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Surrogate decision-making about invasive respiratory support for critically ill patients with cancer: a qualitative study of healthcare professionals' perspectives and decision-making personas

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Abstract

Background

Decisions about invasive respiratory support for critically ill patients with cancer involve uncertain recovery, treatment burden, patient preferences and family responsibilities. Different concerns may underlie similar treatment choices. This study explored professionals' accounts to inform future palliative and supportive communication.

Methods

In this single-centre descriptive qualitative study, 19 healthcare professionals (11 physicians and eight nurses) at a specialist cancer hospital in China completed semi-structured interviews between March and July 2024. A deductive–inductive content analysis informed by the Ottawa Decision Support Framework was used to synthesise recurring configurations of decisional needs into provisional qualitative personas. The analytic unit was a decision-making pattern described by a professional, not an individual surrogate.

Results

Four non-exclusive patterns were identified: a hope-and-responsibility-driven treatment seeker, a patient-values-and-comfort protector, an uncertainty-conflicted deliberator and a resource-constrained pragmatist. Accounts addressed anticipated regret and filial responsibility, suffering and patient wishes, prognostic uncertainty and family disagreement, and the affordability of treatment. The same decision about intubation could reflect different underlying concerns.

Conclusions

Professionals' accounts suggest that decisions about invasive respiratory support cannot be understood from treatment acceptance or refusal alone. The personas offer a provisional framework for eliciting informational, emotional, values-related and financial concerns. They are not validated surrogate categories or evidence of intervention effectiveness. Direct engagement with surrogates and prospective evaluation are required.

Background

Acute respiratory failure is a life-threatening complication of cancer and may require invasive mechanical ventilation. Outcomes vary according to reversibility of respiratory failure, organ dysfunction, cancer status and prospects for further anticancer treatment [1, 2]. Decisions about ventilation therefore

involve not only survival but also whether treatment is likely to achieve outcomes the patient would regard as meaningful.

When patients cannot participate, relatives often face urgent surrogate decisions while balancing uncertain prognosis, treatment burden and patient wishes. Emotional distress, family disagreement, cultural expectations and trust in clinicians can shape these choices [3–6]. For people experiencing severe illness and suffering from cancer, these decisions also intersect with palliative care: symptom relief, dignity and alignment with patient goals remain relevant whether invasive treatment is pursued or limited.

The Ottawa Decision Support Framework (ODSF) describes difficult choices in terms of knowledge, values, expectations, roles, support and contextual constraints [7, 8]. These domains may occur in different combinations, so a decision to accept or decline ventilation does not reliably disclose its underlying rationale.

Personas are interpretive representations of recurring configurations of needs, not diagnoses, validated classes or estimates of prevalence [9, 10]. Limited evidence describes how clinicians perceive combinations of surrogate decisional needs in cancer critical care. This study aimed to describe healthcare professionals' accounts of invasive respiratory support decisions and synthesise provisional qualitative personas to inform future family-centred decision-support design. No intervention was evaluated.

Methods

Study design and setting

A descriptive qualitative interview study was conducted in the intensive care unit (ICU) of Sichuan Cancer Hospital, a tertiary specialist cancer hospital in Chengdu, China. It explored healthcare professionals' accounts of surrogate decisions about invasive respiratory support for critically ill patients with cancer. The ODSF informed the interview guide and analysis [7, 8]. Reporting was guided by COREQ [11].

The multidisciplinary research team comprised nine members: two physicians with expertise in critical care, respiratory medicine and oncology, one nursing manager, three specialist nurses, one qualitative research expert and two postgraduate nursing students. The team was led by the nursing manager and was involved in the overall research design, literature review, data collection and analysis. The primary researcher was a postgraduate nursing student with approximately 10 years of clinical experience in cancer critical care nursing and formal training in qualitative research methods. The research supervisor had approximately 20 years of experience in oncology nursing and expertise in qualitative research. These clinical and methodological backgrounds informed the development of the interview guide and interpretation of the participants' accounts.

The present analysis focused exclusively on healthcare professionals' interviews. Although the broader research project also included interviews with surrogate decision-makers, those interviews were not included in the analytical dataset for this study. Consequently, the personas developed in this analysis represent surrogate decision-making patterns as perceived and described by healthcare professionals rather than directly elicited perspectives from surrogates.

Participants and sampling

Purposive sampling combined with maximum variation sampling was used to recruit healthcare professionals with clinical experience in caring for patients with cancer and respiratory failure and communicating with patients and families about invasive respiratory support. Variation in participants' age, sex, educational background and professional experience was sought to obtain diverse perspectives on decision-making in cancer critical care.

Eligible physicians were required to hold a valid medical licence, have at least three years of ICU experience, practise in oncology, critical care or respiratory medicine, and have experience communicating with patients with cancer and respiratory failure or their families. Eligible nurses were required to hold a valid nursing licence, have at least three years of ICU experience, and have participated in communication with these patients or their families. All participants were required to participate voluntarily and provide informed consent. Residents undergoing standardised training, visiting trainees and individuals who withdrew from the study were excluded.

Nineteen healthcare professionals, comprising 11 physicians and eight nurses, participated in the study. The sample included professionals with different educational qualifications, clinical experience and professional seniority. Sample size was guided by the principle of thematic saturation, with the intention of continuing recruitment until additional interviews yielded no substantially new information or analytical categories. The purpose of sampling was to achieve variation and depth of understanding rather than statistical representativeness. Participant characteristics are presented in Table 1.

Data collection

Data were collected through semi-structured, face-to-face interviews conducted between March and July 2024. The interviews took place in a quiet setting within the hospital to minimise interruptions and facilitate open discussion. Interview durations ranged from 22 to 42 minutes (mean 30.5 minutes, SD 5.9), with a total recorded interview duration of 579 minutes.

The interviews were conducted by the primary researcher, a postgraduate nursing student with approximately 10 years of clinical experience in cancer critical care nursing and formal training in qualitative research methods. The interviewer had established professional relationships with the participating physicians and nurses, having worked with them as colleagues before the interviews. This familiarity facilitated an understanding of the clinical context but may also have influenced participants'

willingness to express critical or sensitive opinions. The potential influence of these prior relationships was acknowledged when interpreting the findings.

The semi-structured interview guide was developed based on the three core components of the Ottawa Decision Support Framework (ODSF)—decisional needs, decision support and decision outcomes—and a review of relevant literature. Preliminary interviews and research team discussions informed refinement of the guide to improve the clarity, sequence and relevance of the questions. The final guide comprised 13 main questions covering clinical considerations in invasive respiratory support decisions, perceived surrogate treatment goals and preferences, prognostic understanding, anticipated treatment benefits and burdens, patients' values and quality of life, family involvement and disagreement, ethical and psychological concerns, financial constraints, communication challenges and perceived needs for decision support. Open-ended questions and follow-up prompts were used to encourage detailed accounts of participants' clinical experiences.

Before each interview, participants were informed about the study objectives, interview procedures and audio-recording arrangements. All interviews were conducted in Mandarin Chinese and audio-recorded with participants' consent. Field notes were taken to document contextual information and non-verbal observations, including facial expressions and tone of voice. Audio recordings were transcribed verbatim in Chinese within 24 hours of the interviews, and the transcripts were returned to participants for verification of their accuracy.

Qualitative data analysis was conducted using the original Chinese transcripts to preserve the contextual and cultural meanings of participants' accounts. Representative quotations were subsequently translated into English for publication. The English translations were checked against the original Chinese quotations by another member of the research team to ensure accuracy and consistency of meaning.

Data analysis and persona construction

Interview transcripts were analysed using a hybrid deductive–inductive qualitative content analysis approach [12], informed by the Ottawa Decision Support Framework (ODSF) [7, 8]. The ODSF provided the initial conceptual framework for identifying decisional needs, decision support requirements and decision-related outcomes, while inductive analysis allowed additional context-specific meanings and decision-making patterns to emerge from participants’ accounts. Data management and coding were supported by NVivo qualitative analysis software.

All interviews were transcribed in Chinese, and the analysis was conducted using the original Chinese transcripts to preserve participants’ intended meanings and sociocultural context. Two researchers independently read and coded the interview transcripts. Meaning units relating to healthcare professionals’ observations of surrogate decision-making were identified and assigned initial codes. Deductive codes were informed by the ODSF, while inductive codes captured emerging concepts,

including filial responsibility, anticipated regret, prognostic uncertainty, perceived treatment burden, family disagreement and financial constraints. The two researchers compared their coding interpretations and discussed discrepancies. Unresolved disagreements were referred to the research supervisor or a third researcher for further discussion and resolution.

Codes with related meanings were compared and organised into broader categories. Guided by the ODSF and refined through repeated examination of the interview data, the analytical framework was organised into six dimensions: (1) decision goals; (2) prognostic understanding; (3) perceived treatment risks and burdens; (4) orientation towards patient preferences; (5) family and sociocultural influences; and (6) resource constraints. These dimensions were used to examine how different decisional needs and contextual factors interacted in healthcare professionals' accounts of surrogate decision-making.

Persona construction was undertaken as an additional interpretive stage of the qualitative analysis. Recurring combinations of decision goals, concerns, values and contextual constraints were compared across the interview accounts to identify distinct patterns of surrogate decision-making. Through this process, four descriptive personas were developed: (1) the hope-and-responsibility-driven treatment seeker; (2) the patient-values-and-comfort protector; (3) the uncertainty-conflicted deliberator; and (4) the resource-constrained pragmatist. Each persona represented a recurring configuration of decisional needs rather than a fixed psychological category or an independently validated classification. No statistical clustering or quantitative classification procedure was performed.

Throughout the analysis, the researchers examined divergent and contradictory accounts that did not readily correspond to the emerging personas. These accounts were discussed to assess the boundaries of the proposed categories and to avoid forcing the data into predetermined classifications. The four personas were consequently interpreted as potentially overlapping and context-dependent decision-making patterns rather than mutually exclusive groups.

The unit of interpretation for persona construction was the surrogate decision-making pattern described within a healthcare professional interview, rather than the individual healthcare professional or an identifiable surrogate. A single interview could therefore contribute evidence to more than one persona. Accordingly, the personas were not used to estimate the prevalence of particular decision-making characteristics among surrogate populations or to establish changes in individual surrogate behaviour over time. Representative quotations were selected to illustrate the analytical findings, with healthcare professionals' own observations distinguished from patient or family statements recalled by those professionals.

Ethical considerations

The study was approved by the Medical Research and New Technology Ethics Committee of Sichuan Cancer Hospital (approval number SCCHEC-02-2024-003). This study was conducted in accordance with the principles of the Declaration of Helsinki.Written informed consent was obtained from all 19

healthcare professionals before the interviews. Participants were informed about the study objectives, interview procedures and audio-recording arrangements, and all interviews were audio-recorded with participants' consent. Participation was voluntary.

To protect confidentiality, participants' names and other direct identifiers were replaced with study codes during data analysis. Representative quotations were attributed to anonymised healthcare professional identifiers (e.g., N1) to minimise the risk of identification. Audio recordings, interview transcripts and NVivo project files were stored electronically, with access limited to the primary researcher and members of the research team. The analysis and reporting did not include identifiable patient information or direct interview data from surrogate decision-makers.

The primary interviewer had established professional relationships with the participating physicians and nurses before data collection. These relationships were acknowledged as a potential influence on participants' decisions to participate and their willingness to disclose sensitive or critical views. The voluntary nature of participation and the potential influence of these existing relationships were considered in the ethical conduct and interpretation of the study.

Results

Participant characteristics

The 19 healthcare professionals had a mean age of 37.7 years and a mean of 11.6 years of ICU experience. Most participants held an intermediate professional title (13/19, 68.4%) and a master's degree (10/19, 52.6%). Twelve participants (12/19, 63.2%) were recorded in the highest category of communication/interaction frequency with surrogate decision-makers in the demographic sheet.

Table 1
Characteristics of healthcare-professional participants (n = 19)

Characteristic	Category / summary	n (%) or mean ± SD
Age, years	Range 25–56	37.7 ± 8.0
Sex	Female	10 (52.6%)
	Male	9 (47.4%)
Profession	Physician	11 (57.9%)
	Nurse	8 (42.1%)
Professional title	Intermediate	13 (68.4%)
	Associate senior	4 (21.1%)
	Senior	2 (10.5%)
Education	Bachelor's	7 (36.8%)
	Master's	10 (52.6%)
	Doctorate	2 (10.5%)
ICU practice, years	Range 5–30	11.6 ± 6.2
Communication/interaction frequency category	< 10	3 (15.8%)
	10–20	4 (21.1%)
	> 20	12 (63.2%)
Interview duration, min	Range 22–42	30.5 ± 5.9
Decision-making characteristics of surrogate decision-makers		

Survival hope, family responsibility, and anticipated regret promoted treatment escalation

Healthcare professionals repeatedly described surrogates who treated any remaining possibility of survival as a reason to continue invasive treatment. In these accounts, choosing treatment was not only a biomedical judgment but also a way to demonstrate that the family had "done everything possible." Filial responsibility, fear of later regret, and concern about relatives' judgments could reinforce this stance.

"As long as there is even a small chance, we want to try. We do not want to regret it later." (N4, nurse; translated from Chinese)

Patient values, suffering, and dignity supported comfort-oriented decisions

A contrasting pattern emphasized the patient's previously expressed wishes, treatment-related suffering, and the quality rather than the mere duration of survival. Surrogates described in this pattern were more receptive to noninvasive support, symptom control, palliative care, or treatment limitation when invasive ventilation was unlikely to restore an acceptable functional state.

"Some families think the patient has already suffered enough and do not want them to suffer more, so they firmly refuse invasive respiratory support." (N4, nurse; translated from Chinese)

Prognostic uncertainty and family disagreement generated decisional instability

Many surrogates were described as oscillating between treatment escalation and treatment limitation. They feared both outcomes: intubation could lead to prolonged ventilator dependence and suffering, whereas non-intubation could be experienced as causing an avoidable death. Misunderstanding mechanical ventilation as a treatment that should quickly reverse the underlying disease and disagreement among family members further amplified conflict.

"They do not know whether to intubate: if they intubate, they are afraid the tube cannot be removed; if they do not intubate, they are afraid the patient will die." (N3, nurse; translated from Chinese)

Financial burden constrained otherwise preferred treatment choices

Cost was described as a practical decision determinant across interviews. Some families were willing to pursue treatment but feared catastrophic expenditure without clinical benefit; others discontinued potentially beneficial treatment because the accumulated financial burden was no longer sustainable. These decisions therefore could reflect constrained choice rather than a stable preference for less intensive care.

"Can we save the patient? If we cannot, and we spend so much money, the family may not be willing to invest that much manpower and money." (N1, physician; translated from Chinese)

Surrogate decision-maker personas

The four personas summarise recurring decision-making patterns described by professionals. They are researcher-derived interpretive composites, not mutually exclusive categories of individual surrogates. The short 'decision logic' statements below are researcher-written summaries, not verbatim quotations. Quoted material is translated from professionals' interviews; some professionals recount words previously spoken by patients or families. This distinction is necessary when interpreting the evidential basis of each persona.

Persona 1: Hope-and-responsibility-driven treatment seeker

Illustrative decision logic (researcher-synthesized): “If there is a chance, we should try.” This persona was characterized by a strong orientation toward preserving even a small possibility of survival. HCPs described family members who viewed treatment escalation not only as an opportunity to prolong life but also as a way to fulfill family responsibilities and avoid future regret. Optimistic interpretations of uncertain outcomes could make substantial treatment burdens acceptable, particularly when limiting treatment might be perceived as giving up on a loved one.

“Families often hold on to the idea that they should not give up as long as there is even a glimmer of hope.” (N6, physician; translated from Chinese)

“We just wanted to fulfill our last filial duty. We did everything we could, so we would not regret it later.” (N7, nurse, recalling family members’ words; translated from Chinese)

Persona 2: Patient-values-and-comfort protector

Illustrative decision logic (researcher-synthesized): “Do not let treatment add suffering that the patient would not want.” This persona placed greater emphasis on comfort, dignity, quality of life, and patients’ known or previously expressed wishes than on prolonging survival at any cost. HCPs described how families sometimes moved toward comfort-focused care after prolonged treatment or recognition of a poor prognosis. Where patients had voiced a preference to avoid invasive procedures, those wishes could provide an important basis for limiting treatment.

“If the prognosis remains poor despite active treatment, the family may gradually come to accept it and want the patient to suffer less and find relief sooner.” (N2, nurse; translated from Chinese)

“She repeatedly told her son, ‘Do not intubate me. I do not want to go through that suffering.’” (N7, nurse, recalling a patient’s words; translated from Chinese)

Persona 3: Uncertainty-conflicted deliberator

Illustrative decision logic (researcher-synthesized): “I am afraid of choosing either option.” This persona was marked by hesitation and competing fears regarding intubation and non-intubation. HCP accounts linked decisional instability to uncertain prognosis, concern about prolonged ventilation or avoidable death, difficulty interpreting medical information, and disagreements between relatives. The dilemma could persist even after information had been provided, because different family members emphasized different consequences of the decision.

“Family members disagree, and everyone hesitates; sometimes they cannot make a decision for quite a while.” (N6, physician; translated from Chinese)

“The siblings argued intensely about whether to use invasive respiratory support. The eldest insisted on treatment even if the family had to sell everything they owned, while another did not want their mother to suffer any more.” (N7, nurse; translated from Chinese)

Persona 4: Resource-constrained pragmatist

Illustrative decision logic (researcher-synthesized): “We want the best treatment, but we may not be able to sustain it.” This persona reflected decision-making under financial and practical constraints. HCPs described families who weighed the possibility of meaningful recovery against accumulated cancer-treatment expenses, uncertainty about future costs, and limited household resources. In these accounts, a decision to withhold or discontinue invasive support could reflect constrained affordability rather than a settled preference for less intensive treatment.

“If they had borrowed money for earlier treatment and still saw no improvement, they might decide to stop because they did not want to shoulder such a heavy burden.” (N5, physician; translated from Chinese)

“Sometimes they have to make choices according to their family circumstances and may not choose respiratory treatment.” (N1, physician; translated from Chinese)

Table 2
Comparative characteristics of the four surrogate decision-maker personas

Dimension	Hope/responsibility-driven	Patient-values/comfort	Uncertainty-conflicted	Resource-constrained
Primary goal	Preserve any survival opportunity	Minimize suffering and preserve dignity	Avoid making the wrong decision	Balance benefit with affordability
Typical concern	“If there is hope, should we try?”	“Will the patient suffer?”	“What if either choice is wrong?”	“Can we afford prolonged ICU care?”
Interpretation of prognosis	Optimistic weighting of small chances	Focus on meaningful recovery	Difficulty integrating uncertainty	Interprets benefit through resource consequences
Treatment-burden tolerance	Relatively high	Low when recovery is unlikely	Variable and unstable	Declines as financial burden accumulates
Patient preference	May be overshadowed by family duty	Strongly emphasized	Often unclear or disputed	May be constrained by affordability
Family/social influence	Filial duty; anticipated regret; social judgment	Protective family role	Internal disagreement; emotional overload	Household finances; insurance; caregiving burden
Main risk	Potential non-beneficial escalation	Potential premature limitation if prognosis is misunderstood	Delayed or unstable decisions	Inequitable treatment limitation
Tailored support	Outcome probabilities + value clarification	Palliative-care and symptom information	Structured repeated communication	Financial counseling + resource navigation

The highest-coverage labels were “Prolong life” (17/19, 89.5%) for the hope-and-responsibility-driven treatment seeker; “Palliative/hospice” and “Patient preference” (both 15/19, 78.9%) for the patient-values-and-comfort protector; “Emotional overload” (12/19, 63.2%) for the uncertainty-conflicted deliberator; and “Treatment cost” (16/19, 84.2%) for the resource-constrained pragmatist (Table 3). These descriptive patterns are visualized in Figs. 1–4.

Table 3
Persona-specific word-cloud label weights

Persona	Standardized label	Interview coverage, n	Coverage, %
Hope-and-responsibility-driven treatment seeker	Prolong life	17	89.5
Hope-and-responsibility-driven treatment seeker	Any chance/try	13	68.4
Hope-and-responsibility-driven treatment seeker	Active rescue	12	63.2
Hope-and-responsibility-driven treatment seeker	Family insists despite poor prognosis	10	52.6
Hope-and-responsibility-driven treatment seeker	Filial/social obligation	8	42.1
Hope-and-responsibility-driven treatment seeker	Avoid regret	6	31.6
Hope-and-responsibility-driven treatment seeker	Refusal to give up	4	21.1
Patient-values-and-comfort protector	Palliative/hospice	15	78.9
Patient-values-and-comfort protector	Patient preference	15	78.9
Patient-values-and-comfort protector	Quality of life	13	68.4
Patient-values-and-comfort protector	Dignity	12	63.2
Patient-values-and-comfort protector	Reduce suffering	12	63.2
Patient-values-and-comfort protector	Avoid overtreatment	9	47.4
Patient-values-and-comfort protector	Comfort care	6	31.6
Uncertainty-conflicted deliberator	Emotional overload	12	63.2
Note: Label weight denotes the number of healthcare-professional interviews (n = 19) containing a standardized label at least once. These values are descriptive visualization weights, not estimates of population prevalence or indicators of thematic importance.			
Persona-specific word clouds			

Persona	Standardized label	Interview coverage, n	Coverage, %
Uncertainty-conflicted deliberator	Hesitation/indecision	11	57.9
Uncertainty-conflicted deliberator	Prognostic uncertainty	10	52.6
Uncertainty-conflicted deliberator	Family disagreement	7	36.8
Uncertainty-conflicted deliberator	Information misunderstanding	7	36.8
Uncertainty-conflicted deliberator	Repeated communication	5	26.3
Uncertainty-conflicted deliberator	Fear of wrong choice/regret	4	21.1
Resource-constrained pragmatist	Treatment cost	16	84.2
Resource-constrained pragmatist	Economic burden	13	68.4
Resource-constrained pragmatist	Borrowing/catastrophic spending	9	47.4
Resource-constrained pragmatist	Resource allocation	7	36.8
Resource-constrained pragmatist	Insurance/reimbursement	6	31.6
Resource-constrained pragmatist	Cost-benefit concern	5	26.3
Resource-constrained pragmatist	Forced treatment limitation	3	15.8
Note: Label weight denotes the number of healthcare-professional interviews (n = 19) containing a standardized label at least once. These values are descriptive visualization weights, not estimates of population prevalence or indicators of thematic importance.			
Persona-specific word clouds			

Cross-persona differences

The four patterns contrasted in dominant goal, interpretation of uncertainty, tolerance of treatment burden, orientation to patient preferences and practical constraints (Table 2). Hope/responsibility-driven accounts focused on chances of survival and regret, while values/comfort-focused accounts prioritised dignity, suffering and known preferences. Uncertainty-conflicted accounts centred on competing risks and family disagreement; resource-constrained accounts weighed expected benefit against affordability.

A refusal of ventilation could therefore represent a values-concordant decision or a constrained choice. These are differences in reported decision logics, not measured group comparisons, and no transition between personas was directly observed.

Discussion

Principal findings and relevance to palliative care

The principal finding is not that families fall into four stable types, but that similar decisions about invasive respiratory support may express different needs. In professionals' accounts, escalation could be motivated by hope for recovery, filial responsibility or fear of regret, whereas limitation could reflect the patient's stated preferences, concern about suffering, or financial constraints. This distinction matters for palliative care because goal-concordant conversations must attend to what a choice means for the patient and family, not simply which treatment option is selected [3, 18–20]. These personas are researcher-generated interpretations of second-hand accounts, not validated surrogate classifications.

The ODSF helps explain why a single information-focused conversation may be insufficient: prognosis comprehension, values, decision roles, emotional support and practical resources may be simultaneously relevant [7, 8]. The potential contribution of the personas is a needs-oriented prompt for further exploration, not a screening instrument. Professionals might ask what is making the decision most difficult and then respond to that concern while clarifying the patient's preferences. This clinical application has not been tested.

Existing evidence suggests that decision aids can improve family knowledge without consistently reducing distress or decisional conflict [21]. Whether repeated, needs-responsive conversations informed by these personas improve outcomes remains an empirical question. In particular, their applicability outside the single Chinese cancer ICU and to accounts directly given by surrogates requires investigation.

Hope, obligation and anticipated regret

Hope-driven requests for ventilation may be more than inaccurate estimates of benefit. Participants described treatment as a way to fulfil family responsibility and avoid later regret. Prior qualitative research has similarly identified emotional and relational dimensions of surrogate decisions [18–20], while cancer-ICU research has linked filial piety to decisional conflict [22]. Such associations should not be taken to imply that filial values are inherently problematic or apply to every family.

A palliative approach would acknowledge hope and perceived obligation while asking what outcomes the patient would value. Prognostic discussions may use best-, worst- and most-likely scenarios rather than treating low probability as equivalent to no hope [23–26]. These approaches are plausible communication strategies, not interventions evaluated in this study.

Patient preferences, comfort and meaningful treatment benefit

The patient-values-and-comfort pattern distinguishes physiological success from an outcome meaningful to the patient. Mechanical ventilation may improve oxygenation without restoring communication, function or the possibility of further cancer treatment; critical care survivorship research highlights the relevance of post-ICU impairment and prolonged ventilation [27, 28]. Professionals described families who considered dignity, suffering and previously expressed wishes when evaluating invasive support.

Declining ventilation need not represent declining care. Symptom relief, palliative input and appropriately selected noninvasive respiratory measures may remain active options when consistent with patient goals [29–31]. Early conversations about preferences regarding prolonged ventilation and acceptable recovery could help surrogates, although better advance-care-planning documentation does not by itself prove that later care is goal-concordant [32, 33].

Uncertainty, disagreement and support for deliberation

Professionals described conflict when intubation raised fears of prolonged dependence while non-intubation raised fears of avoidable death. Such tension may persist despite disclosure of prognostic information, particularly where family members disagree. Prior ICU research links communication and clinician support to trust and distress but shows that communication alone does not resolve every misunderstanding [4, 6, 34, 35].

Repeated, consistent interdisciplinary meetings, checks of understanding and explicit discussion of patient values may help teams identify unresolved concerns [25, 26, 36]. When clinically appropriate and aligned with patient goals, a time-limited trial with predefined goals and reassessment criteria may offer a structured way to address uncertainty [37]. None of these approaches was assessed for effectiveness in this dataset.

Financial constraints and equity

The resource-constrained pattern highlights that refusal of invasive support may reflect unaffordability rather than a settled preference for less treatment. In the present accounts, previous cancer expenditure, uncertainty about ICU costs and household resources affected the choices families could make. Financial toxicity has also been associated with cancer-ICU surrogate conflict [22], and other research documents financial pressure during advanced-cancer treatment decisions [38].

This distinction raises an equity concern: two decisions that look identical in the chart may have different meanings. Where feasible, early cost conversations and referral to social work, reimbursement support or financial navigation could help distinguish clinical preference from constrained choice [39–41].

These are proposed responses; this study did not test whether they reduce inequity or improve decisions.

Using personas cautiously in serious-illness conversations

The four personas should be viewed as overlapping, contextual patterns. A family's concerns might change as illness, prognosis or expenses evolve, but the present cross-sectional professional interviews did not observe within-person transitions. The hypothetical possibility of change therefore supports reassessment, not a claim that any transition sequence was demonstrated. Previous work documents changes in decisional conflict and end-of-life preferences, without validating these particular personas [6, 42].

A proposed approach would begin by eliciting the family's central concern: losing a chance of survival, causing suffering, making a wrong decision, disagreement or unaffordable treatment. The team could then clarify clinical possibilities and patient values and, when appropriate, offer psychological, palliative or financial support. This is a conceptual direction for co-design with surrogates, not a validated clinical algorithm [9, 21, 36, 40].

Further work should interview surrogates directly, examine cases that do not fit the four patterns, assess cultural transferability and test whether a brief needs-assessment approach is acceptable and improves decision quality, goal-concordant care or equity.

Implications for interdisciplinary palliative and critical care

Nurses and physicians can use the findings as prompts for open-ended questions, not as labels attached to families. A request for ventilation may invite exploration of hope and responsibility; concern about suffering may prompt discussion of symptom relief and previously expressed wishes; indecision may call for repeated, consistent meetings; and affordability concerns may require practical referral. Any approach must respect local decision-making roles and clinical indications and should avoid assuming that culture or treatment choice reveals an individual's values.

Strengths and limitations

Strengths include the focus on a high-stakes, preference-sensitive decision in cancer critical care, the combination of ODSF-informed and inductive qualitative analysis, and explicit differentiation of interview-level label coverage from surrogate prevalence. Quotes illustrate the professionals' accounts, and both physicians and nurses were included. The persona synthesis offers a potential contribution to psychosocial and palliative communication research beyond the specific institution.

Several limitations constrain interpretation. First, the personas were derived from professionals' recollections, not direct surrogate interviews or observation of family meetings, and these reports could reflect professional assumptions. Second, the study was conducted in a single Chinese cancer ICU; cultural and healthcare-financing contexts may limit transferability. Third, the four patterns were

interpretive, overlapping and unvalidated; no prevalence, predictive performance or individual transitions can be inferred. Fourth, word-cloud coverage is sensitive to label standardisation and does not indicate importance. Finally, the analysis did not separately compare nurse and physician accounts or test an intervention.

Conclusions

Healthcare professionals described four overlapping decision-making patterns surrounding invasive respiratory support for critically ill patients with cancer: hope and responsibility, patient values and comfort, uncertainty and conflict, and resource constraints. The same treatment decision may reflect fundamentally different informational, relational, emotional or financial needs. These descriptive personas may help frame questions for future palliative and critical care decision-support co-design, but require direct validation with surrogates and prospective evaluation before clinical implementation.

Abbreviations

ARF
acute respiratory failure
COREQ
Consolidated Criteria for Reporting Qualitative Research
HCP
healthcare professional
ICU
intensive care unit
ODSF
Ottawa Decision Support Framework.

Declarations

Ethics approval and consent to participate

The study was approved by the Medical Research and New Technology Ethics Committee of Sichuan Cancer Hospital (SCCHEC-02-2024-003). This study was conducted in accordance with the principles of the Declaration of Helsinki.Written informed consent to participate in the interviews was obtained from all 19 healthcare professionals. Participation was voluntary and audio-recording was conducted with participants' consent.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Author Contribution

Chengcheng Li: Conceptualization, Methodology, Formal analysis, Investigation, Data curation, Writing – original draft, Writing – review & editing, Visualization, Project administration. Jianhua Tang: Investigation, Resources, Data curation. Ying Peng: Investigation. Yue Huang: Investigation. An Shi: Visualization. Jiao Li :Investigation .Li Yin: Conceptualization, Methodology, Writing – review & editing.All authors read and approved the final manuscript.

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Declaration of generative AI and AI-assisted technologies in the writing process

During preparation of this work, the authors used ChatGPT (OpenAI) to assist with English-language editing, readability, manuscript organisation, and preliminary translation of selected illustrative quotations. The final English wording of illustrative quotations was verified by the authors against the original Chinese transcripts.

Availability of data and materials

The qualitative interview data are not publicly available because they contain sensitive contextual information that may permit participant re-identification. Requests concerning access to de-identified supporting data may be directed to the corresponding author and will be considered in accordance with institutional and ethics requirements.

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Figures



Figure 1

Hope-and-responsibility-driven treatment seeker.



Figure 2

Patient-values-and-comfort protector.



Figure 3

Uncertainty-conflicted deliberator.



Figure 4

Resource-constrained pragmatist.