Distance Interprofessional Education

Introduction & Case

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Objectives of the Webinar

1. Describe the main components of distance interprofessional education

2. Discuss the utilization of real-time simulation for teaching and assessment of therapeutic decision-making for interprofessional teams

3. Illustrate an example of how distance interprofessional education could look using a software demonstration

4. Explore the possible expansion of interprofessional education by distance education

Disclaimer

- I am not an expert in any of the following:

  - Interprofessional Education (IPE)

  - Distance education

  - Simulation for education

  - Serious games

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- Mark Owens

Finding the link…

IPE

Distance Ed

R/T Sim

The Cloud

This presentation

- Background
  - Therapeutic Decision-Making
  - Distance Education
  - Interprofessional education
  - Simulation and serious games for learning
- Learning with SimPHARM
  - To engage in reflective learning for therapeutic decision making
- Engaging in distance interprofessional education
  - Our experience with Year 4 Pharmacy and Medicine
- **Demo...**

Therapeutic Decision-Making
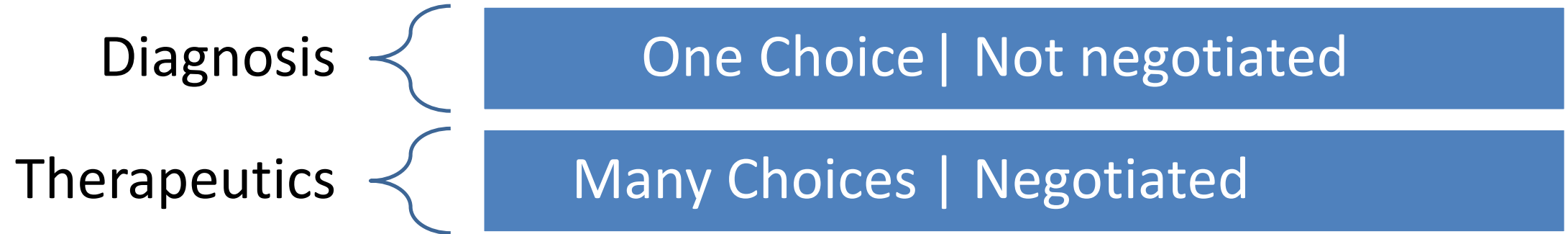
Therapeutic Decision-Making...

Cognitive processes and skills that allow pharmacists [health practitioners] to make patient-centred, **therapeutic decisions** *(Wright et al RSAP, 2018)*

Predicated on:

Guidelines & Clinical Pharmacology

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Types of clinical decisions...

Diagnosis ⟩ One Choice | Not negotiated

Therapeutics ⟩ Many Choices | Negotiated

Cook et al, JAMA 2018

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Formalising Therapeutic Decision-Making
The Otago Experience

- Therapeutic decision-making had been informally taught for the last 2 decades. In 2007 we started formalising the process with an initial postgraduate cohort of pharmacy students

- This was initially taught by a 2-week long case PBL approach.
  - *The concept is the process of solving the problem – not the solution itself*

- In 2018 we formalised training of pharmacy students in Therapeutic Decision-Making with a fully integrated curriculum
  - **SimPHARM** is a fundamental part of this process

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Distance Education

Distance Education

- Distance Education *aka* Distance Learning (*working remotely*)
- Sometimes referred to as online learning (not quite the same thing) – "online materials" are tools for distance education

- A more full working definition
  - *Education that occurs where the student is at a geographical or temporal distance or both from the teacher…*
    - *i.e. not same place or same time*
- Often learning is asynchronous with teaching
  - A student may not learn during the time that an instructor is lecturing

Interprofessional Education

IPE - defined

Occasions when two or more professions learn with, from and about each other, to improve collaboration and quality of care

(Centre for the Advancement of Interprofessional Education (CAIPE), UK, 2002)

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A planned approach to IPE
Otago model

Planned approach

Increasing complexity

Key space for development

e.g. student led ward

Immersion

Engagement

Exposure

Early in professional courses

Pre-Exposure

Pre-professional years
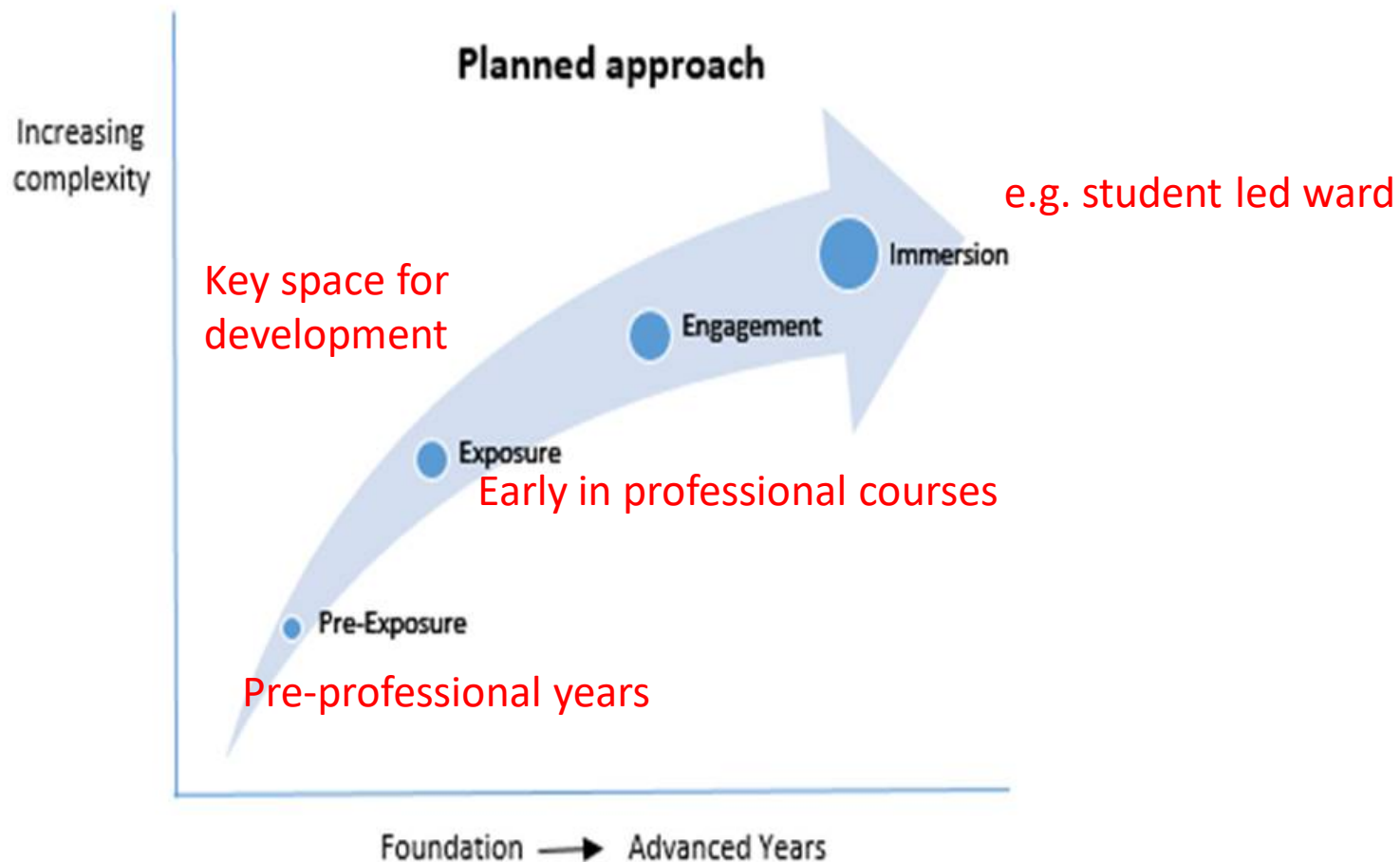
Foundation → Advanced Years

Figure 1 Planned approach for the introduction of interprofessional education in health professional programmes at the University of Otago (IPE Strategic Plan 2016-2019 http://www.otago.ac.nz/healthsciences/research/otago234601.pdf)

Simulation and Games

FOUR reasons to use simulation

1. Perform a tacit task: practice doing something that cannot be seen/judged by an instructor, for example

   – Physical examination, making a decision

2. Do something rare: practice doing something that would rarely occur in normal practice, for example

   – Resucitation, treating a rare disease

3. Do something risky: practice doing something that is high stakes, for example

   – Prescribe a medicine

4. Upscale to many participants with minimal resource implications

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FIVE essential elements of Games
(note all games are simulations)

1. Interactivity (the course of the simulation can be changed by the participant)

2. Require strategy to solve a problem (need to develop a strategy)

3. Fun → engagement

4. Immersive & realistic → authentic behaviours

5. Naturally self-orientate to the learner's level (self-zoning in the zone of proximal development)

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Learning with SimPHARM

What is SimPHARM?

- A real time cloud based, autonomous simulation engine with database

- Cases can be constructed to cover acute and chronic care settings

- The database contains 100 prebuilt pathologies, 200+ internally controlled observations and lab tests, 60 questions and 500 medicines

- Students are assigned an instance of a case, each instance diverges from other instances as the case progresses

- **SimPHARM** does not provide any didactic feedback – but rather consequences unfold naturally

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Development of SimPHARM

- **SimPHARM** was developed as a problem based learning extended paper case in 2007. It consisted of 65 pages of notes that were released to students dependent on their actions...

- Students interacted with the case (via a tutor/facilitator) and were evaluated on their decision process.

- The system worked but was wholly resource prohibitive

- In 2009 it was developed into an autonomous real-time computer based application

- The current version was trialed in 2018 and now we have more than 2000 student-case experiences at Otago (constituting $\approx$ 100,000 student-case hours)

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The purpose of SimPHARM

- Learning

    - to engage students

        - with clinical presentations of diseases and the effects of drugs

        - with the link between evidence based medicine with clinical pharmacology

        - the processes of therapeutic decision making

    - to introduce and enhance

        - learning by reflection

    - to provide an opportunity for students to engage with other learners

- Assessment

    - To evaluate a students approach to decision-making and reflection

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A typical education scenario
using SimPHARM

- Students are assigned a case (about a week before class)

- Students interact with the case in a self directed manner – students are encouraged to discuss their case with their peers

- Students attend a debrief session

- Opportunity to re-run the case

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Each Debrief session

- Normalisation of experience
  - All experiences are different (every case realisation will yield a different result)
- Justification of decision
  - Be able to communicate their decision, monitoring and reasoning process
- "*Illness scripting*"
  - Be able to semantically describe their patient's experience
- Reflection on goal attainment
  - Whether they achieved their goals and how this might influence their future decisions

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SimPHARM in IPE

The Otago Experience – pilot study

Pilot Study Design

- 3x 4th year Medical and 3x 4th year Pharmacy students paired together

- Initial socialisation via social gathering

- Previous training in therapeutic decision-making & use of **SimPHARM** as both single player and multiplayer game

- Assigned a 2-day interactive case

- All pairs interacted with the case in addition to their normal classes
  - Medical students were on rotation at the time
  - Pharmacy students were in class

- Debrief: synchronous distance or face to face (depending on student availability)

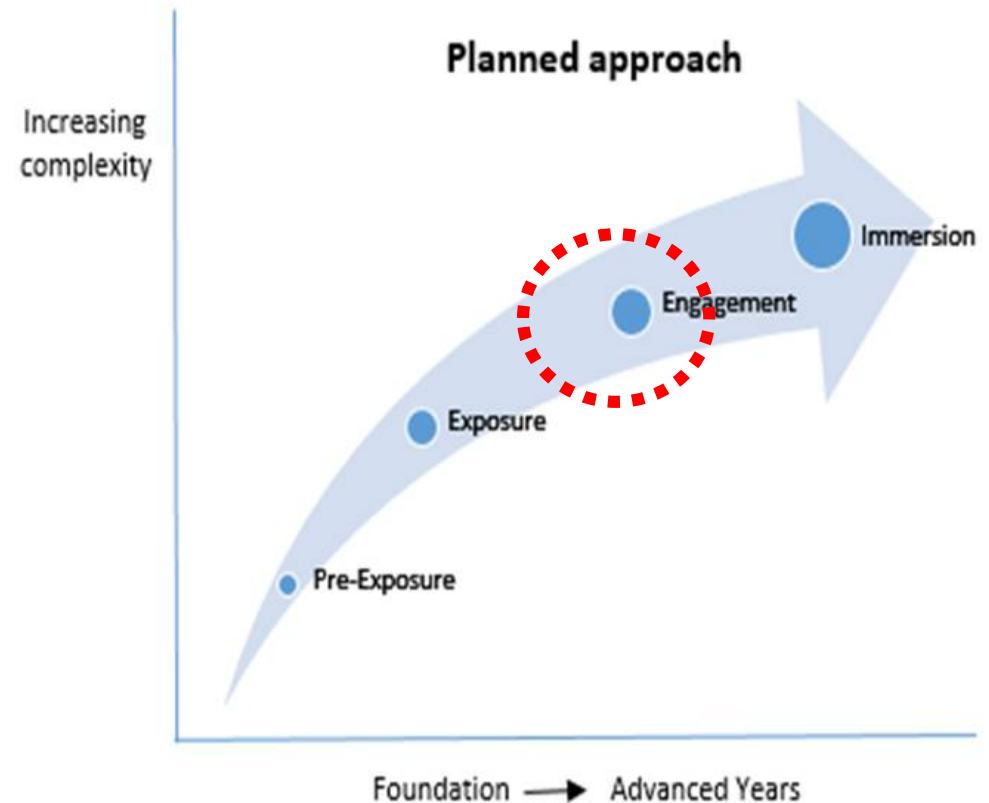- Quantitative analysis of **SimPHARM** log files and focus group discussions

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Pilot study – results
(qualitative and quantitative analysis)

- Feasibility / immersion / engagement
  - *"I got quite attached to him* [the patient]*"*
  - *"I think it would be very useful for all health professional degrees"*

- Asynchronicity
  - *"Scheduling to meet was difficult because we have different timetables"*
  - Analysis of notes in **SimPHARM** log files revealed most interactions were asynchronous

- Meaningful interactions
  - Each pair made between 5 and 7 therapeutic decisions (including de-prescribing, new prescribing and changed prescriptions)
  - *"Learnt more about what each other does"*
  - *"Work together more"*

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Possible place of IPDE with SimPHARM
(distance interprofessional education)

- Upscaling to 100s of teams is little more effort than 3 teams

- Provides a platform for joint decision making

- Able to handle more professional identities

- Expected to fully or partially address 19 of 39 IPEC Core Competencies

Planned approach

Increasing complexity

Immersion

Engagement

Exposure

Pre-Exposure

Foundation → Advanced Years

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Three-step process to IPDE

- Socialisation
  - Either face to face or distance
  - Synchronous
- Completion of the activity
  - ✓ Distance
  - ✓ Asynchronous
  - ✓ Support joint decision making (as well as consensus decisions)
- Debrief
  - Synchronous and either distance or face to face

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SimPHARM Demo