

Accompaniment refusal in radiological examination for disabled and cognitively impaired patients: a normative analysis of care responsibility allocation in China

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Abstract

Background

Most hospitals in China employ no escort staff, so patients scheduled for radiological examinations are brought to the imaging department and attended at the bedside by family members. When the patient is disabled or cognitively impaired and cannot be left unattended, a family member's refusal to enter the examination room for fear of ionizing radiation leaves the patient without care: examinations are delayed, agitated patients are physically restrained, and some are briefly left without any caretaker. This paper analyses the ethical structure of such refusals and asks how the resulting responsibilities should be allocated among family, hospital and state.

Methods

A normative ethical analysis was conducted, integrating principlism, care ethics and responsibility ethics, with the value framework of ICRP Publication 138 used to test radiation protection arguments from within. Sources comprised normative texts (ICRP recommendations, Chinese standards and statutes), literature in English and Chinese, and composite clinical scenarios drawn from radiology practice. No human participants or personal data were involved.

Results

Three interlocking tensions were identified. First, radiation protection reduced to dose avoidance misapplies the optimization principle: measured doses to accompanying persons are orders of magnitude below any level of concern, so refusal transfers rather than removes harm. Second, the family's caregiving responsibility, embedded in Confucian family ethics, collides with the family member's own claim to self-protection; acting simultaneously as proxy decision-maker, caregiver and potential exposee, the family member may experience self-protection as an act of protection for the patient. Third, the hospital's statutory duty of safety assurance is bounded by its organizational capacity: single-technologist staffing and technologists' job descriptions exclude caregiving duties. A responsibility order is proposed: family first, hospital at the bottom line, state and social support as the final fallback. Wholesale transfer of care responsibilities to hospitals would amount to responsibility reversal.

Conclusions

Accompaniment refusal should be addressed as a problem of care responsibility allocation rather than as deficient risk education alone. Feasible measures include standardized risk communication,

forwarding escort duties for inpatients to sending wards, tiered assessment with defined bottom-line handling, and limited reinforcement of escort capacity.

Background

In most Chinese hospitals, the person who wheels a patient to the imaging department, helps him onto the table and stays at the bedside is not a member of staff but a family member. Institutional escort services barely exist outside a small number of large hospitals ^[1], and nursing-home style care labour has not entered the routine workflow of diagnostic imaging. The arrangement rests on a long-standing social practice in which caregiving is treated as a family matter rather than a service the hospital provides.

Most of the time the arrangement works uneventfully. When it fails, it tends to fail in the same way. A patient with advanced dementia needs a head CT; the family stays outside the door; the radiographer, alone at the console, must manage a confused, restless patient he cannot touch while continuing to operate the scanner. Some families decline to enter because they believe the radiation inside the room will harm them. Radiation fear among patients and the public is well documented ^[2–4], although the doses actually received by persons accompanying diagnostic examinations are very small; even in nuclear medicine, among the highest-dose scenarios for companions, measured effective doses have been on the order of 0.3 mSv per examination ^[5]. ICRP's recommended dose constraint for comforters and carers, 5 mSv per episode, is set an order of magnitude above any such measurement ^[6].

The phenomenon examined in this paper arises where three facts intersect. First, the patient is disabled or cognitively impaired and cannot reasonably be left alone. Second, the examination room is a controlled radiation area, so a companion must accept some exposure, however small, to remain at the bedside. Third, the family refuses to enter, citing radiation. What remains is a gap in care that no one has agreed to fill: for the duration of the examination the patient faces delay, restraint or abandonment. In China's family-centred care culture this gap is not a marginal event. Filial obligation places caregiving at the centre of family identity ^[7–8], qualitative studies of caregivers of disabled older adults show how heavy and morally loaded this role already is ^[9–10], and hospitals have never been organized to provide bedside accompaniment.

The refusal invites two opposing readings. One treats it as ignorance: if families knew the doses involved, they would not refuse. The other treats it as a reasonable act of self-protection that the ethics of radiation protection itself appears to endorse. Both readings miss what is actually at stake. The refusal is not only a belief about dose; it is an act within a family's caring relationship, embedded in a health system that has assigned bedside presence to families without ever saying so. When a family withholds that presence, the question is not how to correct their risk perception, but whose job the accompaniment was in the first place, and who must act when it is withheld.

This paper addresses that question through a normative ethical analysis. It reconstructs accompaniment refusal as a problem of care responsibility allocation, a problem largely absent from the international literature, which has concentrated on dose measurement and communication. On that basis it proposes a responsibility order grounded in the realities of Chinese family care and hospital organization, one that avoids two symmetrical errors: blaming families for cowardice, and assuming that hospitals can simply absorb the caregiving function.

Methods

This is a normative study: it analyses what parties ought to do, given the ethical commitments they already hold, and it makes no empirical claims beyond those drawn from published literature and commonplace clinical observation. It does not involve human participants, does not collect biological samples or personal health data, and does not intervene in care. It therefore falls outside the scope of "research involving humans" under the Measures for Ethical Review of Life Science and Medical Research Involving Humans (National Health Commission, 2023), and no ethics approval was required. The clinical situations used as illustrations are composite scenarios observed in daily radiology practice; identifiable details have been removed, and they are presented to display the structure of the problem, not to estimate its frequency.

Three ethical frameworks are combined. Principlism (beneficence, non-maleficence, respect for autonomy, justice) supplies the basic vocabulary for identifying conflicts and ordering values^[11]. Care ethics corrects principlism's tendency to view decisions as discrete choices made by competent individuals: it attends to dependency, relationships and the actual labour of care, which is where accompaniment refusal does its damage^[12]. Responsibility ethics distinguishes moral, legal and role responsibilities, and insists that a responsibility can only be sensibly assigned to an agent who has the authority, competence and resources to discharge it.

The value framework of ICRP Publication 138, comprising beneficence and non-maleficence, prudence, justice and dignity, together with the procedural values of accountability, transparency and inclusiveness, is used as an internal critique^[11]. It asks whether a refusal made in the name of radiation protection can be justified by the moral commitments of the radiation protection system itself. Because the framework belongs to the same normative tradition the refusers invoke, this test is harder to evade than an external objection.

Three classes of source were used: normative texts (ICRP Publications 103 and 138, the Chinese basic standard for protection against ionizing radiation^[13], the Civil Code of the People's Republic of China); academic literature in English and Chinese on radiation perception, family caregiving and informed consent in China; and general clinical experience of the authors' department. No new data were collected; empirical statements in the text are drawn from the cited literature or explicitly marked as untested observation.

Results

A typical scenario and the care vacuum

A man in his late seventies with moderate Alzheimer's disease is brought for a head CT to investigate an acute neurological event. He cannot stand unaided and becomes agitated when touched by strangers. Two adult children accompany him. Both decline to enter the examination room when told that the scanner emits radiation; one says he has read that "one scan is harmless, but standing inside every day is not". During the positioning attempt the patient struggles violently and nearly falls off the table. The examination is halted, the patient is eventually restrained with sheets, and the scan is completed after substantial delay with the family outside and two staff members holding him down.

Nothing in this scene is unusual, and each element of it traces back to the same gap. The patient has lost the capacity to cooperate, so his safety depends on someone being at the bedside. The hospital has not assigned that someone: technologists work alone at the console, and no escort staff exist to call. The family is present but unwilling, for a reason that appears, on its face, to be about radiation. The consequence falls entirely on the patient: delay, restraint, and the undignified experience of being held down by strangers in a moment of confusion.

Three parties could, in principle, fill the gap: the family by accepting a trivial and shielded exposure, the hospital by staffing the bedside, the state by underwriting an escort profession. The analysis that follows examines what each of the three owes, and in what order.

Radiation protection against the patient's best interests: the misuse of a principle

The family's refusal invokes, implicitly, the most intuitive idea in radiation protection: any dose is worth avoiding. But the system of radiological protection is not built on that idea. Its three principles of justification, optimization and dose limits apply to exposures from practices, and the 2007 Recommendations state plainly that dose limits do not apply to medical exposure of patients ^[6]. For persons accompanying patients, ICRP does not impose limits but a comparatively generous constraint: 5 mSv per episode of care ^[6]. Measured doses to companions in diagnostic settings run two orders of magnitude below this figure ^[5].

Reducing protection to "avoid any dose" therefore inverts the system it claims to follow. Optimization, properly understood, is not minimization of dose at any price; it is the management of exposures so that they are as low as reasonably achievable while the beneficial practice proceeds. A guardian who refuses to hold a confused patient steady is not optimizing anything; he is declining to take part in a beneficial practice whose risk to him is smaller than the risks he thereby creates for the patient, such as falls, injuries, delayed diagnosis and forcible restraint. In the vocabulary of principlism, the refusal cannot claim the protection of non-maleficence, because harm is not avoided but transferred: from a low-

probability, low-magnitude stochastic risk to a high-probability, immediate threat to a defenceless person. Public knowledge studies confirm that laypeople systematically overestimate low-dose risks [2-4]. What the ethical analysis adds is that this overestimation carries moral weight only when it is allowed to outweigh the patient's concrete interests, and the values of the protection system itself, properly read, do not permit that [11].

The deeper issue concerns prudence. ICRP Publication 138 lists prudence among the core values of the protection system, understood as foresight in the face of uncertainty. Prudence is a virtue of judgement, not a reflex of avoidance. A family that treats a sub-millisievert scatter exposure as intolerable has not exercised prudence; it has replaced judgement with a slogan. The Chinese nursing ethics literature has documented the same distortion in other settings, where beneficence and non-maleficence are set against each other as though protecting the caregiver from a trivial risk could justify abandoning the patient's benefit [14]. "Minimal harm" as an ideal, as Fu and colleagues argue in the context of perioperative care, includes the harm the patient suffers when care is withdrawn, not only the harm the caregiver fears [15].

None of this supports dismissing the family's fear as irrational. Fear of invisible hazards is a normal human response, and the protection system's own history has taught the public that radiation danger is real and cumulative. The analysis so far shows only that the refusal cannot be justified by the protection principles it appears to invoke. Why reasonable people make it is the question the next section takes up.

Family responsibility, family autonomy, and three overlapping roles

In China, the family is not a stakeholder consulted about the patient's care; in the prevailing cultural understanding it is the unit within which care decisions are made and care labour performed. Cong's classic study described the "doctor-family-patient" relationship, rather than the Western doctor-patient dyad, as the Chinese paradigm of informed consent [7]. Fan has argued that East Asian autonomy is family-determination rather than self-determination, and that this difference is principled, not a deficit of modernity [16]. Empirical work confirms the pattern's persistence: young Chinese doctors still overwhelmingly inform the family first, and most comply when families ask them to withhold information from the patient [17]; in decisions about older adults, filial obligations and family harmony remain organizing commitments [8].

Family-determination works in both directions here. It grounds the family's authority to decide for the incapacitated patient, and it grounds the expectation that the family will care for him. A Confucian understanding of the family does not separate deciding for a parent from caring for him; the two are the same relationship viewed from different angles [18]. Within this framework, a refusal to accompany is not the exercise of an individual's right of self-protection standing alongside his duty to care; it is a rupture within a single role.

The family member in the scenario holds three roles at once: proxy decision-maker for the patient, hands-on caregiver, and a person who will absorb a (tiny) dose by standing in the room. The ethical risk lies in this overlap. Because he decides for the patient, he can recast his own avoidance as the patient's protection ("I am not risking it on your behalf"), and the recasting may be sincere. Because he cares for the patient daily and has already absorbed large caregiving burdens, a request that he also absorb radiation can feel like one demand too many from a system that has, until now, taken his labour for granted ^[9–10]. Qualitative work on families' participation in decisions shows how much family members want information and support, and how often they are left to improvise ^[19].

Moral appraisal must therefore be two-sided. On the one hand, the refusal's consequence, a defenceless patient restrained or abandoned, cannot be justified by appeal to the family's own comfort or to a misreading of dose. On the other hand, the ignorance on which the refusal rests is largely produced by the communication practices of the system itself. Where risk information is delivered as a warning without probabilities, and where no one has ever explained that accompanying a CT examination is measurable in microsieverts, the family's ignorance is not culpable negligence; it is the predictable output of the information environment. Liang and Zhang's analysis of "ignorance responsibility" is apt here: when an agent has been passively supplied with distorted or absent information, the primary failure is communicative, and the remedy is to fix the communication, not to moralize at the audience ^[20]. The family's fear deserves an answer, but it should not be treated as the ultimate explanation of the care gap. The gap existed before the fear was expressed, in a system that had never specified who should accompany patients who cannot come alone.

The hospital's duty of safety assurance and its organizational limits

The third party is the hospital. The Civil Code imposes on the managers of public venues, including medical institutions, a duty of safety assurance toward persons within their premises ^[21]. A patient who nearly falls off the CT table is unambiguously within the scope of that duty. But a duty of safety assurance is not a duty to perform every caring act; its content is set by what the institution has organized itself to do, and the Chinese hospital's limits here are structural rather than a matter of goodwill.

Three constraints are decisive. First, diagnostic radiology is staffed on the single-technologist model: one technologist operates the scanner from a console outside the controlled area, and during exposure he cannot be at the table. Second, the technologist's job description of positioning, parameter selection, image quality control and radiation safety management contains no caregiving function. Assigning bedside care to a post that has not been given the training, the authority or the numbers for it merely relocates the gap into a different pair of hands. Third, workload: a busy CT list leaves minutes per patient. An expectation that technologists "just stay a bit longer" collapses at the level of the shift, even where it might survive in a single case.

These limits need to be stated precisely, because the international reader may otherwise supply the wrong comparison. In health systems where radiology departments employ escorts, or where hospital transport services exist, "the hospital accompanies" is a staffing fact. In China it is not. Proposing that hospitals simply absorb accompaniment, as earlier Chinese discussions of care responsibility sometimes imply ^[22], would convert a genuine duty into an instruction no real department can execute. A normative framework that ignores implementability ends up assigning a symbolic responsibility: a duty conferred in words that no one can discharge in practice, which produces the very moral distress the assignment was meant to relieve.

What the hospital does owe, within its actual capacity, is a bottom line. It includes active observation of waiting and on-table patients; the authority and the habit of halting an examination that cannot proceed safely; compliant methods of immobilization where restraint is unavoidable, together with the ethical discipline that restraint must be necessary, proportionate and time-limited, the least restrictive alternative consistent with the examination's purpose ^[23]; documentation when families refuse to accompany; and radiation risk communication that states the dose truthfully rather than reciting warnings. These obligations cost little, lie within existing roles, and close the worst part of the gap: the part that ends in injury or force.

Allocating the responsibility: family first, hospital at the bottom line, society as final fallback

The three preceding sections suggest an order. In the reality of Chinese long-term care, the family carries the primary responsibility for accompaniment, and this should be stated plainly, not as a moral reproach to families who refuse but as the premise on which the rest of the allocation proceeds. The alternative premise, that hospitals or the state should assume bedside accompaniment wholesale, would require a reinvention of hospital staffing that no policy has contemplated, and it would dissolve the family's own stake in the caring relationship that family-determination ethics values ^[16, 18]. There is also a point of fairness: an allocation that loads the entire caring burden onto institutions would deprive the family of the role through which, in this culture, the goods of care are realized ^[12].

The hospital's responsibility, as argued above, is a bottom line, not a substitute: safety observation, lawful restraint discipline, truthful risk communication, documentation. Its obligation is not to replace the family but to ensure that when the family is absent or refuses, the patient is not exposed to unmanaged risk, and to make the boundary between the two responsibilities explicit, so that neither party can silently assume the other has taken the duty.

Beyond both stands the state and the social support system: long-term care insurance, the market for paid care labour, and the professionalization of escort services. Where the family is absent, whether through childlessness, exhaustion or a justified reason such as pregnancy, only this level can supply what is needed. Present policy treats escorts as an informal market of poorly trained labourers; making

accompaniment a recognized, trained and insured occupation would be the structural answer to the gap, and it is at this level that the question of who fills it becomes genuinely solvable.

Two clarifications guard the framework against misuse. The order is an order of responsibility, not of value: the patient's interests remain paramount in every tier. And the framework forbids responsibility reversal in both directions. The family must not be able to offload accompaniment onto hospitals as a default, and hospitals must not be able to cite the family's primacy to shrink their bottom-line duties. The point is allocation, not transfer.

Discussion

Practical implications

The framework translates into measures that respect the constraints identified above. First, risk communication should be standardized: a short scripted explanation at booking and at the door, giving the dose magnitude in comparison quantities, the shield available and the constraint that protects companions, in place of the bare warning that currently breeds fear ^[3, 5]. The purpose is not to raise accompaniment rates as such; it is to let families decide against a truthful risk picture. Second, for inpatients, the escort duty should be forwarded to the sending ward: the ward that knows the patient arranges the accompaniment, whether by family, hospital care-worker or nurse, before transfer, with a handover entry, rather than leaving the radiology department to improvise ^[1]. Third, a tiered assessment at booking identifies patients who cannot be left alone, so that the need for accompaniment is a documented task rather than an emergent surprise. Fourth, for the minority of cases where no family is available, a trained escort function, even a small one, provides the final fallback. Where it does not exist, the bottom-line handling described above applies: the examination proceeds only under conditions of managed risk, with restraint used minimally and lawfully ^[23].

Each measure is implementable within current staffing and budgets, which is the criterion the analysis imposes. Larger proposals, such as professionalizing escort labour or covering it under long-term care insurance, belong to the state level and should be argued there rather than quietly absorbed into departmental policy.

Cultural specificity and transferability

The scenario analysed here is Chinese in three respects: the family-determination structure of decision-making ^[7, 16], the absence of an institutional escort workforce, and the moral weight of filial caregiving ^[8]. The responsibility order proposed reflects those features. The underlying problem, however, is not uniquely Chinese. Wherever imaging requires a controlled radiation area and the patient cannot cooperate alone, the triad of patient dependency, companion exposure and institutional staffing limits exists; what varies is who has customarily filled the gap. The ethical core of the analysis, namely that a trivial companion dose cannot justify transferring concrete risks to a defenceless patient, and that responsibility must be matched to capacity, applies in any system. The allocation proposed is calibrated

to the Chinese institutional reality, and readers elsewhere should substitute their own institutional facts before borrowing its conclusions.

Limitations

As a normative analysis, this paper offers no evidence on the frequency of accompaniment refusal, the distribution of family reasons, or the effect of any intervention; these require empirical study, and the framework is designed to generate, not to replace, such work. The Chinese literature on accompaniment is thin, and the argument's empirical premises rest partly on studies from adjacent settings. Finally, the paper addresses the ethics of one clinical situation; it does not resolve the larger question of how China's long-term care system should be financed, on which the durability of any allocation depends.

Conclusions

A family's refusal to accompany a disabled or cognitively impaired patient into a radiological examination is best understood neither as ignorance to be corrected nor as a right to be respected, but as a breakdown in the allocation of care responsibility, one that the health system itself helped create by leaving accompaniment unassigned. Radiation protection principles, properly read, do not license the refusal; family ethics explains it without excusing its consequences; and the hospital's duty, honestly bounded by its capacity, is a bottom line rather than a substitute. Placing family, hospital and state in an explicit order of responsibility, and supporting the first tier with truthful communication instead of bare warnings, is the most defensible way to keep both the patient's safety and the family's dignity intact.

Declarations

Ethics approval and consent to participate: Not applicable. This is a normative ethical analysis that did not involve human participants, human data or human tissue.

Consent for publication: Not applicable.

Availability of data and materials: No datasets were generated or analysed during this study.

Clinical trial number: not applicable.

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Authors' contributions: JZ conceived and designed the study, constructed the normative framework, performed the literature search, and drafted the manuscript. XH analysed the family caregiving and family autonomy literature and contributed to the argument on overlapping family roles. ZL analysed the radiation protection framework and the composite clinical scenarios. YLN participated in the verification

of cited literature and revised the manuscript critically. XM supervised the study, contributed to the responsibility order, and revised the manuscript critically. All authors read and approved the final manuscript and agree to be accountable for all aspects of the work.

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