A core anatomy syllabus for pharmacy students: A Delphi Study

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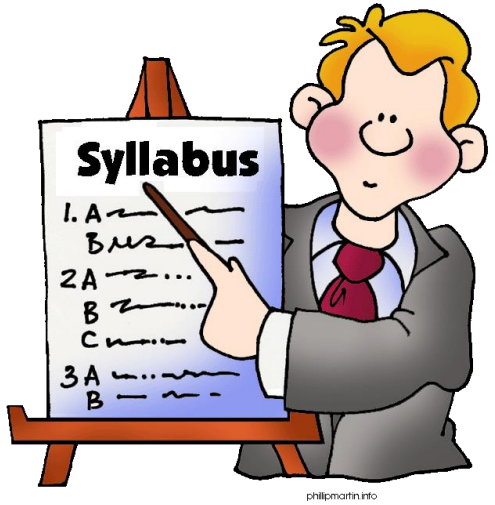
Background

- Team members were involved in teaching MPharm students anatomy at various institutions
- Noted the need for anatomical knowledge but also lack of clarity over standard/ volume required
  - Changing role of the Pharmacist
  - No national standards
- Collaboration started through the Anatomical Society
- Team of Pharmacists, Educationalists (methodology specialist) and Anatomists

What’s the difference between a syllabus and a curriculum?

- A “Syllabus" represent the content of an individual course and specifies how this content is sequenced (e.g. timetabled)
- A “Curriculum" lays out a program's educational philosophy, specifies purposes and course content, identifies constraints to implementation and learning resources, and articulates assessment and evaluation criteria.
- A curriculum therefore subsumes syllabuses.



Project aim & objectives

Aim:

To produce an agreed set of learning outcomes (consensus) for the core anatomical syllabus that were derived from ‘experts’ within the field of anatomy and Pharmacy.

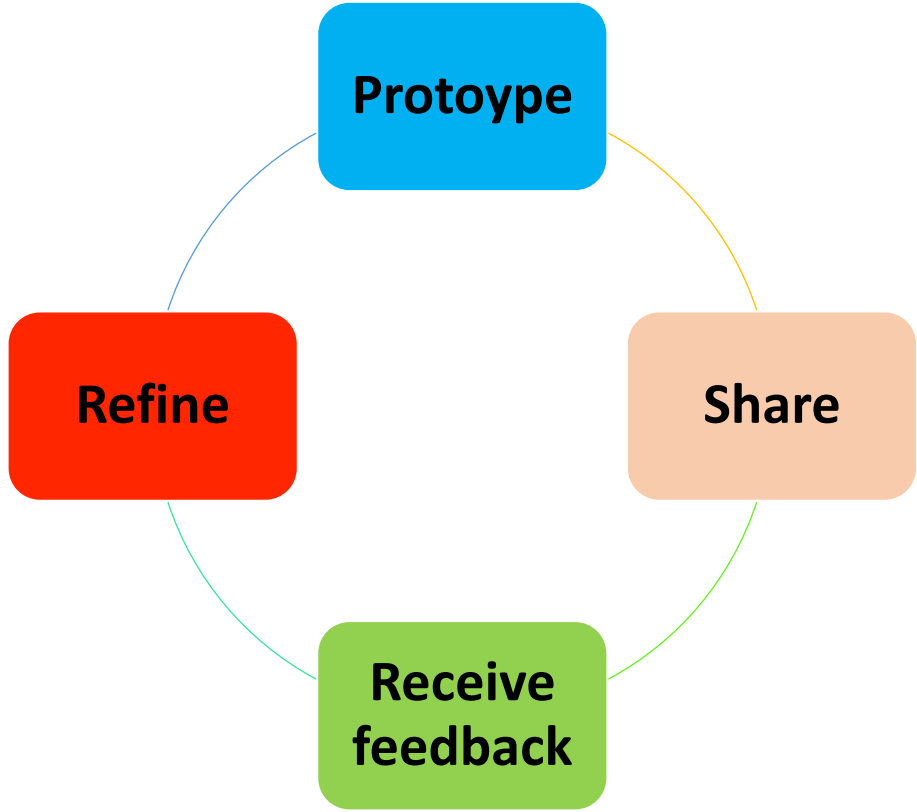
The specific objectives of the MPharm syllabus were:

1) To refine the wording of the existing Medicine learning outcomes to be included within the syllabus (where appropriate)

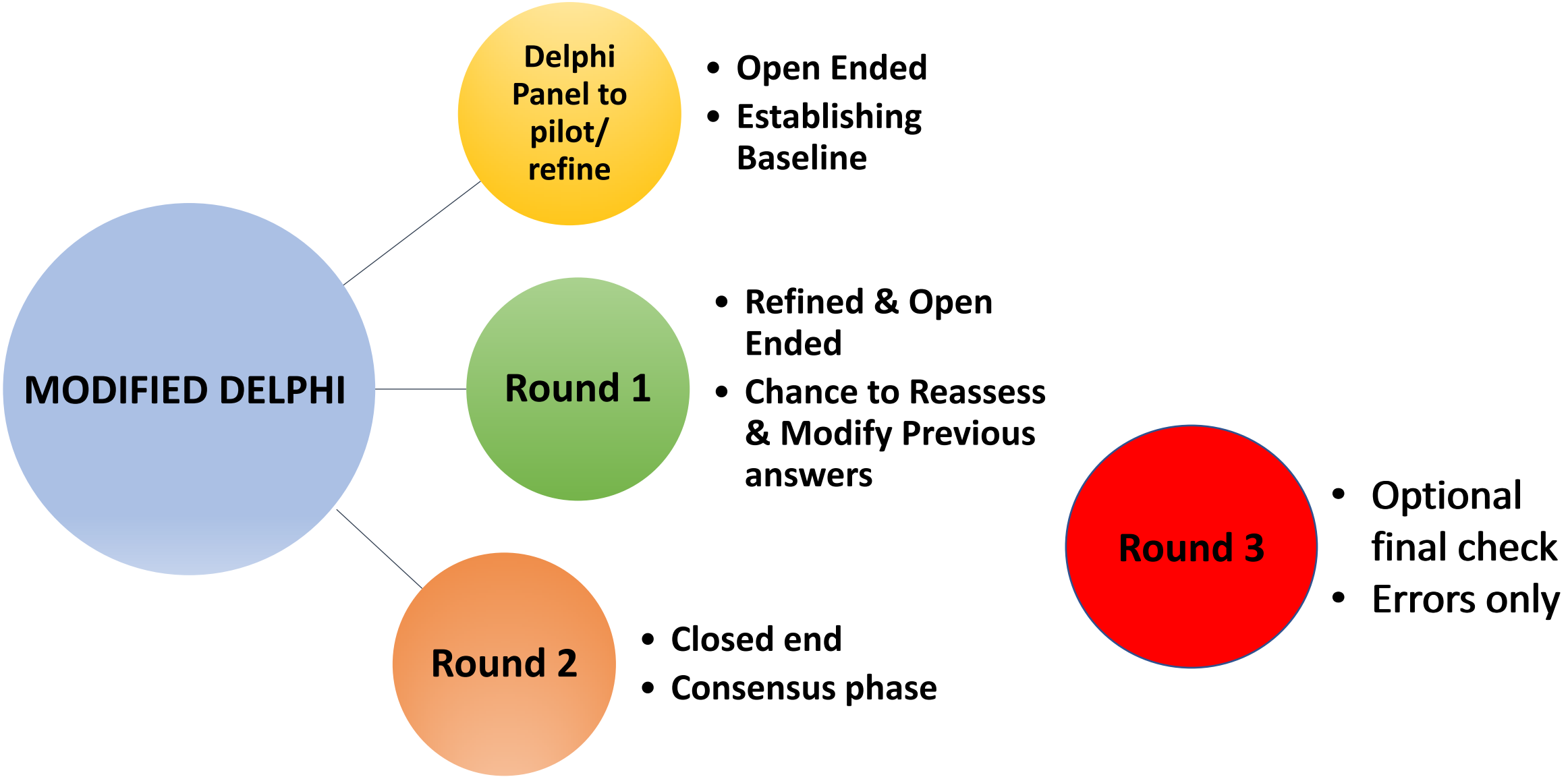
2) To develop, if needed, new learning outcomes for inclusion within the syllabus based on the collective and collegial knowledge of participants that are specific to the needs of the Pharmacist

What is a Delphi approach?

- Research approach developed in America in 1950s
- Delphi enables group problem-solving
- Uses an iterative process
- Based on the results of questionnaires / surveys sent to a panel of experts.
- Several rounds are sent out, and the anonymous responses are aggregated and shared with the group after each
- Aims to achieve consensus



The Modified Delphi Process



Constructing the panel

PHARMACY

- Search of UCAS for all MPharm programmes
- Subsequent identification of programme leads/ Heads of Departments
- Asked to identify anatomy lead and / or qualified Pharmacists
- Disseminated through GPHC's education group

Participation approx. 50% of those invited

Sample from Pharmacy

Role	% of respondents
Head of Department/ Professor	33%
Pharmacist/ Clinical Pharmacist	18%
Senior Lecturer/ Lecturer/ Teaching Fellow	46%
Information not provided	3%

Sector	% of respondents
Higher Education Institution	73%
Professional/Regulatory body	14%
Industry	5%
Information not provided	4%

Our Survey

Example: NEUROANATOMY LEARNING OUTCOME

Describe the difference between grey matter (e.g. nucleus, cortex, basal ganglia) and white matter (association, commissural and projection, tract, pathway, corpus callosum).

Accept ☐ ☐ **Reject** ☐ **Modify**

Modify/Comment

Data analysis

- **Round 1: 53 learning outcomes**
  - Accept an outcome that achieved consensus - set at 80%
    - Modifications still considered if they were grammatical or mentioned by more than one person
  - Remove any outcomes that were rejected - <80% consensus
  - Consider each modification comment
    - Classified these as ‘supportive statements’, ‘modifications’, ‘contextual’ or ‘irrelevant’
    - Relevant changes made - changes to action verb, splitting outcomes, adding or removing clinical relevance
  - Free-text reviewed – this is where missing outcomes etc were identified by participants e.g. anatomical terms

Round 2: 50 learning outcomes taken forward

- New survey set-up, sent to same panel
- Only permits ‘accept’ or ‘reject’
- Free-text available to note any errors
- Same analysis

Comment type	Stage 1 (477 comments)	Stage 2 (103 comments)
Supportive statements	22%	52%
Modifications	65%	24%
Contextual	7%	14%
Irrelevant	6%	10%

Round 3: 50 learning outcomes taken forward

- Original authors / research group only
- Check for errors & duplications

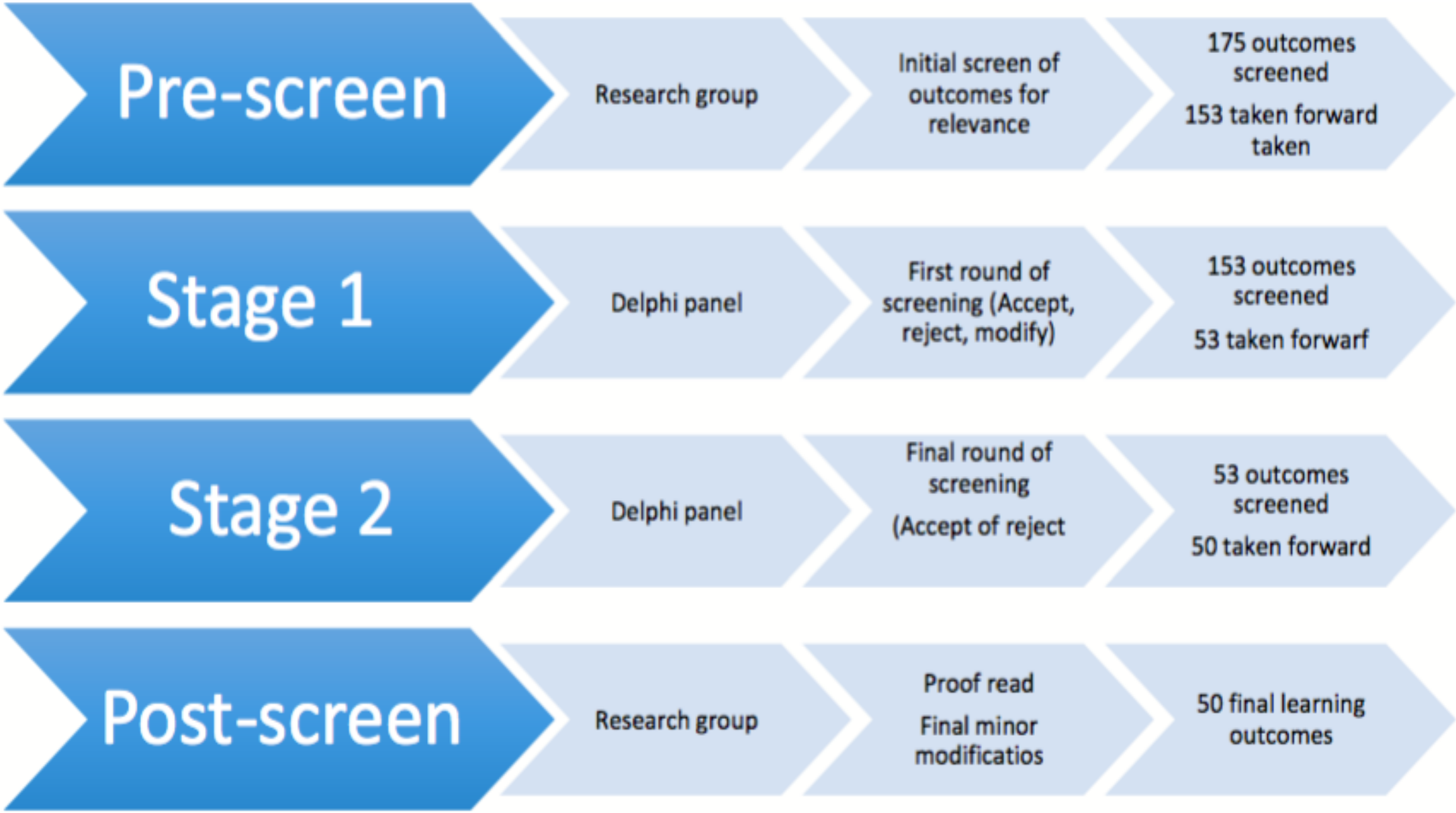


Fig. 1 The key stages of the modified Delphi process.

The outcomes and how they were modified

Smith et al., syllabus		MPharm syllabus (LOs=Learning outcomes)		
Original Syllabi & Sections	Initial Number of LOs	Section	Number of LOs after Stage 1	Number of L Os after Stage 2
Anatomical Terms	5	Anatomical terms	3	3
Head and Neck	37	Lymphatic*	1	3 (sections combined*)
Vertebral Column	7	Regional*	2	
Thorax	24	Cardiovascular	11	11
Upper Limb	21	Respiratory	3	3
Abdomen	21	Urinary	2	2
Pelvis and Perineum	19	Digestive	8	8
Lower Limb	22	Integumentary	1	1
Total	156	Musculoskeletal	2	2
		Endocrine	4	3
McHanwell et al., syllabus		Reproductive	2	2
Neuroanatomy	19	Neuro/sensory	14	12
Total	19	Total	53	50

Examples of final outcomes

- Describe the structure and position of the atrio-ventricular, pulmonary and aortic valves and describe their function in the prevention of reflux of blood during the cardiac cycle.

- Describe the meninges, ventricles, blood-brain barrier and the role of cerebrospinal fluid.

- Describe the major features of the oral cavity and its epithelial lining in relation to swallowing and drug delivery.

Integration

The learning outcomes described are likely be taught within an integrated curriculum. With this in mind, the authors signposts indicative clinical context which may assist in highlighting relevance to students, the mapping of curricula and the blueprinting of assessment:

Outcome	Clinical context/condition/ procedure/system
Anatomical terminology	
1	Frequently used when describing relationships and injuries
2	Important for understanding joint movement and related injuries (musculoskeletal system)
3	Links to physiology, origin of pain (nervous system)
4	Important for drug dose calculations and choice of administration route in different patient populations
Cardiovascular system	
5	Diabetes mellitus (endocrine system) I don't see the immediate link between pulses and diabetes
6	Ischaemic heart disease, myocardial infarction (Cardiovascular system)
7	Patent fossa ovale
8	Mitral valve failure
9	ECG
10	Aortic aneurysm, coarctation of the aorta
11	Thrombus
12	Trauma, venipuncture
13	Trauma, varicose veins, diabetic foot
14	Central lines
15	Stroke, hemorrhage, headache, migraine

Conclusions

- First core anatomy syllabus for MPharm graduates, developed through a Delphi process.
- The syllabus consists of 49 learning outcomes with clinical mapping
- Is a conceptual building block from which the anatomy for pharmacists can be developed, as well as a physical document for use and development by stakeholders in Pharmacy - from students to accrediting bodies and HEIs.

Syllabus

- Finn, G. M., Hitch, G. , Apampa, B. , Hennessy, C. M., Smith, C. F., Stewart, J. and Gard, P. R. (2018), The Anatomical Society core anatomy syllabus for pharmacists: outcomes to create a foundation for practice. **Journal of Anatomy**, 232: 729-738. doi:**10.1111/joa.12787**

- Outcomes only available on the Anatomical Society website: **http://www.anatsoc.org.uk/education/core-curriculum/pharmacy-anatomy-syllabus**

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THANK YOU