



International Labour Organization  
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**Options for the Classification of Health Occupations in the Updated  
International Standard Classification of Occupations (ISCO-08)**

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POLICY INTEGRATION DEPARTMENT  
BUREAU OF STATISTICS

# Options for the Classification of Health Occupations in the Updated International Standard Classification of Occupations (ISCO-08)

## Background

1 During the early stages of consultation aimed at identifying areas of the current version of the International Standard Classification of Occupations (ISCO-88) that need to be updated, several interrelated issues were raised in relation to the classification of occupations in health care. Following consultation with interested parties, a number of proposed changes to ISCO-88 were developed for discussion during 2005 by the UN Expert Group on International Economic and Social Classifications and the ILO Technical Expert Group for updating ISCO-88.

2 Whilst there is agreement on the general approach being adopted, these groups identified several areas where further information or clarification was needed before ISCO-08 could be finalised. In addition, as a result of the ongoing discussions and consultation, a number of new proposals for change have emerged.

3 This paper summarises the main outstanding issues relating to the classification of health occupations in ISCO-08 and the solutions proposed for the resolution of these issues. It is intended that this paper will provide more detailed information to assist those preparing responses to the second questionnaire on updating ISCO-88. Extracts from the draft ISCO-08 structure that relate to health are provided in Table 1.

## A sub-major group for health professionals

4 In ISCO-88 health professionals are included in Sub-major group 22 Life science and health professionals. This sub-major group also includes a minor group of Life science professionals. Occupations classified in this minor group include biologists, pharmacologists and pathologists. Veterinarians are classified as Health professionals and are included in the same minor group as Medical doctors. The logic of this approach is that the field of knowledge required by life science professionals and veterinarians is closely related to that required by health professionals, even though the first two groups are not directly involved in the provision of health services to humans.

5 A number of submissions to the ILO have suggested that it would be more useful if (human) health professionals were able to be identified at the 2-digit level of ISCO so that they would be visible in data disseminated at only this level. This could be achieved by moving Minor group 221, Life science professionals to Sub-major group 21, currently termed "Physical, mathematical and engineering science professionals". It would need to be renamed "Natural science, engineering and design professionals". It is also proposed by those advocating this approach that veterinarians should be moved out of the health professionals group and classified with life science professionals.

6 This approach would have the additional benefit of increasing the size of Sub-major group 21 which runs the risk of becoming rather small now that a separate sub-major group has been created for Information and communications technology professionals. It would have the disadvantage of grouping together in the same sub-major group a number of occupations that are relatively dissimilar in terms of field of knowledge required and some other aspects of skill specialisation.

## Medical Doctors

7 It is currently proposed to create a new minor group of medical doctors containing unit groups for general medical practitioners and for specialist medical practitioners. Whilst this approach has been widely supported some concerns have been expressed about the names and boundaries of the groups, the definitions of the categories and the possibility of providing a more detailed break down, especially for the specialist medical practitioners.

8 The definition of medical doctors in ISCO-88 is seen as being too strongly focussed on research and development and not strongly enough on diagnosing and treating disease. An updated definition of the proposed new unit group for 'generalist medical doctors' is provided at Annex 1. The name for this group has been chosen to try and make it clear that hospital based medical officers as well as general practitioners, who provide continuing and comprehensive medical care to individuals and families in a community setting, are included in the group.

9 It has been suggested that it may be useful to provide a further break down of specialist medical practitioners since these are highly specialised occupations that are frequently in global or regional shortage and are the subject of debate and policy attention in relation to migration programmes. It has been agreed, however, that the issue should not be pursued as it is likely to be difficult to come up with a proposal that could be implemented in a consistent manner internationally. The main difficulties are in identifying and agreeing on groupings that are sufficiently large to form unit groups in their own right yet sufficiently disaggregate to provide useful information.

## Nurses and Midwives

10 There is general agreement about the need for identification of nursing professionals separately from midwifery professionals and for a similar distinction among associate professionals. There is confusion, however, at least outside the health field, about the distinction between professional and associate professional occupations in nursing and midwifery.

11 In ISCO-88 the definitions of nursing and midwifery professionals and associate professionals are identical. As a result many countries have assigned nurses to one category or the other on the basis of formal qualifications either required in that country or held by individuals. The result has been that workers who perform identical tasks may be classified in different major groups. For ISCO-08, the principle has been adopted that jobs requiring the performance of the same or very similar tasks should always be classified in the same group, irrespective of the formal educational qualifications required in the country or held by the individual.

12 In response to this concern, updated definitions of professional and associate professional occupations in nursing and midwifery were circulated by the ILO during 2005. These definitions have been criticised because they are not sufficiently concise and do not focus clearly on the key points of difference between related occupations, so that countries can determine reliably which category particular groups belong to. Updated draft definitions of nursing occupations are attached at Annex 1 for comment. Additional definitional notes could be developed to assist in distinguishing between professional and associate professional nurses.

13 There has also been some suggestion about the need for separate identification of specialised nurses. This proposal is not being pursued, as responses to questions in surveys on occupation title alone are unlikely to provide sufficient detail and it may be difficult to achieve agreement on appropriate groupings for nursing specialisations at the international level.

## A sub-major group for health associate professionals

14 For similar reasons to the proposal for health professionals it is proposed to move ISCO-88 Minor group 321, Life Science technicians and related associate professionals to Sub-major group 31 currently called Physical and engineering science associate professionals. This proposal has been adopted in the draft structure, but the discussion below on health laboratory technicians has some bearing on this issue.

### Health laboratory technicians

15 There has been a proposal to create a new unit group for laboratory technicians who work in health and to include it in the same minor group as other health associate professionals. This would involve splitting the existing ISCO-88 Unit Group 3211, Life science technicians into those who work directly in support of human health and those who do not. Since the work performed by those involved in analysing, for example, samples of biological material such as blood is essentially the same in health and other contexts, this distinction may be problematical. It would be quite inconsistent with the principles governing the design of ISCO, if the two groups were to be located in separate sub-major groups under the new ISCO-88 structure.

16 A possible solution is to split the Unit group of Life science technicians so as to separately identify human health laboratory technicians from other life science technicians but leave both unit groups in the same minor group. Pathology laboratory technicians, (who may work in forensic, medical research and veterinary contexts as well as in support of medical diagnosis) would have to be included in the health related group. The new unit group could then be included in the alternative view for health related occupations. To assist debate, this proposal has been adopted in the draft of the classification structure circulated with the second questionnaire on updating ISCO-88.

17 It should be noted that this particular issue has a significant bearing on whether or not Minor Group 321, Life science technicians and related associate professionals should be moved to Sub-major Group 31, as a large proportion of the jobs classified in this minor group would be in laboratories associated with the provision of health services.

### Medical assistants

18 The split proposed for health professionals (medical, nursing, allied/other) in Major group 2 has been mirrored for Health associate professionals in Major group 3. This has involved the creation of a minor group for Medical assistants. The numbers of medical or clinical assistants, employed essentially as a filter to medical doctors where the demand for medical services exceeds the supply of medical doctors, is much higher in many countries than the number of medical doctors. The approach suggested would allow this growing group to become visible in data disseminated at the 3-digit level of ISCO.

19 There may be some benefit in making the distinction at unit group level between ‘medical assistants’ whose role is primarily to assist doctors and ‘clinical officers’. The latter undertake medical examinations and either refer patients to doctors or prescribe and administer treatment without reference to the doctor, depending on the initial diagnosis. An example of this approach can be found in the Kenya National Occupation Classification Standard (KNOCS) published in 2003.<sup>1</sup>

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<sup>1</sup> Kenya National Occupation Classification Standard, Ministry of Labour and Human Resource Development, Nairobi, 2003

## Occupations related to environmental and occupational health

20 Occupations related to environmental and occupational health can be found in ISCO-88 unit groups 3152, Safety, health and quality inspectors and 3222 Sanitarians. There has been an increasing focus since ISCO-88 was developed on issues associated with environmental and occupational health and safety and on the economic and social costs of environmental and occupational hazards. This has led to the emergence of a number of occupations of a professional nature aimed at reducing such hazards and developing and implementing policies and practices within organisations related to these issues. There has also been a growth in the number of jobs of a more technical nature that are concerned with the administration of such policies and practices. In response it is proposed to:

- Create a new unit group in Major Group 2 of Environmental and occupational health and hygiene professionals. It is likely that these occupations are currently being classified in ISCO-88 unit groups 3152 and 3222 although some may be included in various parts of Major group 2 depending on national practice
- Merge the remaining occupations classified in ISCO-88 Unit Group 3152, Safety, health and quality inspectors, that are associated with health and safety with those currently classified in Unit Group 3222 Sanitarians.

(Note: it is proposed to move the remaining occupations classified in ISCO-88 Minor group 315, Safety and quality inspectors to the relevant unit groups in Minor Group 311, Physical and engineering science technicians. Their primary skills are associated with the relevant branches of engineering. Building and fire inspectors for example require knowledge of technical issues associated with building design and construction, interpreting plans, and building regulations: these skills are similar to those held by building technicians classified in Unit 3112 Civil Engineering Technicians)

## Traditional medical practitioners and faith healers

21 ISCO-88 Unit group 3241, Traditional medical practitioners is conceived as a group for individuals with limited formal or scientific education who use traditional methods handed down from generation to generation to cure illness. As there is an increasing interest in many countries in these more traditional methods, some occupations classified here are becoming more integrated with modern medical practice (Eg acupuncture and homeopathy). In many countries formal qualifications (that may include elements of modern medicine) and licensing are required in order to practice certain types of traditional medicine such as acupuncture. Although they may not hold formal qualifications, it is generally acknowledged that traditional medicine practitioners working traditional settings may perform tasks that require a considerable depth of knowledge and skill.

22 It is proposed that:-

1. Traditional medical practitioners will remain in Major group 3 and will be represented as a unit group in the new Minor Group Allied Health Associate Professionals and will be renamed 'Traditional and complementary medicine practitioners'. The changed name reflects the existence of this type of practice in support of modern medicine and the use of certain practices outside the geographical areas where they traditionally developed.
2. Faith healers, who rely entirely on the power of the mind and of supernatural forces, will be identified as a unit group in Minor Group 515, Other personal service workers.

## Medical physicists

23 In the first questionnaire an occupational description for *Medical physicists* prepared by The International Union for Physical and Engineering Science in Medicine (IUPESM) was presented for comment. An updated definition provided by the International Organisation for Medical Physicists is presented at Annex 2. It was concluded from the responses to the first questionnaire that medical physicists are not sufficiently numerous to justify the creation of a unit group but opinion was divided about whether they should be classified in ISCO-88 Unit Group 2111 *Physicists and astronomers*, or somewhere in Minor Group 222 *Health Professionals (except nursing)*.

24 Since the first questionnaire was developed, there has been a significant reorganisation of groups related to health and science in the draft classification. Medical physicists could be classified either in Unit group 2111, Astronomers and physicists or in Unit Group 2239, Allied Health Professionals not elsewhere classified. In either case they could be listed as an occupation classified in that group.

### Table 1: Possible ISCO-08 structure for health and related occupations

Note: All minor groups containing occupations that may be directly related to health care have been included, so as to aid discussion. Those unit groups shown in grey scale would not be included in the thematic grouping for health occupations.

		ISCO-88 Code
<b>1</b>	<b>Managers, senior officials and legislators</b>	
	<b>134 Education, Health and Welfare Service Managers</b>	1229 and 1319
	1341 Child care service managers	1229, 1319
	1342 Health managers	1229, 1319
	1343 Social welfare managers	1229, 1319
	1344 Education managers	1229, 1319
<b>2</b>	<b>Professionals</b>	
<b>21</b>	<b>Science, engineering and design professionals</b>	
	<b>211 Physicists, chemists and related professionals</b>	
	2111 Physicists and astronomers	2111
	2112 Meteorologists	2112
	2113 Chemists	2113
	2114 Geologists and geophysicists	2114
	<b>213 Life science professionals</b>	
	2131 Biologists, botanists, zoologists and related professionals	2211
	2132 Pharmacologists, pathologists and related professionals	2212
	2133 Agronomists and related professionals	2213
	2134 Veterinarians	2223
<b>22</b>	<b>Health professionals</b>	
	<b>221 Medical doctors</b>	
	2211 Generalist medical practitioners	2221, part
	2212 Specialist medical practitioners	2221, part
	<b>222 Nursing and midwifery professionals</b>	
	2221 Nursing professionals	2230
	2222 Midwifery professionals	2230
	<b>223 Allied Health professionals</b>	
	2231 Dentists	2222
	2232 Pharmacists	2224
	2233 Environmental and occupational health and hygiene professionals	2229, 3152
	2234 Physiotherapists	3227
	2235 Dieticians and nutritionists	3223

	2239	Allied Health professionals not elsewhere classified	2229, 3229
<b>3</b>		<b>Technicians and associate professionals</b>	
<b>31</b>		<b>Science and engineering associate professionals</b>	
	<b>314</b>	<b>Life science technicians and related associate professionals</b>	
	3141	Life science technicians (except medical)	3211 part
	3142	Medical laboratory technicians	3211 part
	3143	Veterinary assistants	3227
	3144	Agricultural technicians	3212 part
	3145	Fishery technicians	3212 part
	3146	Forestry technicians	3212 part
	3147	Farming and forestry advisers	3213
<b>32</b>		<b>Health associate professionals</b>	
	<b>321</b>	<b>Medical assistants</b>	
	3210	Medical assistants	3221, part
	<b>322</b>	<b>Nursing and midwifery associate professionals</b>	
	3221	Nursing associate professionals	3231- 2230, part
	3222	Midwifery associate professionals	3232
	<b>323</b>	<b>Other health associate professionals</b>	
	3231	Dental assistants and Therapists	3225
	3232	Pharmaceutical technicians and assistants	3228
	3233	Community health workers	3221, part
	3234	Optometrists and opticians	3224
	3235	Physiotherapy technicians and assistants	
	3236	Medical equipment technicians	3133
	3237	Environmental and occupational health inspectors and associates	3152 part, 3222
	3238	Traditional and complementary medicine practitioners	3241, 3229 part
	3239	Allied health associate professionals not elsewhere classified	3229 part, 3226 part
<b>5</b>		<b>Service and sales workers</b>	
<b>51</b>		<b>Personal and protective services workers</b>	
	<b>513</b>	<b>Personal care and related workers</b>	
	5131	Child carers	5131
	5132	Institution-based personal care workers	5132, part
	5133	Home-based personal care workers	5133
	5134	Aged carers	5132 part
	5135	Carers for the disabled	5132, part
	5136	Ambulance officers	5132, part
	5139	Personal care and related workers not elsewhere classified	5139

# Annex 1: Proposed definitions for selected ISCO-08 Health Occupation groups <sup>2</sup>

## Unit Group 2211: Generalist medical practitioners

**Generalist medical doctors** diagnose and treat human physical and mental illnesses, disorders and injuries, recommend preventive action and refer patients to specialist medical doctors or other health care professionals. They do not limit their practice to certain disease categories or methods of treatment. They may be employed as medical officers or interns in a hospital or other institutional setting, or assume responsibility for the provision of continuing and comprehensive medical care to individuals and families as general practitioners working in a community setting. In some countries, 'general practitioner' is treated as a specialisation, but this occupation should always be classified in this unit group.

Tasks include:

- a) conducting examinations and questioning patients to determine the nature of disorders or illnesses and recording patients' medical information
- b) ordering laboratory tests, X-rays and other diagnostic procedures and analysing findings
- c) providing overall care for patients and prescribing and administering treatments, medications and other remedial measures
- d) monitoring patients' progress and response to treatment
- e) inoculating patients against communicable diseases
- f) advising on diet, exercise and other habits which aid prevention or treatment of disease and disorders
- g) providing pre-natal and post-natal care
- h) referring patients to, and exchanging medical information with, specialists and other health professionals
- i) reporting births, deaths and notifiable diseases to government authorities
- j) arranging the admission of patients to hospital

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<sup>2</sup> Acknowledgements: these definitions are adapted from definitions used by the Australian Bureau of Statistics and Statistics New Zealand for use in the Australian and New Zealand Standard Classification of Occupations and from material provided by the World Health Organisation.

## **Minor Group 222: Nursing and midwifery professionals**

Nursing and midwifery professionals treat and care for the physically or mentally ill, the elderly, and mothers and their babies. They assume responsibility for the planning and management of the care of patients and of health care services, including the supervision of other health care workers, working in teams with medical doctors and others in the practical application of preventive and curative measures, and dealing with emergencies as appropriate; .

Tasks performed usually include: assessing, planning, implementing and evaluating nursing and midwifery care for patients according to accepted practice and standards; coordinating the care of patients in consultation with other health professionals and members of health teams; developing and implementing care plans for the biological, social, and psychological treatment of patients; providing interventions, treatments and therapies including medications, and monitoring responses to treatment or care plan; monitoring and alleviating pain and discomfort experienced by patients by administering drugs (including narcotics) or using other therapies; delivering babies; promoting health and assisting in the prevention of ill health by participating in health education and other health promotion activities; answering questions and providing information to patients and families about treatment and care; supervising and coordinating the work of other nursing and midwifery professionals, associate professional nurses and other health care workers; conducting research and preparing scientific papers and reports.

## **Minor Group 322: Nursing and midwifery associate professionals**

Nursing and midwifery associate professionals provide nursing care for the sick, injured, and others in need of such care, deliver or assist in the delivery of babies, and provide antenatal and post-natal care and instruction. They usually work in support of nursing and midwifery professionals and medical doctors

Tasks performed usually include: providing nursing care, treatment and advice to the ill, injured, disabled, and others in need of care; assisting professional nurses and medical doctors in administering medicine and drugs and other tasks; applying surgical dressings and giving other forms of treatment under instructions from the professional nurse or physicians; assisting in giving first-aid treatment in emergencies; advising expectant mothers on appropriate diet, exercises and behaviour to ease pregnancy and child birth, and noting their general health and progress; delivering babies, or assisting midwifery professionals or doctors in deliveries; attending mothers in the post-natal period to supervise their recovery, to check on babies' progress, and to instruct parents in baby care; advising on and administering birth control methods;

## **Annex 2: Medical Physicist (Revised definition provided by the International Organisation for Medical Physicists)**

Medical Physicists apply knowledge and methodology of science of physics to all aspects of medicine, to conduct research, develop or improve theories and address problems related to diagnosis, treatment, and rehabilitation of human disease. They are directly involved with patients and people with disabilities.

Tasks include –

- (a) Conducting research into human disorders, illnesses and disabilities; investigating biophysical techniques associated with any branch of medicine.
- (b) Conducting specialised examinations of patients and the disabled, improving patient care and clinical services, developing innovative imaging and non-imaging diagnostic procedures for specific medical applications.
- (c) Developing novel instrumentation and physiological measurement techniques, mathematical analysis and applications of computers in medicine in response to clinical need for patients, and aids to everyday living for the disabled;
- (d) Ensuring the quality, safety testing and correct maintenance and operation of treatment machines, x-ray equipment, radiation treatment planning computers; medical uses of ultrasound, MRI, and infrared; and the correct delivery of prescribed radiation doses to patients in radiation therapy;
- (e) Ensuring the accuracy of treatment unit parameters and settings used for a patient's treatment, including correct transfer of parameters between the simulator, treatment plan and the treatment unit, and periodic review of each patient's chart.
- (f) Calculating dose distributions and machine settings; design and fabrication of treatment aids and treatment-beam modifiers for individual patient treatments.
- (g) *In-vivo* measurement to verify the dose delivered to a patient; participation at patient-discussion conferences.
- (h) Advising and consulting with physicians on the physical and radiobiological aspects of patients' treatments, and the development of treatment plans in such applications as use of ionising radiation in diagnosis, therapy, treatment planning with externally delivered radiation as well as use of internally implanted radioactive sources given the state of technology
- (i) Planning, directing, conducting, and participating in supporting programs and remedial procedures to ensure effective and safe use of ionising and non-ionizing radiation and radio nuclides in human beings by physician specialist
- (j) Formulating radiation protection guides and procedures specific to hospital environment and other professional groups and organizations; conducting specialised measurements and producing protocols to minimise radiation exposure of patients, staff and the general public;
- (k) Participating in and contributing to the development and implementation of national and international standards, laws and regulations relating to patient safety, particularly to radiation and radioactive materials;

- (l) Teaching principles of medical physics to physicians, residents, graduate students, medical students, technologists, and other health care professionals by means of lectures, problem solving, and laboratory sessions
- (m) Preparing, publishing and presenting scientific papers and reports;
- (n) Supervising and managing radiation workers and other health professional workers.

Examples of the occupations classified here:

Clinical medical physicists, Clinical scientist