What is the National Prescribing Curriculum (NPC)?
The NPC is a series of online, case-based modules designed to improve prescribing performance and confidence in emerging Australian prescribers. The modules mirror the decision-making process outlined in the WHO Guide to Good Prescribing (de Vries et al, 1994).

What are the key features and benefits of the NPC modules?
- The modules are situated in real life situations. For example, learners may follow a case through from hospital admission to discharge.
- The modules include complex, authentic tasks. For example filling in current Australian prescriptions.
- Sophisticated levels of feedback are provided throughout the modules, from both peers and experts, and include feedback on both right and wrong answers.
- The modules provide links to current evidence-based resources including NPS publications, Therapeutic Guidelines and Australian Medicines Handbook.
- Using a flexible software means the modules can be tailored to suit an individual university’s needs.
- The modules are free to Australian institutions and NPS look after the administration, making it easy to for busy academics to fit our modules into their teaching schedule.
- NPS can give you monitoring rights so you can easily track your learners’ progress.

Will the NPC fit into my curriculum?
The software that we use is very flexible and allows us to easily modify the basic template (outlined below) so that it can fit into your curriculum. For example, if you want an activity in the module to be an assessment, we can move the existing expert feedback to the end of a module so that learners can only view it after they have completed the assessment activity. We can put stops between certain activities, and for non-prescribing students we can take out the ‘write prescription’ tool and replace it with a question and answer tool. We can also add different tools where necessary. Please feel free to call the Educational Design and Support Team at NPS if you need ideas on how to fit the NPC within your curriculum.

We have a number of different health professional schools currently using the NPC. These include:
- Medicine
- Pharmacy
- Nurse practitioner
- Dental

To see how some of these schools have integrated the NPC in their curriculum, see blah blah section.

What are the stages outlined in the WHO Guide to Good Prescribing?
The WHO Guide to Good Prescribing provides a set of structured stages that include:
- setting therapeutic goals for a particular patient
- deciding on a therapeutic approach (including considering non-drug options)
- if a drug is needed, choosing and checking the effectiveness, safety and appropriateness of the preferred agent for that individual patient
- writing a prescription (if appropriate)
- monitoring treatment of the patient, and
- providing the patient with information, instructions and warnings.

Can I check out the NPC modules?
You can indeed.

To see a quick animated tour of the NPC, copy the following link into your browser:
To access a guest module (on chronic obstructive pulmonary disease), go to: http://npsprescribe.lamsinternational.com. Click on the ‘Sign up here’ link below the login box, fill in the details for the first six fields and then click on ‘Demonstration’ in the institution field. The course key is ‘guest’.

Where can I go for more information?
Contact the Educational Design and Support at NPS.

E: npcinfo@nps.org.au
P: 02 8217 8642

NPC in the Australian university curriculum

The following are four examples of how the NPC can be integrated within different curricula.

1. **Blended format in a tutorial - University of Adelaide (Medicine course)**

The School of Medicine, University of Adelaide is currently using the NPC in a blended delivery format for final year medical students. The idea for this comes from Dr Sepehr Shakib.

“The aim of this approach is to throw the onus of core learning on to the students and to use the tutorials to demonstrate how this core learning leads to practical prescribing in real life.”

“The students like this approach as it is very realistic and prepares them for their internship. It’s also interactive and gives them the opportunity to ask questions and clarify ideas.”

**Steps:**

1. Learners work through a particular module (for example COPD) in their own time and come to the tutorial having completed the module at least to the end of the ‘Write Prescription’ activity.

2. Learners bring a printed copy of their prescription from the ‘Write Prescription’ activity (to the tutorial).

3. Learners volunteer their sample prescriptions. The class as a whole ‘votes’ with a show of hands whether they agree with the prescribing decisions made. (Note: this obviously requires a class environment where learners are comfortable making mistakes in front of others.)

4. Repeat this process for each medication that should be prescribed and each medication that should NOT be prescribed. Depending on the complexity of each case, this process can take between 30–40 minutes.

5. For the remainder of the tutorial, test the learners’ ability to apply knowledge learnt to more complex cases (e.g. the patient has an adverse drug reaction, or a co-morbidity). Split the learners into small groups and hand out the new cases (with the same condition). Learners use their existing formulary to prescribe for the new cases and are given only 5 minutes and asked to report back to the class. This timeframe is designed to put learners under the same pressure they would experience on the wards when they are interns. Learners have been using a copy of the National Inpatient Medication Chart for practice in accuracy and clearness, especially in relation to PRN and once only medicines.

6. As a whole class, revise each group’s prescribing decisions for the new cases, asking learners to explain and justify their answers.

**Run time:** 30–60 minutes for learners out of class, one hour in a face-to-face tutorial

**Integration of assessment:** N/A

**Additional resources:** Additional case studies
2. Blended format in a tutorial - University of Queensland (Pharmacy course)

Senior Lecturer Neil Cottrell uses the NPC with year 4 pharmacy students at the School of Pharmacy, University of Queensland. The modules are integrated into a regular 2-hour weekly tutorial.

“As a comment I was expecting the students to start wandering out of the tutorial after about an hour. However they were fully engaged with just a single module (for most) for the full one hour and fifty minutes of the tutorial. Afterwards a number commented on how useful they had found it.”

“In some instances the students actually called me over to moderate within their group over differences of opinion on some of the potential drugs they were going to select and it was a great opportunity to get them reflecting on their thoughts and issues around these differences of opinion.”

Steps:
1. Learners are introduced to the NPC at the beginning of the tutorial by going through one module. Key features are demonstrated such as the drug tool, links to AMH and eTG, and special navigational features.
2. Learners start working through a particular module (Neil had 80 students working on 36 computers which is an excellent strategy for collaboration and discussion).

As Neil’s learners are pharmacy students, he stressed that he was not expecting them to become prescribers. So in the ‘Write prescription’ activity, he asked them to reflect on the prescription as if they were pharmacists reviewing the prescription. What drugs would they expect to see in a patient with that presentation? What information is needed on a prescription in order that a medication can be administered correctly and safely?

3. Once students are working together, walk around the class and help as needed. Ask students to explain/justify the decisions they are making.
4. After the two hour tutorial is finished, learners can complete any other modules they wish in their own time. In Neil’s class – learners were encouraged to review modules related to cases that they would cover in the rest of the semester.

Run time: 2-hour tutorial, self paced (out of class time) as needed

Integration of assessment: Students were not assessed on the modules but the modules directly helped with 3 elements of assessment:
- a case-based written exam
- a case-based oral exam
- an in-class assessment on a case the students develop.

Additional resource: N/A

3. Linking the NPC to assessment (MCQ + hand in prescription) - UWA (Dentistry course)

Ken Ilett, Emeritus Professor of Pharmacology from the School of Medicine and Pharmacology at the University of Western Australia, was the author of three dental prescribing modules that form part of the NPC. Ken has integrated the use of the NPC modules into his learners’ assessment.

“The modules are designed to guide the students through the diagnostic, dental treatment and drug treatment/prescribing aspects of each real life case.”

“In the NPC cases, expert feedback is provided at each stage in the case, and there is also an opportunity for the students to see what their peers have done at each stage.”

Steps:
1. Before starting the modules, the learners have been given a lecture on prescribing and how to access and use the NPC cases.
2. In the first tutorial learners are given a brief orientation to the modules, shown important navigational issues and the assessment requirements are explained.
3. There are 3 cases and learners are asked to complete one per week.

4. Assessment includes the following components:
   - A short (10 minute) multiple choice question (MCQ) quiz at the end of each week. This covers drug-related aspects from the case.
   - For each module, learners are also asked to hand in a printed version of their prescription and also a note for any non-prescription items that they wrote for the case.

*Please note*
In this scenario the expert feedback has been taken out of the ‘Write Prescription’ tool (as the prescription is an assessment item). It's pasted into a noticeboard and added at the end of the sequence (with a stop before it). The stop can be released after the exam date and the students can then see the expert feedback.

**Run time:** 2 x 1-hour tutorials, 3 weeks self-paced (out of class time) for learners

**Integration of assessment:**
- Learners must complete all of the modules (3 dental modules); this is checked by the lecturer/course coordinator through the monitoring system.
- Learners have to print off and hand in their prescription and ‘pharmacy note’ (dental) when they attend the MCQ examination.
- Learners must sit for the MCQ examination.

**Additional resources:** MCQs for examination

4. Using the personal formulary as an assessment item - University of Sydney (Nurse practitioner course)

Dr Tom Buckley uses the NPC modules with Nurse Practitioner students at the Sydney Nursing School, University of Sydney.

“The modules are the anchor for a unit of study called Quality Use of Medicine and an invaluable resource for the student Nurse Practitioner.”

**Steps:**
1. Learners are given a face-to-face orientation to the modules in a group tutorial. The learning activities within a module and how they are linked to the WHO Guide to Good Prescribing, are explained. Navigational issues are raised and assessment requirements revised.

2. Learners are asked to complete a set number of modules in their own time (4 modules). Having to complete a number of modules shows learners a step-wise approach to medication management.

3. At the end of the semester learners are assessed following completion of the (4) modules. Students submit the prescription they generate from the ‘Write Prescription’ tool for each case. Learners also create a personal formulary (with similar fields to the online cases) for the medications they are likely to use in future practice.

**Run time:** 1 x 2-hour tutorial, 8 weeks self paced (out of class time) for learners

**Delivery method:** Blended (online independent and face to face)

**Integration of assessment:**
- Learners must complete the set number of modules (4 in this case).
- Learners have to hand in the prescriptions for their 4 cases.
- Learners have to submit a personal formulary in their final assessment item.

**Additional resources:** N/A