

2023 NPCR KENTUCKY SUCCESS STORY

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Population-based Registry Data Facilitates Evidence-based Lung Cancer Screening Program Resulting in Significant Reductions in the Lung Cancer Burden in Kentucky

National Program of Cancer Registries SUCCESS STORY

SUMMARY

Lung cancer remains the leading cause of deaths from cancer worldwide¹. However, Kentucky experiences the highest incidence and mortality from lung cancer in the United States². While Kentucky has benefited from public health interventions focused on tobacco prevention and cessation, incidence and mortality rates have declined more slowly in Kentucky compared to other states. The lung cancer burden (incidence and mortality) has exceeded all other states for over two decades².

In 2011, results from the National Lung Screening Trial demonstrated that screening high risk individuals with low dose computed tomography (LDCT) had the potential to reduce lung cancer mortality by up to 20%³. In 2013, the US Preventive Services Task Force (USPSTF) recommended annual screening with LDCT for high-risk individuals, redefined in 2021, as adults aged 50 to 80 years, who have a 20 pack-year smoking history and currently smoke or have quit within the past 15 years^{4,5}. In response to the national screening guidelines, the Kentucky Cancer Consortium (KCC) launched the KCC Lung Cancer Network in 2013, added lung cancer screening to the Kentucky Cancer Action Plan, and spearheaded other lung cancer screening initiatives.

An evidence-based lung cancer screening program requires complete, accurate, and timely cancer registry data to evaluate screening interventions. The Kentucky Cancer Registry (KCR) enhanced its publicly accessible lung cancer data to include early and late-stage incidence, rates, and time trends. KCR data were also needed to help develop lung cancer screening standards at healthcare facilities providing LDCT screening in Kentucky.

Informed by these initiatives, the Kentucky general assembly formally established a statewide lung cancer screening program that includes leadership from the KCC and KCR. As a result, Kentucky has become the second leading state for screening of eligible patients at 17.7% in 2020, up from 14.6% in 2019⁶. From 2013 to 2020, KCR data show that the proportion of lung cancer diagnosed at early-stage has improved by 9.3%. Lung cancer mortality has simultaneously dropped by 29.3% during this time. This decrease may be attributable to a combination of decreases in smoking prevalence, improvements in lung cancer treatment, and Kentucky’s screening efforts. This is the most significant shift to early-stage diagnosis and reduction in the lung cancer mortality that Kentucky has observed in 30 years.

Kentucky’s success story demonstrates a collaborative public health intervention that stands to significantly reduce lung cancer mortality, even in states with the highest incidence rates.

CHALLENGE

- Recognizing the potential benefits of LCDT screening to detect lung cancers at an earlier, more treatable stage, the KCC Lung Cancer Network was challenged to develop an evidence-based approach to population-based lung cancer screening.
- To support their efforts, KCR was tasked to provide complete, accurate, and timely data to help guide and evaluate statewide lung cancer screening initiatives. Evidence of successful screening for lung cancer is reflected in earlier stage at diagnosis in the population. In 2013, the proportion of new lung cancer cases diagnosed at an early stage in Kentucky was only 17.9%.
- In addition, in 2013 there were no national LDCT screening standards or benchmarks to guide facilities conducting screening. KCR could also play a critical role in confirming the cases identified through lung cancer screening.

SOLUTION

- As the USPSTF were finalizing their screening recommendations, KCC launched the KCC Lung Cancer Network in 2013 and added lung cancer screening to the Kentucky Cancer Action Plan in 2014.
- KCR enhanced its publicly accessible incidence data (available at <http://cancer-rates.com/ky>) to include early and late-stage lung cancer incidence, rates, and time trends⁷.
- In 2022, the Kentucky General Assembly passed legislation to formally establish the lung cancer screening program. The Director of KCR was appointed to the Committee by the Governor of Kentucky.
- In 2022, a Lung Cancer Screening Program Advisory Committee was established by the state to expand a lung cancer screening program in Kentucky. The Advisory Committee includes leaders from KCR and KCC, state legislators, and other partners.
- During this time, the Kentucky Health Collaborative (KHC), consisting of 10 healthcare facilities in Kentucky and West Virginia, agreed to participate in a program to promote high quality standards for LDCT screening.
- KCR lung cancer data from KCR are routinely linked with lung cancer screening data to identify confirmed lung cancer diagnoses, used to evaluate the efficacy of lung cancer screening across the KHC facilities.

RESULTS

- Since 2013, Kentucky has achieved the 2nd highest rate of lung cancer screening at 17.7% of eligible patients in 2020, as compared to the U.S rate of only 6.5%⁶.
- During this time, KCR data show a significant shift from late stage to early-stage lung cancer diagnosis⁷. In 2020, 27.2% of cases were diagnosed at an early stage, representing a 9.3% improvement.
- The lung cancer mortality age-adjusted rate has dropped from 69.3/100,000 in 2013 to 49.0%/100,000 in 2020, a 29.3% improvement².

- As screening gained momentum across Kentucky, the shift towards earlier stage became significantly more rapid than the stage shifts observed in other states. The age-adjusted rates for early stage in Kentucky has increased 33.3% compared to a 22.5% increase in the rest of the SEER population during 2013 -2019⁸.
- This success story demonstrates a public health intervention that stands to significantly reduce lung cancer mortality, even in states with the highest incidence rates.

SUSTAINING SUCCESS

- The Lung Cancer Screening Program Advisory Committee, including KCR and KCC, continues to lead the planning and evaluation of the lung cancer screening program in Kentucky.
- Lung cancer incidence data by stage continues to be used to focus on and evaluate lung screening interventions in the populations of greatest need.
- KCR data will continue to be linked with facility screening data to measure and improve quality screening standards and to encourage additional Kentucky facilities to participate.
- The efforts of KCR and KCC working with the lung cancer screening program show the public health benefits of the investments made in these successful programs.

STORY QUOTE

“Strategic partnerships and statewide evidence-based lung cancer screening offers renewed hope for reducing the persistent and extraordinarily high burden of lung cancer in Kentucky.”
– Eric B. Durbin, DrPH, MS, Director, KCR

REGISTRY CONTACT

www.kcr.uky.edu

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