

International Conference on Occupational Radiation Protection: Enhancing the Protection of Workers - Gaps, Challenges and Development



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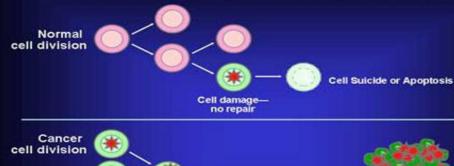
Health surveillance for workers occupationally exposed to radiation: Ethical and technical guiding principles

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#### It is a well-known fact that ionizing radiation can cause damage to health



#### Loss of Normal Growth Control



Third

mutation

Fourth or

later mutation

Second

mutation

First mutation

Uncontrolled growth



International Labour Organization

#### ILO List of Occupational Diseases

(revised 2010)



#### ANNEX

#### List of occupational diseases <sup>1</sup> (revised 2010)

1.	Occupational diseases caused by exposure to agents arising from work activities
1.1.	Diseases caused by chemical agents
1.1.1.	Diseases caused by beryllium or its compounds
1.1.2.	Diseases caused by cadmium or its compounds
1.1.3.	Diseases caused by phosphorus or its compounds
1.1.4.	Diseases caused by chromium or its compounds
1.1.5.	Diseases caused by manganese or its compounds
1. <mark>1</mark> .6.	Diseases caused by arsenic or its compounds
1.1.7.	Diseases caused by mercury or its compounds
1.1.8.	Diseases caused by lead or its compounds
1.1.9.	Diseases caused by fluorine or its compounds
1.1.10.	Diseases caused by carbon disulfide
1.1.11.	Diseases caused by halogen derivatives of aliphatic or aromatic hydrocarbons
1.1.12.	Diseases caused by benzene or its homologues
1.1.13.	Diseases caused by nitro- and amino-derivatives of benzene or its homologues
1.1.14.	Diseases caused by nitroglycerine or other nitric acid esters
1.1.15.	Diseases caused by alcohols, glycols or ketones
1.1.16.	Diseases caused by asphyxiants like carbon monoxide, hydrogen sulfide, hydrogen cyanide or its derivatives
1.1.17.	Diseases caused by acrylonitrile
1.1.18.	Diseases caused by oxides of nitrogen
1.1.19.	Diseases caused by vanadium or its compounds
1.1.20.	Diseases caused by antimony or its compounds
1.1.21.	Diseases caused by hexane
1.1.22.	Diseases caused by mineral acids
1.1.23.	Diseases caused by pharmaceutical agents
1.1.24.	Diseases caused by nickel or its compounds
1.1.25.	Diseases caused by thallium or its compounds
1.1.26.	Diseases caused by osmium or its compounds
1.1.27.	Diseases caused by selenium or its compounds
1.1.28.	Diseases caused by copper or its compounds
1.1.29.	Diseases caused by platinum or its compounds
1.1.30.	Diseases caused by tin or its compounds
1.1.31.	Diseases caused by zinc or its compounds
1.1.32.	Diseases caused by phosgene
1.1.33.	Diseases caused by corneal irritants like benzoquinone
1.1.34.	Diseases caused by ammonia
1.1.35.	Diseases caused by isocyanates
1.1.36.	Diseases caused by pesticides

 $^1$  In the application of this list the degree and type of exposure and the work or occupation involving a particular risk of exposure should be taken into account when appropriate.

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- 1.1.37. Diseases caused by sulphur oxides
- 1.1.38. Diseases caused by organic solvents
- 1.1.39. Diseases caused by latex or latex-containing products
- 1.1.40. Diseases caused by chlorine
- 1.1.41. Diseases caused by other chemical agents at work not mentioned in the preceding item where a direct link is established scientifically, or determined by methods appropriate t national conditions and practice, between the exposure to these chemical agents arising fror work activities and the disease(s) contracted by the worker

#### 1.2. Diseases caused by physical agents

- 1.2.1. Hearing impairment caused by noise
- Diseases caused by vibration (disorders of muscles, tendons, bones, joints, peripheral bloo vessels or peripheral nerves)
- 1.2.3. Diseases caused by compressed or decompressed air

#### 1.2.4. Diseases caused by ionizing radiations

- 1.2.5. Diseases caused by optical (ultraviolet, visible light, infrared) radiations including laser
- 1.2.6. Diseases caused by exposure to extreme temperatures
- 1.2.7. Diseases caused by other physical agents at work not mentioned in the preceding item where a direct link is established scientifically, or determined by methods appropriate t national conditions and practice, between the exposure to these physical agents arising fror work activities and the disease(s) contracted by the worker

#### 1.3. Biological agents and infectious or parasitic diseases

- 1.3.1. Brucellosis
- 1.3.2. Hepatitis viruses
- 1.3.3. Human immunodeficiency virus (HIV)
- 1.3.4. Tetanus
- 1.3.5. Tuberculosis
- 1.3.6. Toxic or inflammatory syndromes associated with bacterial or fungal contaminants
- 1.3.7. Anthrax
- 1.3.8. Leptospirosis
- 1.3.9. Diseases caused by other biological agents at work not mentioned in the preceding item where a direct link is established scientifically, or determined by methods appropriate t national conditions and practice, between the exposure to these biological agents arising fror work activities and the disease(s) contracted by the worker

#### 2. Occupational diseases by target organ systems

- 2.1. Respiratory diseases
- 2.1.1. Pneumoconioses caused by fibrogenic mineral dust (silicosis, anthraco-silicosis, asbestosis)
- 2.1.2. Silicotuberculosis
- 2.1.3. Pneumoconioses caused by non-fibrogenic mineral dust
- 2.1.4. Siderosis
- 2.1.5. Bronchopulmonary diseases caused by hard-metal dust
- 2.1.6. Bronchopulmonary diseases caused by dust of cotton (byssinosis), flax, hemp, sisal or sugarcane (bagassosis)

- 2.1.7. Asthma caused by recognized sensitizing agents or irritants inherent to the work process
- 2.1.8. Extrinsic allergic alveolitis caused by the inhalation of organic dusts or microbially contaminated aerosols, arising from work activities
- 2.1.9. Chronic obstructive pulmonary diseases caused by inhalation of coal dust, dust from stone quarries, wood dust, dust from cereals and agricultural work, dust in animal stables, dust from textiles, and paper dust, arising from work activities
- 2.1.10. Diseases of the lung caused by aluminium
- 2.1.11. Upper airways disorders caused by recognized sensitizing agents or irritants inherent to the work process
- 2.1.12. Other respiratory diseases not mentioned in the preceding items where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure to risk factors arising from work activities and the disease(s) contracted by the worker

#### 2.2. Skin diseases

- 2.2.1. Allergic contact dermatoses and contact urticaria caused by other recognized allergyprovoking agents arising from work activities not included in other items
- 2.2.2. Irritant contact dermatoses caused by other recognized irritant agents arising from work activities not included in other items
- 2.2.3. Vitiligo caused by other recognized agents arising from work activities not included in other items
- 2.2.4. Other skin diseases caused by physical, chemical or biological agents at work not included under other items where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure to risk factors arising from work activities and the skin disease(s) contracted by the worker

#### 2.3. Musculoskeletal disorders

- 2.3.1. Radial styloid tenosynovitis due to repetitive movements, forceful exertions and extreme postures of the wrist
- 2.3.2. Chronic tenosynovitis of hand and wrist due to repetitive movements, forceful exertions and extreme postures of the wrist
- 2.3.3. Olecranon bursitis due to prolonged pressure of the elbow region
- 2.3.4. Prepatellar bursitis due to prolonged stay in kneeling position
- 2.3.5. Epicondylitis due to repetitive forceful work
- 2.3.6. Meniscus lesions following extended periods of work in a kneeling or squatting position
- 2.3.7. Carpal tunnel syndrome due to extended periods of repetitive forceful work, work involving vibration, extreme postures of the wrist, or a combination of the three
- 2.3.8. Other musculoskeletal disorders not mentioned in the preceding items where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure to risk factors arising from work activities and the musculoskeletal disorder(s) contracted by the worker

#### 2.4. Mental and behavioural disorders

- 2.4.1. Post-traumatic stress disorder
- 2.4.2. Other mental or behavioural disorders not mentioned in the preceding item where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure to risk factors arising from work activities and the mental and behavioural disorder(s) contracted by the worker



3.	Occupational cancer
3.1.	Cancer caused by the following agents
3.1.1.	Asbestos
3.1.Z.	Benzidine and its salts
3.1.3.	Bis-chloromethyl ether (BCME)
3.1.4.	Chromium VI compounds
3.1.5.	Coal tars, coal tar pliches or soots
3.1.6.	Beta-naphthylamine
3.1.7.	Vinyl chloride
3.1.8.	Benzene
310	Texic nitro- and amino-derivatives of benzene or its homologues
3,1.10.	Ionizing radiations
3.1.11.	rar, price, products or residues of these substances
3.1.12.	Coke oven emissions
3.1.13.	Nickel compounds
3.1.14.	Wood dust
3.1.15.	Arsenic and its compounds
3.1.16.	Beryllium and its compounds
3.1.17.	Cadmium and its compounds
3.1.18.	Enontie
3.1.19.	Elhylene oxide
3.1.20.	Hepatitis B virus (HBV) and hepatitis C virus (HCV)
3.1.21.	Cancers caused by other agents at work not mentioned in the preceding flems where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure to these agents arising from work activities and the cancer(s) contracted by the worker
4.	Other diseases
4.1.	Miners' nystagmus
4.2.	Other specific diseases caused by occupations or processes not mentioned in this list where a direct link is established scientifically, or determined by methods appropriate to national

a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure arising from work activities and the disease(s) contracted by the worker



Key Instruments on Health Surveillance of Workers Occupationally Exposed to Ionizing Radiation

- ILO Convention Nos. 115 (on radiation protection of workers), 155 (on occupational safety and health) and 161 (on occupational health services)
- ✓ ILO Code of practice on radiation protection of workers
- ✓ Basic Safety Standards (BSS)
- ILO Technical and Ethical Guidelines on Workers' Health Surveillance
- IAEA/ILO/WHO Safety Report on Health Surveillance of Persons Occupationally Exposed to Ionizing Radiation: Guidance for Occupational Physicians

eports



#### Glossary

**Occupational Health Surveillance:** 

The ongoing systematic collection, analysis, interpretation and dissemination of data for the purpose of prevention.

Surveillance is essential to the planning, implementation and evaluation of occupational health programs and to the control of work-related ill health and injuries, as well as to the protection and promotion of workers' health.

Occupational health surveillance includes workers' health surveillance and working environment surveillance.



### Glossary

#### Workers' health surveillance:

A generic term which covers procedures and investigations to assess workers' health in order to detect and identify any abnormality.

The results of surveillance should be used to protect and promote the health of the individual, collective health at the workplace, and the health of the exposed working population.

Health assessment procedures may include, but not limited to, medical examinations, biological monitoring, radiological examinations, questionnaires or a review of health records.



Health data are of a sensitive nature. Inappropriate or inaccurate collection of health information can have serious and long-lasting consequences for individual workers (and for their family members).

Some kinds of health assessments, tests and investigations may represent an unwarranted intrusion into the private life of the individual worker.

They may also introduce **discrimination** based on health findings into the workplace.



The guiding principles on workers' health surveillance and fitness including the following:

1. Surveillance of the workers' health should include all assessments necessary to protect the health of the workers, which may include:

a) health assessment of workers before their assignment to specific tasks which may involve a danger to their health or that of others; b) health assessment of periodic intervals during employment which involves exposure to a particular hazard to health;



c) health assessment on resumption of work after a prolonged absence for health reasons for the purpose of determining its possible occupational causes, of recommending appropriate action to protect the workers and of determining the workers' suitability for the job and needs for re-assignment and rehabilitation.

d) health assessment on and after the termination of assignments involving hazards which might cause or contribute to future health impairment.



2. The **privacy** of workers should be protected and it should be prevented to use health examinations for discriminatory purposes or in any other manner prejudicial to workers' interests;

3. Records of health examination should be kept in accordance with national regulations. Data with a medical nature should be accessed only by medical professionals;

4. Conclusion of the medical examination for employment should be communicated in writing to both the worker and the employer and these conclusions should contain no information of a medical nature.



5. If a worker in a particular job is found medically contra-indicated, every effort should be made in finding him alternative employment or another appropriate solution;

6. The worker to be examined should be fully informed of the health hazards involved in his work, of the results of the health examination he has undergone and of the assessment of his health;

7. The worker has the **right to be advised individually** on his health in relation to his work.



TECHNICAL AND ETHICAL GUIDELINES FOR WORKERS' HEALTH SURVEILLANCE



INTERNATIONAL LABOUR OFFICE · GENEVA



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# **General principles and purposes**

- The central purpose is the primary prevention of occupational and work-related diseases and injuries.
- Aims of occupational health defined by the Joint ILO/WHO Committee on Occupational Health at its 12th Session in 1995
- The surveillance of workers' health should be appropriate to the occupational risks in the enterprise.

#### **Occupational health**

Since 1950, the ILO and the WHO have had a common definition of occupational health. This definition was adopted by the Joint ILO/WHO Committee on Occupational Health at its First Session (1950):

#### Occupational health should aim at:

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- the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations;
- the prevention amongst workers of departures from health caused by their working conditions;
- the protection of workers in their employment from risks resulting from factors adverse to health;
- the placing and maintenance of workers in an occupational environment adapted to their physiological and psychological capabilities; and,
- ✓ to summarize, the <u>adaptation of work to the workers</u> and of each worker to his or her job.



#### **General principles and purposes**

Workers' health surveillance must take place within an framework of occupational health services set up in accordance with the ILO's Convention No. 161 & Recommendation No. 171



# **General principles and purposes**

- > Workers' health surveillance program must ensure:
  - i. professional independence and impartiality of the relevant health professionals;
  - ii. workers' privacy and confidentiality of individual health information.
- Procedures in a particular program must meet, clearly and demonstrably, four criteria of worth or value: need, relevance, scientific validity and effectiveness.



## **General principles and purposes**

- The collection, analysis and communication of workers' health information should lead to action.
- Workers' health surveillance programs should be used for prevention purposes.
- Workers' health surveillance should be linked to the surveillance of occupational hazards present in the workplace.



# **Assessments of workers' health**

#### **Medical examinations serve five main** purposes:

- evaluation of the effectiveness of control measures in the workplace;
- detection of pre-clinical and clinical abnormalities;
- prevention of further deterioration in workers' health;
- reinforcement of safe methods of work and of health maintenance; and
- ✓ assessment of fitness for a particular type of work, <u>the present concern being the</u> <u>adaptation of the workplace to the worker.</u>



## **Assessments of workers' health**

•Medical examinations and tests should not be carried out as a perfunctory routine.

•Medical examinations should be appropriate to the occupational risks of the enterprise.



#### **Assessments of workers' health**

•These examinations may also occur:

(i) on resumption of work after a prolonged absence for health reasons, for the purpose of determining any possible occupational causes, recommending appropriate action to protect workers, and determining suitability for the job or the need for reassignment and rehabilitation; (ii) at the request of the worker.



# **Assessments of workers' health**

•In some cases, occupational health physicians may be required to carry out a medical examination of workers on or after the cessation of their assignment.

•Medical examinations should serve for not only the protection and promotion of workers' health, but also the protection of access to work, entitlement to compensation, health insurance benefits and social protection.



### **Assessments of workers' health**

•Under no circumstances should medical examinations for employment be used as a substitute for measures to prevent and control hazardous exposures.

•Medical examinations should be used to improve working conditions in such a way that they will facilitate the adaptation of work to workers.



#### **Assessments of workers' health**

•Results of periodic examinations, in combination with information on environmental exposure levels, can be used to verify the level of protection provided by exposure limits and to contribute to their revision.



# **Biological tests and other investigations**

•Specifically designed biological tests and other investigations, in most cases, are an integral part of the medical examination. Such investigations are subject to the workers' informed consent and must be performed according to the highest professional standards and the lowest possible risk.

•They must be carried out under the supervision of a physician and be subject to medical confidentiality, and relevant to the protection of the health of the worker concerned.



# **Biological tests and other investigations**

•When it is possible and appropriate to make a choice, preference must always be given to examinations which do not pose any danger to the health of the worker concerned.

Priority should be given to environmental (exposure limits) over biological (biological exposure limits) criteria.



# **Biological tests and other investigations**

•At present, it is generally believed that genetic screening in relation to work is a disproportionate infringement of individual rights. Current scientific knowledge is not sufficient to warrant its use for an occupational health purpose.



## **Sickness monitoring**

•Monitoring sickness absence can help to identify whether there is any relation between the reasons for ill health or absence and any health hazards which may be present in the workplace.

•Occupational health professionals should not be required by the employer to verify the reasons for absence from work.



Collection, processing and communication of health-related data

•Access to medical files and data should be restricted to medical professionals.

•Workers have the right of access to their own personal health and medical files.



When the results of workers' health surveillance are used for assessing the fitness of the worker for a specific job or type of work, the principles below should be followed:

(i) within an occupational health perspective, there is no such thing as fitness for employment in general; fitness can be defined only in terms of a particular job or type of work; similarly, there is no such case as absolute "unfitness" for employment;



# **Use of health-related data**

(ii) fitness reflects the relationship between the demands of the specific work and the abilities of the worker who is to do the work; as both the work and the worker's health status are subject to change, any assessment of fitness for employment should be open to review, since it relates to one point in time;



### **Use of health-related data**

(iii) caution should be exercised when a diseased or physically disabled person is examined for fitness for employment, when two major risks should be avoided: the first is to overestimate functional disability by failing to allow for any adaptation of the job to the worker, while the second is to underestimate an intelligent and determined person's ability to overcome a disability and produce satisfactory results in a job that might be considered to be beyond such 33 determination;



# **Use of health-related data**

 The establishment of fitness criteria is often an oversimplification which may not be consistent with sound occupational health practice. In practice, it is preferable to express fitness in terms of "no medical contra-indication" to a specific job or work and to express "unfitness" in terms of the kinds of jobs and conditions of work and exposure to hazards which are medically contra-indicated, temporarily or permanently.



## **Use of health-related data**

•The shift from a "fitness" to "adaptation" approach implies that the results of the health assessment should also be used for the objectives of advising the worker and the employer on the measures that they should take to overcome the problem.



### **Use of health-related data**

 When workers' health surveillance reveals that the health conditions of the worker and the nature of the tasks performed are likely to endanger the safety of others, the decision with regard to fitness may be difficult to take. The worker must be clearly informed of the situation, so that he or she can take remedial action. In the case of a particular hazardous situation, the management must be informed and take the necessary measures to safeguard other persons.



# **Use of health-related data**

 When an occupational disease has been detected in a worker, and continued employment might jeopardize health, remedial action should be taken in the interest of the worker (removing the hazards, improving the working environment and working conditions, removal from exposure or a particular work situation, either temporarily or permanently, alternative employment consistent with the state of the worker's health and not likely to impede or retard recovery).



## **Responsibilities, rights and duties** Competent authority

establish a list of occupational diseases subject to surveillance, which should be periodically reviewed.
adopt provisions for the purposes of protecting the privacy of workers and ensuring that health surveillance is not used for discriminatory purposes or in any other manner contrary to their interests.
Establish a procedure of appeal



#### Responsibilities, rights and duties Employers

make the necessary arrangements to provide workers with access to health surveillance, preferably during working hours and at no cost to the worker concerned.
ensure that workers have access to health surveillance appropriate to the health and safety risks they incur at work.
request a medical examination for workers in their employment or for workers they intend to recruit, but there should be a justification.



## **Responsibilities, rights and duties** Employers

In the case of recruitment, the examination should be conducted at the end of the process, when a decision about the employment of the person has been taken in principle, subject to the result of the medical examination.
offer medical surveillance and health promotion programs to workers in their employment.



## **Responsibilities, rights and duties** Employers

•request from occupational health professionals anonymous, collective health-related information for prevention purposes.

 make every effort to find alternative employment or another appropriate solution if a particular job is found medically contra-indicated for a worker.



## **Responsibilities, rights and duties** Workers

 Workers' representatives and the joint safety and health committees, where they exist, should have the right to receive collective reports on health surveillance and medical examinations, subject to the confidentiality of personal data. Workers or their representatives should be involved in the decision-making process concerning the organization of the implementation of workers' health surveillance.



## **Responsibilities, rights and duties** Workers

Workers must participate and cooperate with occupational health professionals and the employer in the implementation of workers' health surveillance, which is conducted in conformity with these guidelines.
A worker undergoing a health assessment must be informed in advance of its purpose, the use to which information collected will be put and of the consequences (positive and negative) of accepting or refusing such an assessment.



## **Responsibilities, rights and duties** Workers

 Workers' representatives and the joint safety and health committees, where they exist, should have the right to receive collective reports on health surveillance and medical examinations, subject to the confidentiality of personal data. Workers or their representatives should be involved in the decision-making process concerning the organization of the implementation of workers' health surveillance.



## **Responsibilities, rights and duties** Workers

 Workers should be informed individually of the results of the medical examinations and of the respective assessment of health. Before any medical examination or health assessment, an informed consent is necessary, and it should also be voluntary when the health surveillance is not prescribed by national laws and regulations.



### **Responsibilities, rights and duties** Workers

 Workers must have the right to appeal and be informed of the procedure of appeal, should they disagree with the conclusions of their examinations. Workers' representatives or the joint safety and health committees, where they exist, may request collective health assessments in relation to work when a problem of an occupational health nature is suspected.



## **Responsibilities, rights and duties** Workers

•The worker should have the right to request an assessment of health (i.e. a medical examination or other tests as appropriate) if a disorder occurs which the worker believes is due to or related to work.



## **Responsibilities, rights and duties Occupational health professionals**

### To assist:

(i) employers in fulfilling their obligations towards the health and safety of the workers in their employment;
(ii) workers in protecting and promoting their health in relation to work and in maintaining their working capacity;
(iii) workers' representatives and the joint safety and health committees, where they exist, to fulfill their tasks.



## Responsibilities, rights and duties Occupational health professionals

•strictly observe medical confidentiality with regard to communications on conclusions of workers' health assessments.

 notify the competent authority of occupational accidents and diseases, in conformity with professional ethics, if required to do so by national law.



#### Responsibilities, rights and duties Occupational health professionals

provide appropriate information in this respect to employers and workers, their representatives, and the joint health and safety committees, where they exist, so that the recurrence of similar cases can be prevented and remedial action taken.
acquire and maintain the competence necessary for their duties.

•Have the right to request, when necessary, health assessments in addition to the minimum requirements of national laws and regulations.



## **Responsibilities, rights and duties** Occupational health professionals

•Have the right to contact the competent authority if necessary (duty of alert), and must preserve this right and exercise it in an impartial and responsible manner.

Have a special responsibility in preserving and safeguarding their professional independence in all circumstances, including by having a clause on ethics inserted in their contract of employment.
Medical examinations of workers should be carried out only by a physician or a nurse under the former's responsibility.



## **Responsibilities, rights and duties** Occupational health professionals

 establish links between the workers' health surveillance targeted at specific hazards, specific diseases, health promotion programmes for workers, environmental health programmes and research in occupational health. should report objectively to the scientific community on the new findings of workers' health surveillance when appropriate.



#### **ILO Policies on Workers' Health Surveillance**

Health examinations practised to assess the health of workers in line with principle of sound occupational health services, should serve for prevention and protection purposes which cover not only the protection and promotion of workers' health but also the protection of access to work, entitlement to compensation, health insurance benefits and social protection.

