

# COMMUNICATION OF MICROBIAL RISK TO WORKERS IN A WASTEAWTER TREATMENT PLANT

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## INTRODUCTION

The prevention of microbiological hazard in working setting necessarily implies a training for the operators, who should become able to adopt right behaviours and procedures within their competence and activity. The Italian Decree Law n. 626/94 expects training as an integral part of the hazards risks and control process from the employer.

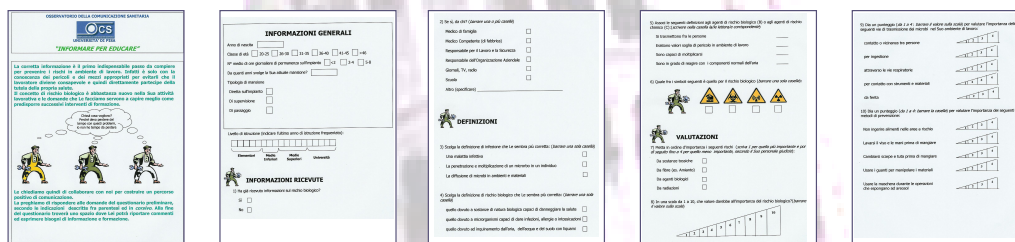
A proper communication about this topic has a great importance because of the present lack of specific knowledge in the most part of working settings not related with healthcare that could lead both to underestimate dangers and to an excessive alarmism, due to media as well.

It is evidently necessary an integrated training programme, with a specific methodology taking in account quality standards for the construction of messages (correction-completeness, reliability, usefulness, incitement to attention, comprehensibility, balance, independence, accessibility, coherence, cultural suitability, scientific facts, continuity-repetitiveness, timeliness and for the formulation of communicative strategy).

## METHODOLOGY

Before embarking on any programme of prevention-aimed information, it is necessary to know the knowledge level, the behaviours and the hazard perception of people involved. The actual intervention has therefore been preceded by a questionnaire aimed at estimating some basic knowledge about microbiological hazard among the workers and its perception. The questionnaire has been divided into four sections.

## QUESTIONNAIRE



Brief introduction of questionnaire to workers

General information (age, level of education, etc...)

Information received about microbiological hazard and their sources

Definitions (definition of infection, microbiological hazard, etc.)

Evaluations giving a value of importance from 1 to 10

Giving the questionnaire created the occasion to stimulate the workers attention and to make them thinking over these issues, thus creating the premises of an involvement in the training process further step. The information obtained have been used for the production of explanatory material, with a particular care for the textual and graphical formulation. Such material (leaflets, plasticized pocket cards, posters) has been given to the workers during some meetings that aimed at illustrating these issues through the workers active involvement in the discussion, in order to facilitate the attention and a quick understanding.

## RESULTS

The questionnaire has been given to 20 workers assigned to particularly hazardous jobs. The 71% had already received information about microbiological hazard, mainly from the media (31%), then from the qualified doctor (28%) and from the workers representatives for safety (17%). The definitions of infection and of microbiological hazard are known respectively to the 67% and the 46% of workers, whereas, in a scale from 1 to 10, the majority of the interviewed (25%) gave to such hazard an 8 importance level; for the 20%, the level to be assigned to it should be 10. The interviewed proved to know the main features distinguishing chemical from microbiological agents (Figure 1), even if they showed some biases.

Figure 1: QUESTION N. 5 "Related the following definition with microbiological or chemical agents"

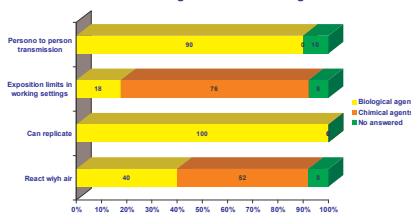


Figure 2: QUESTION N. 9 "Give a value of importance (from 1 to 4) to the following way of microbiological agents transmission"

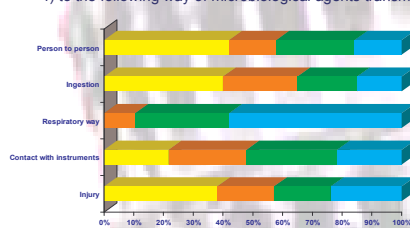
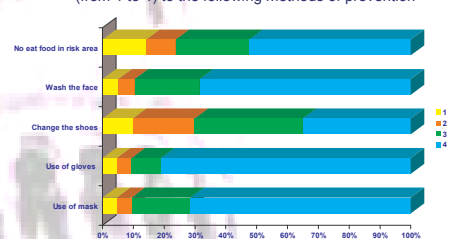


Figure 3: QUESTION N. 10 "Give a value of importance (from 1 to 4) to the following methods of prevention"



As for the transmission routes, the respiratory one turns to be the most important, followed by the ones associated to injuries, objects, to the ingestion and, lastly, to the contact with people. Therefore enteric transmission is considered not so important, despite the hazard of the sewage (Figure 2).

As to confirm this perception, the precautionary measures regarded as the most important are the use of gloves, then face guards and cleaning one's face, whereas the prohibition to eat and drink on the working facility comes only at the fourth place (Figure 3).

Indirect transmission routes may be:

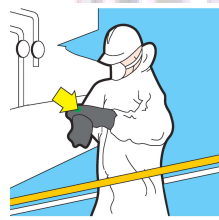
•Oro-faecal: microorganisms comes in with foods or beverages and are excreted with faeces

•Respiratory: microorganisms comes in with air and are spreaded with aerosols produced talking, coughing and sneezing

•Parenteral: microorganisms comes in and out with skin lesions (e.g. wounded caused by object and instruments)



• Using gloves certificate EN 374 for risk microbiological protection, to manipulate contaminated materials (sewage or sludge) or whenever is possible touch dirty surfaces



•Using masks for risk microbiological protection, to manipulate potentially infected materials that can produce aerosols



• Using proper overalls during the attendance in areas at risk



As a consequence of these results, informative material has been produced in order to create a greater awareness about microbiological hazard and precautionary measures to be adopted. The meetings during which such material was given led to a greater awareness of these issues, checked through the discussion.

## CONCLUSIONS

For the accomplishment of this intervention, a methodology has been used which is based upon quality standards. The use of a simple language and the active involvement of workers: it produced an evident awareness of the dangers connected to the working activity. The workers themselves began to suggest working procedures, protection and prevention interventions overcoming organizational difficulties. Even though a complete evaluation of the intervention would be possible only after a lapse of time, it is however sensible to affirm that the methodology used produced good results.