

Piras, Miele and Fornasini (2017): *Infrastructuring primary prevention outside healthcare institutions: the governance of a Workplace Health Promotion program*. 6th International Workshop on Infrastructures for Healthcare: Infrastructures for governance, quality improvement and service efficiency, DOI: 10.18420/ihc2017_017

Infrastructuring primary prevention outside healthcare institutions: the governance of a Workplace Health Promotion program

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Abstract. Workplace Health Promotion (WHP) programs are undergoing significant changes mixing the healthy lifestyle promotion with the self-tracking opportunities offered by digital technologies. The shift to more pervasive (or intrusive) forms of primary prevention for chronic diseases requires to justify the existence of healthcare infrastructures in work settings and a redefinition of the role of employers and healthcare institutions. The paper describes and analyses a WHP initiative conducted in Italy to illustrate the infrastructuring of the governance of technologically-enhanced prevention in the workplace.

Introduction

“Workplace Health Promotion” (WHP) is an umbrella term used to designate programs whose aim is to improve lifestyle and consequently improve health, work ability, and work productivity. WHP complements “Occupational Safety and Health”, which aims at creating a safe work environment, and fosters primary prevention programs mostly focused on promoting healthy eating habits and physical activity. Several studies have shown that health and wellness programs in the workplace can reduce risk factor profiles both in apparently healthy individuals and in those at high risk of cardio vascular diseases (Arena *et al.* 2013). The underlying assumptions of WHP programs is the recognition of the

underexploited potential of promoting a behaviour change in a confined space and the possibility to leverage on the resources offered by the organizational setting.

While WHP programs are not new and date back as far as 30 years (World Health Organization 1986) there is a growing interest in recent years in the light of two major changes. On the one hand, health care systems are facing budgetary restrictions for prevention programs and see employers and workplaces as potential allies. On the other hand, data gathered through mobile and wearable technologies allow to imagine new forms of health prevention. The combined effect of such changes has paved the way for WHP programs designed to address primary prevention and thus complement or even replace services which should be offered and managed by healthcare authorities. Several new WHP programs (see Masson *et al.* 2016) now do not merely act on vending machines, canteen, or physical activity promotion in general but combine these actions with forms of imposed self-tracking (Lupton 2014) which make use of digital technologies.

The involvement of employers in the field of primary prevention raises several issues regarding the legitimacy of organization to promote health, misuse of sensitive data, discrimination of vulnerable segments of population (e.g. unemployed) just to name a few. These issues are part of a broader redefinition of emerging forms of governance of health prevention and behaviour change promotion as new actors come into play, old actors play new roles and technologies are designed and integrated.

We argue that the analysis of technologically-enhanced WPH programs could furnish an interesting empirical field to scholars interested in healthcare infrastructures. Despite the IT components and the coordination needs are far from being as complex and multi-layered as the ones found in healthcare institutions, the installed base, which includes also the existing institutional and organizational components and arrangements (Chae and Lanzara 2006), creates a challenging environment to study the process of infrastructuring and the inter-institutional negotiation, collaborative practices and concerted action needed to create room for the IT infrastructure (Karasti *et al.* 2010).

The research question is thus, how do infrastructures designed for health or clinical purposes find a legitimate space in the work setting? How is primary prevention governance infrastructured outside the healthcare institutions?

The case study: infrastructuring the governance of prevention

The paper reflects on the aforementioned issues through a case study regarding the process of design and implementation of an ongoing technologically-enhanced WHP program in a 500+ people research foundation based in Northern Italy. Authors have been involved, with different roles, in the design and

management of the WHP program. The research has flanked each step of the process. The first two authors attended the project meetings with stakeholder (both internal and institutional) and the design team for 18 months and conducted 5 focus groups with employees to explore their representation and acceptability of the WHP program. Notes were taken during meetings and focus groups were transcribed. Data was coded through a content analysis; the segmentation of text had the primary purpose of breaking down the process and identify relevant stages.

The WHP program originated from the idea to push the boundaries of existing experiences in the field of health workplace initiatives targeting workers at risk of developing cardio-vascular diseases and/or type 2 diabetes, two chronic conditions whose onset is strongly correlated with lifestyle.

The WHP program was meant to test the applicability in a work setting of a remote monitoring platform used to manage several chronic conditions (e.g. type 1 diabetes, home chemotherapy) (Piras and Miele 2017; Galligioni *et al.* 2015). The platform, a web dashboard for clinicians and mobile apps for patient connected with activity trackers, is endowed a specific software component designed for the WHP program, a virtual coaching system to provide nutritional recommendations based on the Mediterranean diet principles (Bailoni *et al.* 2016).

In the next pages we shall describe the evolution, refinement and finalization of the outline of the program from its draft to its final version. We identified three phases, each requiring the involvement of new actors, new requirements and arrangements.

First phase: tech refining and the discovery of the institutional complexity.

The first draft of the program was conceived by the research group and the occupational physician of the research foundation. Unlike other WHP programs, its target was not all the working population but only those at risk, to be identified administering a standardized questionnaire for risk assessment. Twenty workers would be enrolled in the program prioritizing those with higher risk score and on a strictly voluntary basis. The intervention was planned to last 6 months and consisted on a mix of virtual and human coaching provided by the mobile application and a counsellor. Physician was in charge of defining a set of parameters to be measured at baseline and at the end of the program to assess the efficacy of the intervention.

This program envisioned a slightly modification to the existing technical platform, mostly regarding the customizing of the mobile application for dietary recommendation and the integration with the IS of the canteen to feed the application with the menu of the day.

As the program started to get drafted, the need to involve stakeholders in the refinement was felt. The mapping of the potential stakeholders revealed that there

were a significant number of organizational units and external institutions to be involved in the process so to strengthen it. It was thus decided to create two separate working groups running in parallel, one internal and the other inter-institutional, both coordinated by the research group.

Second phase /1: internal working group and the employees

The internal working group involved the Prevention and Safety department, the Communication department, Human Resources, the internal Recreation & Leisure Club, and the unions. From different perspectives each of the newly involved stakeholder pushed for a more inclusive and “universalistic” approach.

The need to extend the program was particularly felt by HR which considered the initiative as yet another form of occupational welfare to be offered to the largest number of employees. This vision was shared by employees involved through focus groups: in their representation the WHP program was to be put alongside other services offered to workers and available to anyone such as the parcel drop service, the summer camps for kids, the laundry and ironing service. Both employees and representatives of Recreation & Leisure Club noted how the first draft of the program targeted the individual worker and suggested it to be complemented with actions to leverage the informal social relations among workers by promoting group activities. Other stakeholders, namely unions and Prevention and Safety department, stressed the need to ensure rigorous policies regarding data collection and privacy.

The internal working group activities led to a significant change of the whole project. The clinically-oriented prevention program drafted in phase 1 (hard program) was flanked by a well-being program without clinical supervision, consisting on the use of the mobile application plus health cooking and low-impact exercise course organized (soft program).

Recommendation from internal stakeholders modified some technical requirements of the platform to anonymize data gathered through questionnaire and the application. This required some significant work since in the clinical trials the research group was allowed to access all data produced by patients.

Second phase /1: inter-institutional working group.

The inter-institutional working group involved representatives from the provincial government, the local healthcare authority and the public National Institute for Insurance Against Industrial Injuries. These partners were included to strengthen the initiatives leveraging on the credit they enjoyed in the field of primary prevention. These stakeholders considered the WHP program as an opportunity to test new partnerships to promote primary prevention and a pilot test of a larger scale application of the initiative. The aim of the working group became to create a ‘model’ to be subsequently applied to other working settings.

Stakeholders role changed over time as they co-financed the initiative both in monetary terms and in kind (e.g. the counselling service for the ‘hard’ program was provided by local healthcare authority). Moreover, representatives of stakeholders promoted the initiative within their professional networks and in their organization. As a result, a branch of the local government and the local healthcare authority expressed their interest in activating a similar program even before the pilot test started.

Third phase: technical adaptation

While the design of the technical platform started with the beginning of the project, the requirements emerged from the involvement of the stakeholders required ongoing adaptations. The platform was integrated with the canteen IT but other integrations with the research centre IT systems, while technically feasible, were not performed. The introduction of a clinical infrastructure in a work setting required to find ways to avoid any unwanted access to sensitive information by any member of organization. For example, it was decided not to integrate the platform to the authentication system to preserve the anonymity of the data. This and similar issues were mainly solved creating workarounds to allow the research group to manage the platform without being able to associate data to the individual worker and providing access to the physician.

Discussion and conclusions

In this paper we have limited our analysis to the design of the WHP program, from its first ideation to the start. This time frame has allowed to observe the processes through which primary prevention comes to be defined a legitimate organizational purpose in a non-clinical institution. This involved the co-construction of arrangements between all actors involved and the technical platform. Both the technologies and the actors involved are redefined in a process that modified their roles and their technical features.

Healthcare institutions and local government, with limited resources to do perform extensive primary prevention, find a new role as experts in support of programs run and managed by employers. In the process the pre-existing healthcare infrastructure had to be modified to accommodate to the specific setting and to ensure higher standards of data protection and privacy. However, the acceptability of such intervention depended on its symbolization as a part of a larger initiative of occupational welfare open to all the members of the organization. The preliminary findings suggest that a WHP program targeting only high risk workers could have insufficient legitimation and that it could be necessary to promote other, more inclusive, initiatives to foster the acceptability of the primary prevention initiative.

This paper offers a glimpse into a possible trend in the evolution of primary prevention as it becomes less a strictly healthcare issue and it is performed in unruly settings. As we have tried to show, primary prevention cannot be simply delegated to employers but it requires a change in how it is governed and a redefinition of roles in a broader network. The governance of prevention itself is not the result of a display of rationality but rather the emerging product of the local and contingent negotiations that builds of the inherited features and constraints of the sociotechnical installed base.

Acknowledgments

This work was supported by Department of Health and Social Politics of the Autonomous Province of Trento (Italy) [TreC3 Project].

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