

# ESC Prevention of Cardiovascular Disease Programme

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## Report on unmet prevention needs: Physical activity

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Report produced within the framework the ESC Prevention of Cardiovascular Disease Programme, led by the European Association of Preventive Cardiology (EAPC) in collaboration with the Acute Cardiovascular Care Association (Acca) and the Association of Cardiovascular Nursing and Allied Professions (ACNAP).

**Aim:** To report the percentage of high-risk cardiac patients within Europe that do not meet the ESC physical activity guidelines.

**Methods:** To address this aim, a literature search of the recent English language published literature was performed. Inclusion criteria were patients identified as high risk CVD patients, from any of the 50 countries in Europe or region within that country. Within the papers physical activity had to be presented in a format that could determine if patients did approximately 150 mins of moderate physical activity or its equivalent per week, this criteria was based on current European Society of Cardiology physical activity guidelines. Searches were carried out with a date limit of 2010 for publication. Baseline data within studies was used. Studies were excluded for the following reasons: data from many countries which could not be separated and data presented was from a source already used. The outcome of this report was percentage of population that did not meet the above guideline. Data extraction included, percentage meeting physical activity guidelines, main cardiac profile, dates of data collection, countries of data collection and criteria used to assess physical activity.

**Sources:** EUROASPIRE V hospital data, SURF and seven other articles were used in the analysis. Data from the hospital arm of EUROASPIRE V study was derived from the presentation by De Bacquer at EuroPrevent 2018. Data from SURF was derived from Zhao et al. 2016 and supplementary tables provided by the authors. Data was also provided by McKee et al. to supplement their paper. Articles used were: Benzer et al. 2017, Cohen et al. 2014, De Bacquer et al. 2018, Kouvari et al. 2016, Lund et al. 2016, Lang et al. 2017, McKee et al. 2018, Ozieranski et al. 2016, Zhao et al. 2016. While all the studies met the inclusion criteria of being post 2010 some studies included data that ranged back to 2000.

Physical activity measurement slightly deviated from the ESC >150 mins moderate physical activity per week in some cases. The SURF data physical activity criteria was 30 minutes moderate activity 3-5 times a week (Zhao et al 2016), Ozieranski et al. 2016 (Poland) defined inactivity as those not doing moderate or intensive physical activity, Lang et al. 2017 (Austria) defined inactivity as those who categorised their physical activity as light or none and Cohen et al. 2014 defined physical activity as <3 hours of physical activity per week. These differences may therefore cause over or underestimates in their data.

**Results:** Patients within the studies had varying types of cardiac disease. EUROASPIRE hospital arm and SURF populations were described as CHD patients. Lang et al. 2017 had stable CAD patients, Cohen et al 2014, McKee et al. 2018 and Kouvari et al 2016 had ACS patients, Lund et al. 2016 had heart valve surgery patients, Ozieranski et al. had heart failure patients and Benzer et al. 2017 had patients that attended cardiac rehabilitation, in the most part these were patients with CAD (83%).

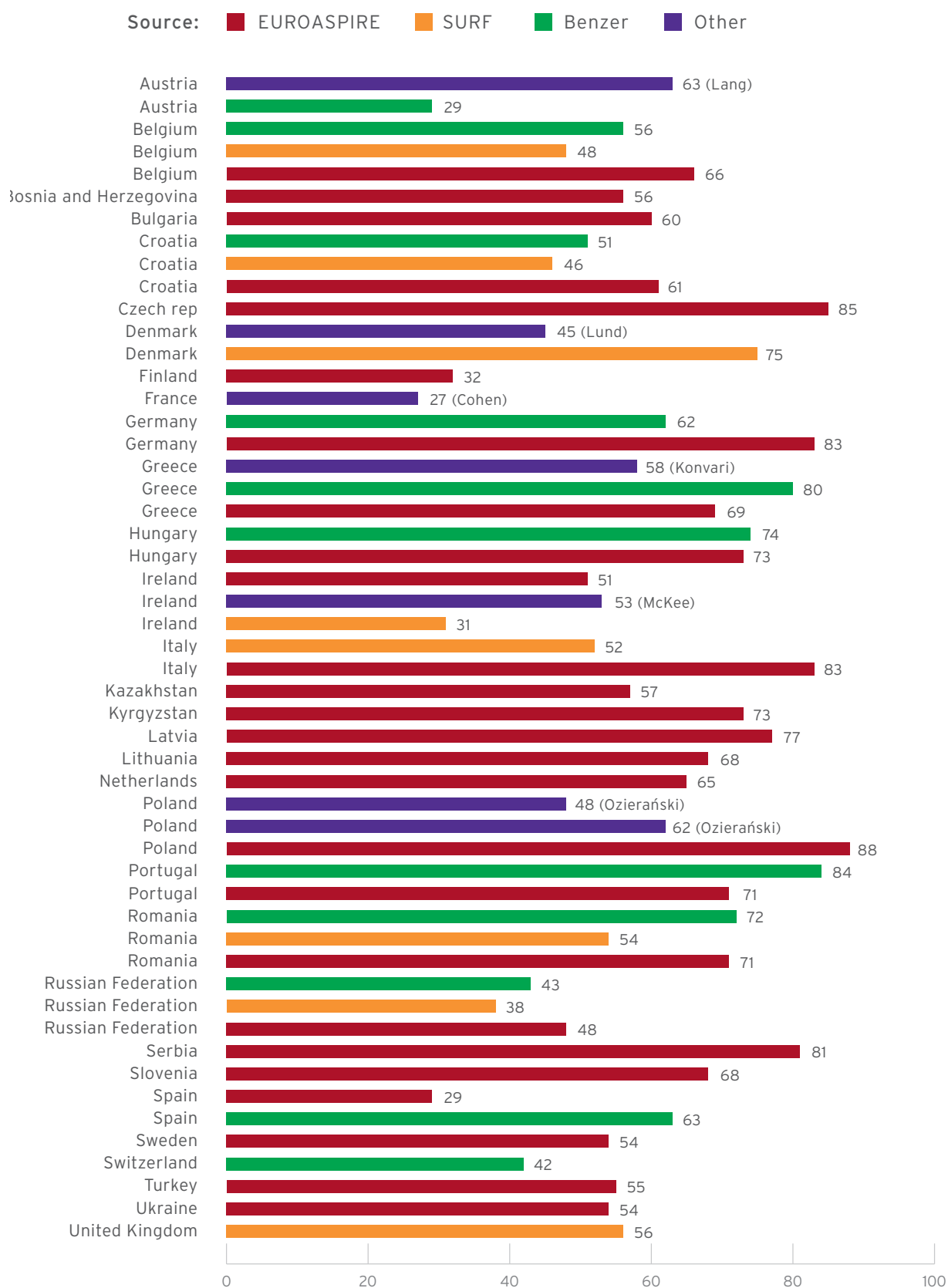
The percentage of patients not meeting physical activity guidelines range from a minimum 27% in France to a maximum 85% in the Czech Republic (Figure 1). Overall in 74% (23) of the 31 countries there were 50% or more patients that did not meet the guidelines. Taking the percentages from all sources and all countries displayed in Figure 1 the overall mean percentage of those not meeting the physical activity guideline was  $58.9 \pm 15.6\%$ , the median was 58% and the most common value - the mode - was 56%.

Data from 31 different countries in Europe was available, 8 countries had data from one source, 16 had data from two sources and 7 had data from three sources. In 14 countries with data from different sources, the difference in the values from the different sources varied widely (Figure 3). The largest difference occurring in the Spanish and Austrian data (34%) and the smallest difference occurring in the Hungarian data 1%. In the case of Austria, the large difference may be in part due to the classification used by Lang et al., their figures representing those who has none or only light physical activity rather than those who did not meet the guideline. No obvious reason can be put forward for the large difference in the Spanish values. Overall in the EUROASPIRE hospital arm 66% on average were inactive while in the SURF data average this was considerably lower with 50% only being physically inactive. This may reflect the fact that the criteria used in SURF to define if a person was physically active was a bit more lenient (30 minutes moderate activity 3-5 times a week, Zhao et al. 2016), than the European Society of Cardiology guidelines (150 minutes moderate or more activity) used in the other studies. In all cases presented the data was measured subjectively. The difficulties in obtaining objective data on physical activity is the major reason that physical activity has yet to be incorporated into the major risk scoring systems. This lack of available objective data may contribute to physical activity probably being the least well addressed risk factor least by many health care professionals in the care of cardiovascular patients.

**Conclusion:** The high percentage of cardiovascular disease patients 59% not meeting the recommended physical activity guidelines indicates the need to urgently address this risk factor in a more systematic objective way.



**Figure 1:** Percentage of high risk cardiac patients not meeting physical activity guideline levels



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