

Effectiveness of Using Smartphone Applications to Advocate HIV Screening

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Abstract

Smartphone applications (apps) are quickly becoming the new social media for people seeking friends and sexual partners in recent years, and thus creating a high risk social environment of getting sexually transmitted diseases. In response to the rising trend of new HIV infections among young people and to enhance the advocacy of HIV testing, we use the social app that is popular for men who have sex with men (MSM) and heterosexual group to promote HIV testing information. We used an HIV testing questionnaire to evaluate that whether the new media strategy would encourage the high-risk group to receive HIV testing, and compare testing numbers, testing rate and testing positive rate among the MSM and heterosexual group. During the study period, the web-page viewers increased substantially, and the intervention group's HIV testing number is higher than non-intervention group; the HIV testing rate between MSM 's intervention and non-intervention were 2.78% and 1.96% ($p = 0.046$), and the positive rate were 2.83% and 4.47% ($p = 0.004$) respectively; while the HIV testing rate between the heterosexual's intervention and non-intervention were 0.14% and 0.12% ($p = 0.409$), and the positive rate were 0.46% and 0.63% ($p = 0.281$), respectively. Overall, the positive rate of HIV testing among MSM is higher than heterosexual.

The use of the social app to advocate HIV testing and health promotion can reach to the target population indeed. We recommend continued use of this innovative technology to provide HIV prevention messages instantly and more diversely, hoping to improve people's HIV prevention knowledge and ability.

Keywords: HIV/AIDS prevention, HIV testing, New media, Smartphone applications

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Sex Health Knowledge and HIV Prevention among Teenagers in Eastern Taiwan

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Abstract

The aim of this study was to describe the current status of knowledge and attitude toward sex and prevention of Human Immunodeficiency Virus (HIV) among teenagers in Eastern Taiwan. Total 2,224 third-year junior high school students (male 51%) from 50 schools in Hualien and Taitung responded to a structured questionnaire. Among the respondents, 84.5% reported that their knowledge on sex mainly came from school curriculum, and 74.2% consulted their peers when they have sex-related questions. Regarding their attitude towards sex, 77.9% were confident that they would use condoms when having sex but only 37.6% felt comfortable when buying condoms. We also found that 81.3% respondents knew that HIV would not be transmitted through daily physical contact, but 23.5% were not clear about how to reduce the risk of HIV infection; 59.4% were willing to attend the same classes with HIV carriers; and 52% reported that they knew where to seek for HIV testing. These results showed that HIV/AIDS educational programs regarding disease pathogen, transmission, and prevention were well introduced to high school students in Eastern Taiwan; however, safe sexual behavior, social empathy towards HIV carriers and practical HIV information need to be further strengthened in education and promotion.

Keywords: Teenager, HIV/AIDS, Sex knowledge, Questionnaire

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Numbers of New Cases and Cumulative Cases of Notifiable Infectious Diseases (by week of diagnosis)

Case diagnosis week		Week 46		Week 1–46	
Classification	Disease Diagnosed ¹	2016	2015	2016	2015
Category I	Plague	0	0	0	0
	Rabies	0	0	0	0
	SARS	0	0	0	0
	Smallpox	0	0	0	0
Category II	Acute Flaccid Paralysis	0	0	36	19
	Acute Viral Hepatitis type A	24	9	1007	132
	Amoebiasis	8	7	282	318
	Anthrax	0	0	0	0
	Chikungunya Fever	0	0	9	4
	Cholera	0	0	11	10
	Dengue Fever	9	2853	768	36914
	Diphtheria	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	0	0
	Epidemic Typhus Fever	0	0	0	0
	Hantavirus Pulmonary Syndrome	0	0	0	0
	Hemorrhagic Fever with Renal Syndrome	0	0	3	2
	Malaria	0	0	14	9
	Measles	0	0	13	29
	Meningococcal Meningitis	0	0	6	3
	Paratyphoid Fever	0	1	5	6
	Poliomyelitis	0	0	0	0
	Rubella	0	0	4	6
Shigellosis	4	2	196	164	
Typhoid fever	0	1	7	27	
West Nile Fever	0	0	0	0	
Category III	Acute Viral Hepatitis type B	2	0	97	108
	Acute Viral Hepatitis type C ⁵	2	5	176	192
	Acute Viral Hepatitis type D	0	0	1	2
	Acute Viral Hepatitis type E	0	2	15	4
	Acute Viral Hepatitis untype	0	1	0	2
	Congenital Rubella Syndrome	0	0	0	0
	Enteroviruses Infection with Severe Complications	3	0	30	5
	Haemophilus Influenza type b Infection	0	0	14	2
	Japanese Encephalitis	0	0	23	30
	Legionellosis	6	1	103	153
	Mumps ²	13	9	554	693
	Neonatal Tetanus	0	0	0	0
	Pertussis	0	1	18	84
	Tetanus ²	0	0	10	10
Category IV	Botulism	0	0	5	2
	Brucellosis	0	0	0	2
	Complicated Influenza	24	5	1979	816
	Complicated Varicella ⁴	0	0	37	47
	Endemic Typhus Fever	0	1	13	31
	Herpesvirus B Infection	0	0	0	0
	Invasive Pneumococcal Disease	13	6	515	456
	Leptospirosis	6	0	113	78
	Lyme Disease	0	0	2	2
	Melioidosis	0	2	43	37
	Q Fever	0	2	42	43
	Scrub Typhus	15	20	441	434
	Toxoplasmosis	0	0	8	11
	Tularremia	0	0	0	0
Category V	Ebola Virus Disease	0	0	0	0
	Ebola-Marburg Hemorrhagic Fever	0	0	0	0
	Novel Influenza A Virus Infections ⁶	0	0	0	0
	Lassa Fever	0	0	0	0
	Rift Valley Fever	0	0	0	0
	Middle East Respiratory Syndrome Coronavirus	0	0	0	0
Yellow Fever	0	0	0	0	

1. The following 8 chronic diseases are excluded from the table: MDR-TB, Tuberculosis, Syphilis, Gonorrhoea, HIV Infection, AIDS, Hansen Disease and Creutzfeldt-Jakob Disease.
2. Reported cases.
3. Since 2014/1/1, "Varicella" was modified to "Complicated Varicella".
4. Since 2014/3/6, the case definition for confirmed Acute hepatitis C was changed from "meet the clinical and laboratory conditions" to "meet the clinical or laboratory conditions".
5. Since 2014/7/1, various subtypes of human cases of avian influenza are reported as "novel influenza A virus infections", a Category V Notifiable Infectious Disease. The original "H5N1 flu" and "H7N9 flu", which were respectively listed as a Category I Notifiable Infectious Disease and a Category V Notifiable Infectious Disease were removed from the list on the same day.
6. Since 2016/1/22, "Zika Virus Infection" was listed as a Notifiable Infectious Disease.

Suspected Clusters

- Twenty-six clusters were reported, including 12 diarrhea clusters, 6 upper respiratory tract infection clusters, 5 tuberculosis clusters, and 3 influenza-like illness clusters.

Imported Infectious Diseases

- 18 confirmed cases were imported from 7 countries during Week 46 of 2016.

Country Disease	Indonesia	Myanmar	Philippines	Vietnam	Malaysia	Laos	Korea	Total
Dengue Fever	3	2	2	2	1			10
Amoebiasis	3						1	4
Shigellosis	3							3
Hepatitis A						1		1
Total	9	2	2	2	1	1	1	18

Note: The statistics listed in this table include imported cases that were either confirmed or updated* in the previous week.

- A total of 720 confirmed cases were imported from 37 countries in 2016.
- Top 3 imported diseases : Dengue fever (328), Amoebiasis (144), Shigellosis (89).
- Top 3 countries responsible for most imported cases : Indonesia (304), Philippines (87), Thailand (66)

Summary of Epidemic

- **Influenza** : Since the northeast monsoon has become prevalent, the recent temperature has dropped. As a result, influenza activity is expected to gradually increase. H3N2 is currently the dominant strain circulating in the community.
- **Enterovirus** : The epidemic has slowed down. Coxsackie A virus is currently the dominant strain circulating in the community. Sporadic cases of enterovirus 71 infection have been recently confirmed. This year, a total of 163 cases of enterovirus 71 infection, including 23 severe cases and 140 mild cases, have been confirmed. The public is urged to enhance personal hygiene and stay vigilant for suspicious symptoms of enterovirus infection with severe complications in infants.
- **Dengue Fever** : Imported cases have continued to be reported. As the recent temperature in southern Taiwan ranges between 25°C and 30°C, the mosquito activity remains high. The public is urged to clean up and remove any vector breeding sites and take prevention measures against mosquito bites.
- **Zika Virus Infection** : The epidemic has continuously increased in Southeast Asian countries, elevating the risk of importing Zika virus into Taiwan from these countries.

Numbers of New Cases and Cumulative Cases of Notifiable Infectious Diseases (by week of diagnosis)

Case diagnosis week		Week 47		Week 1—47	
Classification	Disease Diagnosed ¹	2016	2015	2016	2015
Category I	Plague	0	0	0	0
	Rabies	0	0	0	0
	SARS	0	0	0	0
	Smallpox	0	0	0	0
Category II	Acute Flaccid Paralysis	0	0	36	19
	Acute Viral Hepatitis type A	23	3	1030	135
	Amoebiasis	4	8	286	326
	Anthrax	0	0	0	0
	Chikungunya Fever	0	0	9	4
	Cholera	0	0	9	10
	Dengue Fever	7	2330	775	39244
	Diphtheria	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	0	0
	Epidemic Typhus Fever	0	0	0	0
	Hantavirus Pulmonary Syndrome	0	0	0	0
	Hemorrhagic Fever with Renal Syndrome	0	0	3	2
	Malaria	0	0	14	9
	Measles	0	0	13	29
	Meningococcal Meningitis	1	0	7	3
	Paratyphoid Fever	0	0	5	6
	Poliomyelitis	0	0	0	0
	Rubella	0	0	4	6
	Shigellosis	6	4	202	168
Typhoid fever	0	0	7	27	
West Nile Fever	0	0	0	0	
Category III	Acute Viral Hepatitis type B	3	2	100	110
	Acute Viral Hepatitis type C ⁵	4	4	180	196
	Acute Viral Hepatitis type D	0	0	1	2
	Acute Viral Hepatitis type E	0	0	15	4
	Acute Viral Hepatitis untype	0	0	0	2
	Congenital Rubella Syndrome	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	0	30	5
	Haemophilus Influenza type b Infection	0	0	14	2
	Japanese Encephalitis	0	0	23	30
	Legionellosis	2	3	105	156
	Mumps ²	9	20	563	713
	Neonatal Tetanus	0	0	0	0
	Pertussis	0	1	18	85
	Tetanus ²	0	0	10	10
Category IV	Botulism	0	0	5	2
	Brucellosis	0	0	0	2
	Complicated Influenza	21	4	2000	820
	Complicated Varicella ⁴	0	0	37	47
	Endemic Typhus Fever	1	1	14	32
	Herpesvirus B Infection	0	0	0	0
	Invasive Pneumococcal Disease	14	9	529	465
	Leptospirosis	2	2	115	80
	Lyme Disease	0	0	2	2
	Melioidosis	2	0	45	37
	Q Fever	1	0	43	43
	Scrub Typhus	11	16	452	450
Toxoplasmosis	2	0	10	11	
Tularremia	0	0	0	0	
Category V	Ebola Virus Disease	0	0	0	0
	Ebola-Marburg Hemorrhagic Fever	0	0	0	0
	Novel Influenza A Virus Infections ⁶	0	0	0	0
	Lassa Fever	0	0	0	0
	Rift Valley Fever	0	0	0	0
	Middle East Respiratory Syndrome Coronavirus	0	0	0	0
Yellow Fever	0	0	0	0	

1. The following 8 chronic diseases are excluded from the table: MDR-TB, Tuberculosis, Syphilis, Gonorrhoea, HIV Infection, AIDS, Hansen Disease and Creutzfeldt-Jakob Disease.
2. Reported cases.
3. Since 2014/1/1, "Varicella" was modified to "Complicated Varicella".
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5. Since 2014/7/1, various subtypes of human cases of avian influenza are reported as "novel influenza A virus infections", a Category V Notifiable Infectious Disease. The original "H5N1 flu" and "H7N9 flu", which were respectively listed as a Category I Notifiable Infectious Disease and a Category V Notifiable Infectious Disease were removed from the list on the same day.
6. Since 2016/1/22, "Zika Virus Infection" was listed as a Notifiable Infectious Disease.

Suspected Clusters

- Twenty-seven clusters were reported, including 17 diarrhea clusters, 4 upper respiratory tract infection clusters, 3 varicella clusters, 2 tuberculosis clusters, and 1 fever of unknown origin cluster.

Imported Infectious Diseases

- 12 confirmed cases were imported from 5 countries during Week 47 of 2016.

Country Disease	Vietnam	Philippines	Indonesia	China	Myanmar	Total
Dengue Fever	3	1			1	5
Shigellosis	2		1			3
Amoebiasis	1	1	1			3
Scrub Typhus				1		1
Total	6	2	2	1	1	12

Note: The statistics listed in this table include imported cases that were either confirmed or updated* in the previous week.

- A total of 731 confirmed cases were imported from 37 countries in 2016.
- Top 3 imported diseases : Dengue fever (333), Amoebiasis (147), Shigellosis (92).
- Top 3 countries responsible for most imported cases : Indonesia (306), Philippines (89), Thailand (66).

Summary of Epidemic

- **Influenza** : Since the northeast monsoon has become prevalent, the recent temperature has dropped. As a result, influenza activity is expected to gradually increase. H3N2 is currently the dominant strain circulating in the community.
- **Enterovirus** : The epidemic has occurred continuously in the community. Coxsackie A virus is currently the dominant strain circulating in the community. Sporadic cases of enterovirus 71 infection have been recently confirmed. Thus far this year, a total of 163 cases of enterovirus 71 infection, including 23 severe cases and 140 mild cases, have been confirmed. The public is urged to enhance personal hygiene and stay vigilant for suspicious symptoms of enterovirus infection with severe complications in infants.

- **Dengue Fever** : Imported cases have continued to be reported. The recent temperature in southern Taiwan has contributed to the continuing mosquito activity. A cluster of dengue cases has been recently confirmed in Taipei City. The public is urged to clean up and remove any vector breeding sites and take prevention measures against mosquito bites.
- **Zika Virus Infection** : The epidemic has continuously increased in Southeast Asian countries, elevating the risk of importing Zika virus into Taiwan from these countries.

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