International Organization for Medical Physics

'Medical Physicist' Now Included in The International Standard Classification of Occupations (ISCO-08)

Summary

The occupation of 'Medical Physicist' is explicitly included for the first time in the latest version of the International Standard Classification of Occupations (ISCO-08) under group 2111, 'Physicists and Astronomers' (Appendix 1). Although medical physicists are not classified under group 22 Health Professionals, medical physicists working in health services are recognized as such as there is a specific note under group 2111 stating "…..***medical physicists*** *are considered to be an integral part of the health work force alongside those occupations classified in sub-major group 22, Health professionals….."*. There is also specific mention of medical physicists as health professionals under group 22 Health Professionals *"Note. In using ISCO in applications that seek to identify, describe or measure the health work force, it should be noted that a number of professions considered to be a part of the health work force are classified in groups other than sub-major group 22, Health professionals. Such occupations include but are not restricted to: addictions counsellors, biomedical engineers, clinical psychologists and* ***medical physicists****"* (Appendix 2).

The International Standard Classification of Occupations

The International Standard Classification of Occupations (ISCO) is one of the main international classifications for which the International Labour Organization (ILO) is responsible.

ISCO is a tool for organizing jobs into a clearly defined set of groups according to the tasks and duties undertaken in the job. One of its main aims is to provide a basis for the international reporting, comparison and exchange of statistical and administrative data about occupations.

The classification system is infrequently updated – approximately every 20 years; the previous one being in 1988 (ISCO-88) which did not include any mention of medical physicists or medical physics.

The latest version, ISCO-08, was adopted through the resolution of an ILO Meeting of Experts in Labour Statistics in December 2007 and endorsed by the ILO Governing Body in March 2008. The resolution included the ISCO-08 Structure, Group Titles and Codes (http://www.ilo.org/public/english/bureau/stat/isco/docs/resol08.doc). Currently the group definitions shown on the ILO website are labelled 'Final draft', however it is not expected that there will be any significant changes – see http://www.ilo.org/public/english/bureau/stat/isco/isco08/index.htm .

Following a request from IOMP in 1995 for the inclusion of medical physicists in ISCO, the ILO twice consulted member countries. After the first consultation ILO concluded that medical physicists were not sufficiently numerous to justify a separate unit group. The second consultation focused on where medical physics should be

included in the classification and responses were divided between including medical physics under ‘physicists’ and under ‘health professions’. The ILO finally decided in favour of classification under ‘physicists’ for the following two main reasons:

- Since the basis of knowledge required for medical physics is physics, it is consistent with the ISCO conceptual model to include them in the same Unit group as other physicists.
- The view that medical physicists should be classified as health professionals because they work in the health system was not accepted as ISCO is not a classification of industrial activities.

ILO have also pointed out that inclusion of medical physicists in the group 2269, ‘Health professionals not elsewhere classified’ would mean that they would effectively disappear from statistical view. Their inclusion in group 2111 allows them to be identifiable in data cross-tabulated by occupation and industry and in administrative data on the health service work force using ISCO, as there are virtually no other jobs classified under group 2111 employed in the healthcare.

Although ISCO is not a classification of industrial activities, ILO does recognise that in some countries that medical physicists have not been considered as professionals, or specifically as health service professionals, as medical physicists were not previously included in ISCO. ILO has specifically stated that classifying medical physicists under Physicists does not prevent them from being considered by governments as part of the health work force and have reinforced this by the two notes under groups 211 and 22 (Appendices 1 and 2).

ISCO-08 includes tasks under group 211 ‘Physicists and astronomers’ which are specific to medical physics (Appendix1).

Recommendations to IOMP National Member Organisations (NMOs).

1. NMOs should consider raising with their national Ministry or Department of Health the issue of the identification of the number of medical physicists working in health care through cross-tabulation by occupation and industry and in administrative data on the health service work force using ISCO.

2. In those counties where medical physicists are not fully recognised as health professionals, NMOs may wish to propose to their governments that the status of medical physicists be reviewed following the adoption of ISC-08 by ILO.

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Appendix 1

2111 Physicists and astronomers

http://www.ilo.org/public/english/bureau/stat/isco/docs/gdstruct08.doc

Physicists and astronomers conduct research and improve or develop concepts, theories and operational methods concerning matter, space, time, energy, forces and fields and the interrelationship between these physical phenomena. They apply scientific knowledge relating to physics and astronomy in industrial, medical, military or other fields.

Tasks include -

(a) conducting research and improving or developing concepts, theories, instrumentation, software and operational methods related to physics and astronomy;

(b) conducting experiments, tests and analyses on the structure and properties of matter in fields such as mechanics, thermodynamics, electronics, communications, power generation and distribution, aerodynamics, optics and lasers, remote sensing, medicine, sonics, magnetism, and nuclear physics;

(c) evaluating results of investigations and experiments and expressing conclusions, mainly using mathematical techniques and models;

(d) applying principles, techniques and processes to develop or improve industrial, medical, military and other practical applications of the principles and techniques of physics or astronomy;

(e) ensuring the safe and effective delivery of radiation (ionising and non-ionising) to patients to achieve a diagnostic or therapeutic result as prescribed by a medical practitioner;

(f) ensuring the accurate measurement and characterization of physical quantities used in medical applications;

(g) testing, commissioning and evaluating equipment used in applications such as imaging, medical treatment and dosimetry;

(h) advising and consulting with medical practitioners and other health care professionals in optimizing the balance between the beneficial and deleterious effects of radiation;

(i) observing, analysing and interpreting celestial phenomena and developing methods, numerical models and techniques to extend knowledge of fields such as navigation, satellite communication, space exploration, celestial bodies and cosmic radiation;

(j) developing, implementing and maintaining standards and protocols for the measurement of physical phenomena and for the use of nuclear technology in industrial and medical applications;

(k) preparing scientific papers and reports.

Examples of the occupations classified here:
- Astronomer
- Medical Physicist
- Nuclear Physicist
- Physicist

Some related occupations classified elsewhere:

- Specialist physician (nuclear medicine) - 2212
- Radiation oncologist - 2212
- Radiologist - 2212
- Radiographer - 3211

Notes

It should be noted that, while they are appropriately classified in this unit group with other physicists, medical physicists are considered to be an integral part of the health work force alongside those occupations classified in sub-major group 22, Health professionals and others classified in a number of other unit groups in major group 2, Professionals.

Appendix 2.

22 Health professionals

http://www.ilo.org/public/english/bureau/stat/isco/docs/gdstruct08.doc)

Health professionals conduct research, improve or develop concepts, theories and operational methods, and apply scientific knowledge relating to medicine, nursing, dentistry, veterinary medicine, pharmacy, and promotion of health. Competent performance in most occupations in this sub-major group requires skills at the fourth ISCO skill level.

Tasks performed by workers in this sub-major group usually include: conducting research and obtaining scientific knowledge through the study of human and animal disorders and illnesses and ways of treating them; advising on or applying preventive and curative measures, or promoting health; preparing scientific papers and reports. Supervision of other workers may be included.

Occupations in this sub-major group are classified into the following minor groups:

221 Medical doctors
222 Nursing and midwifery professionals
223 Traditional and complementary medicine professionals
224 Paramedical practitioners
225 Veterinarians
226 Other health professionals

Notes

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