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# iValidate: a communication-based clinical intervention in life-limiting illness

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## ABSTRACT

**Objectives** Report the implementation, user evaluation and key outcome measures of an educational intervention—the iValidate educational programme—designed to improve engagement in shared decision-making by health professionals caring for patients with life-limiting illness (LLI).

**Design** Prospective, descriptive, cohort study.

**Participants** Health professionals working in acute care settings caring for patients with an LLI.

**Main outcomes measured** Participant evaluation of learning outcomes for communication skills and shared decision-making; demographic data of participants attending education workshops; and documentation of patients with LLI goals of management, including patient values and care decision based on area in acute care and seniority of doctor.

**Results** The programme was well accepted by participants. Participant evaluations demonstrated self-reported improved confidence in the areas of patient identification, information gathering to ascertain patient values and shared decision-making. There was strong agreement with the course-enhanced knowledge of core communication skills and advanced skills such as discussing mismatched agendas.

**Conclusions** We described the educational pedagogy, implementation and key outcome measures of the iValidate education programme, an intervention designed to improve person-centred care for patients with an LLI. A targeted education programme could produce cultural and institutional change for vulnerable populations within a healthcare institution. A concurrent research programme suggests effectiveness within the current service and the potential for transferability.

## INTRODUCTION

The prevalence of life-limiting illness (LLI) in the general and in-hospital population is increasing.<sup>1</sup> There are multiple barriers to effective clinical communication involving people with LLI.<sup>2</sup> Clinician factors include failure to identify patients with LLI, clinician reluctance to initiate conversations, not using effective communication skills, difficulty reaching consensus and a paucity of documentation of patient values.<sup>2–4</sup> Patient factors include anxiety, reluctance to discuss end-of-life (EoL) care and a desire to protect family members.<sup>5</sup> Ineffective clinical communication in this context can result in discordant and disproportionate care that is often unnecessary, burdensome or harmful.<sup>6</sup> The discord may reflect differences between clinician and patient understanding of the clinical interaction.<sup>7</sup> Effective communication may decrease morbidity and mortality for patients with LLI.<sup>8,9</sup>

Shared decision-making, where patients and surrogates have medical treatment aligned to their goals and values, improves care and outcomes.<sup>10</sup> iValidate (Identifying Values, Listening, and Advising High-Risk Patients in Acute Care) is a research-oriented clinical communication training programme. Documented outcomes include reduced readmission, increased documentation of values and reduced medical emergency team (MET) responses.<sup>1,4,11</sup> The focus of iValidate is improving person-centred care for patients with an LLI in the acute care setting. iValidate aims to change goals of management (GoM) decision-making to a shared model based on patient values. The iValidate education programme uses the Calgary-Cambridge (C-C) framework<sup>12</sup> and Harvard Serious Illness Guide (SIG)<sup>5</sup>

to teach communication skills. This paper describes the implementation, user evaluation and key outcome measures of the iValidate educational programme.

## METHODS

### Participation and setting

The iValidate programme is a collaboration between Deakin University and Barwon Health. Education and data collection occurred at Barwon Health, a large Australian regional health service of approximately 8000 staff, providing acute, subacute and community services over a large area of western Victoria for a catchment area of up to 350 000 people.

We aimed to implement an education programme teaching communication skills and to collect data about participants, their evaluation of the education and translation into practice.

Participants included in the study were all health professionals involved in the care of patients with LLI in the acute care setting who attended the education programme delivered in a 2-day workshop. Participants were excluded if they did not complete the full 2 days required of the workshop.

Project governance occurred through an advisory group supported by education and research groups. The advisory group reports to the Barwon Health Executive. The programme is aligned with the national healthcare standards<sup>13</sup> and the organisation's EoL strategy.

### Audit and scoping

The project team conducted a series of medical record audits in acute care prior to the intervention. The audit process was approved by the Barwon Health Human Research Ethics Committee.

### Format and implementation

The iValidate education programme uses the C-C clinical interview framework and Harvard SIG to teach the required communication skills for an LLI clinical context. The key outcomes of the programme are: to teach shared decision-making for patients with LLI and to encourage patient-centred care rather than disease-centred care.<sup>7</sup> The programme emphasised a four-step process that mirrors the C-C framework:

1. Identification (of patients with LLI) and initiation part of clinical discussion.
2. Gather information about values, goals and preferences.
3. Give advice about reasonable options based on patient values, goals and preferences.
4. Conclude, document and consensus.

The educational intervention uses a blended approach that includes video analysis, group work and simulated patient experiential learning.

The core 16 hours' intervention is delivered over 2 full days within the acute care campus.

Large group work includes:

- ▶ Teaching communication frameworks.
- ▶ Identifying patients with LLI—LLI criteria.
- ▶ Evidence for patient outcomes in the LLI cohort.
- ▶ Video-based communication skill spotting.
- ▶ Law and ethics of surrogate decision-making.

The experiential component incorporates feedback from both peers and the simulated patient or carer while being observed and guided by trained facilitators.

The structure for each day is consistent with a blend of large and small group work (figure 1). The pedagogy is described in figure 2 and is based on the agenda-led outcome-based analysis (ALOA) format<sup>14</sup> using the C-C framework as a conceptual model for implementation in the workshops.

Structure of communication programme

Session	Broad Outcomes	Learning Outcome focus & Description	Format	Time
Communication education theory	<b>How to teach</b>	Advanced theory - Calgary Cambridge framework Evidence for core process skills in communication Review of literature for communication education	Didactic	2 hours
Patient cohort	<b>Why we are teaching it</b>	Identification of patients with LLI - Life limiting illness criteria Evidence from previous studies from LLI cohort at Barwon Health including patient outcomes Relevant legislation for end-of-life care and substituted decision-making Institutional policy for documentation of patient goals of management	Didactic and whole group discussion	1 hour
Communication Skills spotting – video analysis	<b>What to teach</b>	Identify skills in specific context of patients with LLI in acute care	Interactive	1 hour
Small group interactive work with simulated learners	<b>Rehearsal</b>	Learner-facilitator led work using simulated groups of learners.	Experiential ALOBA	12 hours total

**Figure 1** Teaching methodologies. ALOBA, agenda-led outcome-based analysis.

iValidate™ teaching methodologies				
Format	Broad Outcomes	Description	Teaching/ educational method	Time
<b>Large Group work</b>	Why are you here? What are you learning? How will we practise communication skills?	Evidence and Identify issues in patients with LLI in acute care setting experienced by attendees Video of clinical scenario of patient with LLI Video or live demonstration of process for deconstruction	Didactic  Interactive discussion  Video deconstruction	2 hours
<b>Small Group work</b>	ALOBA using C-C framework- Initiating Information Gathering	Small group 5 – 8 with one facilitator and one simulated patient.  Scenario of patient with LLI adjusted to attendees' clinical context	Experiential learning with personalised feedback	2 hour
<b>Small group work</b>	ALOBA using C-C framework- Explanation and Planning Conclusion	As above  Finishes with attendees completing the hospital documentation for patient Goals of Management	Experiential learning with personalised feedback	2 hour
<b>Large Group work</b>	Video deconstruction Summarising skills Aligning learner agenda	Video deconstruction of different patient scenario to consolidate skills learnt that day  Discussion of learner agenda in light of skills learnt this day	Interactive	1.5 hour

**Figure 2** Pedagogy and format. ALOBA, agenda-led outcome-based analysis; C-C, Calgary-Cambridge framework; LLI, life-limiting illness.

The first day focuses on core communication skills based on the C-C framework and applied to scenarios involving value-based EoL care. The second day builds on these skills to include communication with surrogate decision-makers and mismatched agendas. Small group work follows the ALOBA format where participants were responsible for feedback to the person in role-play with a simulated patient. The day is designed to step the attendees through four phases of a clinical interaction as described in the C-C framework: initiating, information gathering, explanation and planning, and conclusion.

A target group of potential educators was used based on pre-existing expertise in communication skills education. Programme development and implementation followed a stepped approach for both the education and research components. As part of process of care support in the clinical environment, the institutional GoM Form (online supplementary figure) was changed from a form with tick box documentation of treatment limitations, to a form that outlined the steps involved in shared decision-making taught in iValidate (identification of patients with LLI; identifying values, goals and preferences; giving medical advice aligned to goals and values; and achieving consensus and document).

#### Faculty development

All facilitators were trained under the C-C model and use the ALOBA method for learner feedback.

They were encouraged to continue to develop their communication teaching within the Deakin University School of Medicine, specialty colleges and commercial communication programmes. Opportunities for peer review and cofacilitation are embedded in the education programme. At least one Train-the-Trainer course is offered to facilitators annually.

#### Simulated patient training

A structured programme was designed to train simulated patients in the ALOBA methodology and to respond 'proportionally' to each learner's approach.

#### Evaluation

Data collection occurred between February 2015 and June 2018. Data were collected for: participant numbers per year, professional groups by number per year, level of seniority of medical staff completing GoM forms for patients with LLI and departmental attendance by all professional groups per year.

Programme efficacy was assessed by participant self-evaluation of learning outcomes and by behavioural change determined by completion of GoM documentation for patients with LLI. Baseline data were collected prior to the intervention and then intermittently over a 3-year period. Form completeness was reviewed after completion of the programme.

## RESULTS

## Audit and scoping

Preprogramme medical record audits confirmed a high prevalence of LLI and an associated high mortality rate.<sup>1</sup> The audit also revealed high readmission and MET referral rates, and high mortality rates in the LLI group, with up to 50% 1-year mortality.<sup>4</sup>

## Format and implementation

After a vision statement, business plan and budget were created, including funding for a project manager and a research and education programme, the project team conducted a literature review. The project group's expertise and elements of other communication training programmes (C-C, SIG and Oncotalk<sup>15</sup>) were used to construct the educational materials. The following modules were developed and used:

1. Core 16 hours' module for clinicians divided into basic and advanced sections.
2. Train-the-Trainer Program.
3. Abbreviated 4-hour module for aligned senior staff (medical, nursing and allied health [AH]) in order to educate leadership groups.
4. Awareness programme throughout the organisation (numerous 30–120 min presentations).

The core modules were developed initially; the abbreviated module was designed at a later stage. A logo was designed to enhance programme recognition.

Video resources were developed for the programme and included: a clinical scenario demonstrating the acute deterioration of a patient with LLI (chronic obstructive pulmonary disease) and the subsequent issues regarding medical escalation of treatment, and clinicians having discussions with patients who meet LLI criteria. Communication skills are taught through realistic complex clinical scenarios, video of sentinel decision points and participants' own experiences.

Scenarios reflected real clinical experience of caring for patients with LLI in the acute care setting and were adjusted to suit the learners' current clinical setting (eg, medical, surgical, critical care, or emergency department). Facilitator guides and actor briefs (simulated patients) were developed to follow the C-C framework with a focus on scenarios involving patients with LLI in acute care settings.

Junior and mid-level doctors, who are heavily involved in EoL decision-making, were initially approached to participate. Subsequently, wards and departments with a high proportion of patients with LLI were approached. The education intervention began with registrars from the intensive care unit (ICU), general and emergency medicine, and proceeded through individual specialties using a concurrent research and audit cycle. Education of nursing and AH staff was included within the programme. Additional presentations describing the programme were provided throughout the hospital to encourage cultural change. Key specialists and senior staff were also provided with education to encourage mentorship

**Table 1** Attendance at education programme by year

Year	BH	External	Total
2015	36	0	36
2016	87	0	123
2017	125	23	271
2018 (to date)	94	27	392
Total	342	50	392

BH, Barwon Health; External, Health services outside Barwon Health.

and coaching. These strategies also encourage 'buy in' and interest in the programme.

Total participation numbers for the education programme are shown in [table 1](#). There was periodic growth in the programme following inception. Currently, 100–200 people attend the education programme per annum. Interest from external sites contributed to programme growth.

Interprofessional attendance was a feature throughout the acute hospital ([table 2](#)), including: junior doctors (junior medical officer [JMO]), senior consultants medical, nursing (Registered Nurse), advance care planning consultants and AH professionals. JMOs represent the largest group of participants ([table 2](#)).

Patterns of attendance at the education programme matched activity in the hospital, with JMOs completing 72%–100% of GoM forms ([table 3](#)). The mixture of cross-disciplinary involvement may have assisted culture change for communication and GoM completion.

Specialty attendance is represented in [table 4](#). The ICU had particularly strong engagement including JMOs, senior nurses and AH professionals. General medicine and orthopaedic units have shown high participation, commensurate with the high proportion of patients with LLIs in these areas.

## Faculty development

There were 44 trained facilitators mentored by two senior health communication academics who regularly taught the core modules as well as leading professional development of the faculty. There are opportunities for peer review and cofacilitation and all facilitators

**Table 2** Attendance at education programme by professional group

Year	ACP	RN	JMO	CONS	AH	Total
2015	6	3	15	9	3	36
2016	0	21	39	21	6	87
2017	10	33	34	69	2	148
2018	0	38	65	9	9	121
Total	16	95	153	108	20	392

ACP, advance care planning; AH, allied health; CONS, senior consultant; JMO, junior medical officer; RN, Registered Nurse.

**Table 3** Goals of management forms completed by location and medical staffing group

	All	ED	Ward	ICU
Total GoM	223	14	150	47
MO completing GoM				
Intern	5 (2.2)	0	5 (3.3)	0
Resident	40 (17.9)	2 (14.3)	29 (19.3)	9 (19.1)
Registrar	150 (67.3)	12 (85.7)	109 (72.7)	25 (53.2)
Consultant	18 (8.1)	0	6 (4.0)	13 (27.7)

Data are presented as number (%).

ED, emergency department; GoM, goals of management; ICU, intensive care unit; MO, medical officer.

are expected to teach a minimum of 32 hours for the programme each year.

### Simulated patient training

Four experienced simulated patients were initially orientated to the clinical scenarios and goals of the project. The initial cohort had extensive experience, with each participating in a minimum of >100 experiential workshops. A 1-day orientation to clinical scenarios and project goals was initially provided followed by ongoing experiential learning including in-programme and postprogramme debriefing.

An additional six simulated patients have since been trained, all of whom already have extensive experience with undergraduate health professional education and similar improvisational methodologies.

### Evaluation

The programme was well accepted by participants (table 5). Most participants self-reported improved confidence in their knowledge and communication skills following participation in the programme. There was strong agreement that role-plays assisted skill

**Table 4** Attendance by specialty

Specialty	2015	2016	2017	2018	Total
Intensive care	24	45	57	41	167
General medicine	0	22	5	25	52
Gerontology	0	3	11	5	19
Emergency	0	6	6	6	18
Specialty medicine	0	0	11	2	13
GP	0	0	9		9
Surgery	0	0	6	2	8
Paediatric	0	1	4	0	5
Oncology	0	0	3	0	3
Obstetrics/psychology	0	0	2	0	2
Palliative care	1	0	0	1	2
Anaesthesia	0	0	3	3	6
Orthopaedic (RN only)	0	0	24	1	25
Miscellaneous (including AH)	12	9	5	14	40

AH, allied health; GP, general practitioner; RN, Registered Nurse.

acquisition. Table 5 shows participant feedback to key evaluation questions.

Completion of GoM forms increased following the implementation of the education programme (figure 3), an effect that was sustained beyond the intervention.

### DISCUSSION

The iValidate programme was designed to improve communication and shared decision-making for patients with an LLI. Shared decision-making is a key foundation of patient-centred care, which is a priority for the Australian National Safety and Quality Health Service Standards<sup>13</sup> and internationally.<sup>16</sup>

We demonstrated previously that the presence of Gold Standard Framework criteria predicted high mortality rates in patients admitted to our hospital.<sup>1</sup> The education communication skills training intervention was important and contributed to patient-centred care in this vulnerable patient group.<sup>11</sup> Similar studies show communication-based education programmes can effectively improve patient-centred outcomes, including pain and symptom relief and longevity.<sup>9</sup> This is the reported first organisation-wide programme that integrates a locally validated tool<sup>4</sup> to identify patients with LLI, combined with an experientially based communication education programme and matched documentation.

Our education intervention was based on internationally recognised communication processes. The C-C framework is one of the most widely used undergraduate communication teaching programmes worldwide<sup>12</sup>; the Harvard SIG communication programme is similarly evidence based and widely recognised.<sup>6</sup> These programmes follow an experiential learning approach, using actors to encourage behavioural change. Experiential learning and deliberate practice are key drivers of behavioural change in patient-centred care<sup>12 17</sup> such as the changes we demonstrated in iValidate.

The impact of the programme was assessed using a concurrent research programme. Outputs from the research programme included the validation of criteria for LLI in a local population<sup>1</sup> assessment of frequency of LLI and outcomes in an in-hospital population,<sup>4</sup> and demonstrated effectiveness including decreased readmission rates and MET responses.<sup>11</sup> These publications suggest the programme addressed an unmet need, consistent with current evidence.<sup>6</sup> In this paper, we have described the programme itself, along with some demonstrated measures of acceptability and effectiveness.

A novel value-based GoM form was developed to support EoL care processes with documentation of components of patient-centred discussion (specieducationally goals, values and preferences, medical advice and consensus). The form aims to explicitly document the shared decision-making process, not only the actual decisions. It aimed to encourage patient-centred discussions, rather than disease-centred discussions to inform

**Table 5** Results of participant feedback

	Strongly disagree	Disagree (D)	Neutral (Ne)	Agree	Strongly agree	Total
Learning outcomes were clear from the start.	0	0	5 (2.6)	85 (44.5)	101 (52.9)	191
I am confident I can identify a patient with LLI.	1 (0.5)	1 (0.5)	5 (2.6)	92 (48.1)	92 (48.1)	191
Role-play helped with my skills.	1 (0.5)	0	7 (3.6)	81 (42.4)	102 (53.4)	191
I feel confident to explore patient values to give medical advice.	1 (0.5)	1 (0.5)	5 (2.6)	100 (52.3)	84 (43.9)	191
I feel confident to navigate a mismatched agenda.	1 (0.5)	0	5 (2.6)	68 (35.6)	68 (35.6)	142
I am able to conclude and document a patient-centred discussion.	0	0	9 (4.7)	124 (64.9)	58 (30.3)	191
The course has enhanced my knowledge and will improve my communication skills.	0	0	6 (3.1)	96 (50.2)	89 (46.5)	191

Data are presented as number (%).

LLI, life-limiting illness.

treatment decision-making concerning resuscitation and goals of care.

Outcome assessment of EoL communication training interventions was subjective (self-reported by staff such as preparedness, confidence).<sup>18 19</sup> Documentation on the novel GoM form provided objective outcome measurement that enhanced participants' self-reported confidence and knowledge changes, and aimed to reinforce the communication training intervention. The uptake and use of documented GoM, measured via a medical record audit as a proxy for cultural change for patient-centred care (shared decision-making), is an accepted strategy.<sup>20 21</sup>

Multiple factors contributed to the effectiveness of our education programme. The programme had a clear governance structure with operational and financial accountability. The educational structure and pedagogy was based on internationally recognised communication programmes. A concurrent research programme demonstrated institutional need as well as evidence of efficacy and feedback for participants and involved units. The education intervention involved experiential learning in small groups, which has been shown to be effective.<sup>22</sup>

We identified several areas of potential improvement including a formalised organisation-wide approach to communication strategy and mechanisms for regular attendance from all departments within the healthcare

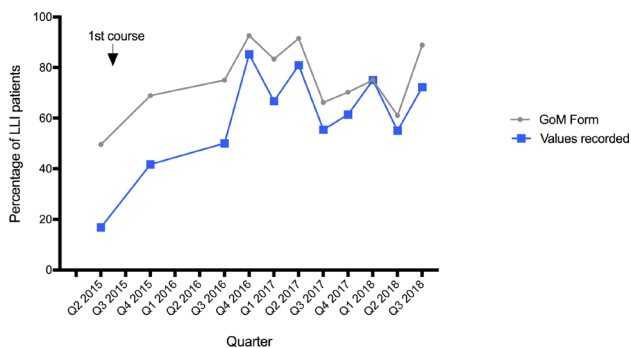
institution to encourage cultural change. We suggest a sustainable financial model and an approach to external translation is vital for future improvement.

Limitations of this work include missing data from the workshop evaluations. All participants were provided the evaluation forms on the final day of the workshop and allowed time to complete it though a few submitted blank forms. Participant self-evaluation of learning outcomes could be adversely affected by the need, due to organisational imperative, to teach advanced communication techniques to staff unskilled in basic techniques which could affect their self-evaluation of learning outcomes.

Our evaluation was retrospective postcourse self-reported analysis of confidence in communication skills only, so we cannot say we made a difference in actual improvement of confidence from before the course. Pre-post retrospective analysis of self-reported learning outcomes may reduce the likelihood of response-shift bias and is a better indicator of improvement due to the education intervention.<sup>23</sup> The role of additional influences such as the hidden curriculum in hospital culture,<sup>24</sup> influencing the communication skills of junior staff outside workshops, is documented to affect self-evaluation of learning in the 'soft' skills. There is a need for ongoing assessment of the effect of the programme on sustained institutional change. Further data regarding clinical outcomes for patients involved in the programme were outside the scope of this research and have been described elsewhere.<sup>14 11</sup>

In addition, the use of an established framework such as the Reach Effectiveness Adoption Implementation Maintenance structure may have been helpful in allowing a broad-based approach to the measurement of adoption and implementation of the programme.

This programme adds to the existing literature by demonstrating the value of a novel intervention that addresses the difficult problem of shared decision-making in an in-hospital population with patients with an LLI. We have described previously long-term patient outcomes, including length of stay, medical emergency response, mortality and 90-day readmission rates of the



**Figure 3** Documentation of goals of management (GoM) and values for intensive care unit (ICU) patients with life-limiting illness (LLI).

LLI group.<sup>14</sup> There are implications in population health and further research needs to be undertaken looking at long-term outcomes of this clinical programme. We demonstrated a comprehensive approach, incorporating an education programme that includes best practice pedagogy and researched outcomes.

## CONCLUSION

We describe the development, implementation, educational pedagogy and key outcome measures of the iValidate education programme, an intervention designed to improve person-centred care for those with an LLI. The education programme effectively changed self-reported confidence and knowledge to participate in shared decision-making and document patient-centred goals of care.

**Correction notice** This article has been corrected since it was published Online First. A major typographical error was amended in paragraph two of the introduction.

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**Collaborators** Jill Mann; Claire McKie.

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