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The Role of Primary and Secondary Cancer Prevention in Achieving the Goal of Nebraska as the Healthiest State

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It is estimated that there will be 9,488 new cancer cases and 3,500 cancer deaths in 2017 in Nebraska.1 The age-adjusted incidence rate of cancer in Nebraska in 2014 was 444.9 cases per 100,000 people with lung, breast, prostate, colon, and rectum cancers accounting for nearly 50 percent of all cancers in the state.2 Overall, the age-adjusted cancer incidence rate in Nebraska for 2010-2014 (454.4 per 100,000) was comparable to the U.S. rate for 2009-2013 (461.9 per 100,000). The age-adjusted mortality rate in Nebraska for 2010-2014 (162.6) was also quite similar to the U.S. rate for 2009-2013 (168.9 per 100,000).2 Disparities in cancer incidence and mortality have been reported with African-Americans showing significantly higher overall incidence and mortality rates compared to whites.3 Thus, to achieve the goal of Nebraska as the healthiest state, the cancer incidence and mortality rates and associated disparities in the state need to be reduced considerably through primary and secondary prevention.

Scientific efforts over the years have provided the means to prevent and screen for certain cancers, such as breast cancer, colorectal cancer, lung cancer, melanoma of the skin, and uterine cervix. Screening for prostate cancer is also available, however, due to the many controversies surrounding the subject it will not be discussed in this brief article. The current screening recommendations of the U.S. Preventive Services Task Force (USPSTF) for colorectal, breast, cervical, and lung cancer are summarized in Table 1 (below). Colon cancer can be tackled through secondary prevention. In 2014, only 64.1 percent of adults 50-75 years old in Nebraska reported adhering to the colon cancer screening guidelines.4 This is below the National Colorectal Cancer Roundtable’s “80 percent by 2018” for colon cancer screening initiative.

Breast cancer mortality can be also reduced through mammography screening to detect breast cancer early. In 2014, 76.1 percent of Nebraska women within the screening age range reported adhering to the breast cancer screening guidelines.4 Primary and secondary prevention methods exist for cervical cancer as well. Since almost all cervical cancers are associated with HPV infection, primary prevention can be achieved with use of the HPV vaccine. In Nebraska, 59.6 percent of 13-17 year old females had received at least one HPV vaccination in 2014, while only

### Table 1. Screening Guidelines According to the U.S. Preventive Services Task Force (USPSTF)

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Screening Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorectal cancer (50-75 years old)</td>
<td>• Fecal occult blood test (FOBT) every year or</td>
</tr>
<tr>
<td></td>
<td>• Sigmoidoscopy every 5 years in combination with FOBT every 3 years or</td>
</tr>
<tr>
<td></td>
<td>• Colonoscopy every 10 years</td>
</tr>
<tr>
<td>Breast cancer (50-74 years old)</td>
<td>• Mammography every 2 years</td>
</tr>
<tr>
<td>Cervical cancer (30-65 years old)</td>
<td>• Pap test every 3 years or</td>
</tr>
<tr>
<td></td>
<td>• Pap test combined with HPV test every 5 years</td>
</tr>
<tr>
<td>Cervical cancer (21-29 years old)</td>
<td>• Pap test every 3 years</td>
</tr>
<tr>
<td>Lung cancer (55-80 years old with a 30 pack-year smoking history)</td>
<td>• Low-dose computed tomography every year</td>
</tr>
</tbody>
</table>

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39.5 percent of boys the same age received the vaccine.\(^4\)

Cervical cancer can also be prevented through secondary means such as Pap test and HPV test. In Nebraska, 81.7 percent of women reported being adherent to the cervical cancer screening guidelines in 2014.\(^4\)

A great proportion of lung cancers can be prevented by avoiding tobacco use. In 2014, 17.3 percent of adults in Nebraska 18 years and older reported smoking cigarettes compared to 18.1 percent of adults nationally. Unfortunately, 13.3 percent of public high school students in 2015 reported smoking cigarettes at least once in the past 30 days. Even more worrisome is that in 2015 38.2 percent of Nebraska high school students reported using electronic vapor products.\(^4\) For those already smoking, secondary prevention means include screening using low-dose computed tomography (LDCT).\(^5\) Even though no data exists for LDCT screening in Nebraska, according to a recent report using the 2015 National Health Interview Survey only 3.9 percent of eligible smokers received LDCT in the U.S. in 2015.\(^5\)

Melanoma of the skin is another preventable cancer through primary and secondary prevention. Primary prevention involves adaptation of behaviors leading to avoidance of sun and artificial light (e.g. tanning beds) exposure and secondary behavior involves screening the skin for abnormal moles. According to the Association of American Medical Colleges, there were 53,757 people per dermatologist in Nebraska in 2014, which is well below the number for other states such as New York, which has 19,628 people per dermatologist.\(^7\) The sparse representation of dermatologists in the state posits challenges for skin cancer screening.

Obesity has been associated with many types of cancers\(^8\) and it is expected that leading a healthier lifestyle, which includes healthier diet, would result in reduction of the burden of cancer. The fraction of obese adults (BMI greater than 30) in Nebraska was 30.2 percent in 2014 which is an increase compared to 26 percent in 2005. In 2013, 28.5 percent of Nebraska adults reported consuming sugar-sweetened beverages at least once per day in the past month. In 2015, 59 percent of high school students reported drinking sugar-sweetened beverages at least one time per day during the past seven days. Another aspect of unhealthy lifestyle linked to cancer is physical inactivity.\(^9\) Only 18.8 percent of Nebraska adults met the physical activity recommendations in 2013. In 2015, 52.8 percent of Nebraska high school students reported engaging in at least 60 minutes of physical activity on five or more days during the past seven days.\(^4\)

A lot of work remains to be done to improve primary and secondary cancer prevention in Nebraska. Efforts should be made to achieve behavioral changes related to unhealthy eating and physical inactivity in order to reduce obesity. As evidenced by the high number of high school students with unhealthy lifestyles, education on adapting healthy lifestyle behaviors should start early in life. This includes education on avoiding tobacco smoking and sun/artificial light exposure. In addition, other primary cancer prevention methods, such as HPV vaccination, should be promoted through parental education to achieve higher vaccination rates. Efforts should also be directed at increasing cancer screening for breast, colorectal, and lung cancer such that these cancers can be detected at a stage when they are amenable to treatment. Physicians play an important role in increasing screening uptake by having conversations with their patients during regular checkups and recommending appropriate screening. Research has shown that physician counseling increases patients’ perception of colorectal cancer susceptibility and screening behavior.\(^10, 11\) Furthermore, many interventions have been developed for physicians to receive the most current evidence-based information regarding screening recommendations and tutorials on how to most effectively communicate such information to their patients.

This is not the job of one person or organization - it will require collaboration among various institutions within the state that have the same purpose: to reduce the cancer burden. A multi-disciplinary team of individuals is required to achieve significant changes in cancer prevention. Along these lines the Nebraska Cancer Coalition (NC2), a statewide partnership of over 300 individuals from 200 public and private organizations in the state, was created and is expected to aid in improving cancer prevention through
Getting to 80 Percent by 2018 at the Community Level: The Lincoln Physicians Cancer Screening Story (continued)

several additional family medicine clinics have joined the effort. The second spin off is that several of the independent primary care clinics from the OneHealth Nebraska IPA, based on their ability to successfully implement the project, decided they could then take the next leap to form an ACO. Three of the clinics formed OneHealth Nebraska ACO starting with a Medicare Shared Savings Program contract. They have now expanded to a primary care led ACO comprised of 15 clinics with multi-payer contracts.

The three largest Lincoln physician networks – Bryan Physician Network, One Health Nebraska, and The Physician Network continue to work together on the effort to make Lincoln and Lancaster County's screening rates the best in the state. Based on Medicare claims data analysis provided by Ted Fraser at Great Plains Quality Improvement, we already have!

The Role of Primary and Secondary Cancer Prevention in Achieving the Goal of Nebraska as the Healthiest State (continued)

fostering collaborations. As Mother Theresa nicely put it: “I can do things you cannot, you can do things I cannot; together we can do great things.”

Acknowledgements

I would like to thank Ali Khan, MD, dean of the College of Public Health at the University of Nebraska Medical Center, Tamara Robinson from the American Cancer Society, and Michelle Hood from the Nebraska Department of Health and Human Services for feedback and guidance on identifying information pertaining to this article.

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