



**UNIVERSITY OF WYOMING
COLLEGE OF HEALTH SCIENCES
ECONOMIC AND COMMUNITY
IMPACT ON THE STATE OF WYOMING**

July 2015



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I. EXECUTIVE REPORT

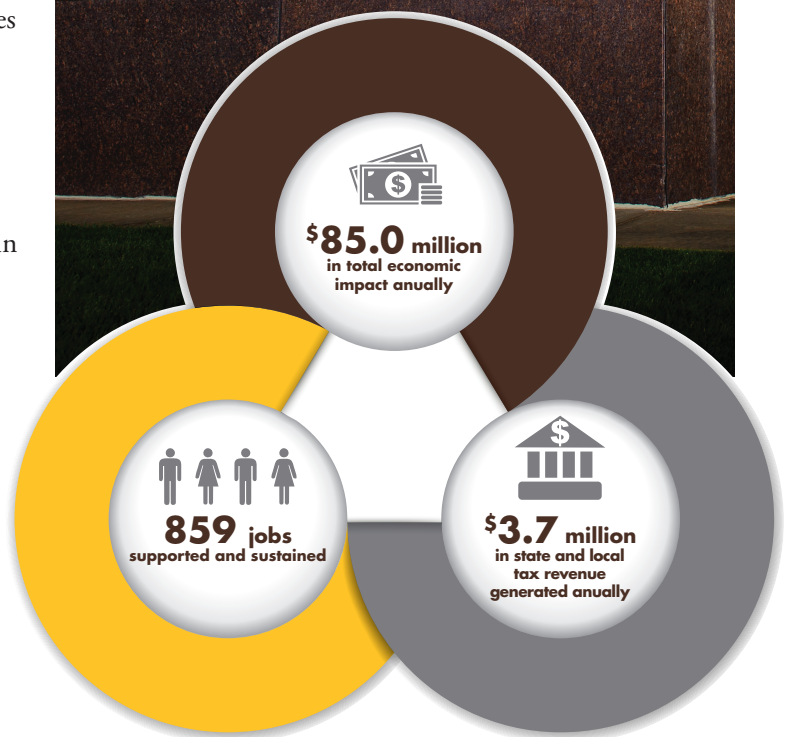
A. Introduction

The University of Wyoming College of Health Sciences (UW Health Sciences) is Wyoming's gateway to the health professions. UW Health Sciences offers undergraduate, graduate, and post-graduate training in Communication Disorders, Kinesiology and Health, Medicine, Nursing, Pharmacy, Social Work, and Dental Hygiene. The college also offers minors in health sciences, disability studies, and aging studies; these are suitable complements to degrees in the health professions and other areas of study such as business, education, agriculture, psychology, and the pre-health professions studies. The College of Health Sciences believes that cultural, social, economic, and geographic diversity is of the utmost importance and strives to fill the shortage of healthcare providers within Wyoming. UW Health Sciences is committed to growing and expanding educational opportunities within Wyoming to train and retain healthcare professionals.

The impact of these programs goes beyond pure economics. UW Health Sciences educates the health care workforce of Wyoming who provide high quality care to residents of the state. This report and analysis calculates the impact of all UW Health Science programs, and provides additional analysis and focus on the the WWAMI Medical Education Program and Family Medicine Residency Programs.

According to the Association of American Medical Colleges (AAMC), Wyoming ranks 47th nationally in terms of per capita physicians. To address this critical physician shortage in Wyoming, the State of Wyoming participates in the WWAMI Medical Education Program. WWAMI is a regional medical education program with the University of Washington School of Medicine.¹ WWAMI is the primary means of access for allopathic medical education in Wyoming. UW Health Sciences also supports two Family Medicine Residency programs in Casper and Cheyenne.

The results presented in this economic impact study are generated on an annual basis. The economic impact in future years can either be higher or lower, based on the number of students, capital expansion, operational expenditures, number of employees, and the level of state appropriations associated with UW Health Sciences. It is important to note that the economic and employment impacts stated in this report represent the “fresh dollar” impact² of UW Health Sciences. **The operations of UW Health Sciences generate \$85 million in economic impact and sustains 859 jobs throughout the state on a per annum basis.**



1. The WWAMI program annually reserves seats for up to twenty qualified Wyoming residents. Participants complete the first year of medical school at the University of Wyoming in Laramie and the second year in Seattle at the University of Washington. The third and fourth years are spent in clinical sites throughout the WWAMI region (Washington, Wyoming, Alaska, Montana, and Idaho).

2. This methodology looks at dollars that come into a region from outside of a region. For this study, the region has been defined as the state of Wyoming. New revenue, often called “fresh dollars”, comes into the region in the form of external research funding and visitors traveling from outside the region and staying overnight: lodging, accommodations, restaurants, transportation, etc.



The College of Health Sciences Mission Statement:

“The mission of the College of Health Sciences is to promote excellence in health and human services through university teaching, research, and service with special emphasis on rural populations.”

B. Project Overview

Tripp Umbach was retained by the University of Wyoming Health Sciences to measure the economic, employment, and government revenue impacts of the University of Wyoming College of Health Sciences programs, WWAMI, and Family Medicine Residency Programs in Casper and Cheyenne (referred to in the report as UW Health Sciences). The data is presented in aggregate with breakouts of impact provided (see Appendix C). The goal of this report is to quantify annual economic impact of institutional spending and employment on the state of Wyoming for fiscal year 2013, specifically:

- Economic impact as a result of UW Health Sciences
- Direct and indirect jobs supported as a result of the UW Health Sciences spending;
- Direct and indirect local and state tax revenue generated by UW Health Sciences.

In addition to the operational impacts calculated for UW Health Sciences the following impacts were calculated.

- Social impacts provided by UW Health Science employees and volunteers, including annual charitable donations, volunteerism, and community leadership; and
- Annual economic impact of Wyoming WWAMI and family medicine residency graduates practicing in Wyoming.

UNIVERSITY OF WYOMING HEALTH SCIENCES OPERATIONAL IMPACT

STUDY OVERVIEW:

Fiscal year 2013

THIS STUDY INCLUDES:

- Communications Disorders
- Family Medicine Residency Program Casper
- Family Medicine Residency Program Cheyenne
- Kinesiology
- Nursing
- Pharmacy
- Social Work
- WIND
- WWAMI
- WyGEC

STUDY GEOGRAPHY:

State of Wyoming

METHODOLOGY:

IMPLAN



C. METHODOLOGY EMPLOYED IN THE ECONOMIC IMPACT STUDY

This economic impact analysis measures the effect of direct, indirect, and induced economic output, employment, and government revenue impacts for all of UW Health Sciences operations throughout the State of Wyoming. The methodology employed in the calculation of these impacts is IMPLAN.³ Primary data utilized to conduct the analysis was collected from UW Health Sciences. Data included: capital expenditures, operational expenditures, jobs, payroll and benefits, and direct taxes. In addition to the quantitative data collected from the various programs throughout the state, Tripp Umbach conducted interviews with 25 key stakeholders. This data was utilized to inform the narrative of the report (See Appendix B for the detailed methodology and discussion guide used to facilitate the interviews). The approach taken on this study was decidedly conservative. UW Health Sciences provides value and additional economic impact beyond what is captured in this economic impact study.

Economic impact begins when an organization spends money. Studies measuring economic impact capture the direct economic impact of an organization's spending, plus additional indirect and induced spending in the

economy as a result of direct spending. Economic impact has nothing to do with dollars collected by institutions, however if institutions experience declines in funding due to cuts in state appropriations, it is to be expected that an organization would have less money to spend on goods and services.

The total economic impact measures the dollars that are generated within Wyoming due to the presence of UW Health Sciences. This includes not only spending on goods and services with a variety of vendors within the state and the spending of its staff and visitors, but also the business volume generated by businesses within Wyoming that benefit from UW Health Sciences spending. It is important to remember that not all dollars spent by a university remain in its home state. Dollars that "leak" out of the state in the form of purchases from out-of-state vendors are not included in the university's economic impact on the state. The multipliers utilized in this study are derived from the IMPLAN software. Three types of impact are calculated within the economic impact: direct, indirect, and induced. For the purposes of reporting, Tripp Umbach combines the indirect and induced impacts.

UW HEALTH SCIENCES IMPACT



DIRECT **INDIRECT** **INDUCED**

Investment in Construction
and Expenditures
for Operations

Purchases from Area Suppliers

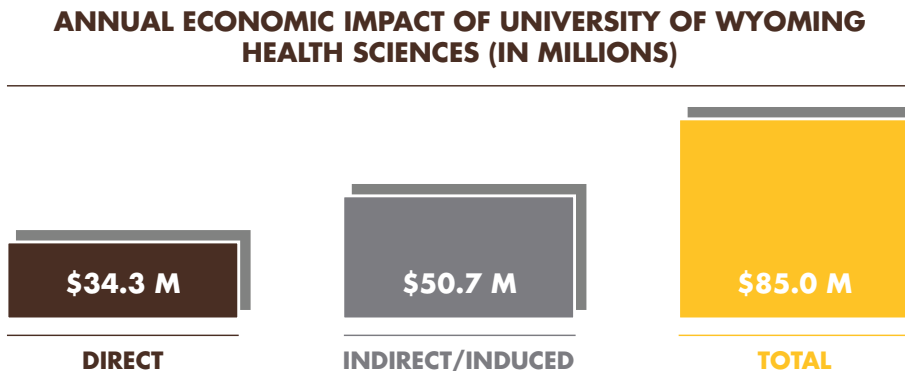
Household Spending from
Earnings of Direct
and Indirect Expenditures

3. Minnesota IMPLAN Group, Inc. (MIG) is the corporation that is responsible for the production of IMPLAN (IMpact analysis for PLANning) data and software. IMPLAN is a micro-computer-based, input-output modeling system. With IMPLAN, one can estimate Input-Output models of up to 528 sectors for any region consisting of one or more counties. IMPLAN includes procedures for generating multipliers and estimating impacts by applying final demand changes to the model.

II. UW HEALTH SCIENCES ECONOMIC IMPACT FINDINGS

A. UW HEALTH SCIENCES ECONOMIC IMPACT

UW Health Sciences is an important contributor to Wyoming's economy and its health care workforce. Expenditures on goods and services by UW Health Sciences, its employees, students, and visitors generated an economic impact in FY 2013 of **\$85.0 million** (\$34.3 million direct impact and \$50.7 million indirect and induced).

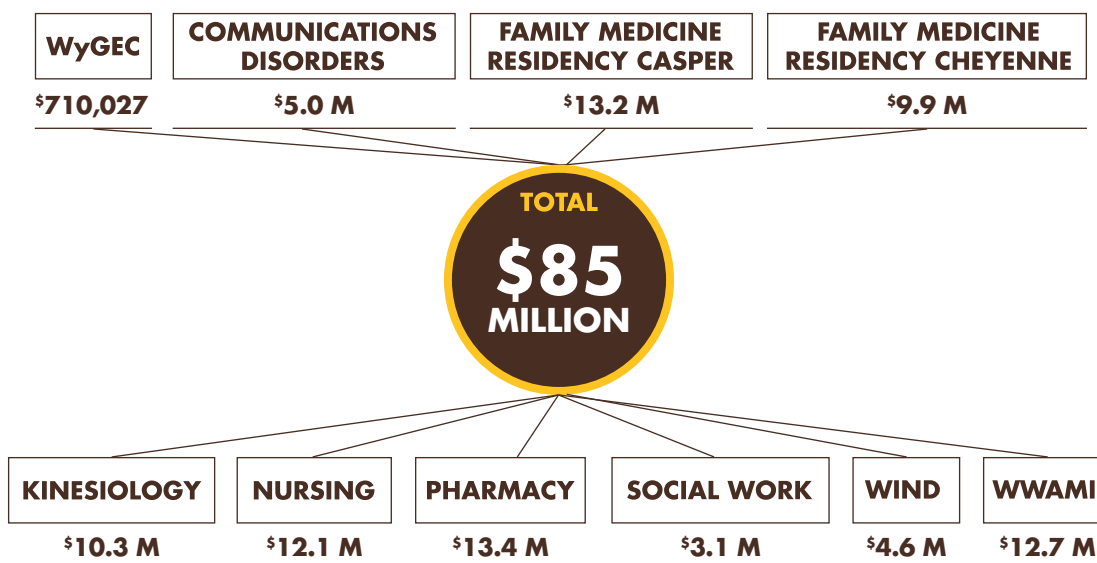


The table below shows the top 5 economic sectors in the Wyoming economy impacted by the presence of UW Health Sciences.

TOP 5 SECTORS IMPACTED IN THE WYOMING ECONOMY BY THE UNIVERSITY OF WYOMING HEALTH SCIENCES, BY ECONOMIC OUTPUT

| DESCRIPTION | ECONOMIC OUTPUT |
|----------------------------|---------------------|
| COLLEGES/UNIVERSITIES | \$20,758,083 |
| HOSPITALS | \$14,093,153 |
| REAL ESTATE ESTABLISHMENTS | \$11,356,606 |
| RESTAURANTS | \$4,951,109 |
| HOTELS AND MOTELS | \$3,214,076 |
| OTHER SECTORS | \$30,657,102 |
| TOTAL ALL SECTORS | \$85,030,129 |

The operational impact of each UW Health Sciences program is detailed in the graphic below.



B. UW HEALTH SCIENCES EMPLOYMENT IMPACT

UW Health Sciences supported **859 jobs** in the state of Wyoming. These jobs (both full-time and part-time employees) include not only direct employment by the University, but also indirect jobs created for supply and equipment vendors, contractors, and laborers for the construction and renovation of University facilities, and induced jobs at retail stores, daycare, and health care providers. Other examples of induced jobs created in the community include hotels, restaurants, and retail stores in support of the combined workforce and visitors to the University.

The University directly employed **368 faculty and staff** during FY 13-14. UW Health Sciences supports hundreds of jobs annually statewide in many sectors of the Wyoming economy, such as business and professional services, restaurants and hotels, information technology, and temporary employment companies. These indirect/ induced jobs (**491 jobs**) are in support of the 368 full- and part-time people who are employed directly by UW Health Sciences.

EMPLOYMENT IMPACT OF UNIVERSITY OF WYOMING HEALTH SCIENCES (IN JOBS)

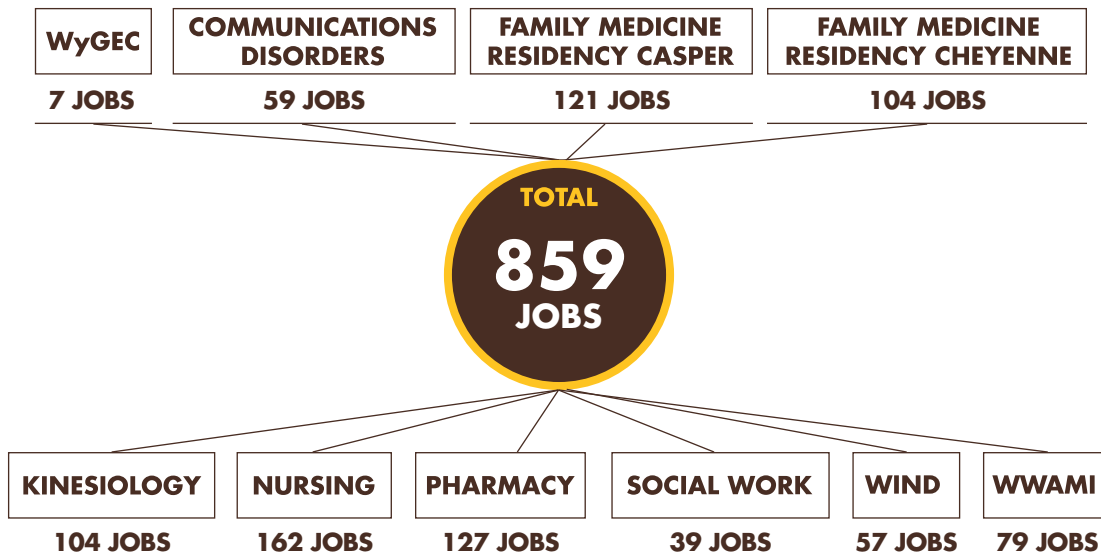


The table below shows the top 5 employment sectors in the Wyoming economy impacted by the presence of UW Health Sciences.

TOP 5 SECTORS IMPACTED IN THE WYOMING ECONOMY BY THE UNIVERSITY OF WYOMING HEALTH SCIENCES, BY EMPLOYMENT

| DESCRIPTION | EMPLOYMENT IMPACT |
|----------------------------|-------------------|
| COLLEGES/UNIVERSITIES | 226 JOBS |
| HOSPITALS | 145 JOBS |
| REAL ESTATE ESTABLISHMENTS | 95 JOBS |
| RESTAURANTS | 87 JOBS |
| HOTELS AND MOTELS | 31 JOBS |
| OTHER SECTORS | 275 JOBS |
| TOTAL JOBS | 859 JOBS |

The employment impact of each UW Health Sciences program is detailed in the graphic below.



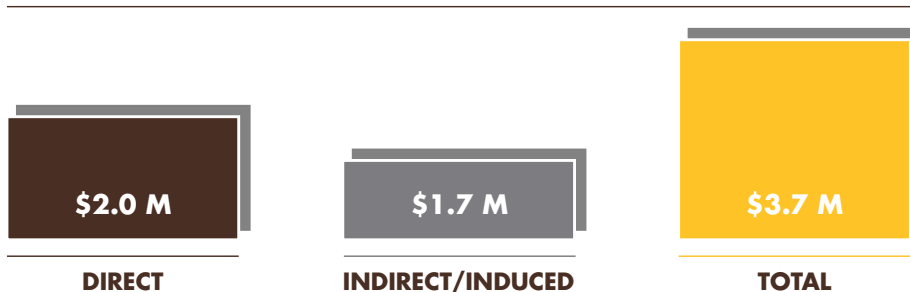


C. UW HEALTH SCIENCES GOVERNMENT REVENUE IMPACT

It is a common misperception that public universities do not generate tax revenue. State and local government revenues attributable to the presence of UW Health Sciences totaled **\$3.7 million** (\$2.0 million direct) in FY 2013. State and local governments throughout Wyoming received tax revenues that were University related. The tax revenue impact of UW Health Sciences includes sales, real estate, and capital stock/franchise taxes. The total tax revenue impact includes taxes paid by the University, the indirect taxes paid by employees of UW Health Sciences, and those paid by vendors who are doing business with the University within the state.

Through its local spending, as well as direct and indirect support of jobs, the presence of the UW Health Sciences strengthens the local and statewide tax base. UW Health Sciences is an integral part of the state's economy – generating jobs, spending, and educating the health care workforce of the future.

STATE AND LOCAL GOVERNMENT REVENUE IMPACT UW HEALTH SCIENCES



III. ADDITIONAL STATEWIDE IMPACTS

A. UW HEALTH SCIENCES COMMUNITY AND SOCIETAL BENEFITS

The UW Health Sciences total impact on the state of Wyoming goes beyond its operational impact. Tripp Umbach estimates that UW Health Sciences staff, faculty, physicians, and students who received their education and training at the University generate more than **\$3.2 million** annually in charitable donations and volunteer services.⁴ These benefits (in addition to the \$85.0 million annual impact) include the following:

- In FY 2013, UW Health Sciences faculty, staff, and students donated **\$.77 million** to local charitable organizations.
- UW Health Sciences faculty, staff, and students provide a generous amount of hours in volunteer services. The economic value of such services is estimated at more than **\$2.42 million**.

The students and graduates of UW Health Sciences programs contribute to the community in a multitude of ways while in training and after graduation. For example:

- Wyoming Institute for Disabilities (WIND) works to assist individuals with developmental disabilities, their families, professionals, and University of Wyoming students through education, training, community services, and early intervention. At the Family-to-Family Health Information Center, WIND served 6,089 families from across the state in FY 2013.
- About 77% of the pharmacists in Wyoming have been trained at the University of Wyoming. The type of pharmacy training provided to pharmacy students at UW seeks to extend the type of services that they provide to Wyoming residents in the most rural areas.

Programs are in place throughout the state to increase the quality of care and to attract and retain healthcare professionals throughout Wyoming. In a rural state, collaboration and strategy are key to training and retaining a high quality healthcare workforce. Programs include:

Wyoming **AHEC's** (Area Health Education Center) mission is to increase access to quality health care and to use educational methods as an incentive to attract and retain health care providers in areas of need with a focus on community/ academic partnerships, and interdisciplinary training opportunities.

WRITE: The WWAMI program offers a WWAMI Rural Integrated Training Experience (WRITE) at three clerkship locations in Wyoming: Douglas, Powell, and Lander. The mission of this program is to meet the need for rural primary care physicians in the WWAMI region. Students choosing a WRITE experience, can fulfill nearly half of their required 3rd year clinical rotations by staying in a single community for 22 weeks of their 3rd year. These clerkships provide students opportunities to develop a practice style while learning how to treat a broad range of medical, surgical and psychological problems in rural settings.

WRCE: The Wyoming Rural Clinical Experience (WRCE) is similar to the WRITE program in that it encourages students to do at least four of their required six, 3rd year clerkship rotations in Wyoming communities. Whereas students in WRITE spend their entire time in one rural community, WRCE exposes students to 4 or more communities during their time in Wyoming. As an example, a student may do OBGYN for six weeks in Rock Springs, Internal Medicine for six weeks in Sheridan, Family Medicine in Buffalo for six weeks, and Psychiatry in Casper.

TRUST: In 2014, Wyoming WWAMI began participating in the Targeted Rural Underserved Track (TRUST) program. This program seeks to provide a continuous connection between the underserved communities, medical education, and health professionals in Wyoming. Wyoming students for this program are targeted in the admissions process and are assigned to rural communities in Wyoming where they have continuous engagement throughout all four years of medical school.

RUOP: The Rural/Underserved Opportunities Program (RUOP) is a four-week elective clinical immersion experience in a rural Wyoming community for students between their first and second years of medical school. During this rotation, students live in rural underserved communities and work side-by-side with local physicians.

UNIVERSITY OF WYOMING HEALTH SCIENCES VOLUNTEERISM AND CHARITABLE GIVING (IN MILLIONS)



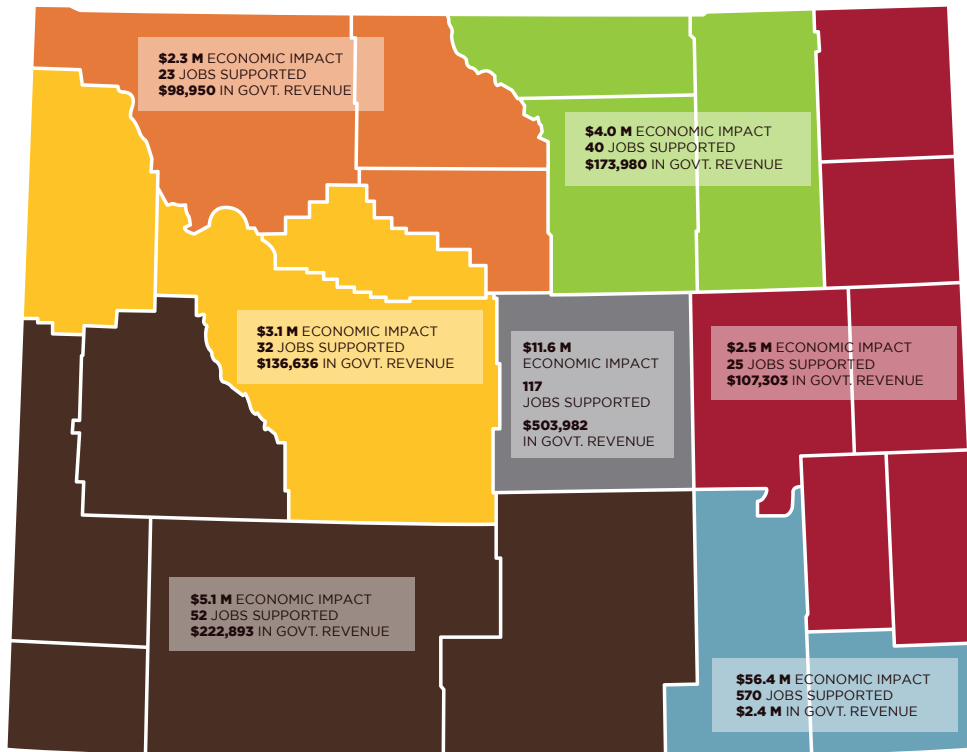
4. Primary data collection via survey research where faculty, staff, and students provide estimates on spending patterns, including information on the number of volunteer hours and charitable donations which they contribute. A conservative assumption of \$22.14 per hour was used to calculate the value of volunteer services. This hourly amount was calculated independently by the Points of Light Foundation.



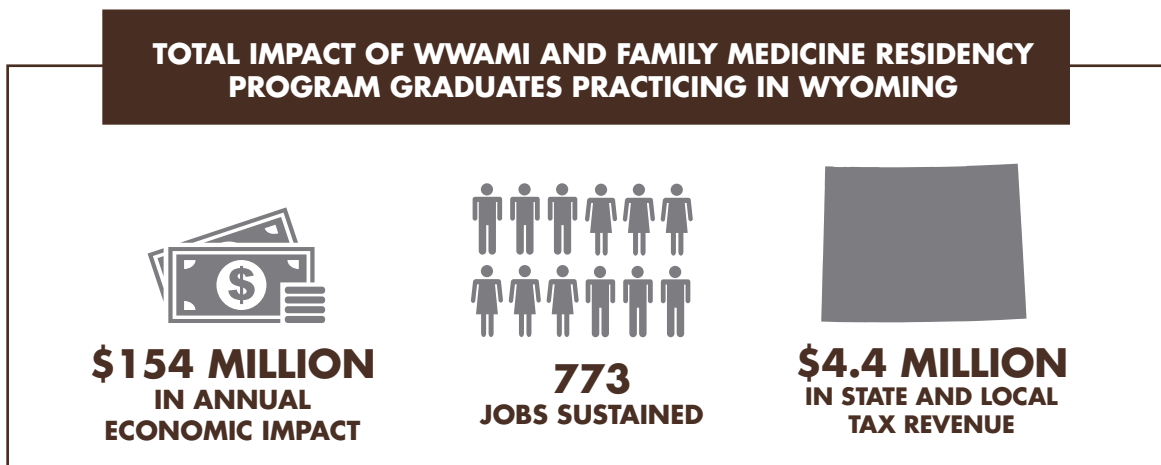
B. UW HEALTH SCIENCES IMPACT THE ENTIRE STATE OF WYOMING

The impact of UW Health Sciences goes beyond Laramie. Analysis of economic impact utilizing Wyoming community college catchment areas illustrates that the entire state of Wyoming is impacted by UW Health Sciences.

UW HEALTH SCIENCES STATEWIDE IMPACT



C. ECONOMIC IMPACT OF WWAMI AND FAMILY MEDICINE GRADUATES PRACTICING IN WYOMING



The WWAMI Program and Family Medicine Residency Program graduates play an integral role in the health care workforce of Wyoming. The economic impact of these programs alone is **\$35.8 million** annually.

- The University of Wyoming Family Medicine Residency Program in Casper (3-year program) was established in 1975, and has a 37-year track record of training family physicians for rural practices and retaining physicians to practice in Wyoming. The residency has a long-standing reputation for placing graduates in rural Wyoming communities. Currently, nearly 40% of all Wyoming family practitioners are graduates of the Casper program.
- The University of Wyoming Family Medicine Residency Program at Cheyenne is a fully accredited family medicine residency program. Since 1980, the program has trained family physicians for practice in rural Wyoming. The program’s goal to help each resident become the “Best All-Around” physician and to have all the skills necessary to practice in rural and frontier areas of Wyoming.

WWAMI and Family Medicine graduates (138 clinicians) working in Wyoming **generate \$154 million** annually in economic impact, support **773 jobs**, and generate **\$4.4 million** in state and local tax revenue.

- Practicing WWAMI graduates annually generate **\$63.6 million** in economic impact, support and sustain **319 jobs**, and generate **\$1.8 million** in state and local tax revenue.
- Practicing Family Medicine Residency graduates annually generate **\$90.4 million** in economic impact, support and sustain **454 jobs**, and generate **\$2.6 million** in state and local tax revenue.

IMPACT OF PRACTICING WWAMI GRADUATES

The **annual** economic impact of clinicians (57 physicians) who graduated from the WWAMI Program and are practicing within Wyoming is significant:

- **Generate \$63.6 million**
- **Support and sustain 319 jobs**
- **Generate \$1.8 million in state and local tax revenue**

IMPACT OF PRACTICING FAMILY MEDICINE RESIDENCY GRADUATES

The **annual** economic impact of graduates (81 physicians) of the Family Residency Program and are practicing within Wyoming is significant:

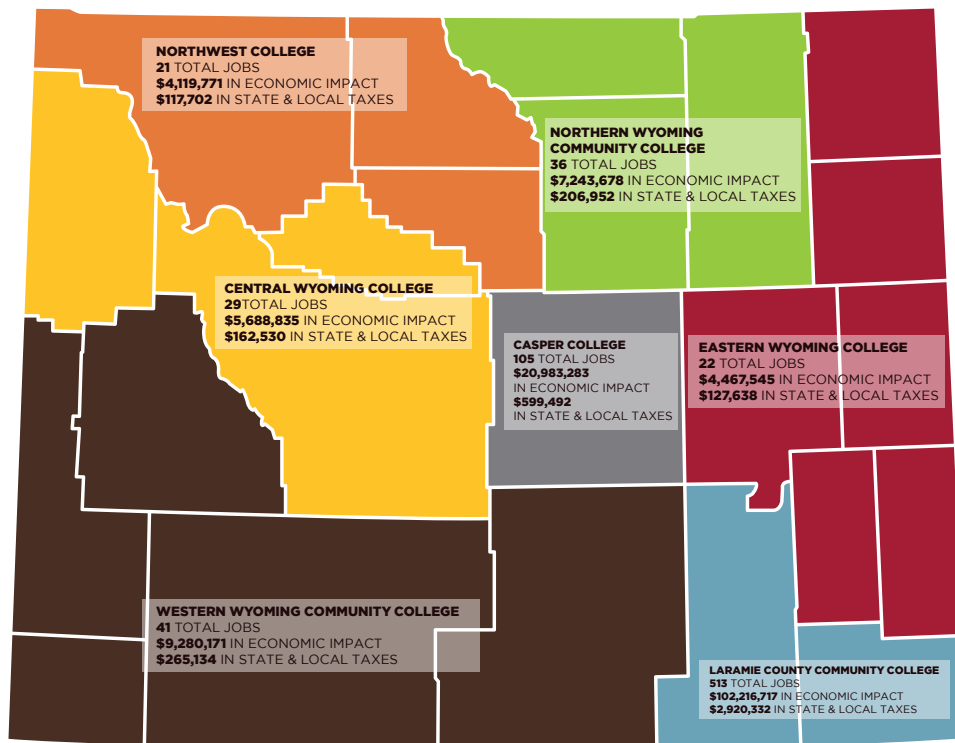
- **Generate \$90.4 million**
- **Support and sustain 454 jobs**
- **Generate \$2.6 million in state and local tax revenue**

Please see Appendix D for more information about Wyoming WWAMI and Family Medicine Residency programs.

The economic impact of WWAMI and Family Medicine Residency graduates practicing in Wyoming is in addition to the operational impact (\$85 million, 859 jobs, and \$3.7 million in tax revenue) of UW Health Sciences. The importance of training and retaining physicians in Wyoming cannot be overstated. Wyoming is a state experiencing a primary care shortage with 30% or more of the population living in an area with insufficient access to primary care. The strongest predictor of where a physician will practice is based upon where they complete their residency program. Having sufficient graduate medical education slots for training is critical for the state of Wyoming.

The **\$154 million economic impact** of WWAMI and the Family Medicine Residency programs is not solely concentrated in the larger population centers of Wyoming, but rather the impact ripples throughout the state. Analysis of impact by community college catchment area shows that these programs have a significant impact throughout the entire state.

PRACTICING WWAMI PHYSICIANS AND FAMILY MEDICINE RESIDENCY GRADUATES STATEWIDE IMPACT

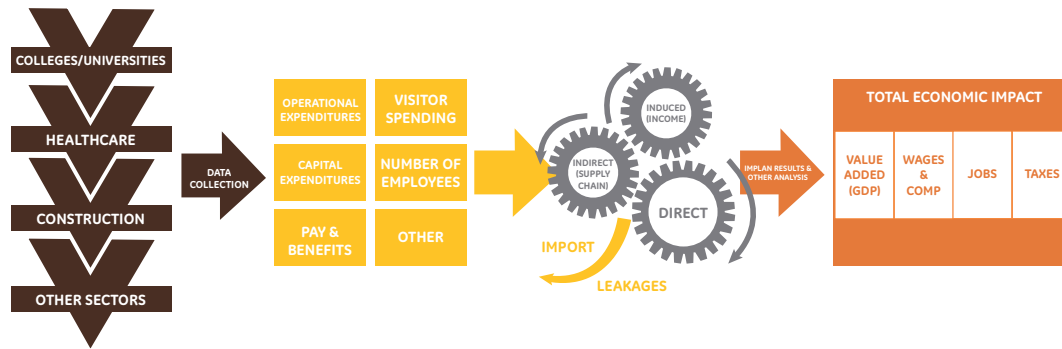


APPENDIX A: DEFINITION OF TERMS

| | |
|---|--|
| STUDY YEAR | Fiscal Year 2013-2014 (FY 2013) |
| TOTAL ECONOMIC IMPACT | The total economic impact of an institution includes both the direct impact and the indirect impact generated in the economy as a result of the institution. |
| DIRECT ECONOMIC IMPACT | Direct impact includes items such as institutional spending, employee spending and spending by visitors to the institution. |
| INDIRECT AND INDUCED ECONOMIC IMPACT | Indirect impact is the dollars spent by area suppliers as a result of doing business with UW Health Sciences in the state. Induced impact is the household spending impact of UW Health Sciences employees and the employees of suppliers. This is commonly referred to as the multiplier effect. |
| DIRECT TAX PAYMENTS | Direct tax payments made by an institution to a unit of government. |
| INDIRECT AND INDUCED TAX PAYMENTS | Government revenue that is collected by governmental units in addition to those paid directly by an institution, including taxes paid directly by employees of the institution, visitors to the institution and vendors who sell products to the institution. |
| DIRECT EMPLOYMENT | Total employees based on total jobs. |
| INDIRECT AND INDUCED EMPLOYMENT | Indirect employment is the additional jobs created as a result of the institution's economic impact. Local companies that provide goods and services to an institution increase their number of employees as purchasing increases, thus creating an employment multiplier. Induced employment refers to the jobs generated as a result of household spending |
| DEFINITION OF WWAMI | <p>The University of Wyoming participates in WWAMI, a regional medical education program with the University of Washington School of Medicine. The program annually reserves seats for up to twenty qualified Wyoming residents. Participants complete the first year of medical school at the University of Wyoming in Laramie and the second year in Seattle at the University of Washington. The third and fourth years are spent in clinical sites throughout the WWAMI region (Washington, Wyoming, Alaska, Montana, and Idaho). Applicants or their parents must be legal residents for five continuous years immediately prior to attending medical school. Participants make a contract payment to the University of Wyoming for the four years of medical school and the state pays the educational costs to the University of Washington for each student.</p> <p>WWAMI is the primary means of access for allopathic medical education in Wyoming. Applicants are encouraged to apply to the WWAMI program to study allopathic medicine and to the WICHE PSEP program for osteopathic medicine.</p> |

APPENDIX B: METHODOLOGY

Total economic impact measures the dollars that are generated within Wyoming due to the presence of UW Health Sciences. This includes not only spending on goods and services with a variety of vendors within the state, and the spending of its staff and visitors, but also the business volume generated by businesses within Wyoming that benefit from UW Health Sciences' spending. It is important to remember that not all dollars spent by a university remain in its home state. Dollars that "leak" out of the state in the form of purchases from out-of-state vendors are not included in UW Health Sciences' economic impact on the state. The multipliers utilized in this study are derived from the IMPLAN software. The figure below illustrates the cycle of the model going from industry code selection on the far left, to data received from UW Health Sciences, computation of the model, and final outputs.



METHODOLOGY AND DATA UTILIZED FOR THE ESTIMATION OF UW HEALTH SCIENCES' ECONOMIC IMPACT

The economic impact of UW Health Sciences was estimated using IMPLAN (Impact Analysis for PLANing), an econometric modeling system developed by applied economists at the University of Minnesota and the U.S. Forest Service. The IMPLAN modeling system has been in use since 1979, and is currently used by more than 500 private consulting firms, university research centers, and government agencies. The IMPLAN modeling system combines the U.S. Bureau of Economic Analysis Input-Output Benchmarks with other data to construct quantitative models of trade flow relationships between businesses and between businesses and final consumers. From this data, one can examine the effects of a change in one or several economic activities to predict its effect on a specific state, regional, or local economy (impact analysis). The IMPLAN input-output accounts capture all monetary market transactions for consumption in a given time period. The IMPLAN input-output accounts are based on industry survey data collected periodically by the U.S. Bureau of Economic Analysis and follow a balanced account format recommended by the United Nations.

IMPLAN's regional economic accounts and social accounting matrices were used to construct state-level multipliers, which describe the response of the state economy to a change in demand or production as a result of the activities and expenditures of UW Health Sciences. Each industry that produces goods or services generates demand for other goods and services; and this demand is multiplied through a particular economy until it dissipates through "leakage" to economies outside the specified area. IMPLAN models discern and calculate leakage from local, regional, and state economic areas based on workforce configuration, the inputs required by specific types of businesses, and the availability of both inputs in the economic area. Consequently, economic impacts that accrue to other regions or states as a consequence of a change in demand are not counted as impacts within the economic area.

The model accounts for substitution and displacement effects by deflating industry-specific multipliers to levels well below those recommended by the U.S. Bureau of Economic Analysis. In addition, multipliers are applied only to personal disposable income to obtain a more realistic estimate of the multiplier effects from increased demand. Importantly, IMPLAN's regional economic accounts exclude imports to an economic area, so the calculation of economic impacts identifies only those impacts specific to the economic impact area, in this case the state of Wyoming. IMPLAN calculates this distinction by applying regional purchase coefficients to predict regional purchases based on an economic area's particular characteristics. The regional purchase coefficient represents the proportion of goods and services that will be purchased regionally under normal circumstances, based on the area's economic characteristics described in terms of actual trade flows within the area.

MODEL INPUTS AND DATA SOURCES

Model inputs included actual fiscal year 2013 expenditures provided by the University of Wyoming Health Sciences.

INTERVIEWS WITH KEY STAKEHOLDERS

In addition to collecting quantitative data, Tripp Umbach completed a series of interviews with key internal and external stakeholders throughout the state of Wyoming with knowledge of UW Health Sciences, Family Residency Programs, and/or WWAMI. In total, Tripp Umbach completed 25 interviews with a diverse group of stakeholders. Responses were collected and utilized to inform the narrative included in this report. Sample questions included:

1. From your perspective, what words or phrases would you use to describe the University of Wyoming Health Sciences and/or WWAMI programs?
2. What are the most important facts/key messages about these programs that **MUST** be included in our economic impact report? Please be specific.
3. What are the strengths of the University of Wyoming Health Sciences and/or WWAMI programs?
 - From an Educational Perspective (signature programs, areas of excellence, etc.)
 - From a Research Perspective in the Health Sciences programs (signature achievements, areas of excellence, etc.)
 - From a Workforce Development Perspective (e.g., supplying health care professionals)
 - From an Economic/Business Development Perspective
4. In your role, do you know of additional important external relationships (e.g., collaborations, partnerships, etc.) with other organizations (e.g, institutions, companies, etc.) in terms of producing the greatest value and benefit to the Health Sciences and/or WWAMI programs?
5. Do you have any information or data about activities in the community that you could share with us that show the importance of these programs?



Source: Data provided by Tripp Umbach, by the University of Wyoming in Health Sciences

APPENDIX C: ECONOMIC IMPACT BY UW HEALTH SCIENCES PROGRAM

IMPACT BY UW HEALTH SCIENCES PROGRAM

| COLLEGE OF HEALTH SCIENCES PROGRAM | TOTAL JOBS | TOTAL LABOR INCOME | TOTAL VALUE | TOTAL ECONOMIC OUTPUT |
|---|------------|---------------------|---------------------|-----------------------|
| UW HEALTH SCIENCES – WyGEC | 7 | \$247,148 | \$357,993 | \$710,027 |
| UW HEALTH SCIENCES – COMMUNICATIONS DISORDERS | 59 | \$2,377,391 | \$3,593,210 | \$5,031,980 |
| UW HEALTH SCIENCES – FAMILY MEDICINE RESIDENCY CASPER | 121 | \$7,585,154 | \$9,754,119 | \$13,216,077 |
| UW HEALTH SCIENCES – FAMILY MEDICINE RESIDENCY CHEYENNE | 104 | \$6,293,465 | \$7,982,454 | \$9,942,530 |
| UW HEALTH SCIENCES – KINESIOLOGY | 104 | \$3,776,570 | \$6,525,915 | \$10,262,792 |
| UW HEALTH SCIENCES – NURSING | 162 | \$5,601,105 | \$8,864,094 | \$12,105,096 |
| UW HEALTH SCIENCES – PHARMACY | 127 | \$7,270,195 | \$10,079,127 | \$13,372,375 |
| UW HEALTH SCIENCES – SOCIAL WORK | 39 | \$1,484,937 | \$2,235,835 | \$3,149,419 |
| UW HEALTH SCIENCES – WIND | 57 | \$2,070,350 | \$2,913,919 | \$4,558,638 |
| UW HEALTH SCIENCES – WWAMI | 79 | \$2,727,965 | \$5,014,728 | \$12,681,195 |
| TOTAL ECONOMIC IMPACT | 859 | \$39,434,280 | \$57,321,394 | \$85,030,129 |

APPENDIX D: ECONOMIC IMPACT OF WYOMING'S MEDICAL SCHOOL AND RESIDENCY PROGRAMS

Introduction

WWAMI is Wyoming's Medical School. The University of Wyoming participates in the WWAMI Medical Education Program, which is affiliated with the University of Washington School of Medicine (UWSOM) in Seattle, Washington. WWAMI is an acronym for the five states that participate in this program, Washington, Wyoming, Alaska, Montana, and Idaho. The UWSOM curriculum, content and testing is the same at all WWAMI sites. Students that complete this four-year medical education program receive their doctor of medicine degree (M.D.) from the UWSOM.⁵

The program annually reserves seats for up to twenty qualified Wyoming residents. Participants complete the first year of medical school at the University of Wyoming in Laramie and the second year in Seattle at the University of Washington. The third and fourth years are spent in clinical sites throughout the WWAMI region (Washington, Wyoming, Alaska, Montana, and Idaho). Participants make a contract payment to the University of Wyoming for the four years of medical school and the state pays the educational costs to the University of Washington for each student. WWAMI is the primary means of access for allopathic medical education in Wyoming. Applicants are encouraged to apply to the WWAMI program to study allopathic medicine and to the WICHE PSEP program for osteopathic medicine.

In 1997, when Wyoming began its affiliation with the University of Washington WWAMI program, 10 Wyoming-WWAMI medical students began their education at the University of Wyoming. WWAMI emphasizes rural healthcare and the return of Wyoming WWAMI graduates to the practice of medicine in Wyoming. The exceptional success of the Wyoming WWAMI Program led the Wyoming Legislature to increase its class to 20 students beginning in 2011. This assures a much-needed stimulus to the future physician workforce needs of the state.

In fiscal year 2013, the state of Wyoming appropriated \$5,241,568 in support of the Wyoming WWAMI program. Of this \$5.2 million, nearly \$0.75 million is spent for the first-year education program at the University of Wyoming. Approximately \$4 million is the contract payment to the UW School of Medicine for the second, third, and fourth years combined.



142 Wyoming students have graduated from the UWSOM. 79 have completed their residency and are now practicing medicine. 52 (65.83%) have returned to Wyoming. 49 of the 52 physicians remain in Wyoming. Of the 49 WWAMI graduates currently practicing in Wyoming, 28 (57%) are working the Primary Care fields of Family Medicine, Internal Medicine, or Pediatrics.

On average, in fiscal year 2013 the annual state support per student in Wyoming was \$70,000. According to the American Association of Medical Colleges the estimated average annual state support per student in the US is \$106,000. Wyoming's state support per student is \$36,000 less than the national average.

The Wyoming Office for Clinical Medical Education, under the direction of Larry E. Kirven MD, is responsible for all Wyoming-based clinical activities for WWAMI medical students. The office works in close coordination with the WWAMI Medical Education Program at the University of Wyoming, The University of Washington and the Wyoming Medical Society. Together these groups help determine policy for medical education in Wyoming. The office works as a team with the WWAMI Task Force of the Wyoming Medical Society and other groups to promote appropriate clerkships, electives and development of graduate medical education programs in Wyoming. Program sites are found throughout the state from Cheyenne to Sheridan and from Thayne to Torrington.

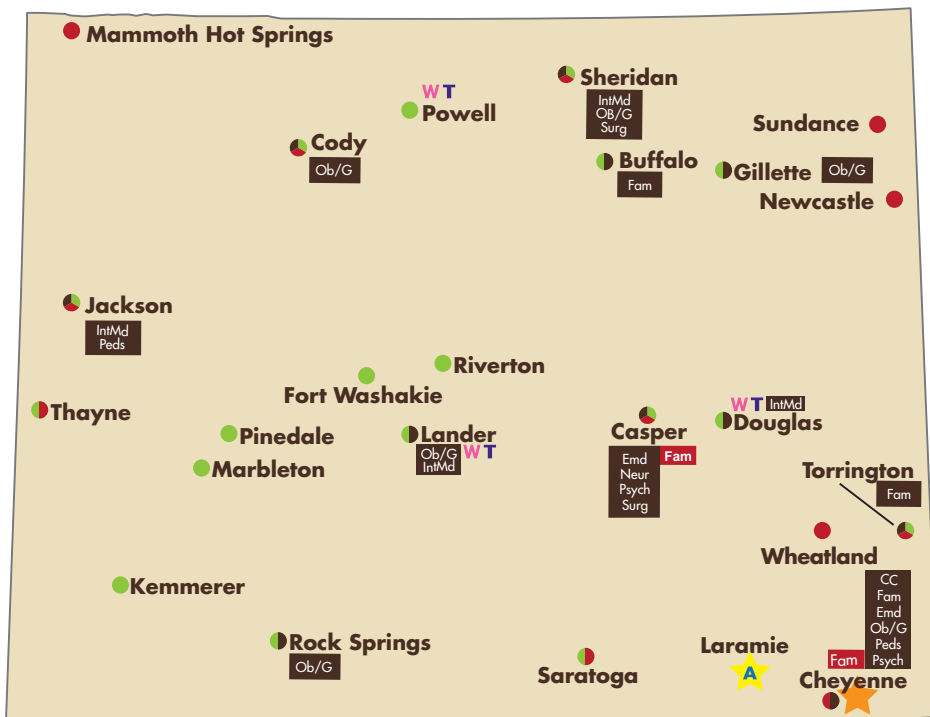
5. Each year approximately 220 WWAMI students from this 5-state region receive their 1st year of medical education in their home state, their 2nd year in Seattle and the 3rd and 4th years doing clinical clerkships and electives throughout the WWAMI region. Students also have the option of spending part of their 4th year in other parts of the United States or around the world as part of the University of Washington global health program. Up to 120 of the 3rd year WWAMI students have the opportunity of doing clinical clerkships in Wyoming each year.



WYOMING

WWAMI PROGRAM SITE MAP

2014-2015



LEGEND

- ★ First Year Site
- ★ WWAMI Regional Affairs Office
- Required Clerkship Site
- Residency Rotation/Track
- Rural/Underserved Opportunities Program (R/UOP)
- Contact departments for clerkships and residency information for cities within box
- ◆ WWAMI TRACK Office
- ▲ Area Health Education Center (AHEC)
- W WWAMI Rural Integrated Training Experience (WRITE)
- T Targeted Rural and Underserved Track (TRUST)

Required Clerkship Sites

- CC - Chronic Care
- Emd - Emerg Med
- Fam - Fam Med
- IntMd - Internal Medicine
- Ob/G - Ob/Gyn
- Peds - Pediatrics
- Psych - Psychiatry
- Surg - Surgery

Residency Programs

- Fam - Fam Med
- IntMd - Internal Medicine
- Ob/G - Ob/Gyn
- Peds - Pediatrics
- Psych - Psychiatry

UW Medicine
UW SCHOOL OF MEDICINE





WWAMI Programs Include:

Pipeline AHEC: The Wyoming Area Health Education Center's (AHEC) mission is to increase the supply, distribution, and retention of health care providers in order to increase access to quality healthcare, especially in areas of need. Programs and services offered through Wyoming AHEC are community based and focus on community educational partnerships. Wyoming received \$76,252 in federal grant funds for the period from September 1, 2013 – August 31, 2014. These funds were used for recruitment and retention activities of health professions students and residents; for encouraging health professionals to locate in rural communities; and for several healthcare career pipeline programs.

AHEC sponsored a summer camp for high school students. The fourth annual AHEC Healthcare Careers Summer Camp was designed to expose students to the wide variety of healthcare careers available in Wyoming. This unique camp was made possible through partnership with Ivinson Memorial Hospital, Laramie County Community College, the Wyoming State Office of Rural Health, UW College of Health Sciences, the Wyoming Center for Nursing and Health Care Partnerships, and the WWAMI. Seventy high school students from 30 Wyoming communities attended one of two six-day residential camps on the UW campus. This was also the third year that AHEC coordinated the High School Healthcare Career Fair in Casper. More than 400 students from 24 high schools attend the day-long event.

RUOP: R/UOP (Rural/Underserved Opportunities Program) is for WWAMI students finishing their first year of medical school. Students spend four weeks working with rural physicians. The purpose of the program is to encourage medical practice in rural communities by providing students with hands-on experience in clinical practice and intimate exposure to a rural community. It provides students with an opportunity to discover how patients receive health care away from the highly specialized resources of the academic medical center in Seattle.

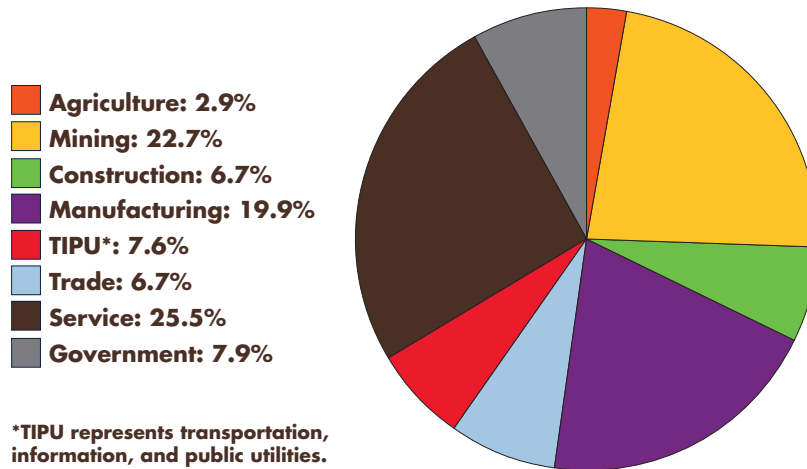
WRITE: WRITE (WWAMI Rural Training Experience) is a unique program that promotes and emphasizes rural healthcare to medical students in their third year of medical education. Only 15- 20 students from each WWAMI class of approximately 216 students are accepted into the WRITE program each year. WRITE students complete 18-22 weeks of their third year of medical school in one rural community. During this time they complete Family Medicine and portions of the Pediatrics, Internal Medicine and Psychiatry requirements. At the end of the WRITE experience the students are extremely comfortable with the practice of medicine in a rural environment. Wyoming's WRITE Sites are located in Powell, Lander and Douglas where a large number of physicians and other healthcare professionals participate in training future physicians.

Wyoming Rural Clinical Experience: This clinical program brings WWAMI medical students to Wyoming when they do their third year clinical rotations. This program is available for up to six students per year. Students may come from any of the WWAMI states, and they qualify for the program if they do four or more of their six required third-year clerkships in Wyoming. The Wyoming Regional Clinical Dean's Office makes final selection, and students participating in the program receive preference for their required clerkships.

APPENDIX E: ECONOMIC PROFILE OF WYOMING

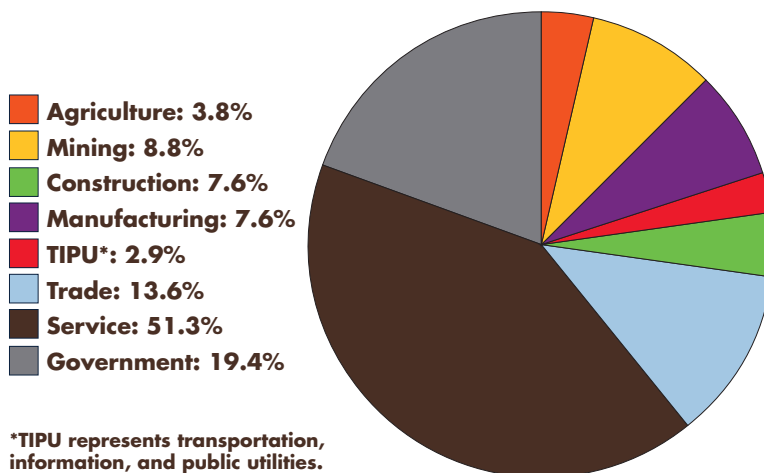
According to analysis compiled by IMPLAN which includes the Bureau of Economic Analysis, the top three employment clusters in the state of Wyoming are: 1) service, 2) mining, and 3) manufacturing.

ECONOMIC PROFILE OF WYOMING ECONOMY BY ECONOMIC SECTOR



According to analysis compiled by IMPLAN which includes the Bureau of Economic Analysis, the top three clusters in terms of economic output in the state of Wyoming are: 1) service, 2) government, and 3) trade.

EMPLOYMENT PROFILE OF WYOMING ECONOMY BY ECONOMIC SECTOR



APPENDIX F: FAQs REGARDING ECONOMIC IMPACT ASSESSMENT

What is economic impact?

Economic impact begins when an organization spends money. Economic impact studies measure the direct economic impact of an organization's spending, plus additional indirect spending in the economy as a result of direct spending. Economic impact has nothing to do with dollars collected by institutions, their profitability, or even their sustainability, since all operating organizations have a positive economic impact when they spend money and attract spending from outside sources.

Direct economic impact measures the dollars that are generated within the state of Wyoming due to the presence of UW Health Sciences. This includes not only spending on goods and services with a variety of vendors within the state, and the spending of its staff and visitors, but also the business volume generated by businesses within Wyoming that benefit from UW Health Sciences' spending. It is important to remember that not all dollars spent by the University remain in its home state. Dollars that "leak" out of the state in the form of purchases from out-of-state vendors are not included in the University's economic impact on the state.

The total economic impact includes the "multiplier" of spending from companies that do business with UW Health Sciences. Support businesses may include lodging establishments, restaurants, construction firms, vendors, temporary agencies, etc. Spending multipliers attempt to estimate the ripple effect in the state economy where the spending occurs. For example: spending by UW Health Sciences with local vendors provides these vendors with additional dollars that those vendors re-spend in the local economy, causing a "multiplier effect."

What is the multiplier effect?

Multipliers are a numeric way of describing the secondary impacts stemming from the operations of an organization. For example, an employment multiplier of 1.8 would suggest that for every 10 employees hired in the given industry, eight additional jobs would be created in other industries, such that 18 total jobs would be added to the given economic region. The multipliers used in this study range from 1.8 to 2.0.

The multiplier model is derived mathematically using the input-output model and social accounting formats. The social accounting system provides the framework for the predictive multiplier model used in economic impact studies. Purchases for final use drive the model. Industries that produce goods and services for consumer consumption must purchase products, raw materials, and services from other companies to create products. These vendors must also procure goods and services.

This cycle continues until all the money is leaked from the region's economy. There are three types of effects measured with a multiplier: the direct, the indirect, and the induced effects. The direct effect is the known or predicted change in the local economy that is to be studied. The indirect effect is the business-to-business transactions required to satisfy the direct effect. Finally, the induced effect is derived from local spending on goods and services by people working to satisfy the direct and indirect effects.

- Direct effects take place only in the industry immediately being studied.
- Indirect effects concern inter-industry transactions: because UW Health Sciences is in business, it needs locally produced materials in order to operate.
- Induced effects measure the effects of changes in household income: employees of UW Health Sciences and suppliers purchase from local retailers and restaurants.
- Total Economic Impacts the total changes to the original economy as the result of UW Health Sciences' operations; i.e., Direct Effects + Indirect Effects + Induced Effects = Total Economic Impact

What methodology was used in this study?

IMPLAN (IMPact analysis for PLANning) data and software: Using classic input-output analysis in combination with regional specific social accounting matrices and multiplier models, IMPLAN provides a highly accurate and adaptable model for its users. The IMPLAN database contains county, state, zip code, and federal economic statistics which are specialized by region, not estimated from national averages. It can be used to measure the effect on a regional or local economy of a given change or event in the economy's activity.

What is employment impact?

Employment impact measures the direct employment (staff, faculty, administration) plus additional employment created in the economy as a result of the operations of the University of Wyoming.

Indirect and induced employment impact refers to other employees throughout the region that exist because of UW Health Sciences' economic impact. In other words, jobs related to the population – city services (police, fire), employees at local hotels and restaurants, clerks at local retail establishments, residents employed by vendors used by UW Health Sciences.

What is the difference between direct and indirect taxes?

Direct tax dollars include sales taxes and net corporate income taxes paid directly by the institution to the state, while indirect taxes include taxes paid to the state by vendors that do business with UW Health Sciences and individuals that do business with UW Health Sciences.

Is this a one-time impact or does the impact repeat each year?

The results presented in the UW Health Sciences economic impact study are generated on an annual basis. The economic impact in future years can either be higher or lower based on number of students, capital expansion, increases in external research, and state appropriations.

What are Tripp Umbach's qualifications to perform an Economic Impact Study for UW Health Sciences?

Tripp Umbach is the national leader in providing economic impact analysis to leading healthcare organizations, universities, and academic medical centers. We have completed more than 150 economic impact studies over the past 25 years for clients such as: The Pennsylvania State University, The Ohio State University, University of Washington, The University of Iowa, University of Alabama-Birmingham, Cleveland Clinic, University of Florida Shands HealthCare, the University of North Carolina Hospitals, the University of Pennsylvania Medical Center, the University of Pittsburgh Medical Center, and the Ohio State University Medical Center.