The Lancet Physical Activity Observatory: promoting physical activity worldwide

2 years ago, at the time of the London 2012 Olympic and Paralympic Games, *The Lancet* launched a Series on the worldwide pandemic of physical inactivity.[1] The Series showed that a third of adults and 80% of adolescents around the world do not reach recommended levels for daily physical activity (30 min and 60 min of physical activity of moderate-to-vigorous intensity per day for adults and adolescents, respectively).[2] Physical inactivity was shown to be responsible for 5·3 million deaths per year worldwide. If inactivity decreased by only 10%, half a million deaths could be averted every year.[3] There is reasonable understanding on why some people are active and others are not,[4] and several interventions, within and outside the health sector, are known to be effective at increasing physical activity in the population.[5,6] As for every pandemic, our Series identified urgent action that is needed to address physical inactivity.[1]

Together with publication of the Series, we launched *The Lancet* Physical Activity Observatory, which aims to keep track of progress in the field since publication of the Series. The Observatory defined four primary goals to be achieved by 2016. The first is to reduce the global prevalence of inactivity in adults from 31% to 28%. The second goal is to increase the prevalence of adolescents who engage in at least 60 min per day of moderate-to-vigorous intensity physical activity from 21% to 24%. The third goal is to reduce by 10% the proportions of coronary heart disease, type 2 diabetes, breast cancer, colon cancer, and premature deaths worldwide that are attributable to physical inactivity. The fourth goal is to increase by 10% the proportion of peer-reviewed scientific publications on physical activity that come from low-income and middle-income countries among the total number of publications worldwide.

The Observatory also prepared a list of secondary research, surveillance, and policy goals. We are now halfway through this period and have hosted the Observatory as a council of the International Society of Physical Activity and Health, and created a logo for the Observatory. We have also developed our contacts in each country using information from existing Physical Activity Regional Networks.[1] However, our main task has been to prepare country cards on the status of physical activity in each country of the world.

Country cards are to be launched in November, 2014. Each country card summarises a country's research, surveillance, and policy on physical activity and health. The cards also present socio-demographics, alongside morbidity and mortality patterns for each country. For most indicators, we present absolute and weighted values, as well as the ranking of the country. The main indicators are summarised in the panel. The country cards will serve as the baseline for future evaluation of physical activity status in each country, so that we can follow up progress in achieving the goals of the Observatory. The information in the country cards will highlight specific research, surveillance, and policy gaps in each country. Additionally, the country cards will serve as an advocacy tool that will help governments, researchers, and society in each country to feel accountable for improving health through the promotion of physical activity.

Another Observatory-related task was to bring together a team of researchers to develop a second *Lancet* Series on physical activity that will be published around the time of the Rio de Janeiro 2016 Olympic and Paralympic Games. The first paper in the new Series will include an update on research, surveillance, and policy on physical activity worldwide using data from *The Lancet* Physical Activity Observatory.

***Panel:* Indicators used for country cards about physical activity**

Research

- Prevalence of physical inactivity among adults
- Proportion of adolescents engaging in at least 60 min per day of moderate-to-vigorous intensity physical activity
- Number of active researchers in the field, defined as those who published at least one article in the past year
- Number of physical activity publications in PubMed in the past year
- Country contribution to physical activity publications in the past year

Surveillance

- Availability of data on physical activity using standardised instruments in national or subnational samples
- Existence of a regular system to monitor population physical activity (physical activity observatories or physical activity questions in continuous national surveys)

Policy

- Existence of a national physical activity plan

In 2016, we will be able to evaluate whether or not we have progressed in the promotion of physical activity worldwide since 2012. Science makes no sense if it does not help to change the world. *The Lancet* Physical Activity Observatory is committed to shaping cities and countries for health,[7] helping build societies in which the choice of being active is not perceived only as healthy but also as convenient, enjoyable, safe, affordable, and valued.[2]

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1 Kohl HW 3rd, Craig CL, Lambert EV, et al. The pandemic of physical inactivity: global action for public health. *Lancet* 2012; **380:** 294–305.
2 Hallal PC, Andersen LB, Bull FC, et al. Global physical activity levels: surveillance progress, pitfalls, and prospects. *Lancet* 2012; **380:** 247–57.
3 Lee IM, Shiroma EJ, Lobelo F, et al. Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. *Lancet* 2012; **380:** 219–29.
4 Bauman AE, Reis RS, Sallis JF, et al. Correlates of physical activity: why are some people physically active and others not? *Lancet* 2012; **380:** 258–71.
5 Heath GW, Parra DC, Sarmiento OL, et al, for the *Lancet* Physical Activity Series Working Group. Evidence-based intervention in physical activity: lessons from around the world. *Lancet* 2012; **380:** 272–81.
6 Pratt M, Sarmiento OL, Montes F, et al. The implications of megatrends in information and communication technology and transportation for changes in global physical activity. *Lancet* 2012; **380:** 282–93.
7 Rydin Y, Bleahu A, Davies M, et al. Shaping cities for health: complexity and the planning of urban environments in the 21st century. *Lancet* 2012; **379:** 2079–108.

Positive end-expiratory pressure in surgery: good or bad?


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A key challenge in perioperative care is to reduce postoperative morbidity.[1] Patients who develop postoperative pulmonary complications but survive to leave hospital, typically have reduced functional independence and shortened long-term survival.[2] Mechanical ventilation is an example of how we might shift from treatment to prevention of postoperative complications. Stimulated by findings in patients with acute respiratory distress syndrome, a multicentre randomised trial (IMPROVE) of intraoperative lung-protective ventilation was undertaken, using a strategy that consisted of a low tidal volume, moderate positive end-expiratory pressure of 6–8 cm H_2O, and repeated recruitment manoeuvres.[3] Improved postoperative outcomes were recorded with protective ventilation compared with non-protective ventilation.

In *The Lancet*, the PROVE (PROtective VEntilation) Network Investigators now report results of an international multicentre trial (PROVHILO)[4] of 900 patients at risk for postoperative pulmonary complications who were planned for open abdominal surgery. The researchers randomly assigned patients to a strategy of low tidal volume ventilation (8 mL per kg predicted bodyweight) and either low positive end-expiratory pressure (≤2 cm H_2O without recruitment manoeuvres [lower PEEP group]) or high positive end-expiratory pressure (12 cm H_2O plus recruitment manoeuvres [higher PEEP group]). The primary outcome (a composite of postoperative pulmonary complications occurring within the first 5 postoperative days) was reported in 174 (40%) of 445 patients in the higher PEEP group and 172 (39%) of 449 patients in the lower PEEP group (relative risk 1·01; 95% CI 0·86–1·20). Compared with the lower PEEP strategy, the higher PEEP approach resulted in more frequent intraoperative haemodynamic instability (systolic arterial pressure <90 mm Hg), a greater need for vasoactive drugs, and infusion of a larger volume of fluids. At first sight, these results might seem frustrating and, in part, contradictory with those of previous trials.[3,5] However, valuable information can be drawn from PROVHILO, but critical appraisal is also needed.

A surprising aspect of PROVHILO was the use of a fixed positive end-expiratory pressure of 12 cm H_2O in all patients in the interventional group. In clinical practice, most patients receiving mechanical ventilation for reasons other than acute respiratory distress syndrome are administered levels of positive end-expiratory pressure lower than 10 cm H_2O.[6] Although use of positive end-expiratory pressure is a simple physiological intervention supported by preclinical and clinical data, the approach has potentially detrimental effects—particularly haemodynamic—that can mitigate the clinical benefits.[7] Researchers in the PROVE network argued that the chosen high level of positive end-expiratory pressure was supported by scientific literature;[8] however, a level lower than 10 cm H_2O is usually needed to offset losses of lung volume in non-obese patients.[9]