

# LETTER TO THE EDITOR

## A Licence to Prescribe

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Mistakes in prescribing may have serious consequences, ranging from inefficacy to serious adverse events and even death [1]. However, in the Netherlands in most medical schools, pharmacotherapy is only a minor component of an integrated assessment programme. This means that students can, theoretically, skip most clinical pharmacology teaching during their training yet still qualify and become licensed prescribers of medication [2]. While many prescribers report not feeling confident in prescribing when they start clinical work [3, 4], it is these inexperienced doctors who prescribe the majority of drugs [5]. Not surprisingly, many studies report a high rate of inappropriate prescribing, a potential cause of preventable morbidity and mortality [1, 6].

Appropriate prescribing requires a sufficient level of skills and knowledge. In the Netherlands, the World Health Organization six-step method is now used as the basis for pharmacotherapy education in all eight medical schools [2]. However, although most clinical pharmacology knowledge is readily accessible to prescribers, without a basic knowledge of potentially harmful medication the unconsciously incompetent prescriber may still make serious mistakes.

To tackle this problem, eight Dutch and three Belgian medical schools have joined forces to develop a unique pharmacotherapy test focusing on medication safety, to assess whether future prescribers are able to prescribe safely. It is recognized that certain drug groups cause the majority of preventable serious adverse reactions [7], and based on this literature we generated a list of drugs that cause most harm (Table 1). For each drug listed, medical students are expected to know its mechanism of action, side effects that may cause serious harm, associated risk factors, contributing comedication, and measures to prevent and to treat side effects. In addition, students are expected to know about the proper use of antibiotics and general subjects, such as the six-step method, medicine and driving, prescribing laws and regulations, dosage calculations, and basic pharmacokinetics. The multiple-choice test we developed covers these subjects and assesses whether students have a basic level of specific knowledge about drugs that can cause preventable serious adverse events. Currently it consists of 40 questions, to be answered within 1 h with a caesura of 34 correct answers. Ideally, the test should be taken just before students start prescribing under

**Table 1**

Subjects covered in the pharmacotherapy end test

<b>Analgesics</b>
<b>Anticoagulants</b>
<b>Cardiovascular drugs</b>
<b>Drugs for diabetes mellitus</b>
<b>Antidepressants</b>
<b>Benzodiazepines</b>
<b>Antibiotics</b>
<b>Laws and regulations</b>
<b>Drug allergy</b>
<b>Proper usage of drugs</b>
<b>Basic pharmacokinetics</b>

supervision. Educational material has been developed including a reader, cases in [www.pscribe.nl](http://www.pscribe.nl), a YouTube channel with tutorials, and even a game – *Battle of the meds* – which can be downloaded from the App Store for free. Students must pass this test before they can graduate.

The test was introduced in Nijmegen in 2014, and the other participating medical schools are in the process of introducing it. The Belgian universities are currently working on an additional set of questions for Belgian students, since laws and regulations (a part of the test) differ in Belgium. In Nijmegen, every month 30 students perform an online test, 70% pass the first time and only a single student needs a fourth attempt. A similar initiative has been undertaken in the UK [8]. We think that this test can contribute substantially to patient safety by reducing preventable medication-induced morbidity and mortality, much in the same way that passing a driving test contributes to traffic safety. Studies are in progress to evaluate whether this test has a long-term effect on prescribing skills when these students start prescribing as physicians.

## Competing Interests

All authors have completed the Unified Competing Interest form at [www.icmje.org/coi\\_disclosure.pdf](http://www.icmje.org/coi_disclosure.pdf) (available on

request from the corresponding author) and declare no support from any organization for the submitted work, no financial relationships with any organizations that might have an interest in the submitted work in the previous 3 years and no other relationships or activities that could appear to have influenced the submitted work.

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