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Role Of Preoperative Anxiety in Pediatric Anesthesia Outcomes

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Abstract- ***Preoperative anxiety is a frequent and clinically meaningful exposure in paediatric anaesthesia. It arises from developmental vulnerability, separation from caregivers, uncertain sensory cues, previous medical experience, parental distress, and the perceived threat of pain or loss of control. Recent studies report high rates of anxiety in children presenting for surgery, with the most intense responses often occurring during transfer to theatre and anaesthesia induction. This review examines how preoperative anxiety contributes to anaesthesia outcomes in children, with particular attention to induction compliance, emergence delirium, postoperative pain, maladaptive behaviour, parental experience, and perioperative efficiency. A structured literature review of publications from 2020 to 2025 was undertaken across major biomedical databases, prioritising clinical trials, observational studies, systematic reviews, and practice-focused evidence relevant to children undergoing procedures under general anaesthesia. The literature indicates that preoperative anxiety is not merely an emotional state but a modifiable perioperative risk factor. Younger age, parental anxiety, low sociability, negative previous hospitalisation, language barriers, and surgical setting repeatedly appear as risk signals. Anxiety may worsen cooperation during induction, intensify physiological stress, increase postoperative pain reporting, and contribute to emergence delirium and behavioural disturbance. However, the strength of association varies by measurement timing, surgical type, analgesic strategy, and family preparation. Evidence favours early identification and proportionate intervention using developmentally tailored education, parental coaching, play-based preparation, audiovisual distraction, virtual reality, mask rehearsal, environmental control, and selected pharmacological anxiolysis. High-quality care requires an integrated pathway rather than reliance on one technique. This review proposes an outcome-focused preventive care bundle that links anxiety screening with practical perioperative actions and recovery metrics. Embedding anxiety management within routine paediatric anaesthesia may improve safety, experience, and recovery while reducing avoidable distress.***

Keywords: Paediatric Anaesthesia, Preoperative Anxiety, Emergence Delirium, Postoperative Pain, Induction Compliance, Perioperative Outcomes

I. INTRODUCTION

Preoperative anxiety in children is a central challenge in modern paediatric anaesthesia because it links emotional distress with measurable clinical and operational outcomes. Unlike adults, children often cannot explain fear using abstract language; they demonstrate it through crying, clinging, refusal, escape behaviour, silence, agitation, or resistance to monitors and masks. The perioperative environment amplifies this response through fasting, separation, unfamiliar staff, alarms, lights, surgical clothing, and rapid transitions. Recent reviews estimate that anxiety is common before paediatric surgery, with reported incidence in contemporary studies ranging from approximately 42% to 75% depending on age, assessment tool, setting, and timing of observation [1,2].

The significance of anxiety extends beyond comfort. Severe distress at induction can delay anaesthetic workflow, necessitate physical restraint or sedative rescue, weaken trust between families and clinicians, and complicate airway or intravenous management. After surgery, highly anxious children may experience greater pain, agitation during recovery, sleep disturbance, feeding problems, nightmares, separation difficulties, and avoidance of later healthcare encounters [1,13,30].

The outcome pathway is therefore bidirectional: poor preparation heightens anxiety, anxiety disrupts anaesthesia and recovery, and difficult perioperative experiences increase anxiety at future procedures. This cycle is especially important for children requiring repeated operations, oncology procedures, dental anaesthesia, ophthalmic surgery, endoscopy, or imaging under anaesthesia.

The current evidence base has shifted from asking whether anxiety exists to asking how it should be identified, stratified, and managed. Digital preparation, child-life interventions, virtual reality, tablet games, cartoon videos, parental coaching, and carefully selected anxiolytic medication have all been evaluated during the last five years [6-12,16,20]. Yet implementation remains inconsistent, partly because anaesthesia outcomes are often studied separately from anxiety outcomes. A publishable review must therefore integrate developmental psychology, family systems, anaesthesia induction, recovery physiology, and service delivery into a coherent clinical model.

II. AIM AND OBJECTIVES OF THE STUDY

The aim of this review is to evaluate the role of preoperative anxiety as a determinant of paediatric anaesthesia outcomes and to propose a practical framework for prevention, measurement, and post-anaesthesia follow-up. The study addresses four objectives. First, it summarises recent evidence on the prevalence, determinants, and assessment of preoperative anxiety in children.

Second, it analyses associations between anxiety and anaesthesia-related outcomes, including induction compliance, emergence delirium, pain, behavioural recovery, parental distress, and workflow disruption. Third, it appraises contemporary intervention categories, distinguishing preparation, distraction, environmental modification, parental involvement, and pharmacological strategies. Fourth, it presents a structured preventive care bundle suitable for perioperative teams seeking measurable improvement in child and family outcomes.

III. METHODOLOGY

A structured narrative review methodology was adopted because the topic spans heterogeneous designs, age groups, interventions, and outcomes. Searches were conducted for English-language publications issued from January 2020 to December 2025 in MEDLINE, Embase, CINAHL, Cochrane Library, Scopus, and Web of Science. Search concepts included child, paediatric, preoperative anxiety, perioperative anxiety, anaesthesia induction, emergence delirium, postoperative pain, postoperative behaviour, parental anxiety, virtual reality, distraction, preparation, and anxiolysis. Reference lists of eligible articles were also reviewed to identify highly relevant studies published within the same date range.

Eligible sources included randomised trials, prospective and retrospective observational studies, systematic reviews, meta-analyses, and clinically oriented reviews that reported paediatric preoperative anxiety, risk factors, perioperative interventions, or anaesthesia outcomes.

Studies were prioritised when they used validated measures such as the modified Yale Preoperative Anxiety Scale short form, State-Trait Anxiety Inventory, Paediatric Anaesthesia Emergence Delirium scale, induction compliance measures, or standard postoperative pain scores. Exclusion criteria were adult-only samples, non-surgical procedural anxiety without anaesthesia relevance, non-English full text, conference-only abstracts, and articles outside the requested time window. Evidence was synthesised narratively by outcome domain, with emphasis on consistency, clinical plausibility, and applicability to perioperative practice rather than statistical pooling.

IV. CONCEPTUAL BASIS: ANXIETY AS A PERIOPERATIVE EXPOSURE

Anxiety is best understood as an exposure that changes behaviour, physiology, and team performance before anaesthesia. Behaviourally, anxious children may refuse oral medication, resist transfer, reject the mask, pull monitors, or require additional staff support. Physiologically, anxiety activates sympathetic and neuroendocrine pathways, raising heart rate, blood pressure, catecholamine activity, and stress-hormone output. Psychologically, it narrows attention to threat, reduces the child's ability to process reassurance, and increases memory encoding of frightening events. These pathways explain why anxiety can affect both immediate anaesthetic management and later recovery [1,13].

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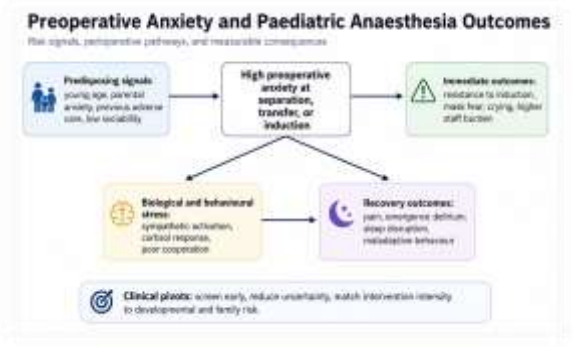

Figure 1. Preoperative anxiety and paediatric anaesthesia outcomes: risk signals, perioperative pathways, and measurable consequences.

V. DETERMINANTS OF PREOPERATIVE ANXIETY

Child-related risk factors are the most visible determinants. Younger children have higher anxiety because they rely on caregivers for safety, have limited procedural understanding, and interpret separation or masks as immediate threat rather than temporary care. Contemporary evidence repeatedly identifies young age as a predictor, particularly in preschool and early school-age children [1-3].

Temperament also matters. Children with low sociability, behavioural rigidity, developmental delay, communication difficulty, or previous traumatic medical encounters may show heightened distress in waiting areas and induction rooms [1,4,5].

Prior negative surgery or hospitalisation can become a learned threat cue, especially when previous induction involved restraint, pain, nausea, or frightening emergence. Family-related factors are equally important. Parental anxiety is one of the most consistently reported predictors of child anxiety [1,2,4,5,14].

Children use caregivers as emotional regulators; when a parent's voice, posture, facial expression, or information-seeking behaviour conveys danger, the child may mirror that distress. This does not imply parental blame. Rather, it shows that parents need preparation as co-regulators. Communication barriers, low health literacy, uncertainty about fasting or analgesia, and lack of confidence in the anaesthesia plan can heighten parent anxiety and then amplify child distress. Reviews focused on parents support interventions that prepare caregivers before the day of surgery and give them a defined calming role [14].

Environment and process factors include long waiting time, noisy transfer routes, bright theatre lighting, visible equipment, staff turnover, and rushed explanations. Studies on multimedia education, picture books, cartoon videos, tablet games, and virtual reality demonstrate that anxiety is sensitive to how children experience the waiting period and induction sequence [6,8-12,16,17].

Outpatient surgery may reduce hospital exposure yet compress assessment, education, and separation into a short time, leaving little opportunity for gradual adjustment. Conversely, inpatient surgery may involve more anticipatory worry, disrupted sleep, and repeated conversations about risk. The same child may therefore need a different anxiety plan depending on timing and setting.

VI. ASSESSMENT AND STRATIFICATION

Effective management begins with measurement. Unstructured clinical judgement frequently underestimates children who appear quiet but internally distressed and overestimates children who are active but coping. Validated observational tools improve consistency by rating activity, vocalisation, emotional expression, arousal, and interaction with caregivers.

The modified Yale scale and its short form are widely used in research, while parental state anxiety measures help identify family risk [1,2,9]. However, tool selection should be pragmatic. A busy day-surgery unit may use brief screening questions plus observation, whereas research and quality improvement projects should use standardised instruments.

Risk stratification should occur before the day of surgery when possible. High-risk features include age below six years, developmental or communication difficulty, previous distress during healthcare, parental anxiety, anticipated mask induction, long waiting time, painful surgery, and limited language

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concordance with staff. Stratification matters because low-risk children may need simple reassurance and play, whereas high-risk children may need a combined plan involving preparation media, parent coaching, sensory rehearsal, topical analgesia for cannulation, distraction during transfer, premedication, and proactive recovery monitoring.

Table 1. Major anxiety determinants and likely anaesthesia outcome implications.

Determinant	Clinical meaning	Likely outcome implication
Younger age	Limited procedural understanding and high dependence on caregiver cues	Separation distress, mask refusal, poorer induction cooperation
Parental anxiety	Caregiver distress transmitted through voice, posture, facial expression, and uncertainty	Higher child anxiety, lower family satisfaction, need for parent coaching
Previous negative healthcare	Learned association between perioperative cues and threat	Anticipatory fear, resistance, behavioural disturbance after discharge
Low sociability or developmental difficulty	Reduced flexibility in unfamiliar, sensory-intense environments	Need for tailored preparation, sensory planning, and possible anxiolysis
Waiting area and theatre stressors	Noise, light, delay, visible equipment, and rushed communication	Escalation of distress immediately before induction

VII. ANXIETY AND ANAESTHESIA INDUCTION OUTCOMES

Induction is the point at which anxiety most directly becomes an anaesthetic outcome. A distressed child may resist separation, refuse preoxygenation, push away the mask, move during intravenous cannulation, or require firm holding. These behaviours can prolong induction and increase staff cognitive load.

Difficult induction also increases parental distress and may create a memory that worsens subsequent procedures. Randomised evidence indicates that interventions combining familiarisation, active distraction, and preparation can reduce anxiety and improve cooperation during induction [6-12]. The clinical message is not that one device is universally superior, but that attention must be redirected from threat to mastery.

The mode of induction modifies anxiety expression. Mask induction avoids needle pain but can provoke claustrophobic fear, smell aversion, and panic when the mask touches the face. Intravenous induction avoids mask resistance but may intensify needle fear if topical anaesthetic, explanation, and distraction are not available.

Mask rehearsal, playful exposure, scent choice, child-led handling of the mask, and video game distraction can improve acceptance [7]. For children with previous negative inductions, even routine equipment may function as a trigger, making anticipation and graded exposure essential.

VIII. ANXIETY, EMERGENCE DELIRIUM, AND RECOVERY BEHAVIOUR

Emergence delirium is a particularly important recovery outcome because it combines agitation, inconsolability, disorientation, and risk of self-injury soon after anaesthesia. Recent observational and review literature continues to discuss preoperative anxiety as a contributor, although emergence delirium is multifactorial and influenced by age, volatile agents, pain, surgery type, temperament, and medication [13,15,21,27].

Studies of video, virtual reality, tablet, and melatonin-based strategies suggest that anxiety reduction may reduce emergence disturbance in some contexts, but findings are not uniform [10,16,18,23]. This heterogeneity argues for combined outcome measurement rather than assuming that lower preoperative anxiety automatically prevents delirium.

Postoperative maladaptive behaviour includes nightmares, separation anxiety, eating difficulties, sleep disturbance, irritability, regression, and fear of healthcare encounters. Although much foundational work predates the current review window, contemporary narrative evidence still highlights behavioural recovery as a major consequence of perioperative distress [13,30].

Behavioural changes may be overlooked because the child is discharged before symptoms develop. Follow-up calls, parent information sheets, and clear instructions about when to seek help are therefore part of anxiety care, not administrative extras.

IX. ANXIETY AND POSTOPERATIVE PAIN

Preoperative anxiety can alter pain outcomes through attention, expectation, stress arousal, and reduced coping. A frightened child may interpret normal postoperative sensations as danger, report higher pain, require more rescue analgesia, or resist mobilisation. Recent evidence linking child anxiety and parental anxiety with postoperative pain supports the need to integrate anxiety reduction with multimodal analgesia rather than treating them as separate pathways [27].

Pain control also affects delirium; severe pain may mimic, worsen, or be mistaken for emergence agitation. Recovery nurses therefore need both pain and delirium assessment, particularly in children known to be anxious before induction.

The clinical implication is that preoperative anxiety screening should trigger analgesic planning. High-anxiety children may benefit from anticipatory education about pain scales, parental coaching on comfort behaviours, scheduled non-opioid analgesia when appropriate, regional techniques for painful procedures, and early treatment of nausea, thirst, and environmental overstimulation. These actions reduce the cumulative burden of threat signals. The goal is not sedation alone; it is a perioperative experience in which the child can understand, cooperate, recover, and return home without avoidable fear.

X. INTERVENTION EVIDENCE

Preparation interventions seek to reduce uncertainty before the child reaches the induction area. Age-appropriate education, animated picture books, child-life preparation, multimedia modules, and home-initiated digital education help children rehearse what will happen and give parents a shared script [6,8,11].

Such interventions are most useful when they are concrete, honest, brief, and aligned with the child's developmental stage. Overly technical explanations may increase anxiety, while vague reassurance may reduce trust. Children need to know what they will see, hear, smell, and feel, and what they can do to help themselves.

Distraction interventions aim to compete with threat attention during waiting, transfer, and induction. Video games, tablet computers, cartoon videos, immersive virtual reality, and audiovisual technologies can reduce anxiety scores in selected populations [7,9,10,12,16,17,20].

Active distraction appears particularly useful because it gives the child a task and a sense of control. Nevertheless, distraction must be safe, infection-conscious, compatible with monitoring, and easily stopped if airway management requires full cooperation. It should not replace communication; rather, it should support a calm, predictable induction sequence.

Parental involvement remains important but should be purposeful. Parental presence alone has variable effectiveness, especially when caregivers are themselves highly anxious. Recent literature suggests that parent coaching, family-centred preparation, and parental anxiety interventions may be more valuable than simply allowing a parent to stand in theatre without guidance [14,22].

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A parent should know where to stand, what to say, how to model breathing, when to step back, and how the team will support them. If a parent is overwhelmed, an alternative co-regulation strategy may be kinder and safer.

Pharmacological anxiolysis remains appropriate for selected children. Midazolam, dexmedetomidine, melatonin, ketamine, and newer oral formulations have been investigated in different settings [18,19,23,24].

Medication may be necessary for severe separation anxiety, developmental disability, prior traumatic induction, or when non-pharmacological preparation is impractical. However, medication should be integrated with psychological preparation and analgesia. Sedation can reduce observable distress but may not address parental worry, future avoidance, or postoperative behavioural concerns unless the whole perioperative pathway is managed.

Table 2. Evidence-informed preventive strategies for anxiety-linked anaesthesia outcomes.

Strategy	Best use	Outcome target
Age-matched preparation	Before admission or during preoperative assessment	Lower uncertainty and improve trust
Mask exposure and rehearsal	Mask induction, previous mask fear, preschool children	Improve acceptance of face mask and induction compliance
Active distraction	Waiting, transfer, cannulation, and induction	Reduce threat attention and resistance
Parent coaching	Anxious families or planned parental presence	Improve co-regulation and reduce inconsistent reassurance
Selected medication	Severe anxiety, developmental vulnerability, failed non-drug measures	Prevent traumatic induction while preserving safe recovery
Recovery surveillance	Known high anxiety, painful surgery, volatile anaesthesia	Detect pain, delirium, nausea, and maladaptive behaviour early

XI. PROPOSED PREVENTIVE CARE BUNDLE

A preventive care bundle translates evidence into repeatable practice. The proposed bundle includes five linked components: identify, prepare, distract, coordinate, and recover. Identification involves brief anxiety screening for child and parent, review of previous anaesthesia experience, and assignment of risk level.

Preparation includes a developmentally tailored explanation, honest sensory rehearsal, and a caregiver script. Distraction involves active play, tablet, story, music, or immersive media chosen according to age and procedure. Coordination includes a team plan for transfer, induction, parent positioning, and rescue anxiolysis. Recovery includes pain prevention, delirium screening, and behavioural advice.

Figure 2. Outcome-focused preventive care bundle for reducing anxiety-linked paediatric anaesthesia complications.

The bundle should be measured using a limited dashboard. Suggested metrics include preoperative anxiety score, induction compliance, restraint or rescue medication use, emergence delirium score, pain score, nausea, unplanned admission, parent satisfaction, and post-discharge behavioural concerns. Measuring these outcomes allows teams to determine whether anxiety management improves safety and experience rather than merely adding another preoperative task. It also enables

benchmarking across surgical specialties, time periods, and patient groups.

XII. DISCUSSION

The reviewed evidence supports three conclusions. First, preoperative anxiety is common, clinically visible, and associated with several adverse anaesthesia outcomes [1,2,13]. Second, anxiety is not evenly distributed; it clusters in younger children, anxious families, children with low sociability, those with prior negative medical experiences, and settings with limited preparation time [1-5]. Third, anxiety is modifiable, but the best intervention depends on developmental stage, family characteristics, induction method, staffing, and procedure type [6-12,16,20].

The field still faces important limitations. Many trials are small, single-centre, and unable to blind participants or clinicians. Outcomes are measured at different times, using different versions of anxiety, compliance, delirium, and pain instruments. Some studies show short-term anxiety reduction without demonstrating clear recovery benefits. Others measure parental satisfaction but not child behaviour after discharge.

The implication for future work is clear: paediatric anxiety studies should include a core outcome set extending from preoperative assessment to home recovery. This would permit stronger comparisons between preparation, distraction, parental coaching, and medication.

The most defensible clinical position is to treat preoperative anxiety as a modifiable risk factor rather than a normal inconvenience. A child who is calm during induction is not only easier to anaesthetise; that child is more likely to experience the perioperative episode as understandable and manageable. A parent who knows the plan is more likely to co-regulate effectively. A team with a shared anxiety pathway is less likely to rely on last-minute restraint or inconsistent reassurance. These human factors are central to safe paediatric anaesthesia.

XIII. IMPLICATIONS FOR PRACTICE AND RESEARCH

Clinical services should develop tiered anxiety pathways. Low-risk children may require routine explanation, play materials, and supportive family presence. Moderate-risk children may need a structured preparation video, mask practice, active distraction, or nurse-led coaching.

High-risk children may need preoperative planning with anaesthesia, psychology, child-life specialists, interpreters, and pharmacological anxiolysis. Pathways should be feasible in ambulatory settings and adaptable for emergency surgery, where preparation time is brief but distress can still be mitigated through calm language, parent coaching, and environmental control.

Future research should compare bundled interventions with usual care using sufficiently powered, multicentre designs. Studies should report baseline child and parental anxiety, developmental characteristics, induction method, analgesic strategy, delirium assessment, postoperative pain, and behavioural follow-up.

Economic outcomes are also needed because anxiety affects theatre efficiency, staffing, recovery workload, and cancellations. Digital tools require evaluation for equity, language access, data security, infection control, and sensory tolerability. Children with autism, developmental delay, chronic illness, or repeated anaesthesia exposure deserve targeted studies rather than exclusion from anxiety research.

XIV. CONCLUSION

Preoperative anxiety plays a substantial role in paediatric anaesthesia outcomes. It influences induction behaviour, stress physiology, emergence quality, postoperative pain, family experience, and later behaviour. Contemporary evidence identifies younger age, parental anxiety, previous negative medical experience, low sociability, and setting-related stress as important risk signals.

The strongest approach is not a single intervention but an integrated pathway that screens early, prepares

both child and parent, provides active distraction, coordinates the induction environment, and measures recovery. When anxiety is managed as a modifiable clinical exposure, paediatric anaesthesia becomes safer, calmer, and more humane.

XV. IMPLEMENTATION CONSIDERATIONS

Implementing anxiety-focused paediatric anaesthesia care requires a shift from individual enthusiasm to reliable systems. A pathway should begin at booking, when families receive short, accurate information about fasting, analgesia, separation, induction options, and expected recovery. Digital materials can be sent before admission, but they should be available in print and in common local languages to avoid excluding families with limited internet access.

Pre-assessment staff should identify risk signals, ask parents what has previously helped their child, and document triggers such as needle fear, mask fear, sensory sensitivity, nausea, traumatic care, or communication difficulty. This information must be visible on the day of surgery, because anxiety care fails when data collected in clinic are not transferred to the theatre team. For children with complex needs, a brief huddle can allocate roles: who speaks to the child, who coaches the parent, who manages distraction, and what rescue plan will be used if the first strategy fails.

A practical pathway also needs staff training. Communication during anxiety is a technical skill, not simply kindness. Children should be given concrete choices that do not compromise safety, such as choosing the scent of a mask, the game to play, the arm for blood pressure, or the song during transfer. Staff should avoid false reassurance, threats, repeated commands, and unnecessary procedural detail.

Parents need coaching because their natural instinct to say "do not be afraid" may unintentionally confirm danger. More helpful scripts include slow breathing together, narrating the next simple step, praising cooperation, and reminding the child of an agreed coping task. Simulation can help teams practise induction with an anxious child, an anxious parent, a device distraction plan, and a sudden need to convert from routine to urgent airway management.

Equity must be part of implementation. Anxiety risk is increased when families cannot understand staff, when written material is culturally unfamiliar, or when neurodevelopmental needs are missed.

Interpreter access, visual schedules, quiet waiting spaces, sensory kits, and flexible parental presence policies are therefore patient-safety tools. Children with autism, attention difficulties, intellectual disability, or chronic illness may need a personalised plan that includes reduced waiting, familiar objects, minimal staff changes, and predictable language.

Adolescents require a different approach, with privacy, autonomy, and honest discussion of pain, nausea, awareness, body exposure, and loss of control. A single paediatric leaflet cannot meet all these needs; services require tiered materials and clinician judgement.

Quality assurance should connect anxiety interventions to outcomes that matter. A service may believe it is family-centred yet still have high rates of distress, restraint, emergence agitation, or postoperative phone calls about sleep and behaviour.

Routine measurement should be small enough to sustain: a brief preoperative anxiety score, induction compliance, rescue anxiolysis, pain in recovery, delirium screening, and parental confidence at discharge. Monthly review can identify whether particular lists, specialties, times of day, or patient groups need additional preparation. The objective is not to remove all fear, which is unrealistic, but to prevent avoidable distress and to make each child’s encounter with anaesthesia coherent, supported, and recoverable.

Leadership support determines whether the pathway survives beyond early adoption. Managers should allocate time for staff education, approve safe device-cleaning procedures, purchase durable distraction equipment, and ensure that anxiolytic prescribing policies are clear.

Pharmacy input is needed when oral premedication, melatonin, dexmedetomidine, or midazolam formulations are considered. Recovery nurses should be included because they observe the consequences

of induction distress through pain, crying, delirium, and parental concern. Surgeons also influence anxiety by explaining the operation in language that matches the anaesthetic plan and by avoiding last-minute contradictory instructions. When each discipline sees anxiety as shared clinical work, the child receives one consistent message rather than several disconnected explanations.

Documentation should be brief but meaningful. A useful record states the child's baseline coping style, preferred preparation strategy, presence or absence of parental anxiety, induction method, response to intervention, and recovery concerns. This record becomes especially valuable for repeat procedures, where a successful plan can be reproduced and a traumatic plan can be avoided.

Families should be invited to contribute because they know the child's cues better than staff. After discharge, short follow-up questions about sleep, appetite, separation, play, and fear of medical settings can identify children who need additional support. These data also help teams learn which interventions have durable benefit.

Research translation should remain cautious. A new device or preparation video may produce impressive anxiety scores in a trial, yet fail in practice if staff are not trained, Wi-Fi fails, the headset does not fit, the child has sensory intolerance, or cleaning rules delay turnover. Conversely, low-cost methods such as a calm script, a familiar toy, or parent-guided breathing may have strong value when used consistently.

The most mature services will not copy interventions blindly; they will test them locally, monitor outcomes, and adapt them to culture, staffing, architecture, and patient mix. In this sense, anxiety management is both evidence-based and context-sensitive.

Ethical implementation also requires proportionality. Some anxiety is an understandable response to surgery and should not be overmedicalised. The concern is persistent, intense, or escalating distress that interferes with safe care or recovery. Teams should respect the child's assent where possible, explain necessary limits, and avoid restraint except when safety demands it. When restraint is unavoidable, it should be brief, documented, explained to the family, and followed by recovery support. This approach protects children from both undertreatment and excessive intervention.

Finally, services should recognise that anxiety care improves professional experience. Calm inductions reduce conflict, moral distress, and time pressure for staff. They also build parental trust, which is crucial when complications, delays, or changes in plan occur.

A well-designed anxiety pathway is therefore not a cosmetic addition to paediatric anaesthesia. It is a quality marker that reflects preparation, communication, analgesia, recovery surveillance, and respect for the child as a developing person. Over time, the same pathway can support education, audit, research, and safer repeated care for vulnerable children.

In units with limited resources, the pathway can begin with one reliable screening question, one preparation script, one distraction option, and one recovery check. Small dependable steps are preferable to ambitious policies that collapse during busy lists. Sustainability grows when families and staff can see calmer inductions and smoother recovery. These modest gains can accumulate into safer, kinder perioperative systems for children and families.

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