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Training Intervention on TB Knowledge Among Lesotho Village Health Workers

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Abstract

The role of Village Health Workers (VHW) is to educate communities about tuberculosis (TB) and its causes, conduct TB screening, and directly observe the treatment of TB. The knowledge of TB among VHWs is crucial because it impacts not only their work at the community level but also the overall outcome of TB treatment. The study is aimed at assessing the training intervention on TB knowledge among Lesotho VHWs. This aim is achieved by comparing VHWs' TB knowledge before and after the training. The study used mixed methods design with a quantitative approach. Three study populations were interviewed, two at the household level and one at the clinic level. The third study population was made up of VHWs, serving in the selected clinics. Open Development Kit (ODK) was used to administer a structured questionnaire. Statistical Package for Social Sciences (SPSS) was used for data analysis. Ethical approval was granted by the National Ethics and Review Board of the Ministry of Health (MOH). The mean scores of overall knowledge of TB in all the 9 measures used to assess VHWs' TB knowledge increased from 44.63% at baseline to 61.84% post-intervention. This result implies a positive impact of the intervention strategy, although adequate knowledge, indicated by an overall post-intervention score of 31.50 (75%) was not achieved. It was concluded that household members have inadequate knowledge about TB causes that is seen to be a direct cause from VHWs who lacked such knowledge.

Keywords: Tuberculosis (TB) Knowledge, Village Health Workers. Evaluation training

Background

Worldwide, VHWs are expected to promote good health practices in the community, through health education on topics of concern in the country (Bedelu et al. 2007:176; MOHSW, 2003: 33; Rigodon *et al.*, 2012: 138;

Mwai et al. 2013:7). The most important matters of concern in Lesotho currently are a failure to meet Millennium Developmental Goals (MDGs) targets for HIV/AIDS, TB, and maternal/child mortality, of which a VHW can play a vital role as part of the community where he/she lives (Perry & Zullinger 2012:26,27; MOHSW, 2011:4, 6; Rachlis *et al.*, 2014:3). For VHWs to provide meaningful education to the community, he/she must have adequate information and knowledge about how to improve health outcomes related to TB (MOHSW, 2003: 33; MOHSW, 2011:4; Rigodon *et al.*, 2012: 138), hence the need to establish a level of knowledge and curriculum for VHWs. It is equally important to determine if VHWs have access to refresher courses to revive their TB knowledge periodically. Formerly, Lesotho had 17 health service areas. Each one had a hospital and several clinics. Each clinic had a certain number of VHWs that served under it, and each had a certain number of villages that they served. Presently, VHWs are part of a key referral system for MOH. This has been recognized by MOH as a service for which they are remunerated.

The criteria used for selection of VHWs are stipulated in MOH and Social Welfare (MOHSW) training manual and is in line with practices in other countries (MOHSW 2011:8; Crigler *et al.* 2011). According to the criteria, a person must be a full-time resident of the village with no other responsibilities. He/she must be elected by the village itself and be literate. He/she should have gone through a 6-week VHW training programme from the MOH and must attend refresher courses as provided (Crigler *et al.* 2011; Rachlis et al. 2014:3). He/she must be in good health and be an adult between the ages of 25-70 years. VHWs must have the following attributes: be a dedicated, trainable, and respected member of the community. He/she must be a person who maintains confidentiality and can work on a voluntary basis (MOHSW 2011:8; Rachlis et al. 2014:3). In Lesotho, VHWs are seen as members of the primary health care team, and they are trained and supervised by a nurse from the nearby clinic or health centre (Crigler *et al.* 2011; Kumar. *et al.* 2014:10). He/she serves as a link between the community and primary health care facility (MOHSW 2011:14).

According to MOHSW (2011: 9), VHWs operate through home visits, small group discussions, and community gatherings. He/she assists the village in developing and maintaining safe water supply and sanitation (Kumar. *et al.* 2014:10). He/she must identify village health needs and facilitates the use of village health resources to meet these needs (WHO, 2010:45). He/she must assist the health centre team in controlling disease outbreaks and assist the chief with vital statistics (births and deaths registration). He/she must promote good nutrition and must recognize, manage, and organize follow-up for under-nourished children (Kumar. *et al.* 2014:10). He/she is expected to promote maternal and child health care, including antenatal care, PMTCT, skilled deliveries, postnatal care, child care, family planning, and follow-up of clients and defaulters (PIH, 2011:5). He/she identifies and provides initial treatment of diseases such as diarrhoea and vomiting (Kumar. *et al.* 2014:11). He/she recognizes, refers, and organizes follow-up of HIV/AIDS, TB, and leprosy patients (Khabo et al. 2013: 13). He/she provides first aid and home-based care. He/she must participate in health centre meetings. He/she keeps patient records and reports monthly activities to the health centre nurse. He/she cooperates with the development of extension workers (Kumar. *et al.* 2014:11; Rachlis et al. 2014:3).

An in-depth analysis of community health workers (CHWs) by Perry & Zullinger (2012: 1) found that CHWs work under varied conditions and have a wide range of work environments and expectations. There are disparities in the time taken to train CHWs, where some have only a few days of training, while others have six months or more of training. Training of VHWs in Lesotho is stipulated in the VHWs training manual by MOH. For someone to qualify as a VHW, he/she must have completed a six-week training using the MOH training manual (MOH 2011; Rachlis et al. 2014:3). Competency of VHW has to be measured and improved through refresher courses on services they are expected to provide (PIH, 2011; Rachlis et al. 2014:3; WHO 2010: 45). Education for CHWs should include training on the more logistical aspects of their jobs, such as household entry, community sensitization, data collection and recording, and relevant ethical issues, mainly on how to maintain confidentiality (Rachlis et al. 2014:9).

In 2003, Lesotho developed an essential service package which specifies the role of VHWs, while in 2011, revitalization of the health services strategy was established. These two strategies clearly specify the role of VHWs. Accordingly, health centre nurses have to provide supportive supervision to VHWs and ensure that records are kept and available for inspection (MOHSW, 2011; Kumar. *et al.* 2014: 13). Partners In Health (PIH) (2011) stipulates the organogram for VHWs, which includes VHW supervisor, VHW coordinator, and Nurse as part of the supervisory structure for VHWs in Lesotho in areas run by PIH. Rachis *et al.* (2014:3) shows that

there is a Community Health Extension Worker (CHEW) whose role is to supervise a group of CHWs. This allows the nurse to focus more on the clinical role and receive reports from the CHW coordinator who is based at the clinic, and whose duties include collating information received from the CHW supervisors and submitting it to the nurse and clinic administrator (PIH, 2014:21). Performance management should be carried out based on a standardized set of skills that correspond with community needs (WHO 2010: 45). The programs should have regular and continuous supervision, and monitoring systems in place and supervision should be taught to be undertaken in a participatory manner that ensures a two-way flow of information (WHO 2010: 45).

Lesotho Demographic and Health Survey (LDHS, 2014) shows that in Lesotho, there is lack of comprehensive knowledge about HIV/AIDS among men and women in the general public, although women have slightly more knowledge than men (39 and 31% respectively). There is a widespread presence of VHWs in all villages in Lesotho. If these VHWs have comprehensive knowledge about HIV/AIDS, they will educate the communities where they live (PIH 2011:10). VHWs should be knowledgeable about HIV/AIDS as diseases, ARVs as a treatment for HIV, side effects, adherence issues, disclosure, stigma, and discrimination (Mwai et al. 2013:7, 8). When communities have comprehensive knowledge about HIV, they will be more likely to cooperate with efforts made to respond to the HIV/AIDS pandemic, such as the "test and treat" strategy (Rachlis et al. 2014:9).

Records submitted by VHWs should have a standardized format, with one copy at the health centre and the other copy remaining with the VHW. WHO (2010) and Rachlis et al. (2014:4) stated that VHWs should be trained in data collection skills. Data collected by VHWs should be transformed into meaningful, interpretable, and comprehensible information that can be shared among the communities (Rachlis et al. 2014:9). This information can also be used for planning purposes by the MOH. However, Kumar et al. (2014:13) states that since there is no Monitoring and Evaluation (M&E) system in place, data collection is often paper-based and not reliable. There should be clear two-way/bidirectional communication across all the systems from VHWs to health centre nurses to district hospitals to the central level, yet Kumar *et al.* (2014:14) iterates that information from VHWs is not monitored by supervisors and is not used to bring necessary impact. The role of District Health Management (DHMT) in information management systems has to be identified as an institution that plays a supervisory role in the health centres. Therefore, for a VHW program to be effective, it needs to be structured with clear supervisory roles and attached to an M&E system for fair remuneration as Lesotho compensates VHWs (MOHSW 2011).

Goal and Objectives

This evaluation study is part of a National Baseline Assessment of the TB and HIV/AIDS Knowledge Among Lesotho Village Health Works and the Communities They Serve. It was commissioned by the Lesotho Ministry of Health, and its main goal is to assess the effectiveness of a training intervention on TB knowledge amongst VHWs in Lesotho. The objectives were addressed by comparing TB knowledge before and after the intervention and the utilization of VHWs' services for TB treatment.

Methods and procedures

A representative sample of 19 clinics, covering all districts, was selected using multistage sampling. A TB knowledge assessment tool was administered to all VHWs of the selected clinics. The baseline report on the assessment of TB knowledge among Lesotho VHWs provides details of the sampling procedure for those interested in the details. Data collection took place between September and October 2016 for the baseline phase and in 2017 for the evaluation phase. An estimate of the number of households to be covered in the study was established using statistical methods. Households were used as sampling units for soliciting information about the utilization of VHWs' services. The estimated number of households was distributed proportionally to the ten districts of the country. The allocation for the district was further distributed among the selected sample clinics.

To measure knowledge, summary variables were computed based on the collected information. To assess knowledge, the respondent was asked to list all known modes of TB transmission and methods of prevention. The research assistant made a tick against those mentioned by the VHW from the master list. When the respondent mentioned all known responses, unknown responses would be left without a tick. For data capturing

purposes, the ticks were given a code of 1 while those without a tick were given a code of 0. By adding together all responses from one question (ex: modes of TB transmission), a summary measure was computed. For the mode of TB transmission, the value of the summary measure would range from 0 indicating no known modes of TB transmission to 6 where all 6 modes of TB transmission were known by the VHW. Master lists of the modes of TB transmission, methods of TB prevention, and signs that someone might be suffering from TB were taken from the listing in the VHW training manual.

To assess the adequacy of knowledge, Nachega, Lehman, Hlatshwayo et al. (2005)'s definition of adequate knowledge was used. According to this definition, at least 75% of listed modes should be known for a VHW to be considered as possessing adequate knowledge. Ethical clearance was secured from the Lesotho Ministry of Health.

The intervention was implemented in 2018 in all of the 19 clinics. It was done through training of the VHWs, specifically on TB for a period of five days. It was designed to align with national health priorities and the needs of the VHWs, which were explored in the first phase of the study. The curriculum encompassed the following TB topics: signs that someone has TB, predisposing factors for TB infection, and measures that can be taken to prevent the spread of TB and MDR-TB. This curriculum was developed by updating the existing Lesotho VHWs training manual of 2011 to include new relevant topics, such as the Code of Ethics for VHWs, how to contact public gatherings, and talking points at the end of every chapter for VHWs use for public gatherings. In this way, we seek to ensure that the curriculum covered material necessary to understand each topic and would help VHWs meet the needs of their communities and improve their TB knowledge.

The results and discussion

Characteristics of Household Members

In total, 2040 households were visited during the 2016 baseline survey with a population of 8295 individuals. During the evaluation, a total of 3654 households and a household population of 13,385 were covered. Regarding the profile of household members, more than a third (37% and 34.6% for 2016 and 2018 respectively) of household members were children while grandchildren constituted 17% in 2016 and 16% in 2018. More than half (52% for 2016 and 53% for 2018) were females. Forty-two percent (42%) of the household members were aged less than 20 years, while 13% were aged 60 years and above (Table 1.1). Comparable figures for 2018 were 38% for age less than 20 and 13% for 60 years and above. About a fifth (17%) of the members were absent from the household in 2016 while 82% were present. A similar situation prevailed in 2018, with 18.9% absent and 79.7% present. More than half (54% for 2016 and 50.1% for 2018) of household members had completed the primary level of education. A quarter (25%) had completed secondary education or more in 2016 compared to a third (30.9%) in 2018. Less than forty percent (38%) of household members were never married compared to 47% and 16% of currently married and previously married respectively for 2016. Comparative figures for 2018 were 33.2%, 50.1%, and 16.6% respectively, for never married, currently married, and previously married (Table 1.1).

Table 1.1: Characteristics of the Household Population

Characteristic	Category	2016		2018	
		Percent	N	Percent	N
Relationship to Head	Head	23.7	1970	27.3	3656
	Spouse	12.4	1031	12.9	1720
	Child	37.0	3068	34.6	4618
	Son/Daughter in law	1.9	156	2.1	274
	Grandchild/great grandchild	16.8	1391	16.1	2145
	Other relative	6.4	535	6.2	826
	Other person not related	1.6	132	0.9	126
	No response	0.1	12	0.0	2

Sex	Male	47.8	3963	47.3	6337
	Female	52.2	4326	52.7	7052
	No response	0.1	6	0.0	0
Age	00-10	18.8	1559	17.1	2281
	10-19	22.9	1902	21.3	5846
	20-29	16.1	1338	16.3	2181
	30-59	24.7	2046	26.8	3574
	60+	13.2	1095	12.5	1675
	Age not stated	4.3	355	6.0	799
Residential Status	Present	81.8	6786	79.7	10669
	Visitor	0.6	49	0.4	52
	Member elsewhere in Lesotho	9.2	761	11.7	1570
	Member outside Lesotho	8.2	681	8.0	1069
	Do not know	0.1	6	0.1	8
	No response	0.1	12	0.1	8
Marital Status	Never married	37.8	2162	33.2	3164
	Currently married	46.7	2669	50.1	4787
	Previously married	15.5	884	16.6	1588
Level of Education	Pre-school	3.3	273	3.2	434
	Primary	54.1	4489	50.7	6773
	Secondary and above	25.0	2077	30.9	440
	Other	0.2	14	0.0	0
	Do not know	0.5	44	0.6	81
	Aged less than 5/no response	16.9	1398	14.5	1936

Characteristics of Village Health Workers

Seven hundred and twenty-three (723) VHWs responded to the VHW questionnaire in 2016 compared to 718 in 2018. The age distribution of VHWs is bell-shaped for both 2016 and 2018. For 2016 figures, it increased from a low of 18% for those aged less than 40 years and reached a peak of 28% for those aged between 50 and 59 years (Table 1.2). Comparative figures for 2018 are 17.0% and 32.3% respectively for age less than 40 and age 50-59. According to 2016 figures, almost all VHWs were females (93%); while the majority (64%) are currently married and a third (33%) were previously married. Corresponding figures for 2018 are similar with 95.1% of VHWs being female, 65.1% currently married, and 34% previously married. For both 2016 and 2018, more than two thirds (77% for 2016 and 74.7% for 2018) of the VHWs had completed primary education, and a fifth had completed secondary education or higher (21.2% for 2016 and 24.0% for 2018) (Table 1.2).

Table 1.2: Profile of Village Health Workers

Characteristic	Category	2016		2018	
		Percent	N	Percent	N
Sex	Male	6.6	48	4.9	35
	Female	93.2	676	95.1	683
	No response	0.1	1	0.0	0
Age	<40	18.0	130	17.4	125
	40-49	25.4	184	22.6	162
	50-59	28.1	203	32.3	232

	60-69	22.8	165	24.9	179
	70+	5.2	38	2.8	20
	No response	0.4	3	0.0	0
Marital Status	Never married	2.2	16	0.8	6
	Currently married	64.4	466	65.2	436
	Previously married	33.2	240	34.0	244
	No response	0.1	1	0.0	0
Education	No education	1.2	9	1.4	10
	Primary	77.5	560	74.7	536
	Secondary or higher	21.2	153	24.0	172
	No response	0.1	1	0.0	0

Comparison of VHWs TB Knowledge before and after training

The mean scores of overall knowledge of TB in all the 9 measures used to assess VHWs' TB knowledge increased from 16.96 (44.63%) at baseline to 23.36 (61.84%) post-intervention (Table 1.3). This result implies a positive impact of the intervention strategy, although adequate knowledge, indicated by an overall post-intervention score of 31.50 (75%) was not achieved. However, there were disparities across the indicators. "Signs that someone has TB" was the only indicator that reached adequate knowledge post-intervention, with a score of 4.07 (81.40%). This was an improvement of 15.8 percentage points. The indicators "Importance of TB treatment" (71.00%), "What may be observed after completion of TB treatment" (70.25%), and "Role of VHW in the Prevention of the Spread of TB" (71.33%) were all less than 5% short of achieving adequate knowledge. These indicators showed an improvement of 9.33-18.00 percentage points. However, indicators such as "Predisposing factors for TB infection" (52.67%), "Side effects of MDR-TB drugs" (50.62%), and "Role of the VHW in the treatment of TB" (50.71%) were all over 20% away from achieving adequate knowledge in the post-intervention phase (Table 1.3). Although, these indicators did show a 12.71-22.24 percentage-point improvement. It is assuring that the indicator with both the lowest baseline and post-intervention scores, "Side effects of MDR-TB drugs," also had the greatest improvement in score, a 22.24 percentage-point difference (baseline 28.28%, post-intervention 50.62%). Furthermore, all indicators reached statistically significant improvement from baseline to post-intervention scores. Generally, these summaries suggest that the intervention has had a significant effect on overall knowledge of TB amongst the VHWs in Lesotho.

Table 1.3: Summary Knowledge for TB among VHWs

Knowledge Summary Measure of:	Mean (%)			Adequate Score (75%)
	2016	2018	Sig level	
Signs that someone has TB	3.28 (65.60)	4.07 (81.40)	p<0.001	3.75
Predisposing factors for TB infection	2.30 (38.33)	3.16 (52.67)	p<0.001	4.50
Measures that prevent spread of TB infection	2.22 (55.50)	2.72 (68.00)	p<0.001	3.00
Side effects of TB drugs	2.78 (34.75)	4.53 (56.63)	p<0.001	6.00
Side effects of MDR-TB drugs	2.27 (28.38)	4.05 (50.62)	p<0.001	6.00
Importance of TB treatment	1.71 (57.00)	2.13 (71.00)	p<0.001	2.25
What may be observed after completion of TB treatment	2.41 (60.25)	2.81 (70.25)	p<0.001	3.00
Overall TB Knowledge	16.96 (44.63)	23.36 (61.84)	p<0.001	28.50

Role of VHW in the Prevention of the Spread of TB	1.86 (62.00)	2.14 (71.33)	p<0.001	2.25
Role of the VHW in the treatment of TB	2.66 (38.00)	3.55 (50.71)	p<0.001	5.25
Overall knowledge of the role of VHWs in TB treatment	4.52 (45.20)	5.69 (56.90)	p<0.001	7.50

Notes: N denotes number of responses used to compute the summary measure. Expected mean is based on Nachega, Lehman, Hlatshwayo et al. (2005)'s definition of adequate knowledge.

Utilization of VHWs' Services for TB Treatment

When asked who assisted household members with TB treatment initiation, the household head reported that a third (34.9%) of those diagnosed with TB were helped by the VHW (Figure 1.1). Among household members aged 15 years and above (self-reported), more than a third (36.9%) reported that they were advised by the VHW to go for TB screening (Figure 1.2). Both reports (household head reporting on treatment initiation assistance and self-reporting on screening assistance) were similar in terms of the utilization of VHW services, which is estimated at around 33%. According to VHWs during validation workshops, members of the community continue to be secretive about the disease, while other members of the community believe TB is caused by witchcraft. This might explain a high percentage of villagers not seeking help from the VHW.

Figure 1.1: Percentage that Received Help from VHW for TB Treatment

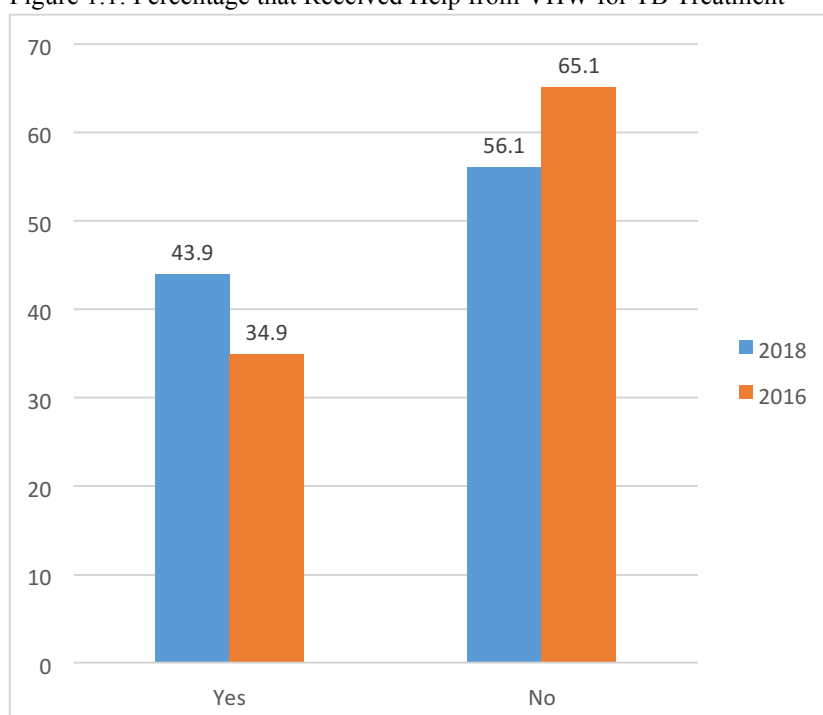
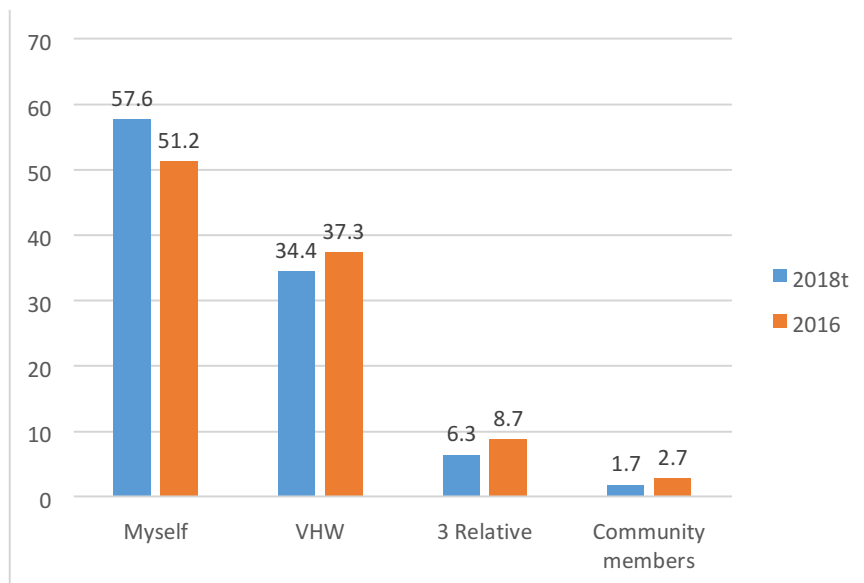


Figure 1.2: Percentage that Received Help from VHW for TB Screening



Conclusion and recommendations

VHWs attained a mean score that was lower than the expected mean in all of the indicators for them to qualify as having adequate knowledge. It was only with respect to the signs that someone has TB where they achieved adequate knowledge, with a post-intervention score of 81.40%. Similar findings were noticed about TB and its treatment. VHWs with knowledge about TB and who knew their role in TB passed knowledge to the household members. This was demonstrated by a large number of household members reporting that they were referred by VHW for TB screening and a high percentage on TB treatment as a result of the VHW. In one clinic, household heads acknowledged that they were advised by the VHW to get TB treatment. In the same clinic, 8 in 10 household members reported that they were helped by the VHW to go for TB screening. Generally, these summaries suggest that the intervention had a significant effect on overall knowledge of TB amongst the VHWs, as improvements in knowledge scores were seen across all the measures used to assess VHWs' TB knowledge. All of these changes in knowledge were statistically significant ($p < 0.001$). Therefore, the training intervention was effective in increasing TB knowledge among Lesotho VHW and the communities they serve.

VHWs can clearly contribute to the treatment of TB service delivery and strengthening human resource capacity in Lesotho at the village level. For their contribution to be sustained, VHWs need to be trained regularly, specifically on their roles in the community, TB symptoms, transmission, prevention, and treatment. Since VHWs work with councillors and chiefs, it is also critical for these individuals to be trained on the role of the VHW in TB treatment.

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