News from the CDC: chronic fatigue syndrome (CFS) and standardized patient videos—a novel approach to educating medical students about CFS

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The Centers for Disease Control and Prevention (CDC), Division of High-Consequence Pathogens and Pathology, Chronic Viral Diseases Branch houses CDC's chronic fatigue syndrome (CFS) research and education program. The program's provider education and outreach initiative has conducted research and implemented activities to educate healthcare professionals about CFS diagnosis and management, including evaluating knowledge, attitudes, and beliefs among US providers [1], assessing best methods for CFS continuing medical education (CME) [2], and developing a train-the-trainer program [3]. In 2012, meetings with stakeholders and evaluations of existing outreach efforts informed the program's decision to target medical students and residents as a way to influence CFS education at the beginning of the medical education process. This report describes the background and process for developing a CFS education curriculum using standardized patients and plans to disseminate the curriculum using MedEd Portal.

CFS is a complex illness characterized by disabling fatigue and accompanying symptoms of prolonged post-exertional malaise, unrefreshing sleep, impaired concentration and short-term memory, muscle and joint pain, headache, sore throat, and tender lymph nodes [4]. Patients with CFS report barriers to healthcare utilization, which may delay diagnosis and treatment [5]. In part, delayed diagnosis and treatment reflects a lack of knowledge by providers who may recognize CFS but have difficulty with patient management.

Healthcare providers play an important role in preventing CFS morbidity from progressing to debilitating levels by treating symptoms early and managing comorbidities. While the best way to reach practicing physicians is through CME (for example, professional conferences, courses, online programs) [6, 7], there is no preferred method to target medical school students and residents other than each school's required curriculum. Most medical schools in the United States have a standardized patient program that uses standardized patients to simulate medical scenarios in a realistic, accurate, and reliable method [8]. Standardized patients are

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DB, CC, KB, and JL participated in the conception and design of the paper and contributed to the drafting and revising of the manuscript. All authors have read and approved the final manuscript.

not professional actors (although they may have theater background) but receive comprehensive training in clinical presentation and can simulate a variety of clinical scenarios including a patient's appearance, demeanor and affect, communication style, chief complaint, symptomatology, past medical history, and physical findings [9]. Standardized patients present medical students and residents with learning opportunities based on actual clinical cases and expert teaching sessions and provide a way to evaluate the students' mastery of communication and clinical skills in a standardized format [9].

MedEd Portal, a program sponsored by the Association of American Medical Colleges (AAMC), is an open source link to medical schools throughout the United States and in 198 countries [10] targeting medical students, residents, and faculty. It offers a peer-review repository and publication service through a no-fee, open-access system that can track data users and provide authors evaluation data [10]. The site is used by faculty to find materials to present in courses, by residency programs to enhance learning at teaching hospitals, and by students who need more information on a topic or who use the service as part of their self-learning program. More information can be found at <https://www.mededportal.org>.

CDC developed an evidence-based CFS standardized patient videos for submission to MedEd Portal using a five-step process:

1. CFS case studies. Standardized patient videos work best if based on actual patient cases from clinical experts with real experience [11]. We asked clinicians to describe a CFS patient encounter, what worked, what did not work, or what facilitated assessment or positive interaction. No personal identifying information was included in case

descriptions. Case studies are similar to a medical history presentation in Grand Rounds.

2. Vignettes and health behavior theories. Vignettes are one-page narratives of a specific scenario. For example, describing the experience of a 45-year old woman with CFS who is making her 6th visit to a doctor. Often, aspects from several case studies were used to develop one vignette, which allowed us to combine pertinent facts in one case. We also incorporated health behavior theory and concepts of effective health communication to ensure evidence-based learning. For example, tenets from Bandura's social learning theory, such as modeling and vicarious learning, were used to show how physicians educate one another about CFS [12].
3. Scripts. Once the vignettes were finished, the vignettes were converted into scripts to train the standardized patient actors and allow the production team to finalize the set. Scripts included verbal language and non-verbal behavior to help depict both positive and negative patient-physician interactions.
4. Videos. Filming took place at a university-standardized patient program, and CDC staff attended all filming to review the content. Depending on the script, we had the filming take place in outpatient clinical rooms, a physician café break room, or a physician's office.
5. Educational curriculum. After production and filming, CDC developed an evidence-based educational curriculum for each video. For example, to teach effective patient-provider interview skills, we incorporated Buckman's CLASS protocol that has a five-step approach to communication [13]. Data from focus groups with CFS patients also informed the content as we included the CFS patients' perspectives of visiting a doctor for this illness. Each curriculum includes slides, learning objectives, references, and an instructor's guide that accompany the video.

CDC asked medical students to qualitatively evaluate video scripts and curriculum slides. Students felt that the scripts accurately portrayed patient visits and physician-to-physician communication. One suggestion for the slides was to provide a CFS resource list for physicians and a list that they could distribute to patients. Additional information on CFS can be found at www.cdc.gov/cfs.

Dissemination of the educational curriculum is occurring using MedEd Portal, and CDC is submitting materials to MedEd Portal for peer-review publication (<https://www.mededportal.org/>). While the primary audiences for MedEd Portal materials are educators, administrators, and students, access to MedEd Portal is free to the general public [14].

Standardized patient videos for other illnesses and diseases can also be found at MedEd Portal, which can be used for educational purposes.

CDC used evidenced-based literature, focus group data, patient case studies, and health behavior theories to develop CFS educational curriculums aimed at medical students. This project is an example of how CDC translates research about CFS diagnosis and management into practice, targeting future physicians, while making the information available to the public.

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