

Celiac Disease Online Course: Impact and Barriers to Diagnosis

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BACKGROUND: Lack of awareness of celiac disease (CD) among U.S. healthcare providers (HCPs) may explain the meager diagnosis rate. In 2010, a free online continuing medical education (CME) program was launched to educate U.S. HCPs.

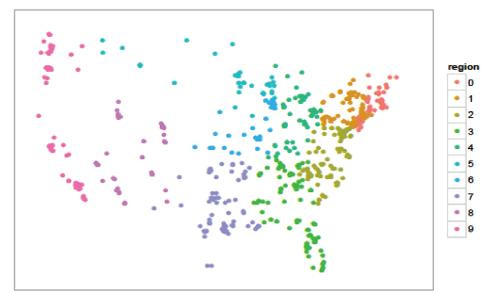
OBJECTIVE: We aimed to identify HCPs who participated in this CME, evaluate its impact on the HCPs' clinical practice, including their knowledge of CD diagnosis and management, and identify barriers to diagnosis.

RESULTS: From July 2010 to January 2013, 814 HCPs participated, with 446 completing the CME and 388 of those passing the post-test (median score = 80%). Nurses and nurse practitioners (RN/NPs) comprised the majority (N = 300), followed by physicians (N = 179), physician assistants (PAs; N = 89) and pharmacy personnel (pharmacists and pharmacy technicians; N = 86). Geographically, distribution was skewed towards the eastern half of the U.S., with an exaggerated representation in the Northeast. Post-test analysis found that participants overestimate the prevalence of anemia in CD patients and misunderstand the role of genetics in CD. As a result of this course, 66.4% stated they plan to incorporate strategies/changes related to awareness and diagnosis ("differential diagnosis," "screen," "test," "history taking"), with another 20.3% reporting that changes would focus on disease management. Participants' proposed implementation strategies reflected career specialty, with the majority of RN/NPs and PAs indicating their role as detecting and diagnosing CD (74.6%). 72.3% of physicians planned to detect and diagnose CD, while 20.2% planned to focus on post-diagnosis and disease management. Dietitians defined their role equally in awareness/diagnosis and post-diagnosis/management (42.3% vs. 46.2%). Participants indicated barriers to clinical change by free response, with 19% referencing cost, 5.5% low awareness and 5.5% access to tests/specialists as the most frequent impediments to diagnosis. Despite identifying cost or insurance coverage as a barrier (N = 68), 72% of this group reported plans to increase testing or screening. Geographic distribution analysis found that lack of awareness and access to tests/specialists were reported almost exclusively outside of the East Coast.

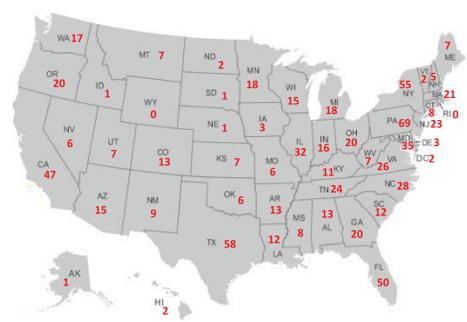
DISCUSSION: This unique data offers insights about the continued need for CD education among U.S. HCPs and identifies barriers that may be limiting efforts to improve diagnosis. Despite widespread availability of CD serologic testing and scattered presence of CD excellence centers in major cities, HCPs report barriers to increasing diagnosis as access to tests/specialists and lack of awareness. These findings suggest that a uniform, aggressive strategy is needed to effectively educate HCPs across much of the U.S. Further, post-test analysis suggests that HCPs may benefit from more basic CD education, with less emphasis on details better suited for specialists.

CD = celiac disease, HCPs = healthcare providers, CME = continuing medical education, RN/NPs = nurses and nurse practitioners, PAs = physician assistants

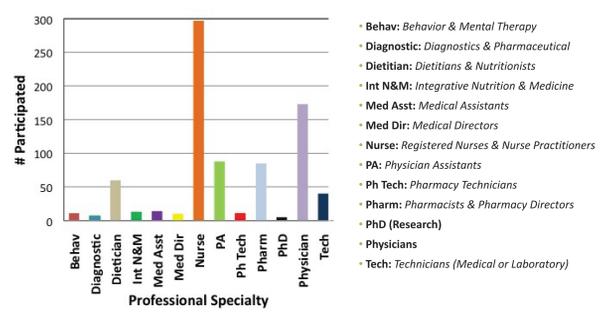
CME Participants: Geographic Analysis



Map of CME Participants

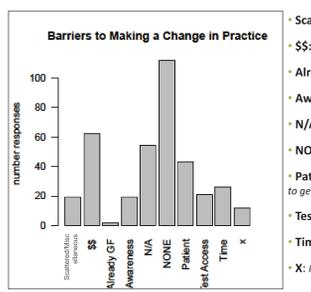


Healthcare Providers Participating in Free Online Continuing Medical Education (CME) Program



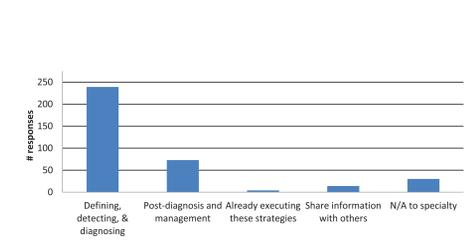
- Behav: Behavior & Mental Therapy
- Diagnostic: Diagnostics & Pharmaceutical
- Dietician: Dietitians & Nutritionists
- Int N&M: Integrative Nutrition & Medicine
- Med Asst: Medical Assistants
- Med Dir: Medical Directors
- Nurse: Registered Nurses & Nurse Practitioners
- PA: Physician Assistants
- Ph Tech: Pharmacy Technicians
- Pharm: Pharmacists & Pharmacy Directors
- PhD (Research)
- Physicians
- Tech: Technicians (Medical or Laboratory)

Barriers to Clinical Change as Reported by Providers



- Scattered/Miscellaneous: Uncoded; trend may be organizational
- \$\$: Cost of testing or gluten-free food; insurance coverage
- Already GF: Testing complication due to patient on gluten-free diet
- Awareness: Referral to/from doctors; among patients
- N/A: Not applicable, in general or due to specialty
- NONE: No barriers
- Patient: Compliance with gluten-free diet or testing; unwillingness to get tested; lost to follow-up
- Test Access: Geographic location; need for referrals
- Time: Busy doctors with no time to diagnose
- X: No response

What is the impact? How Providers Plan to Incorporate Change into Clinical Routine



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