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Promoting physical activity: An inter-sectorial activity between health and spatial planning

Spatial and urban planning can positively guide people toward effectively promoting health as an inter-sectorial process oriented toward empowering the community in terms of a healthy lifestyle and supportive environments for health. In the northern Italian region of Lombardy, activities follow the criteria of effectiveness, integration, a multi-sector approach and sustainability, and are developed in network programmes and/or with the involvement of regional health authorities, local authorities, associations and community stakeholders. The main activities in 2013 included the Health Promoting Schools Network (SPS), the Workplace Health Promotion Network (WHP, 145 companies engaged), walking groups (involving 18,891 participants, of whom 11,488 were under sixty-five) and information campaigns (Lifestyles Conducive to Health: A Good Region For ... and Stairs for Health). SPS, WHP, the walking groups and Stairs for Health programme have positive effects on both health and psychosocial development, with an indirect impact on the families and volunteers involved as well. The alliance with local governments, companies and schools plays a pivotal role in practical management.

Keywords: health promotion, physical activities, sedentary lifestyle, networks, community stakeholders, spatial planning

1 Introduction

This article draws on some considerations raised through an analysis carried out within the transnational SPHERA project (Spatial planning and health systems: enhancing territorial governance in Alpine space). The project originated through the joint interest of the general directorates for health and spatial planning of the Lombardy Region in exploring possible synergies and inter-sectorial approaches between health and spatial planning policies. The analysis has discovered multiple directions of investigation and various scenarios considering the extent to which health policies and activities can influence spatial planning strategies and vice versa. The main elements of reflection presented here combine the two dimensions addressed by the initiative.

1.1 Health promotion: An inter-sectorial process oriented toward community empowerment

Lifestyle plays a key role in people's health and is strongly influenced by physical, organisational, social and cultural contexts, at both the individual and community levels. A World Health Organization statement from 1998 emphasises the importance of the environment as a strategic element in promoting public health: "Lifestyle is a way of living based on identifiable patterns of behaviour which are determined by the interplay between an individual's personal characteristics, social interactions, and socioeconomic and environmental living conditions" (Internet 1). Until the twentieth century, the target of preventive healthcare was specifically focused on the community, aimed at containing the emergence and spread of infectious diseases. The epidemiological change towards the emergence of chronic-degenerative diseases made prevention policies concerning the four main risk factors causing them (an unhealthy diet, physical inactivity, smoking and alcohol consumption) essential because they represent the main cause of death in Western countries and have a considerable economic impact. These prevention programs primarily include activities aimed at strengthening health factors through health-promotion processes.

The first definition of health promotion was given in 1986 (The Ottawa Charter for Health Promotion) as a process enabling people to increase control over and improve their health. This concept of empowerment is multidimensional. The strategic activities identified from Ottawa (building a healthy public policy, creating supportive environments, strengthening community activities, developing personal skills and reorienting health services) underline the cross-sectorial commitment required in multidisciplinary programmes to promote healthy lifestyles and environments supportive for health. Among the most insightful planning models, the "Precede-Proceed" model (Green & Kreuter, 1999) identifies three groups of factors underlying processes of change: predisposing determinants (including knowledge, attitudes, beliefs and values that support or hinder individual motivation to change), enabling determinants (resources or barriers that help or hinder the implementation of behavioural changes or environmental conditions) and reinforcing determinants (answers received from other parties following the adoption of a new behaviour that encourages one to maintain or not maintain the new behaviour).

Territorial policies have a strong impact on these determinants, and therefore healthcare system activities in preventing chronic diseases require a basic alliance with spatial planning. The Lombardy Region has long been engaged in developing cross-sectorial programs, based on activities promoting effective and sustainable lifestyles and an environment conducive to health, reaching the community and taking into account the risk of inequality. The challenge of inter-sectorality is therefore to effectively make local communities places that are conducive to health and involves different knowhow from that involved in spatial planning. The ability to develop processes based on this interconnection is the key determinant of change for the health and wellbeing of communities.

1.2 Spatial planning

Today all major European cities are going through a period of great changes affecting both their socioeconomic structure and physical size. Consequently, cities and territories have become central themes again. They have radically changed in their spatial structure, in the way they operate, in the relationship between rich and poor and in their image. These changes are caused by years of a deep economic crisis in Western society: increasing individualisation and deconstruction of society, greater awareness of lack of natural resources, growing demands in health, education, technological progress and change in social interaction are all building images, scenarios, policies and projects that conflict with one other to some degree. Studies on the development of the new Regional Territory Plan of the Lombardy Region have highlighted some of the phenomena that have ongoing effects on quality of life and the need to develop the type and mode of service delivery:

- New issues of socio-economic marginalisation associated with a spatial territory totally different from what was seen in the past;
- The depopulation process in these areas;
- An ageing population.

In urban projects, it is important to consider the spatial structure of the city, recognising the importance of layout of the land, acknowledging the role of its infrastructure so that it gives the city and the region better permeability and accessibility, designing quality public spaces and considering once again the "collective dimension" as a common good.

1.3 Impacts of participatory territorial planning on health

Environment and territory directly impact people's health. The strong correlation between health and environment is highlighted by the direct relationship between the most disadvantaged strata, with a low level of education and the highest rate of diseases. These strata of the population are often concentrated in low-quality urban land, characterised by various types of degradation (territorial, environmental and social) and suffer the influence of psychological distress

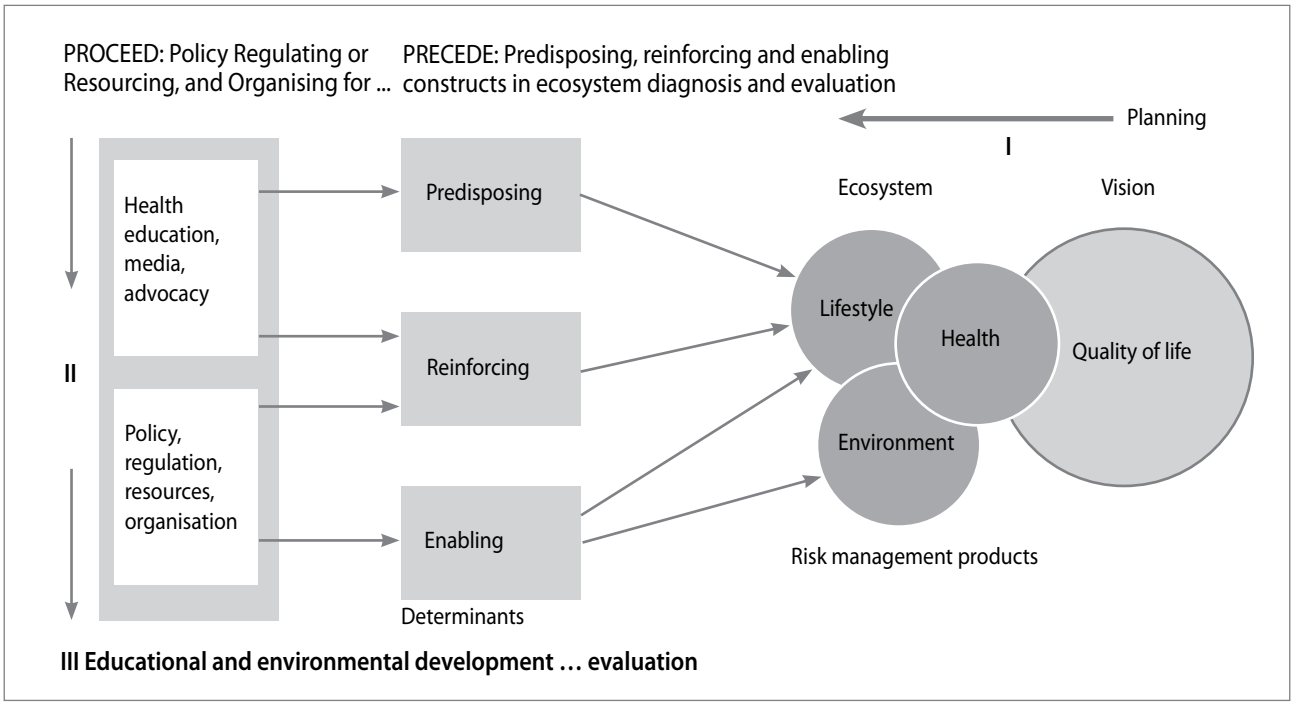

Figure 1: The Precede-Proceed model of health program planning and evaluation (source: Green & Kreuter, 1999).

risk factors, an element that directly affects individual health. The public neighbourhood is emblematic of this diverse set of issues, which interweaves urban decay (abandoned areas, neglect, architectural barriers and dilapidated buildings) with social problems (loneliness among the elderly, unemployment, crime, social exclusion, poverty, dropping out of school and youth problems). It is necessary to identify a series of strategic and operative coordinates to approach the complexity of the problems, identifying their main features.

An improvement in the quality of life can be achieved by applying inclusive, open and participatory programmes that are closer to the recipients and that can increase the sense of ownership of common areas. Participatory approaches are called for today and must be reshaped based on the characteristics of the local society, strong demographic changes (ageing and immigration), employment (flexibility and insecurity) and culture (values and lifestyles). There is a direct connection between environmental policies, urban planning, territory and health promotion. Policies at the social and local levels (urban planning, welfare housing, mobility, environment, etc.) have significant impacts on people's wellbeing (satisfaction, improved quality of relationships, confidence and sense of cohesion). To produce social cohesion, it is essential to build sustainable projects according to strong shared priorities, to create a network between subjects and between knowledge, to build territorial knowledge, to develop local skills and to act in an integrated way. To do this, it is necessary to have a method and some good tools to enable individuals and organisations to

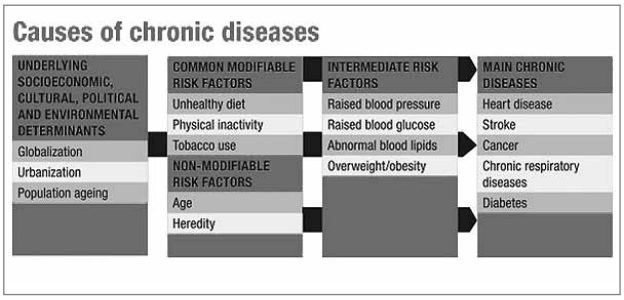

Figure 2: Causes of chronic diseases. Preventing chronic disease: A vital investment (source: WHO, 2005).

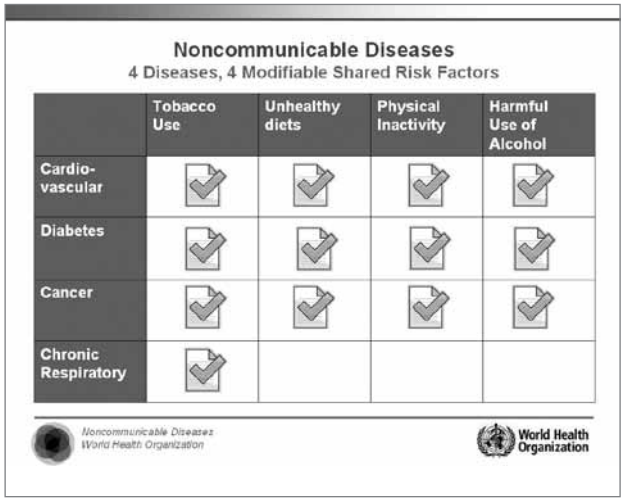

Figure 3: Non-communicable diseases. Four diseases, four modifiable risk factors (source: Internet 2).

work together to achieve shared goals through a participatory process based on actual cohesion between promoters (institutions) and participants (citizens) in the initiative.

2 Promoting a healthy lifestyle and supportive environments for health

Investing in prevention and control of chronic diseases or degenerative diseases (chronic non-communicable diseases, or NCD) makes it possible to reduce premature deaths, preventable morbidity and disability, and to improve the quality of life and wellbeing of individuals and society. No less than 86% of deaths and 77% of the disease burden in the WHO European region are caused by this large group of disorders that share common determinants (social, economic, etc.; WHO Regional Office for Europe, 2011), modifiable risk factors and prevention strategies.

Research-based evidence and international guidelines (WHO European Region) indicate the need for integrated preventive activities (Figure 4) aimed at facilitating the adoption of healthy lifestyles, based on strategies of health promotion at both the population (or community) level and individual level. An active lifestyle with daily physical activity contributes not only to preventing major chronic degenerative diseases, but also to promoting psychological wellbeing by reducing anxiety, depression and loneliness, and to supporting "active and healthy ageing" by increasing the degree of autonomy of the elderly and reducing the risk of falls. In 2013, 41% of Europeans exercised or played sports at least once a week, whereas 59% never or rarely did (European Commission, 2014). In 2013, 30% of Italian people three or older stated that they engaged in one or more sports in their free time; among these, 21.3% play sports on an ongoing basis and 8.7% only occasionally. People doing physical activity, even if not playing sports, account for 27.7%, whereas 42% are sedentary.

In Lombardy a sedentary lifestyle is common in childhood, adolescence and adulthood (Figure 5), although with less critical situations than in other areas of the country. WHO's lifestyle definition (WHO, 1998) highlights the complexity involved in the process of changing behaviour, which has to be taken into account to plan effective and sustainable public health. Thus, to sustain an active lifestyle, educational, informative and communicative activities are needed (individual empowerment), but at the same time it is necessary to act on environment determinants (Catford, 1998; WHO Europe, Salute 2020, 2012) such as the urban structure of the city, social networks, opportunities to join promotion programmes and so on.

Because people spend their lives in buildings (workplaces or schools) and moving from one place to another, improving the environment to facilitate physical activity is a great opportunity to promote health. "Buildings and sites are deliberately designed to support a set of activities and to create or reinforce a set of cultural assumptions. So, at the outset of any design, it can be said that behavior causes environment. However, as individuals and groups use buildings on a daily basis, they are affected by the built-in physical aspects of the building and site, such as the availability of space for different functions, relationships among spaces, aesthetics, and symbolism. Each of these relationships are [sic] potentially mediated and moderated by individual and group knowledge and attitudes. Nonetheless, in the short term, environment influences behavior" (Zimring et al., 2005: 187).

The health system and territory management system has to cooperate in order to develop an environment that can support physical activity. Attitudes to health are strictly influenced by structures within the environment (e.g., in workplaces; Pritchard, 2004). Different settings such as urban and rural present many differences: demographic, anthropometric, physiological and health-related variables. A comparison of different settings shows how tailored activities and educational strategies maximise healthy lifestyle promotion (McConnell, 2010).

The "Toronto Charter for Physical Activity" (Global Advocacy for Physical Activity, 2011), a programming tool based on this advocacy process, identifies and describes the seven best investments (Toronto Charter for Physical Activity, 2010; sustainable and evidence-based activities) to increase the level of physical activity of the population which, if applied on a sufficient scale, can contribute significantly to reducing the burden of non-communicable diseases and promoting the health of the population:

1. Programmes targeting the entire school community;
2. Transport policies and systems that prioritise walking, cycling and public transport;
3. Urban design regulations and infrastructure that provide for equitable and safe access for recreational physical activity, and recreational and transport-related walking and cycling across the life course;
4. Physical activity and NCD prevention integrated into primary healthcare systems;
5. Public education, including mass media, to raise awareness and change social norms on physical activity;
6. Community-wide programmes involving multiple settings and sectors and that mobilise and integrate community engagement and resources;
7. Sports systems and programmes that promote sports for all and encourage participation across the lifespan.

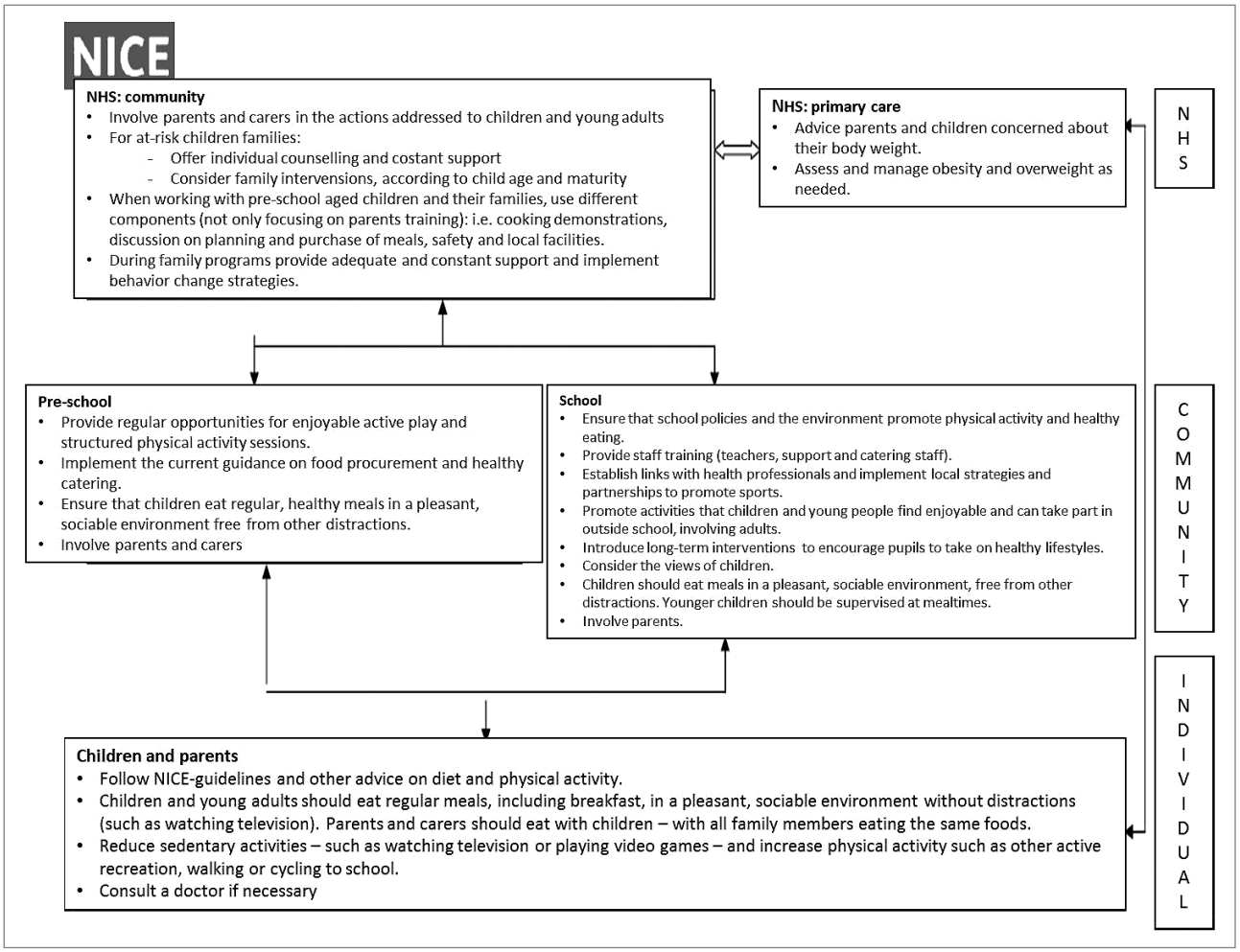

Figure 4: Model of integration between the NHS (National Health System) community programmes and individual activities (primary care) in preventing obesity in children and adolescents (source: NICE Clinical Guideline 43, 2006).

3 Public health activities in Lombardy

The regional local health units (Ital. *Aziende Sanitarie Locali,* ASL) address the promotion of physical activity, healthy eating and other health or risk factors, such as smoking, in an integrated manner. The activities are based on regional guidelines (Sanità, 2009) and are oriented to appropriateness criteria such as effectiveness, integration, intersectorality and sustainability. Currently activities are developed in network programmes (workplace and school) and/or carried out with the involvement of local authorities, associations and other stakeholders or local communities (Figure 6).

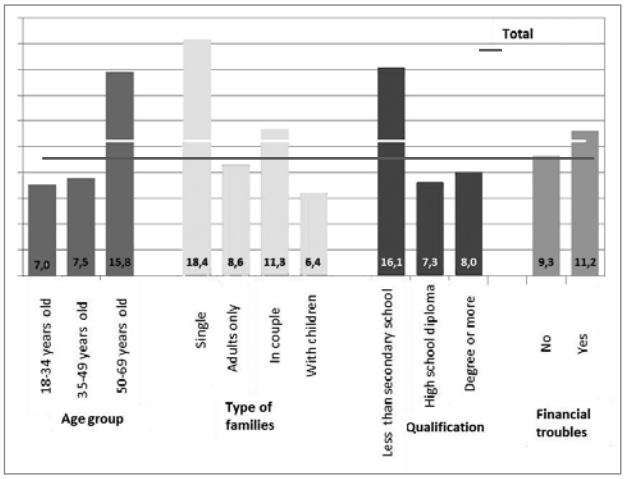

Figure 5: Sedentary population eighteen to sixty-nine years old according to some social and demographic characteristics. Lombardy, 2013 (in percentages; source: Lombardy Region Statistical System).

3.1 The health-promoting school network in Lombardy

In the health-promoting school network (Ital. *Rete SPS Lombardia*), a new guideline for health promotion (an Iseo chart) was published, more hours of physical activity, including extracurricular hours, are available for schools and 26,000 children go to school every day with a "walking bus" involving one primary school out of five. The goal of the SPS is to be an environment conducive to health through evidence-based activities in various areas: educational, social, organisational and collaboration with others in the local community.

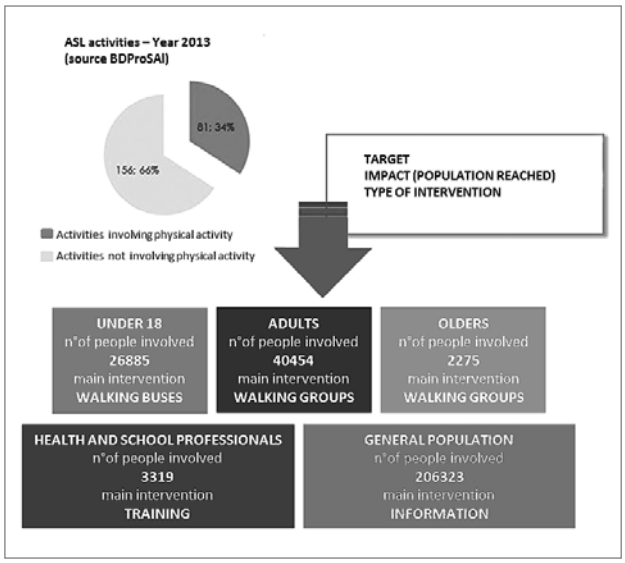

Figure 6: Regional local health unit activities in 2013 (source: Lombardy Region Statistical System).

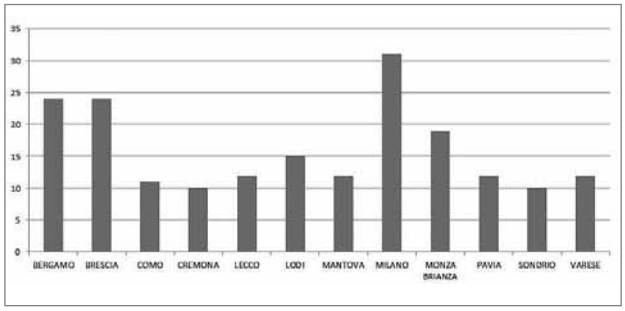

Figure 7: Number of network schools per province, 2012–2013 academic year.

This strategy ensures schools activation (empowerment), with the research-based support of local health authorities where necessary in order to strengthen competence and awareness about health in the entire school community and to create an environment in which the adoption of healthy behaviours is easy and rooted in everyday culture. The regional network of health-promoting schools is a member of the Schools for Health in Europe network (Internet 3; see Figure 7). According to a recent Cochrane review (Dobbins et al., 2013), school-based activity proved to be moderately effective in increasing the number of children engaged in moderate to vigorous physical activity and in reducing the amount of time spent watching television. Many factors are known to influence the physical activity level in school-aged children and adolescents: for example, the local road environment (Carver, 2010) and family and neighbourhood socioeconomic conditions (Pabayo, 2011; Pouliou, 2014).

3.2 Workplace health promotion: The Lombardy WHP network

The WHP network is made up of companies ("workplaces") that recognise the value of corporate social responsibility and seek to be an environment conducive to health that uses research-based support from the local health unit where necessary to systematise various evidence-based activities: informational (helping people stop smoking, eat healthily, etc.), organisational (canteens, snack vending machines, stair-health programmes, walking or biking from home to work, a smoke-free environment, baby pit-stops, etc.) and collaboration with others in the local community (associations, etc.). Out of 145 companies, 57% are engaged in physical activity (information campaigns, agreements between companies and sports facilities and promoting bicycle use; Figure 8).

The Lombardy WHP network belongs to the European Network for Workplace Health Promotion (ENWHP; Internet 4). There is a growing body of knowledge on evidence-based activities and best practices that can be adopted in this setting: for example, implementing pedometer-based programs (Freak-Poli et al., 2014), campaigns to take the stairs (Internet 5, McGann, 2013) providing wellness facilities (Kolbe-Alexander 2014) and walk-to-work activities (Procter, 2014) are known to be effective in increasing physical activity and psychosocial health in workers, whereas other activities such as walking groups at lunchtime, especially if a few times a week and without adequate support, are not effective (Brown, 2014). Moreover, the results of a recent study (Bale, 2014) indicate that individuals with a supportive work environment are more likely to use time at work to exercise.

3.3 Walking groups

Walking groups are groups of people that regularly meet to walk together. They were initially led by operators and then gradually created on their own through the formation of "walking leaders" identified among volunteers. Many studies show how factors related to the environment (poverty rate, racial distribution, safety from crime, population density, traffic conditions, public walking tracks and trails, etc.) influence walking behaviour (Kelly et al., 2007; Oh, 2010; Gallagher et al., 2010; Sun, 2014).

In March 2014, the General Directorate of Health (Ital. *DG Salute*) carried out a survey that took a picture of the development of this initiative, which has been activated by all fifteen local health authorities through a participatory process with the involvement and activation of municipalities and associations. Walking groups involve 18,891 participants (of which 11,488 were under sixty-five; Figure 9), with groups

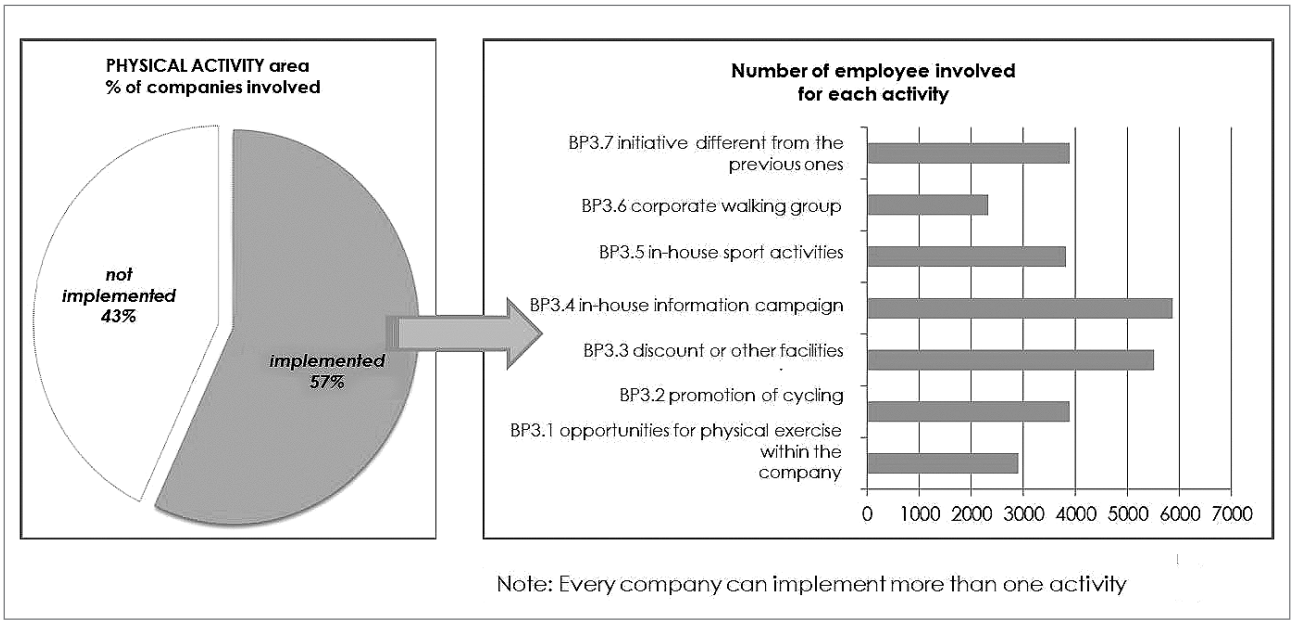

Figure 8: Lombardy WHP network companies that started recommended activities for promoting physical activity: activity type and number of employees involved for each activity (source: Regional WHP Lombardy database).

dedicated to patients (diabetics, cognitive disability and motor disability). Additional walking groups also arise through activities by network members (WHP, health-promoting schools network, healthy cities, etc.).

3.3.1 Walking groups and health gains

The short-term health-gain calculation (in a healthy lifestyles promotion program) must rely on statistical models that can show how reducing one or more risk conditions may prevent death or adverse events. WHO has developed one of these models: HEAT (Internet 6) makes it possible to estimate the reduction in mortality following regular activity such as cycling and/or walking. It is based on the best available evidence, with parameters that can be tailored to suit specific situations (the default parameters are valid for the European context). Estimating average walking of 120 minutes per week at a slow pace (two one-hour walks at 4.8 km/h) for participants in the Lombardy walking groups (18,891 people), HEAT calculates that the activity may decrease the risk of mortality by 14% in walking-group participants compared to a sedentary population (limit: HEAT makes it possible to estimate the impact by age range from eighteen to seventy, thus excluding those over seventy in walking groups). The decrease in risk cannot be related to an individual, but it is a good representation of the actual health-gain activity.

3.4 "Walking buses"

A "walking bus" is a safe pedestrian route from home to school along a route normally travelled by bus or car. Children go to school on foot, accompanied by adult volunteers and along a predetermined route with stops. In March 2014, the General Directorate of Health carried out a survey that photographed the development of this project, which is present in all fifteen Lombardy local health units. The municipalities that activated the "walking bus" number 341, corresponding to 22% of Lombardy's municipalities. Fifty-seven percent of children between six and ten that live in Lombardy go to school by a "walking bus". The number of schools involved is 501: about 21% of Lombardy primary schools provide a "walking bus" service.

3.5 Stairs for health

"Stair climbing can be a low-cost and relatively accessible way to add everyday physical activity, but many building stairwells are inaccessible or unpleasant and elevators are far more convenient" (Nicoll & Zimring, 2009: S114). An American study explores the use of and attitude toward stairs in an innovative office building where the main elevators for able-bodied users stop at only every third floor ("skip-stop" elevators). This strategy was successful in increasing stair use, and then physical activity can also improve thanks to these kinds of activities. The promotion of stair use was enhanced by the General Directorate of Health (U. O. Governo della Prevenzione e Tutela Sanitaria, 2010) and it is one of the simplest and most effective community activities in counteracting the sedentary lifestyle and increasing physical activity. Systematic literature reviews (Task Force on Community Preventive Services, 2002) have shown that written advisories on replacing elevators or escalators with stairs placed at strategic points motivate people to be more active. The recommended activity (CDC Atlanta,

ASL	Total number partecipants	Partecipants over 65	Population rate ‰ aged 65-74aa	Number of municipalities involved	% municipalities with walking groups
Bergamo	4475	2000	18 ‰	93	38 %
Brescia	890	478	4 ‰	32	20 %
Como	195	150	2 ‰	10	6 %
Cremona	173	130	3 ‰	5	4 %
Lecco	2615	1085	30 ‰	48	53 %
Lodi	180	120	5 ‰	7	11 %
Mantova	1316	987	22 ‰	33	47 %
Milano	1105	911	5 ‰	4	57 %
Milano 1	3620	3000	30 ‰	52	71 %
Milano 2	520	100	2 ‰	14	26 %
Monza and Brianza	400	400	4 ‰	11	20 %
Pavia	2260	1350	22 ‰	84	44 %
Sondrio	452	227	12 ‰	14	18 %
Varese	374	250	3 ‰	8	6 %
Valle Camonica S.	316	300	27 ‰	9	21 %
Lombardy	**18891**	**11488**	**11 ‰**	**424**	**27 %**

Figure 9: Walking groups in Lombardy (source: Lombardy Region Statistical System).

2010) consists of exposure next to the point where one has to choose whether to go on foot or by elevator. Posters, banners or placards encourage people to use the stairs, illustrating the health benefits of physical activity and stressing that this simple choice is a very easy opportunity to have a more active lifestyle. Nevertheless, the stairs, despite being promoted as a better life choice for better health, are not actually promoted through building design, as the results of the "Take the stairs instead" campaign suggest (McGann, 2013). Health-promotion strategies could be coupled with design-led movement strategies in workplace design so that the promotional language of such campaigns is balanced by the design language of the building.

4 The European Innovation Partnership on Active and Healthy Ageing

Within the overall Innovation Union strategy (Internet 7), the European Commission has identified "active and healthy ageing" as a major social challenge common to all European countries, and an area that has considerable potential for Europe to lead the world in providing innovative responses to this challenge. The European Innovation Partnership on Active and Healthy Ageing (EIP-AHA; Internet 8, Internet 9) has the goal of pursuing a triple win for Europe:

1. Enabling EU citizens to lead healthy, active and independent lives while ageing;
2. Improving the sustainability and efficiency of social and healthcare systems;
3. Boosting and improving the competitiveness of markets for innovative products and services, responding to the ageing challenge at both the EU and global levels, thus creating new opportunities for businesses.

This will be realised in the three areas of prevention and health promotion, care and cure, and active and independent living by the elderly. The partnership aims to achieve this by bringing together key stakeholders: all actors in the innovation cycle, from research to adoption (adaptation), along with those engaged in standardisation and regulation. Six activity groups have been identified for specific areas of activity:

1. Prescription and adherence to treatment;
2. Personalised health management, starting with a fall-prevention initiative;
3. Prevention and early diagnosis of frailty and functional decline, both physical and cognitive, in older people;
4. Integrated care for chronic diseases, including remote monitoring at regional levels;
5. Developing interoperable independent living solutions, including guidelines for business models;
6. Innovation for age-friendly buildings, cities and environments.

The Lombardy Region has joined the EIP-AHA in providing its commitment focusing on the "Innovation for Age-Friendly Buildings, Cities & Environments" area and targeting health promotion in Lombardy's local communities (i.e., cities) in terms of success factors for healthy ageing. Lombardy's participation in the EIP-AHA has the twofold objective of supporting the governance role of the region and its healthcare system by sharing, at the European level, notable and effective experiences already implemented on the territory addressing health promotion and prevention, and enhancing the coherence of

regional strategies in these areas of activity with the priorities identified at European and international levels (WHO). In this light, the EIP-AHA is a unique platform for fostering the participation of the regional health system stakeholders in a transnational initiative enabling mutual learning and the establishment of new alliances with reference networks.

5 Conclusion

The Lombardy Region is undertaking health-promotion paths as indicated in the WHO document "Health 2020" (WHO Europe, Salute 2020, 2012), according to which health benefits can be attained at an affordable cost and within resource constraints if effective strategies are adopted. To achieve this goal, effective activities require a policy environment that overcomes sectoral boundaries and enables integrated programmes, also because only by taking action on the social and environmental determinants of health is it possible to address many inequalities effectively. Urban development that considers the determinants of health is crucial, and mayors and local authorities are playing an increasingly more important role in promoting health and wellbeing. Participation, accountability and sustainable funding mechanisms reinforce the effects of such local programmes. More specifically, the walking-group program has been brought to the attention of the EIP-AHA initiative as a good practice deployed across the entire regional territory and implemented under the coordination of the regional government through the complementary contribution of various players such as local health units, professionals, citizens and municipalities. More information on the Lombardy walking group program and other European practices can be found in the first edition of the compiled good practices report issued as part of the EIP-AHA (Internet 10).

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