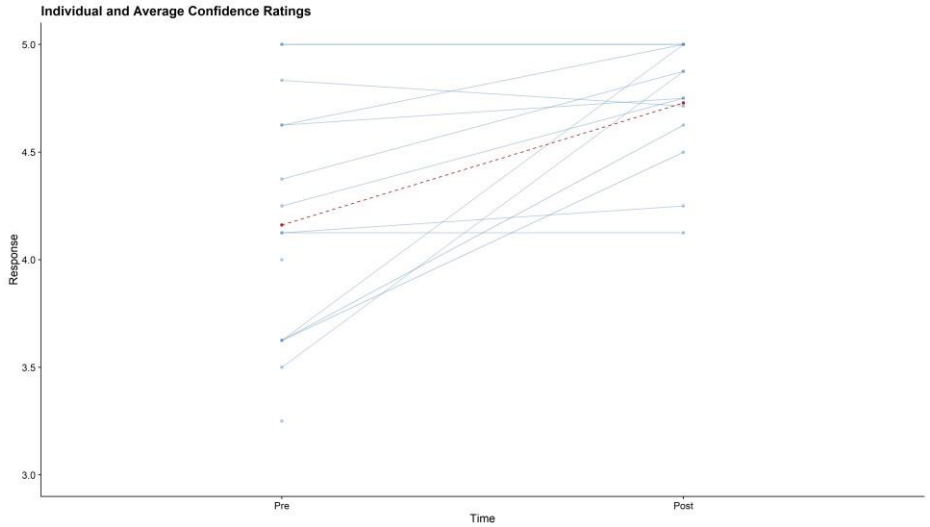
facilitation and course coordination was a real asset, added richness and diversity to the background of the facilitator pool. A novel technique of using pre- recorded scenarios to introduce trainee-facilitators into the steps and guiding principles of debriefing was useful. This strategy can be refined with development of dedicated and professionally recorded scenarios with role play that demonstrates scenarios from the VAST Course.

Confidence matrix

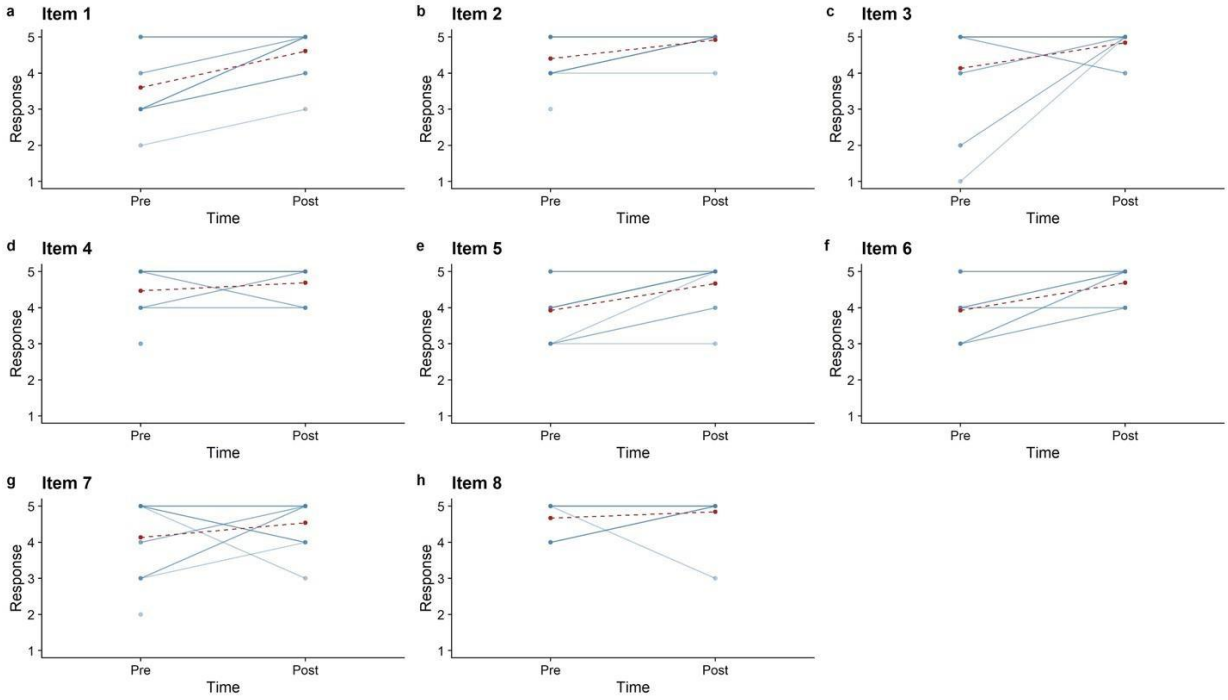
As new initiative to broaden VAST's evaluation of course impact, participants were asked to self-evaluate their confidence on a scale of 1-5 regarding their knowledge and behaviour relating to eight questions related to non-technical skills, and patient safety. Participants self-reported scores immediately pre- and post-course in response to the following statements:

1. I have a systematic approach to managing unwell patients
2. I communicate effectively with my colleagues
3. I understand how non-technical skills impact patient care
4. I work well within a team
5. I have good task management skills
6. I have good decision-making skills
7. I maintain situational awareness when I work
8. I prioritise patient safety

Results demonstrated a significant increase in the post-training scores relative to pre-training (two-tailed p = .007). On average, people rated their confidence about .47 points higher after receiving the training.



The graph above illustrates the differences pre and post training for the average of the scores for each question (blue line) and the overall average difference (red line). This best corresponds to a paired t-test showing a significant difference between pre- and post-training.

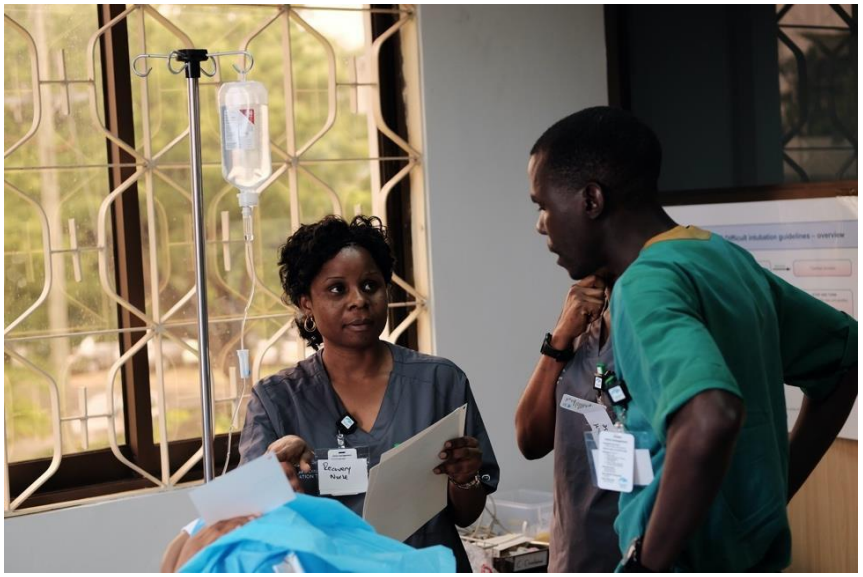


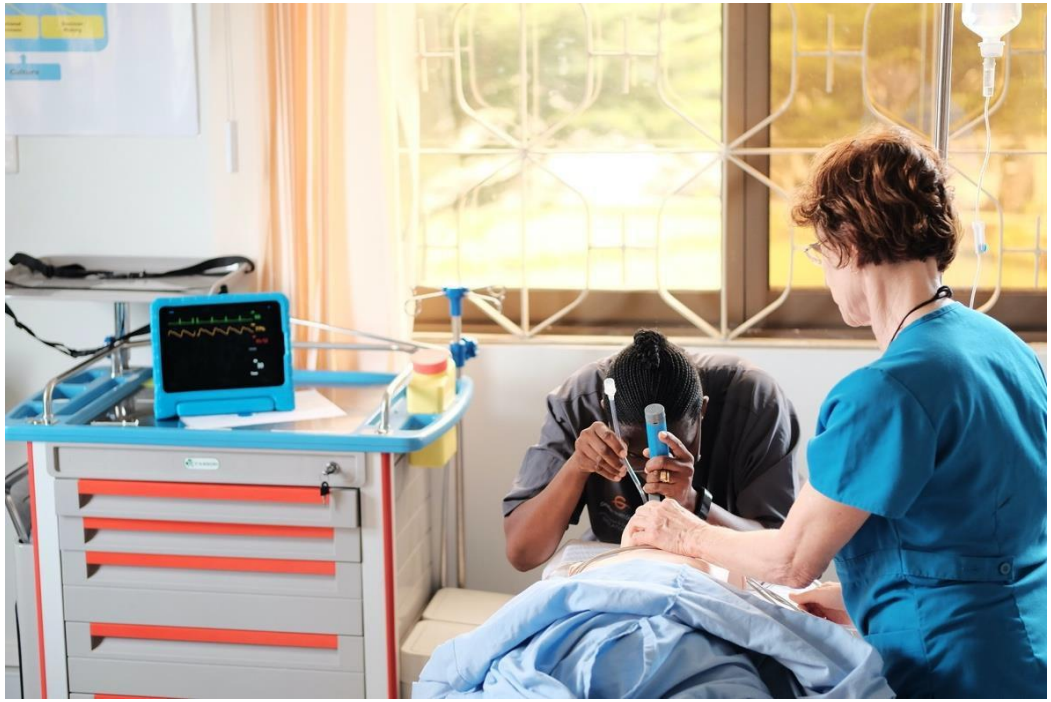
The graph above shows the average individual participant (blue lines) and group-average (red line) responses for each of the questions. This corresponds to paired t-tests of each individual item, but also shows how each individual responded across all of the questions when compared to the mean response.

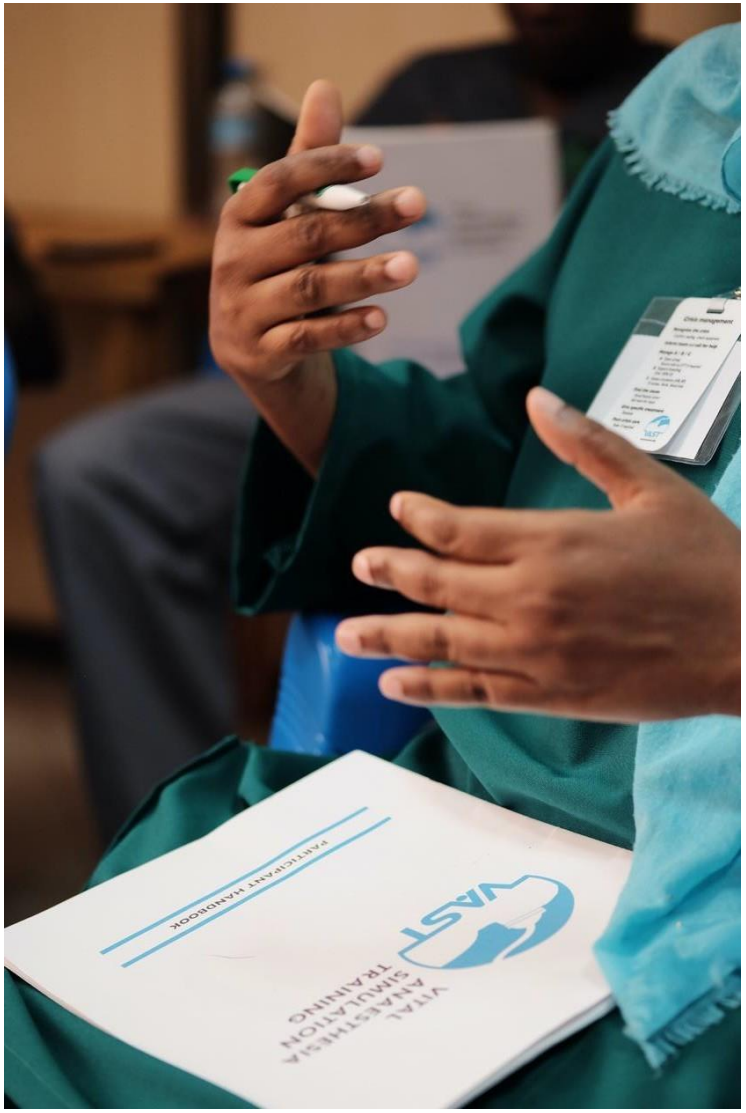
Future directions

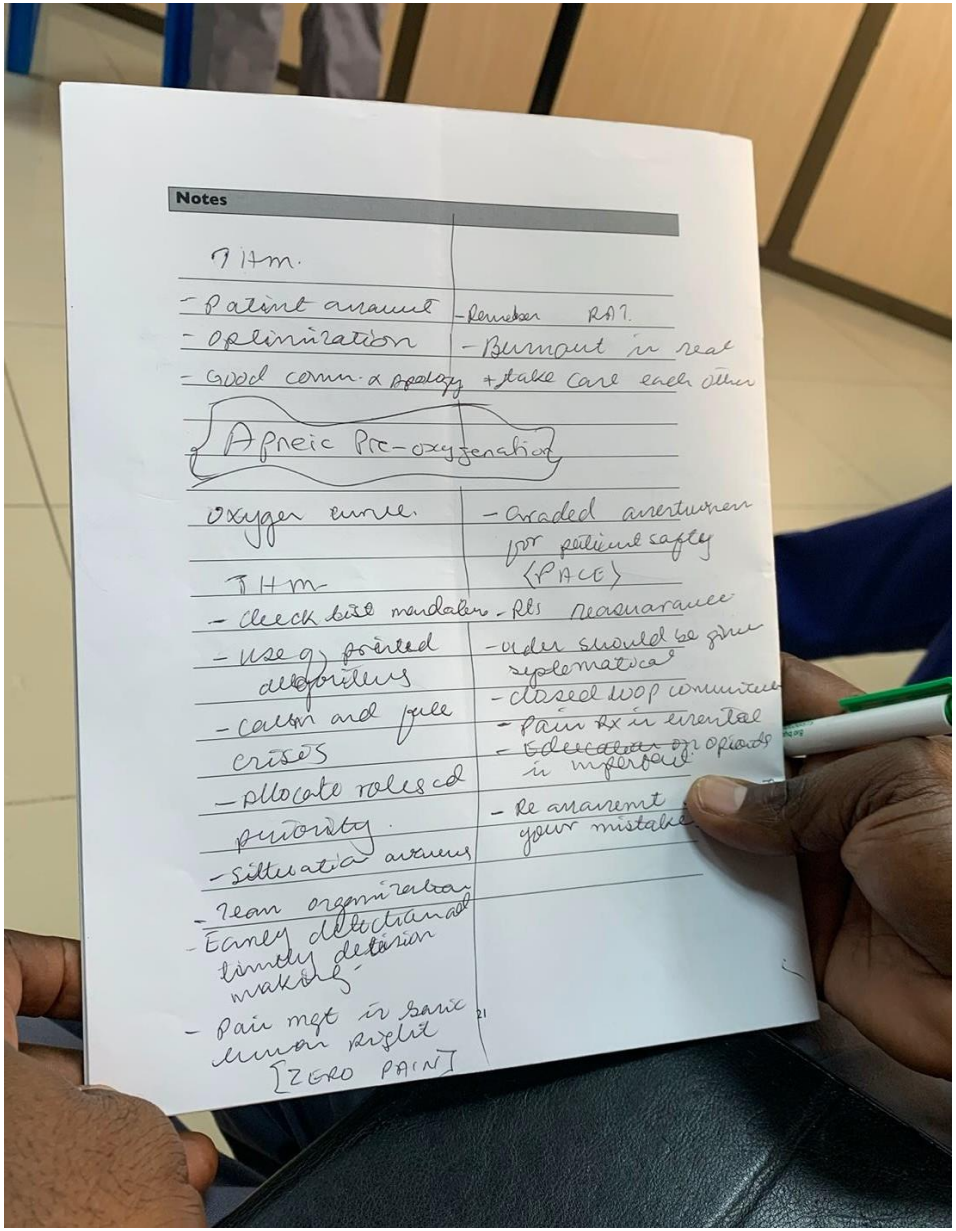
The future for VAST in Tanzania is bright. The local trainee-facilitator pool will continue to undergo mentorship and gain further experience in facilitation with the upcoming refresher course in Dar / Mbeya VAST Course that are funded by the Laerdal Foundation. There was a strong interest by Dr Lugazia and Dr Rae for trialing the VAST Curriculum in Tanzania. The Curriculum is a longitudinal program delivered over 48 weeks. Designed for junior anaesthesia trainees, it integrates simulation scenarios and small group teaching; it will be shared for trial usage in this context. At this stage of implementation of VAST in Tanzania, it is also worth considering the ongoing funding model that will allow both development of the local faculty and more widespread delivery of the course. The establishment of a dedicated set of VAST equipment and teaching resources that are securely stored will allow for seamless ongoing delivery of VAST by the Tanzanian team. There is growing experience with delivering VAST in East African Countries. A major strength of this most recent offering was the partnership and incorporation of Rwandan colleagues as faculty for delivery of the Course. Support of courses that foster this local partnership will help to develop a cadre of VAST Facilitators in the region, strengthen the medical education workforce and build a truly sustainable means of delivery of simulation-based education.

Appendix 1 – Course Photos






VITAL
ANESTHESIA
SIMULATION
TRAINING
PARTICIPANT HANDBOOK



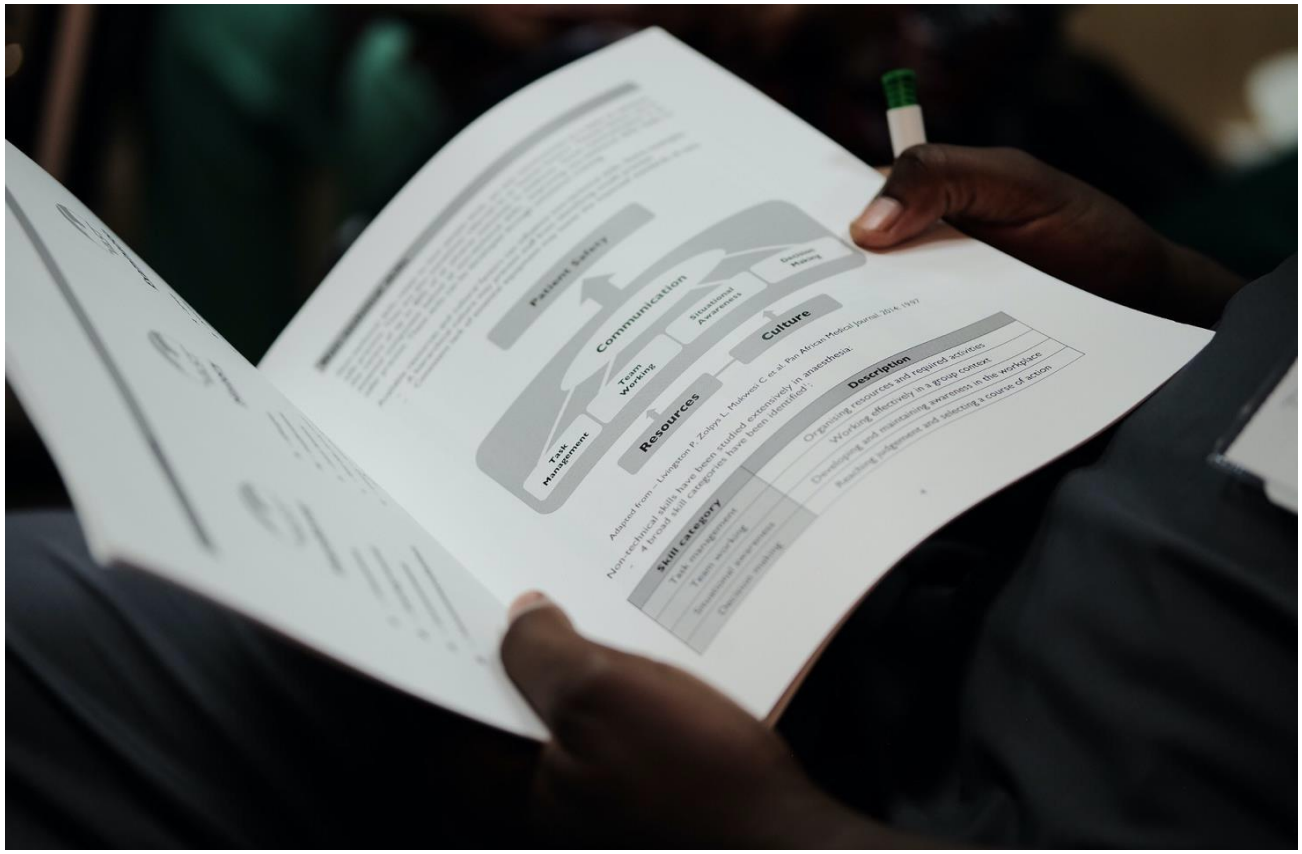
Notes

9 Hm.
- Patient assessment - Remember RAT.
- Optimization - Burnout is real
- Good comm. & apology + take care each other

Apneic Pre-oxygenation

Oxygen curve.
- Graded assertiveness for patient safety (PACE)

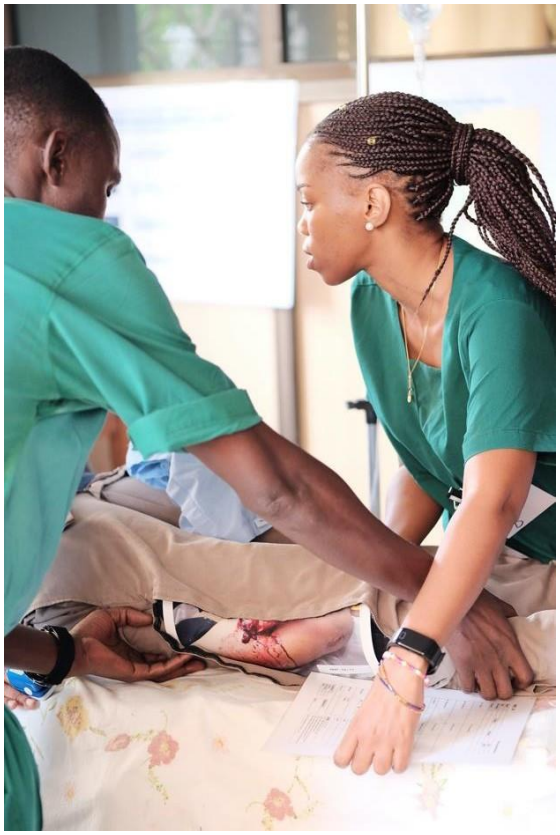
3 Hm
- Check bill mandatory - RIs reassurance
- Use of printed definitions - Order should be given diplomatically
- Calm and pulse crises - closed loop communication
- Allocate roles & priority. - Pain Rx is essential
- Situational awareness - Re assessment your mistake
- Team organization
- Early detection and timely decision making
- Pain not in basic human right [ZERO PAIN]

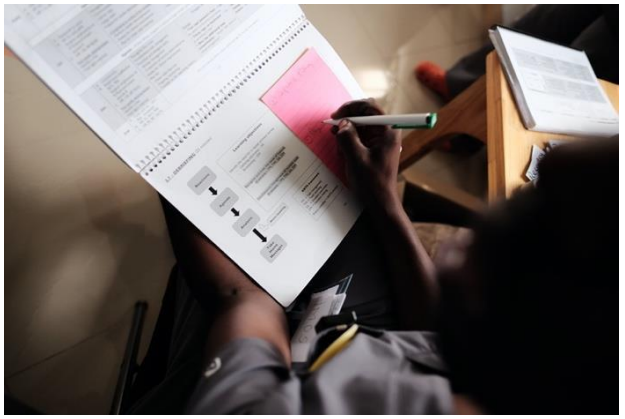

Patient Safety
Communication
Situational Awareness
Decision Making
Culture
Team Working
Resources
Task Management
Description
Organising resources and required activities
Working effectively in a group context
Developing and maintaining awareness in the workplace
Reaching judgement and selecting a course of action
Skill category
Task management
Team working
Situational awareness
Decision making


VIAST

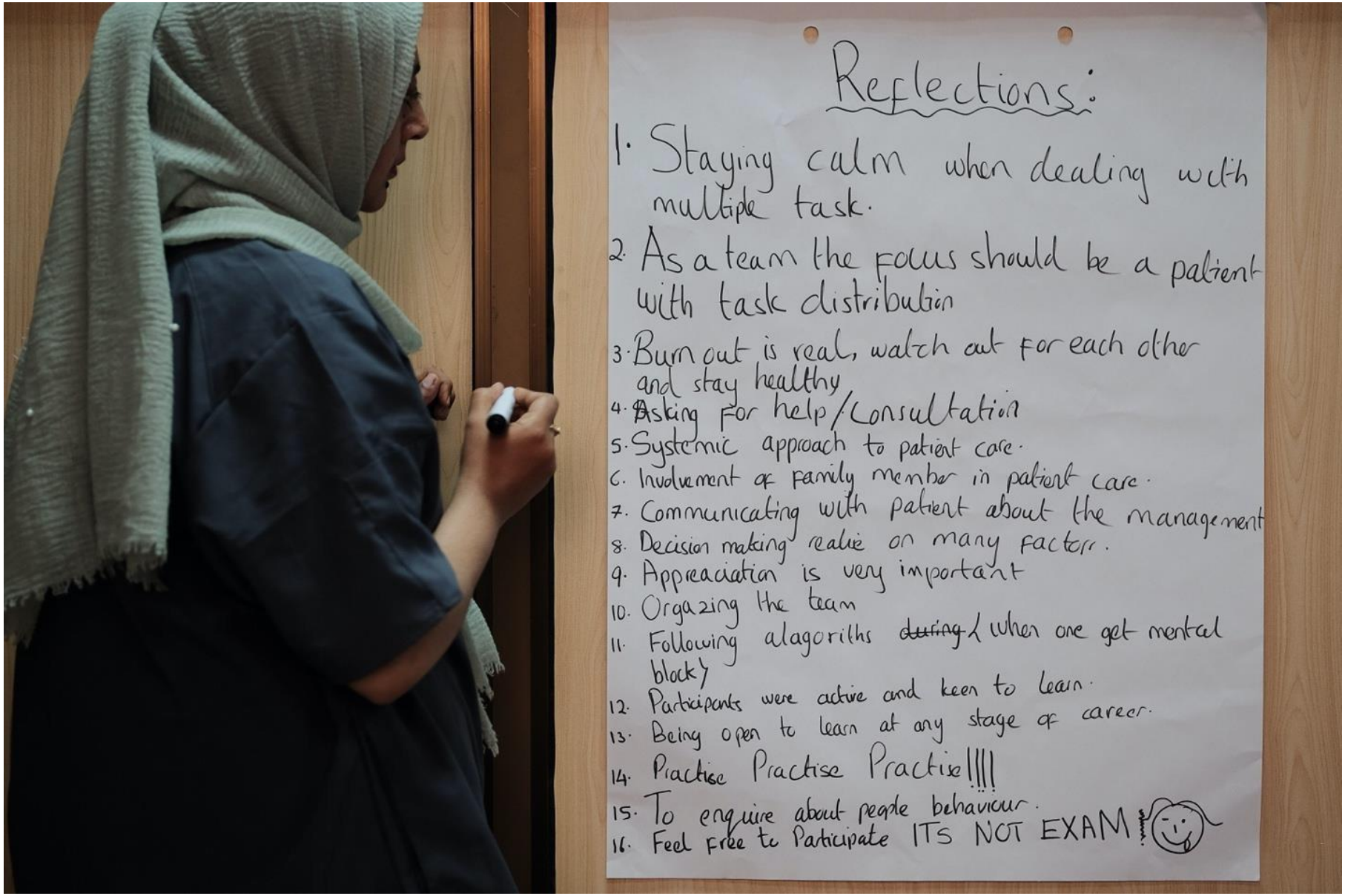

VIAST


THM
1) Orders should be given systematically
2) Closed loop communication should be used






THM



Reflections:

1. Staying calm when dealing with multiple task.
2. As a team the focus should be a patient with task distribution
3. Burn out is real, watch out for each other and stay healthy
4. Asking for help/consultation
5. Systemic approach to patient care.
6. Involvement of family member in patient care.
7. Communicating with patient about the management
8. Decision making relie on many factor.
9. Appreciation is very important
10. Orgazing the team
11. Following alagorithms ~~during~~ (when one get mental block)
12. Participants were active and keen to learn.
13. Being open to learn at any stage of career.
14. Practise Practise Practise!!!!
15. To enquire about people behaviour.
16. Feel free to Participate ITS NOT EXAM!


VAST
VITAL
ANAESTHESIA
SIMULATION
TRAINING
Pain case discussion


VITAL ANAESTHESIA SIMULATION TRAINING (VAST) COURSE
FACILITATOR COURSE
20th - 21st JANUARY, 2020
VAST COURSE
22nd - 24th JANUARY, 2020
TIME
0800 - 1700
LOCATION: GRADIAN ANAESTHESIA SIMULATION LAB CENTRE FOR HEALTH PROFESSIONAL EDUCATION (CHEP) MUHAS
POWERED BY:
WFSA
SATA
VAST


VAST COURSE
22nd - 24th JANUARY, 2020
TIME
0800 - 1700
ON: GRADIAN ANAESTHESIA SIMULATION LAB CENTRE FOR HEALTH PROFESSIONAL EDUCATION (CHEP) MUHAS
POWERED BY:
WFSA
SATA
VAST

Appendix II – Participant evaluations

VAST Course

What participants liked	
Facilitation	Teaching has been going step by step which has made learning easy Friendly and engaging facilitators Great scenarios and discussions afterwards Calm trainers, good delivery of topics Well-handled seminars, facilitators are so cooperative, that makes easy understanding
Content	I have learnt a lot more than expected Introduction of checklists Airway management scenarios Case scenarios are relevant and applicable Learning about how other hospitals work
Course design	I liked the way every member participated in the scenarios Evaluations and certificates Case discussions were helpful We were engaged, feeling engaged from the very first minute I got better insight into cases after the simulation scenarios Small group discussions help with self-assessment
Skill development	Task management and coordination Asses and reassess in primary survey Team work and team leader roles C-section management Pre-eclampsia management Burnout discussion A to E assessment of the patient No fear to treat acute pain with opioids Effective pain management
Key take home messages	
Non-technical skills	NTS are important in patient care Be prepared for crisis situations
Teamwork	Everyone has an important role in patient care Stay calm, call for help, involve people around you in a crisis We need to change our attitudes as medical professionals to cooperate and to succeed in helping the patients No matter how hard the team members are, always ask them for help if you need
Practice change statements	Education of the family and society of what we do Use of the surgical checklist – emphasis on patient safety Pain management is a basic human right
Wellbeing	Appreciation and recognition are important to prevent burnout SATA leaders should help the anaesthetist on follow up and if they are motivated to avoid burnout

Clinical frameworks	The importance of using a structured approach in assessing patients Difficult airway management algorithm AMPLE algorithm for emergency cases
Role of simulation	Simulation can help us to remember what to do The role play was real; our head was pop up It was a reminder for me on how to work to train people to come up with the best outcome
Suggestions for improvement and general comments	
Logistics	More and more practise Do VAST 3 times per year in order to improve knowledge Needs to be done for different health workers Presentations to be given in soft copy
Course design	Expand the roles of participants in the scenarios Add in high fidelity simulation Better time management, stop less between scenarios and have faster change over Add in high fidelity simulation Improve the quality of the actors in the simulation Bring the anaesthesia machine into the room to make it more real
General comments	Everything was laid out perfectly, BRAVO! Repetition makes perfect…the more we practice, the more we get used to VAST These courses should not just end, we should continue them so everyone gets to have the experience I would encourage the association to organise more sessions of the same kind It was a reminder for me on how to work to train people to come up with the best outcome I like the course and congratulations to the facilitators I am very happy to be a VAST trainee and to be able to share this with others Keep it up, very good and useful learning program We need more of these courses that will help remind us of our roles
	Please keep up the good work training and disseminating knowledge

Facilitator Course

What participants liked	
Facilitation	Facilitators were engaged with the goal of sharing the experience Commitment of the mentors Methodology of the teaching

Content	Debriefing sessions 5. Was an eye opener 6. Learning how to debrief Facilitating and setting up scenarios ANTS session / concepts of ANTS
Design	Chance to practice the scenarios Hearing about others experience Organisation was very good – things kept moving but adequate time for breaks
Key take home messages	
Clinical impact	All of our efforts should be for patient safety ANTS are important and key to our practice Always encourage communication between team members Systematic approach is essential in managing patients ANTS is part and parcel of technical skills Remember to consult for help, there is no harm Patient optimisation prior to anaesthesia
Simulation principles	Simulation based education is possible without high tech Always encourage the participants
VAST specific	VAST can be applied to both surgery and anaesthesia The debriefing can open up a good learning opportunity Use a systematic approach to debriefing
Scenario facilitation	People playing their roles must be familiar with the scene Need practice in running sessions
Debriefing	Debrief is central to the learning Value of the reflective process No wrong / correct answer Talk less, listen more
Scenario facilitation	People playing their roles must be familiar with the scene Need practice in running sessions
Suggestions for improvement and general comments	
Logistics	Colour coding of manual to help orientate Increase the number of days for the course
Design	More time on assessing ANTS and best way to provide debrief on ANTS More time on getting familiar with scenarios before teaching them

General comments	Everything in terms of preparation, team organisation and supervision were excellent. No improvement needed ? some allowances ($) for facilitators Grateful to have been privileged to have VAST added to our medical education armamentarium This course can be sustainable in our setting We need to have several of this course in the country to increase the number of facilitators Fantastic training…kindly we should disseminate it to the whole country VAST Course should be the standard of teaching and training of all anaesthesia care providers Well-coordinated – informative slides and good videos Reminded me of how to work in a crisis to save a patient's life