

European Prescribing Exam: A free prescribing exam for all EU universities

Workshop EACPT Virtual Meeting 28th of June 2021



Co-funded by the
Erasmus+ Programme
of the European Union





Dr David Brinkman



Dr Erik Donker



Agenda

- | | | |
|-------------------------------|--------|----------------|
| • Introduction | 20 min | David Brinkman |
| • Online tour | 20 min | Erik Donker |
| • Creating your own questions | 30 min | Erik Donker |
| • Discussion | 20 min | Erik Donker |



Introduction

- Junior doctors write **most** ($\pm 70\%$) drug prescriptions in the hospital (Dornan et al. 2009; Ryan et al. 2014 ; Ashcroft et al. 2015)
- Junior doctors **twice** as likely to make a prescribing error compared to consultants (Dornan et al. 2009; Ryan et al. 2014; Ashcroft et al. 2015)





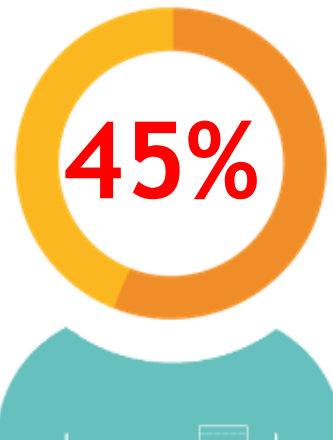
ARTICLES

Essential Competencies in Prescribing: A First European Cross-Sectional Study Among 895 Final-Year Medical Students

DJ Brinkman^{1,2}, J Tichelaar^{1,2}, T Schutte^{1,2}, S Benemei³, Y Böttiger⁴, B Chamontin⁵, T Christiaens⁶, R Likic⁷, R Mačiulaitis⁸, T Marandi⁹, EC Monteiro¹⁰, P Papaioannidou¹¹, YM Pers¹², C Pontes¹³, A Raskovic¹⁴, R Regenthal¹⁵, EJ Sanz¹⁶, BI Tamba¹⁷, K Wilson¹⁸, TP de Vries^{1,2}, MC Richir^{1,2}, MA van Agtmael^{1,2}, on behalf of the Working Group Research on CPT Education of the European Association for Clinical Pharmacology and Therapeutics (EACPT)

CLINICAL PHARMACOLOGY & THERAPEUTICS | VOLUME 101 NUMBER 2 | FEBRUARY 2017

55%



45%

‘Never had written out a prescription’

Type of prescribing error (n = 5.104)	Overall (%)
Drug indication:	
Not indicated/inappropriate for indication	9.1
Less effective drug choice	19.6
Drug dose:	
Underdosing	7.8
Overdosing	17.9
Drug duration:	
Too short duration	5.5
Too long duration	11.3
Method of administration:	
Incorrect route	1.4
Other:	
Incomplete/incorrect drug prescription	18.0
Protecting medication omitted	3.0
Inappropriate abbreviation	0.9
Therapeutic duplicity	0.7
Drug group name	2.3

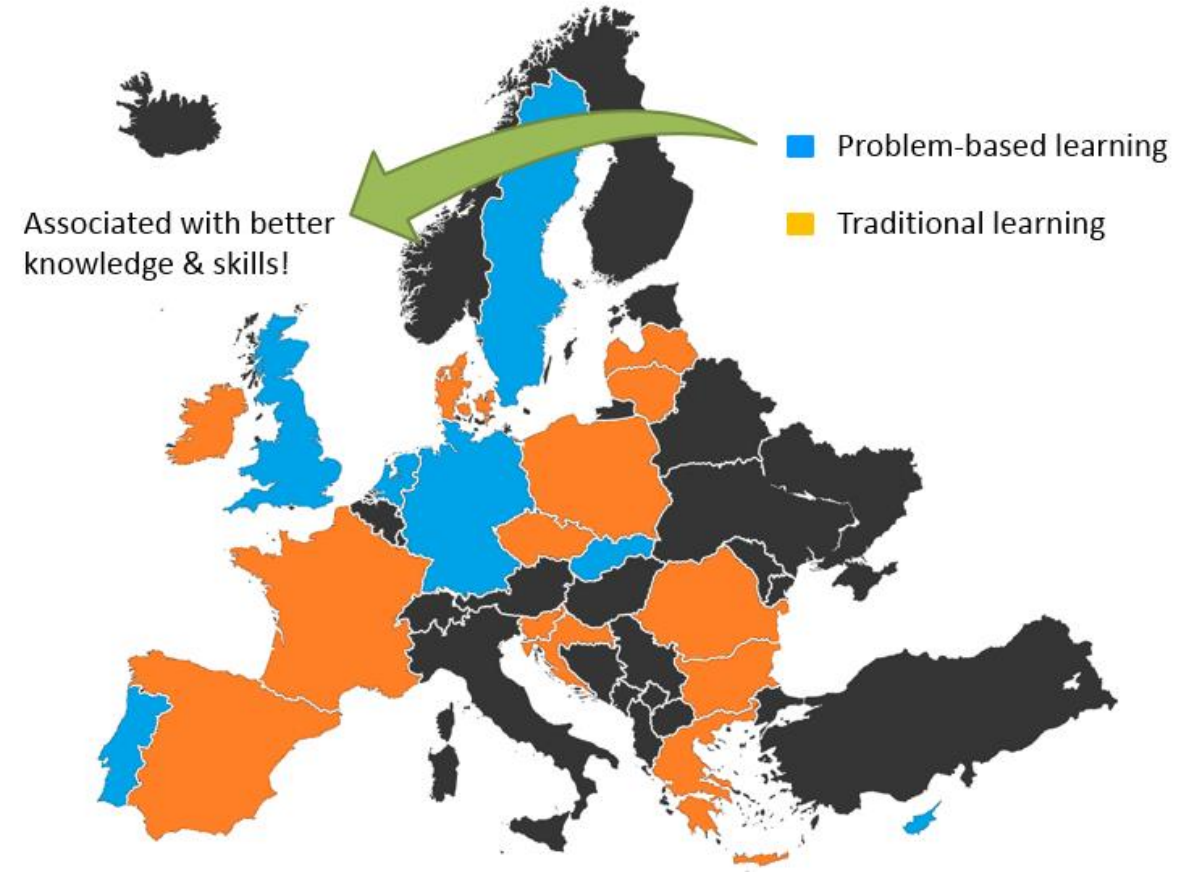


ARTICLES

Pharmacology and Therapeutics Education in the European Union Needs Harmonization and Modernization: A Cross-sectional Survey Among 185 Medical Schools in 27 Countries

DJ Brinkman^{1,2}, J Tichelaar^{1,2}, M Okorie³, L Bissell³, T Christiaens⁴, R Likic⁵, R Mačulaitis⁶, J Costa⁷, EJ Sanz⁸, BI Tamba⁹, SR Maxwell¹⁰, MC Richir^{1,2}, MA van Agtmael^{1,2}; for the Education Working Group of the European Association for Clinical Pharmacology and Therapeutics (EACPT)

CLINICAL PHARMACOLOGY & THERAPEUTICS | VOLUME 102 NUMBER 5 | NOVEMBER 2017



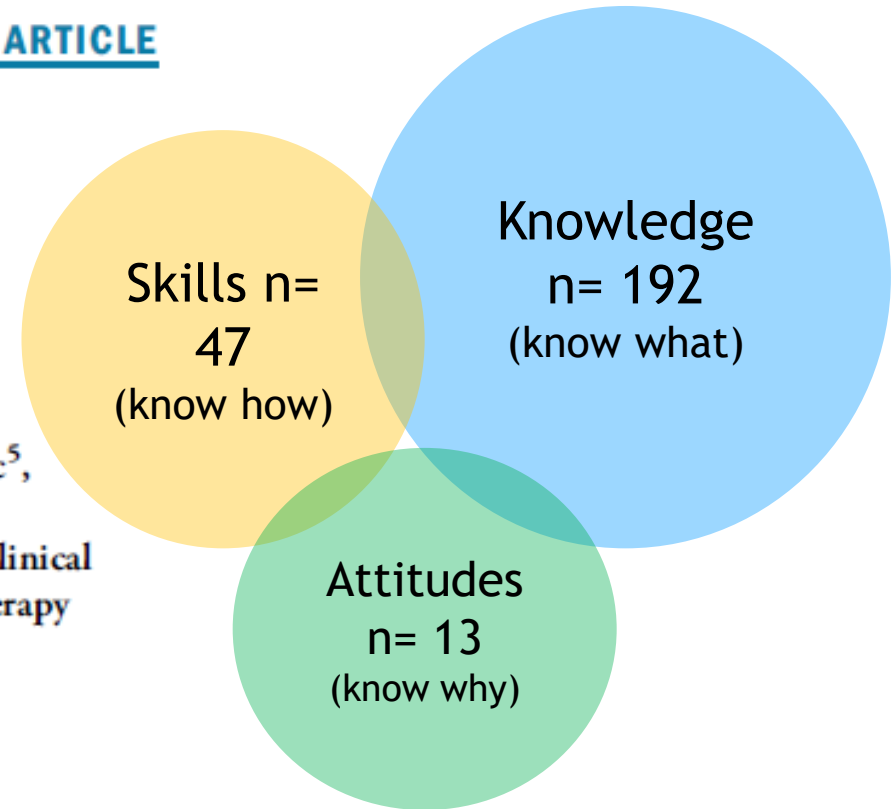


ARTICLE

Key Learning Outcomes for Clinical Pharmacology and Therapeutics Education in Europe: A Modified Delphi Study

David J. Brinkman^{1,2}, Jelle Tichelaar^{1,2}, Lidwine B. Mookink³, Thierry Christiaens⁴, Robert Likic⁵, Romaldas Maciulaitis⁶, Joao Costa⁷, Emilio J. Sanz⁸, Simon R. Maxwell⁹, Milan C. Richir^{1,2}, and Michiel A. van Agtmael^{1,2}, for the Education Working Group of the European Association for Clinical Pharmacology and Therapeutics (EACPT) and its affiliated Network of Teachers in Pharmacotherapy (NOTIP)

CLINICAL PHARMACOLOGY & THERAPEUTICS | VOLUME 104 NUMBER 2 | AUGUST 2018





What is the appropriate next step..??





Two Erasmus+ grants



Jelle Tichelaar
Project leader



EurOP²E

2021-2023

The European Open Platform for
Prescribing Education



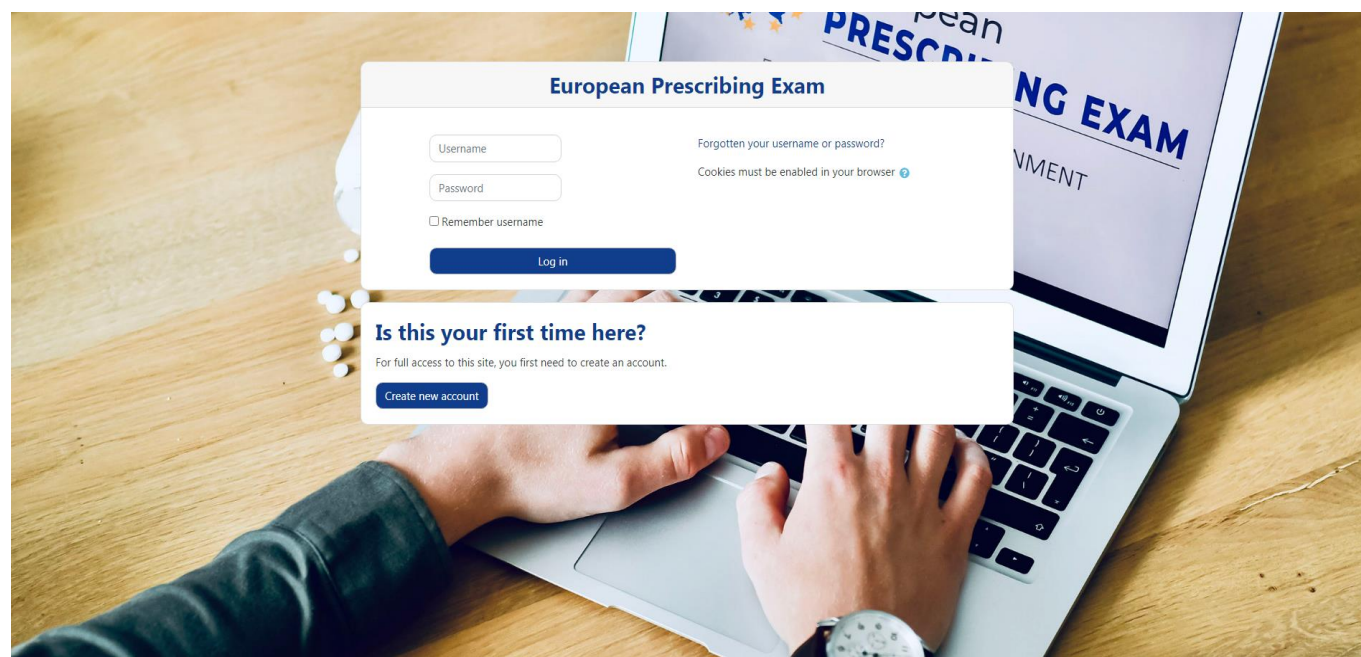
Europe⁺

2019-2022

European Prescribing Exam

www.prescribingeducation.eu

European Prescribing Exam



Participating universities



Associate partners



Strategic partners

CONCLUSION
LEARNING CENTERS

www.prescribingeducation.eu





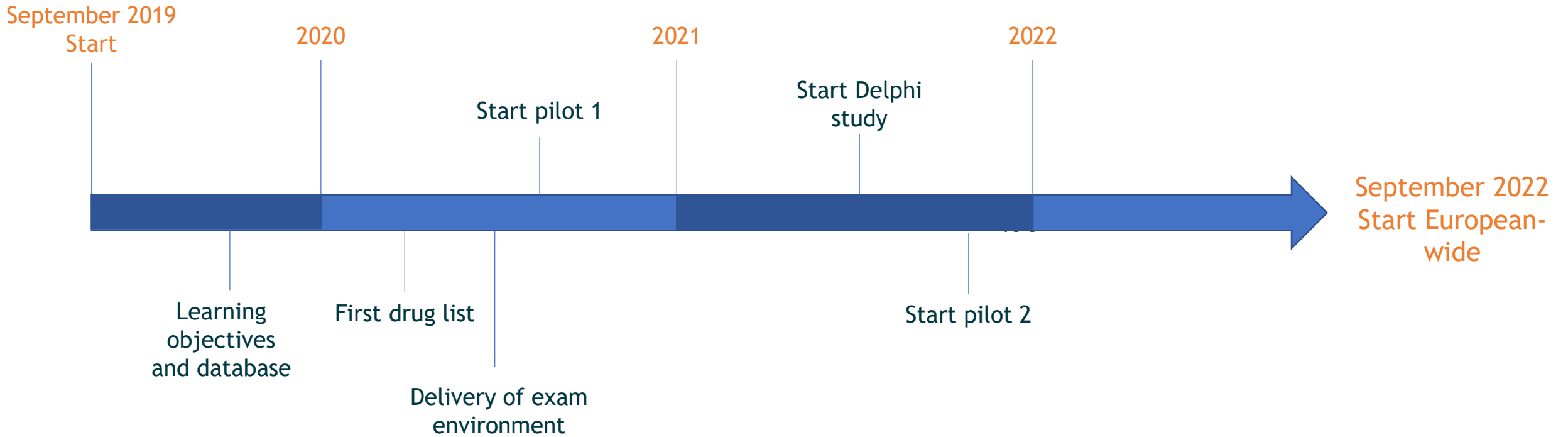
Ultimate goal

To improve prescribing competence of future EU medical doctors, thereby reducing prescribing errors and improving patient safety



Criteria

- Focused on knowledge AND skills
- Final-year medical students
- Every EU university can use the exam **freely** after development
- Every EU university can be **involved** in development of the content





Content of exam

- 43 learning outcomes in CPT education (Brinkman et al. 2018 and Dutch National Assessment)
- 63 essential diseases (Jansen et al. 2018)
- Essential drugs (in progress, expected 2021)



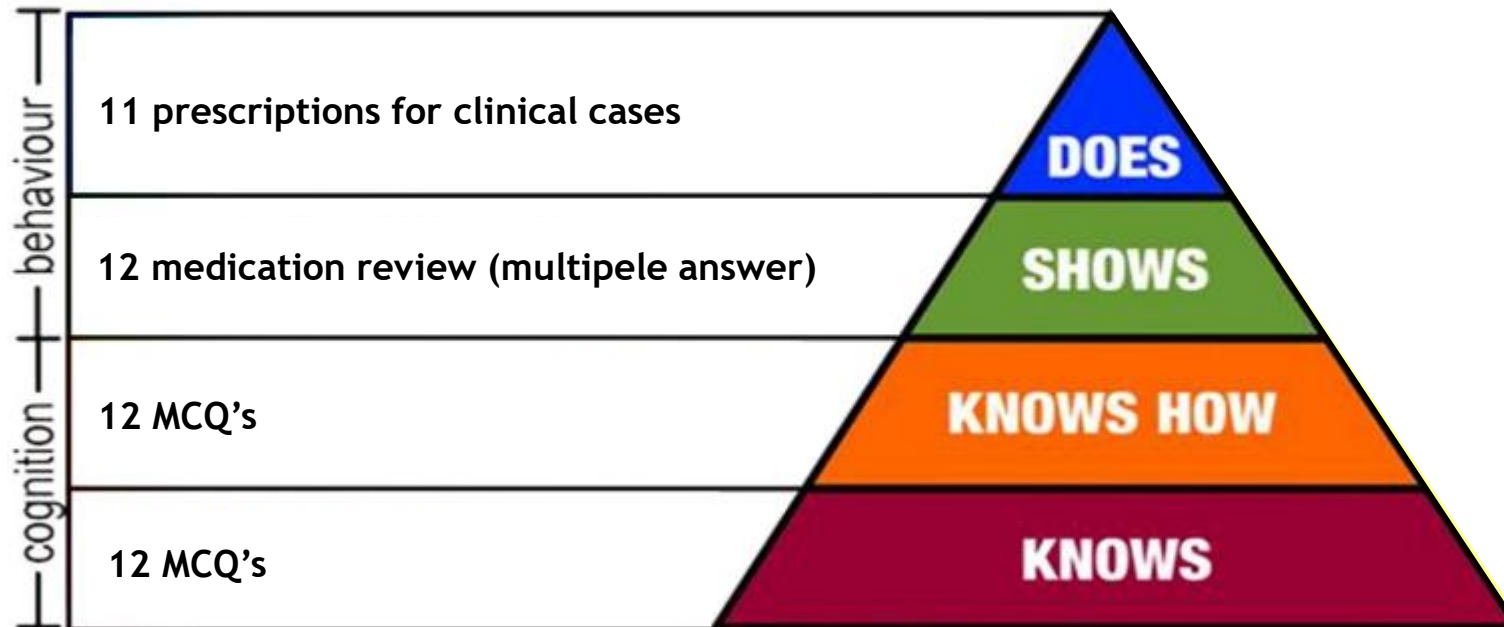
Content of exam

- 47 questions about 7 topics (HARM study; Leendertse et al. 2008)
 - Analgesics
 - Anticoagulant
 - Antimicrobials
 - Cardiovascular
 - Respiratory
 - Psychotropics
 - Emergency





47 questions



Miller's pyramid



Review questions

- First quick check by Amsterdam UMC
- Final check by all 8 partner universities
- After exam: Psychometric analysis



Let's start the online tour...



Questions about the exam?



Workshop creating exam questions

- Aim: create 1 *Knows how* or *medication review* question with your group
- Used the:
 - Correct format
 - Drug list
 - Learning objectives
 - Example question

Examples



Case
A 72-year-old woman is admitted to hospital because of an osteomyelitis of her foot. The last few days she has been eating and drinking less than normal.
Medical history
Since 15 years: Essential hypertension Since 5 years: Diabetes mellitus type 2 Since 3 years: Osteoarthritis 1 year ago: Cerebrovascular accident
Medication
Atorvastatin 80 mg tablet, once a day Clopidogrel 75 mg tablet, once a day Enalapril 10 mg tablet, once a day Furosemide 40 mg tablet, once a day Ibuprofen 400 tablet, three times a day Metformin 850 mg tablet, twice a day Omeprazol 20 mg tablet, once a day Paracetamol (acetaminophen) 500 mg tablet, three times a day two tablets Tramadol 50 mg tablet, when needed, maximum three times a day
Laboratory results
Sodium 134 mmol/L or 308 mg/dL (references 136-145 mmol/L or 312.6-333.3 mg/dL) Potassium 3.8 mmol/L or 14.8 mg/dL (references 3.5-5.0 mmol/L or 13.7-19.5 mg/dL) Serum creatinine 182 μ mol/L or 2.06 mg/dL (references 62-115 mmol/L or 0.7-1.3 mg/dL) eGFR 34 mL/min/1.73m ² (>60) Urea 10.1 mmol/L or 28.3 mg/dL (reference 2.9-7.1 mmol/L or 8.1-19.9 mg/dL) Glucose 9.5 mmol/L or 171 mg/dL (reference 4.5-8.0 mmol/L or 70-130 mg/dL) <i>All other results are normal</i>
Question
Select the THREE drugs that are MOST likely to be contributing to her impaired renal function.
Answer
Furosemide, enalapril, ibuprofen

Case
A 70-year-old man visits the emergency department because of increasing confusion. His daughter says that the confusion started yesterday. Two days ago, the general practitioner prescribed a new drug for 'his blood pressure, or was it for his incontinence?'. The daughter does not remember it.
Physical examination
Vital parameters: Blood pressure: 145/85 mmHg, pulse rate 88/min., respiratory rate 18/min., temperature 37,0 degrees Celsius. Abdomen: auscultation: gurgling bowel sounds, a dull to percussion mass suprapubic, palpation: hard and painful palpable bladder. <i>No abnormal findings were found by further physical examination.</i>
Medical history
Since 15 years: Essential Hypertension Since 10 years: Hypercholesterolemia Since 6 years: Atrial fibrillation Since 6 months: Urinary incontinence
Medication
Acenocoumarol 1 mg tablet, dosage scheme (or warfarin 1 mg, tablet, dosage scheme) Metoprolol 100 mg tablet with extended release, once a day Simvastatin 40 mg tablet, once a day 1 unknown medication
Laboratory results
Serum creatinine 110 μ mol /L or 1.24 mg/dL (references 62-115 mmol/L or 0.7-103 mg/dL) eGFR 64 mL/min/1.73m ² (>60) <i>No other abnormalities were found</i>
Additional tests
Ultra sound of abdomen: Urinary retention bladder (510 ml)
Question
Which of the following drugs is MOST likely the cause of his complaints?
Options
Amlodipine Lisinopril Oxybutynin Tamsulosin
Answer
Oxybutynin





<http://www.prescribingeducation.eu/workshop-EACPT>



Case
A 54-year old patient comes to your practice for a routine check-up. He tells you that he feels quite good, although in the last few weeks he noted that his ankles are swollen and his urine appears foamy.
Physical examination
Vital parameters: BP 165/95 mmHg, pulse rate: 85/min regular Weight: 105 kg, BMI: 36.3 kg/m ² Bilateral moderate oedema involving ankles and distal third of the legs <i>No abnormal findings were found by further physical examination</i>
Medical history
15 years ago: Grade 2 obesity 10 years ago: Essential hypertension 7 years ago: Diabetes mellitus type 2
Medication
Amlodipine 10 mg tablet, once a day Hydrochlorothiazide 25 mg tablet, once a day Metformin 850 mg tablet, twice a day Sitagliptin 50 mg tablet, twice a day
Laboratory results
HBA1c 70 mmol/mol or 8,6% (<54 mmol/mol or <7,1%) Serum creatinine 114.4 µmol/L or 1.3 mg/dL (62-115 or 0.5-1.2) eGFR 62 mL/min/1.73m ² (>60) Albumin in urine 850 mg in 24 hours
Question
Your working diagnosis is: proteinuria in patient with concomitant hypertension and diabetes. Write one or more drug prescriptions that are the MOST appropriate to treat his condition.
Answer
Appropriate: Losartan – tablet – 50 – mg – once a day Ramipril – tablet – 1.25 – mg – once a day Ramipril – tablet – 2.5 – mg – once a day
Suboptimal: Losartan – tablet – 25 – mg – once a day Losartan – tablet – 100 – mg – once a day Ramipril – tablet – 5 – mg – once a day Ramipril – tablet – 10 – mg – once a day Enalapril – tablet – 5 – mg – once a day Enalapril – tablet – 10 – mg – once a day
Inappropriate: Enalapril – tablet – 20 – mg – once a day All other options
Although ramipril is not included in the essential drug list, it could be included among the appropriate answers. Currently, according to SPC, only losartan (start with 50 mg/day) and ramipril (start with 1.25-2.5 mg/day) are approved for microalbuminuria/proteinuria associated with diabetes and hypertension, although different ACE-I are also used for this indication (for this reason we suggested enalapril as a suboptimal option). We think that including ramipril could be useful for the students to know and learn the various therapeutic indications approved for the different agents belonging to the same class.

Case
A 54-year old man comes to your practice for a routine check-up. He tells you that his ankles are more swollen and his urine appears foamy.
Physical examination
Vital parameters: Blood pressure 165/95 mmHg, pulse rate: 85/min regular Weight: 105 kg, BMI: 36.3 kg/m ² Bilateral moderate pitting oedema involving ankles and distal third of the legs <i>No abnormal findings were found by further physical examination</i>
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Suboptimal: Losartan – tablet – 25 – mg – once a day Losartan – tablet – 100 – mg – once a day Enalapril – tablet – 20 – mg – once a day
Inappropriate: All other options





Discussing of your questions

Future

- Delphi-study for essential drugs starts this summer
- Email to: e.donker@amsterdamumc.nl






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Medical education and training
Protocol

European List of Essential Medicines for Medical Education: a protocol for a modified Delphi study 

 Erik Donker^{1, 2}, David Brinkman^{1, 2}, Milan Richir^{1, 2}, Paraskevi Papaioannidou³, Robert Likic^{4, 5},  Emilio J Sanz⁶, Thierry Christiaens⁷, João Costa⁸, Fabrizio De Ponti⁹, Milo Gatti⁹, Ylva Böttiger¹⁰, Cornelis Kramers¹¹, Sarah Garner¹², Rahul Pandit¹³, Michiel van Agtmael^{1, 2}, Jelle Tichelaar^{1, 2}

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PDF



PDF +
Supplementary
Material





How to participate

- Exam available at the end of 2022
- Pre-meeting at the begin of 2022
- Email to: e.donker@amsterdamumc.nl



See you next year!