

AIHQSP Exam Content Outline (ECO)

Artificial Intelligence in Healthcare Quality & Safety Professional (AIHQSP)

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01 Purpose of the Exam Content Outline

The Exam Content Outline (ECO) expands the AIHQSP Examination Blueprint and defines the knowledge areas and professional task competencies expected of individuals responsible for overseeing, governing, and continuously improving artificial intelligence technologies in healthcare environments.

The ECO guides examination development, question writing, candidate preparation resources, and study materials associated with the AIHQSP certification program. The domains presented in this document represent competency areas relevant to professionals responsible for clinical AI safety, governance, risk management, regulatory compliance, and quality improvement of AI-enabled healthcare systems.

These competencies reflect professional responsibilities associated with the design, implementation, monitoring, and governance of artificial intelligence technologies used in healthcare delivery.

02 Relationship Between the ECO and the Examination Blueprint

The AIHQSP Examination Blueprint defines the twelve major domains assessed in the certification examination and the relative weighting assigned to each domain. The Exam Content Outline expands those domains by specifying the detailed content assessed within each competency area.

For each domain, the ECO defines two categories of content:

- Knowledge Statements — describing the concepts, principles, and frameworks that candidates must understand to demonstrate competence in each domain.
- Task Statements — describing the professional activities, responsibilities, and applied skills associated with the safe implementation, monitoring, and governance of healthcare AI systems.

The ECO serves as the primary foundation for examination question development, study guide content, and candidate preparation materials. Candidates preparing for the AIHQSP examination should review both the Blueprint and the ECO to understand the full scope and depth of content assessed.

Each domain in the ECO is presented as a two-column table. The left column lists Knowledge Statements — what candidates must know. The right column lists Task Statements — what candidates must be able to do.

Domain 1 Clinical AI Safety Science

Knowledge Statements

Task Statements

— AI model failure modes in clinical systems	— Identify potential AI failure modes in clinical workflows
— Concept drift and model degradation	— Evaluate risks associated with model drift and degradation
— Silent errors in AI-enabled clinical tools	— Recognize indicators of silent AI errors in deployed systems
— Edge cases and rare clinical conditions	— Recommend monitoring strategies for deployed AI models
— AI safety monitoring principles	— Assess safety implications of edge cases in clinical AI
— Early warning indicators of system failure	— Design escalation protocols for detected AI failures

Domain 2 Algorithmic Accountability & Clinical Governance

Knowledge Statements	Task Statements
— Governance structures for clinical AI oversight	— Assess governance models for AI deployment and oversight
— Roles and responsibilities of oversight committees	— Evaluate adequacy of clinical AI validation procedures
— Validation and approval processes for algorithms	— Recommend accountability frameworks for AI-enabled decisions
— Documentation and auditability requirements	— Identify escalation pathways for AI-related risks
— Accountability and escalation frameworks	— Review documentation standards for AI governance compliance
— Lifecycle governance of clinical AI systems	— Support committee-level oversight of AI system performance

Domain 3 Human–AI Teaming & Cognitive Safety

Knowledge Statements	Task Statements
— Automation bias and clinician over-reliance on AI	— Identify risks of automation bias in clinical AI contexts
— Trust calibration in AI-assisted decision-making	— Evaluate trust calibration between clinicians and AI systems
— Alert fatigue and cognitive load in AI workflows	— Recommend strategies to reduce alert fatigue
— Maintaining clinical judgment in AI-supported care	— Assess cognitive safety across AI-supported workflows
— Design principles for safe human-AI collaboration	— Design human-AI collaboration frameworks for clinical settings

— Cognitive safety in high-acuity clinical environments	— Evaluate AI interface design for cognitive safety compliance
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Domain 4 Data Integrity, Bias & Representational Fairness

Knowledge Statements	Task Statements
— Dataset bias and representational imbalance in AI training	— Evaluate dataset representativeness for clinical AI systems
— Disparate performance of AI models across patient populations	— Identify sources of bias in AI model outputs
— Data quality assurance for AI training datasets	— Recommend strategies to detect and mitigate algorithmic bias
— Fairness and equity evaluation methodologies	— Assess equity impact of AI systems across patient populations
— Demographic performance analysis techniques	— Apply fairness evaluation frameworks to clinical AI tools
— Bias mitigation strategies in AI development	— Support inclusive dataset design for AI development

Domain 5 Real-World Validation & Post-Deployment Surveillance

Knowledge Statements	Task Statements
— Post-deployment monitoring approaches for clinical AI	— Evaluate monitoring strategies for deployed AI systems
— Performance drift detection methods	— Identify safety signals emerging from real-world AI use
— Safety signal identification from real-world data	— Recommend drift detection approaches for clinical environments
— Real-world validation study design	— Assess real-world AI performance against clinical benchmarks
— Surveillance frameworks for ongoing AI performance	— Design post-deployment surveillance protocols
— Clinical outcome tracking for deployed AI systems	— Report surveillance findings to governance committees

Domain 6 AI-Enabled Diagnostic & Therapeutic Risk Management

Knowledge Statements	Task Statements
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— Clinical decision support risks in AI-enabled tools	— Identify risks associated with AI-enabled diagnostic tools
— AI-assisted diagnostic and triage system risks	— Evaluate safeguards for clinical decision support systems
— Unintended clinical consequences of AI use	— Recommend mitigation strategies for clinical AI risks
— Risk mitigation strategies for clinical AI integration	— Assess safety impact of AI tools on patient outcomes
— Safeguard design for diagnostic algorithms	— Review AI-generated recommendations for clinical appropriateness
— Safety impact assessment for AI therapeutic tools	— Support safe integration of AI into therapeutic workflows

Domain 7 Regulatory, Legal & Ethical Risk in AI-Driven Care

Knowledge Statements	Task Statements
— Healthcare AI regulatory frameworks and standards	— Evaluate compliance requirements for healthcare AI systems
— Legal accountability for AI-assisted clinical decisions	— Identify legal risk exposure associated with AI-assisted decisions
— Informed consent principles in AI-enabled care	— Recommend ethical governance practices for AI deployment
— Ethical governance principles for healthcare AI	— Assess transparency and explainability requirements
— Transparency and explainability requirements	— Support informed consent processes for AI-assisted care
— Documentation obligations under regulatory frameworks	— Develop compliance documentation for regulatory requirements

Domain 8 Patient-Centered Transparency & Trust Design

Knowledge Statements	Task Statements
— Explainability of AI systems in clinical contexts	— Assess transparency mechanisms in AI-enabled clinical systems
— Patient autonomy in AI-assisted care environments	— Evaluate patient communication practices regarding AI involvement
— Disclosure of AI usage in treatment and diagnosis	— Recommend trust-building strategies for AI-assisted care
— Shared decision-making frameworks for AI-supported care	— Identify ethical disclosure requirements for AI use in care

— Patient communication design for AI transparency	— Support shared decision-making in AI-supported clinical contexts
— Trust-building mechanisms in AI-enabled healthcare	— Design patient-facing transparency processes for AI tools

Domain 9 Incident Investigation & Learning Systems

Knowledge Statements	Task Statements
— AI-related safety event investigation methodologies	— Investigate AI-related patient safety events using structured methodologies
— Root cause analysis frameworks for AI system failures	— Conduct root cause analysis for AI system failures and near-misses
— Organizational learning systems for AI safety improvement	— Recommend corrective and preventive actions following AI incidents
— Corrective and preventive action planning	— Support organizational learning systems for AI safety improvement
— Safety event reporting culture and structures	— Promote safety event reporting culture in AI-enabled environments
— Near-miss identification in AI-supported clinical environments	— Develop post-incident improvement plans for AI governance

Domain 10 Workflow Integration & Clinical Process Safety

Knowledge Statements	Task Statements
— Clinical workflow mapping for AI integration	— Evaluate AI integration within existing clinical workflows
— Human-AI orchestration in care delivery processes	— Identify workflow-related safety risks associated with AI
— Integration with electronic health record systems	— Recommend integration safeguards for AI-enabled processes
— Process safety principles for AI-enabled workflows	— Assess process safety implications of AI in care settings
— Workflow disruption risks associated with AI implementation	— Map clinical workflows to identify AI-related disruption risks
— Interoperability requirements for healthcare AI systems	— Support safe EHR and systems integration for AI tools

Domain 11 Continuous Quality Improvement for AI Systems

Knowledge Statements	Task Statements
— Quality improvement methodologies applied to AI systems	— Apply quality improvement cycles (PDSA/PDCA) to AI system performance
— Outcome measurement frameworks for AI-enabled care	— Evaluate outcome data generated by AI-enabled healthcare processes
— Performance optimization strategies for deployed AI	— Recommend iterative improvement processes for AI optimization
— Feedback loop design in AI system development	— Assess feedback mechanisms supporting ongoing AI system learning
— Model retraining protocols and governance	— Design performance dashboards for AI quality monitoring
— Continuous monitoring indicators for AI performance	— Support model retraining governance and approval processes

Domain 12 Organizational AI Readiness & Safety Culture

Knowledge Statements	Task Statements
— Leadership commitment to AI safety and governance	— Assess organizational readiness for AI system implementation
— Workforce competency development for AI adoption	— Evaluate workforce training needs for safe AI adoption
— Psychological safety and reporting culture in AI environments	— Recommend leadership governance structures for responsible AI use
— Institutional AI readiness assessment frameworks	— Promote psychological safety and reporting culture in AI settings
— Change management principles for AI implementation	— Conduct organizational readiness assessments for AI programs
— Safety culture development in AI-enabled organizations	— Support change management processes for AI adoption initiatives

03 Using This Exam Content Outline

Candidates preparing for the AIHQSP certification examination should review the knowledge and task statements for each domain to understand the full scope of competencies assessed. The ECO defines both what candidates must know and what they must be able to do — reflecting the applied, practice-oriented nature of the AIHQSP examination.

Examination questions are developed directly from the knowledge and task statements presented in this ECO. Candidates who demonstrate thorough understanding of the content described across all twelve domains, combined with the ability to apply that knowledge to realistic professional scenarios, will be well prepared for the AIHQSP examination.

Candidates are encouraged to use this ECO alongside the AIHQSP Study Guide, Examination Blueprint, and available practice examinations to build a comprehensive and structured preparation approach.

The AIHQSP ECO is the definitive reference for examination content. Candidates should treat the knowledge and task statements in each domain as the authoritative scope of what may be assessed in the certification examination.

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