

**WORK ANALYSIS FOR PREVENTION ACCORDING
TO THE "ORGANIZATION AND WELL-BEING" PROGRAM•**

**L'ANALYSE DU TRAVAIL POUR LA PRÉVENTION SELON
LE PROGRAMME « ORGANIZATION AND WELL-BEING »**

**L'ANALISI DEL LAVORO PER LA PREVENZIONE SECONDO
IL PROGRAMMA "ORGANIZATION AND WELL-BEING"**

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Abstract

A case study concerns a public health service where work analysis, oriented towards primary prevention, is repeatedly performed over a long period of time. The goal is to present the approach of the Interdisciplinary Research Program "Organization and Well-Being", that has been active for three decades. This approach is based on the Organizational Action Theory and concerns the analysis of work processes' regulation. It takes care of the well-being of people at work and implies that the analysis, carried out by the workers themselves, coincides with the transformation of the work processes. The debate is open about the possible connections between this approach and the ones that share the same epistemological premises.

Keywords

Well-being, Primary prevention, Work analysis, Organizational action, Health service.

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Work analysis for prevention according to the "Organization and Well-being" Program•

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Introduction

The analysis of work for prevention goals has been an object of study and reflection for more than a century. Research streams and programs developed in Europe since the beginning of the twentieth century¹, while at the same time some early laws about the protection of women and children at work and the reduction of working hours were promoted. Also, the medicine of work was born as an autonomous discipline.

Thus, about half a century has passed since *Ergonomics* in England and *l'Ergonomie* in France and Belgium started their pathways in order to adapt the work conditions to the physiological and psychological needs of workers². It has been almost a century since the European Union, with its directives³, prescribed to include the primary prevention⁴ into the design of work processes: a prescription transposed into a variety of laws within member States of the Union, and also approved as law in other non European countries as well⁵.

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¹ For a discussion about these studies of the early decades of the twentieth century see Maggi, 1984/1990: III.

² K.F.H. Murrell founded Ergonomics in 1949. *L'Ergonomie* begun in the mid 50's, specifically with the approaches proposed by Faverge, Wisner, Cazamian, Leplat.

³ See directive n° 89/391, June 12th 1989.

⁴ Primary prevention is aimed at avoiding risks at their source: secondary prevention is aimed at avoiding damages of existing risks. For a critical analysis about the distinction between primary, secondary and tertiary prevention see Rulli, 2010.

⁵ Law n° 91-1414, December 31st 1991 in France; decree n° 626 September 19th 1994, and decree n° 81 April 9th 2008 in Italy; NR17 of 1990 in Brazil.

However, several indicators (especially the data concerning the injuries in the workplace and, even more, the deadly accidents⁶) reveal that, so far, these norms have been applied in an incomplete way. The same data induce to ask questions about the possible hindrances to primary prevention within the old pathways of the many disciplines and their several sub-streams concerned with work (disciplines such as labor law, occupational medicine, work sociology, work psychology, ergonomics) which propose reflections and interventions for the promotion of workers' health, and whose results are sometimes relevant for secondary prevention⁷.

Many reasons have been proposed in order to explain, and sometimes to justify, the lack of an innovative commitment for the inclusion of prevention in work design. However, we argue that one reason appears, at the same time, underestimated and crucial: the insufficient spreading knowledge and competencies related to an *organizational analysis* able to include the dimension of the workers' health, defined according to the Interdisciplinary Research Program "Organization and Well-being" as *perfectible process of physical, psychological and social well-being*, consistently with the WHO's principles⁸. While the most common representations of work attribute to its "organization" a long term quality, a different view's starting point, on the contrary, is represented by the observation that the organizational choices of all work processes change continuously. Thus, we argue that it is possible to drive such change in order to achieve well-being goals and, at the same time, quality, effectiveness and efficiency goals. However, this implies the adoption of a *different way to conceive the organization*.

⁶ See, for example, European Commission, 2010.

⁷ For a few examples see: Etienne, Maggi, 2007; 2009.

⁸ On the concept of well-being allow us to refer to: Maggi, 2006. For a reflection of the competencies and knowledge necessary to the work analysis for primary prevention: Maggi, 2003: II, 4. For the definition of health in terms of perfectible well-being process: Rulli, 1996.

In this text we would like to introduce the approach adopted by the Interdisciplinary Research Program “Organization and Well-being”⁹: it is an approach about the analysis, the intervention and the conception of work processes that, for three decades¹⁰, seems to allow pursuing primary prevention objectives. A concrete case study, taken from the research works of such Program, will be utilized in order to illustrate our argument: it is a case in which the work analysis and design within a health service were reiterated over a long period of time. Through this case, which is emblematic of public services, we wish to show concisely the utilization of the method that characterizes the Program’s approach, and to briefly indicate the main traits of the theory it is based on.

The case study

The health service we refer to is part of the Italian National Health System. In such a system, a relevant prevention goal is pursued by the services dedicated to hygiene, public health and occupational medicine. These services have been included for about 20 years within the Prevention Departments. Their activity is oriented towards both citizens, and public administrations as well as private companies. They also perform activities related to health authorizations, inspections and monitoring. They are based on several disciplinary competencies and involved in team-based activities; also, they pursue objectives related to prevention and surveillance about the hygiene and the safety of people (nutrition, infective diseases...) and the urban and work environments.

The promotion of workers’ well-being in these services is a goal which appears to be quite often under-estimated. However, health (both at the individual and collective level) is one of their specific tasks, and the sectors of public work constitute, without any doubt, an object of the norms on

⁹ For information about the Interdisciplinary Research Program “Organization and Well-being”, and specifically about the list of publications, see the website: www.taoprograms.org.

¹⁰ That is, even before the mentioned norms concerning the analysis of work for prevention.

prevention in the workplace. Such a normative framework – as we already stated – is clearly oriented towards primary prevention, as it requires that the design, not only of the work places, tools and techniques, but also of the work process as a whole, includes the design of prevention.

During the latest decades several changes, due to the evolution of the health culture, concerned the Italian prevention system and oriented it more sharply towards primary preventions goals. Such an orientation facilitated initiatives of health promotion in life and work environments, independently from the repression of behaviors implying risks and harm. Also, it is necessary to consider that the norms regulating the institutional framework of health services have shifted significantly by decentralizing towards the Regions responsibilities and legislative power. Such a decentralization is accompanied by managerial discretion given to the local units devoted to public health activities, with which private health units also operate through contractual connections with the public system, based on managerial, technological and professional requirements.

Our case study concerns the Hygiene and Public Health Service which is part of a Medical Prevention Department of Varese, one of the Local Health Units of the Lombardia Region, the one in the Province of Varese. The province of Varese had a population of slightly more than 800.000, during the second half of the '80s (about 840.000 at the beginning of the year 2000, about 880.000 in 2012). This service is devoted to the prevention in the field of infective diseases, urban hygiene and health and environment relations, thanks to personnel comprising physicians, nurses, chemical engineers and other engineers, prevention technicians and administrative personnel.

At the end of the 90's the public health units of the Lombardia Region were split into hospital units specifically dedicated to health-related services, hospitalization and treatment, and local health units (ASL) which acted as buyers of such services (with the possibility to negotiate quality and prices). ASL units have reduced, since the 80's and 90's, the number and variety of services that they provide directly. For example, their competencies in terms of

environmental hygiene have been interrupted for the most part while, thanks to self-certification and self-assessment tools, the monitoring system in the work hygiene and safety and in the food sector has been significantly simplified.

The Medical Prevention Department is a typical example of such prevention and service integration perspective. It includes public services in many prevention fields, such as: socially relevant diseases (mostly chronic-degenerative disease and infective diseases), risky behaviors (tabagism, sedentariness ..), house and traffic accidents, pollution related diseases (lung cancer, allergies ...), work related pathologies (professional diseases and accidents), food related diseases (intoxications ...).

In the case of the Public Hygiene and Health Service (PHHS) of the Varese Provinces' ASL, the analysis and the new design of the work process, which included the dimension of well-being, developed iteratively between the second half of the 80's and the beginning of the 00's. This allows to compare different technical and institutional frameworks of the Health System, which we already mentioned above. More specifically, in the 80s nine PHHS operated in the Province of Varese, which corresponded to local health units and areas of the territory. During the first period the analysis and the intervention were performed by the operators of the PHHS of one of the Local Health Units, concerning an area with a population of about 45.000. Since the beginning of the 00's just one PHHS operates all over the whole Province (about 840.000 inhabitants), with less significant direct activities but with increased coordination responsibilities of many groups, split into six socio-sanitary districts. During a second period, the analysis and the intervention concerned the whole set of the work processes of such service.

The approach

The work analysis for prevention purposes is performed, in the health service that we utilize as an example, according to the approach developed within the Interdisciplinary Research Program "Organization and Well-being".

Three features of such an approach should be particularly emphasized, and require a few comments:

- it is an *organizational action approach*, concerning an analysis of the work process regulation;
- it is characterized by *taking responsibility of the workers' well-being*;
- it implies that *the analysis is, at the same time, transformation of work processes and it is conducted by the subjects involved in the same processes*.

The *theory of organizational action* (Maggi, 1984/1990; 2003), upon which the approach is based, assumes an epistemological orientation according to which every process of social action – thus, every work process – is conceived as a *process of actions and decision*, always changing, never concluded. The organization is *organizational action*, that is, the *regulatory aspect* of the process of social action. The *agents* are not separable from the process: they are at the center of it, they participate to its design, its activation, its performance. Thus, the *well-being* of the subjects cannot be detached from the goals, from the regulation and from the assessment of any action process.

The idea of focusing the analysis on the work processes regulation, on the organization conceived as the always changing organizing aspect of these processes, differentiates sharply this approach from all those considering the organization as a set of “determinants”, of given “requirements”, influencing somehow “from the top” or “from the outside” the work situation. Thus, for examples, typical approaches of work psychology, ergonomics or even occupational medicine, reduce the organization as a sort of “black box” upon which they sometimes intervene without the specific competencies of the organizational field of study¹¹.

¹¹ We developed this argument in several texts, and particularly in: Maggi, 1984/1990: III; conference by invitation at the 30° SELF Congress, Biarritz, 1955, then in Maggi, 1966; 2003: II, 2; or, again, Maggi, 2008.

The analysis focused on the *organizational choices*, actually regulating all dimensions of the work process - activated actions and pursued goals, techniques, times, places, tools, materials ... - allows to decode the *constraints*¹² induced by such choices, in other words, what is *at the source of the consequences on the well-being* of subjects. Psychological or ergonomic work analysis evaluate the *consequences* corresponding to organizational constraints *elements*; epidemiology and occupational medicine usually starts from the damages in order to identify and define the risks. According to these reversed pathways it is very difficult, if not impossible, to go back to the starting point, to the actual source of the consequences on well-being. The approach of "Organization and Well-being" Program, instead, focuses the analysis on such source: the organizational choices. Recognizing the organizational constraints allows to identify, at the same time, alternative choices that allow to decrease, or even to eliminate, the constraints elements. Such action at the source leads to the achievement of *primary prevention*.

We can add that the analysis of the work process regulation, typical of this approach, is not in opposition to neither the ergonomic analysis, nor the clinical approaches to activity, nor the occupational medicine approach. On the contrary, complementarities are possible and fruitful. We extensively talked about this issue in other written contributions¹³, we discussed about it in congresses and workshops¹⁴, and we dedicated to it International seminars of

¹² The concept of "organizational constraint" is defined within the framework of the theory of organizational action. It indicates the reduction of the freedom to decide which is a consequence of any organizational choice. The presence of constraints is a feature of the organizational action which is unavoidable but changeable and, thusly, modifiable. It should not be mistaken with the consequences perceived by the subjects; it can only be assessed thanks to an organizational analysis (Maggi, 1984/1990: III; 2003, II, 4).

¹³ See, in particular, Maggi, 1984/1990: III, 2003: II, 4.

¹⁴ See, for examples, the following communications to the SELF Congresses: De la Garza, Maggi, Weill-Fassina, 1998; De la Garza, Weill-Fassina, Maggi, 1999; Rulli, Maggi, 2002; or the following communications to the IEA Congresses: Rulli, Maggi, 1997; Rulli, Maggi, Cristofolini, De Nisi, 2000.

the “Organization and Well-being” Program promoted in collaboration with researchers from several schools¹⁵.

Recognizing the centrality of *agents* in the work process, their participation to the design of the process, to its enactment and its carrying out, implies that only these same subjects, and not external researchers, are able to analyze and assess appropriately the work process in which they are involved¹⁶. Also, since the analysis concerns the organizational choices and their possible alternatives in the development of the process of action, it is inserted into a change by participating to it: the analysis is, at the same time, transformation, intervention, re-design. All this can happen only if the subjects involved in the work process are the protagonists of the analysis itself.

Indeed, this is another crucial, distinctive feature of the approach we are introducing here. Other approaches, in the already mentioned disciplines, develop analysis that are, at the same time, transformation of the work situation, while arguing that the implied competencies are the ones possessed by the subjects of such situation, and non transferable. However, on the one hand, the transformation enacted by these approaches does not concern the core of the work process, that is, its organizational dimension. On the other hand, these approaches always include, somehow, a “researcher”: the recognition of the subjects’ specific competencies does not lead to its final consequence, that is, an analysis entirely performed by the same subjects.

In order to achieve the latest goal, a method for organizational analysis that can be appropriated by the subjects is necessary. The device of the “Organization and Well-being” Program is indeed based on the encounter of

¹⁵ We refer to: the 11th seminar, Milano, 1994, in collaboration with the Département d’Ergonomie et Ecologie Humaine, University Paris 1; the 14th seminar, Bologna, 1996, in collaboration with the Laboratoire d’Ergonomie of the Conservatoire National des Arts et Métiers of Paris; the 19th seminar, Bologna, 1998, in collaboration with the Laboratoire d’Ergonomie Informatique, University Paris 5; the 26th seminar, Bologna, 2002, in collaboration with the Département d’Ergologie, University of Aix-Marseille; the 30th seminar, Aix-en-Provence, 2005, in collaboration with the Unité mixte de recherche ADEF, INRP, Université de Provence, IUFM Aix-Marseille. The proceedings of the 19th seminar have been published by the journal *Ergonomia*, 12, 1999. The 30th seminar allowed to design the book: Faïta, Maggi, 2007.

¹⁶ The comparison between different analytical approaches has been particularly discussed in Maggi, 2003: III, 3, and in Faïta, Maggi, 2007.

three axes: the axe of the methodological knowledge, of which the subjects involved in the work process can appropriate thanks to an adequate training; the axe of the work competencies, specific of those subjects, without which no learning and no process analysis and effective design are possible; the axe of the epistemology of the action and decision process, which allows to connect the knowledge about the organizational analysis and the competencies intrinsic in the work processes¹⁷.

It is possible to notice two salient features of this device. The first one concerns the *learning process* upon which the development of new competencies about the organizational analysis by the subjects in the work processes is based on. It is not a training imposed from the outside, in which it is assumed that it is possible to “transmit” knowledge; instead, it is a training enacted by and within the work process, by its analysis needs, where only the learning by the implied subjects allows them to appropriate the methodological knowledge and to develop new knowledge as well¹⁸. The other crucial feature of the device concerns the established relationship between the knowledge about the analysis and the competencies related to the work process which is submitted to the analysis. This relationship is not due to an act of will, to a specific commitment, to the action of a researcher, but it is *necessarily implied by the epistemology* that the method and the theory presuppose.

All the features of the approach that we briefly described and commented directly originate from the *organizational action theory*, which constitutes its foundation, and from its epistemological premises. Similarly, the method of analysis for the work process originates from such theory. Incidentally, it is evident that only a few elements of the theory have been described here, just those that are essential for the presentation of the method. Now, in order to show, in a similarly brief fashion, the utilization of the analytical method, we go back to the case study that we mentioned above.

¹⁷ For an introduction of this device and its utilization, see: Maggi, 2003: III, 2 ; 2010.

¹⁸ About the different conceptions of training: Maggi, 2000; 2003: III. For a critical reflection about the idea of “transmission” in education and training: Maggi, 2010.

The analysis of a work process

As we already state, the health service operates over a rather vast territory, especially in terms of the size of the province since the 90's. The unit provides services covering a number of prevention fields through 13 employees: physicians, nurses, chemical and other engineers, prevention technicians and administrative personnel. Thus, a specific work process within the set of activities provided by this unit can be chosen as an example of analysis.

We choose the process of *drinking water monitoring*. According to the adopted method – called Method of the Organizational Congruencies (MOC)¹⁹ – the subjects of the work process first describe their job by distinguishing the analytical components of the process: expected outcomes, actions taken in order to achieve the outcomes, the technical qualification of the actions, and the regulation of the whole process.

According to the description, the expected *outcome* of such process is the assessment of water samples in terms of chemical and bacteriological analysis, allowing to express a judgment about the human consumption of the water, to be sent to the towns' mayors so that they can issue prescriptions on the matter. The main *actions* enacted in order to reach such goal are: the definition of a sampling strategy, the collection of samples, their delivery to the laboratories for the analysis, the reception and assessment of the analysis' results, the communication to the mayors. The description then identifies the different *modalities of carrying out* those actions. More specifically: who are the involved operators (their biological and professional features), the places of actions' carrying out (offices, environments and their features), the working times, the means utilized (equipment, tools, materials, vehicles...), and finally the modalities for the involvement of operators (responsibilities, salaries, incentives, training, experiences, values, work identity...).

¹⁹ The Method of Organizational Congruencies has been proposed and utilized since the mid 80's (Maggi, 1984/1990: 103-126, 159-177). A detailed presentation can be found in the book Faïta, Maggi, 2007, which discusses the possible synergy with the Method of Self-Comparison in the clinical approaches to activity.

Then the description identifies the *technical knowledge* that qualify the actions. The technique is conceived as the instrumental dimension of the action, that is, what allows the action to pursue the desired outcome. This knowledge concerns: the transformation's *object* (waters, supply sources), the *means* (norms of reference, tools, vehicles, materials...), the *process* (for each action the knowledge concern the whole process and even its connections with other processes of the health service).

Finally the description emphasize the different aspects of the *process regulation*: the relationships between the process' goals and the higher level goals of the service; the order of the actions, which appear to be heterogeneous, interdependent, partly concurrent and partly serial; the order of the actions' carrying out; the relationships between the structuration of actions and the structuration of the carrying outs, and between the actions and the knowledge necessary for the achievement of the outcomes. The reflection refers, on the one hand, to the *nature of the rules* of the process: formal and informal, tacit and explicit, previous or contextual to the actions. On the other hand, it refers to the *decision levels* concerning the regulation: it is necessary to distinguish between the creation of rules, their verification and their adjustment; the actions specifically oriented towards the regulation and the knowledge that they require are noted.

Then, the analysis goes gradually from the description to the interpretation and the assessment of the work process, when reflection is extended, for each analytical component of the process, to the identification of alternative choices that may concern it: alternative outcomes, actions and their carrying out, alternative techniques and, for sure, alternative regulations. Thus, the method leads to the central point of the analysis, which becomes at the same time assessment and change. Let us simplify this passage in order to better understand it: the expected outcome of the process can be formulated in a different way by adding the well-being of the subjects to it (which, by the way, was exactly the case in our analysis' example). This alternative choice about the outcome to achieve greatly influences all the other process' components.

Similarly it is possible to imagine alternative choices about the actions, the techniques, etc. Everything is variable and, as such, modifiable in the process. The subjects evaluate to transform and transform to evaluate, as well.

In the analysis for prevention such an evaluation-transformation is centered around the *congruency* of organizational choices and on the related *constraint*. These choices can never be completely congruent, and the organization is always constraining, but the level of congruency can be improved and the constraint reduced: this is variable just like the organizational action.

The subjects of the drinkable water monitoring process, through the evaluation of the congruencies related to the components of their own process, illustrate a number of elements and concrete manifestations of the organizational constraint they have to face. For example: the limited number of operators in relation to the amount of actions to be carried out, the normative uncertainty in relation to the relevance of the expected outcome, their low discretion²⁰ in relation to the responsibilities, the high variability of actions, the need of teamwork, the lack of training, problems related to communication, data elaboration, tools and equipments, transportation across the territory, etc.

Let us consider a detailed example: the case of a physician who has to discuss with some mares about some urgent decrees or about interventions on the installations, as a consequence of drinking water analysis. Such a physician, after receiving by fax or on compact disc the negative outcome of the chemical or bacteriological analysis, verifies such an outcome in relation to the file of samples with the prevention technicians, checks the intervention norms in the service documents, and evaluates the possible consequences for the public health. Depending on the kind of non-conformity, the legal obligations, the material features of the hydraulic installation, etc., he finally contacts the interested mare in order to identify the interventions on the installations to be

²⁰ We proposed, for many years, definitions of the concept of "autonomy" as "capacity to produce own rules", and the concept of "discretion" as "possibility of action within a regulated process", which have been utilized in the literature. Please allow us to refer to: Maggi, 2003: 102, 122, 139-158.

executed and, in the most serious cases, the alternative sourcing of drinking water. Here, the evaluation of the work process reveals *relationships, both personal and institutional, in situations potentially of conflict or risk for the end users, and within the frame of unstable, unpredictable environments*. The analysis highlighted an element of constraint stemming from a critical level of congruency between the goal to achieve, the actions and the modalities of their carrying out, and the related technical knowledge.

Thus, the identification of organizational constraint is not the result of an hypothesis formulated on the basis of consequences perceived by subjects or the damages they suffered, but the outcome of an analysis allowing to evaluate at their origin the various organizational choices, and to evaluate from this starting point both the occurring consequences and possible ones. Since it concerns at the same time alternative choices, such evaluation is also able to point out at the same time more desirable solutions and to help to put them into practice.

The long term analysis

We stated above that the analysis we are describing was performed between the end of the 80's and the beginning of the 00's and that, during such a long period of time, some institutional changes occurred which modified the general structure of the health service. Thus, it is interesting to provide a general indication of the analysis conducted by the service operators, before and after such changes, in order to show how an analysis develops over time and become, in some ways, part of the routine behaviors in the daily work of the interested subjects.

The economy of this text does not allow to provide more examples of the many processes comprised in the service's activities. We just mention elements of organizational constraint referring to the whole of such activities, in order to add more information concerning the prevention goals of the analysis.

Let us remind that, in the first period, in the 80's, the analysis concerned one of the nine PHHS operating in the Varese Province territory, a service with

13 employees. The analysis in such period shed light on the following elements of organizational constraint, among others:

- *The form and time variability of activities, and their strong interdependency.* This happens mostly in case of unpredictability and urgency: epidemics, water contamination, work accidents, etc.

- *The need for team work, largely multi-disciplinary, with high levels of discretion, individual and collective responsibility, in order to achieve results of high social value.* This concerns, in particular, the cases of food infections or epidemics, which require the activity of physicians and health technicians characterized by mutual adaptation needs and high impact on populations.

- *The discrepancy between the operators' competencies and the variability of actions to be carried out in relation to the desired outcomes.* Competencies concern a wide range of fields in the medical and health-technical actions (infective diseases, urban hygiene, hygiene and safety in the workplace, food hygiene, etc.) and must face difficult, often unpredictable situations, which can be at the limit, or even beyond the limit, of operators' actual competencies.

- *The discrepancy between the basic training pathways for the operators and the required knowledge.* This is particularly evident in the case of the environmental hygiene and prevention in the workplace. For example, a specialization in prevention hygiene and medicine, or in occupational medicine, was not required for physicians in order to be hired in the 80's.

- *The incompleteness in the definition of regulated spaces and the discretion requests, and the contradictions of the hierarchical attributions.* For example, the responsibility of an important act such as the formal prescription to the mares, in the case of the water assessment for drinking purposes, is attributed to a first level assistant physicians, who nonetheless occupies the position of Service Director.

- *The inadequacy of the ICT system, which is not networked and limited to the administrative activities,* in relation to both the relevance of communications and the need of data elaboration.

- *The discrepancy between compensation levels and the levels of technical and institutional responsibility.*
- *The need to travel over the territory, even with transportation means, in different places (rural and urban) potentially at risk.*
- *The environmental risks, postural and related to the utilization of office work equipment (for example: absence of air conditioning, desktop work constraint, utilization of electrical equipment, utilization of glass objects, open air work constraint, etc.)*

It is important to notice that the identification of organizational constraint aspects allows the subjects of the work process to continue their analysis and reflection considering the possible effects in terms of risks and damages, in order to put forward and realize changes for prevention purposes and, consequently, for the improvement of well-being conditions. The operators of the health service first considered the most traditional physical risks: for example, the ones concerning the visual, joints, bones and muscular apparatus in relation to the use of equipment with video monitors, or the ones concerning injuries related to the use of tools and transportation vehicles. Afterwards, they also considered psychic risks: for example burn-out risks²¹, risks of reinforcement of Type A coronary prone behavior patterns²², stress²³, and psychic a-specific discomfort as well.

Thus, the service operators could identify some “risk profiles” for groups of workers, professional categories and work phases. For example, the

²¹ The operator’s burn-out is the possible outcome of an unbalance between requirements and resources within the activity, where expectations of specific competencies and strong individual and social motivations converge. The defensive consequence is manifested with the emotional detachment from work and end users, the detachment from action, cynicism, rigidity in the carrying out of what is prescribed by the rules and by the hierarchy. See: Maslach, 1976.

²² The notion of coronary prone behavior pattern has been proposed in the US in the 60’s, during research activities concerning coronary diseases which highlighted two kinds of behaviors: type A (characterize by a strong sense of duty, competitiveness, desire of professional realization, tendency to respect deadlines) and type B (different from the first one by the absence of attitudes aimed at suppressing the natural sense of fatigue and the ability to relax without a sense of guilt) where the first one showed a doubled risk of coronary diseases, independently from other risk conditions. See: Rosenmann, Friedman, 1961.

²³ As defined by Selye, 1976. For a comparison of different definitions of stress and of the different approach to stress in the workplace see: Rulli, 2010.

organizational choices that may generate negative consequences on the well-being of physicians appeared to concern mostly: the insufficient number of personnel in relation to the increasing backlog of activities, the monotony and the variability of such activities, the uncertainty about available discretion, the responsibility levels, the insufficient training, the complexity of the relationships with clients, the utilization of tools and equipment, the lack of ICT tools, the postural and visual constraints. These elements, concerning the work of physicians, have been identified as burn-out risks, reinforcement of Type A coronary prone behavior patterns risks, risks of trauma, joints and muscular pathologies, visual fatigue.

With the help of this framework of connections between organizational choices, elements of constraint and consequences on well-being, it becomes possible to define priority orders for the interventions, in other words, for the re-design of work processes, according to the amount and the probability of risk and hypothetical damage, the number of implied subjects, the cost-benefit ratio, towards the goal of primary prevention.

It is necessary to add that the method, through the comparison of alternative organizational choices and levels of induced constraint, also allows an ex-ante evaluation of every option. For example, in order to face the uncertainty about the available discretion an alternative is represented by the formalization of courses of action; however, this implies an evaluation of the possible consequences of a choice generating rigidity and longer operations. In order to reduce the variability of relationships with the end users, an alternative choice concerns the formalization of the access modalities (hours, appointments); however, one needs to evaluate the consequences in terms of lower flexibility and probability of conflicts. Finally, the adoption of an ICT system, which may solve many problem about the information flows, is a choice whose consequences need to be evaluated in terms of computers utilization, the change of relationships among operators, the need of new knowledge.

In the second period, at the beginning of the 00's, the analysis concerns the whole set of work processes in the only hygiene and public health service operating in all the territory of the Province: again, 13 people working in total (just by coincidence), but not exactly the same ones working in the first period. They - as we stated already - perform less important direct activities, but have increased responsibilities in terms of coordination of the six health districts. It is interesting to notice the relevance of other aspects of the work processes in relation to the first period, which may constitute sources of risks and damages. For example:

- *The difficulties related to the governance of the service when far away from the health districts, because of the size of the territory.* During the 80's each of the nice hygiene and health services had their own operational guidelines, coordinated by the physicians, when used to meet every day with the technicians and the nurses in order to regulate the various interventions. At the beginning of the 00's the physicians of the main office formulate the guidelines remotely, while the districts' operators (physicians, technicians and nurses) carry out the activities of clinical data collection, anamnesis, sampling of biological materials, etc., with reference to the "central" indications, and with eventual phone calls in order to get advice and clarifications. A ICT network exists, but it is not complete yet.

- *The form and time variability of activities, their strong interdependence, and at the same time the required knowledge, changed because of the transformation of the institutional goals and the characteristics of the population.* These different characteristics require new knowledge for the imported infective diseases (transported by people or materials). The case of the industrial buildings hygiene may be helpful as an example of such modification of goals. During the 80's the assessment of projects (to be communicated to the mare who has the responsibility of authorizing the construction) was formulated in a technicians' report, signed by the physician responsible for the related service. In the 00's the report is articulated in various parts: an evaluation by the district's technician, an evaluation of the occupational health Specialist, possibly other evaluations (geological, veterinary, etc.). Such evaluations are compiled into a

document of the central service. A subsequent intervention had the goal to decrease the time extension of the production and collection of the various contributions generated in the districts.

- *The increased need of multidisciplinary team work, especially in the territory, with high levels of discretion but with more complex coordination.* If compared with the 80's, coordination is necessary not just inside every operational group (for example, for work inspections) but also among the various groups, in order to homogenize behaviors in the districts.

- *A new discrepancy between the operators' competencies and the variability of actions necessary for the desired outcomes.*

- *A new discrepancy between the basic training pathways for the operators and the required knowledge, because of the institutional changes.* Following the evaluation of the 80's specific training initiatives have been realized for the different professional roles: for examples, training about sanitary management for the physicians, about ICTs for the administrative personnel, technical training for the engineers, etc. In the 00's the development of knowledge about the use of computer applications, the tools for the work analysis, communication (especially for the increased presence of immigrants), group dynamics, etc., appears to become more important.

- *The transformation of many operators' qualification.* This concerned, in particular, the physicians of the main office and the districts. For example, the "central" physicians, in the 00's, are more concentrated on activities requiring theoretical and epidemiological knowledge, in relation to the operational knowledge characterizing the districts' level; the physicians in the districts are implied in new specific activities (such as those of sanitary buildings' hygiene) and not, anymore, in environmental hygiene activities (which required different knowledge).

- *The increase need for ICTs competencies, concerning all the operators: administrative personnel, physicians and health operators.* The utilization of ICT tools for communication and networked databases intensified, especially because of the decreased need for mobility on the territory.

- *New environmental and postural constraints, as well as new constraints related to the utilization of office work equipment, concerning in particular the central operators, both because of the computerization, and the reduction of out-of-office activities.*

These aspects of work processes' organizational constraint, due to the service transformations, also implied changes in the possible risks and damages. Thus, thanks to the changes in the institutional attributions (for example, the transfer of the environmental hygiene to another Regional Agency) it has been possible to verify a reduction of the traditional chemical-physical risks, for both the central and the district operators. However, the analysis showed an increased burn-out risk, especially because of the variability of attributions, the separation between central and the districts' activities, the coordination choices, the uncertain definition of qualification and the work objectives themselves²⁴.

At the beginning of the 00's the service operators continue to evaluate the alternative organizational choices in the different work processes, and the possible consequences on the well-being for groups of workers and jobs, by replicating the procedure of the first period of analysis and re-design. The goal, just like the first time, is to achieve a better congruency of the organizational choices of the service, allowing to improve, at the same time, effectiveness, efficiency and quality, with a specific focus on the well-being of the involved subjects.

For the discussion

We introduced and commented some parts of the work analysis for prevention conducted for about two decades within a health service. We utilized them as examples of the "Organization and Well-being" Program's

²⁴ The emphasis on burn-out is justified by the high social responsibility implied by these activities, for this reason similar to the ones studied by the literature on this issue. See: Cherniss, 1980; Maslach, Jackson, 1981; Borritz *et al.*, 2005.

approach. The goal of this presentation does not lead to propose conclusion, but rather to trigger a discussion that hopefully will be as open and wide as possible. Many issues should, in our opinion, nourish such discussion.

A first series of issues may concern the enactment of work analysis approach able to pursue and achieve primary prevention. As we recalled before, legal norms require such an approach, and it is also strongly required by the bewildering data concerning the lack of health and safety in the workplace. However, to this day, we do not observe satisfying proposals in the numerous disciplines that develop work analysis and are concerned with the relationship between work and health. We believe what constitutes an hindrance for primary prevention in the approaches of disciplines like occupational medicine and labor law, work psychology and sociology, ergonomics, is mostly a *conception of organization* which is inadequate to obtain what the same approach claim to be aimed at. We can also document that the conception of organization as *organizational action* allows the "Organization and Well-being" Program to obtain, since the 80's, remarkable results of primary prevention in a variety of sectors. We believe it is possible to wonder about the resistance to the adoption of a point of view about the organization which is adequate for prevention that the above mentioned disciplines express. Similarly, one could wonder about the possibility to achieve primary prevention through other pathways, rather than through a reflection on the organizational action.

A second series of issues concerns - if one wants to utilize a common language in the methodological debate within the social sciences - the relation between the "researcher" and the "research object". The various approaches on work analysis generally root for an active or participatory role of the subjects-objects of the analysis. But, in reality, the subjects' ability to analyze their own work is made doubtful, actually denied, by the presence of the researcher, always re-affirmed. One of the main features of the "Organization and Well-being" Program, instead, is the fact that the analysis - with its transformational and re-design consequences - is entirely carried out and managed by the subjects themselves. We believe that it would be interesting to ask about the

reasons that might impede, and on those that might allow, a truly active role taken by the subjects' in the analysis.

A third series of issues may concern the possible collaborations between the organizational approach "Organization and Well-being" Program and other work analysis approaches which, while necessarily touching the organizational level, are not able to master it because of lack of specific competencies in such a field of study. We are especially referring to certain clinical approaches to the analysis of work activities, and to some approaches within the occupational medicine. We do not refer to juxtapositions of different analysis, where each one follows a peculiar path; we refer to direct connections within the same analytical framework. It is important to wonder about the epistemological premises²⁵ allowing such encounters, surely fruitful, and on the methodological choices that they require. Within the Program, this kind of collaboration is developed since the beginning with a compatible approach of occupational medicine. Other collaboration possibilities are being discussed (Faita, Maggi, 2007). The reflection and the attempts towards this direction surely bring enrichments.

These issues are certainly not comprehensive, but they probably help to trigger a discussion which we believe to be vital for the goal, socially crucial, of prevention in the workplace.

²⁵ On the epistemological premises of the theories of action and the theories of activity within the frame of human and social sciences, and on the compatibility or incompatibility among theories of different disciplinary fields, see the edited book: Maggi, 2011.

References

- BORRITZ M., BÜLTMANN U., RUGULIES R., CHRISTENSEN K. B., VILLADSEN E., KRISTENSEN T. S.
2005 Psychosocial work characteristics as predictors for burnout: findings from 3-year follow up of the P.U.M.A. study, *JOEM*, 47, 10: 1015-25.
- CHERNISS C.
1980 *Staff burnout. Job stress in the human service*. Beverly Hills: Sage Publications Inc.
- ETIENNE P., MAGGI B.
2007 Conception du travail sur les chantiers du bâtiment : avancées et reculs de la prévention, in Zouinar M., Valléry G., Le Port M.-C. (Eds.), *Ergonomie des produits et des services*, Actes du 42° Congrès de la Société d'Ergonomie de Langue Française, Saint-Malo : 625-34, Toulouse : Octarès Éditions.
2009 Santé et sécurité des utilisateurs des machines. Un cas de relation entre analyse organisationnelle et ergonomique, in Gaillard I., Kerguelen A., Thon P., *Ergonomie et Organisation du Travail*, Actes du 44° Congrès de la Société d'Ergonomie de Langue Française, Toulouse, <http://www.ergonomie-self.org/media/media41146.pdf> : 237-43.
- DE LA GARZA C., MAGGI B., WEILL-FASSINA A.
1998 Temps, autonomie et discrétion dans la maintenance d'infrastructures ferroviaires, in *Temps et Travail*, Actes du 33° Congrès de la Société d'Ergonomie de Langue Française : 415-22, Paris.
- DE LA GARZA C., WEILL-FASSINA A., MAGGI B.
1999 Modalités de réélaboration des règles : des moyens de compensation des perturbations dans la maintenance d'infrastructures ferroviaires, in *Ergonomie et fiabilité des systèmes et des organisations*, Actes du 34° Congrès de la Société d'Ergonomie de Langue Française : 335-43, Caen.
- EUROPEAN COMMISSION
2010 *Health and Safety at Work in Europe (1999-2007): A Statistical Portrait*, Luxembourg: Publications Office of the European Union.
- FAÏTA D., MAGGI B.
2007 *Un débat en analyse du travail. Deux méthodes en synergie dans l'étude d'une situation d'enseignement*, Toulouse: Octarès Editions.

MAGGI B.

- 1984/1990 *Razionalità e benessere. Studio interdisciplinare dell'organizzazione.* Milano: Etas Libri.
- 1996 La régulation du processus d'action de travail, in Cazamian P., Hubault F., Noulin M. (Eds.), *Traité d'ergonomie*: 637-62, Toulouse: Octarès Editions.
- 2000 (Ed.) *Manières de penser, manières d'agir en éducation et en formation*, Paris: Presses Universitaires de France.
- 2003 *De l'agir organisationnel. Un point de vue sur le travail, le bien-être, l'apprentissage*, Toulouse: Octarès Editions; 2006 ed. port., *Do agir organizacional, Um ponto de vista sobre o trabalho, o bem-estar, a aprendizagem*, Sao Paulo: Editora Edgard Blücher; 2009 ed. sp., *El actuar organizativo. Un punto de vista sobre el trabajo, el bienestar, el aprendizaje*, Madrid: Editorial Modus Laborandi.
- 2006 Bem-estar / Bienestar, *Laboreal*, 2, 1, <http://laboreal.up.pt/>: 62-63.
- 2008 Organisation et bien-être. L'analyse du travail aux fins de prévention, in Terssac G. de, Saint-Martin C., Thiébault C. (Eds.), *La précarité: une relation entre travail, organisation et santé*: 193-206, Toulouse: Octarès Éditions.
- 2010 *Peut-on transmettre savoirs et connaissances ?/ Can we transmit knowledge?/ Si possono trasmettere saperi e conoscenze?*, <http://amsacta.cib.unibo.it>, Bologna: TAO Digital Library.
- 2011 (Ed.) *Interpréter l'agir: un défi théorique*, Paris: Presses Universitaires de France; 2011 ed. it., *Interpretare l'agire: una sfida teorica*, Roma: Carocci.

MASLACH C.

- 1976 Burn-out: a social psychological analysis, Communication, American Psychological Association, S. Francisco.

MASLACH C., JACKSON S.E.

- 1981 The measurement of experienced burnout, *Journal of Occupational Behaviour*, 2: 90-113.

ROSENMANN R.H., FRIEDMAN M.

- 1961 Association of specific behaviour pattern in women with blood and cardiovascular findings, *JAMA*, 24: 1173-84.

RULLI G.

- 1996 La formazione per la prevenzione e il D.Lgs. 626/94. Un'esperienza nel settore dei servizi, in *Formazione per la prevenzione, metodo delle congruenze organizzative e D.Lgs. 626/94*, Quaderno del Programma Interdisciplinare di Ricerca "Organization and Well-being": 13-67, Torino: Tirrenia Stampatori.
- 2010 *Stress at Work: Risk Evaluation and Prevention / Le stress au travail: évaluation du risque et prévention / Lo stress nel lavoro: valutazione del rischio e prevenzione*, <http://amsacta.cib.unibo.it>, Bologna: TAO Digital Library.

RULLI G., MAGGI B.

1997 Training and Education for Prevention in Workplaces. A Case Study in the Services Sector, in Seppälä P., Luopajarvi T., Nygard C.-H., Mattila M. (Eds.), *From Experience to Innovation*. Proceedings of the 13th Congress of the International Ergonomics Association, Tampere, 1: 423-25, Helsinki: Finnish Institute of Occupational Health.

2002 Prescription, standardisation et prévention. Les normes ISO 9000 et la qualité dans le secteur sanitaire : une évaluation critique, in Evesque J.-M., Gautier A.-M., Revest Ch., Schwartz Y., Vayssière J.-L. (Eds.), *Les évolutions de la prescription*. Actes du 37^o Congrès de la Société d'Ergonomie de Langue Française : 85-91, Aix-en-Provence.

RULLI G., MAGGI B., CRISTOFOLINI A., DE NISI G.

2000 Work Analysis in a Public Health Center: The Evaluation of a Training and Education Program, in *Ergonomics for the New Millenium*, Proceedings of the 14th Congress of the International Ergonomics Association, 2: 697-700, San Diego.

SELYE H.

1976 *Stress in Health and Disease*, Boston: Buterworths.