The Impact of Quality Assurance Strategies on Patient Outcomes in Interventional Radiology

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Background

- Quality assurance (QA) strategies are essential to optimize patient outcomes in interventional radiology (IR).
- Key QA domains include radiation safety protocols (e.g., ALARA, DRLs), process standardization, audit mechanisms, and integration of patient-reported outcomes (PROs).
- The review highlights effective practices and identifies gaps for clinicians and policy developers.

Methods

- Comprehensive review of peer-reviewed articles, systematic reviews, RCTs, cohort studies, and observational studies.
- Sources were analyzed for their impact on clinical performance, patient safety, and satisfaction.
- Key Quality Assurance Strategies Reviewed:
  - Radiation safety protocols (ALARA, DRLs).
  - Checklist-driven standardization.
  - VR-based simulation training
  - Audit systems and outcome tracking

Results

- Radiation safety protocols reduced patient radiation exposure by 20–25%.
- Checklist-driven standardization reduced procedural complications and delays by 25–30%.
- VR-based training improved technical competency in 80% of reviewed studies.
- Less than 15% of IR studies integrated patient-reported outcomes (PROs).
- Compared to radiotherapy and diagnostic radiology, IR lacks standardized QA and PRO metrics.

Figure 1. Impact of Quality Assurance Strategies on Key Patient Outcomes

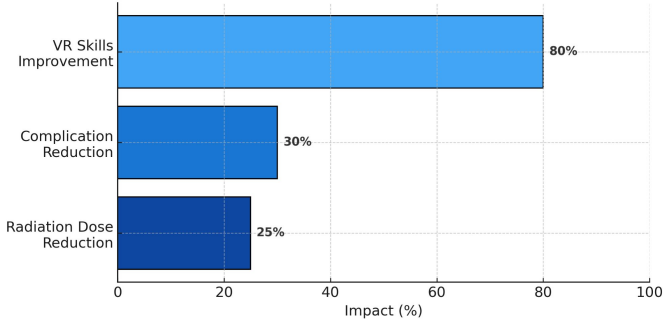
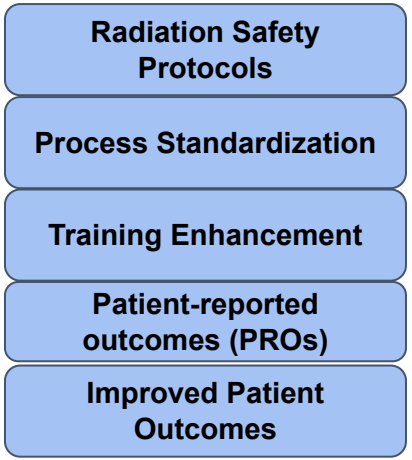


Figure 2. Pathway to Improved Patient Outcomes in Interventional Radiology



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Conclusion

- QA strategies significantly reduce complications, improve procedural success, and enhance patient satisfaction in IR.
- Gaps remain in standardizing QA benchmarks, cost-effectiveness analysis, and integration of longitudinal PROs.
- Future directions include AI-driven QA tools, expanded PRO frameworks, and long-term outcome studies for patient-centered care.