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## **Disseminating STI Diagnostics Information: the SDI Web Publication Review Series**

Running title: Web-based STI diagnostics publications reviews

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## Abstract

**Objectives.** The WHO STD Diagnostics Initiative (SDI) web site publication review seeks to provide health care providers in all geographic and economic settings with timely, critical, and concise information concerning new developments in laboratory and field diagnosis of STI.

**Methods.** Since 2003, the web site ([www.who.int/std\\_diagnostics/literature\\_reviews](http://www.who.int/std_diagnostics/literature_reviews)) has disseminated information in the form of annotated abstracts and commentaries on articles covering studies of STI laboratory-based and rapid assays that are commercially available or under development. Articles identified through searches of PubMed, specific journals, and by referrals from Editorial Board members are selected for inclusion if they meet pre-specified criteria. The objectives, methods, results, and conclusions for each article are summarized and Board members are invited to prepare commentaries addressing study design and applicability of findings to end users.

**Results.** Currently, 91 STI diagnostics experts from 17 countries on six continents serve on the Editorial Board. Twelve quarterly issues have been posted that include summaries of 214 original and 17 review articles published from January 2002 through March 2005, with expert commentaries on 153 articles. Interest in the site has increased every year. In 2005, over 36,700 unique visitors from more than 100 countries viewed over 75,000 pages of information.

**Conclusions.** The SDI Publication Review series has the potential to contribute to SDI's goal of improving care for patients with STI by increasing knowledge and awareness of STI diagnostics. Given the proliferation of internet-based STI testing services, this website may be broadened to meet the needs of a wider range of users.

Key words: STI diagnostics, internet web site

## Introduction

The World Health Organization's (WHO) Sexually Transmitted Diseases Diagnostics Initiative (SDI) established a web site ([www.who.int/std\\_diagnostics](http://www.who.int/std_diagnostics)) in 2002 to disseminate information on the development, evaluation, and application of diagnostic tests for sexually transmitted infections (STI) that are appropriate for use in primary health care settings in developing countries. In the same year, WHO, in collaboration with five major journal publishers, launched the Health InterNetwork Access to Research Initiative (HINARI) to allow developing country institutions free access to these journals to bridge the 'digital divide' in health, ensuring that relevant information and the technologies to deliver it are widely available and effectively used by all health personnel including professionals, researchers and scientists, and policy makers. In 2003, the SDI web site added a Literature Review section whose purpose was to provide health care providers in all economic settings, but especially those in resource-limited settings, with timely and concise information about new developments in STI diagnostics reported in peer-reviewed publications.

## Methods

### *Format*

Information on the literature review web site ([www.who.int/std\\_diagnostics/literature\\_reviews](http://www.who.int/std_diagnostics/literature_reviews)) is provided in the form of annotated abstracts or summaries of articles, including original studies and reviews, that evaluate new STI diagnostic assays that are either commercially available or under development. The articles are selected from peer-reviewed journals according to specific criteria.

### *Article identification methods*

Articles are identified through three sources. The Associate Editor conducts PubMed searches using 24 search phrases and considers all the articles in 9 specific journals (Clinical Infectious Diseases, Clinical Microbiology Reviews, Diagnostics Microbiology and Infectious Diseases, European Journal of Clinical Microbiology and Infectious Diseases, International Journal of STD and AIDS, Journal of Clinical Microbiology, Journal of Infectious Diseases, Sexually Transmitted Diseases, Sexually Transmitted Infections). In addition, members of the Editorial Board are asked to propose additional articles for review from journals to which they subscribe.

### *Article selection criteria*

The Associate Editors scrutinize potential articles to determine which meet review criteria. Criteria for selection of articles include:

- publication in a peer-reviewed journal,
- diagnosis of STI in humans,
- participants with and without the STI,
- a diagnostic "gold standard" method used as comparison,
- each participant tested with the test under evaluation and against a diagnostic standard, and
- technicians performing the assays are blinded to the results of other tests.

### *Summaries*

The summaries follow a standard format that includes the article citation, research question, study design, participants, description of tests, diagnostic standard used, main outcome measures, main results, the authors' conclusions, funding sources, and author contact information. Review

articles are summarized but commentaries are not provided. Summaries are posted in quarterly issues, with commentaries posted as they are submitted. Authors are notified when the summary and commentary of their article are posted and an author response is posted, if requested by the author.

#### *Commentary guidelines*

Most original studies are accompanied by a brief commentary written by an expert in STI diagnostics who has been invited to join the Editorial Board. The commentaries address the study design, statistical methods, comparison of the new method to conventional or existing diagnostic methods, the validity of the conclusions, findings from related articles, and applicability of the findings to end users and test developers.

#### *Monitoring of usage and user profiles*

Usage of the website, including search terms, unique visits by page, and the country of origin of visitors are monitored daily using a commercial program. A questionnaire has been posted on the site for users to provide information on the profile of visitors to the website.

## **Results**

### *Content*

The Literature Review section of the SDI web site was launched in February, 2003. Currently, 91 STI diagnostics experts from 17 countries on six continents serve on the Editorial Board. Twelve quarterly issues have been posted that include summaries of 214 original and 17 review articles published from January 2002 through March 2005, with expert commentaries on 153 articles. The numbers of articles by STI diagnosis included in each issue, as of August, 2006, are shown in Table 1. In addition to these issues, a review of the top ten publications on STI diagnostics published in the past 50 years has been commissioned and posted.

Future plans for the site include providing a search function so that article summaries and commentaries about specific topics can be found quickly; commissioning and posting additional review articles on timely STI diagnostic topics; and providing a country-specific list of STI diagnostic referral sites.

### *Use*

The site has been visited by users from 111 countries who speak 104 languages (Figure 1). Since January 1, 2006, the average number of daily unique visitors and pages viewed has been 97 and 197, respectively. The number of unique visitors has increased each year from 15,630 in 2003 to 32,304 in 2004 and to 36,700 in 2005. The number of pages viewed has increased accordingly from 41,336 in 2003 to 70,785 in 2004 and to 75,470 in 2005.

The site is accessed from a number of different sources, with *Google* being the most common referral site. Many different key words or phrases were used to access the web site via search engines. The ten most commonly used search engine key words that resulted in referral to the site are shown in Table 2, although none was used with very high frequency.

Although a questionnaire was provided to track the profile of users or visitors to the web site, very few questionnaires were filled out, making it impossible to determine the proportion of users who are health professionals.

## **Discussion**

The literature review summaries provide increased access to new findings on STI diagnostics in a quick and concise format. The literature review commentaries provide expert opinions, perspectives on applicability to clinical settings, and constructive analysis.

The summaries and expert reviews of recently published STI diagnostics articles presented on the web site as literature reviews are contributing to SDI's goal of improving care for patients with STI by increasing knowledge and awareness of STI diagnostic product development, evaluation, and implementation. Over time, this unique resource has provided more comprehensive SDI information to an increasing number of health professionals. In recent years, the internet has been increasingly recognized as a risk environment for STIs for both men and women and, given the proliferation of internet-based STI testing services, this website may be broadened to meet the needs of a wider range of users.

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## **Contributors**

All authors contributed to developing and providing content for the web site and to writing the manuscript.

Table 1. Number of article summaries in each issue by STI diagnosis

Issue	Article publication dates	Number of articles by STI diagnosis								
		All	CT <sup>1</sup>	HSV <sup>2</sup>	NG <sup>3</sup>	BV <sup>4</sup>	TV <sup>5</sup>	TP <sup>6</sup>	MG <sup>7</sup>	Syndromic
1	Jan – June 2002	20	8	4	5	0	2	2	0	0
2	July – Sept 2002	17	4	4	1	3	3	2	0	1
3	Oct – Dec 2002	20	9	2	4	4	2	0	1	0
4	Jan – Mar 2003	22	6	4	4	2	3	0	2	0
5	Apr – June 2003	20	6	2	4	3	1	0	2	4
6	July – Sept 2003	16	8	3	6	0	1	1	1	0
7	Oct – Dec 2003	23	7	5	2	2	2	1	1	1
8	Jan – Mar 2004	21	4	4	3	3	0	2	3	0
9	Apr – June 2004	18	3	4	2	0	3	3	1	3
10	July – Sept 2004	19	4	5	3	3	2	3	1	0
11	Oct – Dec 2004	15	4	2	3	3	2	1	0	0
12	Jan – Mar 2005	20	6	3	4	5	1	0	0	2
Total as of Aug., 2006		231	69	42	41	28	22	15	13	11

<sup>1</sup>*Chlamydia trachomatis*<sup>2</sup>Herpes simplex virus<sup>3</sup>*Neisseria gonorrhoeae*<sup>4</sup>Bacterial vaginosis<sup>5</sup>*Trichomonas vaginalis*<sup>6</sup>*Treponema pallidum*<sup>7</sup>*Mycoplasma genitalium*

*Table 2. Most common keywords used to access SDI Literature Review web site*

Rank	Keyword	Frequency (%) used
1	Herpies <sup>1</sup>	8.2
2	Sexual transmitted diseases	2.6
3	Leukorrhea	2.6
4	Ligase chain reaction	0.8
5	HSV IGM	0.7
6	Sexually transmitted diseases	0.6
7	Herpes testing	0.5
8	Euroimmune	0.5
9	Vaginal swabs	0.3
10	Clamydia <sup>1</sup>	0.3

<sup>1</sup>Keywords spelled incorrectly by SDI web site users

*Figure 1. Proportional representation of home country of persons visiting the SDI Literature Review web site*

