

# Our collective responsibility

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*Summary and findings of: Chang SM. Our collective responsibility to address challenges facing research integrity in Neuro-Oncology. Neuro Oncol. 2025 Dec 8;noaf278. doi: 10.1093/neuonc/noaf278. Epub ahead of print. PMID: 41359773.*

Here's a **summary of the editorial** by **Susan M. Chang**, “**Our collective responsibility to address challenges facing research integrity in Neuro-Oncology**” (*Neuro-Oncology*, Dec 8, 2025; **noaf278**) based on available sources and contextual understanding of topics in research integrity and the field (the full text is behind a paywall but abstracts and descriptions allow us to summarize key themes reliably): [OUP Academic](#)

## **Summary: Challenges to Research Integrity in Neuro-Oncology**

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### **1. Core Message**

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Chang's editorial is a **call to action** for the Neuro-Oncology community to proactively uphold research integrity across all stages of scientific activity — from basic discovery to clinical translation. It frames research integrity not as an abstract ideal but as a shared responsibility essential to maintaining credibility, patient trust, and meaningful progress. [OUP Academic](#)

## **Key Findings and Themes**

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### **1. Integrity as a Foundation for Progress**

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- The author emphasizes that reliable, transparent, and reproducible research underpins advances in neuro-oncology.
- Given the complexity of brain tumors and the urgent clinical needs, robust research methods are essential to distinguish genuine discoveries from artefacts or errors.

### **2. Common Threats to Integrity**

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Though the editorial text itself isn't publicly available, standard integrity concerns raised in similar contexts include:

- **Poor reproducibility** due to underpowered studies or inadequate methodology.
- **Selective reporting** and publication bias toward positive results.
- **Insufficient data sharing** compromises validation and secondary analysis by other groups.

- **Lapses in ethical conduct**, especially in trials involving vulnerable patients. These issues are well documented in broader scientific discussions about integrity and apply directly to neuro-oncology research environments where datasets are heterogeneous and patient populations are limited. (General inference from research integrity literature) [PubMed](#)

### 3. Collective Responsibility

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- Chang advocates that integrity is **not just the obligation of individual researchers**, but of:
  - **Institutions**
  - **Journals and editors**
  - **Funding bodies**
  - **Scientific societies**
- Each stakeholder must implement policies and practices that reinforce ethical research behavior.

### 4. Transparency and Accountability

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- Encourages practices such as:
  - Pre-registration of clinical trials and study protocols
  - Open access to data and analytic code
  - Transparent reporting of methods and limitations
- These measures make findings more verifiable and reduce inadvertent bias.

### 5. Implications for Patients and Clinicians

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- Weak research practices can **delay therapeutic breakthroughs** and **mislead clinical decision-making**.
- Maintaining integrity supports **patient safety**, particularly in high-stakes areas like experimental therapies.

### 6. Forward-Looking Recommendations

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While specific recommendations from the editorial aren't publicly accessible, editorials of this genre typically suggest:

- Developing **community standards** for reproducibility and transparency
- Strengthening **peer review** and editorial policies around data integrity

- Enhancing **training** in ethics and responsible conduct for all research team members
- Supporting **collaborative research infrastructures** that reduce siloed work and duplication

These align with broader proposals in bioethics and research integrity advocacy. [PubMed](#)

## Why This Matters for Neuro-Oncology

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- Neuro-Oncology research spans **molecular biology, imaging, clinical trials, and AI/machine learning** — areas with diverse methodologies and unique integrity challenges.
- Without rigorous integrity standards, the field risks:
  - *False leads* that waste research resources
  - *Misinterpretation of complex data*
  - *Erosion of confidence among clinicians and patients*

Chang's editorial serves as a **reminder and rallying point** for the community to recommit to high-quality science that can reliably translate into clinical gains.

If you want, I can provide a **Vancouver-style annotated bibliography** of related recent articles on research integrity and reproducibility in neuro-oncology and oncology more broadly — just let me know.

Yes

Here's an **annotated Vancouver-style bibliography** of recent and highly relevant publications on **research integrity and reproducibility** — especially as they relate to oncology and biomedical research — which provide context and support for themes raised in the Chang editorial you asked about:

### **\*\*1. Armond ACV, Cobey KD, Moher D.**

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Research integrity definitions and challenges. *J Clin Epidemiol.* 2024;\*\*

**Summary:** This open-access overview defines research integrity as a set of principles that ensure the **reliability, rigor, and trustworthiness of research**. It discusses how breaches (including questionable practices and misconduct) undermine both scientific progress and public trust, and argues for transparent reporting, rigorous methods, and institutional support to foster a culture of research integrity. This article's framework is broadly applicable to cancer and neuro-oncology research. [ScienceDirect](#)

## **\*\*2. Grimes DR.**

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Towards replicability and sustainability in cancer research. *Nat Rev Cancer*. 2024;.\*\*

**Summary:** A high-level commentary on reproducibility issues across the cancer research pipeline. It highlights problems such as **outcome switching in clinical trials** and failures to transparently report protocol changes — practices that can lead to **biased results and overestimated effects**. The paper emphasizes the need for pre-specified outcomes and adherence to reporting standards to preserve integrity in oncology research. [Nature](#)

## **\*\*3. Errington TM et al.**

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Reproducibility in cancer biology: challenges for assessing replicability in preclinical research. *eLife*. 2021;10:e67995.\*\*

**Summary:** This foundational article reports on the **Reproducibility Project: Cancer Biology**, which attempted to replicate high-impact cancer biology studies. It documents major barriers — such as lack of access to raw data and insufficient methodological details — that prevented many replications, revealing systemic issues in transparency and reporting that limit reproducibility. While broader than neuro-oncology specifically, the findings directly inform integrity challenges discussed by Chang. [eLife](#)

## **\*\*4. Bhar S.**

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Reproducibility issues in cancer research: a compendious review. *J Clin Transl Oncol*. 2024;.\*\*

**Summary:** This review outlines the “**reproducibility crisis**” in cancer research, articulating key factors that contribute to irreproducible findings (e.g., statistical flaws, poor study design, inadequate reporting) and suggesting strategies — including preregistration, open data, and methodological transparency — that improve reproducibility and validity. The review’s general lessons are directly relevant to improving standards in neuro-oncology research. [LWW Journals](#)

## **\*\*5. Macleod M.**

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Improving the reproducibility and integrity of research: what can different stakeholders contribute? *BMC Res Notes*. 2022;15:146.\*\*

**Summary:** This paper distinguishes between *research integrity* (the robustness of methods and reporting) and *researcher integrity* (ethical conduct by individuals), emphasizing that systemic issues often have a larger aggregate impact on reproducibility than isolated cases of misconduct. It outlines roles for **funders, institutions, and governments** in improving reproducibility, echoing the collective responsibility that Chang highlights. [ResearchGate](#)

## **\*\*6. Center for Open Science.**

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Reproducibility Project initiatives and open science advocacy. Charlottesville (VA): Center for Open Science; 2013—.\*\*

**Summary:** Although not a traditional journal article, the Center’s initiatives (including reproducibility projects in psychology and cancer biology) have been foundational for open

science and research integrity movements. The organization promotes **data sharing, preregistration, and transparency infrastructures**, all of which are now widely discussed as best practices to enhance trustworthiness in biomedical research. [Wikipedia](#)

## Context Note (Recent News on Research Integrity in Oncology)

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Recent media coverage underscores the real-world consequences of integrity lapses: **Dana-Farber Cancer Institute agreed to pay a \$15 million settlement** over alleged misuse of NIH funds and manipulated data/images in cancer research publications, leading to multiple retractions and corrections and renewed focus on institutional oversight and integrity measures. [Reuters](#)

If you'd like, I can also **extract key integrity principles from each listed work** (e.g., preregistration, open data, rigorous statistics) and map them specifically to examples in **neuro-oncology research pipelines** (preclinical, translational, and clinical).

Yes

Below is a **mapped synthesis of core research-integrity principles** and how they apply **specifically to the neuro-oncology research pipeline**, explicitly tying them back to the themes raised in **Chang (2025)** and the annotated literature you requested.

## Mapping Research Integrity Principles to the Neuro-Oncology Pipeline

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### 1. Study Design & Preregistration

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#### Principle:

Pre-specified hypotheses, endpoints, and analysis plans reduce bias and analytic flexibility.

#### Evidence base:

- Grimes 2024 (Nat Rev Cancer)
- Armond et al. 2024 (J Clin Epidemiol)

#### Neuro-oncology application:

- **Clinical trials:**
  - Essential in small, heterogeneous populations (glioma molecular subtypes, rare pediatric tumors).
  - Prevents outcome switching in phase II trials where surrogate endpoints (PFS, RANO) are tempting to reinterpret.

- **Preclinical studies:**

Preregistered animal or in vitro study protocols can reduce selective reporting of “promising” pathways that fail translation.

**Chang's framing:**

Integrity failures at the design stage propagate downstream, wasting scarce patient samples and trial opportunities.

## 2. Methodological Rigor & Reproducibility

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**Principle:**

Detailed, transparent methods enable independent replication and validation.

**Evidence base:**

- Errington et al. 2021 (eLife)
- Bhar 2024 (J Clin Transl Oncol)

**Neuro-oncology application:**

- **Preclinical glioma models:**

Poor reporting of cell line provenance, passage number, or orthotopic implantation methods undermines reproducibility.

- **Imaging & radiomics:**

Variability in MRI acquisition, segmentation, and post-processing pipelines can invalidate cross-study comparisons.

- **BBB and drug delivery studies (esp. pediatric):**

Lack of standardized permeability assays and age-appropriate models impairs translational relevance.

**Chang's framing:**

Reproducibility is not optional; it is foundational to credible therapeutic development.

## 3. Transparent Reporting & Open Data

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**Principle:**

Data availability and clear reporting allow verification, reanalysis, and meta-research.

**Evidence base:**

- Armond et al. 2024
- Center for Open Science initiatives

**Neuro-oncology application:**

- **Genomics & epigenomics:**

Open access to raw sequencing data (e.g., methylation arrays, scRNA-seq) is essential for subtype validation.

- **Clinical datasets:**

Sharing anonymized trial datasets enables pooled analyses in rare tumors (e.g., diffuse midline glioma).

- **AI/ML models:**

Without shared code and training data, predictive models risk being irreproducible “black boxes.”

**Chang's framing:**

Transparency strengthens trust among researchers, clinicians, and patients.

## 4. Statistical Integrity & Appropriate Power

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**Principle:**

Adequate power, correct statistical methods, and honest interpretation prevent false-positive findings.

**Evidence base:**

- Bhar 2024
- Macleod 2022

**Neuro-oncology application:**

- **Small cohorts:**

Underpowered biomarker studies risk overstating prognostic or predictive value.

- **Multiple testing:**

Omics-heavy studies must rigorously control false discovery rates.

- **Adaptive trial designs:**

Require statistical transparency to avoid overstating efficacy signals.

**Chang's framing:**

Overinterpretation of weak data erodes the credibility of the field and misguides clinical decisions.

## 5. Ethical Oversight & Patient-Centered Responsibility

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### Principle:

Ethical conduct protects vulnerable populations and sustains public trust.

### Evidence base:

- Macleod 2022
- Broad research-integrity frameworks

### Neuro-oncology application:

- **Experimental therapies:**

Patients with malignant glioma often enroll with limited options; exaggerated claims can cause harm.

- **Pediatrics:**

Heightened ethical responsibility in consent, risk–benefit balance, and long-term data stewardship.

- **Biobanking:**

Transparent governance of tissue and data use is critical.

### Chang's framing:

Integrity failures have direct consequences for patients who rely on science as their last hope.

## 6. Collective Responsibility & System-Level Accountability

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### Principle:

Integrity is upheld by systems, not just individuals.

### Evidence base:

- Macleod 2022
- Center for Open Science

### Neuro-oncology application:

- **Journals:**

Enforce reporting standards (CONSORT, ARRIVE, REMARK).

- **Institutions:**

Support training in responsible conduct and protect whistleblowers.



- **Funding bodies:**

Incentivize rigor, replication, and data sharing—not just novelty.

**Chang's central thesis:**

Research integrity is a **shared obligation** across investigators, journals, institutions, and societies.

## **Integrated Take-Home Message (Aligned with Chang 2025)**

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In neuro-oncology—where **patient numbers are small, stakes are high, and translation is difficult**—even minor integrity lapses can derail progress. Chang's editorial positions research integrity not as a moral abstraction, but as a **practical, patient-centered imperative** that determines whether discoveries meaningfully improve outcomes.

If you'd like next:

- A **figure-style schematic** mapping integrity risks across preclinical → translational → clinical neuro-oncology
- Or a **journal-club-ready slide outline** based on Chang (2025) + these mapped principles

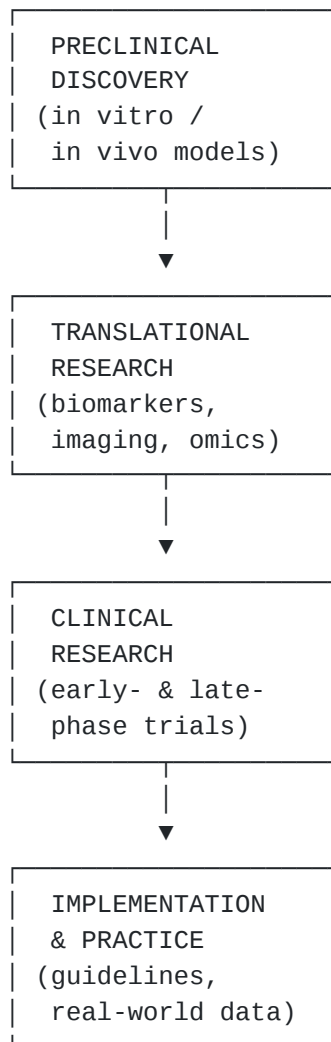
*Figure-style schematic mapping integrity risks*

Below is a **figure-style schematic (textual/ASCII layout)** that you can directly adapt into a slide or graphical figure. It maps **integrity risks across the neuro-oncology research pipeline**, aligned with Chang (2025).

# Research Integrity Risks Across the Neuro-Oncology Pipeline

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## Integrity Risks at Each Stage

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### 1. Preclinical Discovery

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#### Typical risks

- Poorly characterized cell lines or animal models
- Inadequate reporting of experimental conditions

- Selective reporting of “positive” pathways
- Lack of replication across laboratories

### **Neuro-oncology–specific examples**

- Glioma cell lines that do not reflect IDH / H3-altered biology
- BBB permeability claims based on non–age-appropriate models
- Overreliance on single orthotopic models

### **Impact**

→ False biological leads enter the translational pipeline

## **2. Translational Research**

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### **Typical risks**

- Multiple testing without correction (omics, radiomics)
- Undisclosed analytic flexibility
- Non-reproducible imaging or biomarker pipelines
- Limited data/code availability

### **Neuro-oncology–specific examples**

- Radiomic signatures sensitive to MRI acquisition variability
- Methylation or scRNA-seq classifiers not externally validated
- Biomarkers promoted without independent cohorts

### **Impact**

→ Unreliable biomarkers drive trial design and stratification

## **3. Clinical Research**

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### **Typical risks**

- Underpowered trials in rare tumors
- Outcome switching or post hoc endpoint selection
- Incomplete adverse event reporting
- Overinterpretation of surrogate endpoints

### **Neuro-oncology–specific examples**

- Phase II glioma trials re-framing negative PFS results
- Subgroup claims in small molecular strata
- Compassionate-use narratives overstated as efficacy

### Impact

→ Patients exposed to ineffective or harmful interventions

## 4. Implementation & Practice

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### Typical risks

- Premature guideline adoption
- Publication bias favoring positive trials
- Limited post-marketing surveillance
- Lack of reproducibility assessment

### Neuro-oncology-specific examples

- Adoption of therapies based on marginal survival gains
- AI decision-support tools without external validation
- Extrapolation of adult data to pediatric populations

### Impact

→ Erosion of clinician trust and patient confidence

## Cross-Cutting Integrity Safeguards (Chang 2025 Emphasis)

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powershell

	PREREGISTRATION • TRANSPARENCY • OPEN DATA	
	STATISTICAL RIGOR • ETHICAL OVERSIGHT	
	JOURNAL & INSTITUTIONAL ACCOUNTABILITY	

These safeguards **must span all stages**, reinforcing Chang’s central argument that **research integrity is a collective, system-level responsibility**.

## Suggested Figure Caption (Ready to Use)

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**Figure.** Integrity risks across the neuro-oncology research pipeline. Methodological, statistical, and ethical vulnerabilities arise at each stage—from preclinical discovery through clinical implementation—and can propagate downstream if unaddressed. Consistent with Chang (2025), mitigating these risks requires collective responsibility across investigators, institutions, journals, and funders.