

1065

Basics of innovation in health sciences: an overview of a new multidisciplinary course

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Introduction/Rationale: Innovation is a critical mechanism that brings new medical and health technology to markets. Biodesign is a systematic approach and design thinking used to verify, invent, and implement health technology and new medicine.

Objectives:

1. Explain the concept of basics of innovation and biodesign process in health sciences.
2. Identify the needs and problems in health sciences.
3. Apply knowledge of biodesign process for generating need statements.

Approach: The School of Rehabilitation Sciences, Universiti Kebangsaan Malaysia has been integrating a new multidisciplinary course entitled “Basics of Innovation in Health Sciences” in its undergraduate curriculum since 2014. Led by a main faculty member (an engineer) and 6-8 facilitators, the course involves 1st year students studying in occupational therapy, physiotherapy, audiology, and speech sciences programmes. The course uses lecture, team-based learning, e-learning, and fieldwork in teaching students. Student works collaboratively with group members in completing design thinking and fact finding assignments. Students present their final need statement after clinical observation and interview at medical facilities and community service centres. Evaluation is focused on problem identification skills, soft skills, quality and creativity of works, and group preparedness.

Results: Students ($n=210$) had collectively visited > 10 facilities and generated > 60 need statements, e.g., a better way to improve comfort level in patients with physical problems during therapeutic exercises etc.

Conclusion: The course not only enhances students’ understanding on the concept of basics of innovation and biodesign process, it also fosters better multidisciplinary collaboration among students and faculty members.