

BRIEF REPORT

Parental resistance to oral vitamin K prophylaxis was much more common in Swiss birthing centres than private or public hospitals

Vitamin K deficiency bleeding is a haemorrhagic condition that puts newborn infants at increased risk of bleeding during the first 6 months of life. The consequences can be disastrous, including lifelong disabling neurological sequelae or death, and can be prevented by a single intramuscular injection of vitamin K at birth. This is regularly cited as the prophylaxis gold standard for its simplicity of administration and efficacy when patients have cholestasis, although repeated oral vitamin K doses have comparable efficacy.^{1,2} In the last 10 years, parents refusing prophylaxis has been identified as a major risk factor for vitamin K deficiency bleeding.^{2,3} Studies have been conducted in countries where intramuscular prophylaxis is officially recommended. These have reported that parents refused prophylaxis because they wanted a natural birth, were concerned about the risk/benefit ratio or saw it as a form of immunisation.⁴ Studies from the USA, where they use intramuscular injections, showed that refusal rates were 10 times higher in birthing centres than hospitals⁵ and appeared to be rising.³ Our aim was to study the attitudes of parents towards vitamin K prophylaxis in Switzerland, where only oral prophylaxis is recommended.²

A national electronic survey (Appendix S1) was carried out from 7 November 2019 to 16 April 2020 using LimeSurvey 2.05+ (LimeSurvey GmbH). All Swiss hospitals and birthing centres that had carried out at least one vaginal delivery in 2016 or were members of the Swiss Birthing Centers' Association in 2019 were invited. Email invitations were sent to head midwives in 93 public and private hospitals and 25 birthing centres. These organisations represented 99% of all births in Switzerland. Incomplete responses were excluded from analysis.

We used SPSS Statistics, version 26 (IBM Corp) for the analysis. The descriptive statistics were stratified by the type of establishment, and the data were also weighted by the reported birth rate before conducting inferential statistics. A p value of <0.05 using Fisher's exact test was significant. A model was created to compare the incidence of parental refusal for each type of establishment (Appendix S2). Study approval was not needed as no personal health data were collected.

We contacted 118 (100%) establishments and received 86 (73%) valid responses (Table 1). Most respondents (85%) advised parents to give their newborn infants vitamin K prophylaxis, and 90% recommended the Swiss official regimen. However, when the data were weighted by birth rate, the figures were significantly lower in birthing centres than public and private hospitals ($p < 0.001$). Most respondents (77%) felt parental refusal had remained stable or decreased in the last 10 years. Our model showed that estimated parental refusal, as a percentage of all births, was 0.4% in public hospitals, 0.3% in private hospitals and 4.1% in birthing centres ($p < 0.001$). The main reasons were concerns about vitamin K prophylaxis being unnatural (48%), unnecessary (43%) or a broader stance against immunisation (22%).

Our finding that official guidelines and recommendations were followed less often in birthing centres than hospitals confirmed earlier studies. One possible explanation for this could be that birthing centres promote birth demedicalisation, which increasingly appeals to parents. However, the overall Swiss oral prophylaxis refusal rate of 0.5%, for hospitals and birthing centres, was lower than the refusal rates for intramuscular prophylaxis of up to 3.2% in hospitals and 31% in birthing centres, reported by the previously mentioned American review.⁵ Our finding that only 7% of respondents felt that refusal had increased in the last 10 years contrasted sharply with the 52% of American clinicians who estimated that refusal had increased in the early 2010s.³ Could this difference be partially explained by the different Swiss oral and American intramuscular prophylaxis administration routes? Painless oral vitamin K, and the clear differentiation between oral vitamin K and intramuscular vaccines, could provide interesting arguments in favour of the oral regimen. However, our results only estimated parental refusal rates, and did not formally observe them, so caution is warranted. Finally, the parents' main concerns against prophylaxis are echoed in the previous studies and support the hypothesis that refusals are part of a broader social trend against medicine, particularly immunisation.³

This national study concluded that parental resistance to oral vitamin K prophylaxis was stable or decreasing in Switzerland and mainly encountered in birthing centres. These findings were in contrast to studies on intramuscular prophylaxis and suggest that oral

	Public hospitals <i>n</i> = 49	Private hospitals <i>n</i> = 13	Birthing centres <i>n</i> = 24	Total <i>n</i> = 86
Midwives recommended prophylaxis				
Discussed, without recommendation	4 (8)	1 (8)	8 (33)	13 (15)
Recommend prophylaxis to parents	45 (92)	12 (92)	16 (67)	73 (85)
Regimen recommended				
Swiss official regimen	47 (96)	13 (100)	17 (71)	77 (90)
Other regimens	2 (4)	0 (0)	4 (17)	6 (7)
(No answer)	0 (0)	0 (0)	3 (13)	3 (3)
Parents refused prophylaxis				
Never	8 (16)	4 (31)	1 (4)	13 (15)
Once a year	25 (51)	6 (46)	6 (25)	37 (43)
Several times a year	11 (22)	2 (15)	13 (54)	26 (30)
Once a month	1 (2)	1 (8)	1 (4)	3 (3)
Several times a month	1 (2)	0 (0)	0 (0)	1 (1)
(No answer)	3 (6)	0 (0)	3 (13)	6 (7)
Parental refusal in last 10 years				
Greatly decreased	10 (20)	1 (8)	4 (17)	15 (17)
Slightly decreased	5 (10)	7 (54)	2 (8)	7 (8)
Remained stable	26 (53)	1 (8)	11 (46)	44 (51)
Slightly increased	4 (8)	0 (0)	1 (4)	6 (7)
(No answer)	4 (8)	4 (31)	6 (25)	14 (16)

TABLE 1 Responses to vitamin K prophylaxis survey, presented as numbers and percentages

vitamin K administration may increase its overall parental acceptance. This could keep the population-wide prophylaxis failure low, including in infants with cholestasis.

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CONFLICT OF INTEREST

The authors have no conflicts of interest to report.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.