**Health Informatics Workforce**

**Revising the Department of Labor Standard Occupational Classification (SOC)**

**Introduction:**

The purpose of this focus group meeting is to build consensus for a general proposal to the Department of Labor regarding the upcoming Standard Occupational Classification revision. This goals are:

1. Getting feedback on this proposal or synopsis.
2. Brainstorming ideas how to engage the field once the notice is released.

We will spend approximately 35 minutes discussing the proposal and 20 minutes brainstorming. Because our time is limited you are invited to use track changes as you are reviewing the proposal. Please send your reviewed version to Chitra Mohla at [chitra.mohla@hhs.gov](mailto:chitra.mohla@hhs.gov).

**Background:**For the 2018 revision, the SOC Policy Committee expects to solicit *public input* through the *first Federal Register* notice by the end of calendar 2013.

* The first notice will be soliciting comments on proposed changes to the Classification Principles, Coding Guidelines, major occupation group structure, and requesting input on changes to existing occupations or addition *of new occupations*.
* A second notice requesting comments on the proposed structure for 2018 SOC, that is, the proposed list of revised occupation codes and titles.
* A third notice issuing the final 2018 SOC structure and summarizing the comments received in response to the second notice.

The comments and recommendations from organizations and individuals who respond to the *Federal Register Notice*s are likely to comprise the bulk of the information the SOC Policy Committee will use in making recommendations to OMB.  
  
**Proposal***Major Occupation Group*: 29-0000, Health Care Practitioners and Technical Occupations

*Minor Occupation Group:* Health Information Technology (Health IT) or Health Informatics? Needs to be both?

*Broad Occupation*: (Check PWC report)  
1) Clinical Health IT or Informatics? (Nursing, Medical, Dental, Pharmacy, Laboratory, ) – should it be in this minor occupation group or the respective clinical groups – effect on pay grade  
2) Health Informatics/information management  
3) Health IT Systems Support

4) Public Health Informatics – CDC/APHA

5) Biomedical Informatics

6) Analytics

7) Consumer Health Informatics

*Detailed Occupation*: Provide descriptions for each of the above (1-3).  
  
**Input Requested by the SOC Policy Committee**When considering recommendations for the 2018 revision, especially recommendations for new occupations, the SOC Policy Committee needs information to help it evaluate recommendations in light of the Classification Principles and Coding Guidelines.  
  
The following types of information are particularly important:  
  
**1. Nature of Work Performed***What duties do workers in the occupation perform ? while maintaining professional boundary, complexity of communication and teamwork;*   
The term "**health information technology**" (health IT) is a broad concept that encompasses an array of technologies and processes to store, share, and analyze health information. 

Critical Work Functions

What duties are frequent but not performed by all workers and might be identified as “may” statements in the occupation definition?

Consensus on Tasks Performed for an Informatics Occupation

* Design, develop, select, test, implement, SUPPORT, and evaluate new or modified informatics solutions, approaches to data management and analysis, and decision-support mechanisms to support patients, public health, health care professionals, and their information management and human-computer and human-technology interactions within health system contexts.
* Analyze and interpret data to improve health systems services.
* Apply knowledge of computer science, information science, decision-science, cognitive-science, organizational theory and management, clinical science nursing, and informatics theory to nursing health-related practice, education (learning), administration, or research.
* Translate practice information between and systems engineers, analysts, or designers using object-oriented models or other techniques.  
  *Note: Word smith for the liaison/bridge between the disciplines and IS and understand both sides.*
* Develop strategies, policies or procedures for introducing, evaluating, supporting or modifying information technology applied to health-related practice, administration, education, or research.  
  *Notes – look at redundancy with first task. May be more focused on policy. May include standards (technical and SOPs for a system).*
* Develop or implement policies or practices to ensure the privacy, confidentiality, or security of protected health information and other health system data

*Notes: Patient information – need to be careful in the use of this term – do we mean health information? Patient-generated data? Think about devices and other data that may not fit under the definition of PHI. Is the scope intended to be PHI only.  
Discuss in context of data sharing and appropriate use.   
Add in data sharing, provenance and information integrity*

* Identify, collect, record or analyze health-related data used for health system improvement.   
  *Notes: Healthcare system is defined from the basic science of health, to delivery of care, to management of population health & management. Word- smithing look at how to incorporate the scope identified in this note.*
* Read *(and apply)* current literature, talk with colleagues, and participate in professional organizations or conferences to maintain competencies and keep abreast of developments in informatics and disciplines.  
  *Notes: Is this necessary as a task. This bullet could be applied in any field for any professional/occupation. Keep abreast of developments and competencies may be too limiting. If we are justifying informatics as a profession may want to point to the professional literature and resources in this area.*
* Provide consultation regarding hardware or software configuration.  
  *Notes: Seems redundant to first task. May be too much of an IT task*
* Disseminate information about the science and practice of informatics to the profession, other health care professions, students, policy-makers and the public.  
  *Notes: Tasks that maybe missing:  
   Influencing the environment and advance the role of informatics in health systems. Rethinking how the health system works - not just working in the present, but shaping the future. Change management (look at core curriculum from JAMIA).  
  Translate research into practice. Assist with conducting research and evaluation. Safety: Understand and implement IT systems to improve patient safety and how to use IT systems safely.   
  Usability: systems designed for multiple purposes are appropriate for supporting patient care and   
   Quality, Interoperability, Vendor and contract management input which may have strong links back to patient safety, usability and quality.*
* **Interacting With Computers** - Using computers and computer systems (including hardware and software) to program, write software, set up functions, enter data, or process information.
* **Communicating with Supervisors, Peers, or Subordinates**
* **Getting Information** — Observing, receiving, and otherwise obtaining information from all relevant sources.
* **Organizing, Planning, and Prioritizing Work** — Developing specific goals and plans to prioritize, organize, and accomplish your work.
* **Updating and Using Relevant Knowledge** — Keeping up-to-date technically and applying new knowledge to your job.
* **Evaluating Information to Determine Compliance with Standards** — Using relevant information and individual judgment to determine whether events or processes comply with laws, regulations, or standards.
* **Establishing and Maintaining Interpersonal Relationships**
* **Making Decisions and Solving Problems** Analyzing information and evaluating results to choose the best solution and solve problems.
* **Training and Teaching Others** —
* **Analyzing Data or Information** — Identifying the underlying principles, reasons, or facts of information by breaking down information or data into separate parts.  
    
  *a) Clinical Health IT/Health Care****:***
* Describe the organizational structure and functions of major components ofhealthcare delivery
* Apply patient safety practices that promote quality health outcomes, patient security, and health information security
* Implement and use HIT systems (such as flowcharting, Root Cause Analysis and examining existing assumptions and evaluating evidence) overlap with others? utilizing problem solving and critical thinking skills
* Demonstrate a knowledge of HIT products and vendors, as well as an ability to negotiate contracts
* Utilize clinical knowledge to design and develop HIT tools supporting patient care
* Initiate, plan, execute, and monitor ERH/HIT-related projects
* Incorporate HIPAA, as well as state privacy and security regulations into work
* Understand the basic healthcare delivery models and their impact on work processes and information exchange
* Understand the importance of licensure and scope of practice
* Understand patient rights and responsibilities
* Maintain professional boundaries
* Secure and maintain certification and licensure requirements for duties as required  
  Examples: Physicians, Dentists, Nurses, Therapists, Laboratory Technologists.

b) Health Informatics/analytics/information management

* Differentiate among types of health insurance
* Understand the role and importance of health information
* Maintain the security and confidentiality of patient records, per HIPAA & other related regulations
* Understand the two-way flow of information and data through the medical organization (originating with both patient and provider)
* Ensure documentation in health records reflect completeness, accuracy, timeliness, appropriateness, quality, integrity, and authenticity as required
* Use appropriate procedures for submitting and accessing medical information through a Health Information Exchange
* Implement and manage information governance programs
* Analyze and mine data to include data report creation and presentation

Examples: Chief Privacy Officer, clinical documentation specialist, Data analyst

c) Health IT Systems Support

* Select HIT system purchases and maintenance that meet external and internal goals/resources
* Direct and manage technical and non-technical EHR/HIT staff
* Interact effectively with senior management and above in HIT governance
* Utilize analytics/data from HIT systems for tactical and strategic planning
* Design and maintain HIT databases and data warehouses
* Engineer, develop, and/or maintain HIT software/hardware and systems

Examples: Chief Information Officer, System Analyst, Network Administrator, Database Administrator look at other sectors such as banking.

**2. How the work performed is distinct from other detailed occupations in the SOC?**Health IT is foundational to the current, evolving medical care environment. It combines the knowledge of health care along with information technology. The development of sophisticated medical devices, efficient electronic data transfer of real-time health information and high tech operating rooms require a new health IT professionals who understands the health care arena and the technology. In order for health IT solutions to achieve the goal of transforming health care delivery the health care workforce must be trained and play a pivotal role in incorporating health IT into the health care delivery system. In addition, some of these professionals will also be conducting fundamental research, advancing measurement science and supporting the development of standards to continue to improve the technology, by improving interoperability and making health care safer.  
**Consensus on Knowledge for an Informatics Occupation**

* **Customer and Personal Service** — Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.
* **Computers and Electronics** — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
* **Education and Training** — Knowledge of principles and methods for curriculum and training design, teaching and instruction for individuals and groups, and the measurement of training effects.
* **Bio-medical and Health Sciences Medicine and Dentistry** (public/population health) — Knowledge of the information and techniques needed to diagnose and treat human injuries, diseases, and deformities. This includes symptoms, treatment alternatives, drug properties and interactions, and preventive health-care measures. (Broaden to health related knowledge and broader than)
* **Administration and Management** — Knowledge of business and management principles involved in strategic planning, resource allocation, human resources modeling, leadership technique, production methods, and coordination of people and resources.
* **Communications and Media** — Knowledge of media production, communication, and dissemination techniques and methods. This includes alternative ways to inform and entertain via written, oral, and visual media.
* **Design** — Knowledge of design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.
* **Mathematics** — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
* Informatics draws on many of the knowledge clusters that are listed on this slide. It is multi-professional field – a merging of multiple knowledge domains (e.g. medicine and computer science/math).  
    
  **Skills**  
  Reading Comprehension
* Active Listening
* Critical Thinking
* Active Learning
* Monitoring
* Speaking
* Complex Problem Solving
* Judgment and Decision Making Writing
* Systems Analysis

**Ablities – Influencer through Multiple Channels**

* Oral Comprehension
* Written Comprehension
* Deductive Reasoning
* Inductive Reasoning
* Oral Expression
* Fluency of Ideas
* Problem Sensitivity
* Information Ordering
* Originality
* Written Expression

**Related Job Titles**Business Consultant  
Clinical Informatics  
Clinical Applications  
 SpecialistClinical Coordinator  
Clinical Informatics   
DirectorClinical Informatics   
SpecialistClinical Informatics   
StrategistClinical Information   
Systems DirectorConsultantDirector   
Clinical Information Services  
Nursing Information Systems Coordinator   
Others?  
Also referenced on O\*NET: Public Health Informatician

1. **Number of jobs or workers in the occupation**

The healthcare industry continues to grow by leaps and bounds, despite an economic slump. This growth has increased the opportunities for IT jobs within healthcare organizations. These organizations are starting to implement various IT initiatives ranging from Electronic Health Records to financial analysis software and many other technology solutions. These projects require multiple IT resources like Business Analyst, Project Managers, Network Administrators, Software Developers and other IT professionals.   
  
“According to the U.S. Department of Labor, opportunities for medical and health services specialists overall are projected to grow by 16 percent through 2020. One-third the 20 fastest growing careers projected are in the health care field. The federal government’s push to computerize all medical records will result in job growth in fields such as medical records technology.”

Analysis from Schwartz, 2013 – Health IT-related postings post-HITECH 434,292: Clinical were 207,926; Other Health IT were 226,356. Half attributable to HITECH, remainder historical.

GET EXACT NUMBERS FROM BLS AND HRSA

**5. Types of Employers***Practitioners* – such as office of Physicians and Osteopaths, Dentists, Chiropractors, Optometrist, Chiropractors, Audiologists etc.  
*Hospitals* **–** such asmedical and surgical, psychiatric and substance abuse, critical access and long term care  
*Outpatient Centers* – Medical and Diagnostic Laboratories, Ambulatory Surgical Centers, Home Health Services, Other Ambulatory Services  
*Nursing and Residential Care Facilities*– skilled nursing facilities, residential facilities for persons with disabilities, residential care facilities (assisted living for the elderly).  
*Health Industry Related*– Public health agencies, health research organizations, pharmaceutical research companies, health industry product vendors.

*Other* – Healthcare insurance agencies, benefits management companies; consulting companies; Research and Pharmaceutical companies; EHR vendors

**6. Education and Training  
Education:**

* + Most of these occupations require at least a four-year bachelor's degree, but some do not. *(and many are at the graduate level)*

**Related Experience:**

* + A considerable amount of work-related skill, knowledge, or experience is needed for these occupations. For example, an accountant must complete four years of college and work for several years in accounting to be considered qualified.

**Job Training:**

* + Employees in these occupations usually need several years of work-related experience, on-the-job training, and/or vocational training.
  + Increasingly there are certifications in this occupations.

**7. Licensing** Depends on workforce role.

**8. Tools**

* Desktop computers
* Liquid crystal display projector — Liquid crystal display LCD projectors
* Medical picture archiving computer systems PACS — Medical image database systems
* Notebook computers — Laptop computers
* Special purpose telephones — Multi-line telephone systems; smart phones  
  Tablets
* Business intelligence software
* Diagram software (e.g. Visio) for workflow
* Distributed computing systems
* HIE infrastructures; interoperability
* Internet/network (Hardware)
* Natural language processing
* Computational tools such as machine learning, NLP, network analysis, etc.
* Data analytics software

**Technology**

* Computer based training software — Learning management system LMS software
* Data base user interface and query software — Microsoft Access; Structured query language SQL
* Medical software — *eClinicalWorks software; GE Healthcare Centricity EMR; Siemens Medical Solutions Health Services software; VISICU eICU Program*
* Office suite software — Microsoft Office software Spreadsheet software — Microsoft Excel

**Supporting Information Resources  
Informatics Education Resources**Education Programs

* + Schools/Programs
  + Informatics Curriculum Standards
  + Accreditation programs
* Certification/Credentials

**Data Sources on Workflow**

* Potential sources of information to gather data on the existing workforce  
  Examples: AMIA, CAHIIM, AHIMA
* Potential partners for this proposal