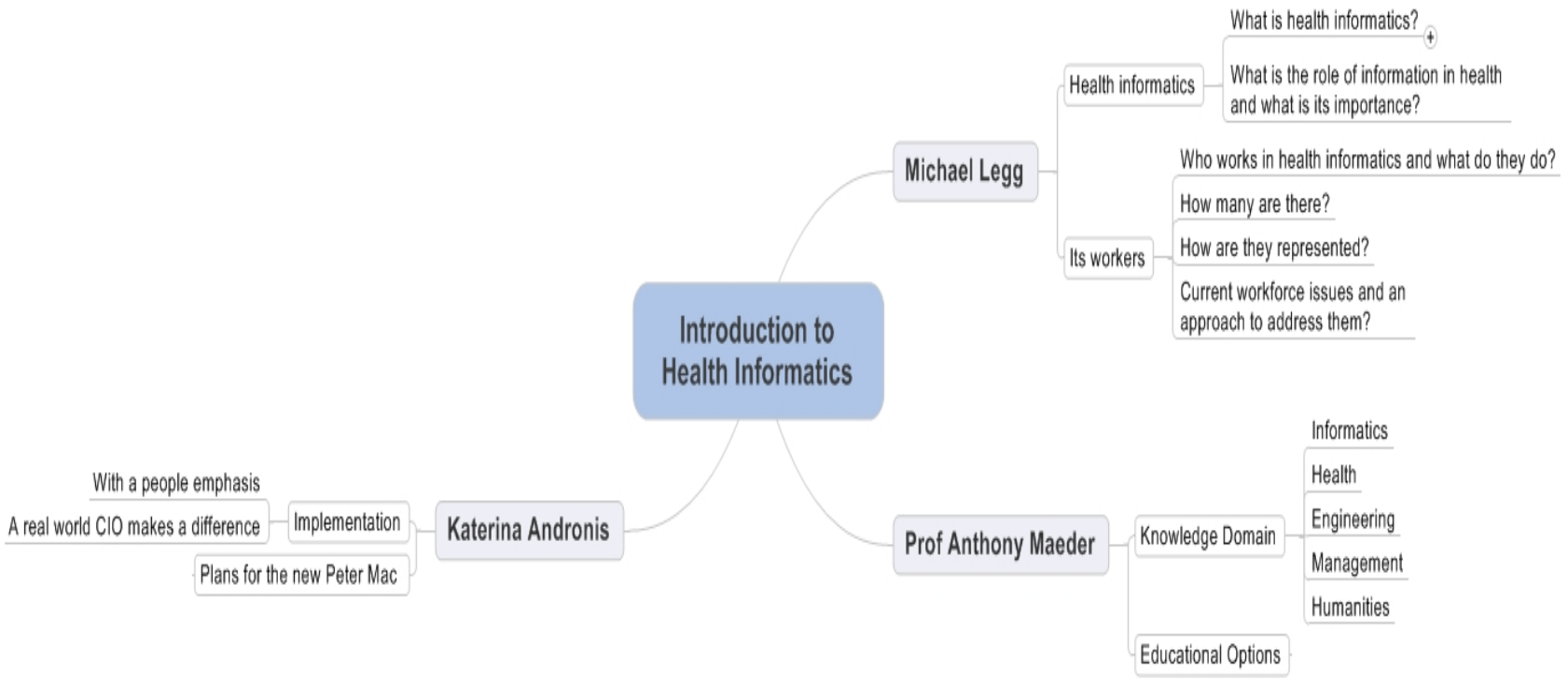
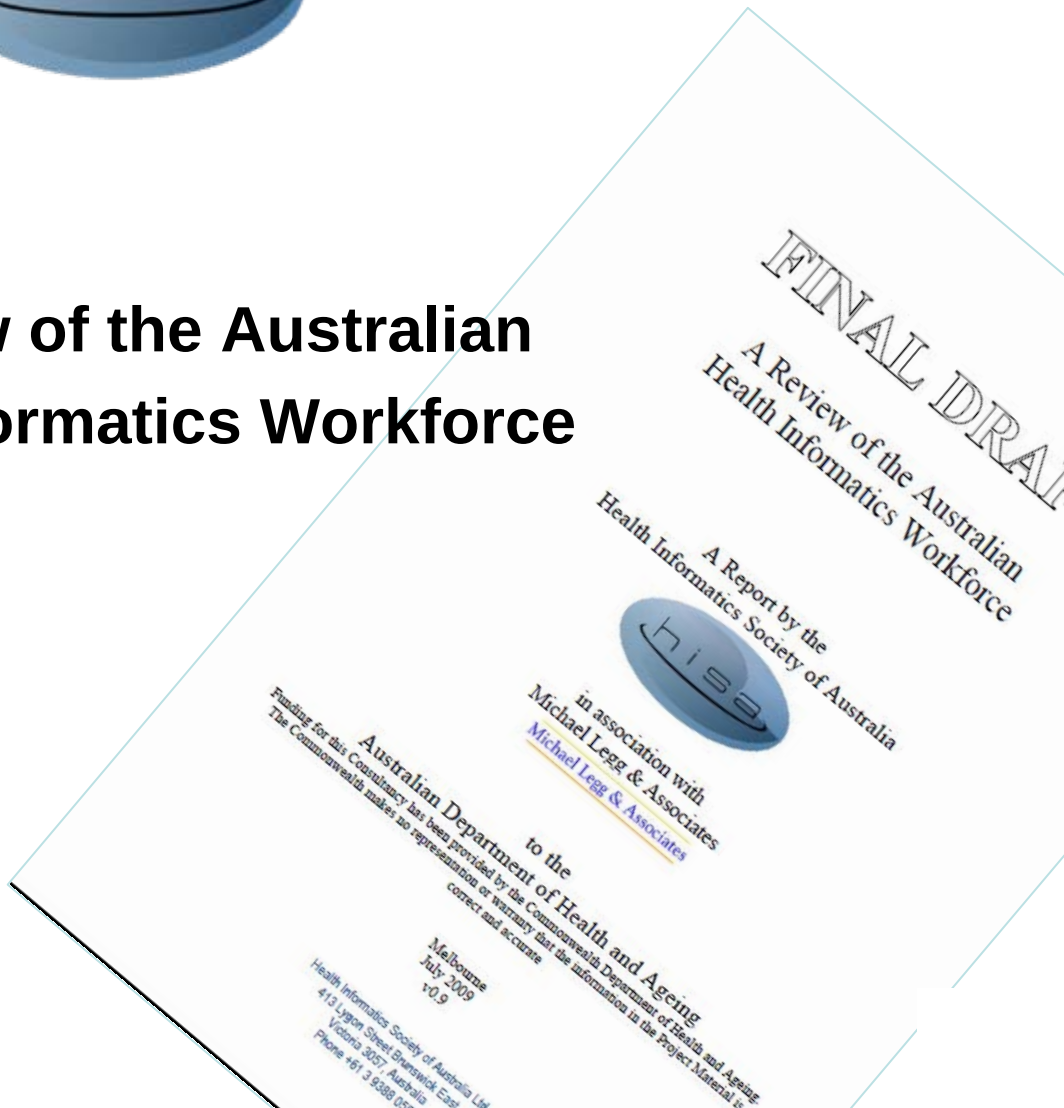
Introduction to Health Informatics

Michael Legg

Agenda


Introduction to Health Informatics
Michael Legg
Health informatics
What is health informatics?
What is the role of information in health and what is its importance?
Its workers
Who works in health informatics and what do they do?
How many are there?
How are they represented?
Current workforce issues and an approach to address them?
Katerina Andronis
Implementation
With a people emphasis
A real world CIO makes a difference
Plans for the new Peter Mac
Prof Anthony Maeder
Knowledge Domain
Informatics
Health
Engineering
Management
Humanities
Educational Options

A Review of the Australian Health Informatics Workforce



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What is health informatics?

- Health informatics is a knowledge domain in its own right that sits at the intersection of health and informatics
- This is an emerging field in Australia and its participants are in the process of self-identification
- The definition of health informatics is not yet universally agreed and is still evolving
- The most contentious area is probably the perception of a difference between '*health informatics'* and *'health information management'*

Defining Health Informatics

HISA has approached the definition of health informatics in three ways

- By formal definition
- By describing a health system that has best-practice health informatics in place; and
- By what the people in health informatics know and do

A new definition

Health informatics is the science and practice around information in health that leads to informed and assisted healthcare

Vision

- ‘A Vision for an Australian Healthcare System Transformed by Health Informatics’ (2007)
- Consensus view of more than 200 respondents
- Characteristics of the Australian health system if health informatics was put to best use.

- **See http://www.hisa.org.au/system/files/u1/rmed_by_Health_Informatics_v8_Public_Release_3.pdf viewed July 2009**

Vision

- Engaging Consumers
- Transforming Care Delivery at the Point of Care
- Improving Population Health (Data sharing capabilities and initiatives)
- Aligning Financial and Other Incentives
- Managing Privacy Security & Confidentiality
- Policy and Implementation

Engaging consumers

- Patients are fully engaged in their own healthcare, supported by information and tools that enable informed consumer action and decision making, working hand-in hand with healthcare providers.
- Tools that support consumer engagement are well designed and customised to the diversity of consumers.
- These tools are integrated into the delivery of care, and are also conveniently available outside healthcare settings.

Transforming care delivery at the point of care

- Australian patient care is high quality, patient centred, for a lifetime, and reflects a coordinated and collaborative approach.
- Complete, timely and relevant patient-focused information and clinical decision support tools are available as part of the provider's workflow at the point of care.
- High quality and efficient patient care is supported by the deployment and use of interoperable health IT and secure data exchange between and across all relevant stakeholders.

Improving population health

Electronic healthcare data and secure health information exchange are utilised to:

- facilitate the flow of reliable health information among population health and clinical care systems
- to improve the health status of populations as a whole

Improving population health

Information is used to

- enhance healthcare experiences for individuals
- eliminate health disparities
- measure and improve healthcare quality and value
- expand knowledge about effective improvements in care delivery and access
- support public health surveillance, and
- assist researchers in developing evidence-based advances in areas such as diagnostic testing, illness and injury treatment, and disease prevention.

Aligning financial and other incentives

- Healthcare providers are rewarded appropriately for managing the health of patients in a holistic manner.
- Meaningful incentives help accelerate improvements in quality, safety, efficiency and effectiveness.
- Quality of care delivery and outcomes are the engines that power the payment of providers.

Managing Privacy, Security and Confidentiality

- In Australia's fully-enabled electronic information environment designed to engage consumers, transform care delivery and improve population health, consumers have confidence that their personal health information is private, secure and used with their consent in appropriate, beneficial ways.
- Technological developments have been adopted in harmony with policies and business rules that foster trust and transparency.

Managing Privacy, Security and Confidentiality

- Organisations that store, transmit or use personal health information have internal policies and procedures in place that protect the integrity, security and confidentiality of personal health information.
- Policies and procedures are monitored for compliance, and consumers are informed of existing remedies available to them if they are adversely affected by a breach of security.
- Consumers trust and rely upon the secure sharing of healthcare information as a critical component of high quality, safe and efficient healthcare.

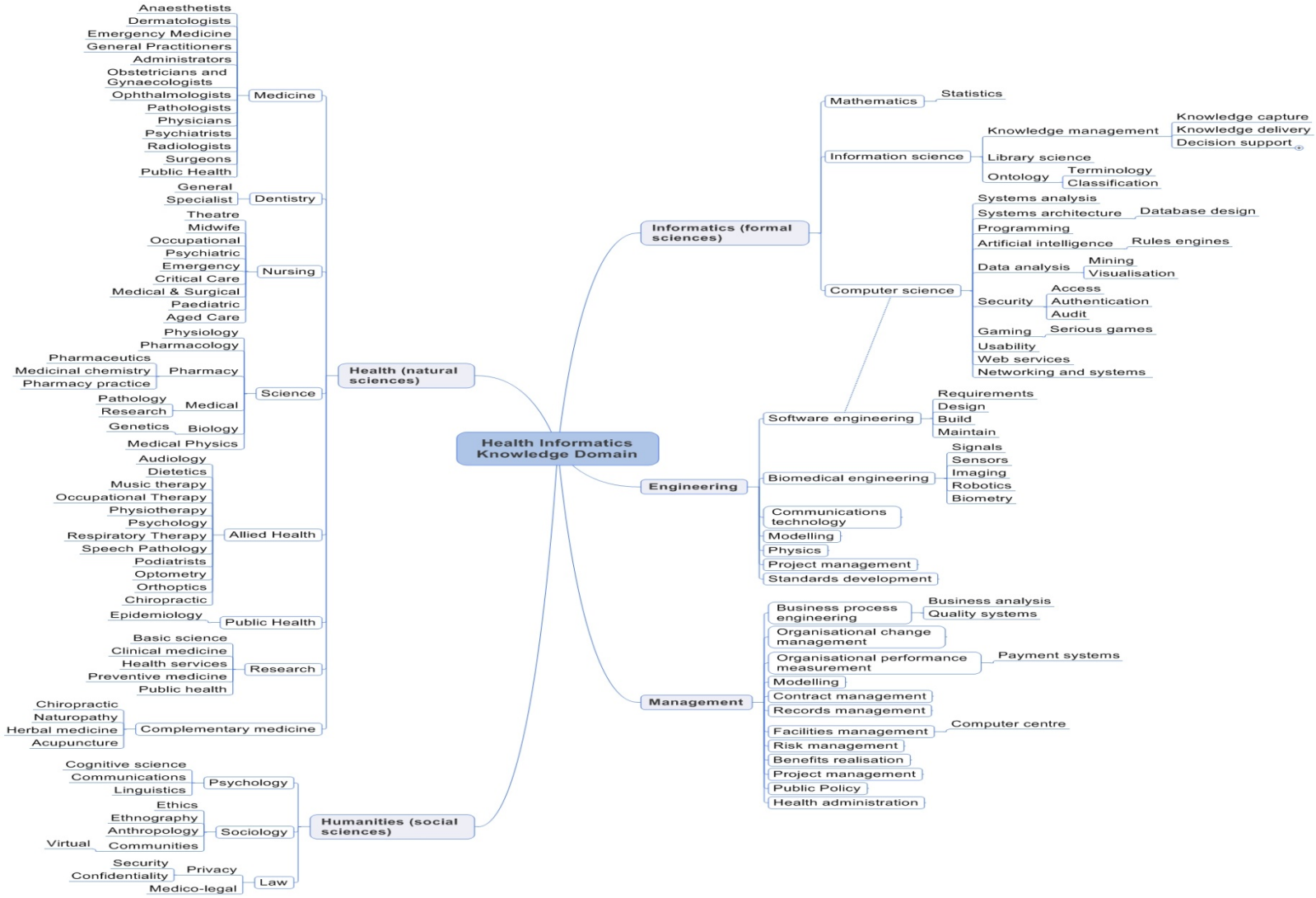
Policy and implementation

- Policies and procedures are
  - monitored for compliance, and
  - consumers are informed of existing remedies available to them if they are adversely affected by a breach of security.
- Consumers trust and rely upon the secure sharing of healthcare information as a critical component of high quality, safe and efficient healthcare.

Policy and implementation

- Policy development and implementation bodies, both government and private deliver clear and insightful leadership of e-health programs within the health sector.
- They have a deep understanding of the cultural and operational complexities of the area and ensure that programs are appropriately structured and funded to be successful

A map of the health informatics knowledge domain



Importance

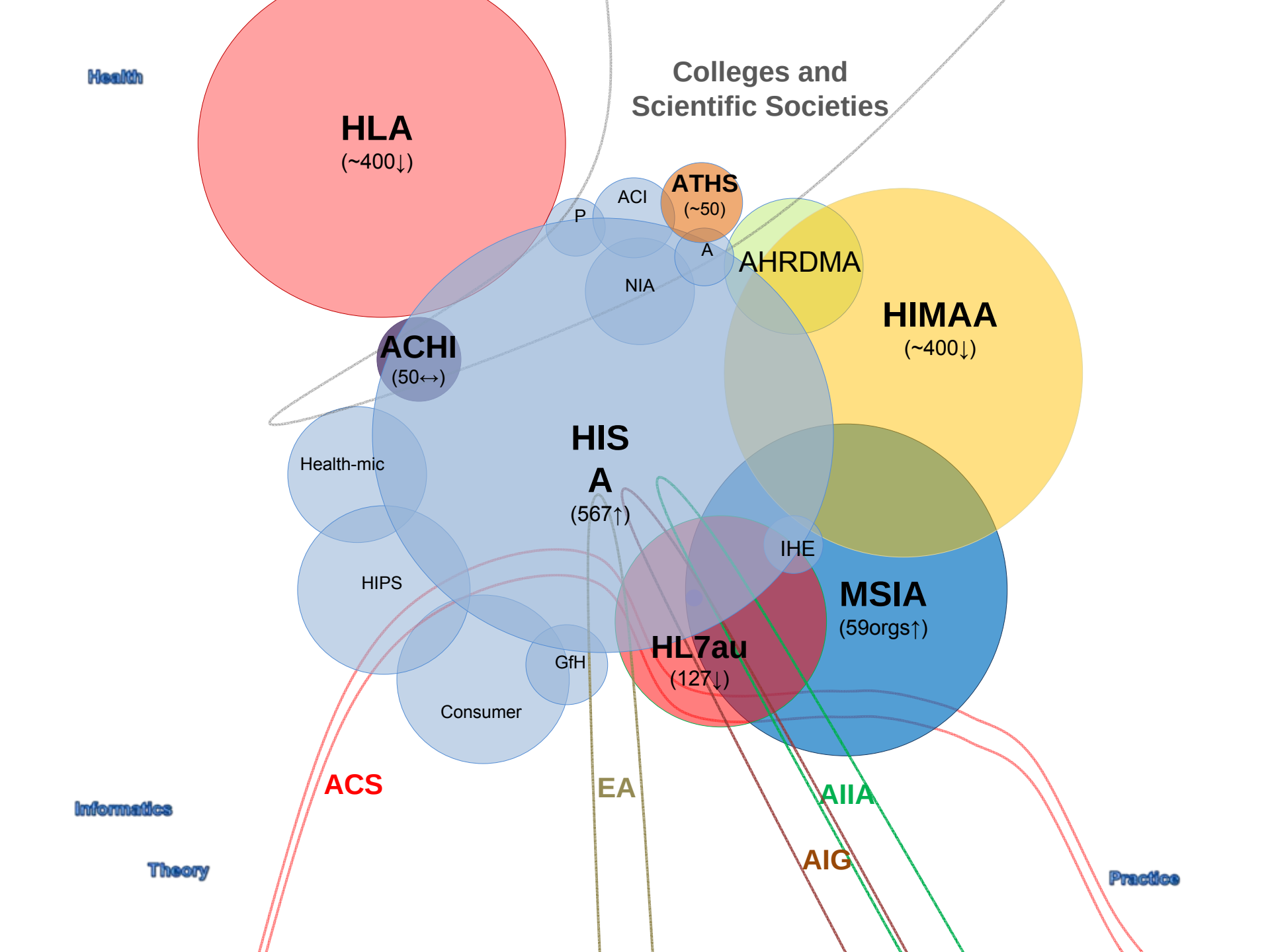
- From the safety and quality arena, Donald Berwick, the President and CEO of the Institute for Healthcare Improvement (US)
  - has gone so far as to say ***'information is care'***
- Sir Muir Gray, the Chief Knowledge Officer of the NHS (UK)
  - ***'knowledge is the enemy of disease'***
  - *The application of what we know already will have a bigger impact on health and disease than any drug or technology likely to be introduced in the next decade' and 'a common core of quality assured knowledge must be delivered to professionals and patients; clean clear knowledge is as important as clean clear water'*

- Berwick DM. Escape Fire: Lessons for the Future of Health. New York: The Commonwealth Fund; 2002
- Gray M - Keynote address at MedInfo, hosted by HISA in Brisbane 2007

What's in a name?

Health informatics is the science and practice around information in health that leads to informed and assisted healthcare

- The definition is broad enough to embrace the body of knowledge described and to be inclusive of all those who work on information-related activities in healthcare.
- This is not a universally held view
- It is an issue that the lack of agreement on the words that should be used leads to confusion and misunderstanding


Health
Colleges and
Scientific Societies
HLA
(~400↓)
ATHS
(~50)
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A
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ACHI
(50↔)
HIS
A
(567↑)
Health-mic
HIPS
IHE
MSIA
(59orgs↑)
HL7au
(127↓)
GfH
Consumer
ACS
EA
AIIA
AIG
Informatics
Theory
Practice

How many are there?

- **We don't know!**
  - **our best estimate is there are 12,000**

- Apply the 'health information manager' proportion of responses from the survey to the census data:

  3,434 / 372 *1,279 = **11,806** health informaticians in Australia

- Apply the 'IT, engineering or science professional' proportion of responses from the survey to the ACS data:

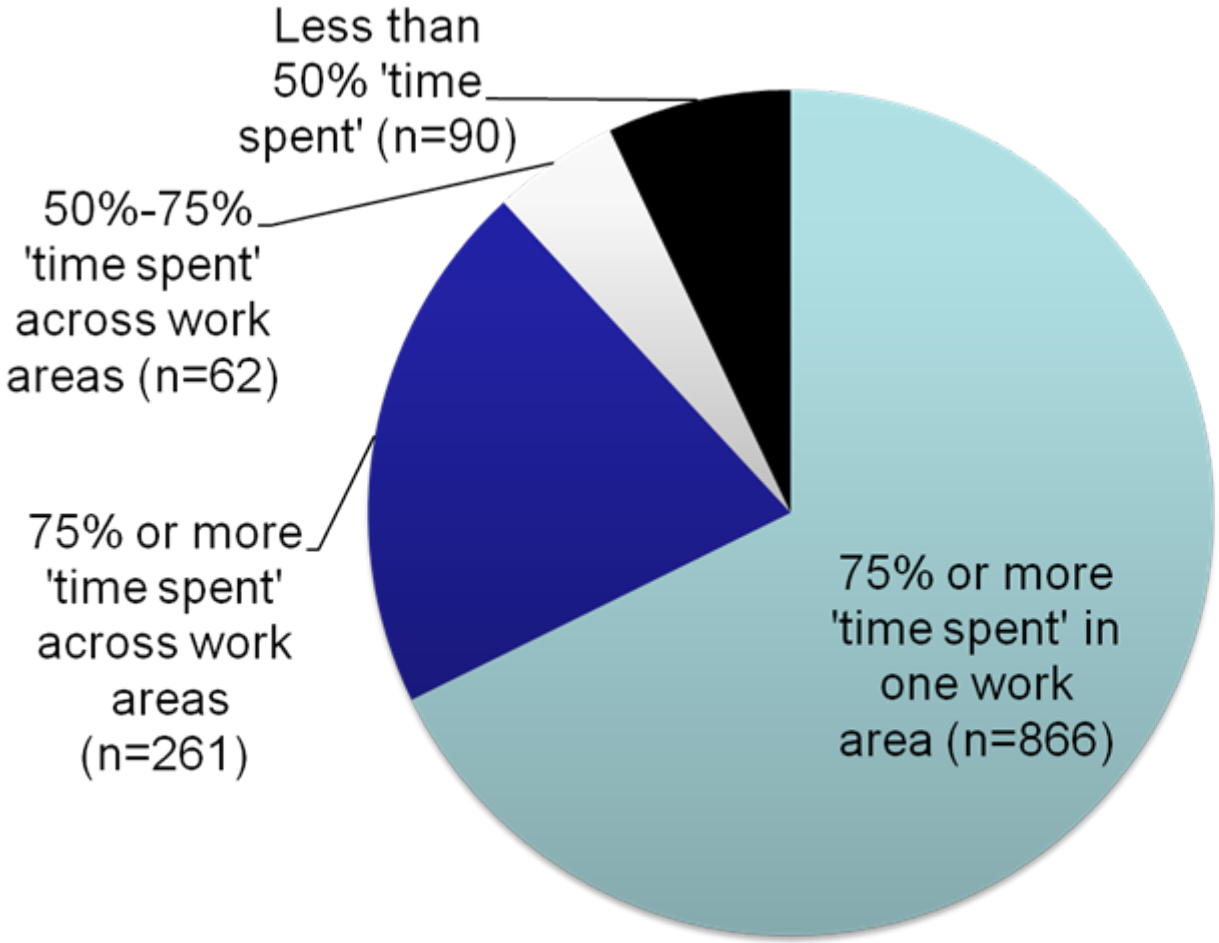
  3,198 * 0.63 / 236 *1,279 = **10,919** health informaticians in Australia

- Assume a ratio in Australia of 1:50 (slightly less than UK but a bit more than Gartner in the US) and apply the workforce numbers.
  - whole health workforce as the comparator

  753,800 / 50 = **15,076** health informaticians in Australia
  - health workers as the comparator

  447,800 / 50 = **8,956** health informaticians in Australia

Survey response



Work categories

- The categories of information work are divided into two kinds:
  - In the system
  - On the system

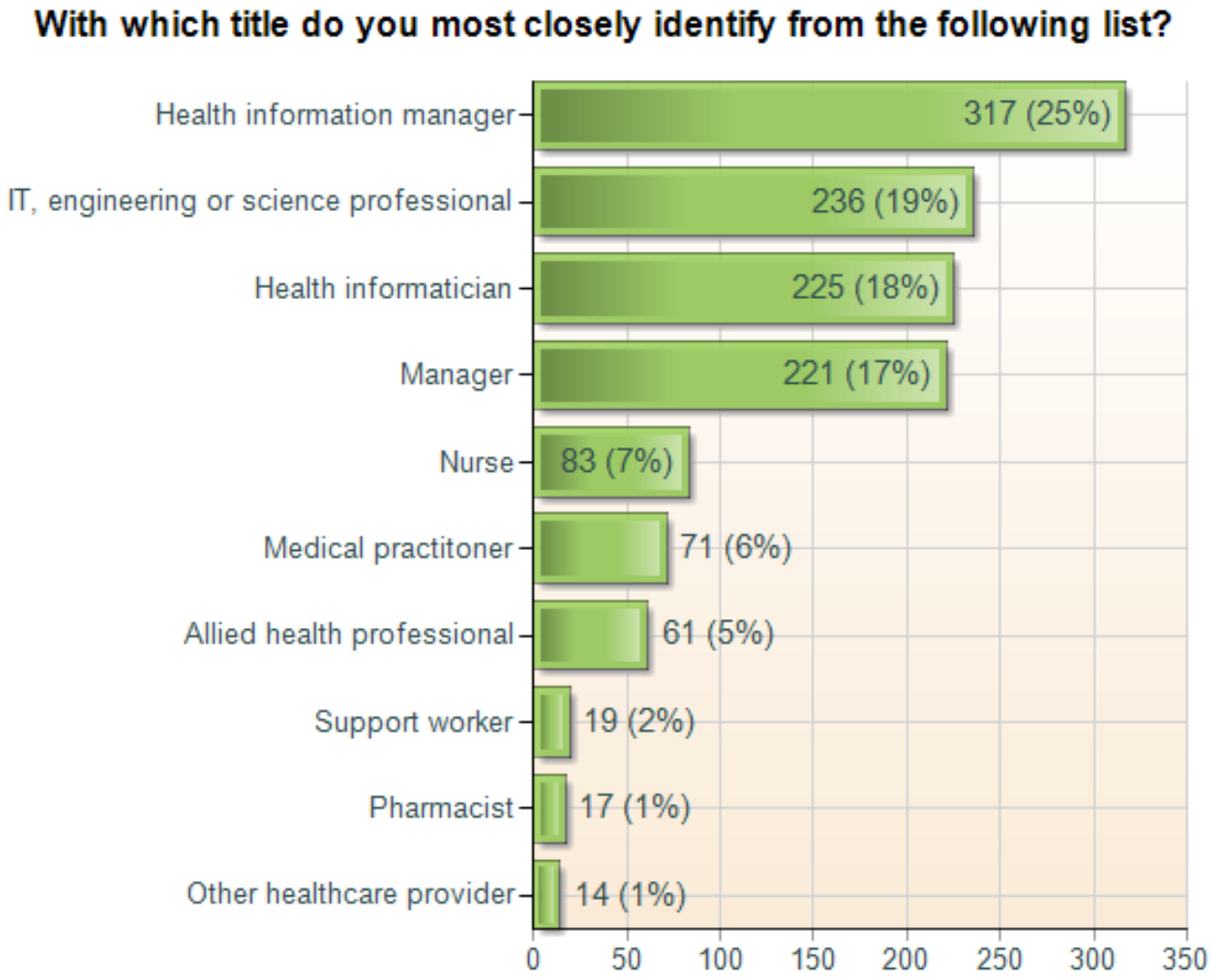
In the system

- **Records -** Capturing information about a consumer and their interactions with the healthcare system and managing that information.
- **Analysis** - Information analysis for care, retrieving and analysing information for direct patient care or population health
- **Direct** - Direct care using information science and technology for the direct provision of healthcare for example the reconstruction of images, the delivery of psychiatric therapy or the use electronic games for rehabilitation
- **Decision** - Decision support gaining access to knowledge, helping with workflow and automating processes such as provision of clinical alerts and warnings
- **Communications** - Meaningful exchange of health information between clinicians and clinical systems within a practice or facility and with others outside the facility including consumers and other health services.
- **Training –** Direct vocational training for purposes such as changing work practices

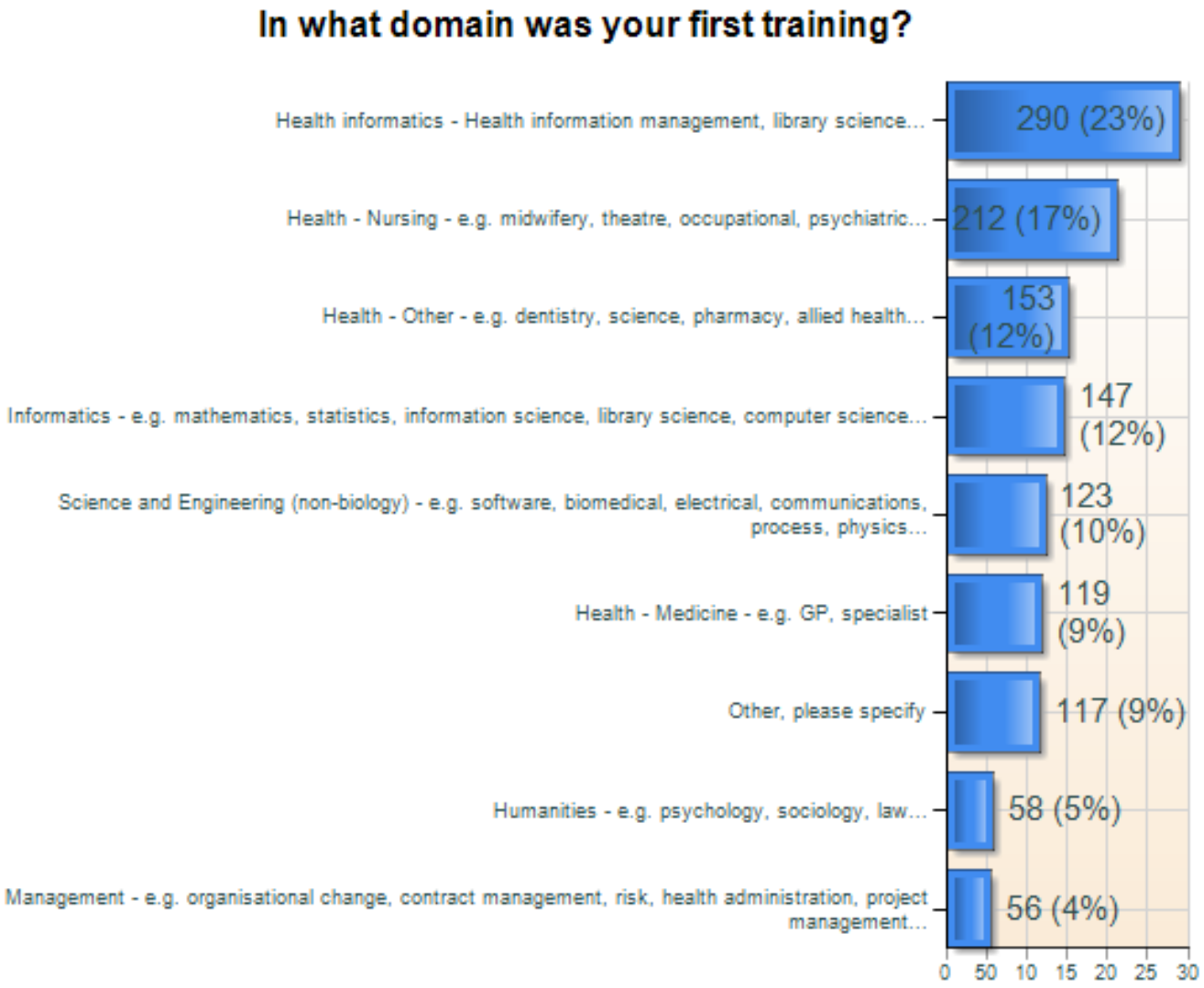
On the system

- **Systems** - The development, implementation and management of information and organisational systems
- **Infostructure** - Policy development, terminology, structured information, architecture and standards development
- **Improvement** - Retrieving and analysing information to improve processes at every level; from care of the individual consumer through to public health and health policy
- **Education** - eLearning from knowledge presentation and assessment, through to simulation training for both consumers and workers
- **Research** - Including biomedical, informatics and management research
- **Administration** - Of the business of healthcare including logistics, human resources, planning and finance

Survey results

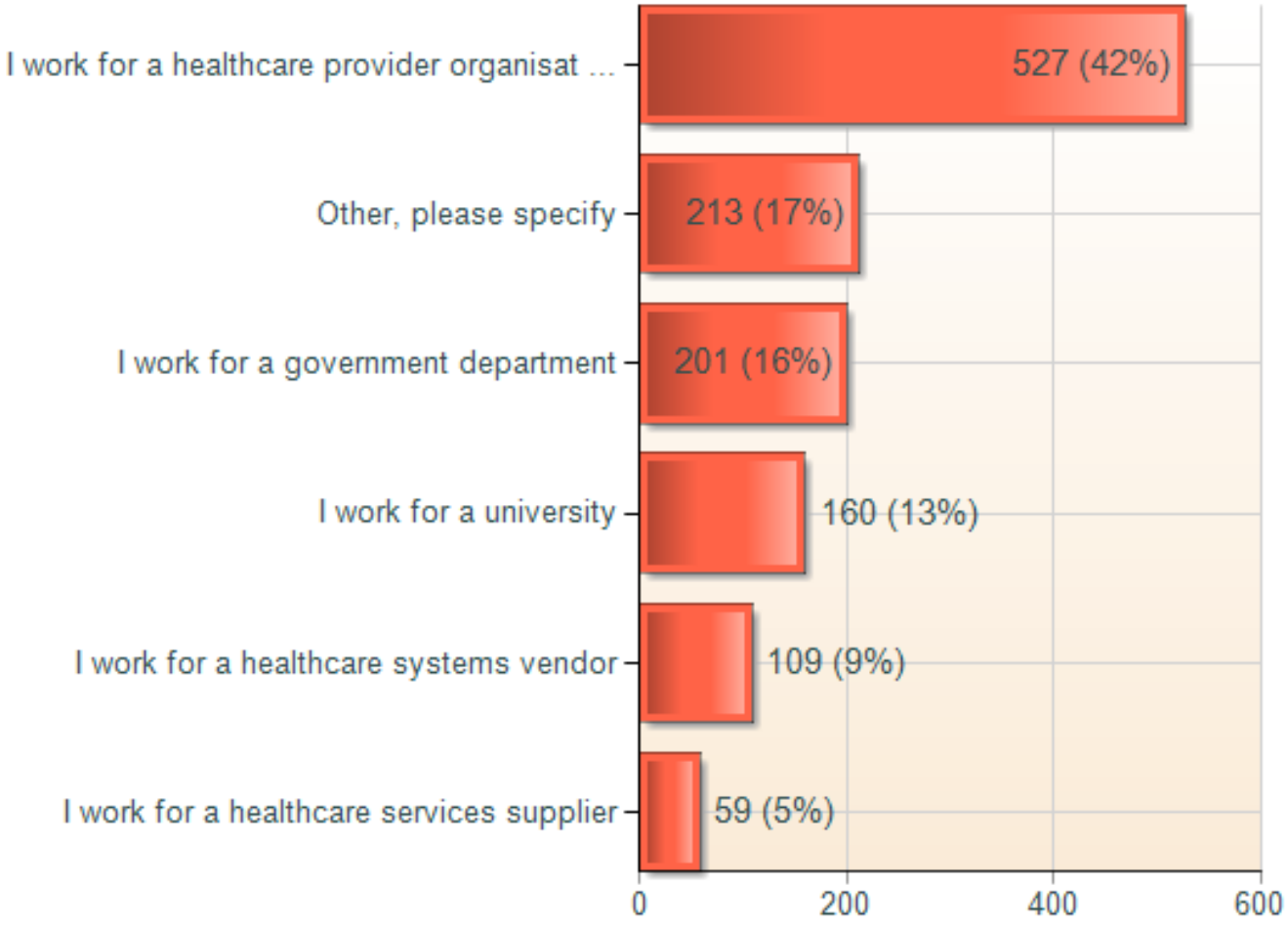


Survey results

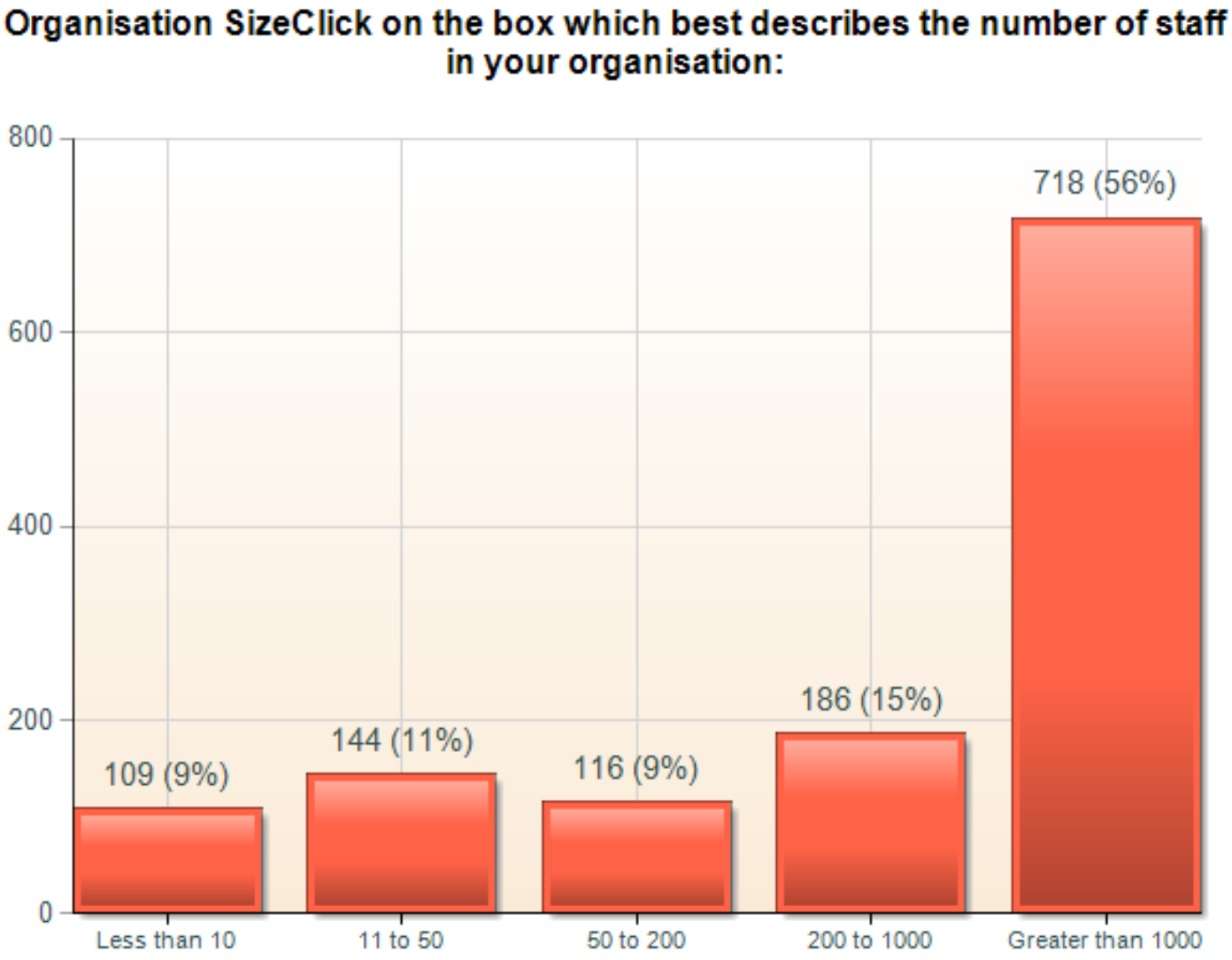


Survey results

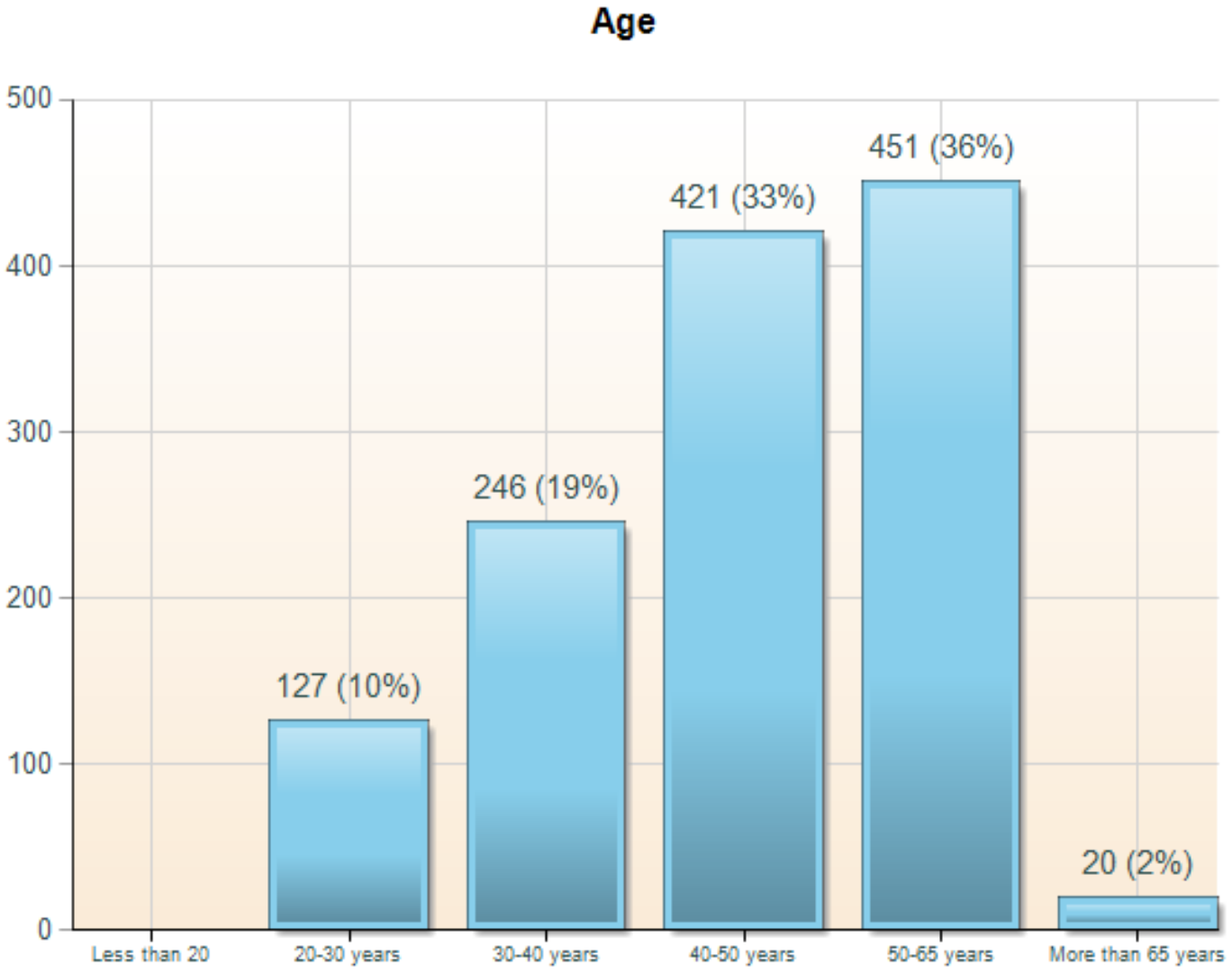
Organisation TypeCould you now tell us about the type of organisation that you work for. Click on the box which best fits your organisation:



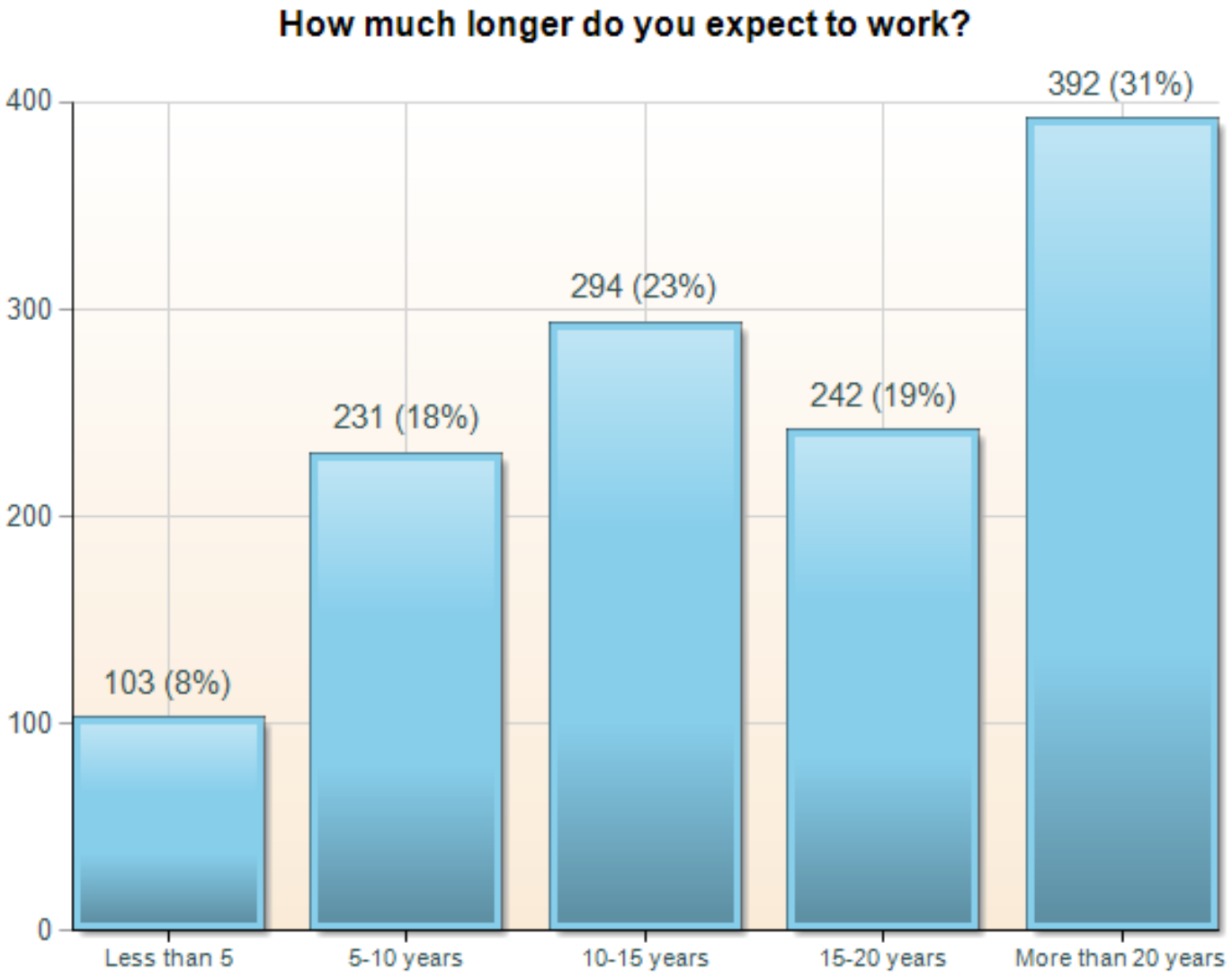
Survey results



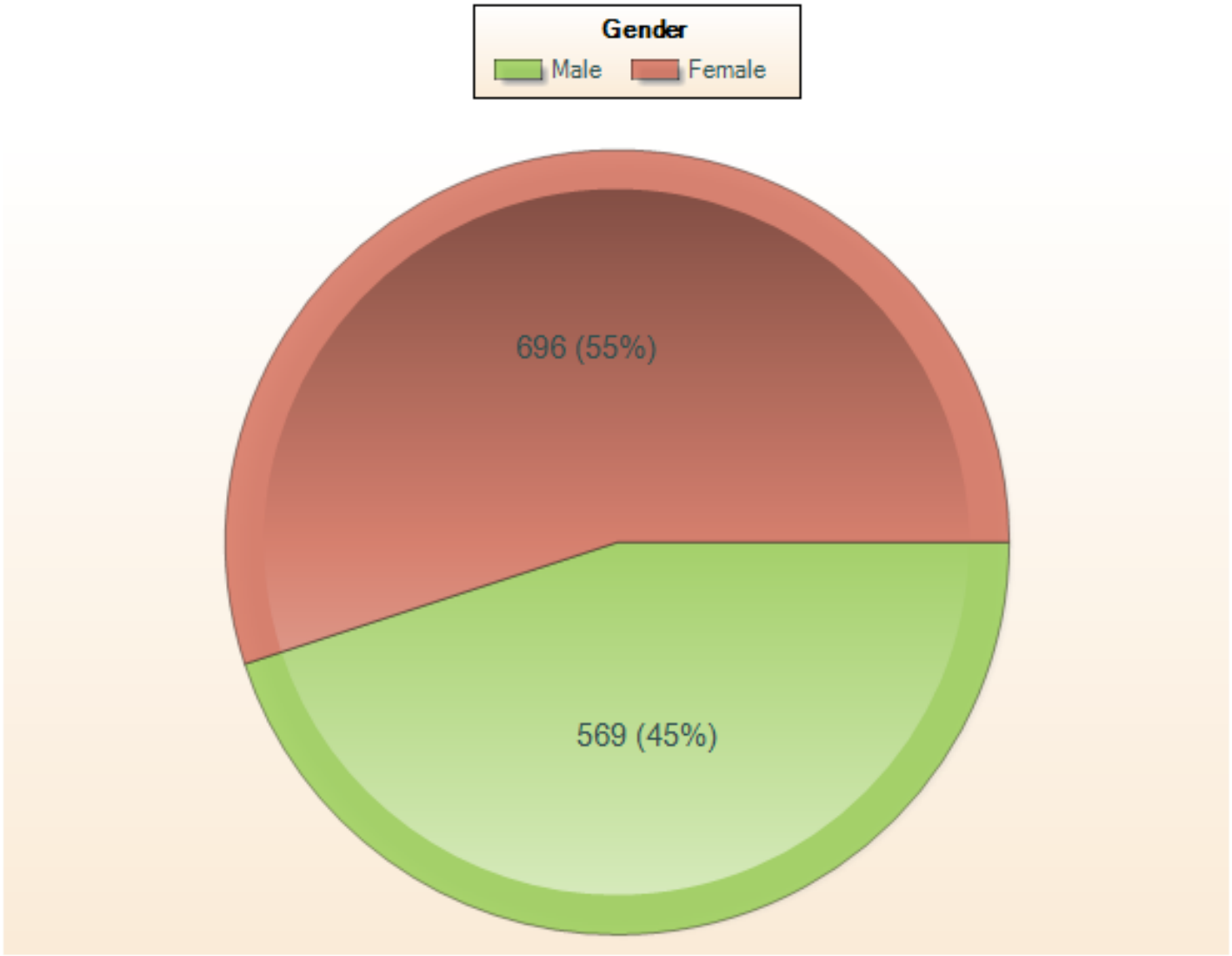
Survey results



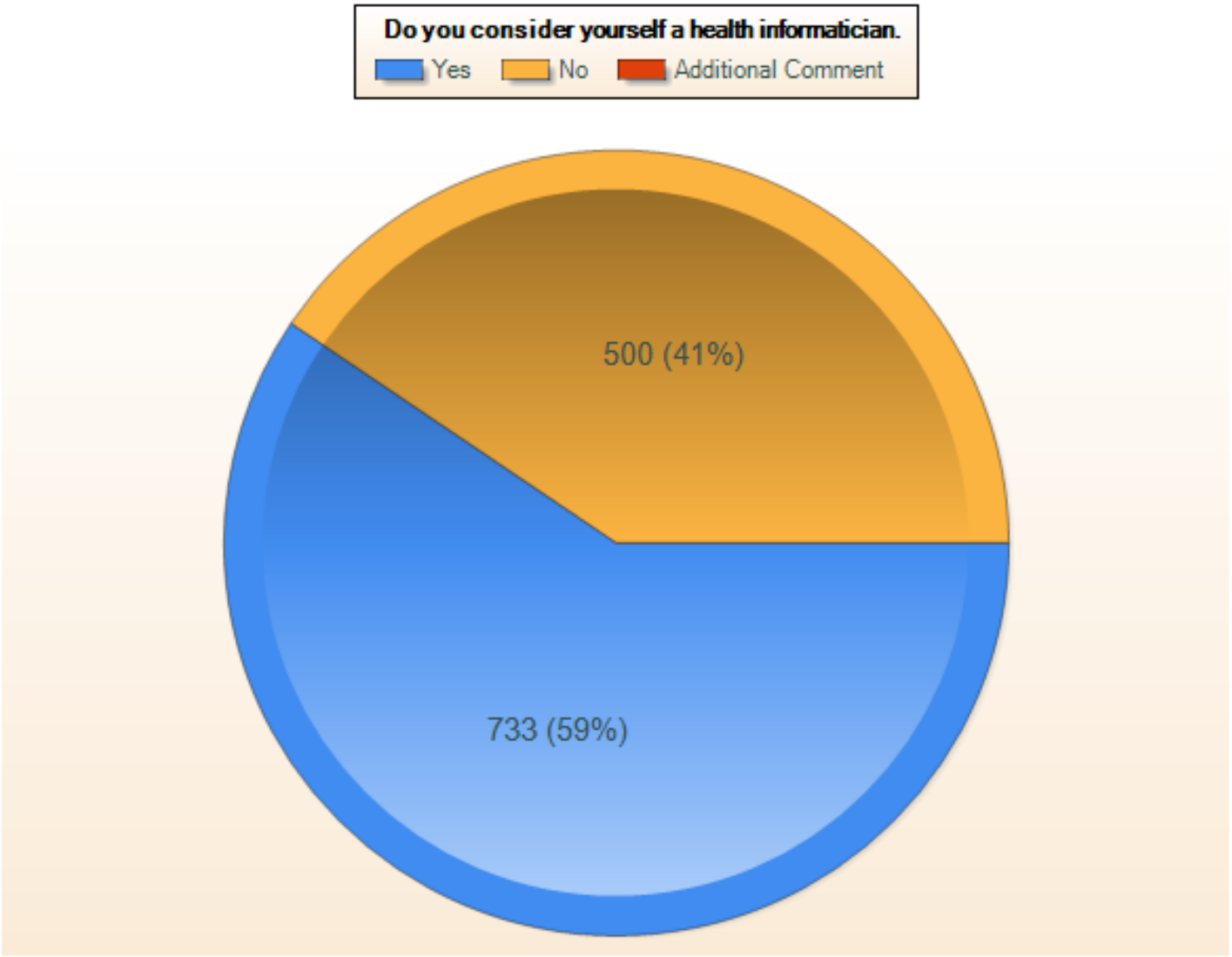
Survey results



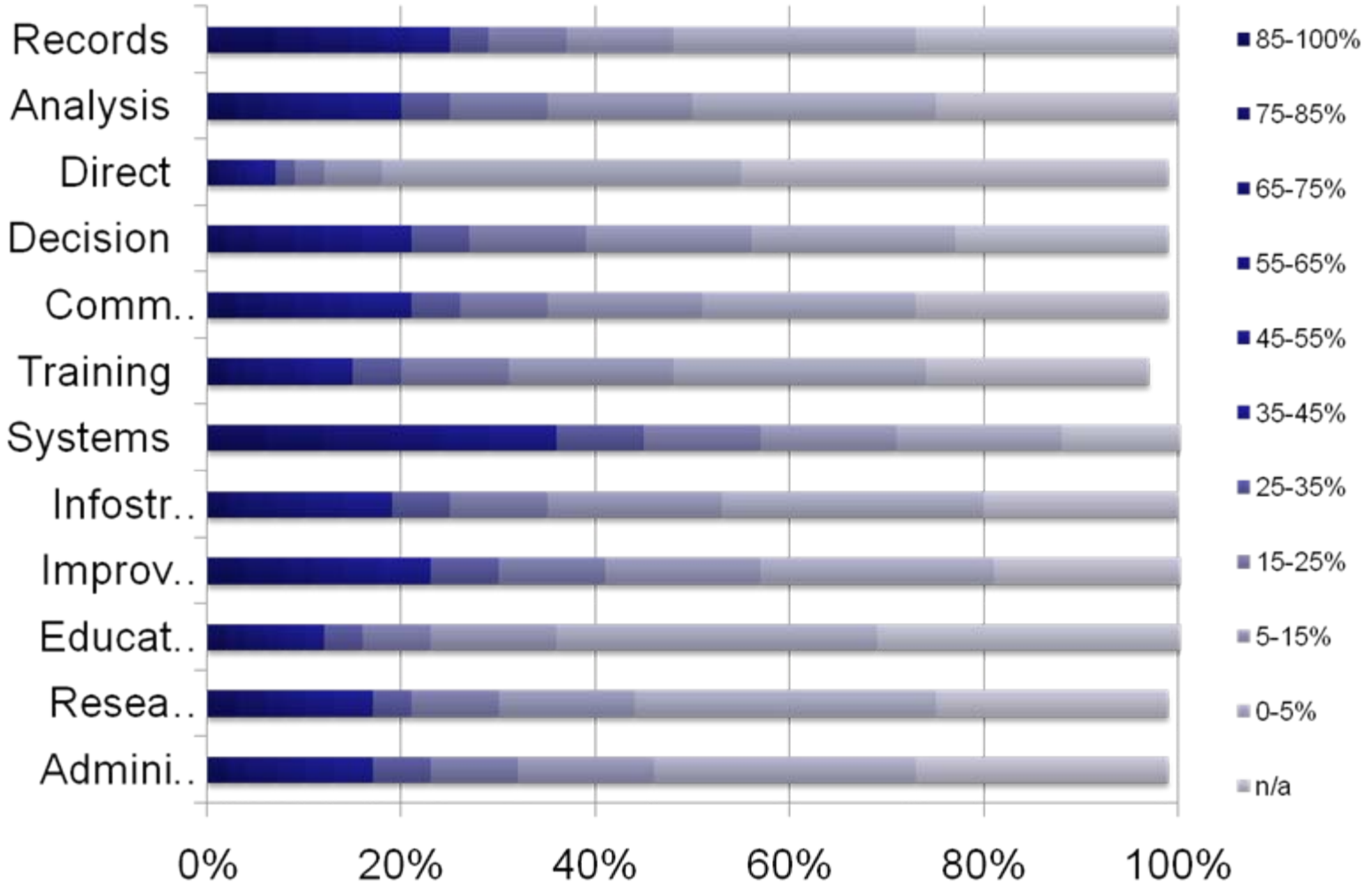
Survey results



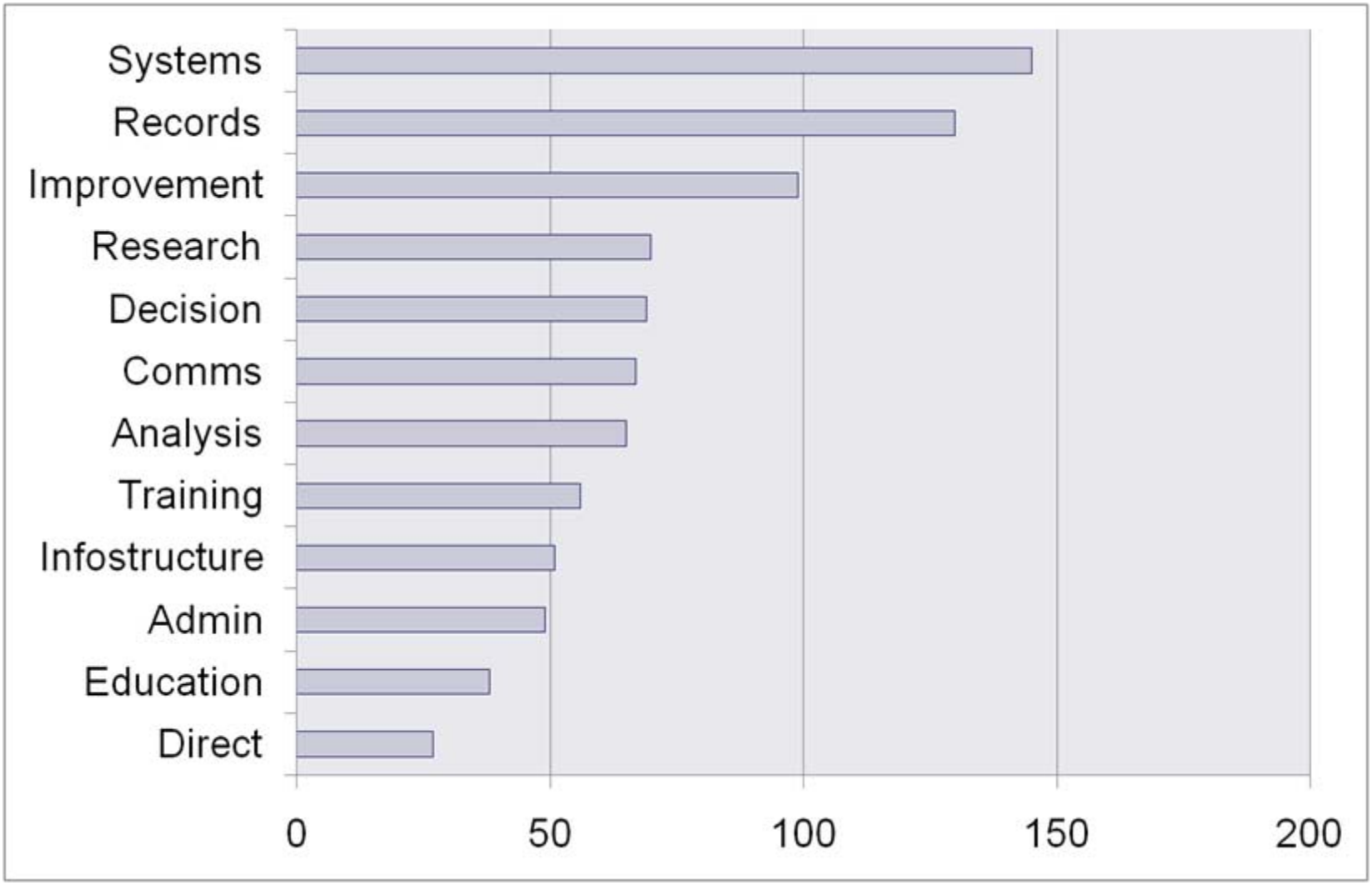
Survey results



Survey – Work Categories



Survey – Full-timers



HIM – HI work comparison

What education and training do they have?

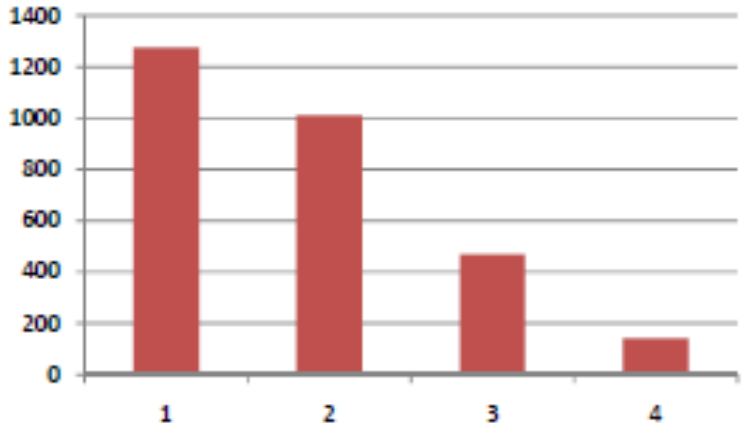
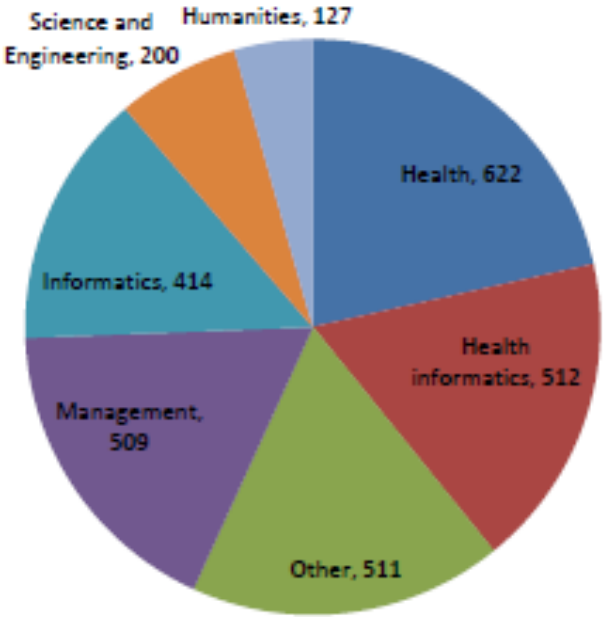


Figure 30 – The number of respondents with 1, 2, 3, and 4 or more qualifications



Most health informaticians

- Are women
- Work in large organisations that provide healthcare
- Are aged 45 or more and expect to work for more than 10 years
- Work broadly across 12 areas of work but are more likely to work full-time in systems, records or improvement related activities
- Have post-graduate qualifications
- Have education and training in two or more distinct domains of knowledge with their first training most likely to be in a health discipline

Characteristics by work type - Records

Figure 7 - Survey results overview for full-timers – Records (n=130)

Job titles - Records

Records

This work category includes tasks like capturing information about a consumer and their interactions with the healthcare system and managing that information

Job titles for this work category from consultation:

- Clerks
- Clinical coders
- Clinical data manager
- Clinical Trials
- Data and information co-ordinator
- Data entry clerk
- Data manager
- FOI officer
- Health information manager
- Health records manager
- Health records officer
- Medical record administrator
- Practice managers
- Privacy officer
- Registrar

Job titles for this work category from the survey:

- Administration Manager
- Administration Officer
- ADON, Nursing Informatics & Management support
- Advanced Clinical Coder
- Analyst
- Assistant Data manager
- Assistant Health Information Manager
- Assistant Manager Clinical Coding & Casemix
- Auditor
- Business Analyst
- Cancer Information Manager
- Cancer Registry Data Manager
- Casemix Coder
- Certified coder
- Chief Health Information Manager
- Clinical Audit Coordinator
- Clinical Coder
- Clinical coder - health information manager
- Clinical Coder and Client Services Administration
- Clinical Coder, Health Information Services
- Clinical Coder/Health Information Manager
- Clinical Coding
- Clinical Coding Manager
- Clinical Data Coordinator
- Clinical Data Services Officer
- Clinical Information Coder
- Clinical Nurse Specialist / Health Adviser
- Clinical Research Coordinator
- Clinical Transcriptionist
- Clinical Trial Coordinator/HIM
- Coding Manager
- Consultant
- Coordinator Clinical Coding
- Data Management Analyst
- Data Manager
- Data Manager/Clinical Trial Coordinator
- Doctor
- General Practitioner
- Gynaecologist
- Health Adviser
- Health Information Manager
- Health Information Manager - Clinical Coder

- Health Information Manager - HBCIS & medico-legal
- Health Information Officer
- Health Information Release Manager
- Health Information Services Training Coordinator
- Health Systems Business Analyst
- HIE Data Manager
- Information Manager
- Joint Records Centre Deputy Manager
- Lecturer
- Manager - Clinical Information
- Manager - Medical Record Services
- Manager Coding Services
- Manager Health Information Services
- Medical Laboratory Scientist
- Patient Health Information Services Coordinator
- Professional Officer
- Project Manager
- Project Officer
- Psychiatric Nurse
- Reconciliation Officer
- Research Manager
- Senior Analyst
- Senior Business Analyst Clinical Systems
- Senior Clinical Coder
- Senior Clinical Systems Analyst
- Senior Health Information Manager
- Senior Health Information Officer
- Senior Health Records Officer
- Senior Laboratory Information Technology Officer
- Senior Medical Receptionist
- Software Engineer
- Supervisor, Pathology IT
- Unique Patient Identifier (UPI) Systems Manager

The characteristics of respondents working full-time in this work category are presented graphically below.

Career matrix

Health Informatics Professional Career Matrix©

Association canadienne d'informatique de la santé
COACH©
Canada's Health Informatics Association

Level	Clinical & Health Sciences	Canadian Health System	Project Management	Organizational & Behavioural Management	Analysis & Evaluation	Information Management	Information Technology
5 Master	Chief Medical Informatics Officer	Chief Information Officer		Practice Director	Research & Analysis Vice President	Chief Privacy Officer	Chief Technology Officer
4 Expert	Clinical Informatics Director	Senior Policy Analyst	Program Management Office Director Program Director	Change & Evaluation Services Director	Senior Methodologist	Chief Quality Officer Information Management Director Standards Director	Architecture Director Information Technology Director
3 Proficient	Clinical Informatics Manager Outcomes Specialist	Business Development Analyst Risk Manager Senior Business Analyst	Project Director Program Management Office Manager	Engagement Manager Program Manager Service Manager	Senior Researcher	Privacy Specialist Registry Manager Standards Manager	Data Architect Security Specialist Solution Architecture Lead
2 Competent	Clinical Analyst Clinical Informatics Specialist	Business Analyst Policy Analyst Risk Analyst	Project Manager	Product Specialist Trainer Transition & Change Management Lead	Benefits & Evaluation Analyst Business Intelligence Analyst Information Analyst	Data Integrity Analyst Privacy & Data Access Lead Standards Subject Matter Expert	Data Modeller Integration Analyst Senior Testing Analyst Solutions Architect Technical Lead
1 Emerging Professional	Clinical Coordinator	Junior Business Analyst	Project Coordinator Program Coordinator	Product Support Analyst Training Coordinator	Research Analyst	Operations Assistant Privacy Analyst Standards Analyst	Help Desk Coordinator Testing Analyst

What are the issues?

- There are too few health informaticians for the current workload and this will be a major barrier in the future to implementing the National E-Heath Strategy in particular and health reform more generally
- Too little is known about the health informatics workforce - we know neither how many we have nor how many we need and there is no indication that it is yet part of national workforce strategies and the remit of the National Health Workforce Agency

What are the issues?

- There is a fundamental breakdown between the market, education providers and potential workforce entrants with a strong demand by employers for workers on the one hand, and yet a failure to attract students leading to the closure of well-regarded university courses on the other
- Because it is emerging, health informatics does not have wide recognition as a discipline in its own right; there is a poor understanding of the knowledge domain in Australia; and many of the workers do not yet self-identify despite them working in clearly related jobs

What are the issues?

- There is no career structure for health informaticians in Australia and competencies and job names and their descriptions are not standardised
- There will be a long lag time to produce new health informaticians because of the multi-disciplinary nature of the education and the complexity of the discipline
- A contributing factor to the lack of needed recognition and action is the fragmented representation of those in the discipline

What can be done?

- Increase the supply of workers by
  - Improving recruitment
  - Increasing the opportunities for education and training
  - Retaining the workforce longer
  - Attracting re-entry of those who have exited
  - Outsource internationally
- Redistribute the workforce from areas of lower to higher priority
- Improve the productivity of the workforce by
  - Standardisation
  - The introduction of new technology including software and knowledge tooling
  - Improved work environment
  - Consolidation
- Reduce the demand by
  - Design

The definition again...

Health informatics is the science and practice around information in health that leads to informed and assisted healthcare