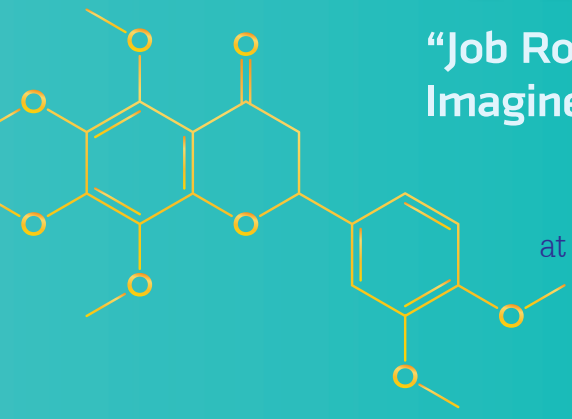
SCHOOL OF MEDICINE
WALAILAK UNIVERSITY

21st Thai Medical Education Conference:

TMEC 2022

"Job Roles of the 2030 Medical Educators: Imagineering the Education Futurists"

January 26-28, 2022
at Phuket Graceland Resort & Spa Phuket, Thailand



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MEETING DETAILS

In today's world of digital transformation, the rapid technological change creates a huge impact in several aspects, including education. It is also essential for Thailand's education system to be reshaped and rebalanced in response to this current flow of change. To be ready to these transformation and future trends, educational innovation, cutting edge teaching methods, and integrated teaching-learning approaches are utilized to create effective educational platforms for the students. Enhancing the quality of medical education is fundamental for life-long benefits to our community, healthcare system as well as current and pressing global healthcare challenges.

In collaboration between the Consortium of Thai Medical Schools; Faculty of Medicine, Prince of Songkla University; School of Medicine, Walailak University; and Princess of Naradhiwas University, will be hosting the "21st Thai Medical Education Conference (TMEC2022): Job Roles of the 2030 Medical Educators: Imagineering the Education Futurists" from January 26 to January 28, 2022 at Phuket Graceland Resort & Spa, Phuket, Thailand

This Medical Education Conference is organized in response to the rapid change in this Digital Transformation Era, in order to enhance the capability of medical education and produce medical graduate with the highest level of knowledge and skills. The conference builds upon the goodwill and collaborative spirit, aiming to create great opportunities for all of medical lecturers, healthcare staff, supporting staff, and medical students to exchange experiences and share their knowledge and up-to-date researches in medical education.

Purposes

1. To enhance the comprehension on up-to-date and future trends of medical education.
2. To enhance the engagement in utilizing healthcare reform concept into quality improvement and educational standards among medical schools in Thailand.
3. To create a platform and build network for national and international medical educators to exchange experiences and share knowledge and up-to-date researches in medical education.
4. To encourage medical lecturers, officer and students to conduct research in the field of medical education.

PROGRAM AGENDA

Wednedday, 26 January 2022

Time	Topic
08.00-08.30	Registration for workshop
09.00-12.00 Pre-conference Workshops (on-site)	**Workshop 1:** Designing an Engaged Learning Incorporating Learning Sciences and Evidence-Informed Educational Practices *Satid Thammasitboon, MD and MHPE, Dorene Balmer, Ph.D.*
*10.15-10.30 Coffee Break (Snack box) served in the room	**Workshop 2:** Portfolios and Mentoring *Erik Driessen, Ph.D.*
	Workshop 3: Coaching Diagnostic Reasoning Skills to Unlock Secrets of Expert Thinking *Adam Cohen, MD and Moushumi Sur, MD, M.B.B.S., B.S.*
	Workshop 4: Non-Technical Skills for Educators and Academic Officers (Thai language) *Captain Sitthidej Muangsin* *Captain Sinnop Theprugsa* *Captain Monchai Rojratanachai* *Mr. Surapon Inturam*
12.00-13.00	Open Registration for the conference
13.00-14.00	Open Ceremony and Honorary Lecture: Futuristic Health Education with Inter-Professional Collaboration *Prof. Vicharn Panich, MD*
14.00-14.30	Coffee Break (Snack box)

14.30-15.30	**Plenary Session 1:** Key Insights from Education Research that Drive Future Medical Education *Erik Driessen, Ph.D.*
16.00-17.00	**Plenary Session 2:** A Pragmatic Approach to Addressing "Wicked Educational Problems" in Today's Volatile, Uncertain, Complex and Ambiguous (VUCA) World *Satid Thammasitboon, MD, MHPE*
18.30-20.00	Faculty Dinner (Invitation only)

Thursday, 27 January 2022

Time	Topic
08.00-08.30	Registration
08.30-10.00	**Plenary sessions 3:** Preparing Faculty for job roles of the 2030 medical educators "Imagineering the Education Futurists" *Dorene Balmer, Ph.D., Satid Thammasitoon, MD, MHPE and Erik Driessen, Ph.D.*
10.00-10.30	Coffee Break (Snack box)
10.30-12.00	**Plenary sessions 4:** Envisioning Medical Education Through the Lens of Quality System (Thai language) *Sittisak Prukpitikul, MD, Jureerat Prukpitikul, Pharm D.*
12.00-13.00	Lunch Box

13.00-14.30	Sharing Good Practice from WFME Accreditation in Thailand - Enhancing student learning by effective formative assessment and constructive feedback *Prof. Chirayu Auewarakul, MD* - Utilizing IT to Monitor Student Progress and Programmatic Evaluation *Assoc. Prof. Kamonwan Janwitheesuk* **Moderator:** *Assist. Prof. Chiroj Soorapanth, MD and Assoc. Prof. Somchai Yongsiri* (Thai language)
14.30-15.00	Coffee Break (Snack box)
15.00-15.30	Keys Concepts to Promoting Research in Medical Education *Assist. Prof. Chiroj Soorapanth, MD,* *Assoc. Prof. Dr. Cherdsak Iramaneerat, MD, M.H.P.E., Ph.D. and Asst. Prof. Danai Wangsaturaka, MD., Ph.D.* (Thai language)
15.30-16.30	Platform (Oral and Poster) Presentation
16.30-18.00	Share and Discussion "Design your medical school" *Medical Student Network* Sharing Best Practices in Educators and Academic Officers *Academic Education Network*
18.00-20.00	Dinner (Box set)

Friday, 28 January 2022

Time	Topic
08.00-08.30	Registration
08.30-09.30	**Plenary sessions 5:** (Remote) Curating for Continuing Learning: How Educators Can Take a Leading Role to Guide Learners Towards Optimal Growth *Teresa Chan, HBSc, BEd, MD, FRCPC, MHPE, DRCPSC (Clin. Ed.)*
09.30-11.00	**Plenary sessions 6:** Learning Context Designer, Engineer, Architect, and Implementer: Designs the "Space" to Optimize Growth Mindset *Dorene Balmer, Ph.D., Satid Thammasitboon, MD, MHPE, Atipong Pathanasethpong, MD, MHPE*
11.00-12.00	Presentation Awards and Closing Ceremony
12.00-13.00	Lunch Box
13.00-16.30	Special Concurrent, Q&A Sessions with the International Guests Coffee Conversations on Educational Research *Dorene Balmer, Ph.D.* Workshop for PSU Faculty Internal Activity (Invitation Only)
	Programmatic Assessment *Erik Driessen, Ph.D. and Satid Thammasitoon, MD, MHPE*

SPEAKERS

International Speakers

1. **Erik Driessen, Ph.D.**
Chairman of the Department of Educational Development & Research
Faculty of Health, Medicine and Life Sciences of Maastricht University

2. **Satid Thammasitboon, MD, MHPE**
Director, Center for Research, Innovation and Scholarship in Medical Education
Texas Children's Hospital, Baylor College of Medicine

3. **Dorene Balmer, Ph.D.**
Director of Research on Pediatrics Education
Children's Hospital of Philadelphia
Perelman School of Medicine
University of Pennsylvania

4. **Teresa Chan, HBSc, BEd, MD, FRCPC, MHPE, DRCPSC (Clin. Ed.)**
Associate Dean, Continuing Professional Development,
Faculty of Health Sciences, McMaster University

5. **Adam Cohen**
Assistant Professor of Pediatric, Hospital Medicine, Baylor College of Medicine
Assistant Professor of Department of Education, Innovation and Technology,
Baylor College of Medicine

6. **Moushumi Sur, MD, M.B.B.S., B.S.**
Assistant Professor of Pediatrics,
Critical Care, Baylor College of Medicine

National Speakers

1. **Prof. Vicharn Panich, MD**
   Chairman of the Strategy Committee, 'National Health Professional Education in the 21st Century (2018 -2027)'.

2. **Sittisak Prukpitikul, MD**
   Organization Assessment Certified Expert and Chairman,
   LTCI Company limited

3. **Jureerat Prukpitikul, Pharm.D.**
   Organization Assessment Certified Expert and General Manager,
   LTCI Company limited

4. **Assist. Prof. Chiroj Soorapanth, MD**
   Medical Education Research Committee, Research Network of Consortium of Thai Medical Schools,
   Navamindradhiraj University

5. **Atipong Pathanasethpong, MD, MHPE**
   Anesthesiologist and Medical Educator, Faculty of Medicine,
   Khon Kaen University,
   Consultant for Medical Education, Faculty of Medicine,
   Prince of Songkla University

6. **Assoc. Prof. Cherdsak Iramaneerat, MD, MHPE, Ph.D.**
   The Director of Siriraj Health Science Education Excellence Center,
   Faculty of Medicine Siriraj Hospital, Mahidol University

7. **Asst. Prof. Danai Wangsaturaka, MD, Ph.D.**
   Assistant Dean for Academic Affairs, Faculty of Medicine,
   Chulalongkorn University

8 **Prof. Chirayu Auewarakul, MD**
Dean, Princess Srisavangavadhana College of Medicine,
Chulabhorn Royal Academy

9 **Assoc. Prof. Kamonwan Janwitheesuk**
Vice Dean for Academic Affairs, Faculty of Medicine,
Khon Kaen University

10 **Captain Sitthidej Muangsin**
Flight instructor - Ground instructor - Facilitative Trainer,
Thai Airway International Public Company Limited

11 **Captain Sinnop Theprugsa**
Technical Pilot - Flight Instructor - Facilitative Trainer,
Thai Airway International Public Company Limited

12 **Captain Monchai Rojratanachai**
Simulator Instructor - Ground instructor - Facilitative Trainer,
Thai Airway International Public Company Limited

13 **Mr. Surapon Inturam**
Inflight Manager - Safety Instructor - Ground Instructor - Facilitative Trainer,
Thai Airway International Public Company Limited

SPEAKERS

Dorene F. Balmer, Ph.D. (Assoc.Prof.)

Academic Degrees

- B.S. Nutrition, Immaculata University (1988)
- M.A. Nutrition Education, Immaculata University (1994)
- Ph.D. Health Studies/Public Health, Temple University (2006)

Postgraduate Training and Fellowship Appointments:

- Postdoctoral Research Fellowship, The Children's Hospital of Philadelphia (2006-2008)

Professional Experiences

- Associate Fellow, The University of Pennsylvania's Center for Public Health Initiatives (2017-present)
- Thesis supervisor, Master of Health Professions Education, University of Maastricht, The Netherlands (2017-present)
- Associate in the Narrative Medicine Program, School of Professional Studies, Columbia University (2017-2018)
- Associate Professor of Pediatrics at the Children's Hospital of Philadelphia, University of Pennsylvania School of Medicine (2016-present)
- Director, Research on Pediatric Education, The Children's Hospital of Philadelphia (2015-present)
- Associate Professor, Department of Pediatrics, Baylor College of Medicine (2012-2015)

- Associate Director, Center for Research, Innovation, and Scholarship in Medical Education, Texas Children's Hospital (2012-2015)
- Assistant Professor, Department of Pediatrics, Columbia University College of Physicians and Surgeons (2008-2012)
- Director of Evaluation, Center for Education Research and Evaluation, Columbia University Medical Center (2008-2012)
- Adjunct Instructor, School of Nursing and Health Sciences, LaSalle University (2007-2008)
- Neonatal Nutritionist, The Children's Hospital of Philadelphia (1992-2006)
- Maternal and Child Health Nutritionist, Lehigh Valley Hospital, Allentown, PA (1990-1992)

TERESA MAN-YEE CHAN

Academic Degrees

- Master of Health Professionals Education, University of Illinois at Chicago, Department of Medical Education, Chicago, IL (2011-2016)
- Royal College Emergency Medicine Residency, McMaster University, Postgraduate Medical Education, Hamilton, Ontario (2008-2013)
- Doctor of Medicine, University of Western Ontario, Schulich School of Medicine & Dentistry, London, Ontario (2004-2008)
- Bachelor of Education (Biology/Chemistry), University of Toronto, Ontario Institute of Studies in Education, Toronto, Ontario (2003-2004)
- Honours Bachelor of Science (Immunology) with Distinction, University of Toronto, Victoria University in the University of Toronto, Toronto, Ontario (1999-2003)

Academic Experiences

- Associate Dean, Continuing Professional Development, Faculty of Health Sciences, McMaster University (2021-Present)
- Clinician Scientist, McMaster Education Research, innovation, and Theory (MERIT), Faculty of Health Sciences, McMaster University (2021-Present)
- Associate Professor, Div. of Emergency Medicine, Dept. of Medicine, McMaster University (2019-Present)
- Specialty Committee Chair Area of Focused Competency - Clinician Educator Program (2018-Present)
- Program Director, Area of Focused Competency - Clinician Educator Program (2018-Present)
- Diplomate, Clinician Educator, Area of Focused Competence (2018)
- Emergency Physician, Dept. of Emergency Medicine, Hamilton Health Sciences (2013-Present)
- Fellow, The Royal College of Physicians & Surgeons of Canada (2013)
- Independent Practitioner, Canadian Emergency Ultrasound Society. (2013)
- Advanced Hazmat Life Support (AHLS) Provider (2012)
- Royal College Accreditation Surveyors Workshop (2012)
- Advanced Cardiac Life Support (ACLS) (2008)
- Advanced Cardiac Life Support (ACLS) Instructor Course (2009)
- Advanced Trauma Life Support (ATLS) (2009)
- Licentiate, Medical Council of Canada (2010)
- Advanced Trauma Life Support (ATLS) Instructor (2011)

Adam Phillip Cohen, M.D.

Academic Degrees

- B.A. in Chemistry, Summa Cum Laude at Binghamton University, Harpur College of Arts and Science, Binghamton, NY, USA (2007-2011)
- MD, Concentration in Patient Safety at University of Pittsburgh, School of Medicine, Pittsburgh, PA, USA (2011-2015)
- MEd in Curriculum and Instruction, Health Professions Education at University of Houston, College of Education, Houston, TX, USA (2019-2020)

Postgraduate Training

Internship and Residency in Pediatrics, Concentrations in Global Health and Medical Education at Children's National Medical Center (2015-2018)

Fellowship in Pediatric Hospital Medicine at Texas Children's Hospital/Baylor College of Medicine, (2018-2020)

Academic Experiences

- Assistant Professor of Pediatrics, Section of Hospital Medicine, Baylor College of Medicine/Texas Children's Hospital
- Assistant Professor of Education, Innovation and Technology, Baylor College of Medicine

Erik Driessen, PhD.

Erik Driessen is Professor in the School of Health Profession Education at Maastricht University, the Netherlands. For the Journal Perspectives on Medical Education he is Editor in Chief. As a researcher, Dr. Driessen has developed a theoretical model for portfolio use, mentoring and a qualitative perspective on non-standardized assessment. Both the portfolio model and the perspective on assessment are highly influential on educational practice and on research. He has published > 100 peer-reviewed manuscripts and book chapters. A part of his work is international: he mentors PHD students from diverse countries and he participates in a variety of international projects like consultancies and research projects in and outside of Europe. In 2021 he was awarded ASME's Gold Medal. He's an Honorary Fellow of the Academy of Medical Educators in the United Kingdom, and an Adjunct Professor of Medicine at the School of Medicine of the Uniformed Services, United States of America.

Moushumi Sur, MD, M.B.B.S., B.S.

Academic Degrees

- Bachelor of Science, D.G. Ruparel College, Bombay, India (1988-1990)
- Seth G.S. Medical College & King Edward Memorial Hospital, Bombay University, Bombay, India, M.B., B.S., (1990-1995)

Postgraduate Training

- Resident - Dermatology, L.T. Medical College, Bombay, India (1996-1997)
- Resident - Pediatrics, Columbus Hospital (Northwestern Medical School), Chicago, USA (1997-2000)

- Chief Resident, Columbus Hospital (Northwestern Medical School), Chicago, USA (1999-2000)
- Fellow - Pediatric Critical Care Medicine, Baylor College of Medicine & Texas Children's Hospital, Houston (2000-2003)

Academic Experiences

- Associate Professor, Department of Pediatrics (2020-present)
- Assistant Professor, Department of Pediatrics (2005-2020)
- Consultant Pediatric Intensivist, Armenian Church Trauma Centre, Kolkata, India (2004-2005)
- Consultant Pediatric Cardiac Intensivist, Rabindranath Tagore International Institute of Cardiac Sciences, Kolkata, India (2004-2005)

Satid Thammasitboon, M.D, MHPE

Academic Degrees

- Doctor of Medicine (First Class Honor), Prince of Songkla University, Songkhla, Thailand (1989-1995)
- Mater of Health Professions Education (MHPE), "Cognitive Performance in Evidence-Based Medicine linked with Physician's Knowledge Dissemination Styles", Robert Mrtek, Ph.D., Department of Medical Education, University of Illinois at Chicago, Chicago, IL (1997-2001)

Postgraduate Training

- Department of Pediatrics, Internship and Residency, Prince of Songkla University Songkhla, Thailand (1995-1997)
- Department of Pediatrics, Internship and Residency, University of Illinois at Chicago Chicago, IL (1997-2000)

- Department of Pediatrics, Chief Resident, University of Illinois at Chicago, Chicago, IL (2000-2001)
- Department of Pediatrics, Pediatric Critical Care Fellowship, Baylor College of Medicine, Houston, TX (2001-2004)

Academic Experiences

- Director, Center for Research, Innovation and Scholarship in Medical Education (2019-present)
- Chair, Resident Scholarship Program (2013-present)
- Associate Professor, Pediatrics (2011-Present)
- Associate Director, Center for Research, Innovation and Scholarship in Medical Education (2015-2019)
- Associate Fellowship Director for Critical Care Scholars Program (2014-2016)
- CRIS Scholar, Center for Research, Innovation and Scholarship in Medical Education (2013-2015)
- Associate Fellowship Director for Education (2011-2014)

Previous Faculty Position(s) at Other Institutions

Associate Professor, Intensive Care Service
Associate Residency Director (2006-2011)
Department of Pediatrics (2004-2011)
West Virginia University, Morgantown, WV

Professor Vicharn Panich, MD

Professor Vicharn Panich, MD, MS, graduated from the Faculty of Medicine Siriraj Hospital, University of Medical Sciences (now Mahidol University) in 1966. After one year internship he went to further his study at the Department of Human Genetics, University of Michigan Medical School and received Master of Science in Human Genetics in 1968.

He has worked at the Hematology Division, Department of Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University for 6 years and moved to a new medical school at Prince of Songkla University, Hat Yai where he became head of the Department of Pathology, Dean of the Faculty of Medicine and Vice President of the university. He has done research on glucose-6-phosphate dehydrogenase deficiency in Thailand.

In 1993 he became the founding director of the Thailand research Fund where he served for eight years. From 2003 to 2008 he served as founding director of Knowledge Management Institute.

Some of his previous responsibilities are; chairman of Mahidol University Council for 10 years, director of Siam Commercial Bank for 10 years, chairman of the Higher Education Council for 2 years, member of more than 10 university councils, member of WHO's Advisory Council on Health Research.

Now Professor Vicharn Panich is the chairman of Arsomsilp Institute Council and sits in the university council of other two universities. He serves as chairman of the board of 7 foundations and member of the board of 3 foundations.

He has written 27 books on education, 6 books on university governance or management, 5 books on knowledge management, 3 books on human genetics, 2 books on research management, and 2 books on organization management , all in Thai. He regularly writes in the Gotoknow blog (in Thai) at https://www.gotoknow.org/blog/thaiKM, https://www.gotoknow.org/blog/council, and https://www.gotoknow.org/blog/thai-politics.

Sittisak Prukpitikul, MD

CEO of LTCI Company Limited

Office: LTCI Company Limited, Samut Prakarn

Email: sittisak@ltci.co.th

Academic Degrees

- Doctor of Medicine (M.D.), Prince of Songkla University, Thailand
- Specialist in Otolaryngology and Laryngology

การศึกษาพิเศษ

- TQA Lead Assessor
- ISO 9001 Lead Assessor
- ISO 14001 Lead Assessor
- Hospital Accreditation

Professional Experiences

- CEO of LTCI Company Limited
- Advisor of Thailand Productivity Institute
- Advisor and consultant, TQA/Performance Excellence/Organization Leadership/Strategic Planning/Balanced Scorecard/TQA/HA/Quality Improvement/Productivity/Innovation Management/Business Ecosystem/Integrated Organization Management
- Lecturer, Prince of Songkla University, Thailand
- Director, Rajyindee Hospital, Hatyai, Sonkhla, Thailand
- Vice President of Quality and Human Resource, Phyathai Hospital Group, Thailand
- Director, Phyathai 2 Hospital, Bagkok, Thailand
- Director, Nonthavej Hospital Public Company Limited
- Advisor and consultant of The Healthcare Accreditation Institute
- Special instructor, Master program of Quality Management, Rangsit University

- Special instructor, Master program of Hospital Administration (Quality and Risk Management), Huachiew Chalermprakiet University
- Special instructor, Master program of Health Informatics (Quality Management and Six Sigma)

Chureerat Prukpitikul, Pharm.D.

General Manager of LTCI Company Limited

Office: LTCI Company Limited, Samut Prakarn

Email: chureerate@ltci.co.th

Academic Degrees

- Doctor of Pharmacy (Second Class Honors) Prince of Songkla University, Thailand

การศึกษาพิเศษ

- ISO 9001:2000 Lead Assessor
- Hospital Accreditation
- TQA Assessor

Professional Experiences

- General Manager of LTCI Company Limited.
- Co-advisor and consultant on TQA/SEPA/SEAM in many organizations including PTT Public Company Limited (PTT), PTT Global Chemical Public Company Limited (GC), Metropolitan Electricity Authority, Electricity Generating Authority of Thailand, Industrial Estate Authority of Thailand, True Corporation Public Co., Ltd, Government Housing Bank (GH Bank) and etc.

- Head of Drug Inventory Department, Prince of Songkla University, Thailand
- Working party of Quality Management, Prince of Songkla University, Thailand
- Working party of Hospital Accreditation Collaborating Center (Southern Hosipital)
- Hospital Pharmacy Standard Auditor
- Director of Central Purchasing, Phyathai Hospital Group
- The Pharmaceutical Association of Thailand Committee

Asst. Prof. Chiroj Soorapanth, MD

Office: Department of Orthopedics, Faculty of Medicine Vajira Hospital, Nawamintrathirat University, Bangkok

Email: chiroj@nmu.ac.th

Academic Degrees

- Master's degree in medical education, Centre for Medical Education, University of Dundee, United Kingdom of Great Britain, and Northern Ireland (2549)
- อนุมัติบัตรผู้เชี่ยวชาญสาขาเวชศาสตร์ครอบครัว Medical Approved card of Family Medicine specialist from The Medical Council of Thailand (2547)
- Certificate of operation specialist for limb treatment from Institute for Limb Preservation, Presbyterian/St.Luke's Medical Center, Denver, Colorado, USA (2544)
- Certificate of Musculoskeletal oncologists from Rush-Presbyterian-St. Luke's Medical Center, Chicago, State of Illinois, USA (2544)
- Diploma of Orthopedic surgeon from The Medical Council of Thailand (2540)

- Doctor of Medicine (M.D.), Faculty of Medicine Ramathibodi Hospital, Mahidol University (2536)

Professional Experiences

- Operating Committee, Institute for Medical Education Accreditation (IMEAc) (2560-Present)
- Executive Committee, Center for Medical Competency Assessment and Accreditation (CMA), Thailand Medicine Council (2559-Present)
- Working party, Consortium of Thai Medical Schools (COTMES) (2557-Present)
- Curriculum Instructor, Doctor of Medicine Program, Faculty of Medicine Vajira Hospital, Navamindradhiraj University (2554-Present)
- Editorial department, Vajira Medical Journal of Urban Medicine (2550-Present)
- Educational Quality Assurance Committee, Faculty of Medicine Vajira Hospital, Navamindradhiraj University (2549-Present)

Atipong Pathanasethpong, MD, MHPE

Office: Department of Anesthesiology, Faculty of Medicine, Khon Kaen University, Khon Kaen

Email: atipat@kku.ac.th

Academic Degrees

- Master of Medical Sciences in Medical Education Harvard Medical School, USA (2014-2016)
- Master of Health Professions Education Maastricht University, Netherlands (2011-2014)

- Residency Training in Anesthesiology Khon Kaen University (2006-2010)
- Medical Degree Khon Kaen University (2000-2006)

Special Training

- 2015 Harvard Macy Leading Innovations Harvard Macy Institute in Health Care & Education
- 2014 Harvard Macy Program for Educators Harvard Macy Institute in Health Professions
- 2014 Qualitative Methods for Global Health Delivery Harvard Medical School

Professional Experiences

- Instructor Department of Anesthesiology, Faculty of Medicine, Khon Kaen University (2012-Present)
- Instructor Department of Anesthesiology, Faculty of Medicine, Ramathibodi Hospital, Mahidol University (2010-2011)

Cherdsak Iramaneerat, M.D., M.H.P.E., Ph.D.

Office: Department of Surgery (12th fl. Siamindra building)
Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok

Email: cherdsak.ira@mahidol.ac.th

Academic Degrees

- M.D., Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand (1997)
- Certificate in Medical Science (Surgery), Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand (1999)

- Certificate in General Surgery Residency, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand (2001)
- Thai Board of General Surgery, The Medical Council of Thailand (2001)
- Thai Board of Family Medicine, The Medical Council of Thailand (2002)
- M.H.P.E., College of Medicine, University of Illinois at Chicago, Chicago, Illinois (2004)
- Ph.D., College of Education, University of Illinois at Chicago, Chicago, Illinois (2007)
- Certificate in surgical oncology and colorectal surgery fellowship, Oncology Institute of Vilnius University, Vilnius, Lithuania (2012)
- Thai Board of Colon and Rectal Surgery, The Medical Council of Thailand (2015)

Professional Experiences

- Manager, Medical Education Research and Development project, Faculty of Medicine Siriraj Hospital, Bangkok, Thailand (2012-2017)
- Associate professor, Department of Surgery and assistant dean of Postgraduate Education, Faculty of Medicine Siriraj Hospital, Bangkok, Thailand (2014-2015)
- Associate professor, Department of Surgery and assistant dean of Undergraduate Education, Faculty of Medicine Siriraj Hospital, Bangkok, Thailand (2015-Present)
- Program director, Master of Science (Health Science Education), Faculty of Graduate studies, Mahidol University, Thailand (2016-Presen)
- Director, Siriraj Health science Education Excellence (SHEE) center, Faculty of Medicine Siriraj Hospital, Bangkok, Thailand (2017-Present)

Asst.Prof. Danai Wangsaturaka, MD., Ph.D.

Office: Faculty of Medicine, Chulalongkorn University

Email: danai.w@chula.md

Academic Degrees

- Doctor of Medicine (MD), Faculty of Medicine, Chulalongkorn University, Thailand (1998)
- Title of dissertation Evaluation of the Pre-Clinical Phase of the Undergraduate Curriculum at the Faculty of Medicine, Chulalongkorn University, Thailand
- Master of Medical Education with Distinction (MMEd) Centre for Medical Education, University of Dundee, Scotland, UK (2001)
- Doctor of Philosophy (PhD), Centre for Medical Education, University of Dundee, Scotland, UK (2005)
- Title of thesis Development of Learning Climate Measures for Thai Medical Education

Professional Experiences

- Director Medical Education Unit, Faculty of Medicine, Chulalongkorn University, WHO Collaborating Center for Medical Education (2018-present)
- Assistant Dean for Academic Affairs, Faculty of Medicine, Chulalongkorn University (2015-present)
- Lecturer, Department of Pharmacology, Faculty of Medicine, Chulalongkorn University (1999-present)
- House officer, Department of Pharmacology, Faculty of Medicine, Chulalongkorn University (1998-1999)

Asst. Prof. Somchai Yongsiri, MD., Ph.D.

Associate professor of Internal Medicine

Office: Faculty of Medicine, Burapha University, Thailand

Email: syongsiri@yahoo.com

Academic Degrees

- Thai board of Nephrology, Royal College of Physician of Thailand (2006)
- Thai board of Internal Medicine, Royal College of Physician of Thailand (2002)
- Doctor of Medicine, Chiangmai University, Thailand (1998)

Professional Experiences

- Deputy director, Institute for Medical Education Accreditation (IMEAc) (2021-present)
- President assistant of Burapha Universiy, Thailand (2017-2019)
- Subcommittee of Peritoneal Dialysis, The Nephrology Society of Thailand (2016-2019)
- Working party, criteria consideration for Postgraduate Certificate in Medical Education, Medical Council (2016)
- Working party, criteria preparation for international medical school standard (WFME Basic) (2015)
- Associate dean for academic and research, Faculty of Medicine, Burapha University, Thailand (2012-2016)

Chirayu (Udomsakdi) Auewarakul

Email: chirayu.aue@cra.ac.th

Academic Degrees

- MD (First class honor), Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand (1988)
- PhD (Pathology), University of British Columbia, Vancouver, British Columbia, Canada (1992)

Internship and Residencies

Intern & Resident, Internal Medicine, Duke University Medical Center, Durham, North Carolina, USA (1992-1995)

Fellowship

- Postdoctoral Fellow, Terry Fox Laboratory, Vancouver, British Columbia, Canada (1988-1992)
- Clinical Fellow in Hematology-Oncology, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts, USA (1995-1997)
- Clinical Fellow in Medicine, Harvard Medical School, Boston, Massachusetts, USA (1995-1996)
- Research Fellow, Harvard Institute of Human Genetics, Boston, Massachusetts, USA (1996-1997)

Professional Experiences

- Professor of Medicine, Chulabhorn Royal Academy and Mahidol University
- Dean of Faculty of Medicine and Public Health, Chulabhorn Royal Academy

- Acting Director of Centre of Learning and Research in Celebration of HRH Princess Chulabhorn's 60th Birthday Anniversary (CLRC), Chulabhorn Royal Academy
- Committee member, Chulabhorn Foundation
- Committee member, The Police Medicine Foundation under the Patronage of the Supreme Patriarch
- Committee member, Thailand Medicine Council

Thai Airways International Public Company Limited

Mr. Sinnop Theprugsa

CAPTAIN: - Technical pilot - Flight instructor

FACILITATIVE TRAINER

Academic Degrees

- Bachelor of Engineering, King Mongkut's Institute of Technology Ladkrabang
- Master of Human Resource Development, National Institute of Development Administration

Mr. Sitthidej Muangsin

CAPTAIN: - Flight instructor - Ground instructor

FACILITATIVE TRAINER

Academic Degrees

- Bachelor of Architecture, King Mongkut's Institute of Technology Ladkrabang
- Master of Arts, Rangsit University
- Doctor of Public Administration, North Bangkok University

Mr.Surapon Inturam

Inflight Manager - Safety Instructor - Ground Instructor

FACILITATIVE TRAINER

Academic Degrees

- Bachelor of Political Science (International Relations), Ramkhamhaeng University
- Master of Industrial Psychology, Kasetsart University

Mr. Monchai Rojratanachai

CAPTAIN - Simulator Instructor - Ground instructor

FACILITATIVE TRAINER

Academic Degrees

- Bachelor of Engineering, Chulachomklao Royal Military Academy

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ANATOMICAL VARIATION OF SCIATIC NERVE AND HIP SURGERY: RESEARCH-INTEGRATED ANATOMY LEARNING

Piyanee Sriya[1]*, Piyachat Chansela[1], Arkaphat Kosiyatrakul[2], Yanin Plumarom[2] and Tanongson Tienthavorn[3]

[1] Department of Anatomy, [2] Department of Orthopedics, Phramogkutklao College of Medicine, Rajvithi Road, Bangkok, 10400, Thailand.
[3] Centre for Medical Education, School of Medicine, University of Dundee DD2 1SG, Scotland.
*Corresponding Author's E-mail: s.piyanee@pcm.ac.th

Background: Variants of the sciatic nerve are important to consider, particularly with regards to posterior surgical approaches to the hip. In addition, hip surgery related to anatomical variants could be introduced into learning about early clinical exposures in the students' year 2 curriculum.

Summary of work: We aimed 1) to update the sciatic nerve variation in Thai cadavers and 2) to facilitate undergraduate students by linking routine dissection for identifying sciatic nerve variation with hip surgery. We carried out dissections in 60 Thai cadavers (male=35, female=25) at Pharmaongkutklao College of Medicine (PCM).

Results: Based on Beaton and Anson's classification, there were two types of variant in this study. The first, type A sciatic nerve, is the most common variant that leaves the pelvis inferior to the piriformis muscle, and was found in 93% (n=112) of cases. The second, type B, was found in 7% (n=8) of cases and diverges into two components between the piriformis muscle: i) the common fibular nerve, which courses through the middle of the piriformis muscle, and ii) the tibial nerve which penetrates under the piriformis muscle.

Discussion and Conclusions: Surprisingly, in three cadavers, the sciatic nerve was located close to the ischial tuberosity by 0.5 cm distance, which is in danger of harm when approaching the ischial tuberosity during hip surgery. The satisfaction score of year 2 students with the early clinical approach and sciatic nerve variation was approximately 4.02±0.5 (mean±SD).

Take home message: These findings could be useful to generate discussions to academics involved in lower extremity teaching, research, and orthopedic surgery services.

PUSH DIFFUSION KNOWLEDGE VIA SOCIAL MEDIA MOBILE APPLICATION TO ENHANCE SELF-DIRECTED LEARNING IN MEDICAL STUDENTS

Nattapol Sathavarodom, Amnart Chaiprasert and Chantrapa Sriswasdi

Department of Medicine, Phramongkutklao Hospital and College of Medicine, 315 Ratchawithi Road, Thung Phayathai Subdistrict, Ratchathewi, Bangkok, 10400, Thailand.

Background: Push diffusion "Read it for them and send it to them" is one of the techniques in evidence-based medicine. This may enhance learning in medical students.

Summary of work: This study was conducted at Phramongkutklao hospital. Summarized essential current medical knowledge with short corresponding question will be pushed to the student individually twice a day at 8:00 and 20:00 for ten days. The knowledge will be push via social media mobile application. Students will be asked to evaluate the following; usefulness and disturbance levels by five-level Likert scale questions and satisfaction score by 100-point visual analog scale.

Results: There were 47 medical students participated in this study. Overall response rate was 27.7% and correct answer rate was 71.1%. Mean±SD of time to response was significantly longer in the morning than in the evening; 257.1±166.5 vs 57.8±31.5 min, respectively; $p<0.001$). Disturbance of daily life was in level 2-3 in 75% of students, usefulness was in level 4 in 52.8%. Overall satisfaction score was 75.1±12.4. In the multivariate analysis; factor associated with satisfaction score at least 80 was student with high response rate (OR 5.56, 95% CI 1.08-28.62; p value = 0.04). The most convenient time recommended by the students were 18:00-21:00 (46.8%) and 15:00-18:00.

Discussion and Conclusions: Most of medical students satisfied with self-leaning knowledge push by the department even response rate to answer the questions is low. Appropriate time should be after daytime academic activities.

Take home message: Push diffusion knowledge technique could useful to enhance self-directed learning.

THE SATISFACTION OF TRACHEA AND SKIN MANIKINS FOR PRACTICING EMERGENCY ANTERIOR NECK ACCESS

Sumidtra Prathep[1], Wilasinee Jitpakdee[1], Nalinee Kovitwanawong[1], Pittayapon Pitathawatchai[2] and Sittichoke Anuntaseree[3]

[1] Department of Anesthesiology, [2] Department of Otolaryngology Head and Neck Surgery, [3] Department of Orthopedic Surgery Prince of Songkla University, Songkhla, Thailand.

Introduction: Emergency anterior neck access may be performed if intubation and ventilation fail. Practicing this life-saving procedure with manikins before facing a real-life emergency anterior neck access is required to do this procedure successfully when we encounter a difficult airway situation. The current manikins are expensive, and thus are sometimes difficult to acquire in low cost settings such as Thailand.

Methods: We devise a cost-effective training manikin using less expensive materials but retaining the simple design of the trachea and skin areas which are flexible polyurethane (PU) foam and silicone, but which still had the same utility as the current manikins as Figure 1 and 2.

Figure 1: The two parts of the manikin, the body and trachea/skin covering

Figure 2: Lateral and posterior views of the trachea and skin covering.

Results: The mean score concerning the appropriate size of the manikins was 4.55±0.56. The mean score of the ease of use for practicing was 4.58±0.59. The mean score of the similarity of the skin of the manikins to human skin was 3.85±0.66. The mean score of the similarity of the trachea of the manikins to the human trachea was 3.80±0.69. The mean score of the sensation of inserting the tube in the manikin compared to a real trachea was 3.90±0.67. The mean overall benefit score of practicing on the manikins was 4.38±0.45. (Figure 3)

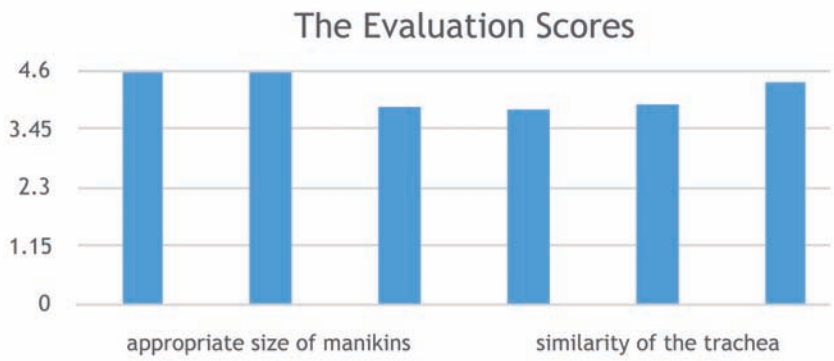

Figure 3: The evaluation scores of the usefulness of the new manikin for practicing emergency anterior neck access

Conclusions: Our trial indicates that this low-cost and simply designed manikin can be useful for practicing emergency airway management procedures to save patients who are struggling with lack of oxygen, or intubation failure or failure of ventilation or other airway equipment such as endotracheal intubation and supraglottic airway devices (SGA).

ONLINE TEAM-BASED LEARNING (O-TBL) WITH ZOOMTM APPLICATION DURING COVID-19 PANDEMIC: IS IT FEASIBLE?

Jakrawadee Julamanee*, Pongtep Viboonjuntra,
Daolada Kongkabpan and Arnuparp Lekhakula

Hematology Unit, Division of Internal Medicine, Faculty of Medicine, Prince of Songkla University, Hat Yai, Songkhla, 90110 Thailand.
*Corresponding Author's E-mail: jjakrawadee@gmail.com

Background: TBL engages students' participation in knowledge sharing and application through teamwork. However, onsite learning was not possible during COVID-19 pandemic. This study aimed to assess the feasibility and effectiveness, as well as, the effect of learning method on students' learning performance and satisfaction of O-TBL.
Summary of work: O-TBL was designed for the Hematopoietic System and Biology of Neoplasia module for 187 third year medical students using both whole class and breakout rooms feature of the ZoomTM application. The class was conducted for 3 hours with individual and team readiness assurance test (iRAT and tRAT), and application exercise. The 5-scale Likert-type questionnaire was used to explore the students' opinion.
Results: O-TBL was done successfully. Regarding online 20-item RAT, the tRAT median score of 17 (range 13 -20) was significantly higher than the iRAT median score of 9 (range 3-19) ($p<0.0001$). Questionnaire response rate was 72% with Cronbach coefficient of 0.898. It demonstrated satisfaction of O-TBL and confidence in using electronic technology for online learning. However, students seemed to feel that quality of learning was reduced with online education. The favorable aspects included discussion with team members, application exercise practice, convenience, facilitators' roles, and team working.
Discussion and Conclusions: TBL was feasible with online platform. It unveiled high satisfaction, motivation of interactive learning, and development of interpersonal skills among medical students.

Take home message: O-TBL could be effectively used during COVID-19 pandemic to maintain students' interactive learning and the spirit of TBL.

USING VIRTUAL MICROSCOPY FOR ONLINE PRACTICAL CLASS IN GENERAL PATHOLOGY DURING THE COVID-19 PANDEMIC

Chetana Ruangpratheep*, Sumeth Termmathurapoj, Thirayost Nimmanon, Mongkon Charoenpitakchai and Pipat Sritanabutr

Department of Pathology, Phramongkutklao College of Medicine,
317 Rajavithi Road, Rajadevi Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: chetana@pcmpathology.org

Background: The use of current information technology has been reported to promote student learning outcomes in general and systemic pathology during the COVID-19 pandemic. Hence, the aim of this pilot study was to assess the feasibility of using the virtual microscopy (VM) system for the online practical class in general pathology (GenPath).

Summary of work: The impact of the VM system on the acquisition of histopathology knowledge was evaluated by 102 third-year medical students of Phramongkutklao College of Medicine in the 2021 online GenPath practical class. The 2020-2021 VM-based online GenPath practical exam (GPPE) scores were also compared with the 2017-2019 traditional light microscopy-based onsite GPPE results.

Results: All students agreed that the advantages of using the VM system were reduced eye strain, no dizziness, developed team-based learning, enhanced teacher-student communication and effective out-of-class learning tool. At the 95% confidence interval, higher scores in GPPE were significantly correlated with the VM-based learning.

Discussion and Conclusions: According to the VM-based teaching of GenPath, both medical students and teachers can truly identify any lesions on the same tissue slide at the same time in collaborative groups. Therefore, this system actively empowers the third-year medical students to achieve their own learning experiences of the GenPath practical class anywhere, anytime, as long as they have an internet connection to their mobile phones, tablets, laptops or personal computers.

Take home message: The VM system should be integrated into the current undergraduate pathology course for facilitating active learning among preclinical medical students.

MEDICAL STUDENTS' EVALUATION OF ENTRUSTABLE PROFESSIONAL ACTIVITIES CONCEPTS IN PRE-CLINICAL YEARS: PRESENT PESPECTIVES AND EXPECTATION FOR FUTURE

Sakarn Chareonsakulchai[1]* and Anupong Kantiwong[2]

[1] Department of Parasitology, [2] Medical Education Unit, Phramongkutklao College of Medicine, 317/5 Rajawithee Road, Thung Phayathai Sub-District, Rajathewi District, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: anupongpcm31@gmail.com

Background: EPA concepts is the linking of assessment to decision making about entrusting learners with clinical responsibilities. Using EPA concepts during pre-clinical years might be a solution to students' lacking these competencies in clinical years. This study aim explores students' evaluation of EPA concepts during pre-clinical years in the present and their expected level of competencies within 5 years.

Summary of work: Fourth to sixth year medical students at PCM were included. Five-level questionnaire covering 30 EPAs from medical competency assessment criteria for national license 2012 (2nd edition; 2020) that students think they can perform after passing pre-clinical years and their expected EPA level within 5 years was used. T-test was employed for comparing these two parameters.

Results: Total of 204 students responded. There was significant difference between students' evaluation of all EPA concepts in present and 5-year expectation ($M_{present}$=1.09, M_{future}=2.30, t=-15.45, p<0.001). Presently, students with GPA ≥3.25 evaluated EPA level in pre-clinical years higher than students GPA <3.25 ($M_{present}$, ≥3.25=1.22, $M_{present}$, <3.25=0.86, t=2.20, p=0.029), but in 5 years, all expected levels were not significantly different (M_{future}, ≥3.25=2.39, M_{future}, <3.25=2.19, t=0.970, p=0.334).

Discussion and Conclusions: Students expected that proper EPA concepts since pre-clinical years is important. This could be reflected that some EPA were concerns for students to be able to perform early on. Although students with higher GPA evaluate EPA level higher than their counterpart, expected EPA concepts in 5 years to develop level of competencies were similar in both groups.

Take home message: Shifting some important procedural skills from clinical years toward pre-clinical years should be considered.

ENHANCING PROFICIENCY OF PARTICIPATORY LEARNING FOR DEVELOPMENT IN HEALTH (PLD) USING SIMULATION-BASED MEDICAL EDUCATION (SBME) IN EFFECTIVE COMMUNITY INTERVENTION FOR MEDICAL STUDENTS

Pongpisut Thakhampaeng* and Kanlaya Jongcherdchootrakul

Department of Military and Community Medicine, Phramongkutklao College of Medicine,
315 Rajvithi Rd., Thung Phaya Thai, Ratchathewi, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: bank.pongpisut@gmail.com, Pongpisut.th@pmk.ac.th

Background: Communities have specific health issues that only members can provide the insight details. Participatory learning for development in health (PLD) which has been known as an effective tool on identifying and proposing possible solutions to health problems in the communities, are used by health care providers (HCP). Therefore, HCP need to be skilful on doing PLD. For medical students who have less to no experience in community approach, role-play as one of simulation-based educations was widely used as the method for learning about PLD.

Summary of work: Medical students who enrolled in community medicine course were included into this cross-sectional study. They participated in groups in three role-play video sessions as parts of their community preparation program. Students were asked to complete questionnaires about their experiences on role-play. Descriptive statistics were used to analyze quantitative data and qualitative data was thematically analyzed.

Results: From the total of 74 participants, most students agree that role-play video production could demonstrate clearer processes (89%) of doing PLD in communities and led them to work as a team (80%). An improvement in problem-solving skills and cooperating was recognized by most of the students (88%). However, 47 of them (63%) felt that it is time-consuming and cannot thoroughly replace the lecture sessions.

Discussion and Conclusions: Preparation for community approach and intervention by using role-play was valued by students in achieving higher understanding in PLD process, the development of communication skills and problems-solving skills.

Take home message: Preparation for PLD using role-play help students achieve higher understanding and effective community intervention.

Keyword: Participatory Learning for Development in health, PLD, Simulation-based medical education, Community medicine

EVALUATING THE EDUCATIONAL ROLE OF THE FIRST-YEAR STUDENT LEADERS DURING COVID-19 PANDEMIC

Krittapas Mathurunyanont[1]*, Kantawich Piyanirun[1], Kitchapat Ngampornchai[1], Kongpapon Jirathamthanakul[1], Natthanicha Rienjirote[1], Preeyapat Korrananan[1], Theerayuwat Sirirak[1] and Danai Wangsaturaka[2]

[1] C/O Student Affairs, [2] Department of Pharmacology, The Faculty of Medicine Chulalongkorn University 1873 Rama IV Road, Pathumwan, Bangkok, 10330, Thailand.
*Corresponding Author's E-mail: Mathurunyanont@docchula.com

Background: Roles of student leaders at the Faculty of Medicine, Chulalongkorn University (MDCU), in educational management increased substantially during the COVID-19 pandemic, especially for first-year students whose university lives have been online since admission. These include representatives in the curriculum committee (2 students), curriculum support committee (7 students), and student engagement committee (2 students). Using the PDCA model, this study evaluates first-year students' perceptions of their student leaders, including the presidential and student engagement teams.

Summary of work: A 28-item online questionnaire was launched to 298 non-leader first-year students at the end of the first semester of 2021-22 academic year.

Results: The response rate was 61% (182/298). Most students trusted the presidential team (97%) and the student engagement team (93%). Ninety-six percentages thought that the leadership team communicated effectively. When there is an initiative on remote examination, students will approach the leadership team (70%) rather than faculty members (19%). However, with registration problems, students preferably approach faculty members (61%), but 33% still choose the leadership team.

Discussion and Conclusions: The pandemic has made communication more difficult, highlighting student leaders' role as educational mediators. Trust is developed through these reasons. Firstly, first-year student leaders are more approachable. Secondly, they are empowered by the support of the student union and faculty members. The culture of student engagement has been incorporated at MDCU for many decades, ensuring that leaders can solve problems or mediate them to the appropriate faculty members.

Take home message: Medical schools should promote student engagement through the empowerment of first-year leaders. Periodic evaluation should also be considered.

ATTITUDE TO EXTRACURRICULAR ACTIVITIES AMONG PRE-MEDICAL STUDENTS AT PHRAMONGKUTKLAO COLLEGE OF MEDICINE, THAILAND; A MIXED-METHOD STUDY

Kanyakorn Siraprapapong[1], Naruporn Krungkraipetch[2], Thawanporn Chukiatchaturaporn[3], Nattapong Hongsimakul[1], Sakarn Charoensakulchai[4], and Anupong Kantiwong[5]*

[1] 4th year medical student at Phramongkutklao College of Medicine, [2] 5th year medical student at Phramongkutklao College of Medicine, [3] 3rd year medical student at Phramongkutklao College of Medicine, [4] Department of Parasitology, [5] Department of Pharmacology, Phramongkutklao College of Medicine, 317/5 Ratchawithi Rd, Thung Phaya Thai, Ratchathewi, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: anupongpcm31@gmail.com

Background: Activities in pre-medical students at PCM can be categorized into curricular and extracurricular activities (EAs). Several EAs can develop students' skills and experiences. Hence, the objective is to critically explore students' attitudes to factors influencing EAs among pre-medical students.

Summary of work: A cross-sectional study was conducted on 96 recruits in 5-Likert scale and focus group interview. Attitudes were categorized into 4 types; personal perspective (P), communication (C), barrier (B), and time management (T). One way ANOVA was used to compare between each group. Exploratory factor analysis (EFA) was used to explore the impact of each factor. Fourteen students were interviewed to explore through each attitude.

Results: There were significant differences in all groups ($F=253.89$, $p<0.001$). C differed from P (Mean difference=0.39, $p<0.001$), T (Mean difference=0.37, $p<0.001$) and B (Mean difference=1.97, $p<0.001$). B differed from P (Mean difference = 1.57, $p<0.001$) and T (Mean difference=1.60, $p<0.001$). Supporting their needs ($\lambda=0.804$) and improvement CV ($\lambda=0.563$) had highest and lowest impact over P respectively. Improving communication skill ($\lambda=0.793$) and networking ($\lambda=0.504$) had highest and lowest impact over C respectively. While burden ($\lambda=0.819$) had highest and lowest impact over B respectively. Students had positive viewpoints to EAs, but they had some barriers such as lacking time and curriculum.

Discussion and Conclusions: Pre-medical students had positive viewpoints to EAs. EAs could improve their skills including communication and time management, and their CV. Regarding barrier, the curriculum should be loosened for other activities.

Take home message: To maintain this perspective, the college should allocate time in curriculum for EAs.

PERSPECTIVES AND CONFIDENCE OF MEDICAL STUDENT TOWARD TELEMEDICINE IN DISRUPTIVE ERA

Nattapong Hongsimakul[1], Naruporn Krungkraipetch[2], Kanyakorn Siraprapapong[1], Thawanporn Chukiatchaturaporn[3], Sakarn Charoensakulchai[4] and Anupong Kantiwong[5]*

[1] 4th year medical student at Phramongkutklao College of Medicine, [2] 5th year medical student at Phramongkutklao College of Medicine, [3] 3rd year medical student at Phramongkutklao College of Medicine, [4] Department of Parasitology, Phramongkutklao College of Medicine, [5] Department of Pharmacology, Phramongkutklao College of Medicine, 317/5 Ratchawithi Rd, Thung Phaya Thai, Ratchathewi, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: h.nattapong@pcm.ac.th

Background: COVID-19 pandemic disrupts the current form of patient care such as lock down and fear of disease at hospital. Convenience and modern care of patient emerged such as telemedicine and Metaverse. Preparing medical student for this trend is important. This research assesses the perspectives and confidence of medical student in Telemedicine.
Summary of work: This study included medical students from PCM. Two-part 5-Likert scale questionnaire was designed; perspectives toward telemedicine and confidence toward using telemedicine for case management. One-way ANOVA with post-hoc test was used for comparing perspectives and confidence toward telemedicine.
Results: 94 students enrolled. Most of them were in pre-clinical year (73.4%). There was significant different in perspectives toward telemedicine ($F=4.05, p=0.008$). Perspectives toward case management was lower than use of telemedicine for medical teaching (Mean difference=0.33, $p=0.013$) and patient convenience (Mean difference=0.29, $p=0.033$). Regarding confidence, there was no significant difference in all aspects of case management. All aspect of confidence had uniformly low mean score.
Discussion and Conclusions: The perspective of medical student about the Telemedicine is positive except for case management. However, the confidence for using Telemedicine is rather low as a cause of medical school hadn't preparing or practice medical student for Telemedicine. As a result, medical school is still lack of adaptation for disruptive era as it should be.

Take home message: Medical school choose considers practicing their students to be familiar with the use of telemedicine as the skills required for telemedicine are greater than normal health care in the past.

THE PERCEPTIONS OF iPAD-BASED EXAMINATION AMONG FIRST-YEAR MEDICAL STUDENTS

Kantawich Piyanirun[1]*, Natthanicha Rienjirote[1], Preeyapat Korrananan[1], Theerayuwat Sirirak[1], Krittapas Mathurunyanont[1], Kitchapat Ngampornchai[1], Kongpapon Jirathamthanakul[1] and Danai Wangsaturaka[2]

[1] C/O Student Affairs, [2] Department of Pharmacology, The Faculty of Medicine Chulalongkorn University, 1873 Rama IV Road, Pathumwan, Bangkok, 10330, Thailand.
*Corresponding Author's E-mail: kantawich_p@docchula.com

Background: The iPad-based examination is a new experience for first-year Chulalongkorn medical students. Due to the pandemic, remote iPad-based examinations were conducted alongside on-site examinations. This study aimed to obtain student feedback regarding the iPad-based examination after 8 examinations during the first semester.

Summary of work: The student engagement team developed a 10-item questionnaire based on feedback received. An online survey was launched to 305 first-year students after the final examinations.

Results: The response rate was 58.7% (179/305). Seventy percent of the respondents were confident with examination invigilators with no statistically significant difference between on-site test-takers, remote test-takers and students who took both types (p=0.173). Most participants (84.5%) believed that invigilators maintained a similar standard. Approximately one-third of respondents faced problems that required communication with invigilators, 78.8% of whom agreed that communication was effective. The average satisfaction on the examination application is 7.3±1.3. Of the 8 current features, bookmarking and handwriting received the highest (4.4±1.1) and the lowest scores (1.9±1.5), respectively. Among four features that should be added, palm rejection was the most preferred (4.3±1.4).

Discussion and Conclusions: Generally, the iPad-based examination was well-received among first-year students. This might be because of students' familiarity with the iPad; the availability of mock exams; the examination system and regulations originally co-developed by the student engagement team; and the continuous improvement based on student feedback.

Take home message: Remote and on-site iPad-based examinations can be simultaneously implemented efficiently. Student-teacher collaboration to improve the examination system is very beneficial.

DEFINING THE FUTURE OF MEDICAL SCHOOL: VISION AND STRATEGIES FROM MULTI-STAKEHOLDER PERSPECTIVES

Peerasit Sitthirat[1]*, Setthanan Jarukasemkit[1] and Phanuwich Kaewkamjonchai[2]

[1] Medical Student, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, 10400, Thailand.
[2] Ramathibodi Medical School, Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Samut Prakan, 10540, Thailand.
*Corresponding Author's E-mail: peerasit.sit@student.mahidol.ac.th

Background: In the 21st century, we have faced changes in health system due to shifting paradigm from acute care to chronic care or disruption from the pandemic. It is undeniable that medical education also plays a role parallel with the health system as a supply unit that exports health personnel to respond to any health needs. To create future education system, perspectives about changes in medical school should be explored and develop a comprehensive concept for further development in medical school.

Summary of work: We applied a qualitative method by arranging one day workshop consisting of 3 key group activities including knowledge sharing session, brainstorming for common vision establishment and visualization of each theme. Later, we performed qualitative data analysis.

Results: There are 67 participants including medical students (n=19), resident/fellow (n=13), medical educators (n=15), and school executives (n=19). During the session, we synthesized the vision for the next 10 years - "Medical school that co-designs and delivers high-value personalized education" with another three major strategies of medical school: (1) Medical School as Safe Space, (2) Value-based Education, (3) Personalized Education and Multidisciplinary.

Discussion and Conclusions: In this workshop, we applied knowledge sharing and design thinking as a core of activities and engage all stakeholders in medical school. From these processes, we can explore insights of each participant and collect individual needs to establish a common vision and strategies. Therefore, we recommend this set of process to be integrated in curriculum and school revision cycle.

Take home message: Shared vision should be formulated from multi-stakeholders' perspective, not only just group of executives.

SATISFACTION WITH AN ANTENATAL DIAGNOSIS OF PLACENTA ACRETA SPECTRUM (PAS) DISORDER ONLINE RESIDENCY TRAINING PROGRAM IN A TERTIARY REFERRAL CENTER DURING COVID SITUATION

Savitree Pranpanus[1]*, Pattharapa Watcharasin[1],
Ruedeekorn Suwannanon[2] and Songyos Rajborirug[3]

[1] Department of Obstetrics and Gynecology, [2] Department of Radiology, Faculty of Medicine, Prince of Songkla University, [3] Epidemiology Unit, Faculty of Medicine, Prince of Songkla University, 15 Karnjanavanich Road, Hat Yai, Songkhla, 90110, Thailand.
*Corresponding Author's E-mail: savitree.p@psu.ac.th

Background: Placenta accreta spectrum (PAS) disorder can cause massive hemorrhage and even maternal death, which is a serious concern in this era of increasing cesarean delivery rate. We developed an online training program for OB-GYN and Radiology residents and then evaluated the satisfaction of the participants with the online training program before making it widely available.

Summary of work: Sixty 1st-3rd year residents studying in OG-BYN or Radiology at Songklanagarind Hospital participated in an 8-week training program between September-October 2020. At the end of the program, they were asked to complete questionnaires including closed-and open-ended questions assessing their satisfaction with the program. Descriptive analysis was used for analysis.

Results: The overall satisfaction with the online training program was 73.3%. The highest area of satisfaction in knowledge gained after the program, at 86.7%, while the lowest satisfaction score was the duration of the program at 61.7%, and the satisfaction with the online program format was 81.6%.

Discussion and Conclusions: The online training program was useful for learning antenatal diagnosis of PAS and the participants showed high satisfaction with the online training platform during the COVID situation when onsite training was unavailable. However, there was some dissatisfaction concerning the long period of training and high number of exercises.

Take home message: An online training program for learning antenatal diagnosis of PAS showed high satisfaction among the trainees and can be included in residency training or post-graduation programs which anyone can easily access free of charge.

PREPAREDNESS FOR FRONTIERS PHYSICIANS IN COVID-19 COMMUNITY TRANSMISSION: A SIMULATED FIELD TRAINING

Kanlaya Jongcherdchootrakul[1] and Ram Rangsin[2]

[1] Department of Military and Community Medicine, Phramongkutklao College of Medicine,
[2] Phramongkutklao College of Medicine, 317 Rajavithi road, Thung Phaya Thai, Ratchathewi, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: kanpcm@gmail.com

Background: In 2020, pandemic COVID-19 affected people and caused huge burden on health worldwide. Medical frontiers are key persons for the disease prevention and controls. Therefore, concepts and experiences of disease prevention and controls in hospital and community settings will encourage confident of our graduates to deal with the real-life COVID-19 outbreak.

Summary of work: Our 6th medical students attended an annually Military Contingency Medicine and 72-hours Petcharavut operation that aim to improve their capacity of working in limited resources situation. We conducted an interactive lecture which summarized basic concepts of COVID-19 containment, experiences from the previous outbreaks and incident command system for COVID-19. The students did the group presentation on the management of COVID-19 community transmission in hospital setting. They had experience of wearing personal protection equipment under supervision of infectious control nurses. In the operation, they practiced on a simulated scenario of a community hospital with local transmission of COVID-19.

Results: The interactive lecture, group presentation and practice received 76.7%, 77.3% and 76.1% of full score in overall. In field practice, the students had issues on incident command system, infectious control system and the disease prevention and control process.

Discussion and Conclusions: This course is useful for our graduates who are the frontiers of upcoming emerging diseases. The rehearsal of the field practice should be hold to improve their understanding of the scenario.

Take home message: Experience of dealing with emerging diseases is essential for physicians who are the team leaders in hospitals and members of their families.

PREDICTIVE VALUE OF ENTRY QUALIFICATION AND ENTRY CGPA SCORES ON UNDERGRADUATE MBBS STUDENTS' PERFORMANCE IN A PRIVATE MALAYSIAN MEDICAL INSTITUTION

Su-Yin Lim, Yin Sear Lim, Pwint Phyu Khine, Ganesh Ramachandran, Bin Seng Low[1], Keng Yin Loh[1] and Prabal Bhargava*

Affiliation: School of Medicine, Faculty of Health and Medical Sciences, Taylor's University, No. 1 Jalan Taylors, Subang Jaya, Selangor, 47500, Malaysia.
*Corresponding Author's E-mail: Prabal.Bhargava@taylors.edu.my

Background: Pre-university grade point average (GPA) is often used to predict performance in medical school. However, there is a lack of studies on its predictive value when comparing candidates from a wide variety of entry programmes. Moreover, it is unclear if the type of entry programme/qualification would impact on medical school performance.

Summary of work: Entry grades from 194 recent medical graduates from our institution were converted to the equivalent standard 4-point cumulative (cGPA) score. Linear regression was used to assess the predictive value of the students' entry qualification and entry cGPA score separately on their performance in a major pre-clinical exam (PE1) and final-year clinical exam (PE2).

Results: Entry qualification type accounted for 14.7% of the variation in PE1 grade and 9.9% of the variation in PE2 grade ($p<0.001$). Converted entry cGPA scores accounted for 9.8% of the variation in PE1 grade and 7.5% of the variation in PE2 grade ($p<0.001$). Out of the eight entry programmes included, A-level students had the second lowest cGPA scores but outperformed students from all other programmes.

Discussion and Conclusions: We observed a relationship between entry qualification type and academic performance in medical school. The predictive value of cGPA was relatively low in our cohort, most likely due to the different assessment scales used by each programme.

Take home message: Entry qualification type should be considered when selecting students from a variety of entry programmes. Each medical school should assess the predictive value of their admissions selection criteria.

DEVELOPMENT OF A SIXTH-YEAR MEDICAL STUDENT ASSESSMENT TOOL TO EVALUATE AMBULATORY CARE FOR PATIENTS WITH HYPERTENSION

Teeraboon Lertwanichwattana[1]*, Ram Rangsin[1],
Sakarn Charoensakulchai[2] and Anupong Kantiwong[3]

[1] Department of Military and Community Medicine, [2] Department of Parasitology,
[3] Department of Pharmacology, Phramongkutklao College of Medicine, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: teeraboon.l@pcm.ac.th

Background: Improvement in the quality of hypertensive care is an essential skill for young physicians, often lacking appropriate evaluation forms for promoting patient care managed by medical students in a community hospital setting. This study aimed to develop the evaluation form and determine tool quality before using it in workplace-based assessment.

Summary of work: The evaluation form comprised 18 questions. Content validity was determined and improved by three experts (cardiologists, nephrologists, and endocrinologists) Sample assessed student skills from video-recorded doctor-patient simulation Then, EFA was examined structural validity and reliability analysis was conducted. A total score was compared between 3 groups (Expert,Staff,and GP) by using one-way ANOVA for usability assessment.

Results: Forty-four physicians were participated in this research (E=3, S=15, GP=26). The coefficient alpha of Cronbach's was 0.90 indicating a high-reliability index. The evaluation form has a single dimension (the ratio of the highest Eigenvalue to the second Eigenvalue was 4.915) and together explained 46.80% of the variance. ANOVA showed that there were no different scores between groups in rating simulated doctor (ME=73.000, MS=83.467, MGP=89.423, F=2.932, p=0.065).

Discussion and Conclusions: This study illustrated a novel hypertensive care evaluation form and this tool showed that the unidimensional measurement model and meets an acceptable level of validity, reliability, and usability. In a community setting, this form may be used for multiple source assessments including staff and internists based on usability analysis.

Take home message: The hypertensive care evaluation form is indispensable to medical students. Further studies should focus on the performance of hypertensive care and feedback system in an authentic situation.

BARRIERS OF MEDICAL AND DENTAL ADMISSION INVOLVING BIOMEDICAL ADMISSIONS TEST (BMAT) IN THAILAND

Sira Pornsiriprasert[1]*, Panattaporn Tangguay[1], Pitchayapa Vichitvigrom[1], Sunita Susamakulwong[1], Peerasit Sitthirat[1] and Phanuwich Kaewkamjonchai[2]

[1] Medical Student, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, 10400, Thailand.
[2] Ramathibodi Medical School, Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Samut Prakan, 10540, Thailand.
*Corresponding Author's E-mail: sira.por@student.mahidol.edu

Background: BioMedical Admissions Test (BMAT), a standardized test with content specification under the UK National Curriculum, has been a part of numerous medical and dental school applications in Europe, Asia, including Thailand. A study by Cambridge Assessment verified the fairness of the test in the UK. However, no study has been done to investigate whether such applies to Thailand. Therefore, this study explored the underlying barriers in BMAT preparation for Thai students.

Summary of work: A cross-sectional quantitative survey was conducted. The respondents voluntarily provided us with the BMAT scores they received in 2021 and a self-assessment of information, geographical, financial, language barriers, and time constraints.

Results: Responses from 84 Thai student samples from 30 provinces who use BMAT scores for admission are reported, where 77 (92%) are most interested in applying to medical school, and 7 (8%) in applying to dental school. Eighty of the respondents (95%) experienced at least one type of barrier, where 68 (81%) experienced information barriers, 68 (81%) experienced time constraints, 58 (69%) experienced financial barriers to accessing resources, 58 (69%) experienced language barriers, and 44 (52%) experienced geographical barriers. More samples are needed to conclude the correlation between these barriers and BMAT scores.

Discussion and Conclusions: The study shows concerns about the equity of using BMAT for admission as it presents several barriers within the context of Thailand. Compared to the UK, the difference in curriculum and context could be the cause of these barriers. Thus, these barriers should be considered as they may be confounding factors in applicant assessment.

STUDENTS' REFLECTION ON LONGITUDINAL INTEGRATED CLERSHIP (LIC): EXPERIENCE OF YALA HOSPITAL AND RURAL HOSPITALS NETWORK

Damrong Waealee[1]*, Nasriya Chalong[1], Puchong Wonghirunrush[2], Hares Yanya[3], Hamzah Kaday[4] and Sudarat Poonsil[5]

[1] Yala Regional Hospital, Yala, 95000, Thailand.
[2] Takbai Hospital, Takbai, Narathiwat, 96110, Thailand.
[3] Khokpoh Hospital, Khokpoh, Pattani, 94180, Thailand.
[4] Yaha Crown Prince Hospital, Yaha, Yala, 95120, Thailand.
[5] Raman Hospital, Raman, Yala, 95140, Thailand.
*Corresponding Author's E-mail: damrong262@hotmail.com

Background: To overcome the shortage of rural doctors, longitudinal placements rather than short-term rotations in rural hospitals will provide opportunities for student learning in relation to real life health care system. This study is to explore students' perception and reflection on effectiveness and satisfaction of LIC.

Summary of work: LIC was designed for clinical students of Collaborative Project to Increase Production of Rural Doctor at Prince of Songkla University, using Yala Hospital and 4 rural hospitals. The 5-scale Likert-type questionnaire and focus group were used to compare the 4th year students' opinion and reflection between the first (2019) and the second (2020) batches.

Results: Eighteen of 20 students of 2019 and 16/19 students of 2020 participated this study. Cronbach's coefficient of 30-item questionnaire was .905. The second batch students agreed more significantly ($p<0.05$) than the first batch on preparation before rural placement, clinical skills achievement, satisfaction on tele-consultation, formative assessment and feedback. They also felt more satisfied, more confident and happier in LIC learning ($p<0.05$).

Discussion and Conclusions: Helping students understand the pedagogy and anticipated benefits of LIC, preparing them, appropriate roles of clinical preceptors including monitoring student progress and giving feedback, using technology advantages, maximize learning and wellness during their clerkship will give more satisfaction on LIC.

Take home message: LIC is a curricular structure for extended clinical clerkships in rural hospital environments and experiences. Appropriate student orientation and preparation, continuing formative assessment and supervision, collaboration and administration will give a better result and growth mindset.

IMPLEMENTATION OF POINT OF CARE ULTRASOUND CURRICULUM IN AN ANESTHESIOLOGY RESIDENCY PROGRAM

Authors: Elaine Kerr, Tatsiana Kryvitskaya, Jennifer Bromwell, Peggy White, Nelson N Algarra

References: T. Jared McCormick, Elizabeth Clarke Miller, Robert Chen, Viren N. Naik. Acquiring and maintaining point-of-care ultrasound (POCUS) competence for anesthesiologists. Can J Anesth/J Can Anesth (2018) 65:427-436. M.J. Blans, M.E.J. Pijl, J.M. van de Water, H.J. Poppe, F.H. Bosch. The implementation of POCUS and POCUS training for residents: the Rijnstate approach. The Netherlands Journal of Medicine (4/2020), Vol. 78, No. 3, 116-124.

Introduction: Point of Care Ultrasound (POCUS) has become the standard of care for many procedures commonly performed in anesthesiology. The use of POCUS has expanded to include clinical evaluations that can be diagnostic or provide useful information for guiding therapy. In response to the growing applications for ultrasound studies, the ACGME has acknowledged the need for POCUS training and testing by incorporating this skillset into required curriculums and standardized testing. The goal of this study is to describe the process of implementing a POCUS curriculum and to highlight rotation quality by measurable improvement in POCUS performance at an Anesthesiology residency program at a large academic institution.

Methods: A Plan, Do, Study, Act (PDSA) Cycle was used as the model for initial POCUS curriculum implementation. The study population consisted of anesthesiology residents. The beginning stages of curriculum development was limited to CA-3 residents rotating individually for one-week periods. During this time, they received one-on-one clinical and didactic instruction from faculty and the opportunity to further develop their skillset and confidence through multiple practice exams on volunteer patients. Resident performance was evaluated weekly based on time spent working through POCUS online modules, pre- and post-test performance, and detailed feedback in the form of pre- and post-rotation survey followed by an open discussion about the rotation strengths and weaknesses. Although this was not an initial rotation requirement, residents were also encouraged to keep record of the number of scans completed while on rotation.

Results: The primary outcome measures of our study include the pre and post-test assessment scores, time spent on each assessment, in addition to fine-tuning the curriculum based on PDSA cycles and feedback from residents who have participated in the rotation. In addition, we will employ analysis of POCUS based ITE questions as a marker for longitudinal improvement in POCUS knowledge as the curriculum becomes more established within our residency program.

Conclusions: Our study will show the feasibility with incorporation of a successful POCUS training and educational program at a large academic institution. We utilized multiple adult learning theories such as flipped classroom with on-line modules, traditional in-person lectures and hands on faculty led ultrasound clinical skills sessions. In the process so far, we were able to identify several areas for improvement crucial to long term success of the program. Identification of a faculty group who had the expertise, training and time to dedicate towards the rotation was our priority. Faculty were divided into groups of experts and core faculty. We were able to draw from our large group of board certified (NBE), fellowship trained critical care medicine (emergency medicine and anesthesiology trained), cardiothoracic and acute pain faculty to serve as our experts. A second group considered core faculty were actively working towards the ASA POCUS certification. An area of future development will include maintenance of expertise through a combination of POCUS CME, minimum number of personally performed examinations per year and a method of maintaining quality assurance. Identifying the number of ultrasound images/interpretations each resident should complete/log in each POCUS area remains a grey area. There currently is no minimum number needed for successful completion of anesthesiology residency by the ACGME.

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HOW WELL DO MEDICAL SCHOOLS PREPARE THEIR GRADUATES FOR INTERNSHIP

Sakarn Chareonsakulchai[1] and Anupong Kantiwong[2,3]

[1] Department of Parasitology, [2] Department of Pharmacology, Phramongkutklao College of Medicine,
[3] Medical Education Unit, Phramongkutklao College of Medicine, 317/5 Rajawithee Road,
Thung Phayathai Sub-District, Rajathewi District, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: anupongpcm31@gmail.com

Background: Several factors contributed to the feeling of unpreparedness among interns, which is the important step in physician's career. This study aimed to compare perspectives of these young physicians toward medical school preparation for internship.

Summary of work: This study focused on first- and second-year interns graduated from Phramongkutklao College of Medicine. The questionnaire included 5-Likert scale covering 4 perspectives toward preparation for clinical practice (clinical knowledge, medical ethics & laws, technology usage and communication skills). One-way ANOVA was used to compare all perspectives with Bonferroni test for paired comparison.

Results: From seventy-four responses, 62 were first-year interns. Interns perceived clinical knowledge preparation significantly lesser than other aspects ($F=4.106$, $p=0.007$). Paired comparison showed perspectives toward clinical knowledge preparedness was significantly lower than medical laws & ethics ($p=0.009$) and communication skills ($p=0.042$). Military and civilian interns had different perspectives on preparation for technology usage ($t=2.716$, $p=0.008$). Second-year interns had lower prepared knowledge on ethics & laws than first-year interns ($t=2.066$, $p=0.042$). Most comments orientated toward inadequate clinical practice preparation, followed by knowledge regarding public health system.

Discussion and Conclusions: It could conclude that clinical knowledge prepared for internship was still inadequate. Revision on the coverage of the current curriculum should be focused. Technology use, ethics & laws and communication skills could be reinforced for enhancement as well.

Take home message: Further exploration of knowledge should be done on factors that rendered students felt unprepared especially among externs. Also, studies on preparation of public health system for internship are recommended.

THE COMPARISON OF SATISFACTION OF THE 5TH YEAR MEDICAL STUDENT ON ORTHOPEDIC TOPICS BETWEEN STUDYING FROM LEARNING MANAGEMENT SYSTEM AND FROM LIVE INTERACTIVE ONLINE CLASSES

Suriya Luenam* and Arkaphat Kosiyatrakul

Department of orthopedic surgery, Phramongkutklao college of medicine,
317 Ratchawithi Rd, Khwaeng Thung Phaya Thai, Ratchathewi, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: Luenam_Suriya@yahoo.com

Background: During the classroom closures as part of measures to control the spread of Covid-19, Department of orthopedic surgery of Phramongkutklao college of medicine has changed the learning teaching method to be completely online. The object of this study is to compare the students' satisfaction between the different online teaching methods.

Summary of work: The 5th year Medical students on 1-week orthopedic rotation had studied topics from learning management system (Modular Object Oriented Dynamic Learning Environment (Moodle)) and from live interactive online classes (Zoom Video Communication). Comparison between both methods was performed using satisfaction questionnaire and comments.

Results: Eighty-two medical students were participated in this study. Seventy-one percent prefers live interactive online classes while 29 percent prefers studying from the learning management system. The majority rated a good level of satisfaction with online live teaching and a fair level of satisfaction with studying through learning management system, accounted, respectively, for 50% and 37.8% of medical students. The main reason to choose live interactive online classes is the ability to stimulate and attract attention from interaction with the teacher whereas the repeatability is the most important reason to select the learning management system.

Discussion and Conclusions: The different online teaching methods of orthopedic topic during the Covid-19 outbreak provide the different students' satisfaction. Studying from live interactive online classes was preferable than from learning management system. The additional study should focus on comparison of the learning achievement between both methods.

Take home message: The different online teaching methods affect students' satisfaction.

HOW TO IMPROVE LEARNING ACHIEVEMENT OF MEDICAL STUDENTS REGARDING INTERPRETATION OF HEMATOLOGY SLIDES

Apichai Leelasiri[1]*, Roger Timothy Callaghan[1] and Sakarn Charoensakulchai[2]

[1] School of Medicine, Mae Fah Luang University, Chiang Rai, 57100, Thailand.
[2] Department of Parasitology, Phramongkutklao College of Medicine, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: apichai.lee@mfu.ac.th

Background: It is essential that Thai medical students learn how to interpret abnormalities of red blood cells, white blood cells and platelets from peripheral blood smears and also make basic diagnosis of the common hematologic diseases in Thailand. Because of time constraints, high student to teacher ratios, there is a particular need to trial various teaching methods, in order to improve learning outcomes, in relation to the ability of the students to correctly interpret hematology slides.

Summary of work: The author would like to know the efficiency of different learning methods by using an immediate answer feedback following each quiz of peripheral blood hematology slides. With this method, the author would like to measure the progress of the medical students by comparing scores from the tests. Two days after self-study on the paper "how to interpret a peripheral blood smear", the medical teacher presented the first session, called demonstration slides. This was conducted in an OSCE-examination style, immediately after the demonstration test, the answers were sent via Google classroom. In the afternoon of the same day, the teacher conducted a second quiz, and scores were collected from each student. One week later, at the time of final examination was done. The teacher then compared the scores from this last test to the second test one way ANOVA test was used for analyzing mean differences between tests with p-value <0.05 at 95% confidential interval (CI) was considered to be significant.

Results: There were 32 medical students in the class. Thirty of 32 students (93.8%) showed improved scores from the first to the second test. Thirty of 32 students (93.8%) had improvement from the second test to the final examination. Mean points + S.D. scores from the first test were 2.33 ± 0.97 compared to 4.33 ± 0.97 in the second test and 6.07 ± 0.81 in the final examination. All 32 students achieved significantly improved scores ($p<0.001$) from the first to the final test, confirming increased learning achievement.

Discussion and Conclusions: The examination-based teaching was shown to be an effective way to improve the learning of hematology slides. This teaching concept was stimulating, consumed less time, was cost-effective, had no requirement for high technology equipment and the students were able to learn about many diseases at the same time.

Take home message: Examination-based teaching and immediate feedback of answers has proved to be an interesting and effective method for teaching medical students on how to interpret hematology slides.

FACTORS INFLUENCING CAREER PATH DECISIONS OF INTERNAL MEDICINE RESIDENCY GRADUATES

Naowanit Nata*, Chantrapa Sriswasdi and Amnart Chaiprasert

Department of Internal Medicine, Phramongkutklao Hospital and College of Medicine, Bangkok, Thailand.
*Corresponding Author's E-mail: naowanitnata2017@gmail.com

Background: Graduates from internal medicine residency program may work as internists or continue their studies in subspecialty fellowship program. Choosing the right career path is critical and there are several factors involving in decision making.

Summary of work: The study was conducted in graduates from Phramongkutklao Internal Medicine Residency Program between 2016-2018. Demographic data were collected including grade point average (GPA), field of subspecialty electives and research work during training, subspecialty of the consultant, in-training summative scores, the Royal College of Physicians of Thailand (RCPT) formative and summative scores.

Summary of results: There were 107 graduates in the program during study period. Majority (83, 77.6%) opted to undertake fellowship training after graduation while the rest (24, 22.4%) pursued internal medicine practice. Mean±SD of GPA and in-training summative scores in the fellowship group were significantly higher than the internist group; 3.39±0.28 vs 3.26±0.20 and 62.4±7.7 vs 57.8±8.5, respectively. In the multivariate analysis; factors associated with entering fellowship program were GPA (OR 12.3, 95% CI 1.3-121.8; p=0.03) and in-training summative scores (OR 1.07, 95% CI 1.00-1.15; p=0.04). In the fellowship group, factor influencing their subspecialty choices was the division which their RCPT summative scores were in the upper range.

Discussion and Conclusions: Factors associated with entering the fellowship training were GPA and in-training summative scores; while field of subspecialty electives and research work during training, RCPT formative and summative scores were not. Choosing career path of subspecialty influenced by the division that graduates' RCPT summative scores were in the upper range. Subspecialty of the consultant, field of electives and research work during training had no impact on their choices of subspecialty.

Take home message: Most of internal medicine graduates pursue subspecialty training. Graduate's GPA and in-training performance affect the decision to continue study in fellowship program. Choosing career path in subspecialty is influenced by the knowledge competency in that field during residency training.

DIVISION COMPETENCY AFFECTING INTERNAL MEDICINE RESIDENCY KNOWLEDGE

Naowanit Nata*, Chantrapa Sriswasdi and Amnart Chaiprasert

Department of Internal Medicine, Phramongkutklao Hospital and College of Medicine, Bangkok, Thailand.
*Corresponding Author's E-mail: naowanitnata2017@gmail.com

Background: Several factors can affect medical knowledge acquisition during residency training such as trainee factors, training program, department and division competencies.
Summary of work: The study was conducted at Phramongkutklao Hospital and College of Medicine between 2018-2019. Division factors and related data including individual division summative broad multiple-choice questions (MCQ) scores by the Royal College of Physicians of Thailand (RCPT) were analyzed. We categorized 13 divisions (Allergy & Immunology, Cardiology, Dermatology, Endocrinology, Gastroenterology, Hematology, Infectious Disease, Nephrology, Neurology, Nutrition, Oncology, Pulmonary & Critical Care Medicine, and Rheumatology) into two groups. Group 1 consisted of 7 divisions which residents achieved summative broad scores above the average of RCPT and group 2 consisted of 6 divisions which scores were equal or under the average.
Summary of results: Number of fellows in each division and number of division researches done by residents in group 1 were significantly higher than group 2; mean$\pm$SD of 5.86$\pm$3.18 vs 2.00$\pm$0.63 and 12.14$\pm$10.39 vs 3.67$\pm$2.66, respectively. Number of staff in each division and number of elective residents per year from other hospitals tended to be higher in group 1 than group 2; 6.43$\pm$4.17 vs 4.17$\pm$0.75 and 51.71$\pm$32.24 vs 20.33$\pm$16.00, respectively. In multivariate analysis; factors associated with summative board scores above the average of RCPT were number of fellows in the division (OR 5.63, 95% CI 1.03-6.78, p=0.02) and number of division researches done by residents (OR 3.29, 95% CI 1.18-18.1, p=0.02).
Discussion and Conclusions: Number of fellows in division and number of division researches done by residents can predict high national broad examination score. This may reflect the impact of division academic activities. Other division factors such as number of staff in each division, number of elective residents from other hospitals, training scores and consultation round scores evaluated by residents, number of out-patients and in-patient division consultation, were not the predicting factors.

Take home message: Some of division competencies affect knowledge acquisition during internal medicine residency training.

ARE SUBSPECIALTY DOCTORS REQUIRED TO EVALUATE THE QUALITY OF MEDICAL RECORD WRITING OF MEDICAL STUDENTS?

Pongthorn Narongroeknawin*, Amnart Chaiprasert, Sirirat Saran and Chantrapa Srisawad

Department of Internal Medicine, Phramongkutklao College of Medicine, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: npongthorn@pcm.ac.th

Background: During internal medicine (IM) rotation of the fourth-year medical cadets, their medical records (MR) is evaluated by either IM subspecialties (sIM) or general IM (gIM) educators. However, changes in complexity of care occur so rapidly. This raises the question of whether evaluators' subspecialty should be matched with the content of MR.
Summary of work: Each of medical cadets' MR was evaluated by 2 educators, a matched sIM and unmatched gIM educators. A questionnaire asking for the quality of feedback was sent to the students. The time used and score of each MR evaluated by sIM and gIM educators were compared.
Summary of results: Forty educators and 39 students participated in the study. Sixty-seven percent of students and 57% of educators preferred matched sIM educators' evaluation because they believed that sIM educators provide more updated information than gIM educators. However, self-assessment of the information gained was similar. The score and time used for evaluating the MR were not different. In the multiple linear regression analysis of factors affecting the score, the only associated factor was the time used for evaluating the MR (beta -0.475, p=0.008).
Discussion and Conclusions: Most educators and students favored the evaluation of MR by matched subspecialty. However, the information gained, and the score received from matched or unmatched subspecialty educators were not different. The time spent for evaluation was inversely correlated with the quality of MR not the subspecialty of educators.

Take home message: Quality of MR can be evaluated by educators without matching with their subspecialty.

RADIOLOGY EDUCATION THROUGH SIMULATION-BASED LEARNING AND DIGITAL IMAGING TECHNOLOGY

Chutcharn Kongphanich* and Supakajee Saengruang-Orn

Academic Affairs Division, Radiology Department, Phramongkutklao college of medicine Institution, 317 Ratchawithi Rd. Rajthevee, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: Chutcharn14@yahoo.com

Background: Radiology Department, Phramongkutklao College of medicine Institution, has been offering education for medical cadet and medical student for 45 Years. The radiologic education for medical student includes diagnostic radiology, radiotherapy and nuclear medicine. The aim of this subject is to let the medical student understand the theory and practice.

Summary of work: Arrange the projects in finding equipment which helps in fundamental skill of in radiographic interpretations and ultrasound skills. These projects include:

1. The Anatomage Table is the most technologically advanced 3D anatomy visualization and virtual dissection tool for anatomy and physiology education. It can demonstrate the corresponding radiologic images (CT or MRI) and digital anatomy.

2. Ultrasonography Simulator is a medical simulation training tool that enables medical students to practice diagnostic and therapeutic applications as they relate to imaging interventions. It can help medical students to gain experiences in performing ultrasound exam and also give example of general disease, which may be found in daily medical practice.

Our radiology department is in the process of providing medical workstation and Picture Archiving and Communication System: PACS. This equipment will help the medial student be familiar with the PACS system and able to use the utility well.

Results: The Anatomage table helps medical students to clearly understanding of axial, sagittal and coronal radiographic images corresponding to anatomy. Medical students are also very interested and enthusiastic in practicing with ultrasound training model/ ultrasonography simulator. They are able to apply knowledge with real patients correctly and confidently.

Discussion and Conclusions: Radiology teaching in our department has been developed continuously to increase the potential of medical students.

Take home message: By introducing the simulation-based learning to medical student, the student can get all of the knowledge and skill of radiology before encountering the patient. So the student can appreciate the importance of radiology as the eye of medicine.

RUSH HOUR TEACHING METHOD FOR UNDER EVALUATED MEDICAL STUDENTS DURING ONE WEEK BEFORE REMEDIAL EXAM THAT EFFECT THE SATISFACTION AND LEARNING BEHAVIOR

Natcha Lorsuwannarat[1]*, Supatee Kitkha[2], Malee Chanpoo[1] and Manop Chaimati[1]

[1] Department of Anatomy, Phramongkutklao College of Medicine, 315 Ratchawithi Rd., Ratchathewi, Bangkok 10400, Thailand.
[2] Independent researcher, Thailand.
*Corresponding Author's E-mail: natcha.lor@pcm.ac.th

Background: The obstacles of instructing a medical student probably come from the background knowledge, attitude and personality differences. We conducted the study to decide a proper teaching and learning methods especially in the group of students needing special attention under time-limited conditions. The learning behavior was observed by assess students' knowledge and satisfaction.

Summary of work: Thirty-eight 2nd year medical students, who do not reach the required Minimum Passing Levels (MPL) in Musculoskeletal system subject were assigned to do activities based on learning objectives. After one-week, multiple-choice test was evaluated. Then scored their satisfaction and learning experience using questionnaire. Results were analyzed using statistical analysis.

Results: Students' satisfaction related to teaching techniques ($p=0.004$). Students had higher "Like" than "Dislike" score in all techniques. Exercise-based and lecture-based learning are preferred in under evaluated students to prepare themselves during one-week before remedial examination. While case study-base learning has the lowest score. Remedial examination score of all students is higher than MPL with higher score in females ($p<0.05$).

Discussion and Conclusions: Exploring of learners' own feelings and opinion, most of students preferred the method created by the lecturer over the methods depending on student-themselves such as report and mind map. The favorite is exercise-based learning method. The teaching techniques could be beneficial support to encourage student engagement. However, the efficacy of all methods still depends on student responsibility and preparation.

Take home message: Difference personality of student require difference way to learn. Their satisfaction is important for their learning efficacy.

IMPACT OF CORONAVIRUS DISEASE 2019 (COVID-19) PANDEMIC ON INTERNAL MEDICINE RESIDENCY TRAINING PROGRAM: A SINGLE-CENTER SURVEY RESEARCH

Donlawat Saengpanit*

Nephrology Center, Department of Internal Medicine, Police General Hospital, Bangkok, Thailand.
*Corresponding Author's E-mail: donlawats@hotmail.com

Background: The COVID-19 pandemic has impacted the internal medicine residency training program. The objectives are to study the pandemic's effect on residents' mental health and internal medicine residency training program.

Summary of work: This study was single-center survey research with online questionnaires distributed among the internal medicine residents at Police General Hospital during the third wave of the pandemic. Data were collected between June 1st and June 14th of 2021. The survey requested demographic and perception of the COVID-19 situation data and information related to the anxiety using the 6-item State-Trait Anxiety Inventory (STAI-6).

Results: Responses were received from 100% of the 21 residents. The 90.5% of respondents reported moderate to severe anxiety with a mean STAI-6 score of 58.2 and a standard deviation of 11.6. There was no association between STAI-6 score and demographic data, including age, sex, seniority, and COVID-19 related workload. The residents' and their families' health was the primary anxiety source. During the outbreak surge, 70.6 percent of respondents were substantially concerned about their learning. The most significant influences on residents' learning were increased workload, the elective program cancellation, and lack of time to conduct assessment activities

Discussion and Conclusions: The impact of the COVID-19 pandemic on residents' mental health and internal medicine training program is quite concerning, so providing residents with mental support is needed.

Take home message: The COVID-19 pandemic's disruption to the residency training program cannot be underestimated. As a result, it is necessary to adapt residency training programs to account for such consequences.

SATISFACTION OF DEVELOPING MULTIPLE CHOICE QUESTIONS WORKSHOP FOR ASSESSING MEDICAL KNOWLEDGE DURING COVID-19 PANDEMIC

Pattaraporn Naknagraed[1], Kanokphol Supasirimontri[1]* and Cherdsak Iramaneerat[2]

[1] Siriraj Health Science Education Excellence Center, Faculty of Medicine Siriraj Hospital, Mahidol University, [2] Wanglang Road, Bangkoknoi, Bangkok, 10700, Thailand.
[2] Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University,
[2] Wanglang Road, Bangkoknoi, Bangkok, 10700, Thailand.
*Corresponding Author's E-mail: kanokphol.sup@mahidol.edu

Background: Siriraj Health Science Education Excellence Center (SHEE) hosted a "Developing Multiple-Choice Questions (MCQs) for assessing medical knowledge" workshop to develop quality of writing MCQs for health science educators. Objective of this study was to evaluate satisfaction this workshop during COVID-19 pandemic.

Summary of work: SHEE established the 2-day workshop during the 21st-22nd June 2021. Workshop simultaneously ran in 2 platforms, (1) interactive synchronous online session with a MCQs review session, and (2) one-way live streaming without the MCQs review session. After the workshop, participants' satisfactions were evaluated by a validated questionnaire. Participants rated their satisfactions with 5-point Likert scale in each session on the aspects including content, teaching technique, instructors' abilities to response questions, time allocation, handout, and future application. An open-ended question for additional comment was also collected.

Results: Response rate was 69.1% (85/123) including 89.7% (35/39) of participants from synchronous online group, and 59.5% (50/84) of participants from streaming group. From all the shared sessions, means of satisfactory levels from both groups were not significantly different. Furthermore, both groups demonstrated the highest satisfaction on the topic "Composing stem and options". Selected comment revealed that participants from streaming group would like to have more interaction during MCQs review session.

Discussion and Conclusions: Most participants were satisfied with this workshop, but some participants suggested some improvements. These results have guided SHEE to leverage learning experiences for further workshop.

Take home message: Both groups demonstrated the similar satisfactory levels. Participants' opinions were valuable guidance for future development.

FLIPPED CLASSROOM AND SIMULATION BASED LEARNING IN TACTICAL COMBAT CASUALTY CARE FOR ARMED FORCES HEALTH CARE STUDENTS

Phutsapong Srisawat[1]*, Kanlaya Jongcherdchootrakul[1],
Theerawut Swangvaree[2] and Nat Krairojananan[3]

[1] Department of Military and Community Medicine, Phramongkutklao College of Medicine, Bangkok, 10400, Thailand.
[2] Army Medical Field Service School, Medical Department Royal Thai Army, Bangkok, 10400, Thailand.
[3] Department of Trauma and Emergency Medicine, Phramongkutklao Hospital, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: phutsapong@pcm.ac.th

Background: Tactical combat casualty care (TCCC) is set of evidence-based medicine, best-practice guidelines for prehospital trauma life support in battlefield. The goal of TCCC are to save preventable deaths, prevent additional casualties, complete the mission. The origin of TCCC began by US Navy that spread this doctrine to worldwide in military medicine with excellent outcome by reduction of the case fatality rate. This is mandatory subject for all medical armed force personnel for readiness in military operations.

Summary of work: The annual combined military exercise, medical training is one part of exercise routinely and TCCC had been arranged for cross training. In year 2019, there were 274 healthcare students of 4th year Army/Navy/Air force Medical and Nursing Colleges attending TCCC training. The authors had set the learning experience by flipped classroom and simulation based learning. The training was divided into 3 sequential phases; self-study by e-learning platform, individual skill training by 6 rotational stations, simulated field training with practical assessment. The individual assessment had been performed by pre/post-tests by 30 multiple choice questions. The statistical analysis was performed by paired student t-test.

Results: The mean score of pre-test/post-test were 16.98 ± 4.00 and 23.15 ± 3.22 respectively with statistical significance ($p<0.05$). The mean score of practical skill assessment in field training was 92.8 +6.81. The feedback of students mostly was excellent and good satisfied overall.

Discussion and Conclusions: Military medical training is one of medical education discipline. Teaching and learning by flipped classroom and simulation are effective method in TCCC course.

Take home message: "Learning is an experience. Everything else is just information"

PHRAMONGKUTKLAO MEDICAL SCHOOL STUDENT'S PERCEPTION ON THE EFFECTIVENESS OF MENTOR'S FEEDBACK ON THEIR REFLECTIVE WRITING

Soraya Chatchawalanon*

Pediatric department, Phramongkutklao College of Medicine, 315 Ratchavithi Road, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: soraya.ch73@gmail.com

Background: Reflection and feedback are integral process for effective learning from experience. In practice, quality of the feedback varies. This study focuses on current quality of mentors' feedback in learners' perspective at Phramongkutklao College of medicine where feedback for reflection has been arranged once yearly.

Summary of work: A qualitative study has been conducted using a focus group interview. Verbatim transcription was performed, and data was analyzed using a thematic analysis.

Results: There were 15 participants, 7 in year 5 group and 8 in year 6 group. There were five themes emerged including: Time elapsed before reflective writing, Domain of feedback, Mentor's positive approach, and Mentor's feedback strategies.

Discussion and Conclusions: Effective feedback in medical students' perspective was highlighted on the importance of mentor-learners relationship as it opens the opportunity to write a reflection openly and allow specific feedback from mentors. Timing of feedback at the current situation was not support effective feedback as it was difficult to build a strong relationship and resulted in a delay of feedback which was less effective to stimulate deep learning. 'Domain of feedback' currently was emphasized on medical knowledge and learners viewed as effective feedback while there was rarely feedback regarding reflective skill. Feedback on professionalism domain was viewed as important domain, however, seem to be limited. Feedback on writing skills was seen negative. Mentor's positive approach and good feedback techniques included sharing experience within group was preferable and seen as effective strategies.

Take home message: The fundamental for feedback effectiveness on reflection is student-mentor relationship.

TEACHERS' PERSPECTIVE VERSUS LEARNERS' PERSPECTIVE ON EPAS

Pongthorn Narongroeknawin*, Thammanoon Srisaarn, and Dusit Staworn

Phramongkutklao College of Medicine, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: npongthorn@pcm.ac.th

Background: Entrustable Professional Activities (EPAs) are used for the assessment of the learners' competence development, which takes place by means of an entrustment decision, aiming to stimulate learning and independent practice in learners. Recently, EPA-based assessment has been implemented with online web application to the clerkship rotation at Phramongkutklao College of Medicine (PCM). We explore the perspective of teachers and learners on EPA-based assessment.

Summary of work: We used web-based questionnaires to evaluate teachers' and learners' perspective with the use of five EPAs at PCM. Data were analyzed quantitatively and qualitatively.

Summary of Results: A total of 41 students and 39 teachers completed the questionnaires. Majority of the students and teachers agreed that EPA-based assessment was a valid and reliable tool, provided opportunities for improving students' competency, and was essential in competency-based medical education. Four-fifth of the teachers recommended using EPAs as a formative assessment, while only half of the students concurred. However, only half of the teacher and student suggested using EPAs as a summative assessment. Approximately half of the teachers feel that EPAs increase their workload, while 78% of the students concurred. One-fifth of the teachers and one-fourth of the students advised revisiting the number and context of EPAs.

Discussion and Conclusions: During early stage of implementation, EPAs was well accepted as a feasible formative workplace-based assessment tool in our college. However, number of EPAs and instance of assessment may need to brush up.

Take home message: EPAs can be effectively introduced to clinical rotation in undergraduate medical education.

ADOPTION OF AI-CHATBOTS TO ENHANCE STUDENT LEARNING EXPERIENCE IN PRE-CLINICAL MEDICAL STUDENT IN PHRAMONGKUTKLAO COLLEGE OF MEDICINE

Piyachat Chansela[1], Thanakrit Vichasilp[2] and Jintavee Khlaisang[3]*

[1] Department of Anatomy, [2]Department of Biochemistry, Phramongkutklao College of Medicine, Bangkok, 10400, Thailand.
[3] Department of Educational Communication and Technology, Faculty of Education, Chulalongkorn University, Bangkok, 10330, Thailand.
*Corresponding Author's E-mail: jintavee.m@chula.ac.th

Background: In this disruptive technology era, the use of Artificial Intelligence (AI) in education is rapidly adopted worldwide. One of the most popular AI technologies used to support teaching and learning activities is the chatbots system. Therefore, to increase the student engagement and learning experience, the ai-chatbots is implement in pre-clinical medical students.

Summary of work: The chatbot based gamified exam management system was developed and implement to pre-clinical medical students. The quantitative data of the professional competence and digital intelligence were evaluated, including before and after using this learning innovation. The result showed that all professional competences and digital intelligence were significantly increased.

Results: All 50 pre-clinical medical students were subjected to use ai-chatbots during the period of block medical neuroscience 1 curriculum. The professional competence including ethics and moral, knowledge, cognitive skills, interpersonal skills, and numerical analysis, communication and information technology skills was increasing after applied an ai-chatbot. In addition, the digital intelligence including, digital citizen identity, privacy management, critical thinking screen time management, cyberbullying management, digital footprints, cybersecurity management and digital empathy was also increasing after applied an ai-chatbots.

Discussion and Conclusions: An ai-chatbot applications in education is the powerful tools to drawing attention, quick access, motivation, engagement, allow multiple users, and immediate assistance. This implies that the frameworks for the development and implementation of ai-chatbots, as well as the design features and contents, must be improved. It is also necessary to have well-defined rules for using chatbots that are compatible with user ethics.

Take home message: The benefits of using ai-chatbots to educator should consider the defining appropriate principles in education.

INTERNAL VERIFICATION ACTIVITY AS AN EFFECTIVE TOOL TO SUPPORT PROGRAM MONITORING AND EVALUATION: A 4-YEAR EXPERIENCE AT PHRAMONGKUTKLAO COLLEGE OF MEDICINE

Nopaorn Phavichitr[1], Ruangvith Tantibhaedhyangkul[2], Pornpattra Koochumpoo[3], Raweewan Ekgasit[3] and Dusit Staworn[4*]

[1] Department of Pediatrics, Academic Affairs Division, Phramongkutklao College of Medicine, 317/5 Ratchawithi Road, Bangkok, 10400, Thailand.
[2] Department of Pediatrics, Phramongkutklao Hospital, 315 Ratchawithi Road, Bangkok 10400, Thailand.
[3] Registration and Evaluation Department, [4] Academic Affairs Division, Phramongkutklao College of Medicine, 317/5 Ratchawithi Road, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: dusitstw@gmail.com

Background: The WFME standard for program evaluation mandates a mechanism for program monitoring and evaluation.

Summary of work: Over the past four academic years (AYs), we used the internal verification activity (IVA) to collect data for tracking alignments of teaching/learning designs and assessment tools with student learning outcomes (SLOs). The adoption of new teaching/learning methods and assessment tools in both preclerkship and clerkship courses were the focus areas. We report a 4-year experience of using IVA to support program monitoring and evaluation.

Results: Courses verified in AY 2017-21 were 49.3% (34/69), 34.8% (24/69), 27.3% (18/66) and 36.2% (25/69) of courses offered. Teaching/learning designs using active learning strategies were noted in the preclerkship courses. Course contents were aligned vertically and integrated horizontally across subjects. Horizontal integration was less evident in the clerkship years. There were good alignments of course objectives and assessment tools used. The rubric was used more often to evaluate the interpersonal skills and responsibility as well as communication skills. Mini-CEX, DOPS were used for workplace-based assessment. EPAs were introduced and used as a formative evaluation tool to monitor student progress. Criterion referenced grading was used in all courses.

Discussion and Conclusions: Although IVA is a tool used to ensure that the expected LOs and standards are understood and achieved across the institution. Our findings support the notion that IVA is an effective tool for program monitoring and evaluation as well.

Take home message: Data and information collected from internal verification activity (IVA) could support program monitoring and evaluation.

NEWLY DEVELOPED PSU INTRAOSSEOUS PUNCTURE MANIKIN

Wanaporn Anuntaseree[1]* and Sittichoke Anuntaseree[2]

[1] Deapartment of Pediatrics, [2] Innovation Unit, Faculty of Medicine, Prince of Songkla University, Songkhla, 90110, Thailand.

*Corresponding Author's E-mail: awanapor@medicine.psu.ac.th

Background: Intraosseous (IO) access is an essential procedure for medical practitioners. In our institute, each year 200 sixth-year medical students and interns are required to demonstrate proficiency in this skill. This work aimed to develop an IO manikin to allow realistic, efficient training at a reasonable cost.

Summary of work: A pediatrician/inventor team developed a manikin based on a 1-year-old infant. The leg was made from silicone and an isolated, replaceable tibial bone was made from a special material and pre-filled with a blood-like fluid. The models were tested and modified to ensure a realistic tibial tuberosity landmark, with a lifelike resistance when accessing the medullary cavity, and the presence of a blood-like fluid when drawing on a syringe. The cost was compared with 2 other commonly used manikins.

Results: Based on training 200 practitioners per year, the cost in the first year and following year were 33,525 baht ($995 USD) and 14,625 baht ($434 USD), respectively, for the new PSU IO manikin and 60,500 baht ($1,796 USD) and 50,000 baht ($1,484 USD), respectively, for the imported manikin. Other Thai disposable manikins would cost 36,000 baht ($1,070 USD) per year.

Discussion and Conclusions: A PSU IO manikin was successfully developed at a much lower cost than the imported one. The key to success in the development was good collaboration, creativity, and the application of materials science knowledge.

Take home message: High cost and unrealistic training manikins are the pain points for medical teaching. In-house development can potentially reduce these problems.

ONLINE GAME-BASED LEARNING IN IMMUNOLOGY

Sirachat Nitchaphanit, Tanit Boonsiri*, Arunee Suvarnajata, Nitchatorn Sungsirin, Pimwan Thongdee, Piyanate Kesakomol and Veerachai Watanaveeradej

Department of Microbiology, Phramongkutklao College of Medicine, 317, Rajvithi Road, Ratchathewi, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: boonsiri-t@hotmail.com

Background: Game-based learning (GBL) is one of the active learning methods which promote student engagement, motivation, and enjoyment. GBL also improves student skills including problem-solving, leadership, and interpersonal skills. In the situation of the COVID-19 pandemic, the effectiveness of online GBL in medical education is still a question.

Summary of work: Ninety-four third-year medical students attended online GBL in the immunology course in 2021 at the Phramongkutklao College of Medicine, Bangkok, Thailand. The students were divided into 2 teams and were assigned to play the online competition game using Kahoot, Microsoft PowerPoint, and ZOOM online video meeting. The game was designed in adventure and game show themes which consisted of quizzes, quests, points, ranks, leaderboard, and rewards. Knowledge and feedback were guided by class instructors during gameplay. The questionnaire survey with 5-point Likert scale was done after the course.

Results: All 94 students were voluntarily done the survey. The student engagement in the activity was 100%. The overall participant satisfaction was 87.6%. Improvement of motivation, content understanding, learning skills, relationship, and clinical knowledge were 89.8%, 87.0%, 87.0%, 91.0%, and 86.4% respectively. All answers of the open-end question revealed positive attitudes to online GBL.

Discussion and Conclusions: Online GBL was successful in immunology learning improvement. GBL in medical education can be applied to an online setting. Preparation and process for this learning method might take a longer time and more resources than a traditional lecture.

Take home message: Online GBL is an effective way in medical education.

THE IN-HOUSE NASAL FOREIGN BODY REMOVAL MANIKIN FOR TRAINING

Pittayapon Pitathawatchai[1]* and Sittichoke Anuntaseree[2]

[1] Department of Otolaryngology Head & Neck Surgery,
[2] Department of Orthopedics, Faculty of Medicine, Prince of Songkla University, Hatyai, Thailand.
*Corresponding Author's E-mail: pittayapon_p@hotmail.com

Background: Two barriers were encountered to upskill medical students for a nasal foreign body removal. Firstly, medical students should not perform such procedure in real or simulated patients to avoid life-threatening foreign body aspiration during training. Secondly, a commercial manikin was expensive, and did not serve the actual needs of end users.

Summary of work: The problems of a commercial manikin were discussed with an otolaryngologist. All material for manikin development was selected to ensure its functionality and elasticity similar to the real nose. The prototype was created and redesigned based on otolaryngologists' feedbacks. The finished prototype was then implemented in a routine class to ensure its functionality.

Results: The main problems with a commercial manikin were its structure not similar to human anatomy and easily torn nasal alae requiring immediate repair by a manufacturer which was unavailable during training.

Silicone was selected for the in-house manikin. The finished prototype was finally designed with the detachable nose and nasal cavity.

Discussion and Conclusions: The in-house manikin was developed from a silicone which has elasticity similar to the nose. The specially designed detachable nose was created in order to allow medical students to completely check the position of foreign bodies, and also to replace torn nasal alae with spare items any time during training. Therefore, this specific design of the in-house manikin could enhance the learning experience of medical students.

Take home message: The in-house manikin with a specific design could be devised to ensure medical students' proficiency in future practice.

FACILITATORS AND BARRIERS OF EXTRA-CURRICULUM RESEARCH AMONG UNDERGRADUATE MEDICAL STUDENTS IN THAILAND: THE STUDENT PERSPECTIVE FOR MEDICAL EDUCATION 2020

Phunlerd Piyaraj*, Sakarn Charoensakulchai and Mathirut Mungthin

Department of Parasitology, Phramongkutklao College of Medicine, 317/5 Rajawithee Road, Thung Phayathai Sub-District, Rajathewi District, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: p_phunlerd@yahoo.com

Background: Undergraduate research in medicine is important to expose and encourage the students towards the newer advances and research practices. The study aimed to assess the perception of medical students towards doing extra-curriculum research and identifying the facilitators and barriers.

Summary of work: This cross-sectional study was conducted among 1st-6th years medical students at PCM. Online survey was designed to assess demographic data, perceptions, facilitators, and barriers towards extra-curriculum research activity. Data were analyzed using STATA 14.

Summary of result: Of all responses, 15.0% had done extra-curriculum research while 60% expressed their interest in participating in research. The barriers were as followed; curriculum overload (51.4%), time constrain (47.1%), inadequate training/opportunities in research (46.1%), lack of interest in research experience (40.3%), lack of mentor guidance and cooperation (29.4%) and lack of motivation (27.4%). According to the students, perceived facilitators included focus on pursuing higher degrees (52.9%), improving potential in research skills (28.8%) and having mentor guidance (27.2%).

Discussion and Conclusions: Thai medical students showed a significant interest in research, with a majority of the students planning to participate in extracurricular research activities during studying in the medical school, and having enthusiasm to be involved in research throughout their medical careers. Important issues have addressed which must be countered for barriers or encouraged regarding facilitators.

Take home message: Medical education policies should aim to counteract the facilitators and barriers identified in this study to develop medical curriculum which is able to encourage medical students to put more enthusiastic about getting involved in research.

REFORMING STAFFS AND STUDENTS' ENGAGEMENT THROUH MONTHLY "ACADEMED TALK"

Kasemsri Srisupundit*, Prapaporn Suprasert, Jeeranan Khunachiva, Ekarat Rattarittamrong, Thanyaluck Phitak, Wariya Sukhupragarn, Puongtip Kunanusorn and Parameth Thiennimitr

The AcadeMED+ team of Faculty of Medicine, Chiang Mai University, 110 Intawaroros Road, Chiang Mai, 50200, Thailand.
*Corresponding Author's E-mail: kasemsri.s@cmu.ac.th

Background: "Medical learning reform" is the strategic objective of our faculty. Therefore, engagement is the key to success. Extracurricular activities that create comfortable space to express opinions may relieve stress and improve the engagement.

Summary of work: The "AcadeMED Talk" was organized monthly via Zoom application on every third Saturday from 8.00-10.00 pm. The topics were relevant in medical education, the speakers varied including staff, students, and personnel. All participants were invited to give feedback via google form after each session.

Results: The AcadeMED talk was conducted in seven episodes since June-December 2021. The topics included no pain no gain, characteristics of good teachers and students, online learning, techniques for writing medical report, sexual harassment, stress management activities, and strategic plan of AcadeMED+, respectively. The total invited speakers were 42, consists of 23 staffs, 15 students, and four personnel. The participants varied between 60-260 people. Although the response rate of evaluation was <50% but >80% of the participants had high level of satisfaction.

Discussion and Conclusions: This was the first time that regular online talk in medical education was organized. Also, all personnel were invited and can have open discussion. Even though, the participants were too few in some episodes, the satisfaction are significantly high, which represent the meaningful engagement. However, there are opportunities for improvement, such as, choosing attractive topics, encouraging more participation, and obtaining higher rate of feedback.

Take home message: The "AcadeMED talk" can improve engagement and encourage good relationship between staffs and students.

VIRTUAL LABORATORY LEARNING IN MICROBIOLOGY DURING COVID-19 PANDEMIC

Arunee Suvarnajata, Tanit Boonsiri*, Nitchatorn Sungsirin, Sirachat Nitchapanit, Piyanate Kesakomol, Pimwan Thongdee, Ketsara Khamsaen, Phattarawadee Nilphet, and Veerachai Watanaveeradej

Department of Microbiology, Phramongkutklao College of Medicine, 317 Rajvithi Road, Ratchathewi, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: boonsiri-t@hotmail.com

Background: Laboratory integrated-case based learning (LI-CBL) in an infectious disease course of a pre-clinical curriculum in 2021 was compelled to convert into online due to COVID-19 pandemic. Missing of traditional laboratory practices in LI-CBL can cause insufficiency of psychomotor skills in medical students. To solve this problem, virtual laboratory learning has been developed to contribute laboratory practices through online learning.

Summary of work: Virtual laboratory learning based on laboratory demonstration was applied via 3 platforms including live-streaming, VDO recording and VDO clip from online public. To explore satisfaction, triangulation design mixed method was performed via questionnaire and focus group discussion as quantitative and qualitative study respectively. Summative score assortment was used to divide medical students into 5 groups and each student (randomly selected) was interviewed by non-influencer in this course.

Results: Total of 92 students (97.9%) responded the questionnaire with scores as excellent and good with more than 80% for all topics. In addition, focus group discussion of 60 (65.2%) medical students revealed this learning can enhance realistic, understanding, illustrating the process of laboratory diagnosis for clinical cases especially live-streaming platform.

Discussion and Conclusions: Virtual laboratory learning can improve understanding and learning motivation. However, medical students still had intention to perform hands-on laboratory practices such as gram staining, acid-fast staining, and microscopic examination.

Take home message: Virtual laboratory learning is useful in laboratory learning during COVID-19 pandemic.

OPINIONS AND APPLICATION TOWARD TEAM BASED LEARNING OF THE SECOND YEAR MEDICAL STUDENTS, FACULTY OF MEDICINE, KHON KAEN UNIVERSITY

Kanyapat Phonang[1], Puangpayom Kaewpila[1], Isaraporn Thepwongsa[2] and Kamonwan Jenwitheesuk[3]

[1] Academic Services Division Faculty of Medicine, [2] Department of Community Medicine, [3] Department of Surgery Faculty of Medicine, Khon Kaen University, Prince of Songkla University, Songkhla, 90110, Thailand.

Background: In the 2019 academic year, team-based learning (TBL) was adopted into the medical curriculum of the Faculty of Medicine, Khon Kaen University. The present study collected data on students' opinions and applications on TBL from the second-year medical students during the 2021 academic year. The aim was to use the study results to develop and improve the instructions to match with students' needs and interests in order to achieve maximum efficiency and benefits for the learners.

Methods: The present study was a descriptive study. One hundred and forty-three of the second-year medical students during the 2021 academic year were purposively sampled. Online questionnaires were used for data collection. Data analysis was performed as described using frequency, percentage, mean, and standard deviation.

Results: The results showed that, in terms of students' opinions on the learning process, the students agreed with the learning method (4.17±0.44), with the content and teachers (4.16±0.51), and with the supporting elements (4.33±0.67). The students also moderately agreed with the session lengths (3.87±0.64). In the big picture, learners agreed with TBL (4.31±0.86). Learners also responded that

TBL allowed them to understand the lectures better and could see the big picture better (n = 136, 95.1%), that they could think and analyze problems better (n=120, 83.9%), and that they could answer the multiple-choice questions better (n=118, 79.7%).

Conclusions: The learners agreed with the learning method of TBL, TBL allowed them to understand the program content and the big picture better, and their thinking and analyses were improved.

Keywords: Instruction, team-based learning, TBL

MEDICAL STUDENT MISTREATMENT IN THE ENVIRONMENT OF THE FACULTY OF MEDICINE RAMATHIBODI HOSPITAL AND RELATED FACTORS

Waravudh Naothavorn[1], Pongtong Puranitee[2],
Winitra Kaewpila[1] and Sutida Sumrithe[1]

[1] Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Thetsaban Bang Pu 119, Bang Phli, Samut Prakan 10540, Thailand.
[2] Department of Pediatrics, Faculty of Medicine Ramathibodi Hospital, Mahidol University, 270 Rama VI Road, Ratchatewi, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: pongtongung@gmail.com

Background: Medical students' mistreatment has been occurring for decades, with devastating consequences. However, mistreatment is not effectively reported and there is a limited study in Thailand. This study explored prevalence, characteristics, relationships, mistreatment reports, and related factors in the Faculty of Medicine Ramathibodi Hospital, Mahidol University.

Summary of work: A cross-sectional investigation was accomplished. A questionnaire was collected and a Thai version of the Clinical Workplace Learning Negative Acts Questionnaire-Revised (NAQ-R) Scale was constructed. The findings included demographic information, prevalence, characteristics, relationships, mistreatment reports, and related factors.

Results: Internal consistency of the Thai version of the Clinical Workplace Learning NAQ-R Scale was satisfactory, with a degree of agreement of 83.87%. 681 medical students (52.42% female, 54.63% clinical year) answered. 74.45% have been mistreated at least once a year, with workplace learning-related bullying being the most common type (67.69%). Attending staff(s) was/were the primary source (31.5%). Burnout affected 34.65%, while 7.05% suffered severe depression. The most important aspect was the current academic year. However, 8.22% had reported mistreatment.

Discussion and Conclusions: Workplace learning-related bullying was the most common category. This could be due to Thai medical students' nature which is homogeneous and noncompetitive. Fear of retaliation and too much work in reporting process could explain low mistreatment reports. The most important aspect was the academic year. This could be due to the higher year they studied, the more responsibility they took, and thus the likelihood of mistreatment grew.

Take home message: Medical students' mistreatment is a serious issue that can be solved by reporting mechanisms and systematic management that ensure safety.

THE CORRELATION BETWEEN THE ADMISSION CRITERIA AND THE ADMITTED STUDENTS' ACADEMIC ACHIEVEMENTS OF THE FIRST-YEAR MEDICAL STUDENTS, FACULTY OF MEDICINE, KHON KAEN UNIVERSITY

Puangpayom Kaewpila[1], Kanyapat Phonang[1],
Khachonsak Saengthopho[1] and Kamonwan Jenwitheesuk[2]

[1] Academic Services Division Faculty of Medicine, Khon Kaen University, Chiang Mai, Thailand.
[2] Department of Surgery Faculty of Medicine, Khon Kaen University, Chiang Mai, Thailand.

Background: At the Faculty of Medicine, Khon Kaen University, there are many methods of admission. In particular, there are two tracts in the first round of admission: the tract for the academically talented (MDX) and the collaborative tract with the Office of the Higher Education Commission (MD02). These two tracts admit new students based on their portfolios with no written examinations, using only English proficiency scores and the Biomedical Admission Test (BMAT) for selection. It is therefore crucial to determine the correlation between the admission criteria and the admitted students' academic achievements.

Methods: English proficiency scores and the BMAT scores were correlated with the academic achievements of the first-year medical students from the MDX and MD02 tracts of the 2020 academic year using Pearson's correlation (r).

Results: One hundred and seven students were recruited. It was found that the BMAT scores correlated with the students' academic achievements with statistical significance, where the English proficiency scores were not correlated with the students' academic achievements.

Conclusions: The BMAT scores correlated with academic achievements while the English proficiency scores did not. These results shall be factored into the criteria for the admission into the medical school.

Keywords: admission, academic achievements

ONLINE DIGITAL SLIDES FOR MICROBIOLOGICAL LABORATORY LEARNING

Pimwan Thongdee, Nitchatorn Sungsirin*, Ketsara Khamsaen,
Tanit Boonsiri, Sirachat Nitchapanit, Arunee Suvarnajata, Piyanate Kesakomol,
Phattarawadee Nilphet, and Veerachai Watanaveeradej

Department of Microbiology, Phramongkutklao College of Medicine, 317 Rajvithi Road, Ratchathewi, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: nitchatorn@pcm.ac.th

Background: The COVID-19 pandemic has compelled worldwide educational institutions switch to online learning platforms. Our previous study suggested that psychomotor skills are uncompensated by virtual learning of infectious disease courses in pre-clinical curriculum especially microscopic examination skill which is one of the requirements of Professional Standards for Medical Practitioners. To improve this skill for third year medical students, online digital slides were developed as virtual learning tools in microbiological laboratory.

Summary of work: Based on case-based learning, microscopic staining slides were prepared and quality checked before scanned and converted into digital image files by glass slide scanner. The files were uploaded into a cloud server and then allowed learners to study these by themselves. All files were anonymous and labeled with slide number. Medical students had to seek the organisms and to report via Google Slides. A questionnaire was designed to assess both gaining psychomotor skills and satisfaction from the digital slides.

Results: The questionnaire was scored by 64 medical students. Most answered questions were scored as more than 80% of satisfaction such as digital slide is realistic, supporting and motivating practice in finding organisms and report, and being appropriate during the COVID-19 pandemic.

Discussion and Conclusions: The online digital slides supported laboratory skills for microscopic examination, especially identifying organisms and interpreting them. Based on our study, digital slides were useful for online learning during COVID-19 pandemic. However, skills of hands on microscopic exam were not recovered.

Take home message: The online digital slides can facilitate microscopic examination skills effectively.

USING A BLENDED LEARNING MODEL TO HELP MEDICAL STUDENTS WITH WRITING A PRESCRIPTION: AN OBSERVATIONAL STUDY

Sasivara Boonrusmee* and Kitja Panaboot

Department of Pediatrics, Faculty of Medicine, Prince of Songkla University, Songkhla, 90112, Thailand.
*Corresponding Author's E-mail: rsasivar@medicine.psu.ac.th

Background: Traditional face-to-face teaching has been restricted due to the COVID-19 pandemic, and lectures have been provided on-line, however; writing a prescription needs both knowledge and skill.

Summary of work: We designed our lecture on rational drug use, and how to write a prescription as a blended learning model; consisting of 3 parts of team-based learning: 1) Self-study and an individual readiness assessment test, which was asynchronous on-line. 2) A team readiness assessment test, which was synchronous on-line. 3) An application exercise on writing a prescription that was assigned as individual homework, with feedback being individually provided on-site, as small group teaching. We compared scores of a formative test on writing a prescription with writing a doctor order sheet, for which no formal teaching was provided.

Results: As a preliminary result, there were 58 students in the first 3 out of 6 rotations though the Department of Pediatrics during the academic year of 2021. Mean grade point average (GPA) was 3.18$\pm$0.36. The students' mean scores out of 20 points were 13.40$\pm$4.65 on writing a prescription and 7.88$\pm$3.78 on writing a doctor order sheet (P-value <0.001). Mean score of writing a prescription among students with GPA <3 (13.9$\pm$4.5) was not statistically different from those with GPA $\geq$3 (13.2$\pm$4.8) (P-value 0.59).

Discussion and Conclusions: Some clinical skills still need supervised, hands-on practice. Giving extra time as an on-site teaching on writing a prescription could help students, including those with a low GPA.

Take home message: Wring a prescription and writing a doctor order sheet should be formally taught and students should be individually assessed.

INTEGRATION OF PRE-CLINICAL AND CLINICAL SCIENCES IN A NEW FORM OF ACADEMIC COMPETITION "SCIENCE TO PATIENTS (S2P)"

Parameth Thiennimitr*, Thanyaluck Phitak, Ekarat Rattarittamrong, Kasemsri Srisupundit, Wariya Sukhupragarn, Puongtip Kunanusorn, Jeeranan Khunachiva and Prapaporn Suprasert

The AcadeMED+ team of Faculty of Medicine, Chiang Mai University, 110 Intawaroros Road, Chiang Mai, 50200, Thailand.
*Corresponding Author's E-mail: Parameth.t@cmu.ac.th

Background: Edutainment is one of the learning methods that educate students by performing an amuse activity such as games or movies. However, an edutainment activity that integrates both of pre-clinical and clinical skill and knowledge in Chiang Mai Medical School is still under recognized. Here, we invented the new academic competition activity in the manner of edutainment termed "Science to Patients (S2P) 2021: Because the learning is fun".

Summary of work: The S2P 2021 contested were divided into three major rounds (1) Case presentation, (2) Multiple essay question, and (3) Scientific round. The duration of the competition is total 11 hours which divided into two non-consecutive days. Total six team members of medical students (4 students per team) were participated. All team members were randomly assigned the standardized patient (SP) one week prior to the first round. Clinical knowledge and skill were challenged during the first and second rounds while pre-clinical background was tested in the third final round. All activities were broadcast live.

Results: Most of the participated medical students and faculty members (75%) were satisfied and enjoyed the S2P 2021. However, the participant numbers were still lower than our expectation may be due to the lack of adequate advertisement.

Discussion and Conclusions: The core concept of S2P is an integration between pre-clinical and clinical years in a game-styled questions that promote enjoyable attitude in a learning of medical subjects.

Take home message: To be accomplish in the S2P contest, all members in the team are significant.

APPLICATION OF VIDEO RECORDING FOR PROCEDURE OBJECTIVE STRUCTURED CLINICAL EXAMINATION DURING COVID-19 PANDEMIC

Ekarat Rattarittamrong*, Kasemsri Srisupundit, Jaruluck Klunklin, Athaporn Thanoi, Wariya Sukhupragarn, Puongtip Kunanusorn, Parameth Thiennimitr, Jeeranan Khunachiva, Thanyaluck Phitak and Prapaporn Suprasert

The AcadeMED+ team of Faculty of Medicine, Chiang Mai University,
110 Intawaroros Road, Chiang Mai, 50200, Thailand.
*Corresponding Author's E-mail: ekarat.r@cmu.ac.th

Background: One of national strategy to control COVID-19 pandemic is limitation of people in group activities. Procedure Objective Structured Clinical Examination (OSCE) for extern is a part of Thai medical licensing examination that previously includes more than 100 attendees per rotation.

Summary of work: We used three strategies for limitation of people during the 11-station procedural OSCE. Firstly, video recording was used instead of direct examiner. Secondly, limitation of examination assistants by preparation of equipment by extern. Finally, splitting the examination area from one floor to two floors. Location and number of camera as well as standing point for extern were evaluated by experts before the exam.

Results: The first and second procedure OSCE took place in August 20, 2021 and December 16, 2021. For the first examination, gathering of less than 30 participants were occurred during 1 period. Technical problem about sound from video occurred all the time recorded in 3 stations. For the second examination, less than 40 people were gathered in one floor. Only 1 technical error (5 minutes) about sound was occurred and was solved promptly.

Discussion and Conclusions: This work showed that video recording could be used for evaluation of procedural skill. However, the technical problems might be occurred. The strategies to minimize these errors include using more than 1 camera in each station to back-up and regular check the equipment by technicians during the examination.

Take home message: Procedure OSCE by using video recording is feasible and can be applied during the COVID-19 pandemic.

APPLICATION OF BROAD GAME "SURVIVE IN THE FRONTLINE" FOR MEDICAL CADET'S SIMULATION EXERCISE TRIAGE OF THE CASUALTIES

Anisong Pilakasiri[1]*, Thanakrit Vichasilp[2], Ratchakorn Wetworanan[3], Thanakrit Pratumrat[4], Wisit Kaewput[5], Kanlaya Jongcherdchootrakul[5], Nutnaree Thuncharoon[5], Pongpisut Thakhampaeng[5] and Phutsapong Srisawat[5]

[1] Department of Otolaryngology, Phramongkutklao Hospital, Bangkok, 10400, Thailand.
[2] Department of Biochemistry, Phramongkutklao College of Medicine, Bangkok, 10400, Thailand.
[3] Boss Lab Board Games, Bangkok, Thailand
[4] Fifth Special Forces Regiment, Chiang Mai, 50108, Thailand.
[5] Department of Military and Community Medicine, Phramongkutklao College of Medicine, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: anisong.pi@pcm.ac.th

Background: Phramongkutklao College of Medicine is the first and only military medical school in Thailand founded by the royal remark of King RAMA IX to make battalion surgeon. Before graduation, medical cadets (MC) will participate in the field exercise "Petcharavut" which simulated for warfare, epidemic and disaster casualties.

A board game (BG), "Survive in the Frontline (SITF)" has been developed according to game-based simulation with the aim to give the MC an insight, accurate and fast triage of the casualties and medical evacuation.

Summary of work: Analysis of previous problems, invitation of BG specialist for recommendations, drafting, validated by general population, MC, students, and faculty of Army Medical Department School, summarizes, and publishes.

Results: Mean pretest (18.1/30) and posttest (25.9/30) of casualty triage showed significant difference ($p<0.01$). The MC had better understand of triage and medical evacuation, more interaction among players and fun.

Discussion and Conclusions: SITF could give better knowledge and understanding on casualty triage and medical evacuation, promote interaction among players. However, it was time-consuming and close contact and token exchange might increase SARS-Co-V-2 infection risk. Still, no one was found to be infected as all players wore masks and frequently clean their hands. In the future we will ask medical personnel either military or civilian to play. We will test the games among preclinical MC and medical NCOs

Take home message: Application of board game as a simulation exercise technique is an alternative that nicely help promoting knowledge and understanding acquisition for casualty triage and medical evacuation.

LABORATORY INTEGRATED CASE-BASED LEARNING TO PRE-CLINICAL STUDENTS: A STUDENT'S PERSPECTIVE

Kawin Wongthamarin*, Chitrawina Mahagita and Panadda Hatthachote

Department of Physiology, Phramongkutklao College of Medicine, 317 Ratchawithi Rd, Khwaeng Thung Phaya Thai, Khet Ratchathewi Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: Kawin.w@pcm.ac.th

Background: Faculty from Department of Physiology, Phramongkutklao College of Medicine changed a conventional animal laboratory learning model to laboratory integrated case-based learning (LI-CBL) for preclinical students in order to develop their self-learning skill and familiar with clinical environments.

Summary of work: Six different LI-CBL were designed and approved by faculty, each with different factors influencing urinary system. In all cases vital signs and urinary flow rates were shown before and after treatment, promoting students engage in group discussion on physiological process. LI-CBL was then applied to second-year medical students in laboratory hours which consisted of 3 sessions: a 1-hour lab introduction, a 2-hour self-directed learning and a 2-hour discussion. After class, perspective of medical students on this new learning style were gathered using both quantitative and qualitative tools.

Results: Ninety-one students were assessed with questionnaires and small group interviews. We found that 75 percent of students thought this style of learning was very good and 16 percent considered it was good. Most of the students commented that this learning style promoted their interests.

Discussion and Conclusions: Teaching in LI-CBL format could increase the student's enthusiasm for learning more than the conventional animal model, especially when using real cases found during medical practice. Moreover, using videos to demonstrate real patients would make students more interest and engage.

Take home message: Some important animal experiments were still important, but the amount of lab animals might reduce as needed.

THE TRANSFORMATION OF TEACHING BIOCHEMISTRY DURING COVID-19 PANDEMIC: THE NEED FOR RESPONSIVE LEARNING ECOSYSTEM

Montalee Theeraapisakkun*, Thanakrit Vichasilp, Prakarn Rudeekulthamrong, Yutthana Pansuwan, Nattaprapa Suriyamontol and Unchalee Visawapoka

Department of Biochemistry, Phramongkutklao College of Medicine, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: montalee.th@pcm.ac.th

Background: Because of the COVID-19 pandemic, biochemical teaching was transformed to be fully online in academic year 2020 and 2021. The characteristics of learner in generation Z are ability to use and quickly learn various technologies but there are short and limited attention span. So online teaching management was designed.

Summary of work: A variety of teaching methods and tools were used by blended manner for getting attention and encouraging learner engagement. E-Learning (Moodle) with gamification was served as primary platform. Pre-recorded teaching was created then students were assigned to self-study before attending online class. Interactive learning was made by challenge quiz or group discussion in class. Moreover, online examination was handled by Safe Exam Browser (SEB) with Moodle.

Results: After completing the course, the students' satisfaction was at good level in each learning activity. They gave a good feedback and mostly preferred to study in advance from video assignment.

Discussion and Conclusions: The students could manage learning by themselves and digest knowledge before participation in class which make them easier to understand. This reduced the time spent on lecture and solved problem of students who dared not ask in class because they could contact teachers at anytime. SEB could lock screen device during online examination. It reduced chance of cheat during examination.

Take home message: Learners have a variety of learning styles so learning activities should be various and encouraging learner engagement. Furthermore, online exam may encounter problems with differences in students' devices and individual internet signals.

FAVORABLE STUDENT AND BLOCK COMMITTEE FEEDBACK ON THE SELF-DEVELOPED ONLINE ASSESSMENT MANAGEMENT SYSTEM DURING COVID-19 PANDEMIC

Anusara Vattanajun[1], Sommai Yochana[1], Aukrit Luangpattarawong[1], Kawin Wongthamarin[1], Panadda Hatthachote[1] and Dusit Staworn[2]

[1] Department of Physiology, Academic Affairs Division,
[2] Academic Affairs Division, Phramongkutklao College of Medicine, 317/5 Ratchavithi Road, Bangkok, 10400, Thailand.

Background: The reliability and safety of online assessment as well as its fairness to all learners are the main concern during the COVID-19 pandemic.

Summary of work: We developed and implemented the online assessment management system@PS_PCM using web-based application via http://physiopcm.com to address pain points of other online assessment tools. After passing the feasibility test, the system was used for the mid-block and end of the block tests for second-year medical students during the Endocrinology block and the Medical Neuroscience I block. Student feedback on the online assessment management system@PS_PCM was determined using a five-point Likert scale questionnaire.

Results: A total of 92 students completed the questionnaire. Majority of students agreed and strongly agreed that the interface was user friendly (82%), the system was easy to use (85%), and students were confident in the ability to troubleshoot when the system crashes (69%). The overall satisfaction was 73%. The block committee satisfied with built-in features of the system including automatic scoring system, answer sheet management system, remote proctoring using event handler to monitor the GPS position of students during the exam, as well as monitoring students who logged off to other web pages.

Discussion and Conclusions: Majority of students reported a favorable feedback toward the online assessment management system@PS_PCM. Built-in features of this system addresses pain points of online assessment and works well with both iOS and android devices.

Take home message: The online assessment management system@PS_PCM with built-in remote proctoring is user friendly and easy to use.

EVALUATION OF INDIVIDUAL REARCH PROPOSAL DEVELOPMENT IN THE 4TH YEAR MEDICAL STUDENTS, PHRAMONGKUTKLAO COLLEGE OF MEDICINE

Boonsub Sakboonyarat[1], Kanlaya Jongcherdchootrakul[1], Pongpisut Thakhampaeng[1], Ram Rangsin[1] and Mathirut Mungthin[2]

[1] Department of Military and Community Medicine, Phramongkutklao College of Medicine
[2] Department of Parasitology, Phramongkutklao College of Medicine

Background: Both principles of medical research and quantitative methods (QM) are important for the development of evidence-based medicine and lifelong learning. In the 4th year medical curriculum, individual research proposal development has been added to stimulate and fulfill the student's potential in medical research performance since 2018. Each medical student had to establish his/her research question in health science area and its proper research design. The assignment included 3 parts, i.e. (1) research question, backgrounds, literature reviews, and objectives (2) methodology, and (3) case report form. Each part was sequentially submitted via the online system. The advisors accessed the assignment and provided the comments. This study aimed to determine the performance of medical students for the development of the individual research proposal.

Summary of work: The assignment of each individual was accessed using a rubric score determining the contents of each part. The score was presented in percentage. Linear regression analysis was used to determine the association factors of the performance for the individual research proposal development.

Results: A total of 301 students between 2018 and 2020 were included in the analysis. The majority of the students chose the observational study design (82.0%) for his/her research proposal. In contrast, the experimental study design (16.3%) and basic science research (1.7%) were less adopted. The average scores of the 1st, 2nd, and 3rd part of the assignment were 92.0±12.6, 91.9.0±12.7, and 93.1±13.1, respectively ($p=0.459$). After adjusting for academic years and study design, there was an association between the grade in the prior QM course and the average performance scores ($p<0.001$).

Discussion and Conclusions: Research proposal is the starting point for research. To be able to accomplish this task, each individual have to develop and use a number of knowledge and skills including reasoning, literature search and review, critical appraisal, research methodology and development of case record form. This study showed that the medical students performed well in the development of research proposal especially in those who had a better grade in QM course.

Take home message: The assignment of individual research proposal development would make our medical students to familiarize with the research cycle and establish a number of research skills.

COMBINING FLIPPED CLASSROOM WITH EXPERIENTIAL LEARNING INTO BODY FLUID ONLINE CLASS TO ENGAGE HOLISTIC LEARNING AND SELF-EVALUATION DURING COVID-19 PANDEMIC

Chitrawina Mahagita[1]* and Prakarn Rudeekulthamrong[2]

[1] Department of Physiology, [2] Department of Biochemistry, Phramongkutklao College of Medicine, 317 Ratchawithi Rd, Thung Phaya Thai, Ratchathewi, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: chitrawina@pcm.ac.th

Background: Flipped-classroom is blended learning where learners self-study content and work through it in class. Experiential learning cycle comprises 4-step; concrete experience, reflection, abstract conceptualization, and applying concepts learned.

Summary of work: In online class, this study applied flipped-classroom in the first step of experiential learning. The study aimed to promote students' active participation and self-evaluation. Regarding concrete experience, 96 second year medical cadets received learning guidance before class. They self-studied body fluid using online clips. During 1-hour class, the first 25 minutes was for questions. Knowledge was tested via quiz 1 (recall) and 2 (application) for 20 minutes, scored subsequently. In the remaining 15 minutes, students self-reflected holistically (knowledge, skills or attitudes) for abstract conceptualization: "my noteworthy learning throughout this topic". Finally, an edema case was introduced for application. Students' satisfaction was evaluated using questionnaires, and reflection content was analyzed.

Results: From questionnaires (n=91), scores of overall satisfaction, clear objectives, appropriate learning materials, active learning and motivation, and understandable teaching were 4.96 ± 0.21, 4.97 ± 0.18, 4.95 ± 0.23, 4.98 ± 0.15 and 4.97 ± 0.18, respectively. Reflection showed 2 significant learning themes. The major domain comprised study skills: discovering their ways of learning, realizing gaps in knowledge application, and carefully reading examination questions. The second theme comprised attitudes: self-confidence of self-directed learning, and pride in their achievements.

Discussion and Conclusions: Combining flipped-classroom with experiential learning facilitated students' participation and self-evaluation. Otherwise, they may not realize their potential and room for improvement.

Take home message: To complete holistic learning, instructors could apply reflection and experiential learning to design lessons.

LIVE STREAM ONLINE SIMULATION OF REPRODUCTIVE SYSTEMS FOR CLINICAL APPLICATION: A STUDENT PERSPECTIVE

Panadda Hatthachote[1]*, Chitrawina Mahagita[1] and Chakpan Supadech[2]

[1] Department of Physiology, [2] Department of Obstetrics and Gynecology, Phramongkutklao College of Medicine, Ratchawithi Rd., Thung Phayathai Sub-District, Ratchathewi District, Bangkok, 10400, Thailand.

*Corresponding Author's E-mail: Hatthachoteting@gmail.com

Background: As a result of COVID-19, teaching changed from a traditional onsite format to a Live Stream Online Simulation (LSOS). This allows medical cadets (MC) to see the importance of applying knowledge of anatomy, physiology and biochemistry related to reproductive systems to obstetrics and gynecology, as well as linking traditional medical knowledge to emerging knowledge.

Summary of work: Three situations were simulated. The MCs (n=88) selected urine samples, patients and specimens displayed on an interactive slide keynote. The instructor showed each image and detailed information about urine samples, patients and specimens. MCs entered discussions with the instructor and classmates, as well as making interpretations and decisions.

Results: A Google questionnaire was used to gather MC feedback. A greater linkage, >70%, was seen between preclinical and clinical knowledge by 76.1% of the MCs, and 93.1% considered LSOS tools appropriate.

Discussion and Conclusions: The MCs agreed that LSOS helped them understand the correlation between preclinical and clinical practice, but they would rather study case problems than perform laboratory analysis as they cannot do lab practice on their own. The advantage of LSOS is that there is interaction between the instructor and students where the instructor can stimulate student thinking. However, it relies on teaching and observation skills applied under dynamic conditions. The MCs sense that they are using a simulation and Onsite learning would be better.

Take home message: Some Online classes should be repeated onsite. The content and teaching process require modifications and adjustment to suit the course context.

DEVELOPMENT OF PROGRESSME: PRE-CLINIC CHATBOT, A MEDICAL STUDENT'S PERSONAL LEARNING ASSISTANT

Thanakrit Vichasilp[1]*, Piyachat Chansela[2] and Jintavee Khlaisang[3]

[1] Department of Biochemistry, [2] Department of Anatomy, Phramongkutklao College of Medicine, Bangkok, 10400, Thailand.
[3] Department of Educational Technology and Communications, Chulalongkorn University, Bangkok, 10330, Thailand.
*Corresponding Author's E-mail: thanakritv@pcm.ac.th

Background: Technology-enhanced learning is now common practice in the field of medical education, chatbot technology is one of the examples of its use. This study describes the development of Progressme: Pre-clinic chatbot to enhance medical students' professional competencies and digital intelligence quotient (MSPC&DQ).

Summary of work: There are 4 phases in the development of the chatbot. First, to examine the conditions of teaching and learning management with the use of the chatbot to develop the MSPC&DQ. The qualitative data was obtained from conducting interview with 20 experts in the field of educational technology and medical education. Moreover, the quantitative data was obtained using a questionnaire responded by 451 medical students. Exploratory factor analysis was used to develop a model based on related theories. Second, a chatbot prototype was developed. Third, implementation of the chatbot with the sample group of 50 students. Fourth, a presentation of the results of the study was evaluated by 9 experts in the field of educational technology.

Results: The quantitative and qualitative data were used to evaluate the student learning outcomes, including before and after scores of students using the chatbot and the student self-reflection regarding the use of the chatbot to develop the MSPC&DQ, respectively. It was found that after completing the lessons, students' level of MSPC&DQ were higher than before completing the lesson at the statistical significance level of 0.05.

Discussion and Conclusions: This indicated that the use of the chatbot could promote the MSPC&DQ. It can also be concluded that there were four key elements for the development of the chatbot, including scenario-based learning, disruptive technology, medical students' professional competencies, and digital intelligence.

Take home message: Progressme: Pre-clinic chatbot could be used as a student's personal learning assistant or an instructor's teaching assistant, to personalize teaching and optimize learning outcomes.

CLINICAL VIRTUAL BRAINSTORM: RESEARCH & DEVELOPMENT FOR NEW WAY OF FORMATIVE EVALUATION

Aukrit Luangpattarawong[1], Panadda Hatthachote[1], Dangjai Souvannakitti[1], Chitrawina Mahagita[1] and Anupong Kantiwong [2,3]

[1] Department of Physiology, [2] Department of Pharmacology, [3] Medical Education Unit, Phramongkutklao College of Medicine, 317/5 Ratchawithi Road, Thung Phayathai Sub-District, Ratchthewi District, Bangkok, 10400, Thailand.

Background: Clinical Virtual Brainstorm (CVB) is a newly online formative evaluation platform. It was invented and used for the first time in 2020 to help 2nd-year medical students (MS) of Phramongkutklao College of Medicine better understand basic clinical knowledge and basic science knowledge.

Summary of work: The first version of CVB was applied to the MS in the on-site respiratory physiology course. The 5-Likert scale questionnaire covering 5 perspectives towards satisfaction of the platform components were gathered for developing the second version which was used in the online classes of the urinary physiology course. The questionnaire was collected. Independent t-test with content analysis was used for data analysis.

Result: Seventy-five (83.33%) and ninety (100%) responses were collected from the first and the second course, respectively. For the online class, although CVB provided effective learning material the MS faced difficulties accessing the platform (p=0.011), less convenient contacting classmates (p =0.006), and these affected the overall satisfaction (p=0.009). From the content analysis, CVB allows the MS to visualize the big picture of the course. As a result of complaints, the interface and stability of the online documents, the number, and the interval of assignments in the CVB were adjusted. However, group interaction needs further organization.

Discussion and Conclusions: Although CVB provides effective learning, it has limitations on accessibility and personal interaction when used online classes.

Take home message: CVB should be designed separately depending on the characteristic of each course and improving accessibility and group interaction was necessary for online classes.

THE CROSS-SECTIONAL STUDY: THE RELATIONS BETWEEN LEARNING STYLES,ACADEMIC PERFORMANCE AND DEGREE OF HAPPINESS OF MEDICAL STUDENT IN VACHIRA PHUKET MEDICAL EDUCATION CENTER, WALAILAK UNIVERSITY

Kotchamon suesattabongkot, Trichada songsuk, Chatcharinda srattakul and Nutnicha kaewnoppharat

Vachira Phuket Medical Education Center, 353 Yoawarat Road, Phuket, 83000, Thailand.

Background: Learning in each individual. Learning style analysis of the learners is essential, it helps instructors to understand their students learning behavior thus they can plan appropriate activities in their class for students. This study aims to analyze and assess the learning style of 5th and 6th-year medical students in Vachira Phuket Medical Education Center, Walailak University, Class of 2021. We will assess the prevalence of each learning style among students and analyze the relationship between learning style, academic performance, and degree of happiness. We expect that the result of our study will help the instructors in Vachira Phuket Medical Education Center to improve their class for student's better achievement of academic performance.

Summary of work: This study is a cross-sectional analytic study in which we survey both qualitative and quantitative data from 3th ı 8th August 2021 using confidential online questionnaires in 5th and 6th-year medical students in Vachira Phuket Medical Education Center, Walailak University, Class of 2021. Every participant's personal information will be kept blind from researchers. The questionnaire consists of 4 parts which are general information including GPA and GPAX, learning style assessment questionnaires from Fleming & Mills theory, Thai Mental Health Indicators-15 questionnaires, and factors that affect participant's happiness questionnaires. We gather all the participant's answer and analyze with statistic method to answer our study objectives.

Results: From 40 participants we found that most of the medical students have a "Read &Write" learning style and we also divided participants learning style into unimodal and multimodal using the VARK model, we found that most of the students have a unimodal learning style. We use the raw data to analyze and found that there is no significant relationship between learning style and 2020 GPA (P-value=1.000) and no

significant relationship between learning style and pre-clinical class GPAX (P-value=0.117). Furthermore, we found that there is no significant relationship between learning style and participant 's degree of happiness (P-value=0.435)

Discussion and Conclusions: Most 5th and 6th-year medical students in Vachira Phuket Medical Education Center, Walailak University, Class of 2021 have a "Read & Write" learning style and unimodal learning style in VARK Model. Among our students, there is no significant relationship between learning style, academic performance and participant 's degree of happiness.

Take home message: Finding of **majority of medical students have** preferred for "Read&Write" learning style will help us to improve education managment of our Medical Education Center and balancing teaching methods..

THE RELATIONSHIP BETWEEN STRESS AND THEORY STUDY, GROUP DISCUSSION AND CLINICAL SKILL THROUGH ONLINE CLASSES

Thanatcha raviwan*, Piyapat Srimala, Chadamas Thongchat and Paowarate Kanda

Vachira Phuket Medical Education Center, 353 Yoawarat Road, Phuket, 83000, Thailand.
*Corresponding Author's E-mail: pebble_yolp@hotmail.com

Background: During the COVID-19 crisis spread all over the world in 2020, the World Health Organization declared the disease a global pandemic. In Thailand, the government declares the COVID-19 as a dangerous contagious disease and lock down country to prevent COVID-19 spreading and enforced a nationwide curfew during March 2021 until October 2021, including the 4th-6th year of clinical medical student at the School of Medicine WalailakUniversity. Those who learn and practice at Vachira Phuket and Trang Hospital Medical Education Centers were affected and continued their studies through online classes. Therefore, the research organizer studies the relationship between stress and Theory study,Group discussion and Clinical skill through online classes. In order to apply the results of the study to develop the clinical instruction during COVID-19 crisis, we designed a descriptive,analytical cross-sectional study. Data were collected using an online questionnaire for 4th-6th year (n=76) medical students

Summary of work: We designed an analytical cross-sectional study. Medical students' data were collected by using online questionnaires for 4th-6th year (n=76) medical students in Vachira Phuket and Trang Hospital Medical Education Centers during 15 November until 22 November 2021. The data were collected to assess the relationship between stress and Theory study,Group discussion and Clinical skill through online classes. The questionnaire was validated by an expert reviewer.

Results: The relationship between stress and Theory study, Group discussion and Clinical skill through online classes in medical students was found that the most of students have mild to intermediate stress during an online class. Their opinions showed that the theory and discussion online class do not decrease the concentration, comprehension, interaction, ntinued and difficult to review lessons. On the other hand, majority of their student agrees with study Clinical skill through online classes have effect to the concentration, comprehension, interaction, continued and difficult to review lessons especially practice the clinical skill

In addition to the study about the relationship between medical student factors, stress and opinion showed that the online class obstacles effect medical student stress and medical student who has online class obstacle agree with study Clinical skill through online classes have effect to the comprehension, interaction, difficult to review lessons and practice the clinical skill by themselves

And the study about the college year and opinion our result showed 4th-6th year medical student agree that effect to the concentration, comprehension, interaction, continued and difficult to review lessons especially practice the clinical skill but do not affect on interaction in class

Discussion and Conclusions: Theory study, Group discussion and Clinical skill through online classes do not affect increased stress in medical students. In other words, the online class obstacles make medical students stress more than don't have problems and have an affect on clinical skills that they can't practice by themselves.

Take home message: Learning online during the COVID-19 Pandemic is important to continue medical learning but medical school must have several items for preparedness.

NEW REFRACTIVE ADJUSTMENT SIMULATOR FOR DIRECT OPHTHALMOSCOPY TRAINING

Ratima Chokchaitanasin, Sritatath Vongkulsiri and Raveewan Choontanom

Ophthalmology Department, Phramongkutklao College of Medicine and Phramongkutklao Hospital, 315 Ratchavithee road, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: rainbo_ok@hotmail.com, ravee_choon@yahoo.com

Background: Fundoscopic examination is crucial for the diagnosis of many conditions. Many different techniques have been developed for fundoscopic examination training. Initial plastic closed chamber was developed. The others also used different designs.

Summary of work: ICEyeModel has been developed and resemble human optical system with the new add-on features at low cost. Efficacy of Direct ophthalmoscopy Training with ICEyeModel in Medical students was assessed.

Results: New Simulator, ICEyeModel, consisted of 2 structures including resin human head with multi-slots and 2 changeable spherical eyeballs with high plus lens. Anterior eyeball provides variation of choice in pupil size in 3 mm, 6 mm, and 9 mm in diameter. Inner surface of posterior eyeballs lined with fundus photograph with various pathologic findings. The higher in fundoscopic description score and satisfaction score were achieved comparing with the old-fashioned training model.

Discussion and Conclusions: ICEyeModel was a teaching innovation tool. It improves efficacy and also satisfaction for direct ophthalmoscopy training in Medical students. In addition to direct ophthalmoscopy simulator, ICEyeModel could applied for indirect ophthalmoscopy training and refraction training with retinoscope.

Take home message: The better teaching model would give the better training outcome.

EVALUATING EXAMINATION ACHIEVEMENT THROUGH THE DISEASES IN RESPIRATORY, URINARY AND CARDIOVASCULAR COURSE

Sarawut Jindarat*, Thishnapha Vudhironarit and Kasom Bhangananda

Department of Pharmacology, Phramongkutklao College of Medicine, Bangkok, Thailand.
*Corresponding Author's E-mail: sarajind@yahoo.com

Background: A problem-based learning course has been implemented at Phramongkutklao College of Medicine since 2015. The disease in respiratory, urinary, and cardiovascular course was given to third-year medical students since 2017. According to the policy of conducting as few exams as possible to provide students time to comprehend, however the complexity of the three systems structured within three weeks is rather intensive. As a result, there were two tests in the 2017 while three exams in each system were administered in 2018. The aim of this study was to determine whether students who took the two and three tests had significantly different passing proportion.

Summary of work: To analyze the outcomes of the two-and three-time exams conducted in 2017 and 2018, we utilized the survival analysis, Kaplan-Meier technique, to determine the survival function, median survival, and hazard rate.

Results: This study revealed that the triple test had a greater median survival rate upon passing than the two tests, at 75.80. In the triple test, the student's hazard rate was 0.93 greater than in the double test, and the likelihood of passing was statistically significantly higher in the triple test than in the two examinations (p-value<0.01).

Discussion and Conclusions: It is critical that medical students who took examinations three times statistically outperformed those who took exams twice. Later on, an in-depth interview was conducted, which yielded the similar result, indicating that each test covers the contents of a specific system, which is not confused with the contents of others.

Take home message: Examination focusing on student's educational achievement is essential.

LABORATORY INTEGRATED-CASE BASED LEARNING (LI-CBL): COMPARATIVE STUDY OF MEDICAL STUDENTS' ATTITUDE BETWEEN TRADITIONAL CLASSROOM AND VIRTUAL LI-CBL

Arunee Suvarnajata, Nitchatorn Sungsirin*, Tanit Boonsiri, Sirachat Nitchapanit, Piyanate Kesakomol, Pimwan Thongdee, Ketsara Khamsaen, Phattarawadee Nilphet and Veerachai Watanaveeradej

Department of Microbiology, Phramongkutklao College of Medicine,
317 Rajvithi Road, Ratchathewi, Bangkok, 10400, Thailand.
*Corresponding Author's E-mail: nitchatorn@pcm.ac.th

Background: Laboratory integrated-case based learning (LI-CBL) is an active learning method using case studies integrated with laboratory practices of infectious disease courses in pre-clinical curriculum. It has been initiated since 2018. Because of the COVID-19 pandemic, the course was divided into the period of online and onsite with virtual LI-CBL and traditional classroom LI-CBL, respectively.

Summary of work: To compare medical students' attitude between LI-CBL with virtual classroom and traditional classroom, questionnaire with 5-point Likert scale including 16 topics were designed for data collection from third year medical students in 2020 and validated by the item-objective congruence (IOC) showed the content validity score of 0.9-1.0. Statistical t-test was used to analyse the average attitude score.

Results: All topics in the questionnaire were scored as excellent and good with more than 80% of 78 medical students. Interestingly, there were statistically significant difference in 4 topics between traditional classroom and virtual LI-CBL ($p<0.05$). Our study discovered that the traditional classroom LI-CBL superior to virtual LI-CBL in gaining psychomotor skills, interesting practices, and effective to recover knowledge. Nevertheless, virtual LI-CBL can engage medical students' attention better than traditional classroom LI-CBL.

Discussion and Conclusions: Virtual LI-CBL was satisfiable for applied in the pandemic situation. However, hands-on practices were lacking in laboratory learning of virtual LI-CBL. To cope with this problem, onsite hands-on practices should be provided to medical students when the situation is unfolding.

Take home message: Psychomotor skills are uncompensated by virtual LI-CBL whereas traditional classroom is necessary for hands-on practices.

THE VALIDITY AND RELIABILITY OF THE THAI VERSION OF THE COMMUNICATION SKILL ATTITUDE SCALE (CSAS)

Nattaphon Chokemaitree[1]*, Sukrit Vitavasiri[2], Fasinee Arunrodpanya[3], and Korawut Phanprom[4]

[1] Department of Psychiatry and Neurology, Phramongkutklao College of Medicine,
[2] Department of Psychiatry and Neurology, Phramongkutklao Hospital, 317 Ratchawithi Rd, Thung Phaya Thai, Ratchathewi, Bangkok, 10400, Thailand.
[3] Department of Psychiatry, Faculty of Medicine, Naresuan University, 99 Tha Pho, Mueang Phitsanulok, Phitsanulok, 65000, Thailand.
[4] Faculty of Education, Thepsatri Rajabhat university, 321 Thale chup son, Mueang lopburi, Lopburi, 15000, Thailand.
*Corresponding Author's E-mail: nut_pcm@yahoo.com

Background: A few standard instruments are available to measure learning progression and evaluate attitudes of Thai medical students towards their communication skills learning.
Summary of work: The aim of the study was to develop a Thai version of the Communication Skills Attitude Scale (CSAS) with validity and reliability profiles. The result of surveys using this instrument among medical students at Phramongkutklao College of Medicine (PCM) during clinical rotation and personal characteristics associated with the attitude level were reported.

We translated the CSAS original version to Thai using forward-backward method. Content validity and internal consistency reliability indices were calculated. A sample of 223 fourth, fifth and sixth year of PCM medical students completed the survey.
Results: Content validity was good with an item-objective congruence (IOC) ranging from 0.63-1.00 after revision. Cronbach's alpha coefficient was 0.817. Most items (22) provide an acceptable corrected item-total correlation. The median (±SD) of overall scores was 3.78 (±0.39). The majority of students agreed that good communication skills are necessary; however, they want communication training lessons to be clearer and more understandable. Female students showed higher scores compared with male students. The study failed to demonstrate an association between the number of years of studying, duration of clinical experience and CSAS scores.

Discussion and Conclusions: The Thai version CSAS could be used to measure Thai medical students' attitudes towards communication skills during clinical years of medical program. This would be useful for pre-assessment, monitoring learners' progression and evaluating programs.

Take home message: To establish effective communication skills training, medical educators should pay attention to learners' attitudes.

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