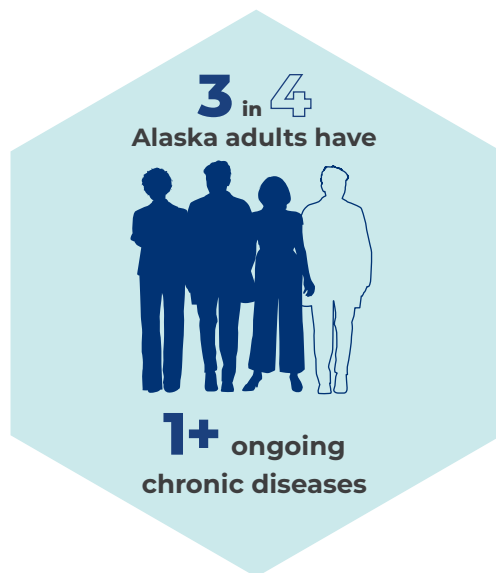
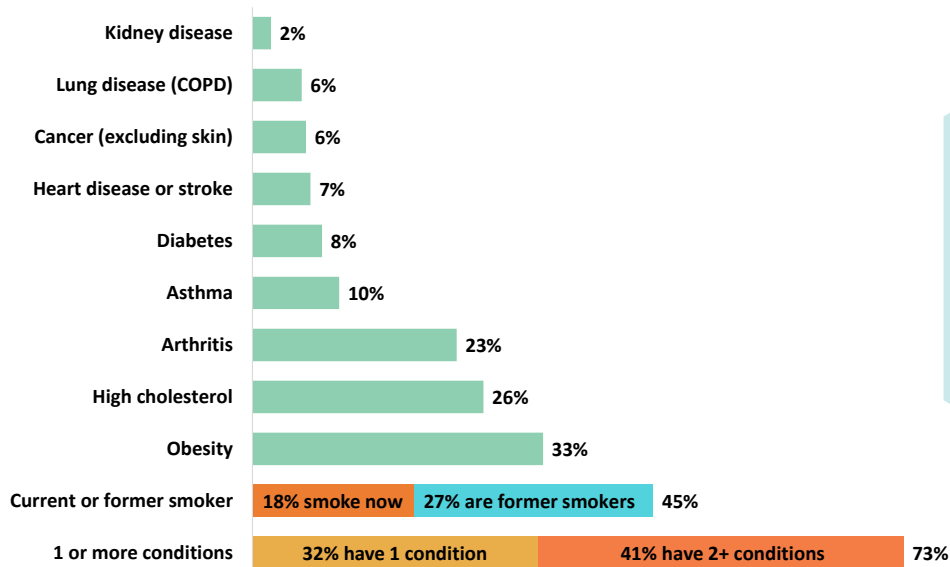


Preventable risk factors are linked to chronic diseases and health care costs in Alaska

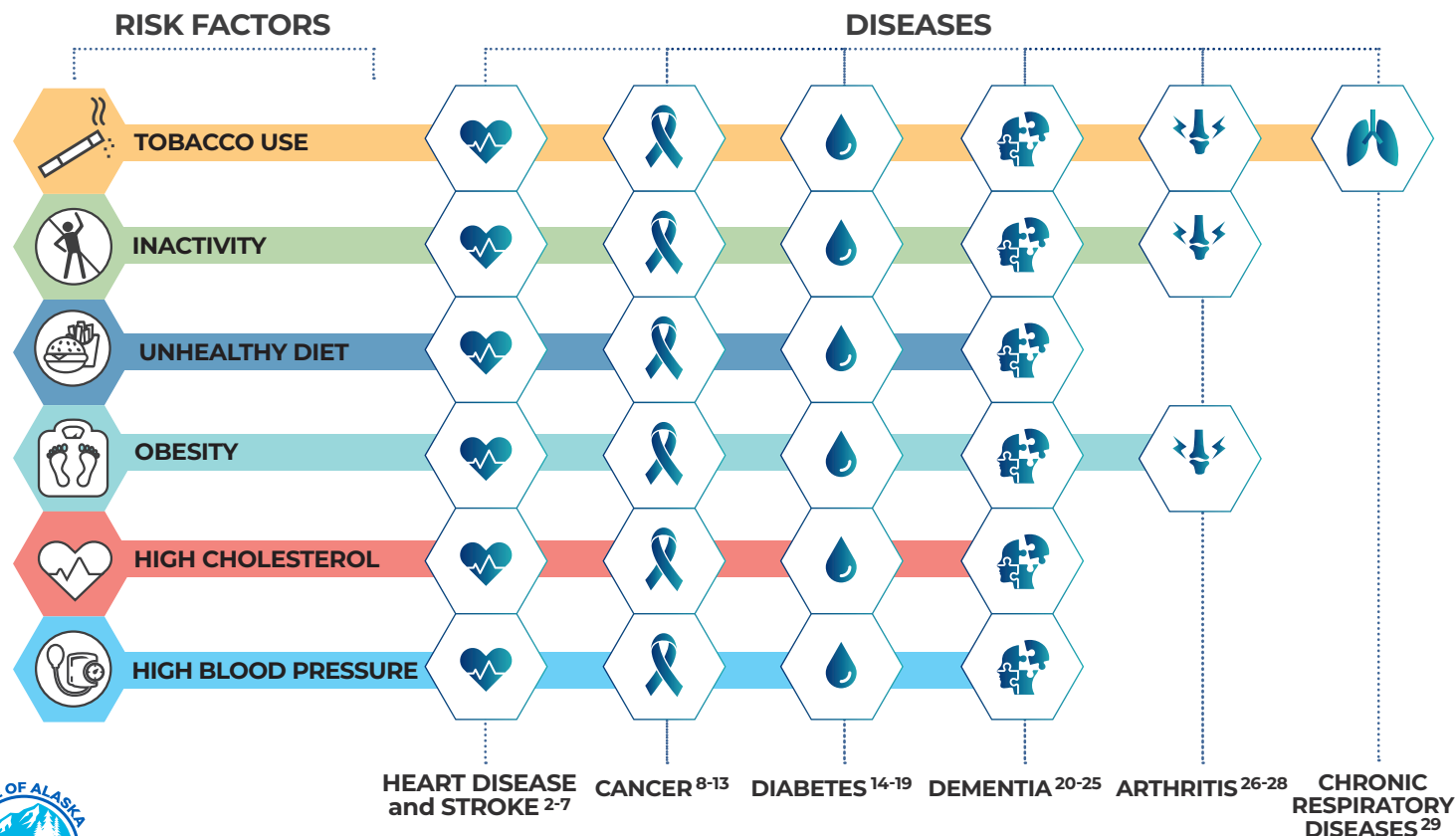
THE PROBLEM: Most Alaskans live with a chronic disease

Nearly **three out of four Alaska adults** have at least one ongoing chronic disease, condition or related behavior like smoking. Many of these health concerns are connected, with 41% of Alaska adults having two or more of these concerns at the same time.¹



Tobacco use, inactivity, unhealthy diet and other **preventable risk factors** can cause more than one ongoing chronic disease.

The below **six risk factors** are linked to one or more chronic disease.



Preventable risk factors are linked to chronic diseases and health care costs in Alaska

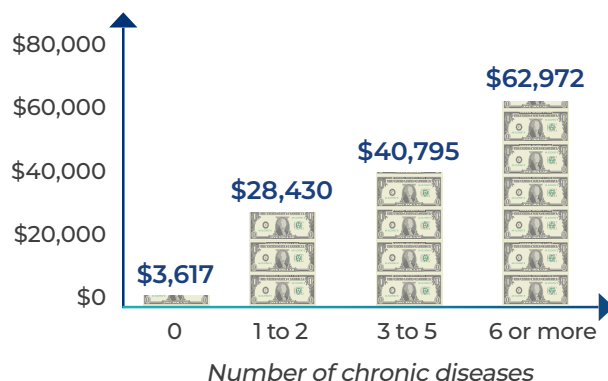
THE COST: To Alaska

An adult living with one or more chronic diseases is much more likely to visit the emergency room, need hospital care, and pay significantly higher health care costs than an adult without chronic diseases.³⁰ The more chronic diseases that an Alaska adult has, the higher that adult's health care costs will be each year.



In Alaska, 76 cents of every dollar spent on Medicaid services treats 25% of Medicaid recipients with chronic diseases.³¹


Average annual spending per Medicaid recipient, by number of chronic diseases, FY 2022³¹





THE SOLUTION: Key changes to prevent and manage chronic diseases

Four healthy behaviors—never smoking, being physically active, following a healthy diet, and maintaining a healthy weight—are linked to as much as an 80% reduction in the chances of developing the most common and deadly chronic diseases.³²

Make the following healthy changes to help prevent or to improve ongoing chronic diseases:

1 Quit smoking or don't start 

3 Eat fruits and vegetables and limit sugary drinks  

2 Be active every day  

4 Maintain a healthy weight 

WHAT CAN WE DO? Communities working together to improve health

Public health professionals: Promote positive changes that help people stay healthy.

Work with communities to improve the places where people live, work, and play to empower Alaskans to be as healthy as possible.

Health care providers: Screen for chronic diseases and educate Alaskans about risk factors.

Improve overall health by coordinating care with other providers and community organizations.

Promote positive health changes and refer patients to chronic disease prevention and management programs in your community or online at freshstart.alaska.gov.

Individuals: Prioritize the four healthy behaviors discussed above.

Visit freshstart.alaska.gov to find a program to help.

Preventable risk factors are linked to chronic diseases and health care costs in Alaska

REFERENCES:

1. Alaska Department of Health, Division of Public Health, Section of Chronic Disease Prevention and Health Promotion. Alaska Behavioral Risk Factor Surveillance System. Available at: <https://alaska-dph.shinyapps.io/BRFSS/>. Accessed August 25, 2023.
2. Hackshaw A, Morris JK, Boniface S, Tang JL, Milenković D. Low cigarette consumption and risk of coronary heart disease and stroke: meta-analysis of 141 cohort studies in 55 study reports. *BMJ*. 2018;360:j5855. doi:10.1136/bmj.j5855
3. Wahid A, Manek N, Nichols M, et al. Quantifying the association between physical activity and cardiovascular disease and diabetes: A systematic review and meta-analysis. *Journal of the American Heart Association*. 2016;5(9). doi:10.1161/jaha.115.002495
4. Chareonrungrueangchai K, Wongkawinwoot K, Anothaisintawee T, et al. Dietary Factors and Risks of Cardiovascular Diseases: An Umbrella Review. *Nutrients*. 2020;12(4):1088. doi:10.3390/nu12041088
5. Bogers RP, Bemelmans WJE, Hoogenveen RT, et al. Association of Overweight With Increased Risk of Coronary Heart Disease Partly Independent of Blood Pressure and Cholesterol Levels: A Meta-analysis of 21 Cohort Studies Including More Than 300 000 Persons. *Arch Intern Med*. 2007;167(16):1720–1728. doi:10.1001/archinte.167.16.1720
6. Liu H, Deng X, Peng Y, et al. Meta-analysis of serum non-high-density lipoprotein cholesterol and risk of coronary heart disease in the general population. *Clin Chim Acta*. 2017;471:23–28. doi:10.1016/j.cca.2017.05.006
7. Fuchs FD, Whelton PK. High Blood Pressure and Cardiovascular Disease. *Hypertension*. 2020;75(2):285–292. doi:10.1161/HYPERTENSIONAHA.119.14240
8. Gandini S, Botteri E, Iodice S, et al. (2008), Tobacco smoking and cancer: A meta-analysis. *Int. J. Cancer*. 122: 155–164. doi: 10.1002/ijc.23033
9. Kyu HH, Bachman VF, Alexander LT, et al. Physical activity and risk of breast cancer, colon cancer, diabetes, ischemic heart disease, and ischemic stroke events: systematic review and dose-response meta-analysis for the Global Burden of Disease Study 2013. *BMJ*. 2016;354:i3857 doi:10.1136/bmj.i3857
10. Bouchev C, Ard J, Bazzano L, et al. Dietary Patterns and Breast, Colorectal, Lung, and Prostate Cancer: A Systematic Review. *U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion, Nutrition Evidence Systematic Review*. 2020. doi:10.52570/NESR.DGAC2020.SR0104
11. Dai Z, Xu YC, Niu L. Obesity and colorectal cancer risk: a meta-analysis of cohort studies. *World J Gastroenterol*. 2007;13(31):4199–4206. doi:10.3748/wjg.v13.i31.4199
12. Miao P, Guan L. Association of Dietary Cholesterol Intake With Risk of Gastric Cancer: A Systematic Review and Meta-Analysis of Observational Studies. *Front. Nutr*. 2021;8:722450. doi: 10.3389/fnut.2021.722450
13. Aune D, Sen A, Vatten L. Hypertension and the risk of endometrial cancer: a systematic review and meta-analysis of case-control and cohort studies. *Sci Rep*. 2017;7: 44808. doi:10.1038/srep44808
14. Pan A, Wang Y, Talaei M, et al. Relation of active, passive, and quitting smoking with incident type 2 diabetes: a systematic review and meta-analysis. *Lancet Diabetes & Endocrinology*. 2015;3(12): 958–967. doi: 10.1016/S2213-8587(15)00316-2
15. Smith AD, Crippa A, Woodcock J, et al. Physical activity and incident type 2 diabetes mellitus: a systematic review and dose-response meta-analysis of prospective cohort studies. *Diabetologia*. 2016;59(12):2527–2545. doi:10.1007/s00125-016-4079-0
16. Schwingshackl L, Hoffmann G, Lampousi AM, et al. Food groups and risk of type 2 diabetes mellitus: a systematic review and meta-analysis of prospective studies. *Eur J Epidemiol*. 2017;32(5):363–375. doi:10.1007/s10654-017-0246-y
17. Abdullah A, Peeters A, de Courten M, et al. The magnitude of association between overweight and obesity and the risk of diabetes: A meta-analysis of prospective cohort studies. *Diabetes Research and Clinical Practice*. 2010;89(3): 309–319. doi:10.1016/j.diabres.2010.04.012

Heart Disease and Stroke

Cancer

Diabetes



Preventable risk factors are linked to chronic diseases and health care costs in Alaska

(References continued)

18. Tajima R, Kodama S, Hirata M, et al. High cholesterol intake is associated with elevated risk of type 2 diabetes mellitus – A meta-analysis. *Clinical Nutrition*. 2014;33(6):946-950. doi:10.1016/j.clnu.2014.03.001
19. Emdin CA, Anderson SG, Woodward M, et al. Usual Blood Pressure and Risk of New-Onset Diabetes: Evidence From 4.1 Million Adults and a Meta-Analysis of Prospective Studies. *Journal of the American College of Cardiology*. 2015;66(14):1552-1562. doi:10.1016/j.jacc.2015.07.059

Dementia

20. Zhong G, Wang Y, Zhang Y, Guo JJ, Zhao Y. Smoking is associated with an increased risk of dementia: a meta-analysis of prospective cohort studies with investigation of potential effect modifiers. *PLoS One*. 2015;10(3):e0118333. doi:10.1371/journal.pone.0118333
21. Yan S, Fu W, Wang C, et al. Association between sedentary behavior and the risk of dementia: a systematic review and meta-analysis. *Transl Psychiatry*. 2020;10(1):112. doi:10.1038/s41398-020-0799-5
22. Liu YH, Gao X, Na M, Kris-Etherton PM, Mitchell DC, Jensen GL. Dietary Pattern, Diet Quality, and Dementia: A Systematic Review and Meta-Analysis of Prospective Cohort Studies. *J Alzheimers Dis*. 2020;78(1):151-168. doi:10.3233/JAD-200499
23. Albanese E, Launer LJ, Egger M, et al. Body mass index in midlife and dementia: Systematic review and meta-regression analysis of 589,649 men and women followed in longitudinal studies. *Alzheimers Dement (Amst)*. 2017;8:165-178. doi:10.1016/j.dadm.2017.05.007
24. Zhu Y, Liu X, Zhu R, et al. Lipid levels and the risk of dementia: A dose-response meta-analysis of prospective cohort studies. *Ann Clin Transl Neurol*. 2022;9:296-311. doi:10.1002/acn3.51516
25. Ou Y, Tan C, Shen X, et al. Blood Pressure and Risks of Cognitive Impairment and Dementia: A Systematic Review and Meta-Analysis of 209 Prospective Studies. *Hypertension*. 2020;76(1): 217-225. doi:10.1161/HYPERTENSIONAHA.120.14993

Arthritis

26. Di Giuseppe D, Discacciati A, Orsini N, et al. Cigarette smoking and risk of rheumatoid arthritis: a dose-response meta-analysis. *Arthritis Res Ther*. 2014;16:R61. doi:10.1186/ar4498
27. Sun L, Zhu J, Ling Y, et al. Physical activity and the risk of rheumatoid arthritis: evidence from meta-analysis and Mendelian randomization. *International Journal of Epidemiology*. 2021;50(5):1593-1603. doi:10.1093/ije/dyab052
28. Feng X, Xu X, Shi Y, et al. Body Mass Index and the Risk of Rheumatoid Arthritis: An Updated Dose-Response Meta-Analysis. *BioMed Research International*. 2021;2019:3579081. doi:10.1155/2019/3579081

Chronic Respiratory Diseases

29. Forey BA, Thornton AJ, Lee PN. Systematic review with meta-analysis of the epidemiological evidence relating smoking to COPD, chronic bronchitis and emphysema. *BMC Pulm Med*. 2011;11(36). doi:10.1186/1471-2466-11-36

Cost

30. Skinner HG, Coffey R, Jones J, Heslin KC, Moy E. The effects of multiple chronic conditions on hospitalization costs and utilization for ambulatory care sensitive conditions in the United States: a nationally representative cross-sectional study. *BMC Health Serv Res*. 2016;16:77. doi:10.1186/s12913-016-1304-y
31. Evergreen Economics. Long-Term Forecast of Medicaid Enrollment and Spending in Alaska: FY2023-2024. *Alaska Department of Health*. 2023. <https://health.alaska.gov/fms/Documents/Medicaid-Forecast/AK-Long-Term-Medicaid-Forecast-FY2023-FY2043.pdf>. Accessed November 27, 2023

Solution

32. 4 Healthy lifestyle factors help ward off chronic disease. Diet, exercise, low body mass index and not smoking can reduce the incidence of heart disease, diabetes, stroke and cancer. *Duke Med Health News*. 2009;15(11):4-5.