

Addressing the lack of diverse healthcare images of oncology toxicities in diverse skin tones

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Introduction

Despite 37.4% of the U.S. population being from diverse backgrounds, it's estimated only 4.5% of medical textbook images represent diverse skin tones, and less than 20% of all medical literature reflect non-white skin, with the majority focusing on sexually transmitted infections. This creates:

1. reduced clinician confidence
2. delays in diagnosing dermatologic issues

Methods

1. A small task force, which included two skin toxicity content experts, designed an immersive, open-access case study activity measuring assessment, grading, and treatment of treatment-related skin toxicities.
2. The case study highlighted the following treatment-related skin toxicities:
 1. EGFRi-induced rash
 2. hand-foot syndrome
 3. hyperpigmentation
 4. hand-foot skin reaction
 5. radiation dermatitis
3. Learning reinforcement at the end of each case provided images of the toxicity on white skin for comparison.
4. Intentional marketing campaign



Case Study Example and Learning Reinforcement



Note. From "Dermatologic Toxicity Occurring During Anti-EGFR Monoclonal Inhibitor Therapy in Patients With Metastatic Colorectal Cancer: A Systematic Review" by M.E. Lacouture, M. Anadkat, A. Jasti, T. Garwin, C. Bolanc, and E. Mitchell, 2018, Clinical Colorectal and Other Gastrointestinal Malignancies, 17(2), p. 90. <https://doi.org/10.1016/j.cco.2017.12.006>. licensed under CC BY-NC-ND 4.0 (<https://creativecommons.org/licenses/by-nc-nd/4.0/>).

Case Study 1

JP (he/him), a man aged 70 years, has been diagnosed with metastatic colorectal cancer, and is prescribed cetuximab, an epidermal growth factor receptor inhibitor (EGFRi) drug. You are preparing to educate him about what to expect with treatment.

After reading about the drug, you understand that:

- ☐ EGFRi drugs can cause skin issues, though it is very rare (less than 15% of patients experience dermatologic toxicity).
- ☐ EGFRi-induced rash mostly affects lower extremities because of friction injury.
- ☐ EGFRi-induced rash can be cured with systemic steroids.
- ☐ EGFRi-induced rash can potentially cause dose interruption or discontinuation.

More about EGFRi rashes

EGFRi therapy commonly results in a type of skin eruption called acneiform rash, with incidence rates as much as 90%. This type of rash can cause acne-like bumps across the upper body and head, where sebaceous glands are dense.

The rash can be painful, itchy, and appear quickly within the first week of treatment. The presentation of the rash varies and can lead to dose reduction and/or discontinuation, depending on its severity. The rash alone is bothersome, but it can also lead to secondary infections.

The most common treatments to alleviate symptoms of EGFRi-induced rash are topical corticosteroids and/or oral antibiotics (Williams et al., 2020).

Above: Images A, B, and C show grade 1 EGFRi acneiform rash. Image D shows grade 2 EGFRi acneiform rash, and image E shows grade 3 EGFRi acneiform rash.

Next

Results

- In the first **11 months**, **2,600** accessed the activity and **1,480** participated in at least 1 case study.
- **53% (n=783)** completed all 5 case studies.
- **40%** of individuals did not reach a passing score of 80%; poorest performance was with radiation dermatitis and hand-foot reactions (see Table 1).
- Compared to other case study activities, this substantially outperformed internal benchmarks for views, clicks and completion.
- **91%** viewed from the United States.
- The activity was viewed by learners from over **25** different countries (as shown below):

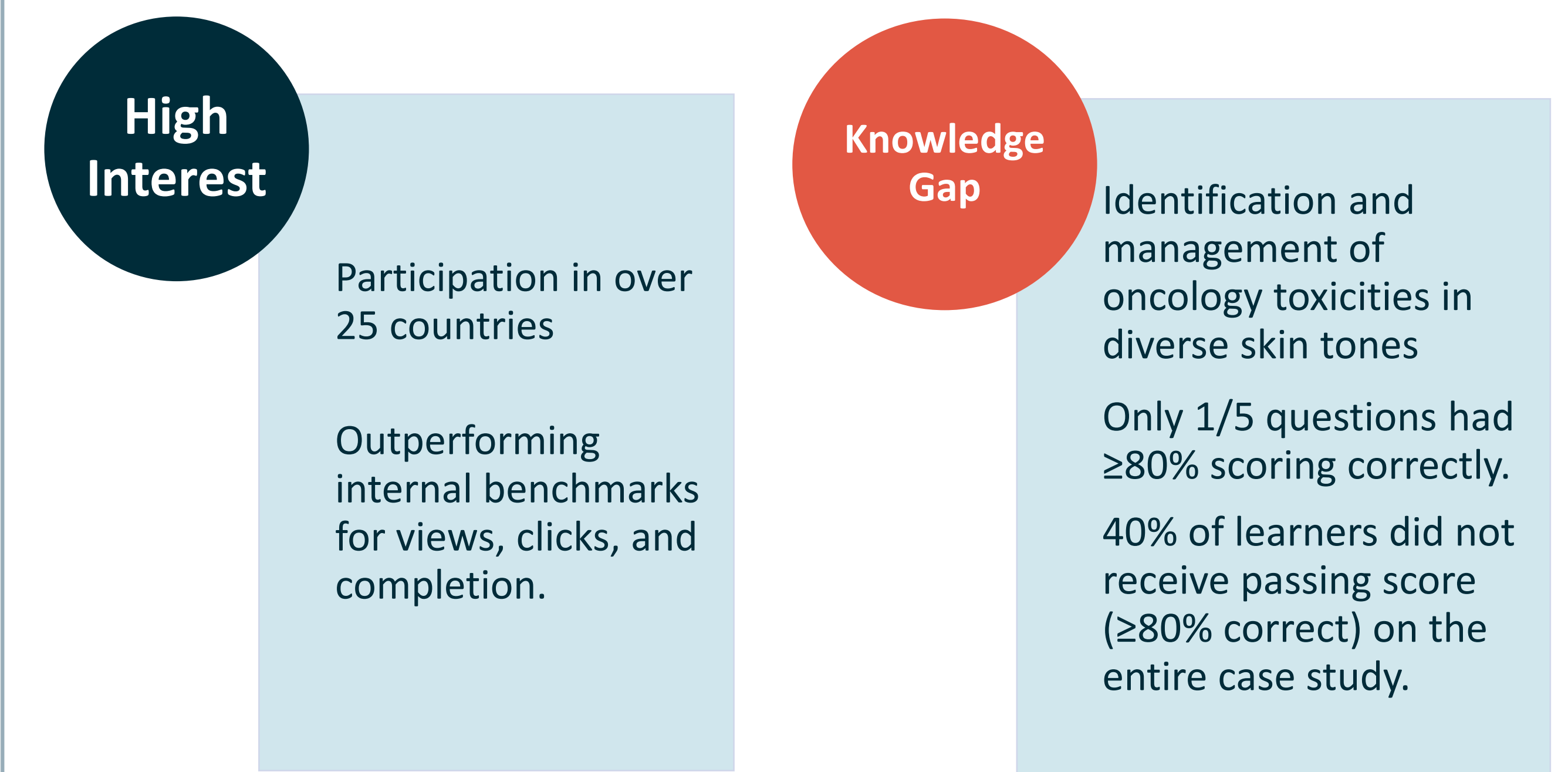


Table 1. Learner Pass Rates by Case Study Type

Topic	% Right	% Wrong
Hyperpigmentation	85%	15%
EGFRi-induced rash	75%	25%
Hand-foot syndrome	69%	31%
Hand-foot skin reaction	66%	34%
Radiation dermatitis	54%	46%
Total	60% pass	40% fail

Discussion

Outcomes show two major themes:



- Organizations must prioritize the use of medically diverse imagery to improve the clinician's confidence and accuracy when identifying and managing oncology-related skin toxicities.
- Education providers must ensure that images appropriately reflect the spectrum of skin tones when developing materials and publications