

Ensuring universal healthcare access, not only coverage

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Insured, yet forgoing care

Switzerland is characterized by universal healthcare coverage but out-of-pocket expenses and health insurance premiums, which continuously increased (up to 80%) since decades, are substantial. Individuals are responsible for a 10% co-payment (up to annual limit of CHF 700) after their annual deductible (which ranges from CHF 300 to 2500) is met. Among the OECD countries, Switzerland has the highest out-of-pocket expenditures [1]. Using data from the “Bus Santé” study – an ongoing population-based study conducted in the Canton of Geneva, Switzerland – we reported that approximately 13% of Swiss forgo healthcare for economic reasons and this proportion is much higher among those in the lowest income (30%) compared to highest income bracket (4%) [2]. Compared to timely access to healthcare, delaying or forgoing healthcare is associated with unfavorable health-related outcomes, such as higher severity of disease, decreased quality of life, increased risk of hospitalization, and longer hospital stays [3].

Because individuals are asymptomatic, it is very likely that secondary preventive services are among the first care forgone for economic reasons. This could lead to meaningful socioeconomic inequalities in cancer screening despite universal healthcare coverage in Switzerland.

Cancer screening inequalities in Switzerland: situation

Using data from the population-based Swiss Health Interview Survey data (SHIS), we recently published trends in socioeconomic disparities in major cancers screening in Switzerland. We first examined the association between socioeconomic position and colorectal cancer (CRC) screening in Switzerland between 2007 (n = 5946) and 2012 (n = 7224) [4]. CRC screening was defined as endoscopy in the past 10 years or faecal occult blood test (FOBT) or faecal immunochemical testing (FIT) in the past 2 years. We found that CRC screening prevalence was 18.9% in 2007, it was greater in the highest income (>CHF 6000) compared

to the lowest income (≤CHF 2000) group; 24.5% vs 10.5%. In 2012, we found that CRC screening prevalence increased to 22.2%, but disparity remained; 28.6% vs 16.0%. We then analyzed data on cervical cancer screening from five waves of the SHIS covering the period 1992–2012 [5]. Analyses included 32 651 women aged between 20 and 70 years old. Between 1992 and 2012, prevalence of cervical cancer screening over the past 3 years fluctuated between 71.7% and 79.6%. These prevalences were high, compared to other cancer screening rates (e.g., CRC). Yet, lower cervical cancer screening was observed among women with low education or low income, these inequalities persisted over the study period.

Association between socioeconomic status and screening can be attributable to a number of factors, including knowledge, risk perception, attitudes toward health and screening, and time off work. Because until 2013 CRC screening was not covered under basic compulsory healthcare coverage and given that there is no organized CRC screening programme in Switzerland, financial barrier is likely to be a major one. Like CRC screening, cervical cancer screening is opportunistic in Switzerland and there is no national or regional screening programme. Unlike CRC screening, cervical cancer screening is reimbursed by basic health insurance when performed according to guidelines.

It is very likely that similar inequalities will be observed in other cancers screening. A cancer particularly at risk of generating screening inequalities is lung cancer. Based on the results of the National Lung Screening Trial – a large, well-designed randomized controlled trial, evaluating low-dose computed tomography as a screening tool for lung cancer – several organizations such as the US Preventive Services Task Force and the American Cancer Society recommend low-dose computed tomography lung cancer screening to eligible adults [6]. Of note, eligible adults are smokers or ex-smokers. When cancer screening entry criteria are limited to factors such as age (e.g., CRC screening) and gender (e.g., breast cancer screening), participants can be invited via an existing (non-medical) registry. However, when additional entry criteria such as smoking history are needed, programs often rely on the medical system (medical system-based) to contact patients.

Lung cancer screening, if implemented, would mostly work through patients, healthcare providers including physicians, and, more specifically, primary care physicians. Because adults with low income and/or low education (both established risk factors for smoking) have fewer contacts with healthcare providers than their counterparts, they might have fewer opportunities to be screened for lung cancer. This potential risk of screening inequalities is very reminiscent of other medical-system based screens such as abdominal aneurysm screening recommended for smokers and former smokers.

Cancer screening inequalities in Switzerland: potential solutions

A potential major step to reduce CRC screening inequalities has been taken in July 2013, when a Swiss federal decision made routine CRC screening (FOBT or FIT every 2 years and colonoscopy every 10 years) fully covered under basic compulsory healthcare coverage. Another major step has been taken in the Canton of Vaud, Switzerland. In October 2016, the Health Department of the Canton of Vaud has officially launched the first systematic, statewide, organized CRC screening programme in Switzerland. It will offer both FIT and colonoscopy to the entire eligible population via a discussion with their primary care physician [7]. Furthermore, the inclusion visit with the primary care physician, the screening test, and the diagnostic colonoscopies after a positive FIT are all covered without deductible. While it is not clear how these changes will affect colorectal cancer screening utilization and inequalities in Switzerland and in the Canton of Vaud in particular, they are important actions to potentially mitigate both cost- and opportunistic-related barriers to screening.

In addition to financial barriers, lack of awareness and lack of discussion with healthcare providers are important barriers to screening. The abovementioned CRC screening programme includes a decision aid that will be mailed to citizens informing them about the programme, the available screening modalities, and encourage discussion with their primary care physician [7]. To assess how eligible citizens with different income and education levels will consider the programme and evaluate the decision aid, we are currently surveying 1300 adults aged 50–69 years old, randomly selected in the Canton of Geneva (a canton situated next to the Canton of Vaud). These results could help identify the needs and means of enhancing awareness of the benefits of CRC screening among low-income or low-education residents.

Screening programmes are considered to be more effective in terms of both participation and equity. In general, countries with opportunistic screening show greater socioeconomic disparities than countries with

organized programmes. Yet, disparities in rates of screening also exist despite organized efforts. Mammography screening programmes are already implemented in several cantons in Switzerland (since 1999 in Geneva). We are currently analyzing data on breast cancer screening using data from both the SHIS and the “Bus Santé”; preliminary analyses suggested socioeconomic inequalities in breast cancer screening. As stated elsewhere “equality of programme delivery does not guarantee equality of uptake” [8]. To improve screening uptake, it is fundamental to realize that in addition to individual-level factors, neighbourhood context is an important predictor of health outcomes and health behaviours. Neighbourhood-level factors such as median income and deprivation have been associated with screening uptake. For example, Ouedraogo et al. found that breast cancer screening increased with decreasing levels of socioeconomic deprivations in France [9], which is in line with previous findings reported in the United Kingdom and the United States. Actually, composite deprivation index might be more appropriate than independently considered individual-level variables.

To identify geographical areas of disparities and “high-need” areas, we suggest to integrate state-of-the-art geographic information systems (GIS) technology in current and future cancer screening programmes. GIS technology allows for the integration of health data with mapping and visualization of health patterns, and can play a major role in identifying locations where interventions are needed. Thus, spatial analysis has been gradually incorporated into health-related research. Computer applications of spatial analysis include the exploratory cluster detection, adjustment for the effects of place to evaluate other risk factors, quantification of the effect of place or community on disease risk, site of selection for geographically targeting public health research or intervention [10]. Several health services have stressed the need for identifying relevant tools to improve access to healthcare services and to support the elimination of health disparities [11]. In fact, integration of GIS has contributed to consider health disparities from a geographic perspective. Recognizing this opportunity, the US National Cancer Institute has developed an active health research service programme using GIS, spatial analysis and data visualization (<http://gis.cancer.gov>).

Identifying highly needed areas after almost 20 years of breast cancer screening in Switzerland, adapting breast cancer screening programmes accordingly, and integrating spatial information in *de novo* cancer screening programmes (e.g., CRC) has the potential of moving toward more precision health services and to less health disparities in Switzerland.

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