



8515 Georgia Avenue, Suite 400
Silver Spring, MD 20910-3492

1.800.284.2378
301.628.5000 *tel*
301.628.5004 *fax*

www.nursecredentialing.org

Informatics Nursing Board Certification Test Content Outline - effective date: May 7, 2012

There are 175 questions on this examination. Of these, 150 are scored questions and 25 are pretest questions that are not scored. Pretest questions are used to determine how well these questions will perform before they are used on the scored portion of the examination. The pretest questions cannot be distinguished from those that will be scored, so it is important for a candidate to answer all questions. A candidate's score, however, is based solely on the 150 scored questions. Performance on pretest questions does not affect a candidate's score.

This Test Content Outline identifies the areas that are included on the examination. The percentage and number of questions in each of the major categories of the scored portion of the examination are also shown.

Category	Domains of Practice	No. of Questions	Percent
I	Information Management and Knowledge Generation	56	37.33%
II	Professional Practice	40	26.67%
III	System Life Cycle	33	22.00%
IV	Information Technology	21	14.00%
	Total	150	100%

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I Information Management and Knowledge Generation (37.33%)

A. Foundations of Nursing Informatics

Knowledge of:

1. Data (e.g., types of data, data representation, imaging)
2. Information (e.g., data aggregation and warehousing, transformation and analysis, data presentation, dashboards)
3. Knowledge (e.g., benchmarking, outcome probabilities)
4. Wisdom (e.g., knowledge application, expert decision support, evidence based practice)

B. Models and Theories – application of concepts and principles to the nursing informatics practice

Knowledge of:

1. Nursing theories
2. Novice to Expert
3. Computer science
4. Information science
5. Cognitive science
6. Systems theories
7. Behavioral theories (e.g., organizational, group dynamics)
8. Change theory
9. Communication theories
10. Adult learning theories

C. Human-Computer Interactions

Knowledge of:

1. Usability principles and concepts (e.g., usable, memorable, intuitive, efficiency, use-ability, like-ability, consistency)
2. Ergonomics

Skills in:

3. Evaluating human and computer interactions to optimize performance in the end-user environment
4. Developing screens for consistency and ease of use
5. Conducting user modeling studies (e.g., ease of use, number of errors, ease of learning)
6. Analyzing end-user acceptance of systems using human-computer interaction (HCI) principles/methods and/or validated tools.

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II Professional Practice (27.67%)

A. Nursing Informatics Practice

Knowledge of:

1. ANA scope and standards (e.g., definition, scope, functional areas, standards)
2. Ethics issues, including codes of ethics (e.g., ANA, IMIA, fair distribution of health information access, advocating for client and stakeholders)
3. Legal implications (e.g., malpractice, liability, patient data misuses, proprietary data misuse, privacy and security)
4. Basic project management principles and concepts (e.g., scope, project plan, change control)

Skills in:

5. Communicating effectively with interdisciplinary teams
6. Strategic planning
7. Developing/modifying policies and procedures
8. Managing organizational change
9. Recommending changes to systems and work-flow that support quality measures
10. Applying current research findings to practice

B. Informatics and Health Care Industry Topics

Knowledge of:

1. Personal health records
2. Health exchanges (e.g., RHIP, HIE)
3. Telehealth
4. Health care reform implications

C. Regulatory monitoring and accreditation requirements

Knowledge of:

1. Regulatory and/or accreditation agencies as they impact the electronic health record (e.g., CMS, DHHS, The Joint Commission)

Skills in:

2. Updating documentation requirements based on changes to regulatory or accreditation standards
3. Acquiring recommendations from national quality organizations (e.g., Leap Frog, IOM, AHRQ, NQF)

D. Education and Staff Development

Knowledge of:

1. Educational technologies (e.g., computer-based training, simulations, virtual reality)
2. Teaching strategies and methodologies (e.g., over-the-shoulder, group, blended/hybrid learning, demonstration)

Skills in:

3. Developing teaching plans
4. Developing teaching materials/resources (e.g., computer-based, paper, electronic, web-based, help tools)
5. Developing informatics competencies (e.g., end-users, informatics staff)
6. Evaluating effectiveness of teaching and learner outcomes

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III System Life Cycle (22.00%)

A. System Planning

Knowledge of:

1. Strategic goals and priorities (e.g., benefits and desired outcomes; enterprise-wide)
2. System planning concepts and considerations (e.g., functionality, resources, benefit analysis, return on investment, internal and external stakeholders)

Skills in:

3. Performing needs assessments, gap analyses, and feasibility analyses

B. System Analysis

Knowledge of:

1. Request for Proposal (RFP) and Request for Information (RFI)
2. Functional specification requirements (e.g., end-user priorities)

Skills in:

3. Creating process diagrams, including clinical work flow and data work flow
4. Reporting analysis to stakeholders
5. Conducting a vendor, product, and/or market analysis

C. System Design, Development, and Customization

Knowledge of:

1. System and database design concepts (e.g., discrete data, eliminate redundancy, system performance and effectiveness, relational or hierarchical databases)
2. Decision support solutions (e.g., access to evidence-based practice, algorithms, alerts, clinical documentation)
3. Standardized terminology (e.g., CPT code, ICD, SNOMED, nursing vocabularies [NANDA, NIC, NOC, CCC, OMAHA])
4. Disability accommodations and ADA requirements

Skills in:

5. Displaying patient data for clinical decision making
6. Generating reports to identify trends and respond to quality measures
7. Translating user requirements into informatics solutions to support work-flow and clinical practice (e.g., nursing process and other clinical processes)
8. Customizing data elements using vendor tools
9. Optimizing existing systems and applications (e.g., maximizing reimbursement, documenting quality indicators)
10. Making recommendations for programming changes

D. System and Functional Testing

Knowledge of:

1. System elements to be tested (e.g., components, features, interfaces, links, devices, reports, screens)
2. Testing methods (e.g., system environments, automated, alpha and beta testing, unit testing, integration testing, functional testing, load/volume testing)

Skills in:

3. Developing and executing testing plans, including scripts
4. Validating data integration across disparate systems
5. Analyzes end-user acceptance and system performance/effectiveness

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6. Identifying and resolving issues

E. System Implementation, Evaluation, Maintenance, and Support

Knowledge of:

1. Implementation strategies (e.g., phased vs. “big-bang”, pilot, parallel system implementation)
2. Conversion and Go-live (e.g., migrating or archiving legacy data, command center, user support)
3. Post-implementation end-user support (e.g., help-desk, user troubleshooting)
4. System stabilization
5. Roles and responsibilities of stakeholders (e.g., end-user, super user, champions)

Skills in:

6. Planning, directing, and leading resources (e.g., assigning resources, developing go-lives plans, upgrades, enhancements)
7. Logging and managing system issues
8. Assessing ongoing training needs
9. Planning for contingency during scheduled and unscheduled down-time, including development of plans and reconciliation of data (e.g., down-time forms, policies, procedures, and re-input of data)

IV Information Technology (14.00%)

A. Hardware

Knowledge of:

1. System peripherals and devices (e.g., input and output devices, mobile and handheld devices)
2. System components (e.g., networks, storage, servers, cables)
3. Technical specifications (e.g., compatibilities, limitations, capabilities, systems requirements)
4. Biomedical device interfaces (e.g., physiological monitoring, smart pumps, point-of-care devices)

Skills in:

5. Troubleshooting hardware issues

B. Software

Knowledge of:

1. Types of software (e.g., operating systems, applications, and utilities)
2. Types of programming languages (e.g., SQL, HTML, JAVA)
3. End-user decision support applications

Skills in:

4. Querying and reporting from databases (e.g., Boolean logic, SQL, SAS)

C. Communication Technologies

Knowledge of:

1. Collaborative tools (e.g., SharePoint, WebEx, Wiki, Blogs, social media)

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2. Standards (e.g., CCOW, HL7, IEEE, ASTM, ISO) and Protocols (e.g., TCP/IP, FTP, SMTP)
3. Telecommunications (e.g., wireless, VoIP, RFID, Bluetooth)

D. Security, Privacy and Confidentiality

Knowledge of:

1. Federal regulations pertaining to security and privacy (e.g., HITECH, HIPAA)
2. Audit trails
3. Intrusions and infections (threats, preventions, and remedies; e.g., firewalls, viruses, and protections)
4. User security (e.g., biometrics, password protection, tokens, authentication)
5. System security and integrity (e.g., physical security, device access control, protecting the system from unauthorized access, time-out)
6. Information system disaster preparedness (e.g., natural and manmade threats, recovery plans, back-ups)

Skills in:

7. Defining and assigning role-based or system access

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