

Health and Transportation: Making the Connection

2016 Status Report

Oregon Department of Transportation

Oregon Health Authority Public Health Division



Oregon
Health
Authority
PUBLIC HEALTH DIVISION

Oregon
Department
of Transportation



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Executive summary

Transportation options where people live, learn, work and play can significantly affect individual and population health. Transportation policy, infrastructure and options can support health through many pathways, especially when transportation infrastructure is designed to facilitate non-motorized transportation. The pathways include injury prevention, physical activity and air quality.

While transportation can influence health, people's health can influence their transportation needs. Mobility issues and serious illness can make traveling extremely difficult. The reciprocal relationship between health and transportation has been understood by both the Oregon Health Authority-Public Health Division (PHD) and the Department of Transportation (ODOT) for many years. In 2013, leaders at both agencies decided to formalize and broaden the partnership.

A memorandum of understanding was signed to provide additional structure to the partnership and to serve as a point of reference for both agencies. Initial partnership work has included:

1. Outreach to area commissions on transportation

Outreach has been conducted through meetings and presentations to highlight priorities for work in health and transportation. These priorities include active transportation; crash reduction; and non-emergency transportation for older adults, citizens with disabilities, veterans and Medicaid patients.

2. Participation in advisory committees

PHD staff served on ODOT-convened committees that provide guidance for transportation funding, and program and project decisions across the state. These committees advise on active transportation, transportation system improvements, public transportation, and safety and distracted driving. ODOT staff have provided expertise and technical assistance to PHD groups focusing on health impact assessments, health and transportation modeling tools, and climate adaptation planning.

3. Convening public health and transportation practitioners

ODOT and PHD partnered with the Transportation and Growth Management Program to present workshops around the state on health and transportation. The workshops featured nationally known experts who spoke on designing healthy communities and promoting active transportation.

Notable partnership achievements include:

- Inclusion of specific health goals in a variety of statewide ODOT plans
- Collaboration in disaster response planning and preparedness exercises
- Development of a case study to capture lessons relevant to future climate adaptation planning efforts
- Creation of resources and tools to inform transportation and public health practitioners interested in working together

Future work will include updating Transportation System Plan Guidelines and helping local governments improve safety and encourage active transportation as part of their transportation system plans. The partnership will continue to support longstanding efforts to effectively integrate emergency medical system prehospital data with trauma data to create a new data set linked on both traffic and health.

The partnership between ODOT and PHD is consistent with the goals of national and state health system transformation. Public health partners can support health care partners address upstream, social and environmental determinants of health. By extension, transportation and other non-health sectors are being identified as key assets in creating population health.

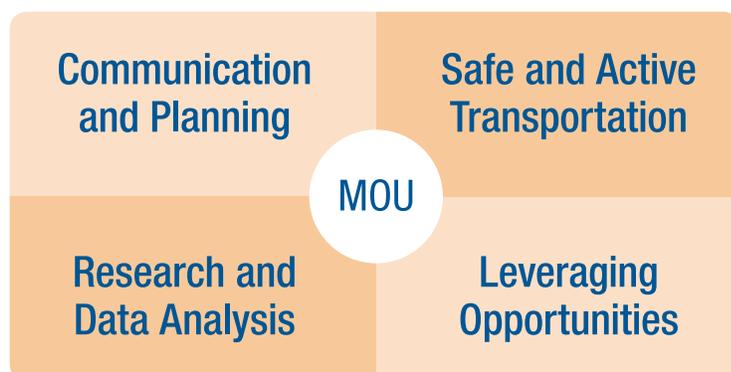
The Oregon Department of Transportation and the Oregon Health Authority will work together to optimize transportation and funding choices that influence the health of people in Oregon, reduce the burden of health care costs, create a better quality of life in our communities, and prepare for future challenges.

History of the partnership

In a 2012 speech to the Oregon Transportation Commission (OTC), then-Governor Kitzhaber charged the OTC with considering the important role transportation plays in the health of Oregon's population. For the first time, 'health' became included as one of six thematic priorities in the OTC 2012 Work Plan, and was integrated as a valuable component of transportation.

This was an important step in recognizing the collaborative work taking place for several years between Oregon Department of Transportation (ODOT) and the Oregon Health Authority-Public Health Division (PHD). This set the stage to expand joint efforts in a variety of programs in each agency.

In spring of 2013, senior managers of ODOT and PHD met to discuss the potential of a formalized collaboration, and the two agencies adopted a memorandum of understanding (MOU). The MOU addressed several key areas of work, shown above.



A leadership team from both agencies currently meets quarterly to advance progress on key projects identified in a joint work plan. Staff at all levels of both agencies are moving a variety of collaborative efforts forward. The formalized relationship expands this partnership to address changing health priorities and respond to emerging information on the multiple health impacts of transportation.

Rationale for working together

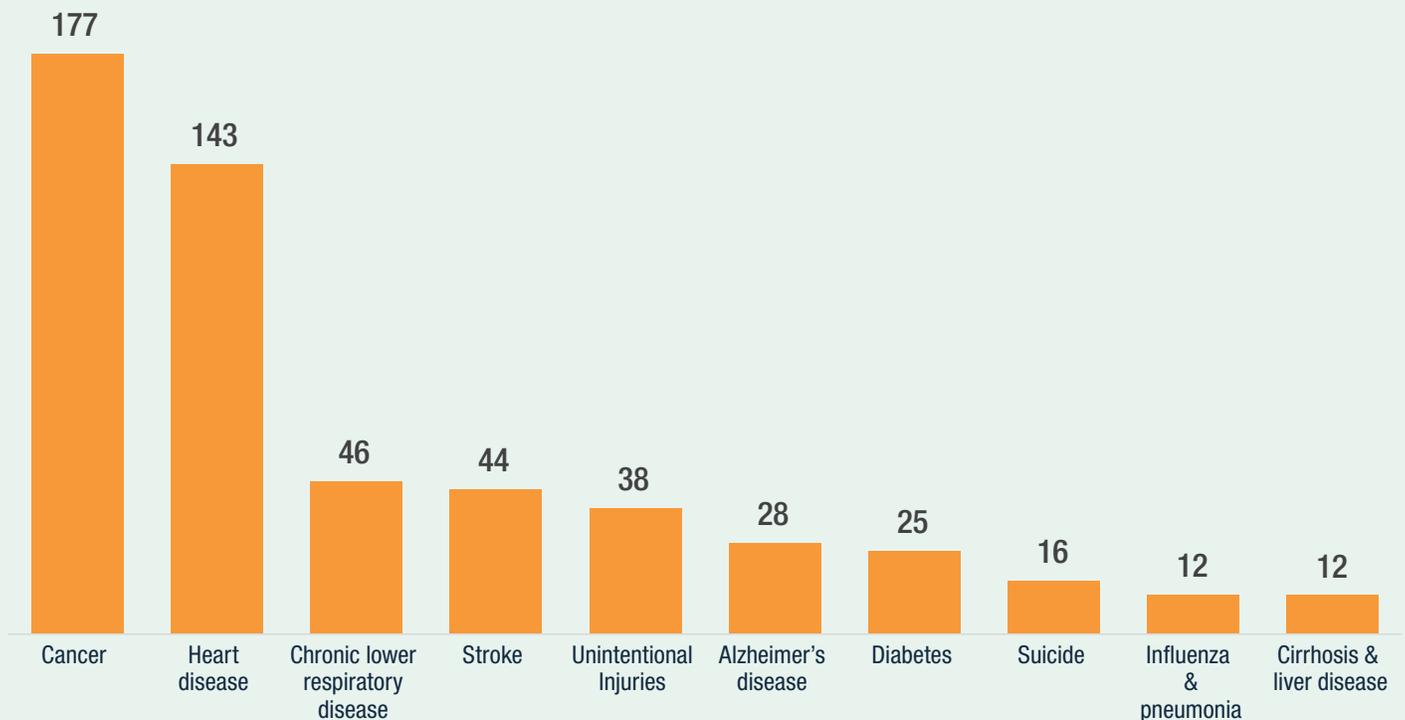
Good health is an essential part of a high quality of life and is a widely shared goal. Decision-makers, community leaders and the public have all come to understand that opportunities for health happen mostly outside of the doctor's office. Established research models show a combination of lifestyle, behavior, environmental and social factors account for most (at least 60 percent) of our health status, while medical care only accounts for about 10 percent.⁽¹⁾ In other words, it is the places people live, work and play that have the most significant impact on creating individual and population-level health status.

Clearly, to create a healthy population, organizations outside of health care must value health. ODOT supports health through a primary focus on safety, and also by setting out to balance economic, environmental and community well-being in a manner that protects the needs of current and future generations.

By linking health and transportation, ODOT and PHD's partnership brings transportation professionals and health practitioners together in a collaborative process to support both agencies' missions. The health and transportation relationship is reciprocal: transportation options and infrastructure can shift personal behaviors that contribute to health status, while health promotion activities can shift transportation choices in ways that benefit the transportation system. For example, when more people walk or bike, more of the population is meeting physical activity recommendations, while roadways are less congested, pollution is reduced and neighborhoods are more livable. ODOT and PHD both have a stake in creating a variety of transportation mode options.

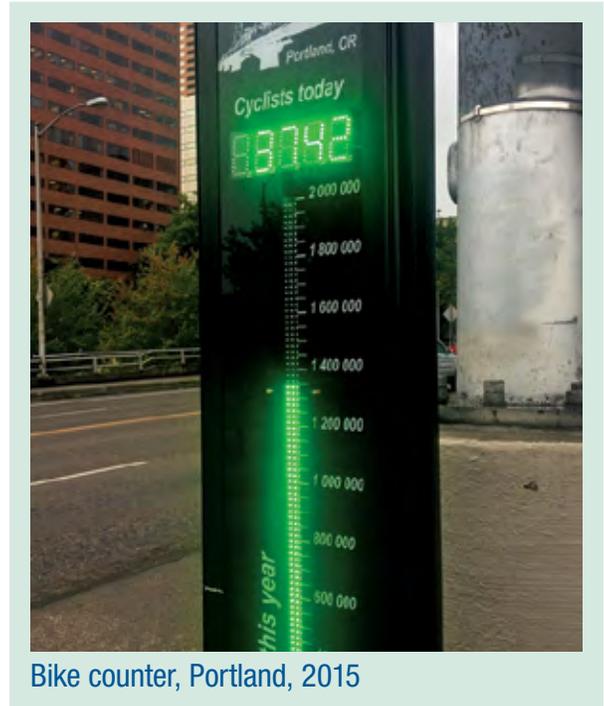
Leading causes of death, Oregon 2014

Age-adjusted rates per 100,000 residents



Oregon Health Authority – Public Health Division. Oregon Vital Statistics Report, Vol 2, 2014

The leading causes of death in Oregon — cancer, heart disease, chronic lower respiratory disease, stroke and unintentional injuries — illustrate how the transportation sector can affect health.(2) This occurs through behavioral, environmental and social factors that influence our health status. Transportation decisions can increase physical activity levels, reduce exposure to air and noise pollution, minimize the risk and severity of crashes, and improve access to a wide variety of health-supportive resources such as parks, trails, medical and social services, jobs and schools. This concept is widely supported by the Centers for Disease Control and Prevention, the Institute of Medicine, and other leading health organizations that have reviewed a large body of evidence related to transportation behavior and health outcomes. These organizations concluded specific transportation policies and investment strategies can indeed have measurable impacts on health.



Bike counter, Portland, 2015

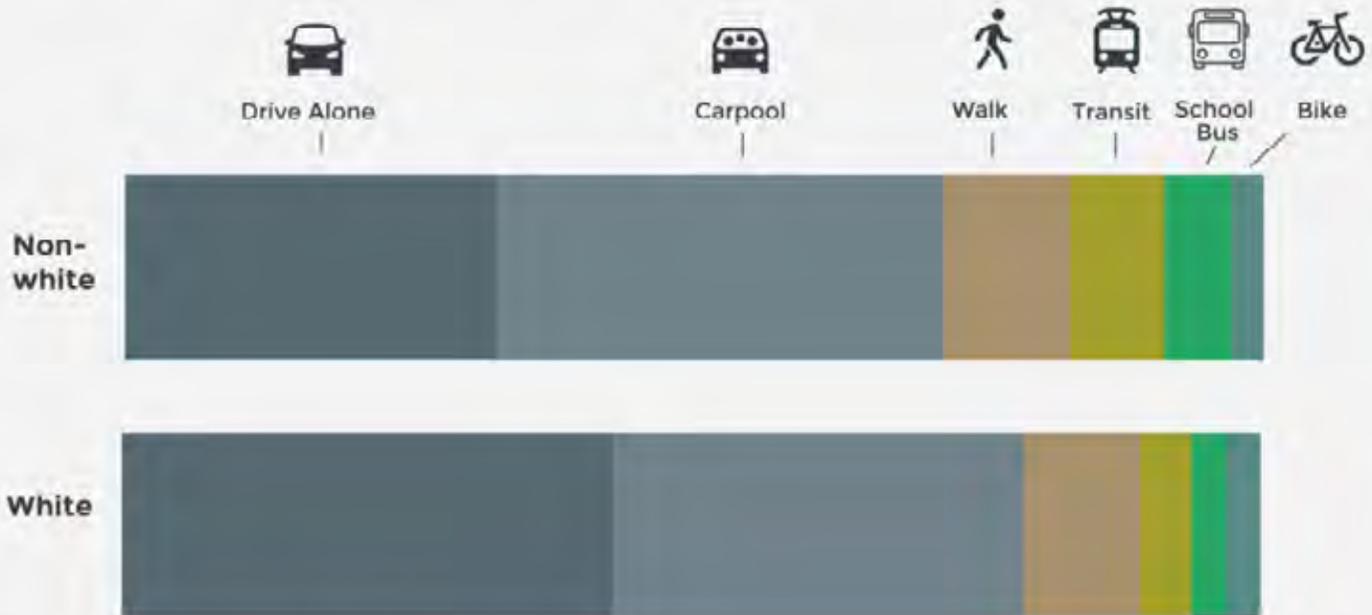
This research shows even small increases in moderate activity such as walking will produce measurable health benefits among those who are least active. Benefits include reducing the risk of coronary heart disease, stroke and other chronic diseases. Since physical inactivity has been estimated to account for 11 percent of



all health care costs in the U.S., getting the population active results in better health and lower cost burden. (3) The U.S. Surgeon General's 2015 Call to Action on Walking and Walkability highlighted the primary role walking trips play in getting the U.S. population more active, and called upon the transportation and health sectors to work together to promote walking.(4)

In 2013, more than 300 Oregonians died and nearly 2,000 were hospitalized due to motor vehicle crash injuries.(5) The causes of these crashes are complex and can include a range of factors such as roadway design, alcohol- or drug-impaired driving and car seat use for infants and children. Interagency collaboration on these issues can result in reduced motor vehicle crashes and fewer injuries and fatalities.

Communities of color rely more on transit, walking, and biking.



Source: Oregon Household Activity Survey, 2011.

Both agencies use an equity lens to plan strategic initiatives and ensure those most affected are served. For example, in Oregon, people of color, people with low incomes and people living with disabling conditions often experience a higher burden of disease. These same communities often rely more than the general population on a multi-modal transportation system, whether to commute to work or to access goods and services. Both agencies are committed to ensuring the multi-modal transportation system is safe and accessible for all populations.

A strong relationship between ODOT and PHD can also help mitigate the health impacts of future crises the state may face. These include human and natural disasters, such as a Cascadia Subduction Zone earthquake and/or tsunami event that could cause vast injuries and fatalities, disrupt roadways, and cut off access to hospitals and other critical services. Similarly, climate change models predict greater wildfires, floods and other hazards that can affect mobility and access to both the transportation and health systems. ODOT and PHD can share strategies and plans to leverage the best possible outcomes for Oregonians, should these events take place.

There are many reasons for ODOT and PHD to work together, now more than ever: interest and concern about air quality, obesity, disaster preparedness, impaired driving, and as always, ensuring access to critical services, jobs and opportunities.

Highlights of initial efforts

Outreach to area commissions on transportation

The partnership's early goals included a concerted effort to inform local government partners about this work to develop a shared understanding of the important role transportation plays in the health status of Oregonians. ODOT and PHD have made joint presentations to six area commissions on transportation (ACTs). Presentations offered to all the ACTs focused on linkages most relevant to their needs, including active transportation, crash reduction and non-emergency transportation services for older adults, citizens with disabilities, veterans and Medicaid patients.

The outreach provided an opportunity to build local coordination around the topics that most interested the ACTs. It also helped local public health stakeholders hear, in some cases for the first time, about the types of policy, planning and project decisions that ACTs make – such as recommending funding for ConnectOregon and the State Transportation Improvement Program (STIP) Enhance funds. Some ACTs elected to add a health representative to their body, or to direct planning staff to collaborate with health partners on local issues.

Participating in advisory committees

One of the most effective ways to strengthen the partnership between transportation and public health has been through participation and membership on advisory committees, task forces and project teams. Transportation planning and policy development has a long history of inclusive stakeholder involvement. While community objectives and public well-being have been considered for many years in transportation, recent work has created a more direct link to public health objectives and outcomes.

MULTIMODAL TRANSPORTATION FUND

The Oregon Legislature supports the *ConnectOregon* program, which is aimed at improving transportation connections around the state by investing in rail, marine ports, aviation, public transit, and bicycle and pedestrian projects. The investment in *ConnectOregon* leverages nearly three-quarters of a billion dollars in other funds and supports multimodal connection projects and better integrated transportation system components. Projects have improved access to jobs and sources of labor for Oregon residents and businesses.

PHD staff have served in a variety of roles:

- Oregon Transportation Safety Action Plan – Policy Advisory Committee
- Oregon Bicycle and Pedestrian Plan – Technical Advisory Committee
- Oregon Public Transportation Plan – Policy Advisory Committee
- Statewide Transportation Improvement Program – Advisory Committee
- Distracted Driving Task Force
- Transportation and Growth Management Advisory Committee

ODOT staff have also increasingly participated in public health projects, including:

- Serving as advisory committee members and participating stakeholders for multiple transportation-focused health impact assessments (HIA) in different parts of the state
- Providing technical advice to PHD on the development of modelling tools such as the Integrated Transport and Health Impact Model
- Serving as advisory committees for PHD climate adaptation planning

Opportunities for connection, consultation and advisory roles between transportation and public health experts will continue to present themselves in the future, by building on established relationships and creating new connections.



Do Not Text and Drive campaign



Linn and Benton County visit, December 2015

Convening public health and transportation practitioners

The Transportation and Growth Management Program (TGM) is a joint program of ODOT and the Department of Land Conservation and Development that provides education and outreach to jurisdictions around the state. ODOT and PHD partnered with TGM to mirror the outreach efforts that occurred with ACTs. The partners sought to develop a shared understanding of this work among public health practitioners and transportation planners around the state. TGM, with staff support of PHD, organized a series of workshops on health and transportation, starting in 2012 and expanding significantly under the partnership in 2014 and 2015. Communities in urban, suburban and rural parts of the state have been served, including Albany, Beaverton, Bend, Corvallis, Eugene, Medford, Roseburg, Salem and Tigard.

The workshops have featured nationally known speakers addressing timely areas of evidence and practice for this work, including:

- Dr. Richard Jackson, chair of Environmental Health Sciences at UCLA, speaking on *Designing Healthy Communities*
- Dr. James Sallis, director of Active Living Research at the University of California, San Diego, speaking on *How Activity-Friendly Communities Can Make Our Lives Better*
- Mark Fenton, public health, planning and transportation consultant, speaking on *Connecting the Dots on Obesity: Health, Transportation, and Walkability*

Notable achievements

Disaster preparedness and response

PHD and ODOT have a long history of collaboration in disaster response planning. Communication is ongoing and each agency has a significant role to play. ODOT assesses the vulnerabilities of the highway system, considers links to critical facilities and prioritizes routes for investments in improved resilience. PHD assesses and plans for the treatment of critically injured people, including logistics to access medical aid. Early efforts resulted in the Oregon Emergency Management Playbook and plans detailing protocols to request assistance of each agency to move and coordinate resources during an event.



Flooding shuts down part of Highway 101 in Tillamook County, December 2015

The MOU and the recent attention to a potential Cascadia Subduction Zone event have strengthened this work. In June 2016, both agencies conducted an extensive “Cascadia Rising” statewide exercise. Through continuous communication on preparedness, there is a clearer understanding of each agency’s plans and roles in response to a disaster. Understanding how transportation will be affected by a disaster and what can be expected from ODOT emergency response teams helps PHD anticipate the impact on health and medical response, and plan accordingly.

Climate adaptation case study

Oregon is projected to have more frequent and severe climate hazard events such as extreme precipitation, winter storms, floods, coastal erosion, heat waves, drought and wildfire. Oregonians will need resilient transportation systems that can connect communities, and resilient health systems that ensure all community members receive the health care and basic services they need during and after emergencies.

In December 2015, Tillamook County experienced a series of powerful storms in which heavy rains, high winds and high sea level led to floods, record tides, landslides, interrupted public services and road closures.

ODOT and PHD staff worked together to develop a case study to capture lessons learned from the event that could inform future climate adaptation planning efforts. This resulted in a better understanding of how the health and transportation systems adapted to emergency conditions to keep local communities safe and healthy during and after the storms. The case study helped identify emerging priorities and new protocols for building resilience to future extreme weather events. ODOT and PHD have strengthened relationships between our state agencies and with local partners, which has revealed opportunities to improve coordinated response and helped identify resources state agencies can offer local partners to support resiliency and recovery efforts.

Tools and resources for transportation and public health practitioners in Oregon

PHD, with input from ODOT, has developed technical resources including modelling tools and research summaries for transportation and public health practitioners interested in working together.

The primary model being used to quantify the health impacts of transportation systems is the Integrated Transport and Health Impact Model (ITHIM). ITHIM was originally developed in England, but staff from PHD, ODOT and other researchers in the U.S. adapted the tool for use in Oregon. PHD has developed an additional component for estimating the financial costs and benefits related to modelled changes in health, as well as a version of the tool called the Transportation Options Health Impact Estimator to help ODOT plan and evaluate their Transportations Options programs. PHD has used ITHIM to support transportation-focused health impact assessments and other transportation planning efforts, and is working with ODOT to adapt ITHIM to work with GreenSTEP, one of ODOTs primary transportation planning models. These efforts to improve data collection and modelling are being shared with local planning and public health agencies.

PHD also recently produced a transportation brief summarizing the current research on the connections between transportation and health. It can also be used by both sectors to communicate this information to local partners and stakeholders.

Moving forward: Future milestones in the ODOT-OHA partnership

Throughout the first two years since the signing of the ODOT-PHD partnership MOU, new initiatives have continued to take shape. Staff, senior managers and leaders of both agencies are committed to being responsive to emerging issues and opportunities.

Transportation System Plan Guidelines update

In 2016–2017, ODOT’s Transportation Planning Division will update the Transportation System Plan Guidelines. Key elements of the update will incorporate guidance to improve the safety of local and regional transportation systems, encourage healthy and active transportation through increasingly connected multi-modal systems, and consider opportunities for Transportation System Management & Operations to benefit travel options and air quality (e.g., traveler information, signal optimization). With PHD, health stakeholders will be one of many partners to inform this effort.

Transportation in state and local health planning efforts

Transportation continues to be of great interest in state and local public health work, as a strategy to increase physical activity, to reduce exposure to air pollution, to reduce injuries and fatalities caused by impaired driving, or promote healthy environments for an aging population. This is reflected in Oregon’s State Health Improvement Plan (SHIP) and local community health improvement plans (CHIPs), which cite transportation as a strategy to improve population health and reduce health disparities.



Joe Dills, health and transportation event in Linn and Benton counties 2015

Oregon's public health system will need to focus on new areas of work to advance policies that support both health and transportation goals. Findings from a 2016 self-assessment completed by state and local health department staff show one in three Oregonians lives in an area where public health capacity to engage in land use planning is minimal or limited. Transportation is a key piece of Oregon's current efforts to modernize Oregon's public health system and effectively address its priorities. PHD will encourage local stakeholders to identify transportation-related priorities by reviewing the SHIP and their area's CHIP(s), to formalize partnerships, and to develop strategies and actions that will have a collective impact on shared goals.

Linking the EMS prehospital data to Oregon's Trauma Registry

ODOT has worked closely with PHD to address injuries and fatalities related to motor vehicle crashes, and has provided funding to support a project to upgrade the Oregon Trauma Registry to national standards to achieve timely, complete, valid and reliable data for 100% of reporting agencies. This is a major effort to integrate emergency medical system (EMS) prehospital data with trauma data, as well as to create a new data set linked on both traffic and health. The MOU formally supports the integration of established activities and commitment to develop this work, such as signing formal data sharing agreements between ODOT and PHD.

This data linkage work will continue to be a strong priority of the partnership. The EMS prehospital data could eventually link a whole sequence of events, from a crash to on-the-scene medical attention, to emergency transport, to hospital care. The link to each step of the emergency trauma process would be available to both OHA and ODOT for research, planning and quality improvement efforts.



ODOT and PHD will integrate EMS prehospital data with the Oregon Trauma Registry



Health system innovations

The past several years, U.S. health care has seen dramatic changes brought by the Affordable Care Act (ACA), with a powerful underlying concept that programs will pay for health outcomes achieved, rather than treatments and services. In Oregon, coordinated care organizations (CCOs) have been formed to serve Oregon Health Plan (Medicaid) members through comprehensive care and through a focus on wellness and prevention. This shift is spurring health care partners to look at the upstream social and environmental determinants of health, and is bringing health care and public health closer together. By extension, transportation partners and other non-health sectors are being identified as new assets in creating population health. Oregon CCOs are required to partner with public health on the development of community health assessments and community health improvement plans, which work towards measurable achievements in population health.

InterCommunity Health Network Coordinated Care Organization (IHN-CCO) and the Oregon Cascades West Council of Governments (OCWCOG), a regional planning and service-delivery agency that covers Benton, Lincoln, and Linn counties came together to promote active transportation options in Corvallis.

These partners, with many additional public and private sector supporters, launched the Pedal Corvallis bike share program to promote community health, connectivity and livability. Through a network of bicycles and stations, a member or renter can check out and return bikes. The bike share program is available to the public and is being promoted to IHN-CCO members. This project is one example of the new cross-sector work that lies ahead to achieve better population health and a stronger multi-modal network in Oregon.

The Oregon Department of Transportation and Oregon Health Authority are committed to working together to optimize transportation policy and funding choices that have the potential to influence the health of Oregonians, reduce the burden of health care costs, create a better quality of life in our communities and help Oregon be prepared for future challenges.

Walk and Bike Challenge Month

In 2015, 13 cities had schools participating in the Walk and Bike Challenge month, logging almost 104,000 walk, bike and other active trips.

[Oregon Safe Routes to School Annual Snapshot Report](#)

Endnotes

1. Mcginnis JM, Foege WH. Actual Causes of Death in the United-States. *Jama-Journal Am Med Assoc* [Internet]. 1993;270(18):2207–12. Available from: <Go to ISI>://WOS:A1993ME81600033
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4. U.S. Department of Health and Human Services-Office of the Surgeon General. *Step It Up! The Surgeon General's Call to Action to Promote Walking and Walkable Communities* [Internet]. Washington D.C.; 2015. Available from: <http://www.surgeongeneral.gov/library/calls/walking-and-walkable-communities/index.html>
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