Incidence of Cancers Associated with Screening and Modifiable Risk Factors: Alaska 2012-2016

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Objective

To identify geographical regions of Alaska that would benefit from cancer screening programs and behavioral risk factor modification programs based on an examination of their cancer incidence rates.

Background

The Alaska Comprehensive Cancer Control Plan[1] includes many guiding principles, one of which is to identify disparities in cancer burden and address them through planning and implementation of goals and strategies. This study supports the plan by presenting cancer incidence statistics by geographic area for several cancers with the following characteristics:

- Cancers that are associated with modifiable "risk factors" (such as smoking).
- Cancers for which screening tests are available and recommended, also known as "screening-amenable cancers".

Effective comprehensive control and prevention programs focusing on reducing behavioral risk should result in fewer cancers, thus overall cancer incidence should decrease. Effective screening programs should result in more cancers being found early, thus late-stage cancer rates should decrease.

Methods

Many cancers are associated with modifiable risk factors, such as tobacco use, alcohol use, obesity, HPV infections, and excessive sun exposure. The Alaska Cancer Registry (ACR) reviewed these specific risk factors and the cancers with which they are associated. ACR selected the following 11 cancer primary sites for all age groups as indicators for cancers associated with modifiable risk factors:

- Bladder (tobacco use)
- Female breast (alcohol use)
- Cervix (tobacco use, HPV)
- Colorectal (tobacco & alcohol use, obesity)
- Endometrium (obesity)
- Esophagus (tobacco & alcohol use, obesity)
- Kidney & renal pelvis (tobacco use, obesity)
- Liver (alcohol use)
- Lung & bronchus (tobacco use)
- Melanoma of the skin (UV radiation)
- Oral cavity & pharynx (tobacco & alcohol use, HPV)

ACR examined cancer incidence rates for diagnosis years 2012-2016 for each primary site by Behavioral Health Systems Region (Figure 1) and compared them

FIGURE 1: ALASKA BEHAVIORAL HEALTH SYSTEMS REGIONS
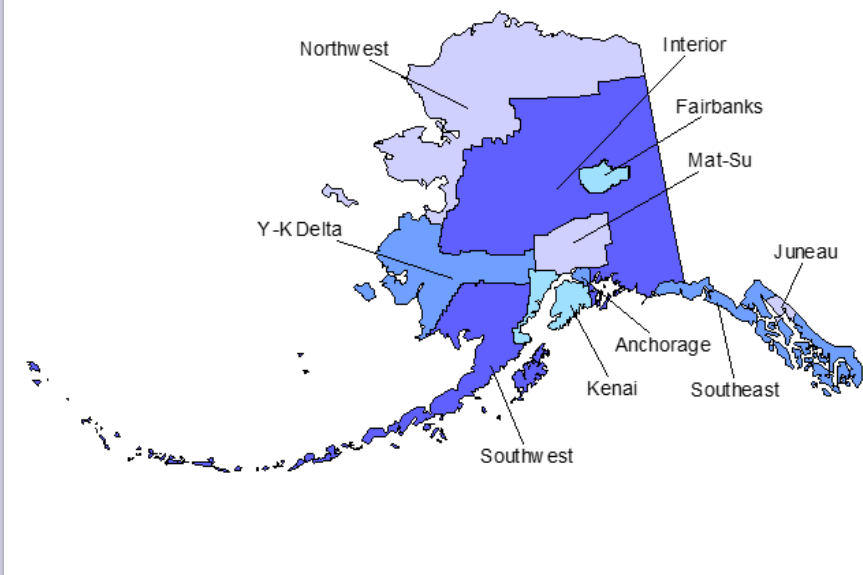
to the overall state rate. It was noted if any regions had rates that were statistically significantly higher than the state rate based on the range of upper and lower confidence limits.

Certain types of cancers can be detected through a variety of screening techniques. Some cancers are more screening-amenable than others, and only certain age groups are recommended to get screened. The Alaska Comprehensive Cancer Control Plan uses screening recommendations from the U.S. Preventive Services Task Force (USPSTF). ACR selected the following cancer primary sites for specific age groups as indicators for cancers associated with screening:

- Female breast (50-74 years)
- Cervix (21-65 years)
- Colorectal (50-75 years)
- Lung & bronchus (55-80 years)

ACR examined late-stage cancer incidence rates for diagnosis years 2012-2016 for each primary site by age group by Behavioral Health Systems Region (Figure 1) and compared them to the overall late-stage state rate. It was noted if any regions had rates that were statistically significantly higher than the state rate based on the range of upper and lower confidence limits.

Results & Discussion

Based on incidence rates for cancers associated with modifiable risk factors and for screening-amenable cancers, there do appear to be some geographic disparities:

- **The Northwest Region has statistically significantly higher rates of colorectal cancer and lung cancer for both late-stage and overall incidence** than the state rates. The high late stage rates suggest that this region could benefit from increased screening for both colorectal cancer and lung cancer. Based on risk factors for these 2 cancers, the high overall rates suggest that this region could benefit from obesity intervention programs as well as tobacco cessation programs
- **The Y-K Delta Region has statistically significantly higher rates of colorectal cancer for both late stage and overall incidence** than the state rates. The high late-stage rate suggests that this region could benefit from increased screening for colorectal cancer. Based on risk factors for this cancer, the high overall rate suggests that this region could benefit from obesity intervention programs as well as tobacco cessation programs.
- **The Mat-Su Region has a statistically significantly higher incidence rate of lung cancer** than the rest of the state. Based on risk factors for this cancer, the high overall rate suggests that this region could benefit from tobacco cessation programs.

Conclusions

This study illustrated that there were some geographic disparities for incidence of certain cancers that were either associated with modifiable risk factors or that were amenable to screening. The results of this study have been published in a report[2] that was widely distributed via GovDelivery email.

The report is posted on the ACR website (http://dhss.alaska.gov/dph/VitalStats/Pages/cancer/registry.aspx#poster) for download. The report can be used by the Alaska Comprehensive Cancer Partnership stakeholders – clinical and public health professionals as well as other health advocacy partners and the public – to support continued planning and evaluation of cancer prevention and control efforts.

References

[1] Alaska Comprehensive Cancer Partnership, 2016. Alaska Comprehensive Cancer Control Plan, 2016-2020. Anchorage, Alaska: Section of Chronic Disease Prevention and Health Promotion, Division of Public Health, Alaska Department of Health and Social Services. http://dhss.alaska.gov/dph/Chronic/Documents/Cancer/assets/AlaskaCancerPlan2016-2020.pdf

[2] O'Brien, D.K., 2020. Incidence of Cancers Associated with Screening and Modifiable Risk Factors: Alaska 2012-2016. Anchorage, Alaska: Alaska Cancer Registry, Health Analytics and Vital Records Section, Division of Public Health, Alaska Department of Health and Social Services. http://dhss.alaska.gov/dph/VitalStats/Documents/cancerregistry/ACR_Screening%20Report_2012-2016.pdf