Application of Hybrid Training in Clinical Comprehensive Skills Training Courses for Senior Medical Students

ZQ CHEN 1, SH Cai 1, ZH Lu 2, XQ Jin 1, Chang Liu 1, SX Xiong 1, Li He 1, Li David, Li 3
1. Zhongnan Hospital of Wuhan University, The Second Clinical College of Wuhan University, Wuhan, Hubei, P. R. China.
2. Renmin Hospital of Wuhan University, Wuhan, Hubei, P.R. China.
3. LKS Faculty of Medicine, the University of Hong Kong, Hong Kong SAR, P. R. China

Background
- The increasing demand for better healthcare among citizens in China has formed urgent need for better medical education quality, which traditional clinical training for medical students can no longer suffice.
- Ethical and legal concerns raised particular focus on clinical training of medical trainees without license to practice in real clinical situations, which largely reduced the possible hands-on practice for medical students (only serve as observers and reporters).
- Simulation-based education (SBE) holds great potential to partially substitute clinical training, and previous study suggested clinical hours can be replaced with carefully designed simulation in pre-licensure nursing education (Hayden, et al., 2014), and hybrid simulation might be the key (Friederichs, et al., 2014).
- Currently there are no carefully designed simulation courses for clinical medicine undergraduates in China to improve their clinical comprehensive skills.

Objectives
- To develop training courses based on hybrid training method by carefully integrating simulation, which can help to improve the comprehensive competency of the senior medical students.
- To explore and implement the hybrid training method in the clinical comprehensive skills training courses for senior medical students.

Materials & Methods
- 47 senior medical students were randomly separated into 6 learning groups
- 24 on their 5th year of 7-year-medical study
- 23 on their 6th year of 8-year-medical study
- A case of pulmonary embolism (PE) was designed and divided into 6 modules with clear learning objectives, implementation methods used.

Discussion
- A hybrid simulation integrated with blended learning training course pattern (hybrid training) was established by simulating key procedures of dealing with a certain patient to train the students to improve clinical comprehensive skills; this can be applied in any other diseases and can expand to other clinical comprehensive skill training.
- The application of such course design and implementation pattern could possible provide more chances for pre-licensure medical students to improve their clinical skills, therefore providing opportunities to behave like Interpreters and Patient- caregivers Managers of the ORIME framework.
- Hybrid teaching method and Team-based learning help students do more learning activity both in and out of class.
- Hybrid training in the clinical comprehensive skills training courses was a student centered, results oriented method lead to active and effective learning, developed a new way for clinical competency training.

Results
- Multiple clinical skills were trained among those senior medical students focusing on patient encounter, history taking, making preliminary diagnosis, reporting to senior physician, interpersonal communication, patient safety management, crisis management of disease deterioration, BLS of the code team, advanced life support and the ability of reporting a case, as well as perform a case-based discussion within on simulated case.
- Post-course survey were conducted in comparison with the base-line of the students formed from the pre-course survey (Results shown in Figure 4.).
- Post-course tests were conducted and format varies depending on the items to be assessed and results were analyzed (Table 1).