

# Cutting-Edge Diagnostic Technologies Foster Patients' Confidence

Point-of-care tests enable physicians to be better caregivers.

BY JODI I. LUCHS, MD

Point-of-care diagnostic tools are entering the market at an unprecedented rate, but it can be difficult for practitioners to determine whether these tools will have a positive impact on their practice environment. In my experience, patients feel secure receiving medical care from a practice that offers cutting-edge diagnostic technologies. These devices can be integrated seamlessly into a clinical practice and allow eye care professionals to deliver more accurate diagnoses. I believe that these tools set my practice apart from competitors by building patients' confidence in my care, which in turn yields repeat patients and increases referrals.

## AVAILABLE DIAGNOSTIC TESTS

### AdenoPlus

A diagnostic test that aids in the rapid differential diagnosis of acute conjunctivitis (AdenoPlus; Nicox) is the first in the latest generation of point-of-care diagnostic tools. The examiner swabs the interior fornix with a pad on the sample collector to absorb the tear film. Then, the sample collector is placed into the test, and the absorbent pad is placed in a vial of fluid that is included with the test. The fluid travels up the pad, through the tear sample, and into the indicator window. The indicator will then reveal a blue line, which is the control, and a red line if the patient has tested positive for adenoviral conjunctivitis. The test, which can be done by a technician during a workup, takes less than a minute to perform and produces a result in 10 minutes or less. This is an important diagnostic tool, because it can clarify the root cause of the tearing, red eye, which can be extremely difficult to diagnose accurately. Research

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has shown that acute conjunctivitis is misdiagnosed approximately 50% of the time when clinicians assess signs and symptoms alone.<sup>1-3</sup>

### Doctor's Allergy Formula

Another exciting diagnostic advance in ocular allergy is an emerging technology designed to help eye care practitioners discover allergens that are producing allergic conjunctivitis (Doctor's Allergy Formula; DrsAllergy.com.). The examiner dips an applicator into a series of wells, each containing a separate antigen—60 in all. These applicators, now loaded with antigen at the tip, are then used to make a gentle impression on the skin of the forearm without breaking the skin. Within 10 minutes, an “allergen road map” is produced, which allows the practitioner to discover to which of the 60 possible allergens the patient is sensitive. Because allergens vary by geographic location, the test is customized to contain the antigens that are common in the physician's specific region. This test not only helps determine the cause of the patient's allergy, but it can also help to rule in or out allergy as a possible contributor to the patient's ocular surface disease symptom

## A CALCULATED APPROACH TO ACUTE CONJUNCTIVITIS

**Take consistent, measured steps to achieve better outcomes and reduce contagion.**

By Rajesh K. Rajpal, MD; Angela Russell; Sachin D. Rajpal; and Dawn Williams, OD

At our referral cornea practice, we often see patients with red eyes who we suspect may have acute conjunctivitis. The most common types—bacterial, viral, and allergic—present similarly, and their signs and symptoms are often indistinguishable. Accurate diagnosis of adenoviral conjunctivitis is important, however, because it is highly contagious and will quickly spread through the local community. The infection rate after close contact with a patient who has adenoviral conjunctivitis is as high as 50%. Moreover, the virus can live on inanimate surfaces for up to 28 days, and infected patients are contagious for up to 3 weeks.<sup>1-3</sup> Our practice has taken measures to establish a dedicated protocol for diagnosing and managing conjunctivitis that is centered on preventing the spread of the infection by protecting those who come into contact with an infected patient, and we use an evidence-based diagnosis to guide an informed treatment decision.

**THE ENTIRE STAFF PLAYS A ROLE**

Every member of our staff plays an integral role in managing conjunctivitis. When patients present with a red eye, a member of the front desk staff checks them in. The front desk staff alerts the technician, who takes the patient from the waiting room to an isolated examination room. The goal is to minimize contact between a potentially infectious patient and other patients and staff members in the office. This is the same protocol that a pediatrician's office implements by having separate waiting rooms for sick and well children.

When the technician examines the patient, the former is careful not to shake hands with the latter or to interact in a way that may encourage the infection to spread. If the technician suspects contagious disease, he or she consults the clinician and requests permission to proceed with diagnostic testing (AdenoPlus; Nicox) before instilling drops or using any instruments that may touch the patient's eye. If the clinician is likewise suspicious, he or she gives the technician permission to perform the point-of-care diagnostic test to rule out or confirm the presence of adenoviral conjunctivitis. The results are available in 10 minutes. The clinician is

informed of the results and conducts a full examination of the front surface of the patient's eye to rule out any other contributing factors to the patient's symptoms.

**TREATMENTS**

If the test is positive for adenoviral conjunctivitis, we instruct the patient on ways to prevent contagion and suggest symptomatic treatment such as artificial tears and cool compresses to make him or her more comfortable. For a severe case, we may prescribe a mild steroid. Preliminary clinical data have shown that ganciclovir (Zirgan; Bausch + Lomb) may be helpful.<sup>4</sup> Evidence suggests that a diluted form of Betadine (Purdue Frederick) may also work.<sup>5</sup> If the diagnostic test is negative for adenoviral conjunctivitis, then the clinician proceeds with a differential diagnosis for bacterial or allergic conjunctivitis.

A patient's history and medical findings help determine the presence of bacterial or allergic conjunctivitis. We typically prescribe a topical antibiotic, most commonly a fluoroquinolone, to treat bacterial conjunctivitis. If the patient shows signs of lid involvement or cellulitis, we may also prescribe oral antibiotics. If the diagnosis is allergic conjunctivitis, we initiate treatment dependent on severity using the multiple medications to treat allergies such as antihistamine-decongestant combinations, mast cell stabilizers, and anti-allergy compresses. It should be noted, however, that treatment could be as simple as decreasing exposure to the allergen. We also recommend artificial tears and cool compresses to decrease itching and swelling for symptomatic relief.

**PRACTICE DIFFERENTIATION**

One of the most positive elements of establishing these measures and implementing a point-of-care diagnostic test is that patients perceive these steps as an indication that our practice is at the forefront of technology. From a clinical perspective, we are able to provide patients with definitive information in the form of an evidenced-based diagnosis. If we confirm a diagnosis of viral conjunctivitis, we can help the patient prevent contagion and proceed with a treatment regimen. If we rule out adenoviral conjunctivitis, patients can move on with their lives without missing school or work.



## A CALCULATED APPROACH TO ACUTE CONJUNCTIVITIS (CONTINUED)

Managing conjunctivitis well improves patients' quality of life.

### CASE REPORT

Our lead technician had just returned from a 7-day cruise in the Caribbean. When she came into work, both of her eyes were extremely red. Based on her symptoms and presentation, we performed the AdenoPlus test on her and were relieved to find it negative for adenovirus. We then knew that our patients were not at risk of infection and could initiate a proper treatment plan for our staff member.

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*Angela Russel, Sachin D. Rajpal, and Dawn Williams, OD, are part of the See Clearly Vision Group, with locations in Arlington and McLean, Virginia; Washington, DC; and Rockville, Maryland. They acknowledged no financial interest in the products or companies mentioned herein.*

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complex. Positive results give patients clarity about what they should avoid in their lives to help reduce their symptomatology. I have found this diagnostic tool extremely helpful, especially during allergy season, when patients are often miserable and in search of answers to their ocular allergy questions.

### Sjö

A new advanced diagnostic test for Sjögren syndrome (Sjö; Nicox) has been developed to detect this debilitat-

ing autoimmune disease years earlier than traditional testing methods. Emerging research on Sjögren syndrome indicates that it may be the underlying cause of dry eye disease in one in 10 patients.<sup>4</sup> Because a patient's dry eye symptoms may be rooted in a more serious, progressive autoimmune disease such as Sjögren syndrome, eye care professionals should serve as the first line of defense by identifying the disease at its earliest stage. In this way, ophthalmologists can provide more targeted therapeutic management, referrals to other health care specialists, and the best quality of care possible.

In the past, biomarkers used to detect Sjögren syndrome were only 40% to 60% sensitive and specific, and diagnosis usually occurred after the patients were in the advanced stages.<sup>5</sup> The new diagnostic test includes the traditional assays for SS-A, SS-B, antinuclear antibody, and rheumatoid factor as well as three new proprietary biomarkers. The new biomarkers—salivary gland protein-1, carbonic anhydrase-6, and parotid secretory protein—detect the disease much earlier than the traditional biomarkers and with greater specificity and sensitivity as well.<sup>5</sup> By identifying affected patients early, physicians can work to prevent many of the painful and irreversible systemic effects of Sjögren syndrome, including the destruction of the lacrimal and parotid glands due to inflammation.

The in-office test kit, provided to the practice at no cost, includes all of the supplies and literature needed to collect a specimen and ship it to the laboratory (Immco Diagnostics). Administering the test is easy. The examiner uses the included lancet to perform a simple finger prick and gathers the blood drops on a specimen collection card. The test request form, the patient's insurance information, and the specimen collection card are all shipped via FedEx to the testing laboratory to be processed. The laboratory communicates results to the office via e-mail or fax within a week of receiving the specimen.

If the test positively detects early Sjögren syndrome, I refer the patient to a rheumatologist, and both ocular and systemic treatment can begin. A technician can easily perform the diagnostic test for Sjögren syndrome, and it does not disrupt the flow of my practice. It is an important advance in the fight against this debilitating autoimmune disease.

### PRACTICE IMPACT

Doctors often complain that their practice workload is too heavy to implement point-of-care diagnostic testing. They may also feel as though their clinical judgment is good enough that they do not need to rely on

diagnostic testing. I would argue that emerging technologies make doctors more accurate diagnosticians, especially in a busy practice where it is sometimes easy to gloss over findings. In turn, patients view practices that implement point-of-care diagnostic testing as sophisticated and state of the art, which pays dividends in the community and when building a reputation with patients. In my experience, all of the tests reviewed in this article can be seamlessly integrated into the flow of a busy practice, especially because technicians can perform them. The tests also all have billable insurance codes that are reimbursable by Medicare and other insurance companies. These premium capabilities can set a practice apart from those that do not use these diagnostic tools.

A number of different forces are going to spur further growth in point-of-care diagnostics. First, patients want better, faster, more accurate care. Second, reimbursable diagnostics cost far less than a misdiagnosis that leads to multiple trips to the doctor's office and ineffective, wrongly prescribed medications.

Two new point-of-care diagnostic tests are in devel-

opment and expected to be approved by the FDA in the near future. They are an ocular test for herpes simplex virus and an immunoglobulin E allergy tear test that will be linked to the AdenoPlus. ■

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