

## PRODUCT REVIEW / ANALYSE DE PRODUITS

### Product Review: VisualDx

**Product:** VisualDx, Visual Diagnostic Decision Support Logical Images, 3445 Winton Place, Suite 240, Rochester, NY 14623

**URL:** <http://www.visualdx.com>

**Audience:** Primary care clinicians

**Purpose:** Helps clinicians quickly diagnose conditions of the skin

**Contents:** 22,000+ images covering 1200+ conditions; peer-reviewed condition summaries

**Updates:** Quarterly and as needed in response to public health incidents

**Compatibility:** Windows PC or Mac; iPhone, iPad, iPod Touch (2<sup>nd</sup> generation); Android devices.

**Price:** USD\$49.99–\$99.99/year, individual subscription (USD\$29.99–\$49.99 for residents, fellows, and students); institutional subscriptions available

#### Introduction

Since 2006, VisualDx has been reviewed several times [1–4]. In addition a previous study has looked at the effectiveness of VisualDx for diagnosing cellulitis [5]. This review will update the existing literature and address changes made to VisualDx in the past 5 years.

#### Audience

VisualDx is designed for non-dermatologists: family physicians, emergency physicians, dentists, ophthalmologists, public health epidemiologists, and medical educators. It is also marketed as a training tool for medical students, residents and fellows. VisualDx may also be useful in rural settings with limited access to specialists.

#### Product Description

VisualDx is a diagnostic decision support tool designed to assist clinicians in the accurate diagnosis of diseases of the skin, external eye, and oral mucosa. Using a combination of images and clinical summaries, VisualDx presents its users with potential diagnoses from nine different scenarios. Many of the diagnoses are rare or not regularly encountered by non-dermatologists.

VisualDx has a user-friendly interface. Upon signing in, users are prompted to build a differential diagnosis based on patient findings or search for a specific condition by

name. All possible results are presented and ranked in order of relevance.

The differential diagnosis builder is the most interesting and unique part of VisualDx. Users input signs and symptoms from their patient to develop a differential diagnosis. This is especially useful for clinicians who have a patient presenting with an unfamiliar condition and need additional help to arrive at a correct diagnosis. Using the differential diagnosis tool was shown to be over four times more likely to include the correct diagnosis than non-experts alone, reducing the likelihood of misdiagnosis [5].

The differential diagnosis builder begins with a series of modules describing the patient. There are modules for pediatric skin, adult skin, drug reactions, eye, oral, pulmonary, and public health. For example, for an adult patient presenting with a rash on the arm, the user would begin with the adult skin module. A refined differential diagnosis is built by selecting from the following:

- Lesion Type: select a lesion type (e.g. scaly papule/plaque, vesicular/pustular) based on graphics of different lesions.
- Body Location and Distribution: manipulate an anatomical figure to select the body location and choose a distribution pattern (e.g. widespread, haphazard).
- Key Findings: add key findings such as the appearance of the patient (e.g. no acute distress, patient appears ill), timing (e.g. developed over minutes, hours), other findings (e.g. fever, itching).
- Browse All Findings: choose from a list of other relevant findings (e.g. medications, travel)
- Type to Add Findings: type in additional uncategorized findings.

VisualDx then displays images of potential diagnoses ranked by relevance. For example, diagnoses matching four out of four findings are displayed first, followed by diagnoses matching three out of four findings, etc. Results can be sorted to list emergency conditions first and (or) selected for display side-by-side for comparison. Selecting a diagnosis brings users to a collection of high-quality images and a corresponding monograph. All images for a condition can be viewed together, individually or enlarged.

VisualDx contains a comprehensive collection of over 22 000 medical images for more than 1200 conditions,

collected from institutional, physician, and archival collections [6]. Images demonstrate different stages of a disease and presentation of diverse skin types.

Monographs are peer-reviewed by experts and updated quarterly with new findings and treatment methods [6]. A typical clinical summary is organized with headings such as “Synopsis,” “Differential Diagnosis and Pitfalls,” and “Therapy.” References are included at the bottom of the monograph and linked to PubMed but not cited throughout, making it difficult to determine the context of individual references. The images and monograph can be printed and links to images can be emailed. Images can be used for education purposes but users must either take screen shots or request a link from Logical Images.

### Special Features

A mobile app is available for iPad, iPhone, iPod Touch, and Android devices. VisualDx is developing a mobile browser to provide access for Blackberry users. Mobile access is included with all subscriptions.

VisualDx has partnered with UpToDate to include its content in UpToDate searches. Institutional subscribers to both will see VisualDx content indicated by an orange “VDx” icon in the search results [6].

### Subscription Options

Annual subscriptions are available for individuals or institutions with discounted rates for residents, fellows and medical students. A free 15-day trial is available. All subscriptions include mobile access. Three subscription packages are available:

- Pediatrics: USD\$49.99 (USD\$29.99 for residents, fellows and students). Includes single lesion/growth and multiple lesions or rash for neonate, infant and child skin; bites, stings and infestations; drug eruptions; CA-MRSA.
- Clinician: USD\$99.99 (USD\$49.99 for residents, fellows and students). Includes all pediatrics content plus single lesion/growth and multiple lesions or rash for adult, elder and dark skin; fever and rash; nail and distal digit; oral mucosa; immunocompromised.
- Enterprise: Price based on number of acute care beds. Includes all pediatrics and clinician content plus external eye; pulmonary infections; international travel; marine exposures; cellulitis differential diagnosis; pediatric and adult anogenital; child abuse recognition; terrorism recognition; smallpox vaccination; pressure ulcer staging; customizability.

### Compatibility

VisualDx is a java-based application hosted online by Logical Images, available for both Windows and Apple

computers running one of the following browsers: Internet Explorer 6.0 or higher; Firefox 2.0 or higher; Safari [6].

The mobile application is available for: iPhone, iPad and second generation iPod Touch running iOS 3.0 or later (3.2 or later for iPad) with a wireless or 3G connection; Android devices with a minimum screen resolution of 320 × 480 running Android OS 1.6 or later with a wireless or 3G connection [6].

The java-based interface does not work in mobile Safari; therefore, using the mobile app is essential for Apple devices.

### Conclusion

VisualDx is an excellent decision support tool for clinicians needing assistance diagnosing dermatologic conditions. The easy-to-use interface, combined with thousands of high-quality images and clinical summaries create a simple and straightforward user experience. Mobile apps take full advantage of device features. Drawbacks include: absence of a clear evidence-based process for creating clinical summaries; inability to easily download individual images for education purposes; and an active data connection is required for mobile access. VisualDx is an excellent product and could be easily improved to make it even better.

### References

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