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Addressing Cancer Disparities and Social Determinants of Health in Unique Rural Populations

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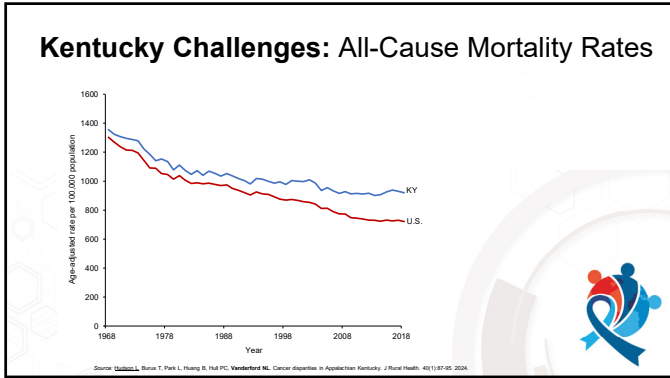
 **OBJECTIVES**

- 1) Identify national rankings and overall cancer incidence and mortality as it relates to the state of Kentucky as well as the Appalachian region of the state.
- 2) Describe key health behaviors and social determinants of health driving Kentucky's cancer disparities.
- 3) Discuss the ACTION Program as it relates to addressing cancer disparities within Appalachian Kentucky and how a similar model may be utilized to address other populations' unique cancer disparities.

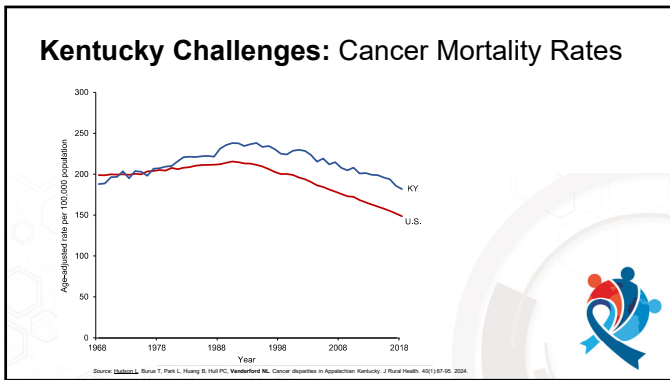
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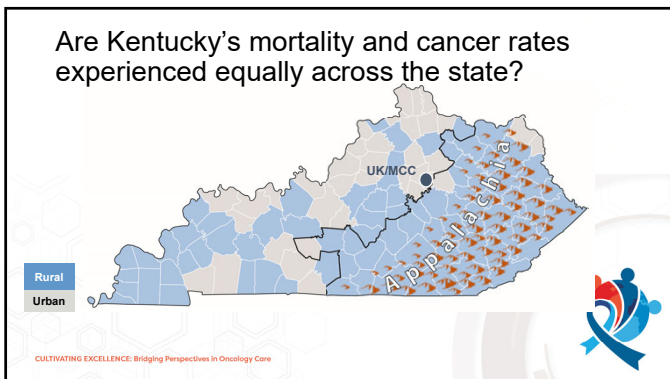
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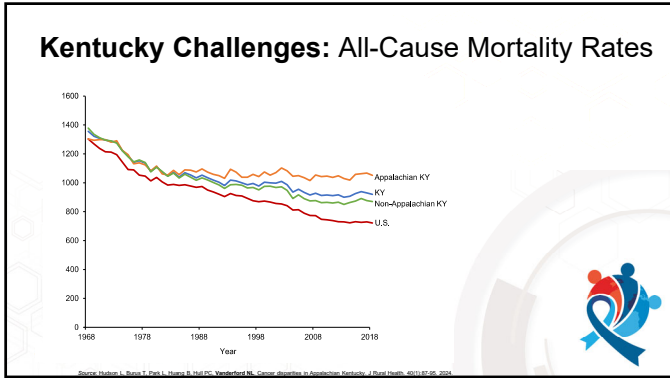
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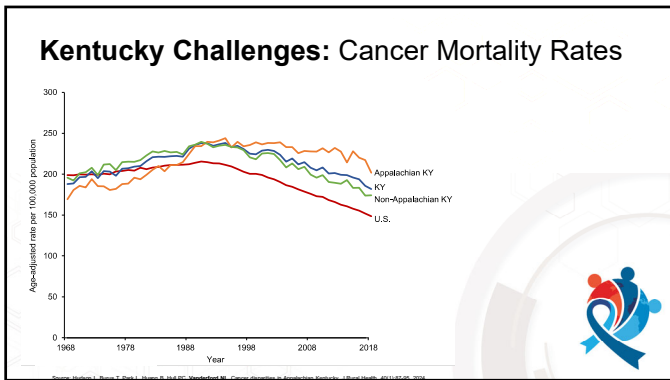
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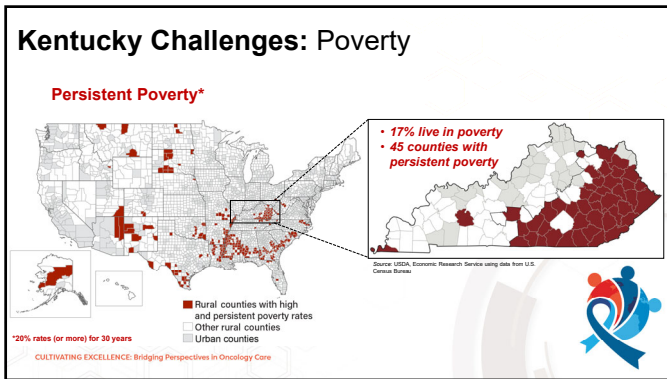
Kentucky Challenges: Unique Cancer Burden

Kentucky experiences the **highest overall cancer incidence** and **second highest cancer mortality rates** in the U.S., with the greatest cancer burden in the eastern, **Appalachian region** of the state.

KY RANKS	KY EXPERIENCES	APPALACHIAN
1st & 2nd in the NATION	30,630 new cancer cases each year	residents 8% more likely
in overall cancer incidence and mortality rates, respectively	and 10,250 cancer-related deaths	to die from a preventable or screenable malignancy

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 Sources: Siegel, RL, et al. Cancer statistics, 2024. CA Cancer J Clin. 74(1):12-49, 2024. ACS Cancer Statistics Center, and Yan, N, Akinci, H.E., Anderson, R., Robinson, R. Cancer disparities in Appalachia. Healthcare. 12(10):1522-1532, 2023.

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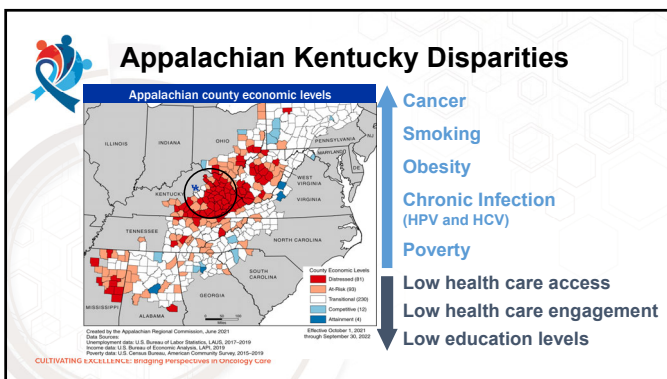
Culture of Appalachia

- Rich traditions (e.g., storytelling, tobacco use)
- Strong family and faith connections (latter can lead to fatalism)
- Fiercely independent and self-sufficient (can result in poor health care seeking practices)
- Values work that is often hard, manual labor (leading to exposure to sun, toxins)
- Education not valued (leading to poor health behaviors/risky behaviors)
- Celebration of tobacco and coal industry (leading to poor health behaviors/risky behaviors)


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Source: Brian Jannson, Alamy Stock Photo.

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 **QUESTION 1**


How does Kentucky compare to other U.S. states in cancer rates?

- a. Kentucky ranks 15th in overall cancer incidence and mortality rates.
- b. Kentucky ranks 1st in the nation in overall cancer incidence rates and 2nd in mortality rates.
- c. Kentucky has the lowest overall cancer incidence and mortality rates.
- d. Kentucky has the similar overall cancer incidence and mortality rates as other states.

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2024 NCODA Fall Summit

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 **QUESTION 2**


Which of these statements is not correct regarding social determinants of health and/or health behaviors in Kentucky?

- a. Kentucky has high adult smoking rates.
- b. Kentucky ranks among the best states in the nation for achieving high rates of lung cancer screening.
- c. Kentucky has low education attainment rates.
- d. Kentucky has low poverty rates.


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 **ACTION: Preparing Appalachian Kentucky Youth for Cancer Careers**

APPALACHIAN CAREER TRAINING IN ONCOLOGY



ACTION motivates and prepares participants to pursue cancer careers.

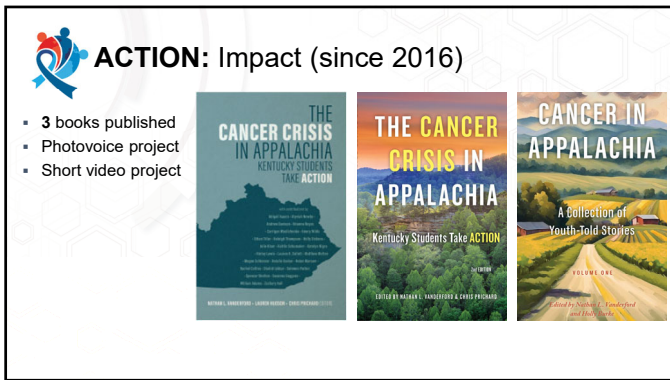
ACTION is funded by the National Cancer Institute (R25 CA221765)

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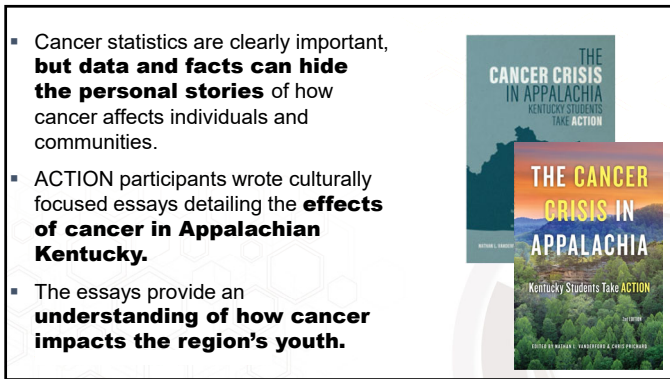
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Methods

- ACTION participants were engaged in a cancer storytelling exercise.
- ACTION participants wrote essays focused on:
 - Experiences with cancer
 - Why they think cancer rates are so high in Appalachian Kentucky
 - What they think can be done to lower the rates
- Editing process:
 - Peer editing
 - Program director and coordinator editing




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Methods

- Content analysis* was used to identify common themes in the essays:
 - Types of cancers observed
 - Feelings toward the causes of cancer in Appalachian Kentucky
 - Proposed solutions that could lower cancer rates

*Content analysis is a qualitative research tool used to identify common words, themes or concepts.



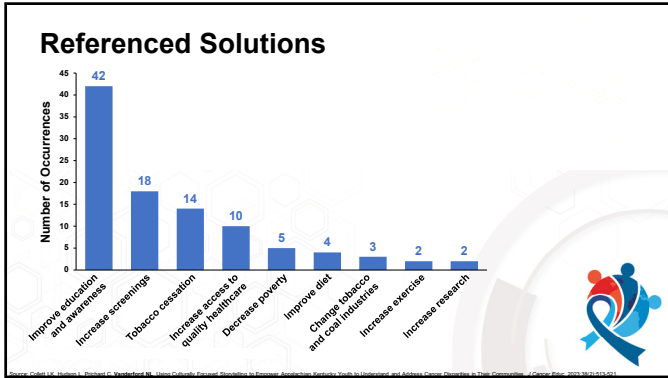
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Identified Themes That Drive High Cancer Rates

<p>GEOGRAPHY</p> <p>Natural Resources and Industry</p> <ul style="list-style-type: none"> • Tobacco • Coal mines <p>Low Healthcare Access</p> <ul style="list-style-type: none"> • Long distance to care facilities • Few opportunities for screenings, etc. 	<p>POVERTY</p> <p>Decreased Health Opportunities</p> <ul style="list-style-type: none"> • Screenings • Insurance <p>Food Deserts and Swamps</p> <ul style="list-style-type: none"> • High consumption of fast food, cheap processed foods that increase obesity rates 	<p>ENVIRONMENT</p> <p>Water Contamination</p> <ul style="list-style-type: none"> • Carcinogens from coal mines • Chemicals (e.g., arsenic) <p>Improper Waste Disposal/Recycling</p> <ul style="list-style-type: none"> • Burning items containing asbestos and lead
<p>LOW EDUCATION</p> <p>Enabler of High-Risk Behaviors</p> <ul style="list-style-type: none"> • Tobacco use • Prolonged UV radiation • Poor diet • Alcoholism • Substance abuse <p>Decreased Awareness</p> <ul style="list-style-type: none"> • High cancer rates in Kentucky • Cancer symptoms • Recommended screenings 	<p>CULTURE OF TOBACCO USE</p> <p>Celebration and Acceptance of Tobacco Use</p> <ul style="list-style-type: none"> • Symbol of heritage • Culturally accepted <p>Tobacco Festival</p> <p>Generational Tobacco Use</p> <ul style="list-style-type: none"> • Smoking addiction • Starting tobacco in youth, enabled by elders 	<p>LACK OF PREVENTION</p> <p>Cancer Screening Fears</p> <ul style="list-style-type: none"> • Desire to not know • Negative outcomes are most remembered <p>Appraisal as Unnecessary</p> <ul style="list-style-type: none"> • "Not me" • No symptoms <p>MISTRUST</p> <p>Cultural Differences; Questioned Motives</p>

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Storytelling

promotes better understanding through cultural framework.

Conclusions

Through storytelling, participants:

- Learned that data does not tell the whole (personal) story of cancer's impact.
- Gained a better understanding of cancer in their families and communities.
- Envisioned culturally-tailored, community-based intervention strategies that could aid in reducing the cancer burden in the area.

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Storytelling

promotes better understanding through cultural framework.


Conclusions

Through storytelling, participants:

- Improved their writing skills.
- Connected with their families by having important cancer conversations.
- Reached family and community members with important cancer education information.

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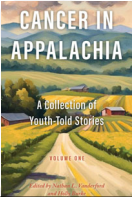
Storytelling



promotes better understanding through cultural framework.

Next Steps

- A new book with a new twist
- Students wrote realistic fiction stories about cancer in Appalachian Kentucky
- A new method for students to learn and to impact readers
- Working on a second volume

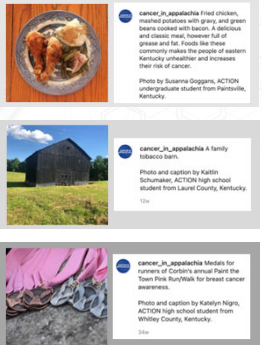


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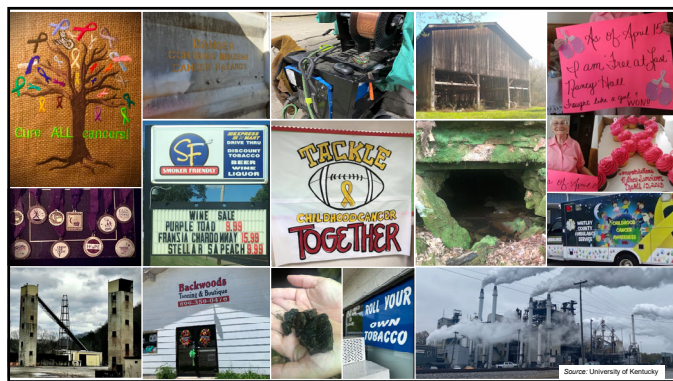
Photovoice Project

- Using a photovoice (a community-based participatory method) framework, ACTION students took photographs of objects or scenes in their communities that remind them of the causes and consequences of cancer.
- The photos have been shared through the social media platform Instagram.
- Public exhibits have occurred in central and eastern Kentucky.
- Content analysis was used to identify themes that the photos and their captions fit into.

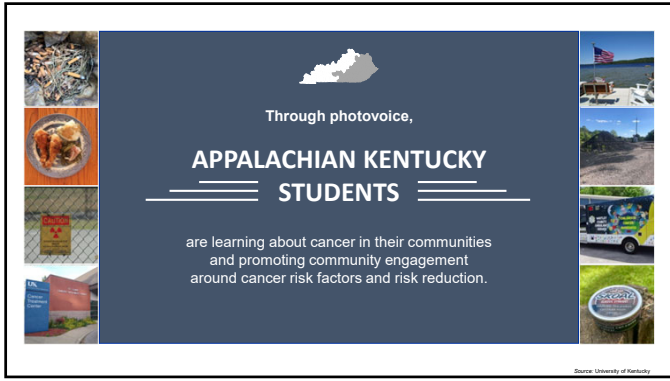
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Source: University of Kentucky



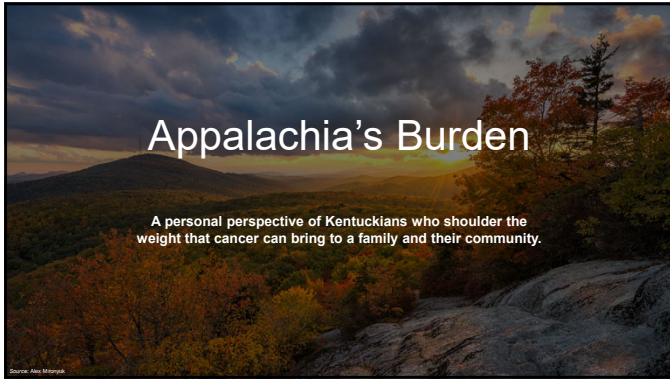
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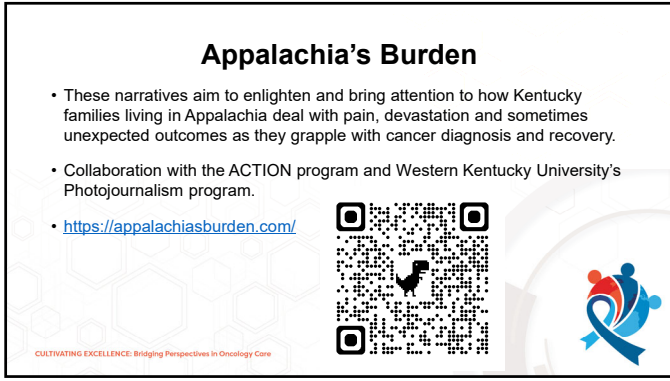
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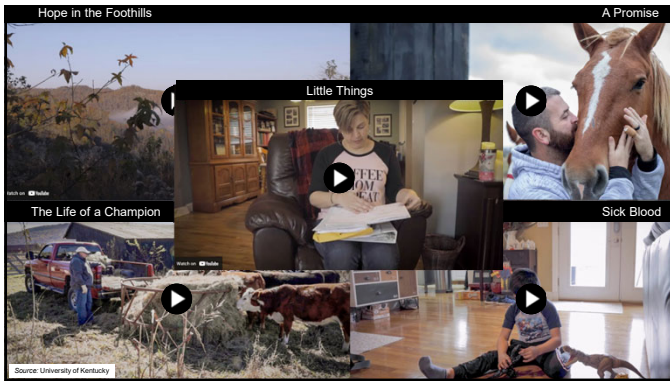
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Stories: Little Things


- Ms. Rader was diagnosed with breast cancer in January 2019 and spent the rest of that year in and out of surgery and having chemotherapy.
- Two weeks after surgery, she returned to teaching science at Madison Central High School and Eastern Kentucky University.



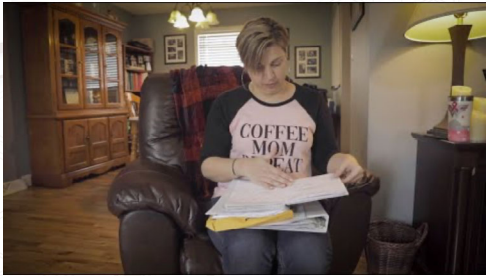
“The kids needed me... I couldn’t let them down.”

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Source: University of Kentucky

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Stories: Little Things



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Source: University of Kentucky

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Cancer Education Curriculum

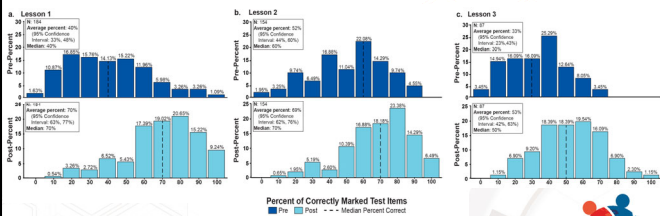
- We created a three-part cancer education curriculum that covers cancer biology, incidence, risk factors, and treatments.
- Each lesson was equipped with an instructional PowerPoint, interactive activities, and a detailed teacher's guide.
- The material is aligned with Kentucky academic science and health standards.
- The lessons were distributed to Appalachian Kentucky middle and high school science and health teachers.
- Prior to receiving instruction, students (N=223) completed a 10-question REDCap pretest. The teachers then taught the lesson, and students completed an identical posttest.
- The average number of correct responses from pretest to posttest was recorded and analyzed.

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 Source: Hudson-Ross, L., Weiss, T., Vanderford, M. Impact of a Cancer Education Curriculum on Appalachian Kentucky Middle and High School Students. *J Cancer Educ* 2023; 38(6):1067-1070.



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Cancer Education Curriculum



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 Source: Hudson-Ross, L., Weiss, T., Vanderford, M. Impact of a Cancer Education Curriculum on Appalachian Kentucky Middle and High School Students. *J Cancer Educ* 2023; 38(6):1067-1070.



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QUESTION 3

The Appalachian Career Training in Oncology (ACTION) Program engages Appalachian Kentucky high school and undergraduate students in cancer research and education training. Which statement is not correct regarding the broader practice implications for ACTION?

- The program is a model for the development of programs serving areas with similar disparities.
- ACTION's student engagement approaches can be adapted to other similar target audiences.
- Programs like ACTION are prohibited by the federal government from working with state or local cancer prevention and control programs.
- ACTION or similar programs can be leveraged to inform local, regional, and national policies.

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SUMMARY

- Kentucky leads the nation in cancer incidence rates and ranks second in cancer mortality rates. Rates are highest in Appalachian Kentucky.
- ACTION is preparing the next generation of cancer researchers, healthcare providers, and community engagement professionals.
- ACTION's community engagement is promoting cultural-focused increased knowledge of cancer in Appalachian Kentucky.

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Practice Implications

- ACTION is a model for the development of programs serving areas with similar disparities.
- ACTION's approaches to engage students and the community could be adapted to other target audiences.
- Programs such as ACTION have the potential to partner with local and regional cancer prevention and control programs to amplify the impacts of all programs.
- There are opportunities to leverage such programs to inform local, regional, and national policies.

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Acknowledgements

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- ACTION students
- Holly Burke
- Lauren Hudson-Rose
- Courtney Martin
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QUESTION & ANSWERS

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