

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Ultrazvok v urgentni medicini
Course title:	Ultrasound in Emergency Medicine

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Biomedicinska tehnologija/Biomedical Technology 3. stopnja/3rd Degree		2	3 ali 4

Vrsta predmeta / Course type

Izbirni/Elective

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klin. vaje work	Druge oblike študija	Samost. Delo Individ. Work	ECTS
15	15		15		105	5

Nosilec predmeta / Lecturer:

Doc. dr. Matej Strnad

Jeziki /

Predavanja / Lectures:

Slovenščina / Slovene; Angleščina / English

Languages:

Vaje / Tutorial:

Slovenščina / Slovene; Angleščina / English

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Prerequisites:

Kandidat mora doseči 300 ECTS na predhodnem študiju.

Graduate degree 300 ECTS

Vsebina:

Content (Syllabus outline):

Vsebina študijskega predmeta »Ultrazvok v urgentni medicini« zajema predvsem proučevanje znanj in novih metodologij obposteljnega (»point-of-care«) ultrazvoka za diagnostiko in spremljanje zdravljenja (»monitoring«) izbranih bolezenskih entitet s področja urgentne medicine.

The contents of the study programme »Ultrasound in emergency medicine« comprise above all the studying of new methodologies of bedside (”point-of-care”) ultrasound for diagnosis and monitoring of treatment of specific disease entities from the field of emergency medicine.

V okviru predmeta bodo slušatelji, poleg preučevanja tehnik, indikacij in omejitve ter interpretacij dobljenih rezultatov, preučevali tudi umeščenost obposteljne ultrazvočne diagnostike v proces obravnave kritično obolelega pacienta (princip »z obpostelnim ultrazvokom« podprtega diagnostično-terapevtskega odločanja) zlasti na naslednjih področjih:

The students will study various ultrasound technics, indications and limitations of point-of-care ultrasound, interpret point-of-care ultrasound findings as well as research the importance of point-of-care ultrasound in management of critically ill patients (principle of point-of-care ultrasound enhanced diagnostic processes and therapeutic decision-making) in the following fields of emergency medicine:

1. motnje zavesti in poškodbe glave (transkranijski ultrazvok, ultrazvočno določanje intrakranialnega tlaka, ocena zeničnih reakcij),
2. oskrba dihalne poti (ultrazvok dihalnih poti in podpora endotrahealni intubaciji),
3. dispnoični bolnik in bolnik s prsno bolečino (ultrazvok stene prsnega koša, ultrazvok pljuč, usmerjena ehokardiografija, ultrazvok globokega venskega sistema),
4. bolnik z bolečino v trebuhu (usmerjeni ultrazvok žolčnika, ledvic, črevesnih vijug in slepiča, prisotnost proste tekočine),

- altered mental status and head trauma (transcranial ultrasound, evaluation of intracranial pressure with ultrasound, evaluation of pupil reactions),
- airway management (airway ultrasound and its support by endotracheal intubation),
- patient with acute dyspnoea and chest pain (ultrasound of thoracic wall, lung ultrasound, focused echocardiography, deep venous ultrasound),

5. nediferencirani šokirani bolnik (ultrazvočni protokol RUSH)
6. kritično prizadeti poškodovanec (ultrazvočni protokoli FAST, E-FAST in FAST-ER),
7. ultrazvočna diagnostika mehko tkivnih lezij (vnetja, okužbe, poškodbe)

Za slušatelje je priporočeno osnovno poznavanje (tehnik, indikacije, omejitve, interpretacija rezultatov) obposteljnih ultrazvočnih preiskav.

- patient with acute abdominal pain (focused ultrasound of gallbladder, kidneys, intestine and appendix, free fluid in abdomen),
- undifferentiated patient in shock (RUSH protocol)
- patient with life threatening injuries (FAST, E-FAST, FAST-ER protocols)
- ultrasound of soft tissues (inflammations, infections, trauma)
- Students should have basic knowledge of point-of-care ultrasound diagnostics (basic technics, knobology, indications, limitations, interpretation of findings).

Temeljni literatura in viri / Readings:

1. Noble VE, Nelson B. Manual of emergency and critical care ultrasound. 2nd ed. Cambridge: Cambridge University Press 2011.
2. Ma JO, Mateer JR, Reardon RF, Joing SA. Ma and Mateer's Emergency Ultrasound. 3th ed. McGraw Hill 2014.
3. De Backer D, Cholley BP, Slama M, Vieillard Baron A, Vignon P. Hemodynamic monitoring using echocardiography in the critically ill. Springer Verlag 2011.
4. Lichtenstein DA. General ultrasound in the critically ill. Springer Verlag 2007.

Cilji in kompetence:

Cilji študija »Ultrazvok v urgentni medicini« so:

- razumevanje in kritično vrednotenje obposteljne ultrazvočne diagnostike v procesu obravnave kritično obolelega;
- kritično vrednotenje ter možnost prenosa v klinično prakso novih obposteljnih ultrazvočnih aplikacij (transkranijski ultrazvok, ultrazvočno merjenje IKT, okularni ultrazvok, ultrazvok dihalnih poti, ultrazvočni protokoli za obravnavo nediferenciranih bolnikov);
- razumevanje tehnik, indikacij, omejitev in interpretacij dobljenih rezultatov obposteljne ultrazvočne preiskave.

Objectives and competences:

The objectives of the study »Ultrasound in emergency medicine« are:

- comprehension and evaluation of point-of-care ultrasound diagnostics in management of critically ill patients;
- applicability evaluation and transfer of new point-of-care ultrasound applications into clinical praxis (transcranial ultrasound, evaluation of intracranial pressure with ultrasound, ocular ultrasound, airway ultrasound, ultrasound protocols for undifferentiated patients);
- comprehension of technics, indications, limitations and interpretations of point-of-care ultrasound findings.

Predvideni študijski rezultati:

Intended learning outcomes:

Znanje in razumevanje:

- Osvojitve novih znanj s področja ultrazvoka v urgentni medicini ter njihovo razumevanje, ki jih bo mogoče neposredno koristiti v procesu zdravljenja in spremljanja kritično obolelih.
- Ključne veščine ultrazvoka v urgentni medicini.

Prenesljive/ključne spretnosti in drugi atributi:

Odvisno od raziskovalnega področja in samega raziskovalnega projekta.

Metode poučevanja in učenja:

Predavanja, seminarji, seminarske vaje, samostojno raziskovalno delo.

Knowledge and understanding:

- Acquired new knowledge in the field of ultrasound in emergency medicine, which can be applied directly in the processes of treatment and following of critically ill patients.
- Key skills in emergency medicine ultrasound.

Transferable/Key Skills and other attributes:

Depends on the research field and on the research project.

Learning and teaching methods:

Lectures, seminars, tutorials, independent research work.



Načini ocenjevanja:

**Delež (v %) /
Weight (in %)**

Assessment:

• Ustno izpraševanje • Seminarska naloga • Praktični izpit	25 % 25 % 50 %	• Oral examination • Coursework • Practical examination
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