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Education and training methods for healthcare professionals to lead conversations concerning deceased organ donation: An integrative review

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ABSTRACT

Objectives: To determine which training methods positively influenced healthcare professionals' communication skills and families' deceased organ donation decision-making.
Methods: An integrative review using systematic methods and narrative synthesis for data analysis. Electronic databases of PubMed, Cumulative Index to Nursing and Allied Health Literature (EBSCO), Embase (OVID) and ProQuest Dissertations & Theses Global, were searched between August 1997 and March 2020, retrieving 1019 papers. Included papers (n = 14) were appraised using the Medical Education Research Study Quality Instrument.
Results: Training programmes offered theory, experiential learning, feedback and debriefing including self-reflection, the opportunity to role-play and interact with simulated participants within realistic case scenarios. Programmes reported observed and self-rated improvements in communication learning and confidence. The methodological quality score averaged 13, (72% of maximum); few studies used an experimental design, examined behavioural change or families' perspectives. Weak evidence suggested training could increase organ donation authorisation/consent rates.
Conclusions: Multiple training strategies are effective in improving interprofessional healthcare professionals' confidence and learning of specialised communication. Methodological limitations restricted the ability to present definitive recommendations and further research is warranted, inclusive of family decision-making experiences.
Practice implications: Learning of specialised communication skills is enhanced by using multiple training strategies, including role-play and debriefing.

Contents

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1. Introduction

Offering donation to families of potential deceased organ and tissue donors is recognised as part of end-of-life care in critical care [1], but can be one of the most difficult responsibilities for healthcare professionals (HCPs), irrespective of previous experience or expertise. An interprofessional team approach is fundamental in orienting families to the transition from curative to end-of-life care, where death is the inevitable outcome. The end-of-life and the donation conversation may present substantial challenges, particularly if it is the first meeting between HCPs and families [2,3]. Critical care physicians and nurses may be poorly prepared for such interactions; may not be adequately trained or skilled in specialised communication [4], supported by experienced mentors, or provided sufficient opportunities to maintain their competency and confidence [5].

For many families, deceased donation decision-making occurs at a time of intense grief and emotion. Typically, family members function as substitute decision makers because donor-eligible patients frequently lack capacity to make informed decisions. Families' donation decisions have been shown to be open to influence, including by the timing, approach and communication skills of the HCPs offering donation [6]. Both positive and negative influences on families' decisions may relate to situational factors such as their perceptions of treatment and care, the quality of information received, and the level of support and consideration shown them by HCPs [7,8].

Effective communication for organ donation conversations requires specialised skills including recognition of grief reactions, understanding of cultural needs, sensitive exploration of attitudes and understanding of donation, and the ability to care for families [6,9,10]. This can be underpinned by the guiding principle of "patient-centeredness", linking end-of-life care and organ donation decision-making through eliciting the patient's values and a sense of their identity from family and significant others [11]. The ideal outcome from such skilled approaches is a family donation decision based on the patient's wishes and sufficient information, without any sense of pressure [12].

Specialised communication training for critical care HCPs in leading donation conversations has been recognised as a key factor in enhancing family satisfaction with care and increasing consent rates for deceased donation [6,10]. Organ donation education and training for HCPs working in critical care areas and Organ Procurement Organisations (OPO) has been recognised as a priority, but requires a formal structure, incorporating inter-professional, and experiential learning [4,12]. The characteristics of such training programmes have not been systematically examined. This is important for informing contemporary learning strategies to enhance conversations with bereaved families and facilitate informed donation decisions that are not subsequently regretted.

The aim of this review was to identify and summarise the evidence for communication learning and skills training to prepare HCPs to offer deceased organ donation to families of donor-eligible patients in the critical care setting.

The research questions were:

Which training methods for teaching communication skills in relation to HCPs' delivery of news of death determined by neurological criteria or withdrawal of life-sustaining treatments, and/or offer of deceased organ donation, have:

a) Positively influenced HCPs' learning and practice of specialised communication skills?
b) Been shown to influence family authorisation/consent for organ donation?

2. Methods

This was an integrative review [13] using systematic methods and a narrative approach to data synthesis. Review methods followed the reporting requirements of the PRISMA statement for systematic reviews [14], applied to a systematic search that sought heterogeneous studies, date-limited for currency. As no design inclusion criteria were applied, narrative synthesis was selected for data analysis [13].

2.1. Data sources and search strategy

The electronic bibliographical databases searched for papers were: MEDLINE (via PubMed), Cumulative Index to Nursing and Allied Health Literature (CINAHL) (EBSCO), Embase (OVID) and ProQuest Dissertations & Theses Global. Key words and Medical Subject Headings (MeSH) relating to the PICOS framework were

identified and combined (see Appendix A Table A.1). Reference lists of relevant full text papers were reviewed to locate additional studies. The search included English language papers published between August 1997 and March 2020.

2.2. Eligibility criteria

Papers considered for *inclusion* reported studies meeting the following criteria:

(a) participants: graduate HCPs working in critical care settings and donation professionals working at OPOs;
(b) intervention: communication skills training intending to change skills regarding delivering news of 'brain death', that is, neurological determination of death (NDD), and/or the plan to withdraw life-sustaining treatments and to offer organ donation to families of potentially donor-eligible patients;
(c) outcomes: HCPs' communication skills, and/or family experiences and/or rates of family consent to organ donation;
(d) time: baseline data (pre-education) compared to post-education, with a minimum of one post-training time point;
(e) research design: controlled clinical trials (not necessarily randomised), quasi-experiments, pre and post surveys or observational studies.

Papers were *excluded* if they:

(a) solely described attributes of donation requesters or content of donation training/education programmes;
(b) focused on communication skills training applied to requests for living organ donation, post mortem tissue donation, performance of donation-related procedures or patient-clinician decision-making about end-of-life care;
(c) focused on communication skills for family-clinician decision-making in general, or limitation of life-sustaining treatments, or transitioning from curative to palliative care;
(d) were classified as grey literature, letters, editorials, review articles, conference abstracts or qualitative designs;
(e) did not evaluate changes in behaviour (actual/simulation).

2.3. Study selection

The titles and citation details of all papers were retrieved from each database and exported to Endnote X8.2™ for screening. Titles and abstracts were screened (JP) to eliminate duplicates and to exclude papers that did not meet the inclusion criteria. If eligibility could not be determined from the abstract, or if the abstract was unavailable, the full text of the paper was obtained. Reference lists of review papers were searched for relevant publications. The full text was obtained for all relevant papers and independently screened (JP and RE). Disagreements were resolved by consensus. A third author (LP) adjudicated when consensus could not be reached.

2.4. Data extraction and coding

Extracted data for eligible papers included descriptions of the study, participants, intervention and outcomes. Data for each study included: publication year, country, setting, recruitment period and research design. Participant characteristics included age, gender, and work designation. Study interventions included details of the training programme - training strategies, content, duration and intensity, group size/s, assessment methods (self-assessment/external assessors), communication skills, and main findings with measurements of statistical significance, when mentioned.

To identify communication skills, content analysis was used to tabulate text that contained a key word or phrase, organised into units of meaning then allocated a category [15]. Categories were comprised of pre-defined behavioural groups derived from a review of communication skills taught to clinically experienced physicians [16]. In general, *receptive behaviours* are described as useful when opening the conversation, to help build rapport and facilitate active participation of the family members in the conversation. *Information behaviours* are intended to promote family members' understanding of complex medical information, ensure that family members and HCPs use the same language conducive to a shared understanding of topics. *Interpersonal and affective behaviours* are related to building relationships, creating a supportive, non-judgemental atmosphere that facilitated families' disclosure of issues important to them, particularly focusing on the effect of strong emotions. Examples are behaviours demonstrating empathy and eliciting families' emotions or concerns [16]. Categories are not mutually exclusive, and some behaviours may overlap with others. To support the credibility of the analysis, the coding was performed independently by two authors (JP and RE). Discrepancies were resolved by discussion and consensus, with reference to a third experienced academic and author (LP or MK).

2.5. Definitions

Training programmes were defined as the entire communication skills training programme or course/workshop. Training strategies were defined as various techniques or approaches employed to teach communication skills to HCPs within a programme. Examples were role-play and oral presentations [17]. In this review, 'simulated participants' [18] refer to trained human role players variously referred to as "actors", "standardised family members (SFM)", "standardised patients" and "standardised parents", reflecting the inconsistent use of terms across included studies.

2.6. Quality assessment

The methodological quality of included full text papers was appraised using the Medical Education Research Study Quality Instrument (MERSQI) [19]. This 10-item instrument has been validated to assess the methodological quality of experimental, quasi-experimental and observational studies of medical education [20]. The MERSQI six domains include: study design, sampling, type of data (subjective or objective), validity of evaluation instrument, data analysis and outcomes. The maximum score for each domain is three with total scores ranging from 5 to 18 [19]. The quality appraisal was performed independently (by JP and RE), with any discrepancies resolved by discussion and consensus, with reference to a third author (LP or MK) as needed.

2.7. Data analysis / synthesis

Heterogeneity of the designs, settings, and outcome measures of the included studies precluded meta-analysis. In order to integrate the wide range of study designs a narrative synthesis was performed. Data synthesis involved a variety of elements, notably developing an initial description of studies, tabulation, and content analysis [15,21].

The conceptual framework adopted for analysis of outcomes was Kirkpatrick's four-level training evaluation model, a sequential design in which outcomes increase in value from learner satisfaction to evidence of workplace outcomes [22]. We applied and refined the framework to better describe the diversity of outcomes by expanding to five categories similar to previous reviews [23,24]. These entailed:

Category 1 — Reaction (to the programme): learner preferences for scheduling, topic content, quality of instructors, and/or quality of the case scenarios and actors;.

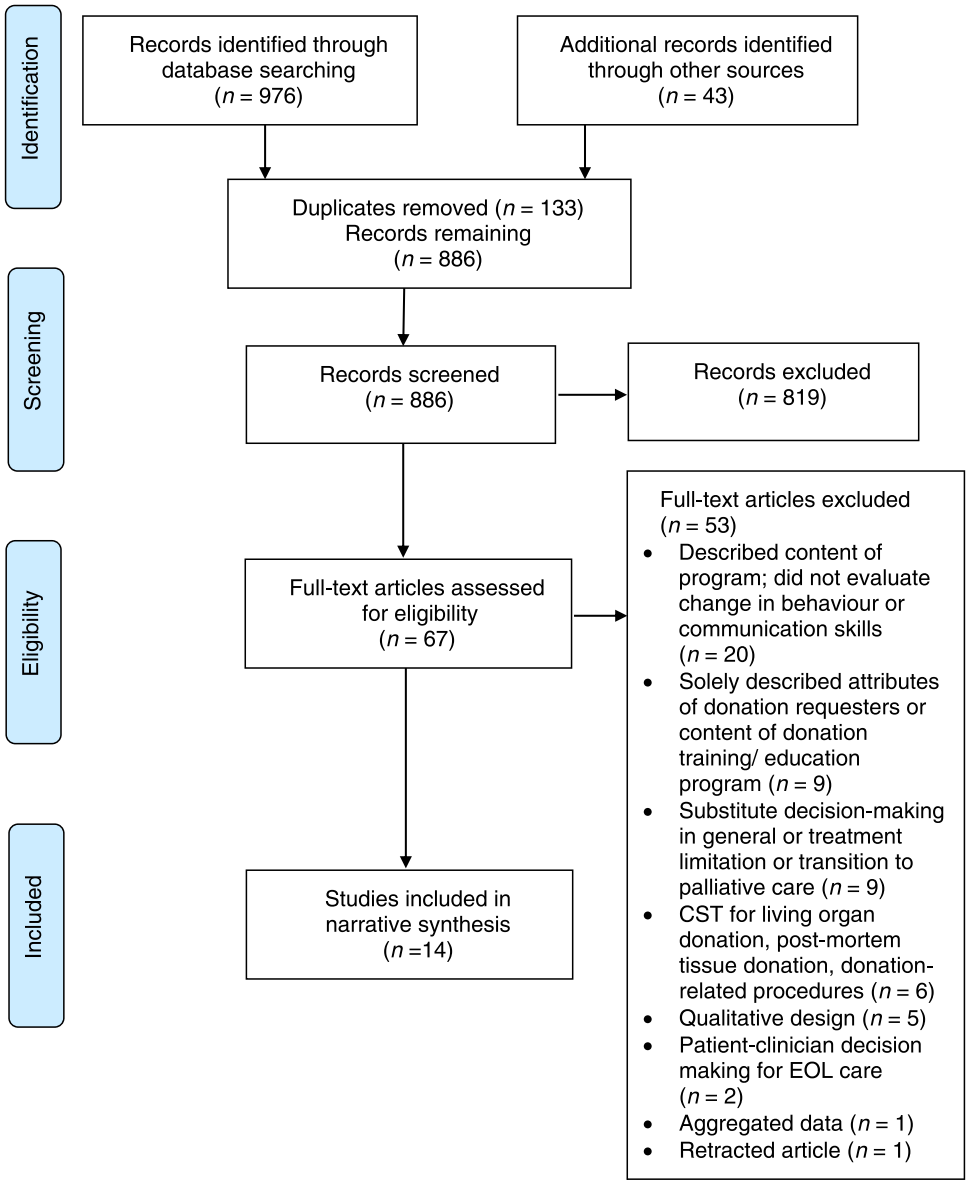

Fig. 1. Flow diagram of study identification, screening and inclusion. *Note.* CST = communication skills training; EOL = end-of-life.

Category 2A — Learning: changes to perceptions, attitudes (comfort, confidence);.

Category 2B — Learning: improving knowledge (theory test) and increasing (communication) skills (performance test);.

Category 3 — Behaviour: transfer to the clinical setting (attitudes, knowledge & skills);.

Category 4 — Results: benefits to patients/family-centred outcomes.

For this review, we reported on learning outcomes measured at category 2A to category 4, to focus on the effect of training on learning new attitudes, knowledge and skills (competence), and their transfer to the clinical setting.

3. Results

The search resulted in 1019 potentially relevant papers. Title and abstract were read and reviewed, duplicates removed, and 819 ineligible papers excluded. After reading and reviewing the full text of remaining papers, 53 met exclusion criteria and 14 studies were retained for inclusion. (see Fig. 1).

3.1. Study characteristics

Characteristics of the 14 included studies are shown in Table 1. Most studies were undertaken in North America. Over half ($n = 8$, 57%) used a single group pre/post design, with three studies using a randomised controlled trial (RCT). Nine (64%) studies evaluated continuing education for OPO coordinators, or for inter-professional groups of HCPs working in paediatric or adult intensive care units (ICU) [25–33].

A number of discrete programmes were identified from study descriptions. Some studies reported similar outcomes for delivery of the same programme, where it was adapted either to different local contexts, such as the “European Donor Hospital Education Program” [25,30], or delivery modalities, such as the “Communicating Effectively about Donation” training [32,33]. Other discrete programmes included the “Program to Enhance Relational and Communication Skills” [29], the “End of Life Decision-Making Performance Improvement Coaching Program” [27], and the “Positive Deviance Collaborative” [26]. Four training programmes were integrated within academic programmes/curricula designed to meet objectives of specialist medical colleges [34–37].

Table 1
Characteristics of included studies.

First author, year	Setting (country)	Study design	Sample size (*n*)	Age mean (SD) (years)	Female *n* (%)	Participants
Vaidya, 1999 [38]	A tertiary paediatric ICU (US)	Single group, pre-test/post-test	7	NR	2 (28)	Paediatric intensive care fellows
Morton, 2000 [30]	ICUs in 20 hospitals (England)	RCT	64			Intensive care consultants and ICU nurses (50:50)
			IG: 32	IG:38 (7.2)	IG:18 (56)	
			CG: 32	CG:40 (9.4)	CG:16 (50)	
DeVita, 2003 [34]	Tertiary care hospital (US)	Single group, pre-test/post-test	7	NR	NR	Critical care medicine fellows
Blok, 2004 [25]	7 workshops, 40+ hospitals (NL)	RCT	188			Intensive care doctors and ICU nurses. Doctor/total, nurse/total:
			NL,IG: 71	NL: 33 (NR)	NL: NR	
			NL,CG: 61	UK: 39 (NR)	UK: 26 (50)	
	22 workshops, ICUs in 20 hospitals (UK)		UK,IG: 29			NL: ~26/132, 106/132
			UK,CG: 27			UK: 28/56, 28/56
Hales, 2008 [27]	A university and selected hospitals (Canada)	Single group, pre-test/post-test	36	NR	NR	Intensive care doctor, nurses, social workers, respiratory therapist, clinical nurse educator, missing
Meyer, 2009 [29]	A tertiary paediatric hospital (US)	Single group, pre-test/post-test	110	35 (8.6)	74 (74)	Physicians (41%); nurses (43%); social workers, chaplains or psychologists (16%), missing (n = 3)
Siminoff, 2009 [32]	An OPO with 17 hospitals (US)	Non-randomised repeated measures	22	39 (8.6)	16 (73)	OPO coordinators
Downar, 2012 [35]	A university (Canada)	Single group pre-test/post-test	51	NR	17 (33)	Critical care medicine trainees
Tobler, 2014 [37]	A university (Canada)	Single group pre-test/post-test.	39	NR	NR	Residents in paediatric general and emergency medicine programmes
Siminoff, 2015 [33]	Nine OPOs (US)	Parallel group RCT	273	40 (9.4)	103 (74)	OPO coordinators
			IG: 55			
			CG: 218			
Johnson, 2017 [36]	A paediatric hospital (US)	Single group pre-test/post-test	38	NR	20 (53)	Paediatric critical care medicine fellows
Marogna, 2018 [28]	A hospital, 60 workshops (Argentina)	Controlled before and after study	IG: 435	NR	250 (57)	Doctors, nurses, other
			CG: NR			
Potter, 2018 [31]	ICUs in 9 hospitals (Australia)	Controlled before and after study	IG: 164	46 (8)	48 (29)	Per case: intensive care doctors, ICU donation specialist doctors, donation specialist nurses, social workers, fellows.
			CG: 25			
Fico, 2019 [26]	9 OPOs (US)	Single group pre-test/post-test	95	41 (11.2)	72 (76)	OPO coordinators

Note. CG = control group; ICU = intensive care unit; IG = intervention group; NL = Netherlands; NR = not reported or unclear; OPO = Organ Procurement Organisation; RCT = randomised controlled trial; UK = United Kingdom; US = United States.

Table 2
Methodological quality of the included studies based on MERSQI domain and item scores.

First author, year	Study design[a]	Sampling		Type of data[d]	Validity of evaluation instrument[e]			Data analysis[f]		Out-comes[g]	Total score
		Institutions[b]	Response rate[c]		Internal structure	Content	Relationship to other variables	Appropriate	Complex		
Vaidya, 1999 [38]	1.5	0.5	0.5	3	1	1	1	1	2	1.5	13.0
Morton, 2000 [30]	3	1.5	1.5	3	1	1	0	1	2	1.5	15.5
DeVita, 2003 [34]	1.5	0.5	0.5	3	1	1	0	1	1	1.5	11.0
Blok, 2004 [25]	3	1.5	1.5	1	1	1	1	1	2	1	14.0
Hales, 2008 [27]	1.5	0.5	1	1	0	1	0	1	2	1	9.0
Meyer, 2009 [29]	1.5	0.5	1	1	0	1	0	1	2	1.5	9.5
Siminoff, 2009 [32]	1.5	1.5	1.5	3	1	1	0	1	2	3	15.5
Downar, 2012 [35]	1.5	0.5	1.5	3	1	1	1	1	2	1.5	14.0
Tobler, 2014 [37]	1.5	0.5	1.5	3	1	1	0	1	2	1.5	13.0
Siminoff, 2015 [33]	3	1.5	0.5	3	1	1	1	1	2	3	17.0
Johnson, 2017 [36]	1.5	0.5	1.5	1	0	0	0	1	2	1	8.5
Marogna, 2018 [28]	2	0.5	1.5	3	0	0	0	1	1	3	12.0
Potter, 2018 [31]	2	1.5	1.5	3	0	1	1	1	2	3	16.0
Fico, 2019 [26]	1.5	1.5	0.5	3	1	1	0	1	2	3	14.5

Note: MERSQI = medical education research study quality instrument.
[a] Study design: 1 = single group cross-sectional or single group post-test only; 1.5 = single group pre-test and post-test; 2 = nonrandomised, 2 groups; 3 = randomised controlled trial.
[b] Institutions: number: 0.5 = one site; 1 = two sites; 1.5 = more than two sites.
[c] Response rate, %: 0.5 = <50 or not reported; 1 = 50–74; 1.5 = ≥ 75.
[d] Type of data: 1 = assessment by study participant; 3 = objective measurement.
[e] Validity of evaluation instrument: 0 = not reported; 1 = each for reported internal structure, content, relationship to other variables.
[f] Data analysis: 0 = inappropriate for study design or type of data; 1 = appropriate for study design or type of data; and complexity 1 = descriptive analysis only; 2 = beyond descriptive analysis.
[g] Outcomes: 1 = satisfaction, attitudes, perceptions, opinions, general facts; 1.5 = knowledge, skills; 2 = behaviours; 3 = patient/health care outcomes.

3.2. Quality assessment

MERSQI domain scores for the 14 papers are shown in Table 2. The average total MERSQI score was 13.0 (*SD* = 2.7). Four studies with high MERSQI scores of 15.5 or greater [19] used a randomised controlled design, and/or were multi-institutional and used objective evaluation methods [30–33].

3.3. Participant characteristics

The number of participants per study ranged from 7 to 435; 2 of the 14 included studies reported fewer than 10 and five studies reported > 100 participants. Participants (n = 1361) were medical doctors (n = 507, 37%); nurses (n = 386, 28%), and OPO coordinators (n = 390, 29%). Of the doctors, n = 365 (72%) were intensive care specialists (intensivists) or physicians, n = 103 (20%) advanced trainees (fellows) training in paediatric or adult critical care medicine, and n = 30 (8%) were junior medical officers (residents). Demographic data were not adequately reported or absent. From 10 studies reporting participant gender (n = 1141), over half were female (n = 614, 54%). Seven studies reported participants' age, with means between 33 and 46 years (see Table 1).

3.4. Training programme characteristics

All training programmes included specialised communication skills for conducting family meetings for news of death or end-of-life decisions. Table 3 shows the training strategies used in each programme. Programmes incorporated an average of six training strategies within a framework inclusive of theory and practice with multimodal interventions evident throughout. Theory was provided as readings, oral presentations and instructional videotapes. Application of theory was demonstrated in instructional videotapes, web-based case scenarios, instructor modelling (in-person) and in the observer role. Skills practice involved role-play with peers, facilitators, and opportunities to rehearse conversations with a simulated family where trained actors played the roles of SFMs or peers. The simulated family interviews were video-recorded in six studies and were used for video-assisted debriefing in four studies [28,29,31,32].

Appendix B Table B.1, shows summaries of programme content, assessments and findings. Training was delivered in intensive mode for short duration ranging from two hours to three and a half days. Sessions comprised small groups of 3–16 participants. Content was delivered within contextual real-life or hypothetical and realistic common clinical case scenarios of varying duration. Many studies provided general statements of the essential communication skills training content. Nine programmes highlighted specialised communication skills in offering organ donation [25–28,30–34]. In four study reports communication skills were included but no detail of the content was provided [25,26,28,30]. In six studies, an outline of skills taught was indicated in an assessment instrument/checklist [29,30,34–36,38]. Communication 'frameworks' were specified in five studies [29,34–37], frequently the six-step Setting, Perception, Invitation, Knowledge, Emotions, Summary and Strategy (SPIKES) [39] protocol [29,35–37]. One study [35] included the five-step "Value (family members' comments), Acknowledge (family members' emotions), Listen (to family members), Understand (the patient as a person), Elicit (family members' questions)" (VALUE) framework, validated for ICU family meetings regarding withdrawal of life-sustaining treatments [40].

For category 1 — reaction: learners' evaluations of the programmes were positive; the usefulness and appropriate level of complexity of the topics were rated highly, particularly the fidelity of the hypothetical case scenarios and professionalism of actors (see Table 4).

Table 3
Training strategies used in each study.

First author, year	Written information	Oral presentation	Instructional videotape	Discussion	Web-based instruction	Self-reflection	Modelling (instructor)	Role-play	Observer role	Feedback/ debriefing	Interview practice with SFM (actors)	Clinical rotation	Total strategies per study (n)
Vaidya, 1999 [38]	✓							✓		✓	✓[a,b]		4
Morton, 2000 [30]	–	✓	✓	✓		✓		✓	✓	✓	✓[b]		8
DeVita, 2003 [34]	✓	✓	✓	✓		✓		✓	✓	✓		✓	9
Blok, 2004 [25]	–	✓	✓	✓		✓		✓	✓	✓	✓		8
Hales, 2008 [27]	✓[c]		✓[c]	✓	✓[c]	✓		–	✓	✓	✓[d]		8
Meyer, 2009 [29]	✓[c]	✓	✓	✓		✓		–	✓	✓	✓[b]		8
Siminoff, 2009 [32]		✓		✓				✓		✓	✓[b]		5
Downar, 2012 [35]	✓	✓		–		–		–	–	✓	✓		4
Tobler, 2014 [37]	✓[c]	✓	✓	✓		✓	✓	✓	✓	✓	✓		10
Siminoff, 2015 [33]	–				✓			✓		✓	✓		4
Johnson, 2017 [36]	✓[c]	✓		✓		✓	✓	✓	–	✓	✓		8
Marogna, 2018 [28]	–	✓					–	✓		✓	✓[b]		4
Potter, 2018 [31]	–	–	–	–	✓	✓	–	✓	✓	✓	✓[b]		6
Fico, 2019 [26]	–	–	✓	–	✓	✓	–						3

Note. SFM = standardised family member; ✓ = reported; – = unclear.
[a] Simulated participants (parents) played by real parents and paediatric healthcare professionals (volunteers).
[b] Video-recorded.
[c] Pre-reading.
[d] Simulated participants (colleague and SFM) played by actors.

3.5. Communication skills

Specific communication principles and skills relating to the assessed behaviours are shown in Appendix C Table C.1. Skills taught at most workshops included empathy [27,29,31,34–36] and managing families' strong emotions [29,30,32,34,35,37]. Other frequently taught skills included: religious/culturally appropriate communication [26,27,32,35,36]; use of silence [26,29,31,37,38]; using plain language when discussing medical information [29,34,35,37,38]; and HCP self-reflection [25–27,30,35]. In offering organ donation, ideally all the aforementioned communication behaviours should be incorporated, with the addition of some specific skills [26,27,30–34].

3.6. Research question A: healthcare professionals' communication skills

The majority of studies ($n = 11$, 78%) demonstrated changes to communication skills evaluated at the level of learning [25–30,34–38], with few assessing behaviours (practice change) in the clinical setting [32,33] (see Table 4). Investigator-developed and validated instruments measured HCP outcomes by self-assessment [25–27,29,32–37] or by external assessors, for example facilitators and simulated participants [35], or blinded raters scoring video-recorded simulated interviews from workshops [30,38] or examination stations [37] (see Appendix B Table B.1). Table 2 shows evaluation of instrument validity. Most evaluations were completed by participants at the workshop conclusion.

Studies indicated that between 4 and 10 strategies per programme were employed to teach specialised communication skills, and that learning significantly improved with regard to participants' self-reported comfort, confidence and scores on performance tests.

3.6.1. Category 2A: learning

Healthcare professionals' perceptions and attitudes improved after training. In post-test findings intensivists and ICU nurses reported significantly improved self-efficacy in breaking news of neurological death determination [41], requesting organ donation and dealing with grief reactions, and that they perceived decreased difficulty in requesting organs [25]. Nurses and fellows described significantly improved comfort levels discussing end-of-life topics [27,35], with fellows ($n = 10$) reporting significantly increased sense of preparedness in core communication skills [36] and self-preparedness to discuss end-of-life [34]. Residents reported significantly improved confidence in their abilities to break bad news [37]. Respondents from different professions reported improved self-assessed communication skills and confidence, with concomitant reduced anxiety discussing end-of-life [29] (see Appendix B Table B.1).

3.6.2. Category 2B: learning

Healthcare professionals' knowledge and performance were tested in four studies. Post-test fellows scored significantly higher in "patient perceptions" of communication skills [38]; intensivists improved breaking news of neurological death determination and acknowledging families' emotional and other needs, but nurses' skills remained unchanged [30]. Residents significantly improved communication performance [37], and fellows scored higher on average for communication and inter-personal skills [35] (see Appendix B Table B.1).

3.6.2.1. Learning retention. Four studies evaluated learning retention at 12-months [25,29,30,35]. At five to six months, HCPs' self-reported communication skills, confidence and self-efficacy improved, with reduced anxiety in discussing end-of-life, and in perceived difficulty about offering organ donation [25,29]. At six months intensivists from both groups retained improvements only

Table 4
Outcome categories based on a modified Kirkpatrick's classification.

First author, year	Category of evaluation				
	1, Reaction[a]	2A, Learning[c]	2B, Learning[d]	3, Behaviour[e]	4, Results[f]
Vaidya, 1999 [38]			Yes (smn)		
Morton, 2000 [30]	Yes[b]		Yes (smn)		
DeVita, 2003 [34]	Yes	Yes (NR)	Yes (NR)		
Blok, 2004 [25]		Yes (+)			
Hales, 2008 [27]	Yes[b]	Yes (+)			
Meyer, 2009 [29]	Yes	Yes			
Siminoff, 2009 [32]				Yes (smn)	Yes (-)
Downar, 2012 [35]	Yes	Yes (+)	Yes (smn)		
Tobler, 2014 [37]	Yes[b]	Yes (+)	Yes (+)		
Siminoff, 2015 [33]				Yes (smn)	Yes (smn)
Johnson, 2017 [36]	Yes[b]	Yes (smn)			
Marogna, 2018 [28]			Yes (NR)		Yes (NR)
Potter, 2018 [31]					Yes (smn)
Fico, 2019 [26]			Yes (-)		Yes (-)

Note. (+) = statistical significance; (-) = non-significant; (smn) = some variables with significance; (NR) = not recorded.
[a] Category 1 — scheduling, topic content, quality of instructors.
[b] Included quality of the case scenarios and actors.
[c] Category 2A — change perceptions, attitudes (comfort, confidence).
[d] Category 2B — improve knowledge (theory test) and increase (communication) skills (performance test).
[e] Category 3 — transfer to the clinical setting (attitudes, knowledge & skills).
[f] Category 4 — benefits to patients (families' final organ donation decision).

for "responding adequately to family member's questions" [30]. At 12 months, fellows ($n = 14$) increased their mean communication score in scenario performance compared with the initial scenario [35].

3.6.3. Category 3: behaviour

Changes to communication attitudes, knowledge and skills were evaluated in clinical practice in two studies. OPO coordinators reported spending significantly more time with families discussing more donation topics [32]. Comfort levels in answering families' donation-related questions were significantly increased [32,33] (see Table 4).

3.6.4. Research question B: benefits to patients (family authorisation/consent for organ donation)

3.6.4.1. Category 4: results. The effect of communication training on changes to actual consent rates for organ donation was evaluated in five studies [26,28,31–33]. Increased consent rates were described in two studies, but these were either not significantly different [32] or inferential analyses were not reported [28]. Consent rates decreased in three studies [26,31,33]. In one study 5–13% of actual family decision makers were interviewed at two to three months after the organ donation request, revealing significantly improved perceived quality of the request and of requesters' relational communication skills [33] (see Table 4).

4. Discussion and conclusion

4.1. Discussion

This aim of this review was to identify programmes that enhanced communication skills of HCPs in family donation conversations, and to determine programme effects in relation to changes in HCPs' skills, family decisions and organ donation rates. Our findings revealed that common training strategies used in 10 or more studies for teaching communication skills included small group role-plays and interview practice with simulated participants, with feedback and debriefing incorporated in all stages. Nearly all studies demonstrated improvements in participants' self-reported learning of specialised communication skills, and observer-rated performance. Behavioural change in transferring new learning to the clinical setting was shown in two reports of OPO coordinators [32,33]. Training influenced HCPs' confidence in communication capabilities when offering organ donation, with conflicting evidence of the independent effect of training on increased organ donation consent rates. However, only one study confirmed first-hand substitute decision-makers' perspectives [33].

All programmes involved multiple training strategies; this made evaluation of the effectiveness of individual strategies difficult but all programmes demonstrated at least one positive outcome, similar to findings of an overview of systematic reviews ($n = 12$) of core training for patient-physician communication [17]. Our findings supported those of this other review, that learner engagement in small group discussions [25–32,34–37], and skills practice with feedback using role-play with simulated participants [25,27–33,35–38], delivered in (at a minimum) a one day programme, were effective strategies. Our findings of passive training strategies such as written information/oral presentation used in combination with experiential learning strategies, such as role-play with feedback, support findings by Berkhof et al. [17] which also showed some positive benefits. Other strategies that featured, and have demonstrated usefulness in other studies, included small group dynamics, typically described as enabling more intimate exploration of practice concepts and enhanced engagement in learning [42]. Feedback and facilitated debriefing, featuring in 13 studies in this review, have been demonstrated to enhance reflection on and about practice and increase the incorporation of new learning into subsequent practice [43].

In critical care, communication frameworks are well established to guide use of specialised communication skills for physicians leading the ICU team-family meeting regarding withdrawal of life-sustaining treatments [40,44]. We found communication tools such as SPIKES and VALUE were an integral part of ICU fellow and interprofessional team training programmes [29,35–37]. Studies in our review did not examine these tools for behavioural changes in the clinical setting, but other researchers have done so, showing ICU interprofessional team training using the SPIKES protocol linked to family member satisfaction with decision-making at approximately 30–60 days after discharge or death [45]. Curricula for critical care fellows have also included the SPIKES protocol for communication training for withdrawing life-sustaining treatments and offering organ donation [46].

In this review, five studies [26,28,31–33] assessed outcomes of changes to family organ donation consent rates. Studies suggested

between three to six strategies each for teaching specialised communication skills, with role-play, feedback/debriefing and interview practice alongside simulated participants commonly used [28,31–33]. While studies in this review did not find significant increase in organ donation consent rates, other studies linked advanced communication training for ICU nurses with increased organ donation consent rates [47,48]. However, the training strategies employed were not reported. Subsequent adaptation to online delivery of a programme in this review [32] that was evaluated positively by families [33], showed no overall increase in requesters' self-reported authorisation rates [49]. However, analysis of requester tenure showed significant increases in family consent rate for requesters who had been employed for 12 months or less and for requesters employed for 36 months or more [33]. Despite analyses only including half the requesters (n = 139; 51%; those who had completed at a minimum of one case pre-and post-intervention [33]), findings showed the benefits of communication training early in employment and the importance of ongoing education. The need for ongoing training to improve requester self-efficacy and stem "learning decay" over time has been described in a longitudinal study of (n = 253) OPO coordinators [49].

Future research could explore the effect of specific HCP training on substitute decision-maker outcomes and evaluate translation of behavioural change in clinical practice. Outcome measures need to include family-centred perspectives [50]. Combinations of training strategies, duration and exposure to donation conversations should be evaluated to determine optimal curricula and dosage to facilitate HCPs' communication skills regardless of level or experience. Reporting the types and range of communication skills taught will enable comparisons between studies [17,51]. For example, in our review, *observation* was used as a specific strategy in half of the included studies yet was infrequently described in publications after 2014. Observers and observing others' performances with facilitated feedback or reflection has been identified as key to learning new behaviours, and may be equally effective as performing the activity [52].

Healthcare professionals responsible for offering organ donation should consider undertaking communication training involving simulated participants in scenarios based on real cases, reflecting actual clinical practice [32,53]. Policy makers should consider the need for high-fidelity simulation such as this for HCPs to develop and master the specialised communication skills required in this sensitive situation. This strategy is now recommended in updated guidelines for critical care, anaesthesia and emergency medicine [54].

Strengths of this review include use of a comprehensive search strategy, a rigorous approach in the review process and adoption of a well-established educational evaluation framework. Included articles were restricted to publications in the last 20 years for relevance to current practice.

Limitations of this review reflect the limitations of the source papers, including the predominance of observational and single-site studies. Study outcome measures mainly focused on HCP self-reported variables or observer-rated checklists and were measured immediately after training. Few studies examined sustainability, translation of improved confidence and skills to clinical practice or sought opinions of substitute decision makers. The paucity of high quality randomised controlled trials precluded meta-analysis, limiting the strength of findings and therefore the ability to determine the optimal number or combination of training strategies for improved outcomes. It was not possible to test for any relationships between methodological quality and number of strategies or whether any strategies exerted greater influence on substitute decision-makers' decisions. The lack of studies with high-quality methodology is typical of research on interventional research performed to assist HCPs to increase organ donation [55].

4.2. Conclusion

This review determined that programmes assisting HCPs and OPO donation professionals to raise organ donation with families were based on practical application of key communication skills complemented with theoretical aspects. Most programmes offered a variety of experiential learning, enabling self-reflection, opportunity to role-play and interact with simulated participants, incorporated feedback and facilitated debriefing. The advantage of this approach is the opportunity to rehearse the donation conversation and receive feedback from experts and peers, shown to increase the likelihood of incorporating new learning into practice. Limitations included the need for release from the workplace to attend training, although most programmes had compressed training to one day to facilitate this issue. Feasibility was affected by the availability of resources, in particular funding for simulated participants or appropriate specialist simulation settings. Retention of communication skills varied according to individuals' experiences. There was weak evidence that organ donation rates might subsequently increase following bespoke communication skills training.

4.3. Practice implications

All programmes included in this review were evaluated positively, indicating that HCPs value as well as perceive they benefit by additional support to enhance communication skills for donation conversations. These important findings can inform HCP education curricula, service policy and practice improvement strategies, flag and direct opportunities for future research.

Ethics approval and consent to participate

Ethical approval not applicable for a literature review.

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CRediT authorship contribution statement

Julie E. Potter: Conceptualisation; Methodology; Investigation; Validation; Data curation; Formal analysis; Visualisation; Writing – Original draft; Writing – Review and editing. **Rosalind M. Elliott:** Methodology; Validation; Formal analysis; Supervision (supporting); Visualisation; Writing – Review and Editing. **Michelle A. Kelly:** Validation; Formal analysis; Supervision (supporting); Visualisation; Writing – Review and Editing. **Lin Perry:** Conceptualisation; Methodology; Validation; Formal Analysis; Supervision (lead); Visualisation; Writing – Review and Editing. All authors read and approved the final manuscript.

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Conflict of interest/Financial disclosure statement

None of the authors received any financial interest, direct or indirect, related to the achievement of this work. Authors declare they have nothing to disclose. Regarding the author Julie Potter, neither the New South Wales Organ and Tissue Donation Service, the Royal North Shore Hospital, the University of Sydney nor the University of Technology Sydney were involved in the study conceptualisation, methodology, investigation, data curation and interpretation, writing the report or the decision to submit the results for publication.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.pec.2021.03.019.

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