

Figure 1 to Education Steps report – IMIA Scientific Content Map

## Scientific Map

Table 1: Proposed Medical Informatics Scientific Content Map					
Applied Technology	Information Technology Infrastructure	Data-Infrastructure Related	Applications and Products	Human - Organizational	Education and Knowledge
<ul style="list-style-type: none"> <li>⑩ Algorithms</li> <li>⑩ Bioinformatics</li> <li>⑩ Biosignal processing</li> <li>⑩ Boolean logic</li> <li>⑩ Cryptology</li> <li>⑩ Human genome related</li> <li>⑩ Human interfaces</li> <li>⑩ Image Processing</li> <li>⑩ Mathematical models in medicine</li> <li>⑩ Pattern recognition</li> </ul>	<ul style="list-style-type: none"> <li>⑩ Archival-repository systems for medical records- EPR-CPR-EMR</li> <li>⑩ Authentication</li> <li>⑩ Chip cards in health care</li> <li>⑩ Distributed systems</li> <li>⑩ Health professional workstation</li> <li>⑩ Interfaces</li> <li>⑩ Knowledge based systems</li> <li>⑩ Networks</li> <li>⑩ Neural networks</li> <li>⑩ Pen based</li> <li>⑩ Security</li> <li>⑩ Speech recognition</li> <li>⑩ Standards</li> <li>⑩ Systems architecture</li> <li>⑩ Telehealth</li> <li>⑩ User interfaces</li> </ul>	<ul style="list-style-type: none"> <li>⑩ Classification</li> <li>⑩ Coding systems</li> <li>⑩ Concept representation-preservation</li> <li>⑩ Data acquisition- data capture</li> <li>⑩ Data analysis-extraction tools</li> <li>⑩ Data entry</li> <li>⑩ Data policies</li> <li>⑩ Data protection</li> <li>⑩ Database design</li> <li>⑩ Indexing</li> <li>⑩ Syntax</li> <li>⑩ Language representation</li> <li>⑩ Lexicons</li> <li>⑩ Linguistics</li> <li>⑩ Modeling</li> <li>⑩ Nomenclatures</li> </ul>	<ul style="list-style-type: none"> <li>⑩ Biostatistics</li> <li>⑩ Clinical trials</li> <li>⑩ Computer-supported surgery</li> <li>⑩ Decision support</li> <li>⑩ Diagnosis related</li> <li>⑩ Disease mgt.</li> <li>⑩ EPR-CPR-EMR</li> <li>⑩ Epidemiological research</li> <li>⑩ Hospital IS</li> <li>⑩ Event-based systems</li> <li>⑩ Evidence based guidelines</li> <li>⑩ Expert systems</li> <li>⑩ Health services research</li> <li>⑩ HIS management</li> </ul>	<ul style="list-style-type: none"> <li>⑩ Assessment</li> <li>⑩ Compliance</li> <li>⑩ Cognitive tasks</li> <li>⑩ Collaboration</li> <li>⑩ Communication</li> <li>⑩ Economics of IT</li> <li>⑩ Ethics</li> <li>⑩ Implementation-deployment</li> <li>⑩ Diffusion of IT</li> <li>⑩ Evaluation</li> <li>⑩ Human Factors</li> <li>⑩ Legal issues, implementing national laws</li> <li>⑩ Management</li> <li>⑩ Managing Change</li> <li>⑩ Needs assessment</li> <li>⑩ Organizational redesign processes</li> <li>⑩ Organizational transformation</li> <li>⑩ Planning</li> <li>⑩ Policy Issues</li> <li>⑩ Privacy</li> </ul>	<ul style="list-style-type: none"> <li>⑩ Bibliographic</li> <li>⑩ Cognitive learning</li> <li>⑩ Computer aided instruction</li> <li>⑩ Computer-supported training</li> <li>⑩ Consumer education</li> <li>⑩ Continuing education</li> <li>⑩ Digital Libraries</li> <li>⑩ E-Business</li> <li>⑩ H/MI education</li> <li>⑩ Information management-dissemination</li> <li>⑩ Knowledge bases</li> <li>⑩ Knowledge management</li> <li>⑩ Learning models</li> <li>⑩ Online/distance education</li> </ul>

		<ul style="list-style-type: none"> <li>⑩ Standards</li> <li>⑩ Terminology-vocabulary</li>   <li>⑩ Thesaurus tools</li> </ul>	<ul style="list-style-type: none"> <li>⑩ Knowledge-based systems</li>   <li>⑩ Laboratory data</li>   <li>⑩ Image processing</li> <li>⑩ Operations/Resource management</li> <li>⑩ Outcomes research and measurement</li> <li>⑩ Quality management</li>   <li>⑩ Patient identification</li> <li>⑩ Patient monitoring</li> <li>⑩ Minimum Data Sets</li> <li>⑩ Supply chain</li> <li>⑩ Telematics</li> <li>⑩ Telemedicine</li> </ul>	<ul style="list-style-type: none"> <li>⑩ Project Management</li> <li>⑩ Security</li> <li>⑩ Strategic plans</li> <li>⑩ Unique identifiers</li> <li>⑩ User-computer interface</li> </ul>	
<p>Clinical Disciplines: Anesthesia, Behavioral, Cardio/Thoracic, Cardiovascular, Dentistry, Dermatology, Emergency Medicine, Environmental health, Gastroenterology, Human genetics, Internal Medicine, Neurosurgery, Nursing, Obstetrics &amp; Gynecology, Ophthalmology, Orthopedics, Pathology, Pediatrics, Pharmacy, Primary care, Psychiatry, Radiology, Surgery, Urology</p>					

**Table 2: World-wide Informatics Association's Working Groups**

Infrastructure/Technical/Resear	Standards &	Applications & Products	Education and Human Related
<ul style="list-style-type: none"> <li>⑩ Data Protection and Security (EFMI)-Francois Allaert</li> <li>⑩ Data Protection in Health Information Systems (IMIA)- Ab Bakker</li> <li>⑩ Intelligent Data Analysis and Data Mining (IMIA)- Riccardo Bellazzi, Blaz Zupan</li> <li>⑩ Biomedical Pattern Recognition (IMIA)- Christoph Zywietz</li> <li>⑩ Biomedical Statistics and Information Processing (IMIA)- Jana Zvarova, Leon Bobrowski</li> <li>⑩ Genomics (AMIA)-John McCarthy</li> </ul>	<ul style="list-style-type: none"> <li>⑩ Standards in Health Telematics (EFMI)</li> <li>⑩ Natural Language understanding (EFMI)- Robert Baud</li> <li>⑩ Medical Concept Representation (IMIA)- Christopher G. Chute</li> <li>⑩ Standards in Health Care Informatics (IMIA)-Open</li> <li>⑩ Natural Language Processing (AMIA)- Stephen B. Johnson</li> </ul>	<ul style="list-style-type: none"> <li>⑩ Clinical Information Systems (AMIA)-Richard Gibson</li> <li>⑩ Clinical Trials (AMIA)-Joyce Niland</li> <li>⑩ Computerized Patient Records (IMIA)- Johan van der Lei, Mark Musen</li> <li>⑩ Health Information Systems (IMIA)- Klaus Kuhn, Dario Giuse</li> <li>⑩ MDBS, Case Mix and severity of cases (EFMI)- Francis Roger-France</li> <li>⑩ Telematics in Healthcare (IMIA)- Regis Beuscart</li> <li>⑩ Information Planning and Modelling in Health Care(EFMI)-Brian Manning</li> <li>⑩ Internet (AMIA)-Bradford J. Richmond</li> <li>⑩ Telehealth (AMIA)-Luis G. Kun, PhD</li> </ul>	<ul style="list-style-type: none"> <li>⑩ Consumer Health Informatics (IMIA)- Alejandro Jadad, Betty L. Chang, Gunther Eysenbach</li> <li>⑩ Consumer Health Informatics (AMIA)- Betty L. Chang</li> <li>⑩ Education in Health Informatics (EFMI)- Arie Hasman</li> <li>⑩ Education (AMIA)-Paul N. Gorman</li> <li>⑩ Ethical, Legal, and Social Issues (AMIA)-Peter Winkelstein</li> <li>⑩ Health and Medical Informatics Education (IMIA)- Evelyn Hovenga, John Mantas</li> <li>⑩ Human and organisational issues in medical informatics (EFM)- Jos Aarts</li> <li>⑩ Organizational and Social Issues (IMIA)- Bonnie Kaplan</li> <li>⑩ People &amp; Organizational Issues (AMIA)-Cynthia Gadd and Annette L. Valenta</li> <li>⑩ Prevention and Public Health AMIA)-Jeff Luck</li> <li>⑩ Quality Improvement (AMIA)-E. Andrew Balas</li> <li>⑩ Technology Assessment &amp; Quality Development (IMIA)- Jan Talmon</li> </ul>

Developing Countries-Need Content From all of the Above Topics

<ul style="list-style-type: none"> <li>⑩ Health, Informatics and Development (EFMI)- George I. Mihalas</li> </ul>	<ul style="list-style-type: none"> <li>⑩ Health Informatics for Development (IMIA)- Nora Oliveri</li> </ul>
<p>Clinical Based Discipline Working Groups that Cross all of the Above</p>	
<ul style="list-style-type: none"> <li>⑩ Anesthesiology/Critical Care and Emergency Medicine (AMIA)-Vasu Brown</li> <li>⑩ Dental Informatics (AMIA)-Heiko Spallek</li> <li>⑩ Dental Informatics (IMIA)- Wook-Sung Yoo, John Eisner</li> <li>⑩ Mental Health (IMIA)- Michael Rigby, Ann Sheridan</li> <li>⑩ Nursing Informatics (AMIA)-Patricia S. Button</li> </ul>	<ul style="list-style-type: none"> <li>⑩ Nursing Informatics in Europe (EFMI)-Patrick Weber</li> <li>⑩ Nursing Informatics (IMIA)- Virginia K. Saba, Heather Strachan</li> <li>⑩ Primary Care Informatics (AMIA)-John A. Zapp</li> <li>⑩ Primary Care Informatics (EFMI)- Nicolas Robinson</li> <li>⑩ Primary Health Care Informatics (IMIA)- Michael Kidd, H.C. Mullins</li> </ul>
<p>Student Working Group (AMIA)-Christoph Lehmann</p>	
	

