USING HFM SIMULATIONS TO TEACH CLINICAL ANATOMY

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Abstract: The teaching of Anatomy has to evolve in line with modern trends in training medical doctors and health professionals in general. High fidelity simulation (HFS) is a modern way to train doctors on body functions as well as clinical and surgical procedures. The ability of the HFS to mimic occurrences in living conditions and their aberrations as well responses to interventions in manners that model human experiences is invaluable to illustrating life functional processes as well and clinical experiences. The University of Global Health Equity (UGHE) has a simulation center and the students are trained using this facility [Figure 1]. This poster presents practical experiences including HFS principles.

Anatomy in the Context of Medical Education. Anatomy is the setting or structure within which the events or functions of life take place [Moore and Dalley, 2006]. Anatomy education must evolve to meet the demands of modern medical education and training. “Anatomy must shake off the image of being old-fashioned and welcome clinical relevance of the IT revolution. Anything that stimulates interest in anatomy should be promoted.” - Turney, 2007. Suitable methods should be strategically deployed in complementary ways. The best way to teach modern anatomy is by combining multiple pedagogical resources to complement one another. Students appear to learn more effectively when multimodal and system-based approaches are integrated.” - Estai & Bunt, 2016.

About High Fidelity Simulation: High fidelity mannequins incorporates technology to monitor and measure performance, enhances the quality of feedback and postively reinforces learning. High Fidelity Simulation is a healthcare education methodology that uses sophisticated manikins in realistic patient environments. Also known as human patient simulator or high-fidelity simulators, these complex manikins incorporate a computerized full-body manikin programmed to give realistic physiologic responses to learners’ actions (Figure 2). Moulage (bleeding, vomitus…) can also be applied to the manikin for a better presentation of symptoms to learners (Lewis, Strachan, & Smith, 2012).

Protocol: Features and Development: Purposeful simulation design endorses essential structure, process, and outcomes that aligns with the curriculum goals and the institutional mission (Alanazi, Nicholson, & Thomas, 2017). Development of an effective simulation session requires planning, including the knowledge of target students, learners’ objectives and intended outcomes, level of fidelity and use of task trainers, and standardized patients. Learning objectives are designed based on Bloom’s Taxonomy (Figure 3). Finished simulation scenario should be played in a safe, supportive and nonjudgmental learning setting (Harrington & Simon, 2019; Smith, 2019).

Facilitation: Simulation scenarios are written by a team of faculty and education specialists leading and facilitating the sessions. They also collaborate with simulation technicians who run the manikins and visual effects. The facilitation approach used in each scenario must be student-centered and aligning with the learners’ objectives, learners’ level of experience, and the intended outcomes (Harrington & Simon, 2019; Lioce et al., 2015). The Simulator Program at Boston Children’s Hospital developed the SimZones approach [Zones 0-3: Figure 4]. Each zone, has a description of the target learners, goals, clinical signal action, and debriefing techniques (Roussin & Weinstock, 2017).

Resources and Facilities: Simulation centers require appropriate equipment, infrastructures and trained faculties. These centers vary in size depending on the institutional organizational goals, budget, operations and human resources of the center. UGHE aims to become a hub for simulation for students, local hospital partners and community. It is in this line that UGHE’s Butaro Campus houses a state-of-the-art simulation center, equipped with an Anatomy table, high fidelity adult, obstetric and neonatal manikins, and adjacent equipment for use in basic skills instruction, team building and interprofessional education simulation most pertinent to Rwanda’s burden of disease. UGHE SIM Center also provides continuous professional development to its faculty other healthcare providers to help sharpen their skills.

References