

The ecology of medical care in Switzerland: prevalence of illness in the community and healthcare utilisation in Switzerland

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Summary

INTRODUCTION: The allocation and equal distribution of healthcare resources is one of the major challenges of today. Therefore, a framework to analyse the prevalence of illness in the community and the use of various sources of healthcare is crucial. The aim of the study was to evaluate the health-seeking behaviour of 1025 individuals in Switzerland in a 2-month period in 2018.

METHODS: Population-based, cross-sectional health survey with a multistage, stratified cluster design. The LINK Institute interviewed a representative sample of the adult Swiss population (age ≥ 18 years, stratified by language region: German-, French- and Italian-speaking, 70, 25 and 5%, respectively) by telephone. There were two interview rounds to account for potential seasonal variations, in May (n = 506) and November 2018 (n = 516). The health-seeking behaviour of these individuals during the previous 2 months was analysed.

RESULTS: In total, data of 1025 individuals were analysed: 51% females, median age 52 years (range 18–85). During the preceding 2 months, per 1000 adults, 546 had at least one symptom, 184 reported several symptoms, 243 sought medical advice, 164 first contacted their general practitioner, 81 directly contacted a specialist in a private practice, 16 were self-admitted to an accident and emergency department, 17 firstly contacted a pharmacy and 6 contacted an alternative medicine healthcare provider. In total, 21 persons were admitted to a hospital, of whom 8 underwent surgical procedures, 18 were at first transferred to a regular ward and 3 required intensive care unit services. Because of their current health problem, 387 individuals took medication and 259 bought their medication themselves. The vast majority (95%) of subjects was registered with a general practitioner.

CONCLUSIONS: This study represented an attempt to map the healthcare utilisation of the Swiss population. These results may be useful for further delineation of healthcare policies and medical education to meet the demand and needs of people in Switzerland. They indicate that general practitioners are the most important health-

care resource in Switzerland. Compared with specialists, they provide twice as much health advice at less costs. To optimise the health care system in Switzerland, we suggest to allocate resources where they are most needed.

Keywords: Switzerland, healthcare, primary care, general practitioner, ecology of medical care

Introduction

The Swiss healthcare system is highly complex, combining aspects of managed competition and the integration of interest groups in the policy process in a decentralised regulatory framework, shaped by the influences of direct democracy [1]. The health system performs comparatively well on the basis of relevant indicators such as life expectancy at birth (83.7 years in Switzerland), which is the highest in Europe in 2017 [2–4]. Coverage is ensured through mandatory health insurance, with subsidies for people on low incomes. The system offers a high degree of choice and direct access to all levels of care with almost no waiting times, though managed care type insurance plans that include gatekeeping restrictions are emerging. Nevertheless, a number of challenges remain.

The costs of the healthcare system are well above the European Union (EU) average, in particular in absolute terms but also as a percentage of gross domestic product (GDP). Health spending accounted for 12.1% of the GDP in 2015, second only to the United States and higher than all other European countries [5]. Mandatory health insurance premiums have increased more quickly than incomes since 2003. By European standards, the share of out-of-pocket payments is exceptionally high at 29% of total health expenditure in 2017 (compared with the EU average of 15% [6]). Due to Switzerland's decentralised administrative and political structure, there is also a regional variation of healthcare expenditure across cantons; per capita expenditure for the population living in the “most expensive” canton was almost two times higher than the amount spent for the population in the “least expensive” canton.

Ambulatory care is provided mostly by self-employed physicians working in independent practices, offering both primary care and specialised care. Fee-for-service is the

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dominant method of provider payment in Switzerland. For ambulatory physicians and outpatient services provided by hospitals, a nationally uniform fee schedule called TARMED was introduced in 2004.

Acute care hospitals provide inpatient care and play an increasingly important role in the provision of ambulatory and day care services. Public and private hospitals that are included on cantonal hospital lists can provide services that are reimbursed by mandatory health insurance. Hospital payment based on Swiss Diagnosis Related Groups has replaced per diems as the most important payment mechanism since 2012. For long-term care, mandatory health insurance pays a contribution that depends on the care needs of the patient; The patient pays a capped contribution and the canton is liable to cover the remaining costs.

According to the Swiss Federal Statistical Office, ambulatory care generates 26.5% of healthcare costs, whereas hospital in-patient care contributes 19%. In the ambulatory sector, general practitioners (GPs) generate about one third of costs, whereas specialists contribute two thirds [7]. Indeed, higher costs due to higher utilisation were associated partially with higher density of specialists in single practice [8]. The Swiss government imposed a controversial moratorium on the launch of new doctors' practices in order to reduce health costs in 2002. In particular, this governmental intervention was supposed to prevent an expensive oversupply of specialists.

Currently, there are over 40,391 physicians registered in Switzerland, giving the country one of the highest rates of physicians per capita in Europe [9]. According to an Organization for Economic Cooperation and Development (OECD) series on countries' healthcare systems, GPs made up only 28% of all physicians in 2015 in Switzerland, whereas in France and in Germany the proportion of generalists was 46% and 41%, respectively [5]. Data of the Swiss Primary Care Active Monitoring indicates 43% among ambulatory care doctors [10].

GPs substantially contribute to ensuring the quality of care and reducing healthcare costs [11]. Despite a stable and comparably high GP density of 105.5 GPs per 100,000 inhabitants in Switzerland, the average age of GPs is 54 years with an age-increasing trend [10]. Thus, the retirement of GPs within the next years combined with Switzerland's restrictive policies on opening new practices is producing a shortage of GPs [10]. Indeed, estimates predict a lack of thousands of GPs across Switzerland if no countermeasures are taken [12].

In the current context of spiralling healthcare costs and a shortage of GPs, it is essential to understand how the population uses the healthcare system. In particular, which healthcare providers are contacted by people having a health problem? Do they still consult their GP or a specialist? Are GPs getting obsolete, in view of the increasing number of specialists? In Austria, for example, the healthcare system offers universal health coverage and free provider choice. Primary data analysis showed that unregulated patient access to all levels of care, including through self-referral, created a system with overall high utilisation, particularly prominent in the secondary and tertiary care sectors, and weak primary care functions [13]. Currently, there is a lack of independent data on the structure and utilisation of health care in Switzerland.

Such questions may be explored with the population ecology theory, which estimates the utilisation of healthcare [14–16]. In 1961 White et al. published “The Ecology of Medical Care”, assessing self-reported sickness and healthcare behaviour in the adult population in the US [17]. This population-based model was replicated in different countries around the globe [13–16, 18–22]. The framework provides a valuable tool for researchers and healthcare policy makers to measure and reflect the quantity, quality and type of distribution of healthcare services. Therefore, it estimates the utilisation of healthcare by the population. With respect to availability, the ecology model with “person-month” provides superior information as compared with the absolute number of physician appointments as a measure of the use of healthcare services, since the latter includes repeated appointments for medical reasons. Moreover, previous studies' survey data were used in privately, mixed-finance healthcare systems or publicly funded healthcare systems, none of which is comparable to the Swiss healthcare system.

To our knowledge, this method has not yet been applied in the Swiss population. The aim of this study was to assess healthcare behaviours in Switzerland in a population-based survey, using the ecology of healthcare framework.

Materials and methods

Sample selection and data collection

The LINK Institute Luzern, Switzerland interviewed a representative sample of the language-assimilated [23] Swiss population aged 18 years or older by telephone. Contacts were generated through random-digit-dialling (RDD), which allows for excellent coverage of the Swiss population, including households that are only reachable by mobile phone or have an unregistered landline connection.

The computer-assisted telephone interviews were conducted by native speakers in the central telephone laboratories of the LINK Institute in Zurich, Lucerne, Lausanne and Lugano. All interviewers were specifically trained for this study beforehand and continuous supervision took place during the interviews to guarantee high survey quality.

The questionnaire was fully structured with semi-open and closed questions. An English version of the questionnaire is available in appendix 1. Information was collected anonymously from all participants who agreed to take part in this study. The interviews took place in two waves in May and November 2018 to account for potential seasonal variations. During each round, roughly the same number of people were interviewed.

Respondents indicated the presence of any health problem in the last 2 months, whether and where they asked for medical advice (advice from internet, family or friends, drugstore, pharmacy, telephone medical advice centre, general practitioner, specialist physicians, accident and emergency unit, outpatient or policlinic, physiotherapy, dentist or alternative medicine).

Further, interviewees were asked whether they took medication and if so, where it was purchased (drugstore, pharmacy, supermarket, internet or physicians).

Respondents also indicated whether they were hospitalised within the last 2 months, as well as details on in-hospital

and post-hospital care. This survey reports healthcare use over the past 2 months.

Statistical methods

Sample size

With 500 interviews per wave ($n = 1000$), the maximum range of variation lies within $\pm 3.2\%$, which enables meaningful analysis even between different sociodemographic groups.

Demographic weighting

Rim weighting [24] was performed by LINK Institute Luzern in order to correct any imbalances between the survey sample and the population across the interlocking quotas of language region, sex, age category and employment status. Further, they used marginal population totals to weight for household size. The raking process was repeated until the weighted distribution of all of the weighting variables matched their specified targets of the Swiss population in 2016 [25–27].

Analyses

All analyses are presented on the weighted samples. For this purpose, the R package “survey” was used [28]. The functions of this R package perform weighted estimations, with each observation being weighted by the inverse of its sampling probability. To compute weighted cross-tabulations, we used the “svytable” function. The standard error of proportions was estimated using the functions “svytotal” or “svymean”. The standard errors produced were subsequently used to calculate the confidence intervals which were assumed to follow a normal approximation to the binomial distribution. We applied the rule of proportion to obtain the rates per 1000 from the number of total respondents.

Subgroup analyses

Subgroup analyses were conducted for men and women, five age groups, three language regions, and rural and urban areas. In order to test for significant associations of healthcare utilisation within different groups, we used the function “svychisq” from the R package “survey” which computes first and second-order Rao-Scott corrections to the Pearson chi-square test.

Results

Participants and descriptive data

Initially, LINK provided a random sample of 7519 telephone numbers drawn from their pool of telephone numbers, of which 523 contacts refused to participate (“refusal and break off” according to [29]) and 1205 were not reached by telephone (“non contact” according to [29]). There were 4417 persons with a quota overflow: persons who were no longer admitted to the study as a result of the quota characteristics (“not eligible” according to [29]). Finally, 1025 completed the questionnaire (506 in May and 519 in November) (response rate $1 = 33\%$ according to [29], see the study flow chart in figure 1). The median age of the weighted sample was 52 years (interquartile range [IQR] 38–63). Fifty-one percent of respondents were female, 71% were residents in the German-speaking, 24%

in the French-speaking and 4% in the Italian-speaking regions. Table 1 shows their characteristics after we weighted data for age, sex, language region, employment status and household size. The vast majority (95%, 95% confidence interval [CI] 93–96%) of participants were registered with a general practitioner.

Outcome data and main results

Bimonthly rates of health problems and healthcare use among Swiss residents are reported in table 1 and figure 2. Out of 1000 Swiss residents, 546 reported one or more health problems, and 243 sought medical advice for those problems. The most frequent source of medical advice was the general practitioner (164 respondents) followed by specialist physicians (81 respondents). Other health professionals, such as pharmacists, dentists, physical therapists, and complementary and alternative medicine practitioners, as well as outpatient clinics, accident and emergency units, telephone medical advice centres, and lay sources such as family, friends or the internet were named less frequently (table 2). Out of 1000 Swiss residents, 386 took medication (table 2). The most frequent place of purchase was the pharmacy, named by 207 respondents.

Among 1000 Swiss residents, 21 required inpatient hospital care, 8 required a surgical procedure and 3 were treated in an intensive care unit (table 2). Hospitals from the public sector shared an equal burden, each level of hospital care was named by five to six persons out of 1000 Swiss residents. Three respondents reported inpatient treatment in a private clinic. Four subjects had post-hospital care in a rehabilitation clinic and three required ambulatory nursing care.

Subgroup analyses

Table 3 shows how bimonthly health problems and healthcare participation rates vary by age, sex, language region and area type across all respondents ($n = 1025$). As a general trend, use of a GP, specialist and outpatient clinic, as well as hospitalisations, increased with age whereas self-reported health problems decreased with age. Emergency department utilisation peaked twice: in the group aged 18–29 years and in the group aged >80 years. Medical advice seeking remained stable across age groups. Women reported health problems, seeking medical advice and visiting GPs more often than men. Country dwellers gave an account of health problems, seeking medical advice and visiting GPs less often than city dwellers. Italian-speaking people reported health problems and visiting a specialist more often than French- or German-speaking people.

Table 4 shows differences in type of care according to age, sex, language region and area type within persons who asked for medical advice ($n = 243$). GP, outpatient clinics and pharmacy visits remained stable within subgroups. However, the use of specialists peaked in the group aged 45–59 years (52%) and emergency department visits increased with age.

Discussion

This study is the first population-based survey in Switzerland aiming to map healthcare behaviours of the population by using the ecology of care framework [1]. Of 1000 Swiss residents, we found that in the past 2 months on average around 50% reported health problems, and slightly more than half of them sought professional medical help for their symptoms. In total, 164 contacted a GP and 81

contacted a specialist. Overall, 21 out of 1000 individuals required in-patient hospital care within that 2-month period and three subjects needed treatment in an intensive care unit.

To date, several studies of healthcare utilisation have been conducted using approximately the same methodology as applied in our study [2, 3, 5–8]. In contrast to previous studies that assessed 4 to 5 weeks, the current observation time was 8 weeks, so as to increase the probability of cap-

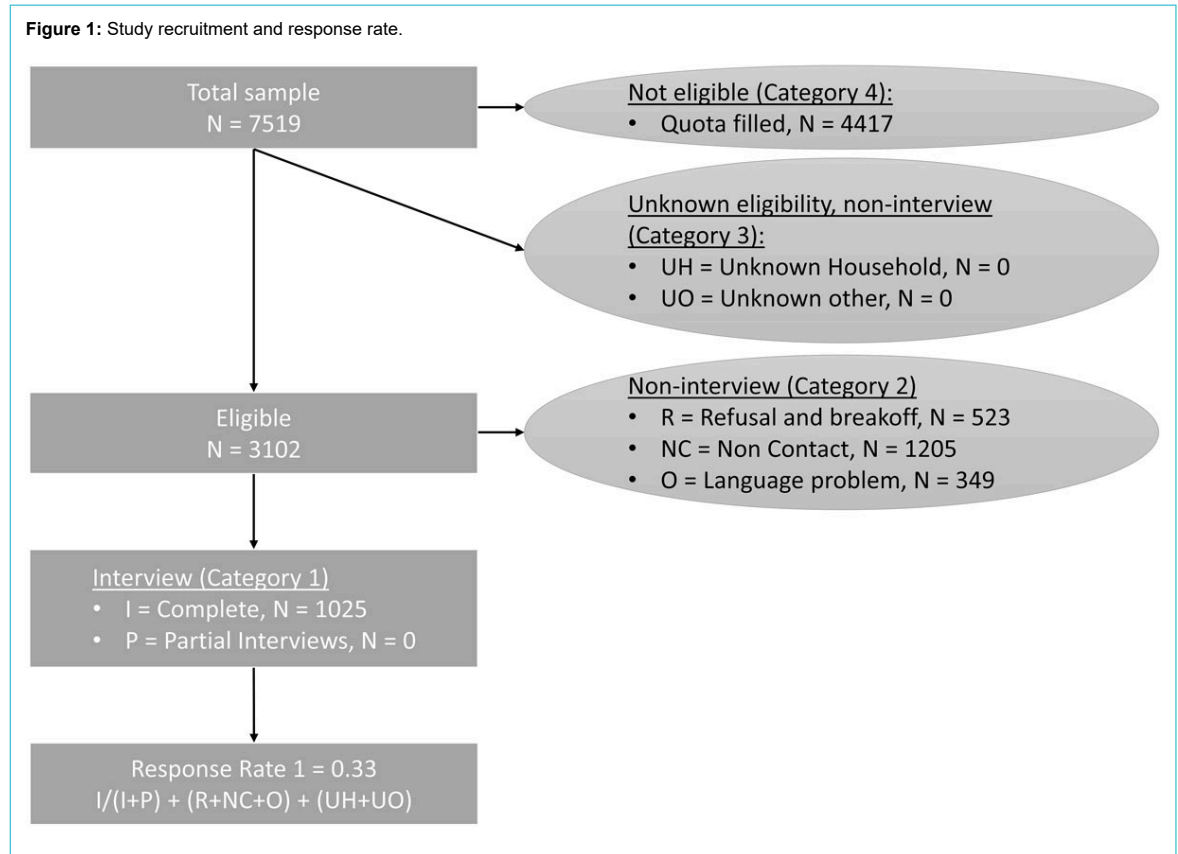


Table 1: Unweighted and weighted total sample numbers* by sex, age group, employment status, household size and urban/rural area in Switzerland.

		Total	Gender		Age category					Employed		Household size(no. persons)			Language region			Area type	
			Male	Female	18–29	30–44	45–59	60–79	80–100	Yes	No	1	2	3+	GE	FR	IT	Urban	Rural
Total	Unweighted	1025	504	521	182	262	278	236	67	643	382	189	306	530	719	252	54	735	290
	Weighted	1025	504	521	184	262	280	234	63	684	341	362	335	328	732	248	45	749	276
Sex	Male	504	504		94	133	141	112	23	373	130	166	180	158	362	120	22	351	152
	Female	521		521	90	130	139	122	40	311	210	196	156	170	370	127	24	398	124
Age group	18–29	184	94	90						144	40	34	25	125	129	48	7	131	54
	30–44	262	133	130						233	29	76	52	134	187	65	10	194	69
	45–59	280	141	139						247	34	78	140	62	201	66	13	198	83
	60–79	234	112	122						57	177	125	103	7	169	53	12	174	60
	80–100	63	23	40						4	60	49	14	0	45	15	4	53	10
Employed	Yes	684	373	311	144	233	247	57	4			193	227	264	498	160	25	488	197
	No	341	130	210	40	29	34	177	60			169	108	64	234	87	20	261	79
Household size (no. persons)	1	362	166	196	34	76	78	125	49	193	169				273	73	16	293	69
	2	335	180	156	25	52	140	103	14	227	108				246	81	8	232	103
	3+	328	158	170	125	134	62	7	0	264	64				213	93	22	224	103
Language region	German	732	362	370	129	187	201	169	45	498	234	273	246	213				518	214
	French	248	120	127	48	65	66	53	15	160	87	73	81	93				193	55
	Italian	45	22	24	7	10	13	12	4	25	20	16	8	22				38	7
Area type	Urban	749	351	398	131	194	198	174	53	488	261	293	232	224	518	193	38		
	Rural	276	152	124	54	69	83	60	10	197	79	69	103	103	214	55	7		

FR = French; GE = German; IT = Italian * Weighted numbers are rounded and thus marginal totals might not add up. Analyses are based on weighted sample

turing a person's recent healthcare utilisation. This observation time difference may be taken into account when the current rates are compared with other results. Further, comparisons between the various studies are difficult owing to different national healthcare systems, i.e., diverse access to healthcare, reimbursement policies, as well as cultural aspects.

However, some interesting similarities and differences are of note. For instance, compared with the findings in Canada [7], the average rate of contact with a GP per 1000 people was higher in the Canadian survey than in Switzerland (238 vs 164/1000 individuals). On the other hand, patients seeking medical advice with a specialist were comparable to our results (81 vs 70/1000 individuals). In addition, overnight hospital stays were markedly lower in the Canadian provinces compared with the rates found in Switzerland (21 vs 8/1000 individuals). One explanation for this pattern could be the density of hospitals, which is substantially higher in Switzerland than in Canada according to the latest statistics of the OECD (19.7 vs 33.3 per one million inhabitants in 2018) [30]. An alternative explanation of the difference in overnight hospital stays might be that the study from Canada included only patients with chronic conditions. However, a clear definition of chronic disease was not explicitly described in the Canadian paper. It seems probable that acute illnesses or injuries were not measured in the Canadian study.

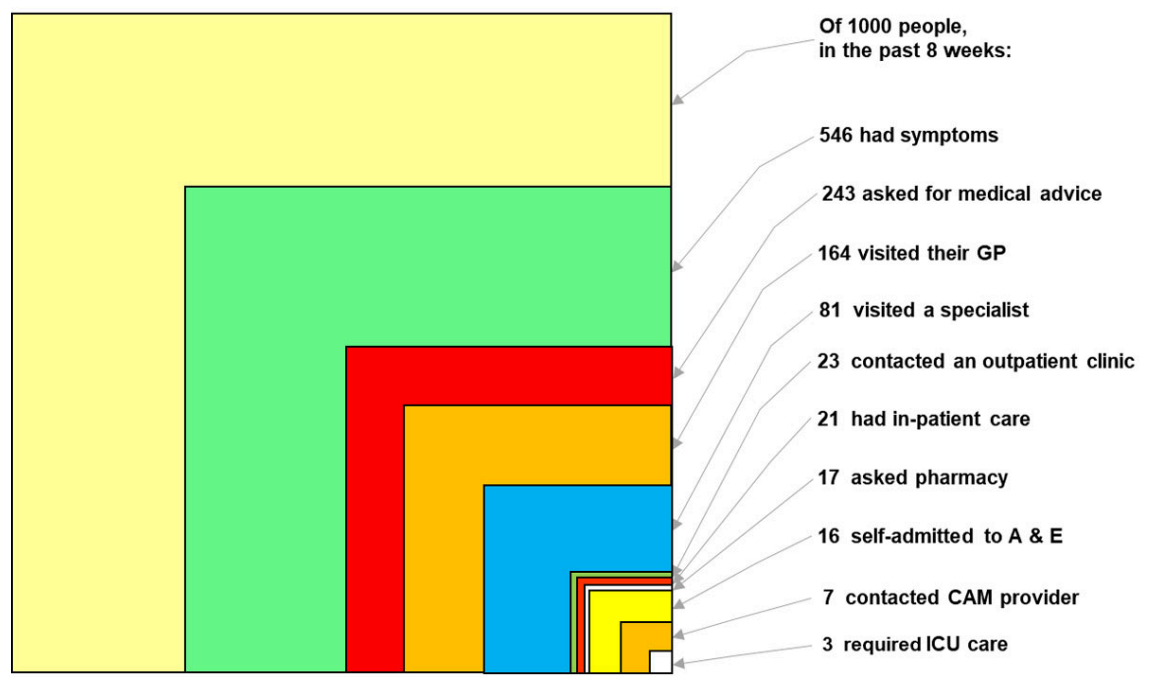
In Europe, studies on health care utilisation have been published for Austria, Sweden and Norway. Austria has universal healthcare coverage and free provider choice, but a weak primary care sector compared with countries with similar socioeconomic conditions. Austria showed higher monthly rates of healthcare use than Switzerland, in particular concerning GP visits (336 vs 164/1000 individuals), specialist visits in the ambulatory care setting (206 vs 23/1000 individuals) and hospital stays (35 vs 20/1000 individuals) [13]. As a reaction to this overall high utili-

sation, which was particularly prominent in the secondary and tertiary care sectors, with rates four times those found in the US, the authors proposed to restrict the free provider choice in terms of the ability to choose a secondary and tertiary care provider directly, in order to reverse overutilisation and to strengthen the primary care sector. In contrast to Austria, a strong gatekeeper role of GPs exists in Norway; i.e., access to specialist care is – as a rule – achieved by referral from GPs or GP-based municipality emergency clinics. Compared with the US (250/1000), Japan (232/1000) and Hong Kong (372/1000), Norwegians (214/1000) displayed a lower monthly rate of visits to physicians who provide services directly to patients [16]. The authors found this surprising, since Norway offers national health insurance coverage and access for all to a primary care doctor, and concluded that good access does not necessarily lead to higher utilisation. Sweden has a publicly funded healthcare system and highly reliable population-based registers. It was shown that the physician's office in primary care is the setting that has the potential to reach the largest number of people (87 out of 1000 residents within a month) [31].

We detected cultural differences concerning the use of complementary and alternative medical care (CAM) providers between Switzerland and the US as well as Asia. In our survey, only a small minority (6 out of 1000 individuals) sought medical advice from a CAM providers as compared with the US landmark study by Green [2], which reported that 65 out of 1000 individuals visited CAM providers. The use of CAM providers in the US is much closer to rates usually reported in Asian (54/1000 in Hong Kong [18], 78/1000 in Beijing [21], 67/1000 in Taiwan [20] and 49–117/1000 in Japan [22, 32]).

Our results indicate that GPs are the most important source of medical advice and that the vast majority of respondents are registered with a GP. Of those who sought medical advice because of a health complaint, the attending rates

Figure 2: Sources of health advice.



were 67% for primary care, 46% for secondary care and 6% for tertiary care. Thus, health problems of the Swiss population were predominantly dealt with by the primary healthcare sector. In contrast, the distribution of health care in Switzerland shows a correspondingly low proportion of generalists at 28–43% [5, 10]. If healthcare provision should be distributed based on needs to provide equal access, then there seems to be a mismatch in Switzerland. This incompatibility between available specialist capacity and the demand for GPs indicates the need for reconfiguring the primary healthcare sector in Switzerland. Starfield et al. claimed that a qualitatively well-functioning primary care system prevents hospital admissions [33]. Indeed, several studies across a wide range of international settings show that greater investment in primary healthcare is associated with improved population health outcomes, reduced secondary care usage and reduced overall healthcare costs [33–35]. On the other hand, sound evidence suggests

that healthcare consumption is supply-sensitive, and that the demand – for both primary and hospital care – is influenced by the current offer [36–38]. Consequently, Swiss policy makers might consider re-allocating resources according to the needs of the Swiss population and cost-efficiency in healthcare.

A fit-for-purpose workforce is essential to deliver primary healthcare, yet the world has an estimated shortfall of 18 million health workers [39]. In the US, a study projecting the number of primary care physicians required to meet US healthcare utilisation needs in the future came to the conclusion that they will require nearly 52,000 additional primary care physicians by 2025, driven by population growth and ageing [40]. In Switzerland also, the ageing of GPs is a source of major concern, with many retirements in the coming years without a significant increase in the number of young physicians choosing this specialty compared with other specialties [10]. In 2016, the Swiss Con-

Table 2: Medical ecology in terms of type of care (sources of health advice, use of medication, hospital or post-hospital care).

Out of 1000 Swiss residents within the past 2 months...	Weighted rate	95% CI	
Health problems			
Had one or more health problems	546	495	596
... One	360	315	405
... More than one	184	152	216
Asked for medical advice	243	206	280
Sources of health advice			
Visited a...			
... General practitioner	164	132	195
... Specialist physician	81	59	103
... Outpatient clinic	23	12	34
... Pharmacy	17	3	31
... Accident and emergency unit	16	7	24
... Telephone medical advice centre	8	0	15
... Family/friends	7	1	13
... Complementary and alternative medicine practitioner	7	1	12
... Dentist	6	0	12
... Physiotherapy	4	0	7
... Internet	3	0	7
... Drugstore	2	0	5
... Others(associate of medhome, atlasoid, chiropractor)	6	0	12
Use of medication			
Took medication	386	344	429
Purchased medication ...	259	222	296
... In pharmacy	207	174	239
... In drugstore	27	14	41
... At physician's	24	13	36
... In supermarket	12	0	25
... Other	4	0	10
... In internet	0	0	0
Hospital and post-hospital care			
Had in-patient hospital care ...	20	12	29
... in normal care unit	18	10	26
... in intensive care unit	3	0	5
... had a surgical procedure	8	3	13
... were in regional hospital	6	2	11
... were in university hospital	6	1	11
... were in cantonal hospital	5	1	9
... were in private hospital	3	0	7
Had post-hospital care ...			
... were in rehabilitation clinic	5	1	9
... had ambulatory nursing care	3	0	6
Registration with general practitioner			
Is permanently registered with a general practitioner	949	899	1000

federation decided to support the universities with an additional loan of CHF 100 million as part of a nationwide coordinated special programme. The goal was to substantially increase the number of medical graduates. Moreover, previous studies using the ecology model indicated that the focus of medical education activities should be at the care-providing sites that handle the major load of care contacts [17, 41]. These efforts in medical education will be crucial to ensure that the workforce can meet the increasing primary care utilisation. In addition to recent health policy in Switzerland aiming to transfer hospital care from in-patient to out-patient settings, efforts to improve the availability of GPs and to create incentives for the use of primary care might help to slow down the rising costs in healthcare.

Another way to increased service capacity and to alleviate the pressures on the GP workforce is to establish a skill mix with multiprofessional teams in primary care as in other countries [42–44]. Josi et al. recently reported the skill mix in Swiss primary care group practices [45]. They reported that although nearly 50% of group practices have established non-physician professionals, only 25% of practices integrated these professionals with advanced roles. Josi et al. concluded that significant effort is needed to extend the uptake of non-physician professionals in primary care in Switzerland, as compared with other countries. Clear policy direction along with supporting regulation and financing arrangements are required [45].

There are limitations of the ecology of care framework and the methods we used in this analysis. As a result of the 2-month observation period, comparability with other studies may be restricted since other ecology of medical care studies have used 4 to 5 weeks. Whereas we confined the analysis to participants aged 18 years and older, in other studies the participants' age varied (study in the UK and US with age 16 and over [17], study in US with all ages [15], study in US with age 0–17 [46], study in Hong Kong with all ages [18], study in Japan with all ages [22], study in Norway with age 30–87 [16]). Regional differences across cantons and language regions were not further accounted for. Additionally, the study may be prone to a selection bias; for example, people with chronic illnesses might be more likely to respond. The representation of rates with stacked squares may lead to the misinterpretation that a small box A is derived from the underlying larger box B. However, the graphical intersection of the two squares does not represent the intersection of A and B in the data. For example, a respondent who consulted a specialist physician may or may not have named a general practitioner too. The model does not establish causal pathways, nor a chronological order. Because of low numbers, particularly in the Italian speaking region, the results of the subgroup analysis across language regions has to be interpreted with care. The results are generalisable to the language-assimilated, Swiss population aged 18 years or older, but not to other populations within different healthcare systems, and to paediatric populations.

Table 3: Medical ecology in terms of type of care according to age, sex, language region, and area type relative to all respondents (n = 1025).

	Self-reported health problems			Seeking of medical advice			GP visit			Specialist visit			Outpatient clinic visit			Emergency department visit			Pharmacy			Hospital stay		
	n/N rate/1000 with 95% CI			n/N rate/1000 with 95% CI			n/N rate/1000 with 95% CI			n/N rate/1000 with 95% CI			n/N rate/1000 with 95% CI			n/N rate/1000 with 95% CI			n/N rate/1000 with 95% CI					
Sex																								
Men (N = 504)	492	414	568	190	145	237	119	83	155	75	45	108	28	9	45	10	1	19	22	2	40	16	6	28
Women (N = 521)	599	519	679	294	233	355	207	154	259	84	54	116	19	7	33	21	7	36	13	0	34	25	11	37
Age (years)																								
18–29 (N = 184)	620	478	760	223	134	310	152	78	232	33	7	60	5	0	16	16	0	43	11	0	26	16	0	35
30–44 (N = 262)	611	472	752	233	145	320	126	55	197	53	20	87	8	0	14	8	0	18	42	0	92	11	1	19
45–59 (N = 280)	500	392	606	218	144	289	164	106	225	111	54	170	36	5	63	0	0	1	11	0	32	11	0	22
60–79 (N = 234)	509	409	610	299	220	377	214	148	282	115	64	166	34	9	63	30	5	56	4	0	12	26	5	46
80–100 (N = 63)	413	250	585	270	137	408	159	48	260	63	6	129	48	0	114	48	0	114	0	0	0	95	10	191
Language region																								
German (N = 732)	561	502	622	224	185	264	149	114	183	64	43	86	23	11	35	15	6	25	19	1	36	19	9	30
French (N = 248)	476	372	582	290	199	384	198	121	273	105	47	162	24	0	55	20	0	41	16	0	41	24	6	45
Italian (N = 45)	667	471	862	289	105	457	222	81	368	222	48	385	22	0	34	0	0	0	0	0	0	22	0	34
Area type																								
Urban (N = 749)	583	516	650	270	221	317	184	143	225	88	60	115	24	10	38	15	4	25	21	3	41	20	10	31
Rural (N = 276)	446	358	531	174	121	226	109	69	148	62	27	97	22	4	40	18	3	34	4	0	11	22	6	35

CI = confidence interval; n/N = proportion number / total number. Data are for all persons who responded to the survey (n = 1025) in a 2-month period. Weighted numbers are rounded.

Table 4: Medical ecology in terms of type of care according to age, sex, language region, and area type relative to those who asked for medical advice (n = 243).

	GP visit				Specialist visit				Outpatient clinic visit				Emergency department visit				Pharmacy visit			
	n/N/100 with 95% CI			p-value*	n/N/100 with 95% CI			p-value*	n/N/100 with 95% CI			p-value*	n/N/100 with 95% CI			p-value*	n/N/100 with 95% CI			p-value*
By sex																				
Men (N = 94)	62	44	82	0.313	40	23	57	0.165	14	5	23	0.107	5	1	10	0.524	11	1	21	0.280
Women (N = 149)	71	52	88		29	18	40		7	2	11		7	2	12		5	0	11	
By age (years)																				
18–29 (N = 40)	70	36	100	0.254	15	3	27	0.007	2	0	7	0.075	7	0	19	0.028	5	0	11	0.053
30–44 (N = 59)	54	23	84		23	8	37		3	0	6		3	0	8		18	0	40	
45–59 (N = 59)	77	49	100		52	25	79		16	2	29		0	0	1		5	0	15	
60–79 (N = 68)	72	50	96		39	21	56		12	3	21		10	2	19		1	0	4	
80–100 (N = 17)	59	18	96		24	2	48		18	0	42		18	0	42		0	0	0	
By language region																				
German (N = 160)	66	51	82	0.796	29	19	38	0.017	10	5	16	0.728	7	2	11	0.708	8	0	16	0.690
French (N = 71)	67	41	93		36	16	56		8	0	19		7	0	14		6	0	14	
Italian (N = 12)	77	28	100		77	17	100		8	0	12		0	0	0		0	0	0	
By area type																				
Urban (N = 197)	68	53	84	0.510	33	22	43	0.717	9	4	14	0.492	5	2	9	0.220	8	1	15	0.164
Rural (N = 47)	62	40	85		35	15	56		12	2	23		10	2	19		2	0	6	

CI = confidence interval Data are for persons who asked for medical advice (n = 243) in a 2-month period. Weighted numbers are rounded. * Pearson's χ^2 : Rao and Scott adjustment

In summary, this study represents a first attempt to map the healthcare utilisation of the Swiss population. The results may be useful for further delineation of healthcare policies and medical education to meet the demands and needs of people in Switzerland. They indicate that general practitioners are the most important health care resource in Switzerland. Compared to specialists, they provide twice as much health advice at less costs. To optimise the health care system in Switzerland, we suggest allocation of resources where they are most needed, namely in primary care.

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Appendix 1

Questionnaire in English

The appendix is available as a separate file at <https://smw.ch/article/doi/smw.2020.20221>.