

e-shopping: availability on internet of selftests, especially for STI/HIV diagnosis



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Unsupervised

Supervised self-testing where part of the self-test distribution or assistance was offered by counsellors or provided at visible testing centers

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Self- or home tests: **new trend?**



Self- or home tests: new trend?

Lessons to be learned from the **history of home pregnancy tests**



"I wonder if I'm pregnant"

New ACU-TEST gives you the answer. At home... in two hours.

Now there's an easy way to find out if you're pregnant. ACU-TEST is a safe and simple at-home test for pregnancy that requires no internal examination. In tests by hundreds of women in their own homes, ACU-TEST's pregnancy readings proved to be 97% accurate.

You can clearly see the results of your ACU-TEST in just 2 hours. The appearance of a dark ring in the mirror at the base of the ACU-TEST kit indicates that you're pregnant. If the result of your ACU-TEST shows you're not pregnant, and you do not start menstruating in 3 week's time, you need to use a new ACU-TEST. If your period has not started after a second negative reading, consult your doctor.

The sooner you know if you're pregnant, the sooner you can begin to take proper care of yourself. ACU-TEST. Clinically tested. At your drugstore now.



Self- or home tests: new trend?

Lessons to be learned from the **history of home pregnancy tests**

- ✓ Emerged in 1972 at NIH, USA
- ✓ Initial public concerns:
 - ✓ Fear of **promiscuity** increase
 - ✓ **Less likelihood** that pregnant women will **seek healthcare**



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- ✓ Actual distribution in late 70-s/early 80-s
- ✓ **Rapid access** to highly sensitive and **personal** information
- ✓ **Early confirmation** of pregnancy → opportunity to **seek healthcare** services **earlier**

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Home pregnancy tests have **raised awareness** about prenatal care in users and have given women **more power to influence** the healthy development of their babies

Home pregnancy tests have become **one of the most popular products** for home diagnostic testing

Self- or home tests: new trend in infectious diseases?



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Author	Participants (size, gender)	Country	Type of test	Test producent
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Ibitoye M. et al. AIDS behav 2014 Dec;18(12): 933-49;

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Self- or home tests: new trend in infectious diseases?

Lessons to be learned from the use of blood tests for malaria self-diagnosis

- Able to perform the test: 68%
- Unable to perform the test:
 - 87% could not interpret the test result
 - 71% could not obtain a blood sample
 - 58% could not identify the bands
 - 39% did not wait the indicated amount of time
 - 26% could not properly place the blood specimen on the test

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- Able to perform the test: 83%
 - 90% among those who got oral and written instructions; 8% considered the test impossible to perform
 - 75% among those who got only written instructions; 25% considered the test impossible to perform
- Trouble obtaining blood sample: 67%
 - Only 7.5% could not perform test because of this

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- Able to perform the test: 89%
 - 75% thought the instructions were easy to follow; 84% thought results were easy to read
- Unable to perform the test:
 - 25% could not obtain a blood sample
 - 19% insufficient blood
 - 25% could not read the test result

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From the point of view of individual user

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- ✓ Anonymity
- ✓ Time-savings
- ✓ Convenience
- ✓ 24/7 availability

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From the point of view of healthcare provider

- ✓ Decrease of HIV-infected people unaware of their infection
 - ✓ Estimated that ~ 18-20% of HIV-infected people in USA are unaware of their serostatus
- ✓ Increase opportunities for HIV-infected individuals to enter care and adopt behaviours reducing further transmission
→ integration of home testing as part of the combined diagnostic strategy in National AIDS/HIV plans of several countries including Belgium



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July 2012: US Food and Drug Administration approved the first home HIV test, the OraQuick In-Home HIV Test (OraSure Technologies, Inc., USA)

April 2014: selling and advertising HIV selftests became legal in UK



Koval CE. Cleve Clin J Med 2012 Oct;79(10):713-6;
Spielberg F. et al. Lancet Infect Dis 2004 Oct;4(10):640-6;
Campbell S. et al. J Clin Microbiol 2006 Oct;44(10):3473-6;
HIV Plan Belgium <http://www.breach-hiv.be/media/docs/HIVPLan/NationalPlanEng.pdf>

Self- or home tests: why would we do not want to use them for HIV/STI testing?

Self- or home tests: why would we **do not** want to use them for HIV/STI testing?

From the point of view of individual user

- ✓ **Unable to perform, instructions not clear**
 - ✓ Improvement in home test instructions tailoring to languages and levels of literacy for test conduct and interpretation reduce the incidence of **errors**
- ✓ **Unable to pay for**
 - ✓ Low-resource settings prefer free home tests
 - ✓ High-resource setting were willing to pay up to ~20\$
 - ✓ **Spain: 18% would pay \geq 30 Euro; 40% would pay \geq 20 Euro**

The **price** of home test is an important factor determining its uptake

Rosales-Statkus ME. et al. Enferm Infecc Microbiol Clin 2014 May;32(5):302-5;

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From the point of view of healthcare provider

- ✓ **Post-test linkage to care?**
 - ✓ 96% of participants testing positive for HIV stated they would seek post-test counselling
- ✓ **Extreme adverse events (suicide/violence)?**
 - ✓ Not noted
- ✓ **Epidemiology/surveillance?**
- ✓ **Accuracy?**

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Self- or home tests: accurate?

- ✓ **Specificity:** Oral fluid tests have a lower positive predictive value than blood-based tests thus yielding a greater number of false positive results particularly in low prevalence populations
 - ✓ Great concern given the possible psychological effects of falsely thinking one is HIV positive
 - ✓ Potential erosion of the general public's confidence in the test
 - ✓ Increase in confirmatory testing
 - **Emphasize on use of HIV home tests in populations with high HIV prevalence**
- ✓ **Sensitivity:** high variations between the tests applied and application of same tests in different setting
 - ✓ OraQuick: range from 86.7% (France) to 98.7% (Zambia)
 - ✓ Lower sensitivity of oral fluid home tests compared to whole blood home tests
 - ✓ Lower sensitivity of oral fluid home tests in patients under HAART and patients with low HIV viral load

	Sensitivity	95% CI	Specificity	95% CI
OraQuick	87.2%	[81.5–91.3]	98.3%	[91.1–99.7]
DPP	88.3%	[82.7–92.2]	100%	[94–100]
Test A	58.9%	[51.1–66.2]	100%	[94–100]
Test B	28%	[21.3–35.8]	87.5%	[76.4–93.8]
Sure Check	100%	[97.9–100]	100%	[94–100]

Footnote: false negative rates are 12.8%, 11.7%, 41.1%, 72% and 0% for OraQuick, DPP, test A, test B and Sure Check tests, respectively.
doi:10.1371/journal.pone.0101148.t002

Jaspard M. et al. PLoS One. 2014 Jun 27;9(6):e101148;
Pant Pi N. et al. Lancet Infect Dis. 2012 May;12(5):373-80;
Pavie J. et al. Plos One. 2010 Jul 19;5(7):e11581;
Zachary D et al. BMC Infect Dis. 2012 Aug 8;12:183.

Self- or home tests: eHealth

- ✓ Most studies conducted up to now in use and uptake of information on internet are in men who have sex with men (MSM)
- ✓ Rate of new HIV diagnosis among MSM is >40 x that in women and >44 x that in other men
- ✓ MSM represent ~7% of the male USA population and account for 78% of the new HIV infections among men
- ✓ Belgian epidemiological situation:

Figuur 4 | Evolutie van de hiv diagnoses per vermoedelijke overdrachtswijze (1997-2013)



Epidemiologie van AIDS en HIV infectie in België. Toestand op 31 december 2013

<https://www.wiv-isp.be/news/Pages/hivaidrapport2013werd.aspx>

Centers for Disease Control and Prevention today's HIV/AIDS Epidemic

<http://www.cdc.gov/nchstp/newsroom/docs/hivfactsheetsodayepidemic.pdf>

Self- or home tests: eHealth

✓ Web-based videos and education modules

- ✓ Dramatic and/or documentary short video's
 - ✓ 60 days after intervention in the pooled video group MSM were significantly **more likely** than the control group to **report full serostatus disclosure** with their last sexual partner and more likely to **reduce unprotected anal intercourse**
- ✓ Intervention Sexpulse on multicomponent internet sites that targeted high-risk sexual behaviors composed from a risk assessment tool, an online chat simulation and virtual peers
 - ✓ Use of the system successfully **reduced high-risk behavior** in study participants
- ✓ Online interactive HIV prevention program Keep It Up!; was designed to be delivered to young MSM upon receiving an HIV negative test result
 - ✓ Significantly **lower rate of unprotected anal intercourse** at the 12-week follow-up

✓ Repetitive e-mail of SMS messaging

- ✓ Information on HIV and STI on a biweekly basis
 - ✓ No significant findings

✓ E-surveys

- ✓ People tend to be more open and honest while reporting sensitive risk behavior information using computer-based technologies compared to traditional questionnaires



Schnall R. et al. J Med Internet Res. 2014 May;16(5):e134;

Rosser BR. et al. AIDS. 2010 Aug;24(13):2099-107;

Lau JT. et al. AIDS Care. 2008 Aug;20(7):820-8;

Turner CF. et al. Science 1998 May 8;280(5365):867-73.

Self- or home tests: eHealth

✓ Chat Room intervention

- ✓ Chat Room for social and sexual networking among MSM with every 30 minutes posting information on HIV testing and answering questions about testing processes and locations

- ✓ Significant **increase in self-reported HIV testing**

✓ Social Networking Intervention

- ✓ Dissemination on HIV prevention information via popular social networking sites

- ✓ **More likely to have been tested for HIV and consistent use of condoms during anal sex with online sex partners**

eHealth for HIV prevention in **high-risk MSM** has the potential to be effective in the for **reducing HIV risk behaviors** and **increasing testing rates**



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conclusions

- ✓ Home tests provide **privacy, anonymity, time-savings, convenience and 24/7 availability** for individual users
- ✓ For the healthcare providers the dissemination of home testing is expected to **decrease number of HIV-infected patients unaware of their serostatus, link them to care and reduce further transmission**
- ✓ Important bottlenecks for individual users for current tests are **unclear instructions to use and pricing**
- ✓ There are **substantial performance issues** with currently available tests representing generally high specificities especially in high prevalence populations and substantial variability in sensitivities
- ✓ **eHealth interventions are effective in high-risk MSM** in reduction of risk behavior and increase in HIV testing

THERE IS NO
PLACE LIKE
HOME

