

**Research question 1: (effectiveness question, quantitative research):** In laypeople following first aid programs (population), which **learning modalities** (intervention) compared to another learning modality or no training (comparison) will impact **patient, learner and/or societal outcomes** (outcome)?

### **Selection criteria**

**Population:** included: laypeople; excluded: health and medical professionals

**Intervention:** included: first aid and/or resuscitation training and/or water safety education in any format, such as face-to-face learning, digital learning, virtual reality, online learning, blended learning, gamification; excluded: general health training, any other form of health promotion

**Comparison:** any other training format or no training.

**Outcome:** included: patient outcomes, such as survival, reduced pain, reduced injury, expeditious access to professional care if needed, comfort/empathy, reduced need for hospital admission; learner outcomes, such as knowledge, skill, confidence/self-efficacy, attitude, intention to act, critical thinking, helping behavior, empowerment; societal outcomes, such as resilience, ability to cope, peer support, reduced vulnerability, safety awareness/injury prevention, non-fatal drowning, fatal drowning, victim-instead-of-rescuer syndrome

**Study design:** included: controlled experimental and observational studies; uncontrolled before-after studies; excluded: case series, case studies, opinion pieces, narrative reviews, conference abstracts

### **Search strategy PubMed:**

"First aid"[Mesh] OR "Emergency Treatment"[Mesh:NoExp] OR "Emergency Medical Services"[Mesh:NoExp] OR "first aid"[TIAB] OR "first response"[TIAB] OR "prehospital care"[TIAB] OR "prehospital management"[TIAB] OR "prehospital treatment"[TIAB] OR "prehospital emergency medical care"[TIAB] OR "emergency care"[TIAB] OR "critical care"[TIAB] OR "responding to emergencies"[TIAB] OR "acute management"[TIAB] OR "immediate care"[TIAB] OR "helping behavior"[TIAB] OR "helping behaviour"[TIAB] OR "basic life support"[TIAB] OR BLS[TIAB] OR "cardiopulmonary resuscitation"[Mesh:NoExp] OR "resuscitation"[TIAB] OR CPR[TIAB] OR "defibrillators"[Mesh:NoExp] OR "automated external defibrillator"[TIAB] OR AED[TIAB] OR (bystander[TIAB] AND help\*[TIAB]) OR "Drowning"[Mesh] OR drowning[TIAB] OR "water safety"[TIAB] OR "water rescue"[TIAB] OR lifeguard\*[TIAB]

AND

"Health Education"[Mesh:NoExp] OR "Educational Status"[Mesh] OR educat\*[TIAB] OR train\*[TIAB] OR learn\*[TIAB] OR course\*[TIAB] OR program[TIAB] OR programme[TIAB] OR curriculum[TIAB] OR curricula[TIAB] OR didactic\*[TIAB] OR "teaching"[Mesh] OR teach\*[TIAB] OR instruct\*[TIAB] OR certificat\*[TIAB]

AND

classroom[TIAB] OR webbased[TIAB] OR web-based[TIAB] OR online[TIAB] OR on-line[TIAB] OR casebased[TIAB] OR case-based[TIAB] OR "case based"[TIAB] OR blended[TIAB] OR video[TIAB] OR photograph\*[TIAB] OR animat\*[TIAB] OR film[TIAB] OR "face-to-face"[TIAB] OR "scenario"[TIAB] OR experiential[TIAB] OR practical[TIAB] OR "role play"[TIAB] OR quiz\*[TIAB] OR activit\*[TIAB] OR "multiple choice"[TIAB] OR digital[TIAB] OR virtual[TIAB] OR gamification[TIAB] OR game[TIAB] OR media[TIAB] OR television[TIAB] OR radio[TIAB] OR TV[TIAB] OR press[TIAB] OR newspaper\*[TIAB] OR technology[TIAB] OR peer[TIAB] OR mobile[TIAB] OR "e-learning"[TIAB] OR "cell phone"[TIAB] OR application[TIAB] OR app[TIAB] OR micro learn\*[TIAB] OR social learn\*[TIAB]

AND

Performance\*[TIAB] OR skill\*[TIAB] OR knowledge[Mesh] OR knowledge[TIAB] OR effective\*[TIAB] OR "Self Efficacy"[Mesh] OR self-efficacy[TIAB] OR motivation[TIAB] OR inclin\*[TIAB] OR trust[TIAB] OR norm[TIAB] OR "Retention (Psychology)"[Mesh] OR retention[TIAB] OR competenc\*[TIAB] OR competent OR confidence[TIAB] OR willingness[TIAB] OR intention[Mesh] OR intention\*[TIAB] OR "Power (Psychology)"[Mesh] OR empowerment[TIAB] OR thinking[Mesh] OR "critical thinking"[TIAB] OR "helping behavior"[Mesh] OR "behavioral expectation"[TIAB] OR "behavioural expectation"[TIAB] OR helping behav\*[TIAB] OR likelihood[TIAB] OR "Resilience, Psychological"[Mesh] OR resilience[TIAB] OR empathy[Mesh] OR empathy[TIAB] OR attitude[Mesh:NoExp] OR "attitude to Health"[Mesh] OR attitude[TIAB] OR "health literacy"[Mesh] OR "health literacy"[TIAB] OR "Resilience, Psychological"[Mesh] OR "ability to cope"[TIAB] OR "peer support"[TIAB] OR vulnerability[TIAB] OR awareness[Mesh] OR awareness[TIAB] OR prevention[TIAB] OR "Power (Psychology)"[Mesh] OR

empowerment[TIAB] OR survival[Mesh] OR survival[TIAB] OR mortality[Mesh] OR mortality[TIAB] OR pain[Mesh] OR pain[TIAB] OR "wounds and injuries"[Mesh] OR injur\*[TIAB] OR wound\*[TIAB] OR "patient comfort"[Mesh] OR "patient comfort"[TIAB] OR "hospital admission"[TIAB] OR "professional care"[TIAB]

AND

("randomized controlled trial"[PT] OR "controlled clinical trial"[PT] OR "clinical trial"[PT] OR "Clinical Trials as Topic"[Mesh] OR "comparative study"[PT] OR random\*[TIAB] OR control\*[TIAB] OR "intervention study"[TIAB] OR "experimental study"[TIAB] OR "comparative study"[TIAB] OR trial[TIAB] OR evaluat\*[TIAB] OR "Controlled Before-After Studies"[Mesh] OR "Before and after"[TIAB] OR "Interrupted Time Series Analysis"[Mesh] OR "interrupted time series"[TIAB]) NOT ("animals"[MesH] NOT (animals[MesH] AND "humans"[MesH]))

- 1997 references (Nov 12 2018)