

BMJ Open Primary prevention of sexually transmitted infections in Switzerland: practices of family physicians and their determinants – a national cross-sectional survey

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ABSTRACT

Objectives To describe the activities of general practitioners (GPs) pertaining to primary prevention in the field of affective and sexual life, studying the advice they provide as well as their vaccination practices.

Design Cross-sectional national survey.

Setting/participants The study was carried out using the Swiss Primary Care Active Monitoring GPs' network, a national GP network created in 2012. One hundred and seventy Swiss GPs, from a random sample from professional lists stratified by canton, participated in the present study.

Primary and secondary outcome measures Prevention practices against sexually transmitted infections (STIs) performed by GPs through advice provided as well as their vaccination practices. Predictive factor of these practices through their links with the doctors' relevant characteristics and their opinions about STI prevention.

Results Approximately 80% consider prevention in the area of affective and sexual life to be part of their duty and discuss it easily with patients. Most of them spontaneously give advice regarding STIs during a routine consultation. Regarding human papillomavirus (HPV) immunisation in adults, almost half of GPs report never doing it, while almost 75% often or always immunise their adult patients against hepatitis B. Higher numbers of consultations per day are associated with vaccinating more adults against HPV (OR 1.13 (1.05 to 1.23)) and against hepatitis A (OR 1.17 (1.05 to 1.31)). Vaccinating children against hepatitis B is associated with practising in rural areas (OR 4.64 (1.20 to 17.98)). GPs practising in the French-speaking region of Switzerland immunise children less against HPV (OR 0.40 (0.20 to 0.80)). Longer consultations are associated with providing advice on affective and sexual life during a first consultation (OR 1.08 (1.01 to 1.14)).

Conclusion Swiss GPs are involved in primary prevention against STIs and consider it as their responsibility. Prevention practices are associated with GPs' favourable opinions on prevention.

INTRODUCTION

New cases of sexually transmitted infections (STIs) continue to present a major problem in Switzerland in 2018. The latest report

Strengths and limitations of this study

- Low acceptance rate for participation in a practice-based network might introduce some level of bias on other unmeasured characteristics.
- A small sample size limits the possibility of drawing more significant conclusions in establishing links between the data.
- Studying an important public health topic that needs to be addressed given the rise in the number of sexually transmitted infection cases.
- Focusing on family physicians who play a key role in healthcare systems.

issued by the Federal Public Health Office shows an 11% increase in the numbers of new cases of gonorrhoea and a 1% increase for chlamydia infections compared with 2017.¹ Cases of syphilis also rose slightly in 2017 compared with 2016.² This increase can partially be explained by an increase in testing, but the number of gonorrhoea cases has increased by eight times compared with 2000 and the number of syphilis cases by 3.8 times. New cases of chlamydia increased by 4.9 times compared with 2000.¹ The number of HIV cases has decreased, probably due to pre-exposure prophylaxis made more readily available.¹

Regarding diseases that are preventable through vaccination, cases of acute hepatitis B have declined between 2014 and 2017, but only around 70% of the Swiss population was vaccinated at the age of 16 years,³ even though it is part of the basic vaccination programme. As of 2019, hepatitis B vaccination, included in a hexavalent vaccine, is now recommended preferably in infants rather than adolescents.⁴ Cases of hepatitis A have however risen, with an outbreak reported in Europe and in Switzerland at the beginning of 2017, and with

the European data showing that it concerned mostly men who have sex with men (MSM). Vaccination recommendations remain unchanged, with the hepatitis A vaccine being targeted towards high-risk groups, which includes MSM.⁵ New human papillomavirus (HPV) cases are estimated at approximately 250 per year in Switzerland, and cervical cancer is the fifth most frequent cancer in Switzerland.⁶ The HPV vaccine is also part of the immunisation programme in Switzerland since 2007,⁴ and the new nonavalent vaccine will be available at the beginning of 2019.⁶

The increase in cases, as well as an insufficient vaccination coverage for hepatitis B and the new developments of HPV vaccination, shows that the fight against STIs remains a challenge in Switzerland and that prevention measures are essential. It is also important to state that the WHO has made prevention a key point in its strategy for the eradication of STIs worldwide. This includes widely expanding access to good quality STI prevention into the primary healthcare sector.⁷

The global targets of the WHO regarding STIs were updated in 2016 as follows:

- ▶ 90% reduction of *Treponema pallidum* incidence globally (2018 global baseline);
- ▶ 90% reduction in *Neisseria gonorrhoeae* incidence globally (2018 global baseline);
- ▶ 50 or fewer cases of congenital syphilis per 100 000 live births in 80% of countries;
- ▶ Sustain 90% national coverage and at least 80% in every district (or equivalent administrative unit) in countries with the HPV vaccine in their national immunisation programme.

In that setting, Switzerland, that closely cooperates with international organisations in the efforts of eliminating HIV and other STIs,⁸ has implemented its own strategy to control those infections.⁹ It was established on three different levels, the first one targeting the general population. Its goal is to reduce the number of new cases of HIV and other STIs via primary prevention.

General practitioners (GPs) are major actors in the Swiss medical system; 70.7% of the population consulted a GP in the year 2017.¹⁰ It must be highlighted that GPs encounter a significant amount of STIs in their daily practice, as they diagnosed the majority of gonorrhoea and syphilis cases (respectively, 45% and 32%) in 2007 and 2008.¹¹ Given this information, GPs are a key element in the Swiss healthcare system, and they are key players in the collective efforts against STIs. A study conducted in 2000 on 496 GPs in the French part of Switzerland showed that 100% of them considered prevention to be one of their responsibilities. However, only 48% of them answered 'yes' when asked if they considered offering advice for HIV prevention to be an important intervention, when 93% answered 'yes' to the same question regarding high blood pressure.¹² Last year, the IUMF (University Institute of Family Medicine, Lausanne, Switzerland, now Department of Family Medicine in the Center for Primary Care and Public Health, Unisante, Lausanne, Switzerland)

published an analysis showing that GPs' attitudes towards prevention differed depending on the topic, with less concern shown towards affective and sexual life.¹³ Using the same data, we analysed the prevention practices of 277 GPs in Switzerland. The general objective of this study is to describe the activities of GPs pertaining to primary prevention in the field of affective and sexual life, assessing the advice they provide regarding STIs as well as their vaccination practices.

MATERIALS AND METHODS

Study design and population

In 2015–2016, we launched a large study about prevention in family medicine in Switzerland. Several studies have already been published using the data collected in 2015–2016.^{14–16} The objective of those studies was to describe attitudes and practices regarding prevention among GPs and their patients. The present study focuses on the GPs' practices. The study was carried out using the Swiss Primary Care Active Monitoring (SPAM) GPs network, which, in 2015, included 277 members. The SPAM network is a national GP network created in 2012 to monitor the practice patterns of Swiss GPs. It was created by inviting a random sample of GPs from professional lists stratified by canton, by postal mail. The representativeness of the network members in terms of gender, age and rural-urban location was cross-checked against the national statistics and considered satisfactory.¹⁷ GPs were asked to answer a questionnaire concerning their opinions, attitudes and practices regarding preventive medicine. The data collection was conducted between August 2015 and May 2016. There was no systematic reminder, but an individual reminder was sent twice per GP who had not yet completed the questionnaire. The GPs were contacted by email, with a questionnaire to fill in online, the link to which was in the email. The GPs were not compensated for filling in the questionnaire.

Data

In a first step, a questionnaire was developed and tested locally in French with six community physicians to ensure comprehension and obtain feedback. Subsequently, the questionnaire was translated into German and Italian, as Switzerland houses these three main linguistic areas. It was translated from the French version to the German and Italian versions by two translators independently (only one for the Italian translation). The two versions were then compared and discussed. There was no back translation.

The questionnaire was inspired by a similar questionnaire already in use in other countries.^{18 19}

The questionnaire consisted of four main sections:

1. Sociodemographic characteristics of the GPs, that is, sex, age, seniority, linguistic and rural/urban areas.
2. Practice organisation and functioning features.
3. Preventive activities provided by the GPs (counselling, immunisation and screening activities).

4. GPs' attitudes towards prevention (perceived role) and obstacles to delivering preventive care.

In the present study, we studied several questions and variables on the subject of primary prevention of STIs by GPs. Concerning dependent variables, we were interested in vaccinations in adults, whether for hepatitis A, hepatitis B or HPV. We also studied vaccinations in children, hepatitis B and HPV. We looked at whether doctors were in favour of vaccination against hepatitis B in babies. Finally, we looked at whether doctors gave advice about STIs during routine consultations or during a first consultation.

Several independent variables were also studied. Among them, whether doctors considered the topic 'emotional and sexual life' as easy to discuss and whether they considered prevention in this area as their responsibility.

Data analysis

Data was imported and analysed using Stata V.13.1 (© 2013 StataCorp LP).

One hundred and seventy GPs answered the questionnaire.

First, we described the prevention practices in terms of STI screening performed by doctors through the frequency of answers to the questions listed above. Second, these practices were analysed through their links with the doctors' relevant characteristics (age, gender, year of establishment), their office features and their thoughts about STI prevention (the doctor's role in prevention towards STIs, easiness broaching the subject) in a bivariate analysis. This allowed for selection of the factors associated with STI prevention practices (p value <0.2) used to develop seven multivariate final models.

Regarding questions about counselling activities, GPs could pick several answers in the questionnaire. Answers were grouped into two categories, separating GPs who spontaneously advise on STIs during a consultation and those who do not perform it spontaneously.

The answers regarding HPV and hepatitis B vaccination were grouped with 'never' versus the other answers. Practices in hepatitis B vaccination in adults were not included in the multivariate models as no 'never' answer was provided. Hepatitis A vaccination in adults was grouped with 'sometimes' against the remaining answers (no GPs answered 'never'). For vaccination practices in children, all the 'not applicable' answers were removed, considering that these doctors never see children in their practice. Thoughts on hepatitis B vaccination in babies were grouped with 'very, rather yes' against the rest.

Patient and public involvement

No patient involved.

RESULTS

Tables 1 and 2 show the results of the descriptive statistics.

Table 1 describes the characteristics of 170 GPs who answered the survey (response rate 170/277). The

majority of them are male—69 %, and the mean age is 53.8 years old. Most of them—93.2%—are Swiss. Regarding the linguistic regions, 54.5% of doctors surveyed speak German and 37.7% French. Most of them are located in a periurban or urban area (72.4%). The mean duration of a consultation is 18.6min.

Table 2 describes GPs' attitudes, practices and opinions about prevention against STIs.

Counselling

Most GPs consider prevention in the area of affective and sexual life to be part of their duty: 31.1% 'totally' agree and 49.1% 'rather yes'. The majority also finds discussing this topic to be easy ('totally easy': 12.4%, 'rather easy' 43.5%). In their practice during routine consultation, GPs provided advice regarding STIs as follows:

- ▶ 4.2% addressed the topic at least once with every patient.
- ▶ 66.1% addressed the topic according to patient history or after examination \pm for patients requesting it.
- ▶ 29.1% addressed it only on patient's request.

During a first consultation, 3.6% of GPs provided advice regarding STIs at least once to every patient, 43.6% addressed it following history taking or examination \pm for patients requesting it and 44.2% only provided it on patient's request.

Immunisation

Regarding HPV vaccination practice in children, 17.9% of the GPs report that they systematically vaccinate children against HPV and 18.7% do it often. In adults, 10.8% of physicians state that they vaccinate systematically, 8.9% often and 47.5% never do. For hepatitis B, 24.1% of practitioners systematically immunise their adult patients and 50% often. Results are somewhat similar for hepatitis A. For both hepatitis A and B vaccination, none of the doctors surveyed reported never performing it. With children, 38.7% of physicians systematically vaccinate against hepatitis B, while 16.1% never do.

Thoughts about hepatitis B vaccines in babies are mixed: 46.6% of GPs are very much or rather in favour, while 34.4% are rather not or not favourable at all. The vast majority of the GPs (97.6%) are themselves vaccinated against hepatitis B.

Multivariate analysis

Multivariate results are presented in tables 3 and 4.

Giving advice regarding STIs during a first consultation is associated with a longer duration of consultation (OR 1.08 (1.01 to 1.14)). GPs thinking of prevention on the topic of affective and sexual life as part of their job could be more likely to deliver advice on the subject during a routine consultation ('totally' OR 2.34 (0.86 to 6.36)).

GPs who frequently vaccinate adults against HPV have a higher number of consultations in a day (OR 1.13 (1.05 to 1.23)). Male GPs seem less likely to vaccinate adults against HPV (OR 0.46 (0.21 to 1.02)). Greater likelihood to vaccinate adults against hepatitis A is associated

Table 1 Characteristics and opinions towards prevention activities of general practitioners (GPs) in our study

	N	Frequency (%) or mean \pm SD
GP characteristics		
Gender		
Female	51	30.5
Male	116	69.5
Age (in years)	167	53.8 (\pm 8.9)
Linguistic region		
German	91	54.5
French	63	37.7
Italian	13	7.8
Rurality		
Urban area	55	32.9
Periurban area	66	39.5
Rural and semirural areas	46	27.5
Nationality		
Swiss	150	93.2
Other	11	6.8
Country of origin		
Switzerland	148	90.2
Other	16	9.8
Country of education		
Switzerland	152	92.7
Other	12	7.3
Year of establishment		
1969–1988	41	24.8
1989–1996	39	24.2
1997–2006	41	24.2
2007–2014	44	26.7
Consultation duration (in minutes)	159	18.6 (\pm 4.7)
Number of consultations in a day	158	13.1 (\pm 3.8)
GP opinions		
As a doctor, do you consider prevention in the following domain as part of your job? Answer ‘affective and sexual life’		
Totally	50	31.1
Rather yes	79	49.1
Rather no	29	18.0
Not at all + doesn’t know	3	1.9
Would you say that it is easy for you to discuss prevention with your patient in the following domain, answer ‘affective and sexual life’?		
Totally	20	12.4
Rather yes	70	43.5
Rather no	62	38.5
Not at all + doesn’t know	9	5.6

with having more consultations per day (OR 1.17 (1.05 to 1.31)) and negatively associated with practising in a rural area (OR 0.38 (0.14 to 1.02)). Vaccinating children

against hepatitis B is associated with practising in a rural area (OR 4.64 (1.20 to 17.98)). GPs less in favour of hepatitis B vaccination in babies are older (OR 0.96 (0.92 to

Table 2 Prevention practices and attitudes on the topic of affective and sexual life by the general practitioners in our study

Prevention practices			
Do you give advice regarding 'sexually transmitted infections'?	In your everyday practice, with regular patients (n=165) %	During a first consultation with a new patient (n=165) %	
At least once with every patient	4.24	3.64	–
For patients concerned following the history taking or physical examination ± for patients requesting it	66.06	43.64	–
For patients requesting it only	29.09	44.24	–
Never + doesn't know	0.61	8.49	–
Do you perform the following vaccinations and/or vaccines boosters in adults?	HPV (n=158) %	Hepatitis B (n=162) %	Hepatitis A (n=161) %
Systematically	10.76	24.07	19.25
Often	8.86	50	53.42
Sometimes	32.91	25.93	27.33
Never	47.47	0	0
Do you perform the following vaccinations in children?	HPV (n=134) %	Hepatitis B (n=137) %	
Systematically	17.91	38.69	–
Often	18.66	11.68	–
Sometimes	30.6	33.58	–
Never	32.84	16.06	–

HPV, human papillomavirus.

1.00)) and appear to be more represented in the French-speaking part of the country (OR 0.52 (0.26 to 1.05)). GPs practising in the French-speaking region of Switzerland immunise children against HPV less frequently (OR 0.40 (0.20 to 0.80)).

DISCUSSION

This study aimed at describing the primary prevention activities with regard to STIs among GPs in Switzerland. Identifying groups of GPs less likely to conduct STI prevention as part of their everyday routine practice would allow them to be more precisely targeted via educational awareness programmes and thus contribute towards the fight against STIs in Switzerland.

It appeared that providing more counselling regarding STIs is linked to longer duration of a first consultation with a new patient, increased easiness to address the topic and higher consideration that STI counselling is part of the GP's role. Those performing more vaccines are also more likely to have a higher number of consultations per day and to have their practice established in a non-French-speaking region. Performing more vaccinations also tends to be associated with being female or with an urban or rural location depending however on the type of vaccine.

Two-thirds of the GPs in our study declare it is easy for them to discuss affective and sexual life with their patients, which matches well with the literature references.^{20 21}

Discussing and recommending HPV immunisation to children have been positively associated with being a female practitioner in several studies.^{22 23} In our study, we consider a possible link between being a female practitioner and vaccinating adults against HPV. There appears to be a trend with practitioners being more likely to vaccinate children against HPV when they consider prevention on the topic of affective and sexual health as part of their role. GPs vaccinate children against HPV more if they live in the German-speaking or Italian-speaking area of Switzerland. Those geographic differences can hardly be reproduced elsewhere, as Switzerland is a small country with three main language areas, but the results could maybe be explained through cultural influence from the neighbouring countries. For example, France has a strong cultural influence on the French-speaking part of Switzerland, and its vaccination rate against HPV is particularly low.²⁴ The French population shows a strong distrust towards vaccines.^{25 26}

We also found a link between vaccinating adults against HPV and having a higher number of consultations in a day, this being associated with recommending the HPV immunisation in teenagers as reported in a French study.²⁷ It could be considered that vaccinating is less time-consuming than a standard consultation, hence allowing for more consultations in a day. It might also suggest that GPs who have more consultations in a day would have more standardised and structured consultations, taking

Table 3 Factors associated with GPs' vaccination practices

Vaccinating children against	HPV				Hepatitis B			
	Univariate analysis		Multivariate analysis, n=131		Univariate analysis		Multivariate analysis, n=137	
	OR	CI 95%	OR	CI 95%	OR	CI 95%	OR	CI 95%
Age	1.02	(0.98 to 1.05)	–	–	0.99	(0.94 to 1.04)	–	–
Sex (ref=female)								
Male	1.25	(0.64 to 2.46)	–	–	0.93	(0.34 to 2.59)	–	–
Number of consultations per day	1.06	(0.99 to 1.13)	–	–	1.07	(0.96 to 1.19)	–	–
Consultation duration	0.97	(0.91 to 1.02)	–	–	0.94	(0.87 to 1.03)	–	–
Year of establishment (ref=1969–1988)								
1989–1996	1.07	(0.43 to 2.65)	–	–	1.03	(0.30 to 3.60)	–	–
1997–2006	0.9	(0.37 to 2.21)	–	–	2.14	(0.49 to 9.40)	–	–
2007–2014	0.64	(0.27 to 2.52)	–	–	0.83	(0.25 to 2.78)	–	–
Language area (ref=German and Italian)								
French	0.46	(0.24 to 0.9)	0.4	(0.20 to 0.80)	1.52	(0.51 to 4.52)	–	–
Rurality (ref=urban)								
Periurban	1.21	(0.58 to 7.48)	–	–	2.65	(0.94 to 7.48)	2.65	(0.94 to 7.48)
Rural	1.81	(0.81 to 4.08)	–	–	4.65	(1.20 to 17.98)	4.64	(1.20 to 17.98)
Country of education (ref=Germany, France, others)								
Switzerland	0.39	(0.10 to 1.51)	–	–	0.44	(0.05 to 3.57)	–	–
Considering prevention on the topic of affective and sexual life as part of their job (ref=no)								
Rather yes	1.32	(0.58 to 3.02)	1.64	(0.69 to 3.90)	1.14	(0.35 to 3.65)	–	–
Totally	2.07	(0.83 to 5.05)	2.67	(0.99 to 7.24)	1.36	(0.37 to 5.00)	–	–
Easiness broaching the topic of affective and sexual life from a prevention standpoint (ref=easy)								
Not easy	1.22	(0.51 to 3.22)	–	–	1.28	(0.51 to 3.22)	–	–
Vaccinating adults against								
	HPV				Hepatitis A			
	Univariate analysis		Multivariate analysis, n=150		Univariate analysis		Multivariate analysis, n=146	
	OR	CI 95%	OR	CI 95%	OR	CI 95%	OR	CI 95%
Age	0.99	(0.95 to 1.02)	–	–	1	(0.96 to 1.04)	–	–
Sex (ref=female)								
Male	0.57	(0.29 to 1.13)	0.46	(0.21 to 1.02)	1.09	(0.52 to 2.31)	–	–
Number of consultations per day	1.09	(1.02 to 1.18)	1.13	(1.05 to 1.23)	1.14	(1.04 to 1.25)	1.17	(1.05 to 1.31)
Consultation duration	1	(0.94 to 1.06)	–	–	0.94	(0.88 to 1.01)	–	–
Year of establishment (ref=1969–1988)								
1989–1996	0.41	(0.16 to 1.05)	0.3	(0.10 to 0.87)	2.56	(0.90 to 7.30)	–	–
1997–2006	1.1	(0.44 to 2.72)	0.88	(0.31 to 2.47)	1.8	(0.67 to 4.87)	–	–
2007–2014	1	(0.41 to 2.42)	0.95	(0.34 to 2.64)	1.2	(0.48 to 2.99)	–	–
Language area (ref=German and Italian)								
French	0.95	(0.49 to 1.84)	–	–	0.59	(0.28 to 1.57)	0.71	(0.32 to 1.57)
Rurality (ref=urban)								
Periurban	0.69	(0.33 to 1.45)	–	–	1	(0.45 to 3.10)	1.18	(0.45 to 3.10)
Rural	0.81	(0.36 to 1.81)	–	–	0.41	(0.17 to 0.99)	0.38	(0.14 to 1.02)
Country of education (ref=Germany, France, others)								
Switzerland	0.52	(0.15 to 1.81)	–	–	1.37	(0.39 to 4.81)	–	–
Considering prevention on the topic of affective and sexual life as part of their job (ref=no)								
Rather yes	2.22	(0.95 to 5.18)	2.67	(1.05 to 6.76)	1.6	(0.64 to 4.03)	–	–
Totally	1.9	(0.76 to 4.80)	2.26	(0.81 to 6.32)	0.91	(0.35 to 2.37)	–	–
Easiness broaching the topic of affective and sexual life from a prevention standpoint (ref=easy)								
Not easy	0.8	(0.42 to 1.51)	–	–	0.75	(0.38 to 1.51)	–	–

HPV, human papillomavirus.

Table 4 Factors associated with providing advice about STIs during a consultation

	First consultation				Routine consultation			
	Univariate analysis		Multivariate analysis, n=158		Univariate analysis		Multivariate analysis, n=160	
	OR	CI 95%	OR	CI 95%	OR	CI 95%	OR	CI 95%
Age	1.02	(0.98 to 1.05)	–	–	0.99	(0.95 to 1.02)	–	–
Sex (ref=female)								
Male	0.79	(0.40 to 1.53)	–	–	0.64	(0.30 to 1.36)	–	–
Number of consultations per day	0.95	(0.89 to 1.02)	–	–	0.98	(0.92 to 1.05)	–	–
Consultation duration	1.08	(1.01 to 1.14)	1.08	(1.01 to 1.14)	1.04	(0.97 to 1.12)	–	–
Year of establishment (ref=1969–1988)								
1989–1996	0.57	(0.23 to 1.40)	–	–	0.77	(0.30 to 1.96)	–	–
1997–2006	0.44	(0.18 to 1.09)	–	–	1.29	(0.48 to 3.44)	–	–
2007–2014	0.72	(0.30 to 1.72)	–	–	1.02	(0.40 to 2.61)	–	–
Language area (ref=German and Italian)								
French	1.15	(0.60 to 2.19)	–	–	0.89	(0.44 to 1.79)	–	–
Rurality (ref=urban)								
Periurban	0.65	(0.31 to 1.34)	–	–	0.84	(0.38 to 1.87)	–	–
Rural	0.64	(0.29 to 1.41)	–	–	0.83	(0.35 to 1.97)	–	–
Country of education (ref=Germany, France, others)								
Switzerland	0.77	(0.23 to 2.55)	–	–	1.78	(0.53 to 5.91)	–	–
Considering prevention on the topic of affective and sexual life as part of their job (ref=no)								
Rather yes	0.9	(0.40 to 2.06)	–	–	2.25	(0.96 to 5.26)	2.09	(0.88 to 4.96)
Totally	1.38	(0.57 to 3.37)	–	–	2.79	(1.08 to 7.23)	2.34	(0.86 to 6.36)
Easiness broaching the topic of affective and sexual life from a prevention standpoint (ref=easy)								
Not easy	0.71	(0.38 to 1.33)	–	–	0.60	(0.31 to 1.19)	0.70	(0.34 to 1.45)

STI, sexually transmitted infection.

less time to discuss their patients' affective and sexual life, but following immunisation plans more closely. This could indicate that they still make primary prevention against STIs a part of their daily practice, but in a different manner than GPs who take time to discuss these topics with their patients.

In opposition to the studies identified, a majority of physicians reported that they do not administer a high number of HPV vaccines. More than 45% never immunise adults against HPV, and more than 50% never or only sometimes immunise children against HPV. It is a lot less than what is encountered in the literature where numbers averaged 75% of doctors vaccinating against HPV.²⁸ It needs to be considered that the HPV vaccination in Switzerland is part of state programmes in the majority of the country, which implies that many children are vaccinated through their schools²⁹ and could explain the low results. The HPV vaccine is also recommended for children aged between 11 and 14 years, at an age where most children are still being followed by a paediatrician and have not

yet transitioned to GPs, which could also explain the high rate of GPs not vaccinating children.

The same can be reported for hepatitis B vaccination in children, which is also part of the state immunisation programme: most surveyed physicians perform the vaccine, but it is also part of the generalised vaccination programme in Switzerland, with schools playing a key role.³⁰ This probably explains why some GPs never perform the hepatitis B vaccine. The association between GPs' higher hepatitis B vaccination rates in children and practising in rural areas could be due to the fact that access to a paediatrician in a rural setting is more difficult.

The hepatitis B vaccine was recommended for all teenagers between ages 11 and 15 years in Switzerland up until 2018, but can be performed at any age and is now recommended in babies.⁴ In our study, about half of the surveyed sample expresses a positive opinion towards hepatitis B vaccination in babies, which is far less than what has been encountered in the literature where 76% of a sample of French GPs estimated that the best age for

a hepatitis B immunisation was infancy.³¹ This could also be associated with the fact that most hepatitis B vaccines in Switzerland are administered to teenagers. Again, physicians in the French-speaking area are less in favour of hepatitis B vaccines in babies, and the reasons are probably the same as for the HPV vaccine, this not having been investigated. Given that the same association is also found with hepatitis A vaccines for adults, a Swiss follow-up study could be envisioned. The hepatitis A vaccine is primarily targeted towards MSM and travellers, and most of this population would be found in cities, where physicians would be more familiar with this vaccine.

Providing advice regarding the patient's affective and sexual life during a first consultation is spontaneously undertaken by approximately half of our respondents, which matches well with a previous study performed in Switzerland in 2006 that yields approximately the same results.³² This practice being associated with longer consultations makes sense, as it allows for more time to explore the different aspects of a patient's health and beliefs. A short consultation time is an obstacle for sexual history as described by Haley *et al.*³³ That would also reinforce our interpretation of the positive link between having more consultations in a day and HPV vaccination in adults. The study by Haley *et al.* also indicated that giving advice on the topic of sexual health in a routine consultation is associated with greater ease broaching the subject. Thinking of prevention on this topic as part of one's role and association with more counselling has already been demonstrated by a study using the same data as we have.¹³ We must however note that we did not find the same results as other studies in showing that female doctors perform more prevention on the topic of STIs than male physicians.^{33,34} This could be explained by the low proportion of women in our study, which does not allow for any significant results.

It is also necessary to take into account the fact that the increase in the number of STI cases is partly due to a greater number of screenings carried out. However, our study focused on the primary prevention of STIs and does not assess the need for or frequency of screening tests conducted by physicians, which constitutes secondary prevention.

This study will have made it possible to assess the practices of GPs in Switzerland in terms of primary prevention of STIs. It appears that considering prevention in terms of emotional and sexual life as one's responsibility is associated with more primary prevention against STIs and emphasising these issues during medical studies would probably increase the quality of care in this field. Female physicians perform more primary prevention of STIs than male physicians. Knowing this would make it possible to focus continuing education campaigns mainly on male physicians.

Limitations

The representativeness of the sample might be a limitation. Our study included random sampling and adequate

representation in terms of age, gender and rural/urban repartition, which was cross-checked against the national statistics and considered satisfactory.¹⁷ However, the low acceptance rate for participation in a practice-based network (although classically observed in such research) might introduce some level of bias on other unmeasured characteristics. A relatively small sample size limits the possibility of drawing more significant conclusions in establishing links between the data.

The behaviours described by GPs in this study are self-reported, and this may constitute a bias as GPs could be under-reporting or over-reporting their behaviours regarding primary prevention against STIs.

CONCLUSION

The majority of Swiss GPs spontaneously provide advice regarding STIs during a routine consultation, and about half of them do so during a first consultation. They mostly think of prevention on the topic of affective and sexual life as part of their role, but only one-third of them are actually comfortable discussing it. Most do not routinely provide HPV immunisations, possibly because of the co-existence of school immunisation programmes. The majority of GPs administers vaccines against hepatitis A to adults or hepatitis B vaccines to children, but their willingness to provide hepatitis B immunisation to babies is mixed. Some of the predictors of more primary prevention against STIs in GP practices are being younger, being female and having a higher number of, potentially more standardised, consultations. Thinking of prevention on the topic of affective and sexual life as part of one's responsibilities and easiness discussing could be associated with more primary prevention provided on STIs.

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