S
ince the late 1970s equal access to prevention has been identified as a public health priority by the World Health Organisation through the Alma-Ata declaration. The objective of promoting equal access to preventive care was targeted by the “Health For All” agenda and by several OECD countries such as Canada, France, the United Kingdom, and the United States.

An increasing body of literature is revealing socioeconomic inequality in the use of preventive medicine. Considering prevention among adults, the bulk of such studies have focused on cancer screening, although a few studies have contemplated cardiovascular prevention. In most cases, such work shows that better off social groups have a higher utilisation rate of preventive medicine than underprivileged groups. The case seems particularly strong for mammography and cervical screening. There have been fewer studies carried out on socioeconomic disparities in adult immunisation, the only one we found was carried in a hospital setting.

These studies can hardly reach conclusions on inequity of prevention as such. Three main issues are at stake here. Firstly, most OECD countries have some degree of health care inequity, particularly for specialty care where most cancer screening is carried out. It is thus unclear whether preventive medicine is unequally used as such or whether its unequal use reflects inequity in health care delivery in general. Prevention might be used unequally in the same way as other health care.

Secondly, disparity in preventive use may be exacerbated by the unequal distribution of needs among the population. As some primary or secondary prevention interventions are recommended for specific groups, it makes little sense to measure socioeconomic disparities in use without taking into consideration the distribution of needs. For example, flu immunisation is recommended for people aged 65+ or having chronic obstructive pulmonary disease; breast cancer screening is recommended for women aged 50 and over; it is thus important to control for need when measuring unequal use of preventive medicine. This may help shift the investigation from inequality to inequity.

Lastly, the issue of the reference group is also worth mentioning. It is not only people with needs who use preventive medicine. The case is, for example, well illustrated for cancer screening, where some studies have shown that women aged below 50 used as much (and occasionally more) mammography as women aged 50 and above. If measurement of inequity in cancer screening relies only on women aged 50 and over, it will produce a downward bias in that higher social groups use more preventive medicine than required. Equity must be measured over the whole population using or needing the preventive medicine.

The aim of this paper is to compare inequity in prevention with inequity in general health care, considering some preventive care available in general practice (flu immunisation, cholesterol screening) or in specialty care (mammography and pap smear). Such comparisons may provide useful insights into the inequalities of prevention use.

**METHODS**

This study is based on the cross sectional household Health Interview Survey carried out in Belgium in 1997. The participants were selected through a multistage stratified sample of...
non-institutionalised resident people. The participation rate was 61%, yielding a sample group of 10,225 people. We restricted the analysis to the 7,378 people aged at least 25. The questions about health status and health care use were collected through face to face interviews, whereas the questions related to lifestyle and prevention use were recorded through a self administered questionnaire.

**Health service use**

The following four preventive services were considered: breast and cervical cancer screening, flu immunisation, and cholesterol screening. The variables studied here were: mammography in the past two years; a pap test in the past three years; flu vaccination in past year; and a cholesterol control in the past five years. In the case of mammography, we excluded women having breast cancer (19 cases) or mammography after an anomaly found by a physician (114 cases). We had no information about women who had hysterectomy. Lacking information about the setting where such preventive service, we assumed that flu immunisation and cholesterol screening were mostly carried out in a general practice setting while mammography and cervical smear were mainly executed in a specialty setting. Unpublished data from the Belgian National Institute for Health Insurance indicate that about 87% of pap smears were carried out by specialists while 82% of cholesterol screening were prescribed by GP. Preventive medicine were compared with two types of health care: number of contacts with a GP and number of contacts with a specialist in the past two months.

**Needs**

According to the Equity Project methodology, needs were defined as use (health care or prevention) predicted by health status or expected use according to known risk factors and prevention guidelines. For flu immunisation the following risk factors were considered: chronic pulmonary or cardiovascular disorder; age of 65 or more; diabetes; working in the health sector. Subjective health (grouped in two categories, either very bad to fair, either good to very good) was also included to control for other unmeasured conditions (like haemoglobinopathy or immunosuppression). Need for cholesterol control was related to important risk factors for cardiovascular diseases: smoking cigarette, hypertension, heart disease, diabetes, and over-weight/obesity (body mass index ≥25), age 35–65 for men, age 45–65 for women and sex. Needs for a pap test and mammography were only related to age (25–65 and 50–69 years respectively) as this is the main screening indication.

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Needs for health care were related to the following health status variables: age, sex, the SF-36 physical functioning score, the GHQ-12, subjective health, and the number of self reported diseases. The SF-36 physical functioning score is a generic health status measure, assessing the limitations in performing activities of daily life (bathing, dressing, lifting, climbing...). The GHQ is a 12 item scale tracking symptoms of a wide range of common psychological disorders, mainly anxiety and depression. Both scales are very widely used in Health Interview Surveys, in relation with health care use. Among respondents, non-response rates were low (5.2% for the SF-36, 4% for the subjective health and 0.5% for the GHQ). Additional dummies were added for self reported diseases that were significantly related to health care use (see table 2).

**Socioeconomic status**

Considering recent reviews on social class and public health, socioeconomic stratification was estimated from both personal and household characteristics. Each person’s socioeconomic status was assigned a Nam-Powers socioeconomic score made of his or her own income, educational, and occupational ranking. The score is computed on the available non-missing answers. Retired people were assigned their previous occupational category. A similar procedure was used to evaluate household socioeconomic status with the following variables: net disposable equivalent income of the household; mean educational level; proportion of low occupation level; housing ownership. People were then assigned a socioeconomic index, which was the mean of their individual and household socioeconomic status. Socioeconomic status (SES) was then standardised by 12 sex-age groups, in order to avoid any spurious relation between socioeconomic status and health care use or need (for example, elderly people have a smaller educational status but higher rate of flu immunisation). This methodology permits capturing the stratification at both the individual and household level and to analyse the large proportion of people that do not have a paid work, such as housewives, retired people, or students. There were 4.9% missing cases for income and less than 1% for education or occupation.

**Equity**

In health care, equity has a wide range of theoretical backgrounds and definitions that have been discussed elsewhere. We focus here on horizontal equity—the extent to which equal needs receive equal treatment. This definition is increasingly applied in the evaluation of equity in health care.

The extent of socioeconomic equity is measured by the Health Inequity index devised by Wagstaff, Van Doorslaer, and Paci (HIwvp index), which is the difference between unequal use (index Cu) and unequal needs (index Cn). The needs concentration (Cn) represents the cumulative percentage of excess of needs (cumulative % of needs – cumulative % of the population) when population is ranked by increasing socioeconomic status. The use concentration (Cu) is the cumulative proportion of excess of care use (or preventive service) when population is ranked by increasing SES status. Cn and Cu range from −1 (need/use are favouring the rich) to 1 (favouring the poor). Because the inequity index (HIwvp index) is the difference between Cu and Cn, it has a minimum value of −1 in the case of inequity favouring the poor (all health services

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flu vaccination (%)</td>
<td>19</td>
<td>0.005</td>
</tr>
<tr>
<td>Cholesterol screening (%)</td>
<td>38</td>
<td>0.006</td>
</tr>
<tr>
<td>Pap smear (%)</td>
<td>52</td>
<td>0.008</td>
</tr>
<tr>
<td>Mammography (%)</td>
<td>30</td>
<td>0.008</td>
</tr>
<tr>
<td>Number of GP contacts</td>
<td>0.78</td>
<td>0.013</td>
</tr>
<tr>
<td>Number of specialist contacts</td>
<td>0.34</td>
<td>0.009</td>
</tr>
<tr>
<td>SF-36 physical score</td>
<td>85.77</td>
<td>0.287</td>
</tr>
<tr>
<td>GHQ-12 score</td>
<td>1.36</td>
<td>0.035</td>
</tr>
<tr>
<td>Subjective health (very bad to fair)</td>
<td>0.26</td>
<td>0.005</td>
</tr>
<tr>
<td>Pulmonary chronic disorder (%)</td>
<td>9</td>
<td>0.003</td>
</tr>
<tr>
<td>Heart disease (%)</td>
<td>5</td>
<td>0.003</td>
</tr>
<tr>
<td>Hypertension (%)</td>
<td>15</td>
<td>0.004</td>
</tr>
<tr>
<td>Diabetes (%)</td>
<td>4</td>
<td>0.002</td>
</tr>
<tr>
<td>Kidney disease (%)</td>
<td>1</td>
<td>0.001</td>
</tr>
<tr>
<td>Number of diseases/chronic disorders</td>
<td>1.28</td>
<td>0.019</td>
</tr>
<tr>
<td>Worker of the health sector (%)</td>
<td>3</td>
<td>0.002</td>
</tr>
<tr>
<td>Current smoker (%)</td>
<td>24</td>
<td>0.005</td>
</tr>
</tbody>
</table>

*Among women only.*
are used only by the poorer, for equal needs) and a maximum
value of 1 for inequity favouring the rich (all health services
are used only by the richer, for equal needs). The method of
Kakwani et al was used to compute these indices and their
standard error, using ordinary least square.36

RESULTS

About 19% of this adult population (n=7378) have been
immunised against the flu during the preceding year, while
38% have undergone a cholesterol screening within the past
two years (table 1). A little more than half of women got a pap
test within the past three years and one third underwent a
mammography within the past two years. Overall, in the past
two months, participants had used about 0.8 GP consultations
or visits and 0.3 contacts with specialists. Table 1 also shows
health status assessed by the SF-36 score (0 to 100), GHQ-12
decomposition rate) with the exception of the obesity (for GP and special-
ity (the poorer the health status, the higher the consulta-
tion rate) with the exception of the obesity (for GP and special-
tion rate) with the exception of the obesity (for GP and special-

Preventive services and socioeconomic status

For each preventive service, table 2 provides the multivariate
odd ratios (OR) of the five socioeconomic quintiles (when
ranking on SES) controlling for the relevant risk factors. Flu
immunisation significantly increased with known risk factors,
particularly for age 65+ (OR=6.6), diabetes (OR=2.3), heart
disease (OR=1.8), and chronic pulmonary disorder (OR=1.7).
Health workers did not have a higher propensity for being
immunised. Immunisation increases for poor subjective
health (OR=1.5). The bottom and third socioeconomic
quintile had a smaller likelihood of being immunised against
influenza compared with the higher SES group.

Table 2 shows that mammography and pap tests increased
in the recommended age group. Women aged 25–64 were six
times more likely to undergo a pap test, while women aged
50–69 were three times more likely to undertake a mammog-
ography. Regarding socioeconomic status and cancer screening,
there was a significant, monotonic, strong, and increasing
gradient of use: the higher the SES level the higher the likeli-
hood of using such preventive services. Among women, the
lowest socioeconomic quintile was less likely to undergo a
mammography (OR=0.43) or a pap test (OR=0.3).

It is interesting to note that the relations between
prevention use and target age group show significant
differences. Flu shot, pap smear, and mammography have the
strongest relation with age (ORs of 6.6, 6.3, and 3.4
respectively) while cholesterol screening has a weaker relation
with age (OR=1.3 for men and 1.5 for women).

Health care and socioeconomic status

Table 3 provides the unstandardised \( \beta \) coefficients of the
regression of the health care use—that is, the number of
contacts with a GP or a specialist—on various health status
variables. Most coefficients are significant and in the expected
direction (the poorer the health status, the higher the consulta-
tion rate) with the exception of the obesity (for GP and specialist)
and age (for specialist). Contacts with GPs have stronger
relations with health status than contacts with specialists: the
difference is more pronounced for age, subjective health, morbid
conditions, and the SF-36 physical score. As a corollary, the \( R^2 \)
is much higher for the number of contacts with GPs.

The number of contacts with GPs is higher in the interme-
diate SES groups, particularly for the second quintile
\( \beta=0.11 \) whereas contacts with specialists decrease in the
lower SES groups.

Inequity

The socioeconomic concentration indices—for health care
and preventive medicine—are given in table 4. The first row

![Table 2](http://jech.bmj.com/)

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Flu vaccination</th>
<th>Cholesterol screening</th>
<th>Mammography</th>
<th>Pap test†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>95%CI</td>
<td>OR</td>
<td>95%CI</td>
</tr>
<tr>
<td>Subjective health (fair to bad)</td>
<td>1.516***</td>
<td>1.309 to 1.756</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worker in the health sector</td>
<td>1.079</td>
<td>0.695 to 1.675</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kidney disease</td>
<td>1.253</td>
<td>0.705 to 2.227</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disorder</td>
<td>1.687***</td>
<td>1.374 to 2.072</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heart disease</td>
<td>1.790***</td>
<td>1.409 to 2.274</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>2.307***</td>
<td>1.751 to 3.040</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 65+†</td>
<td>6.575***</td>
<td>5.74 to 7.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>0.829***</td>
<td>0.769 to 0.948</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoking</td>
<td>1.052</td>
<td>0.929 to 1.191</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sedentary lifestyle</td>
<td>1.239**</td>
<td>1.113 to 1.379</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overweight (BMI &gt;25)</td>
<td>1.548***</td>
<td>1.394 to 1.719</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>1.653***</td>
<td>1.431 to 1.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>2.424***</td>
<td>1.832 to 3.205</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heart disease</td>
<td>2.498***</td>
<td>1.962 to 3.179</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 35–65 (male)†</td>
<td>1.328***</td>
<td>1.145 to 1.541</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 45–65 (female)†</td>
<td>1.524***</td>
<td>1.319 to 1.761</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 50–69 (female)†</td>
<td>1.536***</td>
<td>3.436 to 4.004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 25–64 (female)†</td>
<td>6.275***</td>
<td>5.233 to 7.524</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SES 1st quintile</td>
<td>0.683***</td>
<td>0.551 to 0.847</td>
<td>0.723***</td>
<td>0.613 to 0.852</td>
</tr>
<tr>
<td>SES 2nd quintile</td>
<td>0.85</td>
<td>0.694 to 1.04</td>
<td>0.809**</td>
<td>0.688 to 0.951</td>
</tr>
<tr>
<td>SES 3rd quintile</td>
<td>0.785*</td>
<td>0.637 to 0.967</td>
<td>0.929</td>
<td>0.792 to 1.089</td>
</tr>
<tr>
<td>SES 4th quintile</td>
<td>0.842</td>
<td>0.685 to 1.035</td>
<td>0.912</td>
<td>0.777 to 1.069</td>
</tr>
<tr>
<td>SES 5th quintile (ref)</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Likelihood ratio</td>
<td>1213</td>
<td>379</td>
<td>312</td>
<td>600</td>
</tr>
</tbody>
</table>

†Female only. Significant at *α=0.05; **α=0.01; ***α=0.001.0 ‡Versus opposite. All age groups are chosen in relation with the recommendations.

www.jech.com
provides results for those services delivered in a general practice setting, while the second row refers to a specialty care setting. For each health care or preventive service, table 4 provides an index of socioeconomic inequality in needs (index \( C_n \)), an index of socioeconomic inequality in use (\( C_u \)), and the inequity index (index \( H_{iwvp} \)) with their corresponding 95% confidence intervals. A negative value (\( C_n \) or \( C_u \)) implies a concentration favouring the less privileged social strata, while a positive value indicates a concentration favouring the better off social groups. The opposite applies to \( H_{iwvp} \): a positive value (\( H_{iwvp} > 0 \)) implies an inequity favouring greater use by the less well off, especially for preventive services delivered in the general practice setting. The GP care inequity curve is more marked, reaching 9% of specialty care and 11% of preventive services delivered in the general practice setting. Within the specialty setting, inequity is more marked, reaching 9% of specialty care and 11% of preventive services.

Table 3

<table>
<thead>
<tr>
<th>Variable†</th>
<th>General practice</th>
<th>Specialist practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.949</td>
<td>0.58084</td>
</tr>
<tr>
<td>Male</td>
<td>0.072*</td>
<td>0.08755</td>
</tr>
<tr>
<td>Age (y)</td>
<td>0.007</td>
<td>-0.00301</td>
</tr>
<tr>
<td>Number of diseases/chronic disorders</td>
<td>0.108</td>
<td>0.06586</td>
</tr>
<tr>
<td>SF-36 physical score</td>
<td>-0.010</td>
<td>-0.00209</td>
</tr>
<tr>
<td>GHQ-12 score</td>
<td>0.021</td>
<td>0.01332</td>
</tr>
<tr>
<td>Subjective health (very bad to fair)</td>
<td>0.254</td>
<td>0.11959</td>
</tr>
<tr>
<td>Obesity (BMI &gt;30)</td>
<td>0.027</td>
<td>-0.04259</td>
</tr>
<tr>
<td>SES 1st quintile</td>
<td>0.077</td>
<td>-0.1702</td>
</tr>
<tr>
<td>SES 2nd quintile</td>
<td>0.110</td>
<td>-0.12475</td>
</tr>
<tr>
<td>SES 3rd quintile</td>
<td>0.093</td>
<td>-0.12005</td>
</tr>
<tr>
<td>SES 4th quintile</td>
<td>0.041 *</td>
<td>-0.07572</td>
</tr>
<tr>
<td>F</td>
<td>219 44</td>
<td>44 0.06</td>
</tr>
<tr>
<td>( R^2 )</td>
<td>0.25</td>
<td>0.06</td>
</tr>
</tbody>
</table>

†Probit results and inverse mill ratio not shown. †Coefficients of the disease specific dummies are not shown. At the \( \alpha=5\% \) level the following disease dummies are significant for (1) GP: asthma, chronic bronchitis, heart disease, hypertension, chronic bladder infection, diabetes, thyroid gland disease, depression, arthritis, stomach ulcer. (2) Specialist: asthma, chronic bronchitis, allergy, heart disease, hypertension, kidney disease, chronic bladder infection, epilepsy, migraine, cancer. §Unstandardised coefficients. *Significant at \( \alpha=0.05 \); **at \( \alpha=0.01 \); ***at \( \alpha=0.001 \).
Figure 1. Inequity curves. Along increasing socioeconomic status centile (horizontal axis), each curve provides the inequity (that is, the cumulative percentage of the difference between needs and use); a positive value indicates a shortfall in health service use (use < needs) while a negative value indicate an excess of health service use (use > needs). The continuous lines are related to all care (GP care for the thin line and specialist care for the thick line) while the dashed lines are related to preventive services (GP care for the thin dashed line and specialist care for the thick dashed line). For example, at the median socioeconomic centile, there is an 8% shortfall in use of preventive services delivered by specialists, whereas there is a 2% excess of all GP care use.

Key points

- Important preventive medicine procedures delivered in a general practice setting or in specialty care show some degree of socioeconomic inequity.
- Inequity is higher in the specialty setting.
- For a given setting, preventive medicine is more inequitable than health care.
- Overlooking difference in need for prevention leads to an underestimation of inequity.
- If equity is not recognised as a public health objective, promoting screening will increase health inequalities.

DISCUSSION

This study has yielded four interesting results. Firstly, four preventive services studied here are inequitably used, favouring the higher socioeconomic groups. These results are consistent with previous studies on cancer screening in women and cholesterol screening. In this paper, we also show inequity for flu immunisation.

Secondly, the incorporation of needs introduces differences: although there is no socioeconomic gradient in the use of cholesterol screening or flu immunisation, the incorporation of needs reveals a significant inequity gradient. Ignoring the distribution of needs for preventive medicine may conceal inequity. Equality of use, in prevention as well as in health care, understates inequity when needs are concentrated among the less well off. This has been shown previously in health care, and should be considered in preventive medicine. It would be useful to extend the analysis with additional health needs indicators. For instance, needs of cholesterol screening should consider individual global cardiovascular risk, cancer screening may be concerned by family history or at risk sexual practice.

Thirdly, there is more inequity disadvantaging the poor in the specialty sector than in general practice. Such results are consistent with a previous Belgian study and with cross national comparisons in OECD countries. Belgian pro-poor GP care can be explained by the much lower co-payments for GP care for some needy groups. Moreover, a few GPs are organised in primary care centres mostly located in deprived areas, targeting economically deprived groups. The pro-rich inequity for specialty care is a puzzling issue not only in Belgium, but also in other countries such as Sweden and Denmark, counting with universal and comprehensive coverage with little co-payment for outpatient visits. Referral by the GP to the specialists does not turn out to be linked to socioeconomic status, either in within country studies or in cross national comparisons. Possible explanations may be rooted in the help seeking process. Lower SES people seem less willing to be involved in the decision making process and to take responsibility of the treatment choice. As far as consulting a specialist requires greater decision making abilities than consulting a GP, low SES people may be less likely to be seeking specialty care. Furthermore, studies show that people of low SES first turn to sources close to them or those contacted usually making them more likely to address their complaints to the “family” physician. In Belgium as well as in other OECD countries, specialty medicine covers an increasing share of overall medical supply and activity. If access to specialty medicine by the lower socioeconomic groups is not given adequate attention, this trend towards more specialised medicine may increase inequity in care as well as in prevention.

Finally, this study shows a trend for greater inequity in preventive medicine than in health care when the setting is controlled, especially in the general practice setting. Inequity for the preventive services delivered in the specialty setting is within the range of inequity in specialty care as such. A previous Dutch study reached a similar conclusion, showing that the rate of consulting was higher in the lower SES group while the reverse applied to cervical cytology. An interesting conclusion of our study is that part of the inequity in cancer screening is accounted for by the setting in which it is mostly delivered. Increasing the role of the general practitioner in prevention may thus be a useful but not sufficient way to improve equity in prevention. Using performance based financial incentives might be a way to improve coverage in general practice.

Several factors may explain such inequitable use of preventive medicine. In the first instance, financial barriers may limit access to cancer screening: cost sharing has a significant
negative effect on the use of mammography and is higher in the specialty sector where most cancer screening is carried out. Practically, cancer screening carries an additional adverse psychological burden in relation to the possibility of a false positive or early recall.

Socioeconomic differences in use of preventive services may also be accounted for by differences in beliefs, help seeking and information seeking processes. For cancer screening, it has been suggested that people of very low socioeconomic status may not perceive the usefulness of asymptomatic screening. Qualitative studies of cancer screening suggested that the difference between screening and diagnosis is still problematic for some women. In a broader perspective, people of low socioeconomic status have different ways of receiving information: they seek information only when it is needed; they rely, first, on their own knowledge; they assess information on how it helps them and not on its credibility. Qualitative studies suggested that people may vary significantly in how much information they want and that those from lower socioeconomic background have a smaller propensity to seek information.

Hence, we can wonder whether such differences in beliefs and information gathering abilities make cancer screening more inaccessible to lower SES groups: screening relies on a barely understandable idea of risk, requires recourse to an unfamiliar specialty setting, requires a more proactive stance in information seeking and does not provide immediate benefits to health. There is still little evidence that socioeconomic inequality in prevention is explained by such differences in help seeking, information gathering, and beliefs. Regarding immunisation, Prislin showed that beliefs and attitudes explained the lower immunisation status of children from low socioeconomic backgrounds.

More research is needed regarding such topic.

Socioeconomic inequity in preventive medicine may, finally, also be rooted in the supply, at both macro or micro level. Belgium does not have clear public health objectives nor does it recognise preventive services within its fee for service scheme. Receiving flu immunisation often requires three contacts with the health care system: one with a physician in order to receive a prescription for an influenza vaccine, a second one to buy the vaccine in a pharmacy, and a third to get the flu vaccine injected. Defining explicit public health targets may help to mobilise resources to increase the coverage and equity of preventive medicine, as shown by the 1990 contract for UK general practice. At the micro level, physician stance toward lower SES people may also contribute to the unequal cancer screening coverage. It has been recently shown that lower SES groups reported less screening recommendation by their physician. Thus, part of the SES gradient in mammography use might also be accounted by a less active stance of the physician when attending lower SES patients. If equity is not given sufficient attention in the public health agenda, promoting screening will, all else being equal, increase health inequalities.

Our results may be limited by several factors. Firstly, the results may be biased in so far as unobserved needs may be linked to socioeconomic status. In the case of breast cancer, several studies have shown that higher SES groups have an increased incidence of breast cancer. However, lower SES groups are at higher risk of cervical cancer because of their riskier sexual behaviours. Ignorance of the former may lead to over-estimations of inequity, while overlooking the latter may underestimate inequity.

A second limitation may arise from the methodology used for assessing needs and socioeconomic status. If poor overall delivery of preventive services reduced the relation between use and ill health, we would underestimate the concentration of needs and, thus, inequity. For most preventive services, however, this is not the case as all risk factors have the expected relation with the corresponding preventive service. The only exception is smoking, which has a weak, non-significant, relation with cholesterol screening. This may be because smoking is more prevalent among young adults who are infrequently screened for cholesterol. Yet computing the need for cholesterol screening as the sum of those risk factors does not affect the results.

The use of a complex indicator aims at achieving a better measurement of socioeconomic status, in particular, regarding health status, to challenge the volatility of income, the poorer sensibility of education, and the heterogeneity of occupation. Inclusion of assets helps to achieve a better stratification among elderly; this is crucial when measuring inequity, for example, in flu immunisation. A sensibility analysis indicates that there is slightly less inequity when using more simple indicator such as education, although the results remain broadly the same.

Thirdly, this work may be limited by the moderate participation rate to the study or by under-reporting. The Belgian Health Interview Survey collected comparatively little information on the non-participants, making it difficult to assess any bias related to socioeconomic status. Analysis of non-participation indicates that it is higher in Brussels (compared with Flanders and Wallonia); non-participation increases in household counting with a non-Belgian or female head of household, or with a smaller household size. As far as socioeconomic deprivation is higher in Brussels and in single parent households, the first Belgian Health Interview Survey may have under-represented lower SES groups. We also found that low SES groups have a higher non-response rate to the cancer screening and to subjective health items, which may thus lead to a slight underestimation of inequity in preventive medicine, as far as their uptake rate and health status are poorer. Under-reporting or high non-response rate of morbidity in the lower socioeconomic groups has been evidenced in some epidemiological studies and may generate an underestimation of needs and, hence, of inequity.

Finally, we assumed here that cervical screening was carried out in the specialty setting meanwhile flu vaccination and cholesterol screening were delivered in the general practice setting. The data from the National Institute for Health Insurance support this hypothesis, although it has been explained that a small proportion of pap smear testing was carried out by GPs while a small share of cholesterol screening was prescribed by cardiologists or other specialists. Assuming that the GP’s cervical screening is more attended by lower SES women while cardiologist’s cholesterol screening target higher SES groups, this may make the GP setting to be a slightly more equity-performer compared with the specialty setting.

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