Are Dutch dental students and dental-care providers competent prescribers of drugs?


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SUPPORTING INFORMATION

Are Dutch dental students and dental care providers competent prescribers of drugs?


Amsterdam University Medical Centers, Amsterdam, The Netherlands; Research and Expertise Center in Pharmacotherapy Education (RECIPE), Amsterdam, The Netherlands;
Academic Centre for Dentistry Amsterdam (ACTA), Amsterdam, The Netherlands;
Royal Dutch Dental Association (KNMT), Nieuwegein, The Netherlands;
Radboud University Medical Centre, Nijmegen, The Netherlands;
University Medical Center Groningen, Groningen, The Netherlands
Appendix A. Prescribing competencies of dental students and dental care providers in the Netherlands

Introduction

Thank you for participating in this study. This study is conducted on behalf of all dental faculties in the Netherlands in collaboration with the VU University Medical Center and the Royal Dutch Dental Association (KNMT).

The primary aim is to assess and compare the prescribing competence of final-year dental students and dental care providers in the Netherlands.

The assessment consists of two parts and takes approximately 30 minutes to complete:
- Part 1. Demographical questions (5 minutes).
- Part 2. 40 knowledge questions. You are NOT allowed to use references (25 minutes).

Please answer the questions below and continue to the next page.

* 1. What is your age?  

* 2. What is your sex?  

☐ Male ☐ Female

* 3. You are:  

☐ Fifth-year dental student  
☐ Sixth-year dental student  
☐ General dental practitioner  
☐ Orthodontist  
☐ Oral and maxillofacial surgeon  
☐ Other:  

* 4. Informed consent  

Please find the information letter [here](#).  

☐ Hereby I give my informed consent to participate in this study
Appendix A. Prescribing competencies of dental students and dental care providers in the Netherlands

Part 1. Demographical questions (dental students)

* 5. At which dental faculty in the Netherlands are you studying?
   - [ ] Academic Centre for Dentistry Amsterdam
   - [ ] Radboud University Nijmegen
   - [ ] University of Groningen

* 6. How many drug prescriptions have you written during your undergraduate dental study?

   

* 7. How many drug prescriptions have you written in the last three months (approximately)?

   

* 8. How confident do you feel in prescribing drugs safely and effectively?
   - [ ] Unconfident
   - [ ] Slightly unconfident
   - [ ] Neutral
   - [ ] Slightly confident
   - [ ] Confident
## Appendix A. Prescribing competencies of dental students and dental care providers in the Netherlands

**Part 1. Demographical questions (dental care providers)**

* 9. When did you start working as a dental care provider? 

* 10. How many hours do you work per week? 

* 11. At which dental faculty in the Netherlands have you studied?

- [ ] Free University Amsterdam (before 1984)
- [ ] Municipal University of Amsterdam (before 1984)
- [ ] Academic Centre for Dentistry Amsterdam (after 1984)
- [ ] Radboud University Nijmegen
- [ ] University of Utrecht
- [ ] University of Groningen

* 12. How many drug prescriptions have you written in the last three months (approximately)?

* 13. How confident do you feel in prescribing drugs safely and effectively?

- [ ] Unconfident
- [ ] Slightly unconfident
- [ ] Neutral
- [ ] Slightly confident
- [ ] Confident
Appendix A. Prescribing competencies of dental students and dental care providers in the Netherlands

Part 2. Knowledge questions

In this part, you are asked to answer 40 multiple-choice questions regarding your prescribing knowledge. For each question please select the most appropriate option. You are NOT allowed to use references such as guidelines or formularies.

The questions are divided in five categories:
1. Analgesics (n= 9)
2. Anticoagulants (n= 9)
3. Antibiotics (n= 9)
4. Local anaesthetics (n= 9)
5. Oral manifestations of frequently prescribed drugs (n= 4)

Please continue to the next page.

NB: common trade names are mentioned for each generic drug.
Appendix A. Prescribing competencies of dental students and dental care providers in the Netherlands

Part 2. Knowledge questions

* 14. What is a frequent side effect of opioids (1-10% of patients)?
  - Orthostatic hypotension
  - Tooth discoloration
  - Muscle pain
  - Obistipation

* 15. A patient comes to you for an initial periodontal treatment and uses acetylsalicylic acid (e.g. Aspirin©) for peripheral vascular disease. What is the MOST appropriate decision regarding the use of acetylsalicylic acid during the procedure?
  - Acetylsalicylic acid should NOT be discontinued before the procedure
  - Acetylsalicylic acid should be discontinued 3 days before the procedure
  - Acetylsalicylic acid should be discontinued 5 days before the procedure
  - Acetylsalicylic acid should be discontinued 7 days before the procedure

* 16. Which of the following analgesics is MOST likely to cause acute liver failure when overdosed?
  - Codeine
  - Ibuprofen (e.g. Advil©, Brufen©)
  - Acetaminophen (e.g. Panadol©)
  - Morphine (e.g. MS Contin©)

* 17. A patient has an anaphylactic reaction to phenethicillin (e.g. Broxil©). Which of the following antibiotics should NOT be prescribed for this patient?
  - Amoxicillin
  - Metronidazole (e.g. Flagyl©)
  - Doxycycline/tetracycline (e.g. Doxy©)
  - Clindamycin (e.g. Dalacin C©)

* 18. Which of the following antibiotics is contraindicated during pregnancy because of a negative effect on the tooth development of the fetus?
  - Doxycycline/tetracycline (e.g. Doxy©)
  - Amoxicillin
  - Metronidazole (e.g. Flagyl©)
  - Clindamycin (e.g. Dalacin C©)
19. Which of the following statements is INCORRECT? Adding adrenaline/elypressin to local anesthetics:

- Increases the intensity of the anesthetic
- Increases the circulation in surrounding tissue and accelerates the absorption of the anesthetic
- Increases the duration of action of the anesthetic
- Decreased the absorption of the anesthetic and the systemic toxicity

20. A patient comes for an initial periodontal treatment and uses acenocoumarol (e.g. Sintrom©) for atrial fibrillation. Which drug should be prescribed after the procedure to reduce the bleeding risk?

- Chlorhexidine mouthwash (e.g. Corsodyl©)
- Tranexamic acid mouthwash
- Ibuprofen (e.g. Advil©, Brufen©)
- Vitamin K

21. Which of the following drugs is associated with a higher risk of gastric bleeding when combined with a Non-Steroidal Anti-Inflammatory Drug (NSAID)?

- Enalapril (e.g. Renitec©)
- Furosemide (e.g. Lasix©)
- Paroxetine (e.g. Seroxat©)
- Simvastatin (e.g. Zocor©)

22. Which of the following analgesics can reduce the excretion of methotrexate and subsequently lead to increased toxicity (e.g. bone marrow depression)?

- Acetaminophen (e.g. Panadol©)
- Ibuprofen (e.g. Advil©, Brufen©)
- Tramadol (e.g. Tramal©)
- Morphine (e.g. MS Contin©)

23. What is an absolute contraindication for prescribing a Non-Steroidal Anti-Inflammatory Drug (NSAID)?

- Chronic obstructive pulmonary disease
- Severe heart failure
- Gout
- Rheumatoid arthritis

24. A Non-Steroidal Anti-Inflammatory Drug (NSAID) should be prescribed with a proton pump inhibitor (e.g. omeprazole) if the patient:

- Has a peptic ulcer in the history
- Is between 50 and 60 years old
- Uses acetylsalicylic acid (e.g. Aspirin©)
- Has diabetes mellitus type 2
25. After administering a local anesthetic, a patient complains about tingling in the fingers, palpitations, feeling warm and sweating. Shortly thereafter she loses consciousness. What is the MOST likely cause of her symptoms?
- An anaphylactic reaction
- An epileptic insult
- A vasovagal collapse
- Hyperventilation
Part 2. Knowledge questions

* 26. What is a relative contraindication for administering local anesthetics with felypressin?

- [ ] Asthma
- [ ] Pregnancy
- [ ] Allergy to sulphite
- [ ] There is no contraindication

* 27. Recent use of cocaine (about 6-24 hours) before administration of a local anesthetic with adrenaline may lead to:

- [ ] Bronchoconstriction
- [ ] Hypertension
- [ ] Sedation
- [ ] Bradycardia

* 28. Which of the following anticoagulants can lead to ulceration of the oral mucosa if it is kept too long in the mouth?

- [ ] Acenocoumarol (e.g. Sintrom©)
- [ ] Acetylsalicylic acid (e.g. Aspirin©)
- [ ] Clopidogrel (e.g. Plavix©)
- [ ] Phenprocoumon (e.g. Marcoumar©)

* 29. Which of the following analgesics is MOST likely to cause sedation and poor responsiveness?

- [ ] Acetaminophen (e.g. Panadol©)
- [ ] Celecoxib (e.g. Celebrex©)
- [ ] Tramadol (e.g. Tramal©)
- [ ] Diclofenac (e.g. Voltaren©)
30. Which of the following antibiotics is contraindicated in patients with infectious mononucleosis (Pfeiffer's disease) because of an increased risk of exanthema (see picture below)?

- Erythromycin (e.g. Erythrocine©)
- Clindamycine (e.g. Dalacin C©)
- Amoxicillin
- Phenethicillin (e.g. Broxil©)

31. Which of the following antibiotics may lead to irreversible tooth discolouration when prescribed for children up to 8 years of age (see picture below)?

- Clindamycine (e.g. Dalacin C©)
- Amoxicillin
- Doxycycline/tetracycline (e.g. Doxy©)
- Amoxicillin + clavulanic acid (e.g. Augmentin©)

32. Which of the following drugs is MOST likely to increase the bleeding risk after a tooth extraction?

- Rivaroxaban (e.g. Xarelto©)
- Tramadol (e.g. Tramal©)
- Amoxicillin + clavulanic acid (e.g. Augmentin©)
- Clindamycine (e.g. Dalacin C©)

33. Which of the following drugs is associated with a higher bleeding risk when combined with acetylsalicylic acid (e.g. Aspirin©)?

- Enalapril (e.g. Renitec©)
- Furosemide (e.g. Lasix©)
- Ibuprofen (e.g. Advil®, Brufen©)
- Simvastatin (e.g. Zocor©)
34. Which of the following analgesics reduces the antithrombotic action of acetylsalicylic acid (e.g. Aspirin©)?
- Ibuprofen (e.g. Advil®, Brufen®)
- Tramadol (e.g. Renitec®)
- Acetaminophen (e.g. Panadol®)
- Morphine (e.g. MS Contin®)

35. What can you do to prevent side effects of a local anesthetic?
- After administration, place the patient in a sitting position and wait for 5 minutes
- Administer one carpule to the patient and await response
- Aspirate before infiltrating
- Inject the anesthetic quickly

36. Which of the following drugs potentiates the effect of vitamin K antagonists (e.g. Sintrom®) by inhibiting hepatic metabolism?
- Miconazole (e.g. Daktarin oral gel®)
- Codeine
- Chlorhexidine (e.g. Corsodyl®)
- Clindamycin (e.g. Dalacin C®)

37. A patient comes for a tooth extraction and uses acenocoumarol (e.g. Sintrom®) because of a venous thrombosis. What is the MOST appropriate decision regarding the use of acenocoumarol during the procedure?
- Acenocoumarol should NOT be discontinued unless the INR is lower than 3.5 around 24-72 hours before the procedure
- Acenocoumarol should be discontinued if more than two teeth are extracted
- Acenocoumarol should be discontinued before the procedure, regardless of the INR
- Acenocoumarol should be temporarily switched to phenprocoumon before the procedure (e.g. Marcoumar®)

38. Which of the following drugs is associated with a higher risk of gastric bleeding when combined with ibuprofen (e.g. Advil®, Brufen®)?
- Prednisolone
- Codeine
- Enalapril (e.g. Renitec®)
- Simvastatin (e.g. Zocor®)

39. Which of the following drugs increases the risk of hypertension and bradycardia when combined with local anesthetics containing adrenaline?
- Propranolol
- Simvastatin (e.g. Zocor®)
- Enalapril (e.g. Renitec®)
- Hydrochlorothiazide
Part 2. Knowledge questions

* 40. Which of the following drugs is MOST likely to cause black or brown discoloration of the tongue (see picture below)?

- Ibuprofen (e.g. Advil®, Brufen®)
- Hydrochlorothiazide
- Chlorhexidine (e.g. Corsodyl®)
- Simvastatin (e.g. Zocor®)

* 41. Which of the following local anesthetics is the MOST appropriate choice for patients with an allergy to sulphite?

- Articaine/Adrenaline (e.g. Ultracain DS®)
- Prilocaine (e.g. Citanest®)
- Lidocaine/Adrenaline (e.g. Xylocaine/Adrenaline®)
- None of the above
42. Which of the following drugs is MOST likely to cause gingival hyperplasia (see picture below)?

- Ibuprofen (e.g. Advil®, Brufen®)
- Enalapril (e.g. Renitec®)
- Phenytoin (e.g. Diphantoiné®)
- Simvastatin (e.g. Zocor®)

43. Which of the following antibiotics is associated with an increased risk of photosensitization (exaggerated sunburn reaction)?

- Doxycycline/tetracycline (e.g. Doxy®)
- Amoxicillin
- Metronidazole (e.g. Flagyl®)
- Clindamycin (e.g. Dalacin C®)

44. Which of the following analgesics is contraindicated in patients with a decreased kidney function (eGFR <30 ml/min)?

- Codeine
- Ibuprofen (e.g. Advil®, Brufen®)
- Acetaminophen (e.g. Panadol®)
- Morphine (e.g. MS Contin®)

45. What is a clinically important contraindication for prescribing acetylsalicylic acid (e.g. Aspirin®)?

- Diabetes mellitus type 2
- Orthostatic hypotension
- Parkinson's disease
- Peptic ulcer (active or in medical history)
46. Which of the following drug groups is MOST likely to cause oropharyngeal candidiasis (see picture below)?

- Inhalation corticosteroids (e.g. beclomethasone)
- Local antiseptics (e.g. chlorhexidine)
- Cholesterol-lowering drugs (e.g. simvastatin)
- ACE-inhibitors (e.g. enalapril)

47. In patients with untreated hyperthyroidism, you should be cautious with administering local anesthetics containing adrenaline because of:

- Bronchospasm
- Hypothyroidism
- Thryotoxicosis
- Anaphylactic reaction

48. A patient has been diagnosed with bone cancer around 10 years ago and has been treated with bisphosphonates (e.g. pamidronic acid). She has been told that she should report this to the dentist. That is necessary because of:

- Increased risk of bleeding after interventions in the jaw bone
- Increased risk of tooth discoloration
- Increased risk of osteonecrosis after operation of the jaw bone
- Increased risk of complications of soft oral tissues

49. Which of the following drugs decreases the effect of vitamin K antagonists (e.g. Sintrom©) by inhibiting hepatic metabolism?

- Metronidazole (e.g. Flagyl©)
- Amoxicillin + clavulanic acid (e.g. Augmentin©)
- Tramadol (e.g. Trama©)
- Acetaminophen (e.g. Panadol©)

50. Which of the following drugs reduces the absorption of doxycycline/tetracycline (e.g. Doxy©) when used simultaneously?

- Ferrous fumarate
- Naproxen (e.g. Aleve©)
- Acetaminophen (e.g. Panadol©)
- Chlorhexidine (e.g. Corsodyl©)
51. Which of the following antibiotics should NOT be used together with alcohol because of severe nausea, vomiting, headache, tachycardia and perspiration (disulfiram-like reaction)?

- Erythromycin (e.g. Erythrocine©)
- Clindamycin (e.g. Dalacin C©)
- Amoxicillin
- Metronidazole (e.g. Flagyl©)

52. What is a common side effect of amoxicillin (1-10% of patients)?

- Diarrhea
- Stomatitis
- Peripheral edema
- Dental caries

53. Which of the following local anesthetics is MOST likely to worsen asthma symptoms (e.g. bronchospasm)?

- Lidocaine (e.g. Xylocaine©)
- Prilocaine (e.g. Citanest©)
- Articaine/Adrenaline (e.g. Ultracain DS©)
- None of the above
Introduction

Thank you for participating in this study. This study is conducted on behalf of all dental faculties in the Netherlands in collaboration with the VU University Medical Center and the Royal Dutch Dental Association (KNMT).

The primary aim is to assess and compare the prescribing competence of final-year dental students and dental care providers in the Netherlands.

The assessment consists of two parts and takes approximately 30 minutes to complete:
Part 1. Demographical questions (5 minutes)
Part 2. 3 patient cases. You are allowed to use references (15 minutes)

Please answer the questions below and continue to the next page.

* 1. What is your age?

* 2. What is your sex?
☐ Male ☐ Female

* 3. You are:
☐ Fifth-year dental student
☐ Sixth-year dental student
☐ General dental practitioner
☐ Orthodontist
☐ Oral and maxillofacial surgeon

* 4. Informed consent
Please find the information letter here.
☐ Hereby I give my informed consent to participate in this study
Appendix B. Prescribing competencies of dental students and dental care providers in the Netherlands

Part 1. Demographical questions (dental students)

* 5. At which dental faculty in the Netherlands are you studying?
   - [ ] Academic Centre for Dentistry Amsterdam
   - [ ] Radboud University Nijmegen
   - [ ] University of Groningen

* 6. How many drug prescriptions have you written during your undergraduate dental study?

   [ ] _

* 7. How many drug prescriptions have you written in the last three months (approximately)?

   [ ] _

* 8. How confident do you feel in prescribing drugs safely and effectively?
   - [ ] Unconfident
   - [ ] Slightly unconfident
   - [ ] Neutral
   - [ ] Slightly confident
   - [ ] Confident
Appendix B. Prescribing competencies of dental students and dental care providers in the Netherlands

Part 1. Demographical questions (dental care providers)

* 9. When did you start working as a dental care provider?

* 10. How many hours do you work per week?

* 11. At which dental faculty in the Netherlands have you studied?
   - [ ] Free University Amsterdam (before 1984)
   - [ ] Municipal University of Amsterdam (before 1984)
   - [ ] Academic Centre for Dentistry Amsterdam (after 1984)
   - [ ] Radboud University Nijmegen
   - [ ] University of Utrecht
   - [ ] University of Groningen

* 12. How many drug prescriptions have you written in the last three months (approximately)?

* 13. How confident do you feel in prescribing drugs safely and effectively?
   - [ ] Unconfident
   - [ ] Slightly unconfident
   - [ ] Neutral
   - [ ] Slightly confident
   - [ ] Confident
Appendix B. Prescribing competencies of dental students and dental care providers in the Netherlands

Part 2. Patient case scenarios

In this part (15 min), you are asked to solve three patient case scenarios. Each case consists of a brief description of a patient with a dental disease. Your job is to decide whether you want to write a drug prescription for the patient or not. If you want to prescribe a drug, you have to fill in the "drug name", "dose", "dosage", "dosage form", "route of administration" and "duration", for each drug (max. 2 drugs per patient). You can also stop a drug that the patient is already using. Finally, you are asked to determine non-drug advice and monitoring measurements (e.g. follow-up consultations, laboratory tests).

You are allowed to use references and/or guidelines during this part (e.g. national drug formulary, dental guidelines).

Please continue to the next page.
Appendix B. Prescribing competencies of dental students and dental care providers in the Netherlands

Case 1. Initial periodontal treatment

Setting: dental clinic.
You see the following patient as a general dental practitioner/dental specialist:
Name: Mrs. de Vries.
Age: 69 years.

**Previous medical history:**
- 2007: Mitral valve replacement due to symptomatic mitral valve insufficiency.
- 2008: Community-acquired Pneumonia treated with amoxicillin; anaphylactic reaction with angioedema, urticaria and dyspnoea.
- 2015: Postmenopausal osteoporosis.

**Current medication:**
- Acenocoumarol (Sintrom©) 1mg tablet, according to scheme thrombosis service.
- Hydrochlorothiazide 12.5mg tablet once a day.
- Lisinopril (Zestril©) 20mg tablet once a day.
- Calcium carbonate vitamin D3 (Calci-Chew©) 500mg/800IE tablet once a day.
- Alendronic acid (Fosamax©) 70mg tablet once a week.

**Allergies:**
Penicillin (angioedema, urticaria and dyspnoea).

**Intoxications:**
Smoking: half pack a day, 25 packyears. Alcohol: 2 glasses of wine per day. Drugs: none.

**Presentation:**
Mrs. de Vries comes to your practice after two years because she experiences bleeding gums during brushing. Her gums are also increasingly painful and swollen. The situation is getting worse and she experiences a lot of problems in her daily life. She brushes once a day with a manual toothbrush and uses floss about three times a week (only her front teeth).

**Examination:**
- Plaque index: 90%.
- Bleeding index: 83%.
- Generalized subgingival calculus and dental plaque.

**Radiology:**
- 10-45% bone destruction of teeth 18, 17, 27, 28, 34.

**Conclusion:**
Patient with a cardiovascular history presents with a semigeneralized moderate periodontitis (DPSI 3+).

**Assignment:**
Mrs. de Vries will come back in one week for an initial periodontal treatment. Determine the most appropriate pharmacological treatment during this procedure.

You may:
- prescribe a new drug, maximum of two drugs per case.
- change current medication.
- stop current medication.
- not prescribe anything.

Also, determine the most appropriate non-drug advice and monitoring measurements (e.g., follow-up consultations, laboratory tests).

* Only relevant information about the patient is given above. You may think you need more information by further history taking, physical or other examinations. If this information is not mentioned, you may assume that the findings are not relevant.
14. First drug (optional):

Drug name:

Dose:

Dosage:

Dosage form:

Route of administration:

Duration:

15. Second drug (optional):

Drug name:

Dose:

Dosage:

Dosage form:

Route of administration:

Duration:

16. Change and/or stop current medication:

Current medication you want to change (please give a reason):

Current medication you want to stop (please give a reason):

17. Determine non-drug advice and monitoring measurements:

Non-drug advice:

Monitoring measurements (e.g. follow-up consultations, laboratory tests):
Appendix B. Prescribing competencies of dental students and dental care providers in the Netherlands

**Case 2. Prolonged INR**

Setting: dental clinic.
You see the following patient as a general dental practitioner/dental specialist:
Name: Mr. Kamphuis.
Age: 78 years.

**Previous medical history:**
- 2008 Paroxysmal atrial fibrillation.
- 2012: Diabetes mellitus type 2.
- 2017 (four days ago): visit to the dentist on call: pulpitis and oral candidiasis for which he received endodontological treatment and miconazole oral gel.

**Current medication:**
- Acenocoumarol (Sintrom©) 1mg tablet, according to scheme thrombosis service
- Sotalol 80mg tablet twice a day.
- Losartan (Cozaar©) 50mg tablet once a day.
- Metformin 850mg tablet twice a day.
- Miconazole (Daktarin©) 20mg/g orale gel 2.5ml four times a day.
- Pravastatin (Selektine©) 40mg tablet once a day.

**Allergies:**
None.

**Intoxications:**

**Presentation:**
Four days ago, Mr. Kamphuis visited the dentist on call because of severe toothache. He had a painful pulpitis for which he received endodontological treatment. The dentist on call also prescribed miconazole gel for oral candidiasis. Today Mr. Kamphuis comes to your practice for inspection. He says that the toothache has decreased but that he still suffers from pain when he swallows.

**Examination:**
- Dentures do not fit so well anymore and wobble a bit.
- Oropharyngeal mycosis on the tongue and back of the throat.

**Laboratory tests:**
- INR: 6.2 (measured yesterday).

**Conclusion:**
Patient with a cardiovascular history presents with oral candidiasis and prolonged INR.

**Assignment:**
Determine the most appropriate pharmacological treatment for Mr. Kamphuis.

You may:
- prescribe a new drug, maximum of two drugs per case.
- change current medication.
- stop current medication.
- not prescribe anything.

Also, determine the most appropriate non-drug advice and monitoring measurements (e.g. follow-up consultations, laboratory tests).

* Only relevant information about the patient is given above. You may think you need more information by further history taking, physical or other examinations. If this information is not mentioned, you may assume that the findings are not relevant.
<table>
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<tr>
<th>Question</th>
<th>Answer</th>
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<tr>
<td>18. First drug (optional):</td>
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<td>Drug name</td>
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<td>Dose</td>
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<td>Route of administration</td>
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<td>19. Second drug (optional):</td>
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<td>Drug name</td>
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<td>Route of administration</td>
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<td>20. Change and/or stop current medication:</td>
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<td>Current medication you want to <strong>change</strong> (please give a reason):</td>
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<td>Current medication you want to <strong>stop</strong> (please give a reason):</td>
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<td>21. Determine non-drug advice and monitoring measurements:</td>
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<tr>
<td>Non-drug advice</td>
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<td>Monitoring measurements (e.g. follow-up consultations, laboratory tests)</td>
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Appendix B. Prescribing competencies of dental students and dental care providers in the Netherlands

Case 3. Post-extraction pain

Setting: dental clinic.
You see the following patient as a general dental practitioner/dental specialist:
Name: Mrs. Koot.
Age: 81 years.

Previous medical history:
- 2002: Essential hypertension.
- 2009: Peripheral arterial disease, for which she received medication, exercise training and lifestyle advice.
- 2011: Chronic kidney failure due to hypertensive nephropathy, eGFR 27/min (normal values >60 ml/min).
- 2017 (2 days ago): tooth extraction number 16.

Current medication:
- Simvastatin (Zocor©) 40mg tablet once a day.
- Carbasalate calcium (Ascal©) 100mg tablet once a day.
- Lisinopril (Zestril©) 10mg tablet once a day.
- Acetaminophen (Panadol©) 500mg tablet two tablets four times a day.
- Pantoprazole (Pantozol©) 40mg tablet once a day.

Allergies:
Lactose.

Intoxications:
Smoking: stopped 11 years ago, 30 packyears. Alcohol: 2 glasses of wine per day. Drugs: none.

Presentation:
Two days ago, you extracted the right upper tooth (second mollar) of Mrs. Koot. Today, she comes to your practice because she experiences severe toothache despite the use of acetaminophen (4000mg daily dose). She has no fever. She would like to have something to get rid of her pain.

Examination:
- Wound looks good, a little bit swollen. No signs of infection or bleeding.
- Sutures are well in place.

Laboratory tests (two days ago):
Creatinine 167 umol/L (normal values 60-90 umol/L), eGFR 25 ml/min (normal values >60 ml/min)

Conclusion:
Patient with a cardiovascular history and chronic kidney failure presents with severe post-extraction pain.

Assignment:
Determine the most appropriate pharmacological treatment for Mrs. Koot.

You may:
- prescribe a new drug, maximum of two drugs per case.
- change current medication.
- stop current medication.
- not prescribe anything.

Also, determine the most appropriate non-drug advice and monitoring measurements (e.g. follow-up consultations, laboratory tests).

* Only relevant information about the patient is given above. You may think you need more information by further history taking, physical or other examinations. If this information is not mentioned, you may assume that the findings are not relevant.
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<th>22. First drug (optional):</th>
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<td>Drug name:</td>
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<th>23. Second drug (optional):</th>
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<th>24. Change and/or stop current medication (optional):</th>
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<td>Current medication you want to change (please give a reason):</td>
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<td>Current medication you want to stop (please give a reason):</td>
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<th>25. Determine non-drug advice and monitoring measurements:</th>
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<td>Non-drug advice:</td>
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<td>Monitoring measurements (e.g. follow-up consultations, laboratory tests):</td>
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