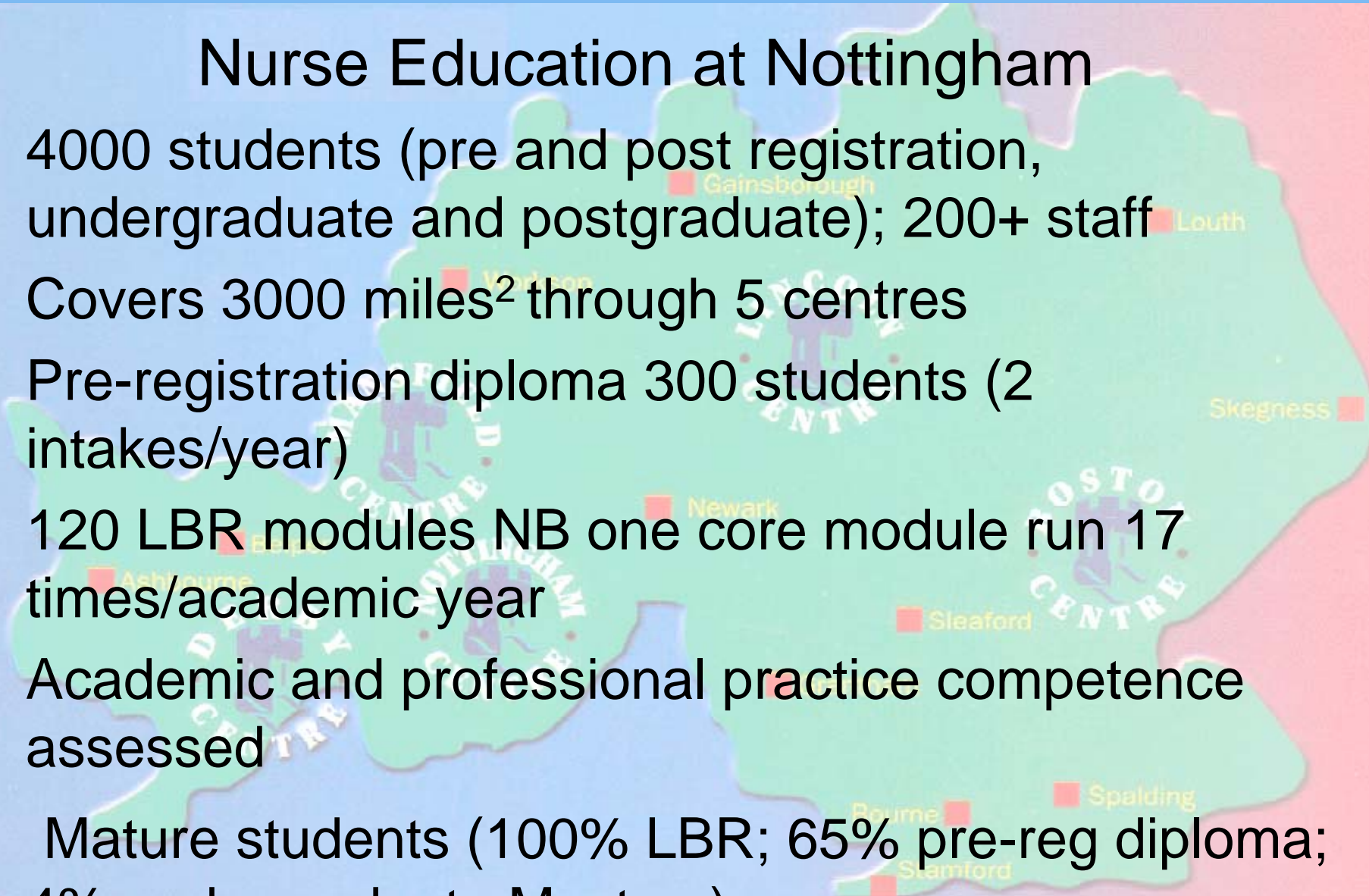


RLOs are good for Health?

**Richard Windle
Heather Wharrad
Lucrezia Herman**

Nurse Education at Nottingham

- 4000 students (pre and post registration, undergraduate and postgraduate); 200+ staff
- Covers 3000 miles² through 5 centres
- Pre-registration diploma 300 students (2 intakes/year)
- 120 LBR modules NB one core module run 17 times/academic year
- Academic and professional practice competence assessed
- Mature students (100% LBR; 65% pre-reg diploma; 4% undergraduate Masters)



RLOs at Nottingham

- Approx - 100 mature RLOs
- Developed for identified educational need
- Key Themes:
 - Pharmacology
 - Clinical skills
 - Study Skills
 - Life Sciences
 - Evidence-based practice (eg research methods & statistics)

Pharmacology RLOs

Exploring the synapse

First pass metabolism

Understanding half life

Understanding bioavailability

The lock & key hypothesis

Excretion of drugs in the kidney

Drug metabolism in the liver

Agonists and antagonists

Drugs acting at the synapse

Plasma proteins in drug binding

Evidence Based Practice RLOs

Levels of Measurement

Levels of Measurement – what you can and cant do arithmetically

Descriptive Statistics for interval and ratio scale data

Probability associated with inferential statistics

Qualitative and quantitative research

Relative risk reduction and absolute risk reduction

Searching strategy for locating randomised controlled trials

Surrogate outcomes

Participant and nonparticipant observation

Why a questionnaire?

Power and sample size

Prevalence

Birth prevalence

Incidence

Relationship between prevalence and incidence

Examples

Evaluation: Evidence Based Practice Use and learning

- Agreed or strongly agreed
 - RLOs were clear about their purpose
 - Easy to navigate
 - Introduced new concepts clearly
 - Would recommend to others
 - Would like more (except 1 disagreed)
 - At right level
 - Enjoyed independent learning (1 disagreed)

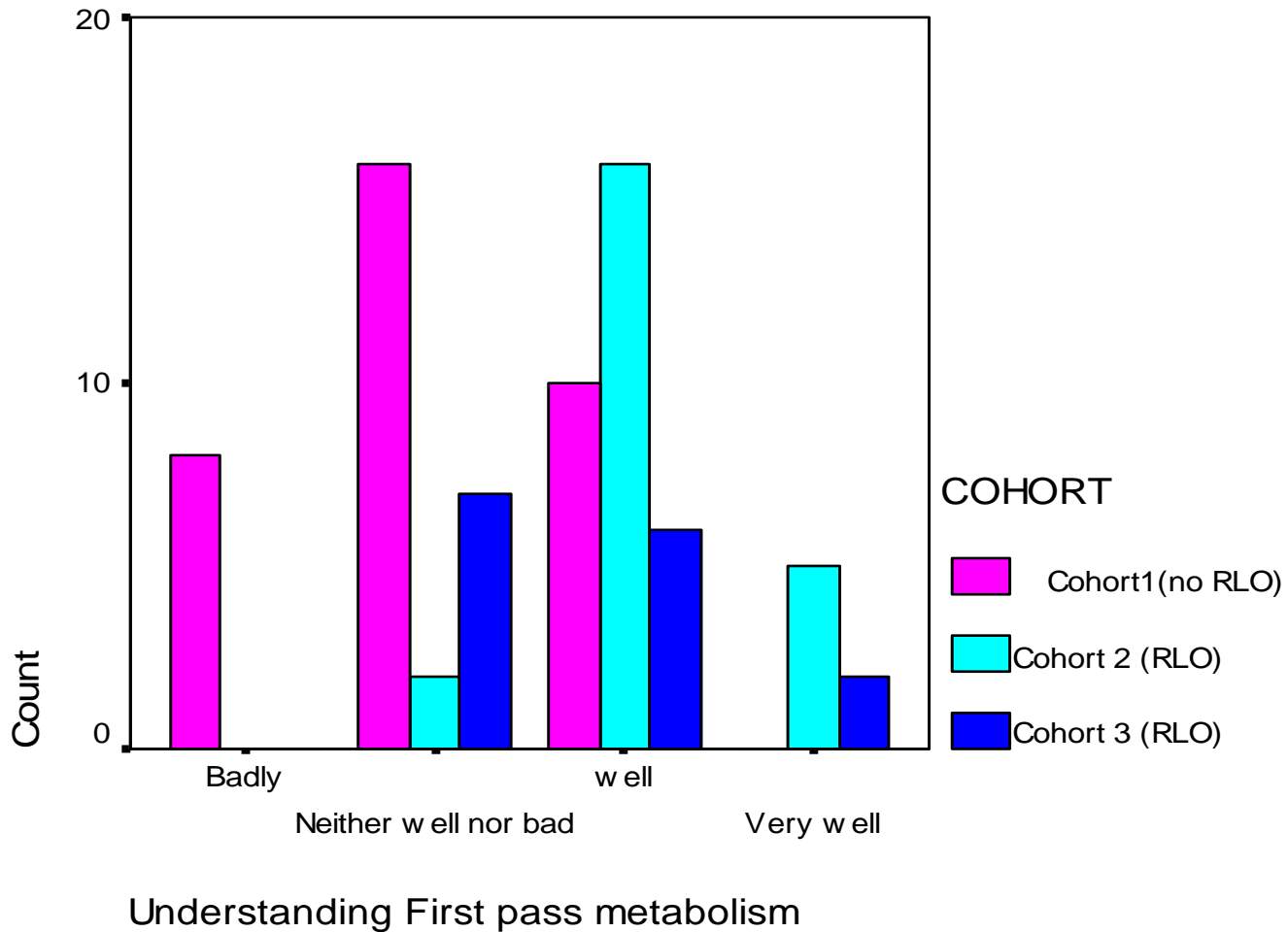
Evidence based practice: Attributes of RLOs

- Important or very important
 - Visual components
 - Audio commentary
 - Access anywhere (1 disagreed)
 - Access anytime (1 disagreed)
 - Work at own pace

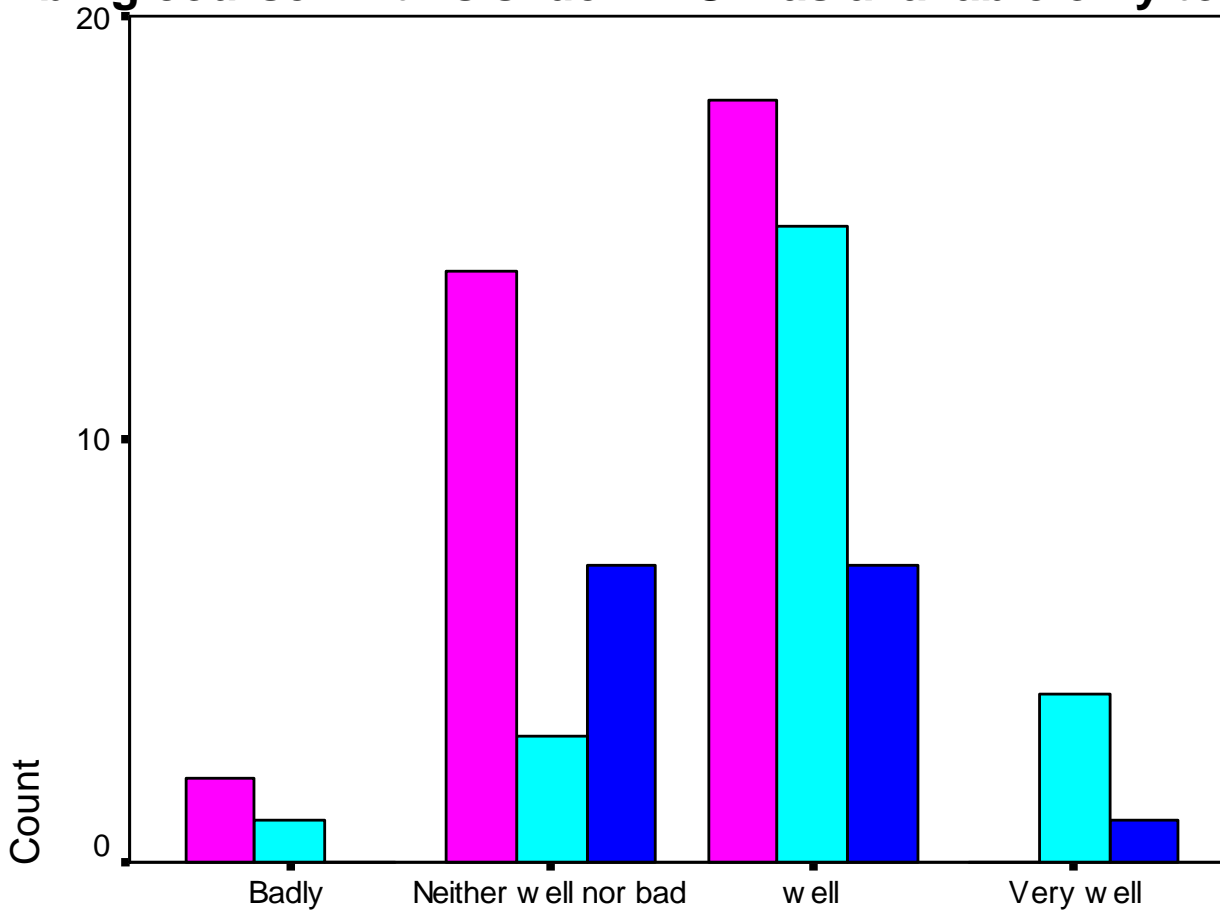
Case study: ROWEN – RLOs in a Prescribing Course

- Cohort 1 (control)
 - questionnaire at the end of the course
 - confidence in understanding of pharmacology
 - understanding of core concepts
- Cohort 2 (4 RLOs - intervention)
 - as above plus
 - 2 Peer/expert reviewers iterative and questionnaires at specification and prototype phase
 - Formative student evaluation questionnaire for each RLO
 - usability
 - content
 - media components
- Cohort 3 (8 RLOs)
- Follow up telephone interviews
- On-line feedback form
 - Research - Bath-Hextall, Wharrad; Peer review Lymn; RLO development – Windle, McCormick, Foss, Rolfe, Bath-Hextall, Wharrad, Riley. Leeder

Students perceived understanding of pharmacology concepts on a nurse prescribing course.



Students perceived understanding of pharmacology concepts on a nurse prescribing course. In this slide RLO was available only to cohort 3



Understanding Agonists & antagonists

See value in RLOs for teaching pharmacology? **(telephone interviews one year after course)**

Participant Q4 (female)

'The rlos put in picture form what I would have thought' especially for those who struggled with the concepts they would have helped to ground those things, would have made them clearer'

Participant 44 (female)

'Because you are able to go at your own pace because pharmacology is the toughest part of the course from what I found and talking to other people. Studying it in that sort of fashion enables you to go at your own pace and go over again and again if you need to which I certainly did.'

Participant 82 Q4 (male)

'Invaluable. For me as a MH nurse practitioner the whole concept of pharmacology, pharmacodynamics, pharmacokinetics was a new concept so I would have really liked some rlos for each each area.'

Properties of RLOs that helped with learning (Telephone interviews one year after course)

Participant 81 (female)

‘Quite useful for myself because I need a mental picture of what is going on to be able to understand it.’

Participant 82 (male)

‘For me it was the visual aspect, actually seeing the concept visually was a huge bonus for me because it just made things click. We’d had key lectures and I’d read about things, but I think for me just to see how things worked visually was what I needed to put the whole picture together.’

Participant 83 (male)

*‘Sometimes I found that the application of the pharmacology in understanding I found quite difficult. The rlos when I used them several times, it clarified a **great** deal of information for me.’*

‘The one that immediately comes to mind is the picture of a boiler in a room and opening the window and the heating going up and down, thermostat system. That clarified Because of the visual with the aural it really worked for me.’

Reuse:3 levels

- 50% of the students interviewed had (re) used the RLOs after they had completed the course
- Pharmacology RLOs embedded into 3 other courses in nursing at Nottingham
- Increasing use by other Universities

“This web site is excellent and I have recommended to other nursing students of Brighton University. Thank you for such a good web site and it was very helpful!”

“I’m a student at a community college in New York, and had to do research on osmosis and diffusion. Your site was terrific! Thank you.”

“This is a very simple aid, but very clear. Every student can understand it. Since I teach in a Spanish speaking country, I would like to see it Spanish. It may not be possible, I know.”

“Thank you for this excellent website! I am currently coming to the end of my second year in Nursing (mental health) at the University of Surrey.”