A systematic review evaluating the effectiveness of pharmacy-involved interprofessional education (IPE) activities Kirkpatrick's Four Level Evaluation Model

Dayana El Nsouli, Keivan Ahmadi, David Nelson, Ffion Curtis, Syed Imran Ahmed

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Review question

The Centre for the Advancement of Interprofessional Education (CAIPE) defines interprofessional education (IPE) as occasions when two or more professions are learning together with the objective of cultivating collaborative practice to improve the quality of care. This systematic review will utilise this definition as a basis for its inclusion criteria.

This research will measure to what extent is the design of pharmacy-involved IPE activities effective through Kirkpatrick's Four Level Training Evaluation Model? This model allows the reviewer to objectively analyse the effectiveness of a training design by evaluating its aptitude on four-levelled criteria.

These are:
1. Level 1: Reaction: measuring participant's reaction to training – ie. Satisfaction?
2. Level 2: Learning: measuring participant's knowledge/skills gained via training
3. Level 3: Behaviour: measuring participants' utilisation of learnt outcomes in working environment
4. Level 4: Results: measuring gained impact on organisation/patients

This model has been widely used and validated in the education literature for training evaluations.
- P: Undergraduate or postgraduate healthcare students (must include pharmacy profession)
- I: Inter professional simulation-based training
- C: None
- O: Evaluating effectiveness of activity by assigning a Kirkpatrick's outcomes level

Searches

Systematic reviews will be searched in the following databases: Cochrane Library and PROSPERO. The following databases will be searched: MEDLINE, CINAHL, PsycINFO, and Web of Science Restrictions:
- Language: English language only
- Dates: post 2015 (release of the International Pharmaceutical Federation report on Interprofessional
Education in a Pharmacy Context: Global Report)

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- Online full text peer reviewed academic articles

Types of study to be included

- Inclusion: Studies that will be considered for review include those who have assessed the effect of an IPE simulation activity. Studies must include the pharmacy profession. This includes quantitative, qualitative, and mixed methods studies.
- Exclusion: scoping reviews, systematic reviews, meta-analysis

Condition or domain being studied

The domain being studied is pharmacy education at an undergraduate and postgraduate level. In January 2021, The General Pharmaceutical Council released new standards for pharmacy undergraduates to achieve by the time they qualify. These standards include the need for interdisciplinary collaboration as well as prescribing qualification. This makes the necessity for interprofessional socialisation within faculty as well as in a postgraduate work environment more relevant. Therefore, the development of IPE activities that are effective in the transfer of learning will help achieve these standards and are essential for safe and effective pharmaceutical and healthcare provision to patients. These standards are set in place to protect the public and pharmacists play a vital role in delivering care and improving patient's health, safety and wellbeing. Investing in the research of pharmacy-involved collaboration will improve education towards meeting the new standards set out and will achieve better health outcomes.

Participants/population

- Inclusion:
Undergraduate or postgraduate health professions (must include pharmacy profession)
Primary healthcare studies only

- Exclusion:
Non-pharmacy involved

Intervention(s), exposure(s)

-Inclusion:
IPE simulation activity with the goal of improving multidisciplinary collaboration toward patient-centred care

- Exclusion:
Learning activities not in line with CAIPE's definition of IPE
Non-simulation based training

Comparator(s)/control

None

Context

Clinical pharmacists' scope of practice requires the ability to collaborate within a multidisciplinary team. However, there is scarcity of the interprofessional education (IPE) activities at an undergraduate MPharm and postgraduate level (PGDip) in the UK, which would allow an effective transfer of skills obtained from

the simulated IPE activities on to the workplace.

The General Pharmaceutical Council (GPhC) released the new Standards in January 2021, which requires newly qualified pharmacists to prescribe and work collaboratively within a multidisciplinary team. The education and training of pharmacists should therefore respond by incorporating effective designs of IPE as a core learning module to better prepare future pharmacists for the already expanding scope of practice.

Simulation based patient centred interprofessional education has been embedded in nursing and medical curricula but yet to be formally incorporated in pharmacy as a didactic module. Centre for the Advancement of Interprofessional Education (CAIPE) educational outcomes guiding documents include IPE and collaborative practice as a call for faculty to prepare pharmacy students in becoming contributing members of the clinical multi-disciplinary team (MDT). IPE simulation activities are designed to improve patient care, patient safety, teamworking, collaboration, communication, and interprofessional socialisation. Creating an effective training design to facilitate the transfer of learning can be evaluated by Kirkpatrick's learning outcomes model. This model is a 4-tier hierarchy that categorises learning outcomes from an IPE activity. Planning future IPE activities in a manner that facilitates effective transfer of learning to the workplace can therefore be in a more informed manner.

Main outcome(s)

Each IPE training activity in the included articles will be evaluated against Kirkpatrick's Four Level Model and given a level in which its' learning outcomes conform to. The outcome being measured is directly related to increased collaboration within an inter professional workforce. This will lead to better healthcare provision to patients and health outcomes. Investing in the education of the health workforce will have a direct impact on the quality of care patients receive and therefore achieve best possible outcomes for patients. Creating a successful healthcare team that shares the same goals in benefiting patients will result in a holistic approach to patient care and places the patient its centre.

Measures of effect

The articles in the included criteria will be evaluated and given a level of Kirkpatrick's model in which its learning outcomes represent. The data will then be analysed to measure the spectrum of effectiveness of pharmacy-involved IPE activities according to this model.
The effect of this measure is the optimisation of inter professional skill sets in the provision of high-quality patient care. Meeting patient's health needs require a coordinated and collaborative approach, and an effective inter professional practice will reduce errors, increase patient safety, and improve teamwork.

Additional outcome(s)

None

Measures of effect

Not applicable

Data extraction (selection and coding)

Two team members (DEN and KA) will screen titles and abstracts for inclusion. Full text articles will then be screened and assessed for inclusion. Each step will be completed by the reviewers separately and then a comparison will take place at the end of each stage. Any discrepancy will be resolved with the inclusion of a third reviewer.
Data extraction sheet will be adapted from Cochrane's Data Extraction Template. Data extraction will also take place between two reviewers separately and then cross checking each other's work for comparison. Compilation of the included papers will be done using EndNote referencing software.

Study characteristics to be extracted include:
Title, author, study duration, study participants (professions), participants level (UG/PG), study setting, primary outcome, secondary outcome, inclusion/exclusion criteria, voluntary/involuntary training, design of training activity, sample size of each profession, reported limitations, conclusions.

Risk of bias (quality) assessment

Risk of Bias in Non-randomised studies – of interventions tool (ROBINS-I) will be used and studies will be given a bias judgment of low, moderate, serious or critical. The Medical Education Research Study Quality Instrument (MERSQI) tool will be used to quality assess studies and given a score up to 18. Any disagreements between two assessors will be resolved by discussing with a third assessor.

Strategy for data synthesis

The data synthesis will be structured in a tabular format that summarises the characteristics of the included studies. These characteristics include author, year, setting (secondary or primary), professions involved, contact time, and the assigned Kirkpatrick level in the evaluation. The evaluation will be conducted by examining the nature of learning outcomes/data collected in the study and determining whether it measures students' reactions (level 1), learning (level 2), behaviour (level 3), or results (level 4). Two reviewers will assign each study a level independently and then compare with a third reviewer resolving any discrepancies.
In a descriptive narrative, the synthesis will interpret the number of studies that fall into each level in Kirkpatrick's model which will give an idea on where the majority of IPE literature fall into. This will allow the reviewers to identify the level in which IPE is most lacking evidence in and tailor recommendations for future studies.
The synthesis will be a quantitative one (level of Kirkpatrick's model) and will include a descriptive statistical analysis.

Analysis of subgroups or subsets

Analysis of each level in Kirkpatrick's hierarchy in which studies belong to:

Level Definition Outcome
1. Reaction: Learner's views on the learning experience and its Interprofessional nature

2a. Modification of perceptions and attitudes: Changes in reciprocal attitudes or perceptions between participant groups,
Changes in perception or attitude towards the value and/or use of team approaches to caring for a client

2b. Acquisition of knowledge & skills: Including knowledge and skills linked to inter-professional collaboration

3. Behavioural Change: Identifies individuals' transfer of inter-professional learning to their practice and setting

4a. Change in organisational practice: Wider changes in the organisation and delivery of care

4b. Benefits to patients/clients: Improvements in health or well-being of patients/clients

Contact details for further information

Dayana El Nsouli
dayana.elnsouli@gmail.com

Organisational affiliation of the review

University of Lincoln
https://www.lincoln.ac.uk/home/

Review team members and their organisational affiliations

Miss Dayana El Nsouli. University of Lincoln
Dr Keivan Ahmadi. The Lincoln Medical School, Universities of Nottingham & Lincoln, University of Lincoln
Dr David Nelson. Lincoln International Institute for Rural Health (LIIRH), University of Lincoln
Dr Ffion Curtis. Lincoln International Institute for Rural Health (LIIRH), University of Lincoln
Dr Syed Imran Ahmed. College of Science, University of Lincoln

Collaborators

Dr Ros Kane. School of Health and Social Care, University of Lincoln
Dr Ian McGonagle. School of Health and Social Care, University of Lincoln

Type and method of review

Systematic review

Anticipated or actual start date

01 March 2021

Anticipated completion date

05 October 2021

Funding sources/sponsors

Whilst the review has received no direct funding, it has been undertaken as part of the HEE/NIHR Integrated Clinical Academic programme award

Conflicts of interest

Language

English

Country

England

Stage of review

Review Ongoing

Subject index terms status

Subject indexing assigned by CRD

Subject index terms

Humans; Interprofessional Education; Pharmaceutical Services; Pharmacies; Pharmacy

Date of registration in PROSPERO

01 April 2021

Date of first submission

26 March 2021

Stage of review at time of this submission

Stage	Started	Completed
Preliminary searches	Yes	No
Piloting of the study selection process	No	No
Formal screening of search results against eligibility criteria	No	No
Data extraction	No	No
Risk of bias (quality) assessment	No	No
Data analysis	No	No

The record owner confirms that the information they have supplied for this submission is accurate and complete and they understand that deliberate provision of inaccurate information or omission of data may be construed as scientific misconduct.

The record owner confirms that they will update the status of the review when it is completed and will add publication details in due course.

Versions

01 April 2021