



FELLOWSHIP IN PRIMARY CARE ULTRASOUND UNIVERSITI SAINS MALAYSIA (USM)

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UNIVERSITI SAINS MALAYSIA (USM)

1. AIM

To commence a fellowship in primary care ultrasound program in Universiti Sains Malaysia (USM).

2. INTRODUCTION

Point of Care of ultrasound (POCUS) ultrasound is a relatively new field in the world of family medicine. However, it has changed the practice of most family medicine specialists worldwide. The POCUS program is important as family medicine specialists are the frontlines in seeing the cases.

To date, POCUS in primary care has been shown to aid in the completion of procedures, lower costs, decrease emergency department visits and reduce the need for further imaging. Physicians must undergo adequate training. Before scanning, they should develop a basic familiarity with the physics of ultrasound, knobology, and applications of POCUS. They can then establish proficiency in a specific application by satisfactorily performing, interpreting, and integrating the findings of a minimum number of scans (typically 50 to 100 clips) before considering a trainee competent.

The POCUS program in primary care in Malaysia must evolve to a certain extent it should at par with developed countries. Ultrasound machines are available in almost all health clinics under the Ministry of Health Malaysia and University hospitals. However, there is still a void in terms of structured training programs and advancement in skill. USM intends to fill this void by providing a platform for Family Medicine or General Practitioner to join fellowship in emergency and critical care ultrasound. For Family Medicine there will be specific topics for primary care that are different from emergency physician specialists who are also training for the fellowship in emergency and critical care ultrasound.

In the United States, point of care ultrasound has been taught in medical school from year one undergraduate. Universiti Sains Malaysia also embark their first move in 2023 to introduce the POCUS syllabus into their fourth-year undergraduate medical student curriculum. Thus, USM is looking forward to seeing their students have the knowledge of ultrasound since medical students' year.

This fellowship program has received the support and may be conducted with the College of Emergency Physicians (CEP) Malaysia and Ministry of Health (MOH) hospitals. We are now trying to expand the program into a family medicine area. This program already received good support from emergency physician and general practitioners in Malaysia.

3. JUSTIFICATION

- 3.1. There are many emergency physicians who have undergone formal training in emergency and critical care ultrasound in Malaysia. However, only one from family medicine specialist which graduated in 2021. Since this skill is being used in emergency and critical care patients in emergencies, it also can be used at primary care setting, which can have direct effect on patient care and management.
- 3.2. The fellowship program will produce physicians who have been trained for credentialing and privilege, and it is very important.
- 3.3. Ultrasound is a clinical skill, which is not formally taught in the undergraduate and postgraduate Family Medicine curriculum in most universities. Ultrasound is not only being performed to aid in diagnosis, but also to assist in invasive procedures as well. This includes difficult line insertion and suprapubic catheterization. These procedures performed without proper guidance and supervision could lead to potential devastating consequences.
- 3.4. Currently, there is only ONE Fellowship program on Emergency & Critical Care ultrasound in Malaysia and across Southeast Asia region which is started by UiTM followed by USM. However, only one Family Medicine specialist from Universiti Hospital had graduated. Thus, this program hopes to attract more family medicine specialists to join the fellowship program and improve their ultrasound skill.
- 3.5. The program will give rise to more family medicine specialist with special interest in ultrasound training which improves the image of the fraternity, and it is also in line with Malaysia's vision towards being a developed nation in providing healthcare.

4. DURATION

The duration of this program will be for a period of a minimum of 6 months or depends on the fulfilment of the criteria. Combination of physical attachment and virtual

5. YEAR OF COMMENCE

2024/2025

6. OBJECTIVES

The main aim is to create a national primary care ultrasound **training center**:

- a) Produce family medicine specialist in Malaysia with skills and knowledge of basic primary care ultrasounds.
- b) Train family medicine specialists to become the leaders and trainers in the field of primary care ultrasounds.
- c) to be able to train other family medicine specialists and medical officers to be able to do screening on common medical problems that come to health centers such as deep vein thrombosis, gall bladder disease or renal stones
- d) To nurture further research opportunities in point of care ultrasound among primary health care physicians.

7. SCOPE

There are three primary components to the fellowship program:

7.1. Skills:

- Acquiring the technical skills to perform ultrasound, interpreting the image, and consolidating it in managing patients.
- Building primary care ultrasound teaching portfolio by compiling images for future references in the training of family medicine specialists
- Develop teaching skills by being involved in training medical offices, master's and undergraduates
- Hands on practical
- Image review and feedback

7.2. Research:

- Initiate research ideas which may help improve patient care.
- Completing research and publishing for the benefit of the ultrasound user.
- Supervise research projects in the field of ultrasound.
- Write an interesting case report with ultrasound findings.

7.3. Administration:

- Understand the different components required to run an ultrasound service
- Utilize information technology for image archiving and database management
- Understand quality assurance (QA) practices in critical care service.

8. STRUCTURED SYLLABUS

The curriculum of the family medicine specialist ultrasound fellowship is designed to produce a knowledgeable and competent specialist who in turn will be able to lead and become trainer to others.

The training-learning methods used are suitable for adult learning incorporating lifelong learning skills which are mainly self-directed learning together with active discussions with fellow colleague in seminars and bedside teaching. Fellows must be up to date with current clinical practice guidelines and recommendations.

The topics covered are outlined below. The syllabus is divided into 2 main applications: standard and advanced.

8.1. STANDARD APPLICATIONS

8.1.1 Ultrasound Physics and Instrumentation

Knowing the basics and advance on how ultrasound machine works.

9. Organ Sonography

1. Kidney and bladder
renal/bladder calculi, obstructive uropathy, renal parenchymal disease
indications for pocus Kub: hematuria, renal colic, LUTS, rapid rise in creat etc
2. Deep vein thrombosis (DVT)
lower limbs veins
indications of DVT scan: signs and symptoms of DVT/Well's score
3. Basic cardiac
PLAX, PSAX, 4CHV, SXV
indications for Cardiac pocus: symptoms and signs of CCF, cardiac murmurs, cardiomegaly on CXR etc
4. Lung
indications for Lungs pocus: symptoms and signs of lungs pathology: pneumonia, pleural effusion, B lines
5. Abdominal aorta
Aneurysm
indications for abdominal aorta pocus: abdominal mass, bruit, hypotension/shock

6. Soft Tissues-skin/muscle/joints
indications for MSK pocus: infection-cellulitis, abscess, lump/bump-lipoma
7. Focused assessment of sonography in trauma (FAST)/Extended focuses assessment of sonography in trauma (EFAST)
8. Breast ultrasound
Cysts/ mass
9. Vascular
Insert line for patients / drained abscess
10. Inferior vena cava ultrasound
To assess intravascular volume assessment - depleted or overloaded

On top of being in the primary care department, fellows are encouraged to attend echocardiography lab to learn about echo and attachment in obstetrics and gynecology department to learn more on transvaginal ultrasound, early pregnancy, and obstetric ultrasound assessment.

7. FELLOWSHIP COMPONENTS

The trainee must meet the following requirements before being allowed to sit for the exit examination.

Criteria for entry

1. Have attended at least one POCUS course
2. Have proper resources in the current practice ie all four ultrasound probes curvilinear, linear, phase array/cardiac and TVS with acceptable ultrasound machine quality
3. Actively performing POCUS in daily clinical practice
4. Have permission to attend from PKD, JKN, BPKK (can be discussed)

8. SCANNING

The main aim of this fellowship is to produce a fellow who can acquire images to the level of sonologist and interpret them accordingly like a radiologist.

The candidate will undergo at least 8 hours of scanning per week and perform a minimum of 1000 scans within the fellowship period.

9. TEACHING

Teaching is part of the learning curve to ensure a strong grasp of the fundamentals of ultrasound. This would consist of giving lectures as well as hands-on teaching to the medical officers in the emergency department, house officer, postgraduate students, undergraduates' students and nursing staff during ultrasound courses.

Throughout the duration of the fellowship, fellows would have to prepare at least lectures and join the POCUS workshop at USM physically or virtually

Suggest scanning practice in number of images please refer to attachment 1

Exit exam should be based on completion of scanning requirement (number of good quality images submitted and interpreted) and knowledge on basic ultrasound physics and ultrasound machine. Seat the exam conducted by SUCCES Society

9.1 CONTINUOUS MEDICAL EDUCATION

9.1.1 Meetings with all fellows and faculty members are on a weekly basis on every Wednesday correspond with postgraduate student program. During this meeting, there will be didactic lectures, journal club, literature review and research updates. The candidate is required to present an article review during the weekly meeting.

9.1.2 To attend POCUS workshop monthly organized by Emergency Department USM around 3-4 working days. Candidate required to present POCUS topic for each of the workshop. The workshop will be attended by MMED Emergency ultrasound posting year 1 as part of the MMED curriculum and other POCUS fellowship training

10 RESEARCH

This program strives to add to the current knowledge of ultrasound. Fellows are required to initiate a research project in the relevant field and complete the project by submission for publication.

11. QUALITY ASSURANCE (QA)

The image scanned must meet international standards. Interpretation of the images in the context of clinical settings will be reviewed by a faculty member. External QA practices will be implemented.

12. TRAINING CENTRE

- a) Department of Emergency Medicine, Hospital Universiti Sains Malaysia
- b) Department of Family Medicine, Hospital Universiti Sains Malaysia
- c) KKM facilities eg ED tertiary hospital with Emergency physician trained in pocus

d)

13. ACADEMIC STAFF/CERTIFIED TRAINERS

Physicians who have undergone formal training in critical & emergency ultrasound will be appointed as adjunct academic members. Candidates will be able to do rotation with other academic members in their respective centers. The trainers are:

- AP Dr Nani Draman
Senior Lecturer Family Medicine
Universiti Sains Malaysia

- AP Dr Shaik Farid Abdull Wahab
Senior Lecturer Emergency
Medicine Emergency Physician
Universiti Sains Malaysia
Fellow Emergency Ultrasound, Harvard – MGH (US)

- AP Dr Mohd Hashairi Fauzi
Senior Lecturer Emergency
Medicine Emergency Physician
Universiti Sains Malaysia

- Dr Mohd Zikry Mohamad
Senior Lecturer Emergency
Medicine Emergency Physician
Universiti Sains Malaysia

- Dr Bazli Md Yusoff
Lecturer in Radiology Department
Universiti Sains Malaysia

- Dr Lau Chiew Chea

Lecturer in Radiology Department
Universiti Sains Malaysia

- Dr Bibi Sadaqat Rahim
Lecturer in Radiology Department
Universiti Sains Malaysia
- AP Dr Nik Ahmad Zuky Nik Lah
Consultant and lecture
Obstetrics and gynecology Department
Universiti Sains Malaysia

14. Evaluation & ASSESSMENT

Evaluation for this fellowship program is a two-way process. Fellows will be continuously assessed and will receive formal feedback on a two monthly basis.

The fellows in this program will be assessed as follows:

1. Formative assessment: throughout the program
2. Satisfactory research undertaking and completion.

15.ADMISSION CRITERIA

- a. Family Medicine Specialist (or any other equivalent degree/training)
- b. Registered with Malaysia Medical Council (MMC)
- c. Holds an up-to-date Annual Practicing Certificate
- d. International candidate must acquire:
- e. Temporary Practicing Certificate (TPC) from Malaysia Medical Council (MMC)
- f. Professional indemnity insurance
- g. Permission and approval from the respective employer e.g. MOH, University or Country

16.FEES

- a. The suggested fee for the program for a local specialist is RM 500.00 per entry
- b. Government/University/Army candidate – according to Universiti standard fee rules

- c. The fee for an international specialist is USD 850.00 / per months*

**Subject to changes according to Universiti Fee committee*

17.AWARDING BODY

Candidates who have fulfilled the requirements of the program will be awarded Fellowship Point of Care Ultrasound in Primary Care by School of Medical Sciences, Universiti Sains Malaysia (USM).

18. COMPETENCIES

- 18.1 Know the indications, benefits and limitation of POCUS
- 18.2 Assess anatomy, physiology and pathology with POCUS
- 18.3 Communicate the result of a POCUS scan to patient and treatment team
and document the result appropriately in the medical record

19.CONCLUSION

It is hoped that this program will be able to attract local and foreign specialists, thus enabling USM to be the leading training center in Point of Care Ultrasound for Family Medicine