

# Economic Impact of Medical Education Expansion in Nevada

Economic Impact Assessment and Recommended Approach

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## Introduction

In May 2013, The Lincy Institute<sup>1</sup> commissioned, Tripp Umbach<sup>2</sup> to prepare an economic impact report to show the value of a new, four-year allopathic medical school (hereinafter referred to as the new four-year medical school) in Las Vegas. To accomplish this task, Tripp Umbach evaluated multiple medical school development models in order to recommend the optimal model that would provide the greatest economic impact to the state of Nevada and the Las Vegas Metropolitan area.

### The objectives of the study included:

- Evaluate the market need of adding a new four-year medical school to the State of Nevada, specifically in the Las Vegas region.
- Determine the size of a new four-year medical school to meet market demand and to expand the Nevada economies.
- Estimate the initial facility cost of a new four-year medical school and the return on investment (ROI) over time.
- Profile the multiple economic benefits associated with the operations of a new four-year medical school in Las Vegas and the State of Nevada.
- Recommend the optimal model for developing a new a new four-year medical school in Las Vegas that maximizes the economic impact to the State of Nevada.
- Measure the prospective economic, employment, and government revenue impacts attributable to the new four-year medical school, both statewide and regionally over a 15-year period (2015-2030).
- Measure the economic impact of statewide medical education expansion on the State of Nevada showing both the economic impact of the current medical school at University of Nevada School of Medicine – University of Nevada Reno (UNSOM-UNR) and the proposed medical school at University of Nevada, Las Vegas (UNLV).

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<sup>1</sup>The Lincy Institute at UNLV conducts and supports research that focuses on improving Nevada's health, education, social services, and IT infrastructure. For more information, please visit <http://www.unlv.edu/lincyinstitute/>

<sup>2</sup>Tripp Umbach is the leading provider of customized consulting reports and strategies for universities, hospitals, academic medical centers, and corporations throughout the United States and internationally, having completed more than 2,000 studies over the past 25 years. Tripp Umbach's clients include 50 of the top 100 hospitals listed in the 2013 *U.S. News & World Report* listing of best hospitals, 50 of the 108 research universities in the Carnegie Classification (very high), and 75 medical schools in the United States, Canada, England, and Australia. Tripp Umbach's corporate clients include General Electric, Blue Cross and Blue Shield, and Ford Motor Company. Tripp Umbach has completed studies in every state and more than 300 markets.

## Evaluation of Market Needs

Tripp Umbach first evaluated the need for a new four-year medical school, focusing on current and future workforce needs. The United States (U.S.) is facing the largest physician shortage in its history, as the nation's population both grows and ages. Some observers even believe that the U.S. will never be able to close the gap between the need for medical care and the number of physicians and other healthcare providers who provide such care. The U.S. already has a shortage of approximately 80,000 primary care physicians and the situation is likely to get worse as millions of people will become newly insured under the Affordable Care Act (ACA). According to the Association of American Medical Colleges (AAMC), in 2010, Nevada ranked 45th in the country in the number of physicians per 100,000 population and 46th in the U.S. in the number of primary care physicians per 100,000 population.<sup>3</sup>

According to the U.S. Census Bureau, Nevada has a current population of 2.75 million as of July 1, 2012 and the population is expected to grow to nearly 3.7 million by 2030<sup>4</sup>; an increase in population could further stress poorly-distributed healthcare resources. It is clear that the limited medical school class size at UNSOM-UNR, physician shortages, current and future population demographics, state and federal healthcare reform, and physician lifestyle changes are all significantly impacting the physician workforce throughout Nevada. Therefore, Nevada is unable to support the current healthcare needs of residents let alone the projected population growth. Clearly, the supply of medical school graduates, as well as the number of physicians who complete their graduate medical education (GME) in the state of Nevada, is far below what will be needed in the future when the state's population approaches four million.

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<sup>3</sup> Population estimates are from the U.S. Census Bureau (February, 2011) and Physician data are from the AMA Physician Master file (December, 2010).

<sup>4</sup> Woods & Poole Economics, Inc. (2013). The strength of Woods & Poole's economic and demographic projections stems from the comprehensive historical county databases and reflects simultaneous interchange accurately between metropolitan regions within the United States.

## Determining the Size of a New Medical School Model that Best Responds to Market Needs

To best meet market demand for future physicians as discussed above and to expand the Las Vegas region and Nevada economies, a full-scale four-year allopathic medical school is needed. Tripp Umbach recommends that a new four-year medical school in Las Vegas begin in 2016 with an initial class of 60 medical students. By 2020, when the first class of 60 students graduates, the incoming class will grow incrementally, resulting in a class of 120 students at maturity in 2030. To ensure that the graduates from both the newly established medical school and the existing program at UNSOM-UNR remain in the state to practice medicine, a minimum of 240 new residency positions will also be required statewide.

Expanding both undergraduate medical education (UME) and GME through a coordinated approach is a proven model to increase physician workforce, as based on national averages, students who complete both their UME and GME in the same state have a 70% chance of remaining in the same state. Nationally, students that only complete GME in the state have less than a 50% chance of remaining in the same state.<sup>5</sup>

## Data Sources for Determining Economic Impact

The Las Vegas metropolitan statistical area (MSA), including Las Vegas, Henderson, and Paradise ranks thirtieth (30th) in population (2,000,759 residents) and is growing.<sup>6</sup> The Las Vegas MSA is the largest region in the U.S. without a medical school, a fact reflected in the poor health outcomes of its residents. Las Vegas is isolated from health care epicenters by more than 250 miles, with the only state supported medical school almost 460 miles north (UNSOM-UNR) located in the Reno metropolitan area, with a population of 433,843 people; four and a half times (4.5) smaller than the population of Las Vegas MSA (2012).

As identified in the Brookings Mountain West SRI Report,<sup>7</sup> southern Nevada is missing approximately one-third of its medical economy. In addition, Las Vegas has the smallest share

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<sup>5</sup> Tripp Umbach analysis (2013).

<sup>6</sup> Population Division (2012). Annual Estimates of the Population of Metropolitan and Micropolitan Statistical Areas: April 1, 2010 to July 1, 2012.

<sup>7</sup> Brookings Mountain West SRI Report (2011) and Brookings Mountain West Mountain Monitor: Tracking Economic Recession and Recovery in the Intermountain West's Metropolitan Areas (2013).

of its economy tied to health services in comparison to any other of the top 100 U.S. metropolitan areas and it is also the largest U.S. metropolitan area without an allopathic medical school. In order to maintain the current rate of growth, improve health outcomes, and diversify the region's economy, a new four-year medical school is needed. A new four-year medical school would not only attract new practicing physicians, but also educate new physicians, cultivate research, attract federal funds and private philanthropy, as well as, spur medical innovations that drive the statewide economy. Based on current statistics and analysis, Tripp Umbach focused on measuring the economic impact of expanding medical education in Nevada, specifically in Las Vegas.

**Tripp Umbach's economic impact methodology utilized three data sources:**

- 1)** An existing study of the economic impact of UNSOM-UNR (2011)<sup>8</sup>;
- 2)** A 2012 study completed by Tripp Umbach for the AAMC focusing on the economic impact of all 134 U.S. allopathic medical schools;
- 3)** Economic impact models developed previously by Tripp Umbach for more than 20 new or expanded medical schools;
- 4)** Qualitative assessment of Key Stakeholders in Nevada (40 interviews representing 26 organizations); and
- 5)** Regional Asset Inventory.

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<sup>8</sup> UNSOM Health Policy Brief-University of Nevada School of Medicine (April 2011).

**Determining the Economic Impact of a New Four-Year Medical School Based on Population**

As a starting point, Tripp Umbach estimated the expected economic impact of medical education in Nevada both currently and in the future. This was accomplished by evaluating the economic impact of all 134 allopathic medical schools in the U.S. on a per capita basis. Using this method, medical education in the State of Nevada should have an annual economic impact of **\$506 million**. UNSOM-UNR reports to have a **\$285 million** economic impact on the State of Nevada; however the impact ranks lowest among all U.S. public, allopathic, medical schools, which is approximately six times less than its expected impact according to Tripp Umbach’s analysis of all 134 U.S. medical schools. Furthermore, with the Nevada’s expected population growth, one or more allopathic medical schools in the State of Nevada should have an economic impact of **\$693 million** by 2030 (see Table 1).<sup>9</sup>

**Table 1: Expected Economic Impact of Medical Education on Nevada Population**

Expected Economic Impact of Medical Schools in the U.S. Based on Population	Total Economic Impact
Expected Economic Impact of Medical Education in Nevada based on Projected Population of 3.7 million in 2030	<b>\$693 million</b>
Expected Economic Impact of Medical Education in Nevada based on Current Population	<b>\$506 million</b>

Using this method, a new four-year medical school in Las Vegas should provide an additional **\$410 million** annually to the state’s economy at maturity in 2030, for the state of Nevada to achieve its expected economic impact from Tripp Umbach’s analysis of all U.S. allopathic medical schools.<sup>10</sup>

<sup>9</sup> Tripp Umbach’s analysis indicated that all 134 medical schools had a combined economic impact of \$218 billion or approximately \$1.7 billion per medical school, which reflects that UNSOM-UNR is six times less than its expected impact.

<sup>10</sup> \$410 million represents the difference between the expected impact in 2030 based on population and the current UNSOM-UNR program.

## Medical School Models for Consideration

With the goal of developing a new four-year medical school that has an annual economic impact of at least **\$410 million**, Tripp Umbach evaluated the best pathway to achieve this level of annual impact. During interviews conducted by Tripp Umbach with more than 40 key statewide stakeholders representing 26 organizations (see Appendix C), multiple models for expanding medical education in Nevada were presented and discussed. Building on Tripp Umbach's experience nationally in measuring the impact of all U.S. allopathic medical schools on behalf of the AAMC, Tripp Umbach evaluated the economic impact of three basic options for expanding medical education — with the goal of recommending the medical school expansion option that would have the greatest economic impact on the State of Nevada. Therefore, economic impact analysis presented below is intended to provide empirical data, best practices, and comparative analysis that will serve to inform southern Nevada leaders as they make key decisions in developing a new four-year medical school in Las Vegas.

Tripp Umbach evaluated the economic impact of all allopathic U.S. medical schools to develop a baseline of the economic impact within three basic categories:

- 1) University Affiliated Medical Schools** – Public or Private standalone medical schools that are affiliated with an established university (see model 1 below);
- 2) Independent Medical Schools** – Independent medical schools that have no affiliation with an established university (see model 2 below) ; and
- 3) Regional Campus of University-Affiliated Medical Schools** – Four-year regional campuses of established university medical schools (see model 3 below).

## Economic Impact Evaluation of Medical School Models

Since 1995, Tripp Umbach has measured the economic impact of every U.S. allopathic medical school on behalf of the AAMC. Most recently in 2012, Tripp Umbach’s analysis indicated that all 134 medical schools had a combined economic impact of **\$218 billion** or approximately **\$1.7 billion** per medical school.

Tripp Umbach completed additional analysis using the 2012 AAMC economic impact database to provide breakout analysis presented below. It is important to note that all economic impact estimates presented below are based on total annual direct and indirect impacts of medical school operations and do not include impact of hospitals, GME, or start-up companies.

### Model 1: Established University Affiliated Medical Schools

Key Economic Impact Findings	Annual Economic Impact
Average Economic Impact of Established University Affiliated U.S. Medical Schools (2012) <sup>11</sup>	<b>\$1.7 billion</b>
Average Economic Impact of Public Medical Schools in States with a Single Public Medical School <sup>12</sup>  (Note: UNSOM-UNR’s economic impact of <b>\$285 million</b> is included in this average – and has the lowest economic impact among the 14 states).	<b>\$1.1 billion</b>
Average Economic Impact of additional Standalone Public University Affiliated Medical Schools in States having more than one Public Medical School <sup>13</sup>	<b>\$882 million</b>

<sup>11</sup> Tripp Umbach analysis using AAMC 2012 Database.

<sup>12</sup> U.S. States with a Single Public Medical School include: Arizona, Colorado, Connecticut, Iowa, Kansas, Mississippi, Nebraska, Nevada, New Mexico, Oklahoma, Oregon, South Dakota, West Virginia, and Georgia.

<sup>13</sup> U.S. States having more than one Public Medical School include: California, Florida, Illinois, Kentucky, Louisiana, Michigan, Missouri, North Carolina, New York, Pennsylvania, South Carolina, Tennessee, Virginia, Wisconsin, and West Virginia.

**Model 2: Independent** – Independent medical schools that have no affiliation with an established university.

Key Economic Impact Findings	Annual Economic Impact
Average Economic Impact of Independent (non-university allopathic ) Affiliated Medical Schools	<b>\$720 million</b>

**Model 3: Regional Campus** – Four-year regional campuses of an existing public medical school.

Key Economic Impact Findings	Annual Economic Impact
Average Economic Impact of Regional Four-Year Campuses of Established Allopathic Medical Schools in the U.S. (i.e., regional medical school campus of UNSOM-UNR in Las Vegas). <sup>14</sup>	<b>\$245 million</b>

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<sup>14</sup> Tripp Umbach analysis using AAMC 2012 Database.

## Facility Considerations

Tripp Umbach reviewed 12 new allopathic medical school facilities constructed over the past five years within the three models outlined above – a sample medical school representing each of the models is included in the table below. Table 2 below shows the initial average facility cost in each model for medical school facilities. With 50% of the facility costs supported by public funds and the average estimated tax revenue to be received by the state annually during a 15-year period ranging from **\$8 million** for a Regional Campus to **\$28 million** for a University Affiliated model, each model provides a positive return on state facility investment at maturity. In 2030, the ROI to the state will range from \$8.21 for every dollar invested for the Regional Campus Model (least return) to \$12.48 for the University Affiliated model (best return). Tripp Umbach concludes that the University Affiliated model provides the greatest return on investment.

**Table 2: Facility Considerations Table**

Model	Independent	University Affiliated	University Regional Campus
Initial Facility Cost	<b>\$83million</b>	<b>\$68 million</b>	<b>\$28 million</b>
Sample Facility	The Commonwealth Medical College	University of Central Florida College of Medicine	University of South Carolina Upstate School of Medicine
State Contribution at 50% of Facility Costs	<b>\$41 million</b>	<b>\$34 million</b>	<b>\$14 million</b>
Economic Impact at maturity in 2030	<b>\$720 million</b>	<b>\$882 million</b>	<b>\$245 million</b>
Tax Revenue in 2030 (Annually)	<b>\$36 million</b>	<b>\$44 million</b>	<b>\$12 million</b>
Average Tax Revenue Generated per year over the 15-year period	<b>\$24 million</b>	<b>\$28 million</b>	<b>\$8 million</b>
Total Government Revenue Generated over the 15-year period	<b>\$356 million</b>	<b>\$425million</b>	<b>\$115 million</b>
<b>Return on Investment (ROI)</b>	<b>\$8.58 for every \$1 invested</b>	<b>\$12.48 for every \$1 invested</b>	<b>\$8.21 for every \$1 invested</b>

## Key Findings

- 1) A full-scale four-year independent medical school in Las Vegas will have a substantially higher economic impact than a regional campus of UNSOM-UNR. The average annual economic impact of an additional state-supported medical school in the U.S. shows that having more than one publically supported medical school equals **\$882 million**. This is more than three times the average of a four-year regional campus of an established medical school (**\$245 million**). Tripp Umbach estimates that a new four-year medical school developed in Las Vegas as a result of a joint venture between UNSOM-UNR and UNLV will have a total annual economic impact of **\$1.2 billion** at maturity (2030).<sup>15</sup>

### Tripp Umbach based this estimate on the following factors:

- The growth in the Nevada market and demand for healthcare services will produce demand for expanded clinical care and translational research,
  - The Las Vegas metropolitan area is expected to nearly exceed three million residents by 2030,<sup>16</sup> providing sufficient market opportunity to support a medical school campus that generates **\$1.2 billion** by 2030, and
  - Two full-scale medical schools and the vast diversity within the population of Nevada will attract unique funding streams focusing on population based medicine creating new external funding streams and further highlighting the states strengths.
- 2) The annual economic impact of an independent medical school (non-university affiliated) estimated at **\$720 million** at maturity in 2030 is less than the average state-supported medical school in states with more than one medical school, estimated at **\$882 million** at maturity.

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<sup>15</sup> Tripp Umbach derived its estimate using the following assumptions: Average public medical school in states with more than one medical school (\$882 million), plus additional external research funding (\$68 million), and additional clinical growth potential (\$250 million).

<sup>16</sup> **Note:** Since Feb 28, 2013, the Office of Management and Budget has designated Greater Las Vegas as part of a Combined Statistical Area (CSA) that includes two states and three counties (Clark and Nye, NV and Mojave, AZ). In 2013 the Las Vegas, NV-AZ CSA had 2.25 million residents (Woods & Poole Economics, Inc.).

- 3) Regional medical school campuses have the lowest economic impact among the three models studied by Tripp Umbach. Based on national norms, a regional four-year campus of the current UNSOM-UNR program in Las Vegas would have an economic impact of approximately **\$245 million** at maturity. Tripp Umbach's analysis of osteopathic medical schools, show that the average economic impact of these medical schools is approximately the same as a regional campus of an established allopathic program. University regional campuses also have the lowest ROI to a state based on facility costs and expected government revenue.
- 4) It was suggested by some interviewees that a regional campus of an out-of-state medical school should be considered as a possible solution in Las Vegas. It is important to note that all four-year regional medical schools in the U.S. have a relationship with an in-state parent program. Currently, there are no regional campuses of established public or private medical schools in another state. In fact, no private allopathic medical school in the U.S. operates, from more than one campus per accreditation rules. Therefore, it is impossible to estimate the potential economic impact of a "branch campus" of a school such as UCLA, Stanford, Cleveland Clinic, or Texas Medical Center.

The Liaison Commission on Medical Education (LCME) has strict rules regarding the development of regional campuses at distances from parent institutions. Tripp Umbach believes that if a new four-year medical school was established under current accreditation rules, regional four-year programs of public or private established medical schools outside of the state would have annual economic impacts on the State of Nevada similar to all regional campuses (**\$245 million**).

## **Recommended Approach to Achieve Maximum Economic Impact in Nevada**

Tripp Umbach believes that the optimal way to adequately address the physician shortage and have the greatest economic impact on the State of Nevada is through developing a four-year, state-supported medical school developed collaboratively between UNSOM-UNR and UNLV. Tripp Umbach believes that this approach presents the State of Nevada with the best opportunity to develop a new, independent, four-year medical school in Las Vegas at UNLV (hereinafter referred to as proposed UNLV School of Medicine), while enhancing the economic potential of the existing UNSOM-UNR program.

Tripp Umbach bases this conclusion on the following:

- 1) UNR's established track record as a fully accredited statewide medical education program.
- 2) UNLV's strength in other health science programs, including a successful dental school,
- 3) UNLV's current and future research growth potential as a comprehensive doctoral degree granting university far surpasses any other educational institution in southern Nevada,
- 4) The current southern Nevada regional assets including clinical infrastructure, state of the art simulation laboratory, and only pharmacy school in the state,
- 5) The opportunity for both public and private financial support of UNLV's efforts to develop a new allopathic medical school far exceeds any other educational institution in southern Nevada.

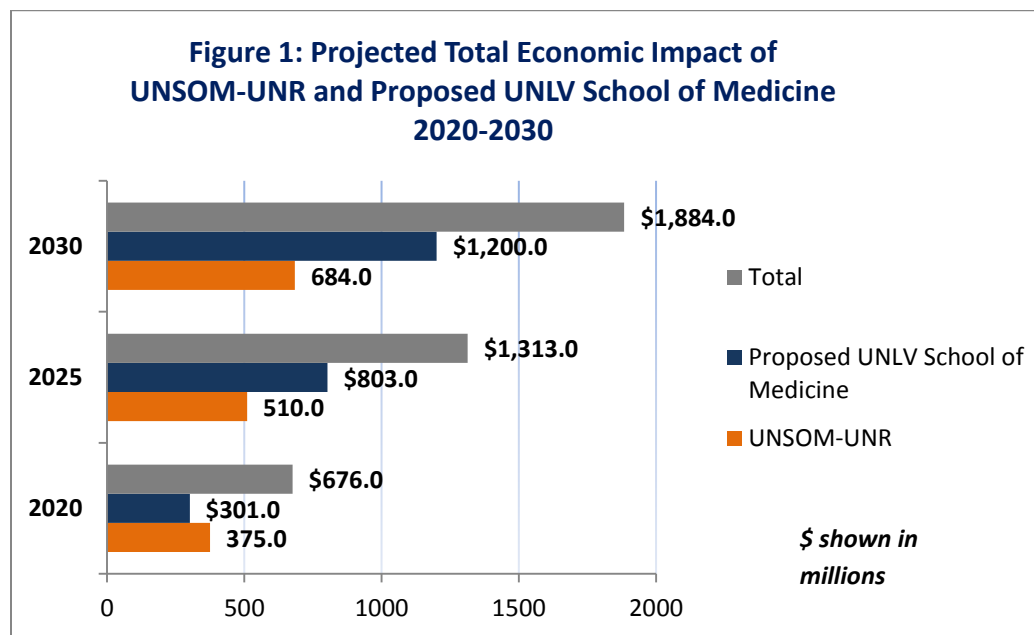
Tripp Umbach evaluated other potential university models in the Las Vegas area and does not believe that any other educational institution would have the research infrastructure and academic history to begin and support a successful allopathic medical school at the scale needed to address future community physician workforce needs.

This model will require the leadership of the existing UNSOM-UNR over an initial six-year period (2014-2019), resulting in a new four-year medical school under the control of UNLV after 2020. While this study does not include an estimate of the economic impact resulting from expanding

teaching hospitals and GME positions statewide, the recommended model will need to also focus on expanding academic medicine and GME in order to achieve maximum benefits to the state’s health, welfare, and economy.

## The Economic Impact of Recommended Approach

- By 2030, the total economic impact<sup>17</sup> of both state-supported medical schools is estimated to be nearly **\$1.9 billion** (**\$1.2 million** in Las Vegas and **\$684 million** in Reno); representing more than six times the current **\$285 million** impact of UNSOM-UNR (see Figure 1 and Table 3 below).
- Tripp Umbach estimates UNSOM-UNR will have an increased total annual economic impact of approximately **\$684 million**, and the proposed UNLV School of Medicine is projected to have a total annual economic impact of **\$1.2 billion**.



<sup>17</sup> **Important Note:** Economic impact estimates are only presented for medical education and research functions, and do not include significant economic, employment, and tax revenue impacts related to expanding clinical services at teaching hospitals, expanded residency positions, health science workforce gains or bioscience-related economic development from the commercialization of research.

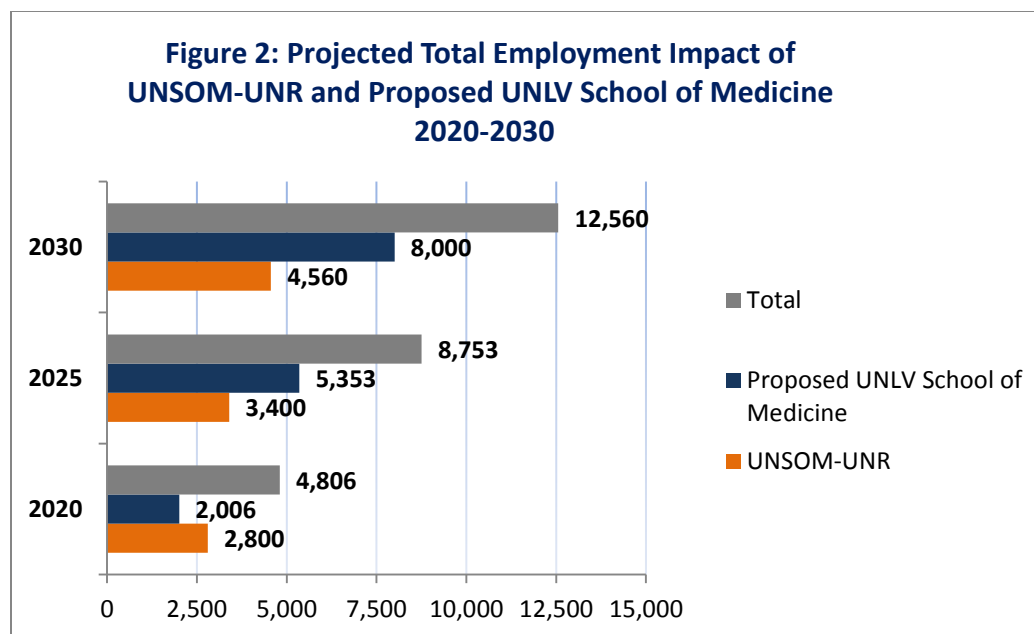
**Table 3: Total Economic Impact**

<b>Total Economic Impact (in Millions) to the State of Nevada</b>	<b>2010</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
Proposed UNLV School of Medicine	<b>N/A</b>	<b>\$301 million</b>	<b>\$803 million</b>	<b>\$1,200 million</b>
UNSOM-UNR	<b>\$285 million</b>	<b>\$375 million</b>	<b>\$510 million</b>	<b>\$684 million</b>

<b>Total Statewide Economic Impact</b>	<b>\$285 million</b>	<b>\$676 million</b>	<b>\$1,313 million</b>	<b>\$1,884 million</b>
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**Employment Impact (2010-2030)**

- In 2030, Tripp Umbach estimates UNSOM-UNR is projected to support 4,560 jobs and the proposed UNLV School of Medicine is projected to support 8,000 jobs (**8,000 jobs** in Las Vegas and **4,560 jobs** in Reno). The combined employment impact of both state-supported medical schools in 2030 will support **12,560 jobs** in the State of Nevada (see Figure 2 and Table 4 below).
- Tripp Umbach’s growth estimate for UNSOM-UNR is based on a collaborative model. Projected economic and employment impacts of UNSOM-UNR without strong collaboration with UNLV were not generated for this report, however, Tripp Umbach estimates that the impact of UNSOM-UNR will be less without such a partnership with UNLV.

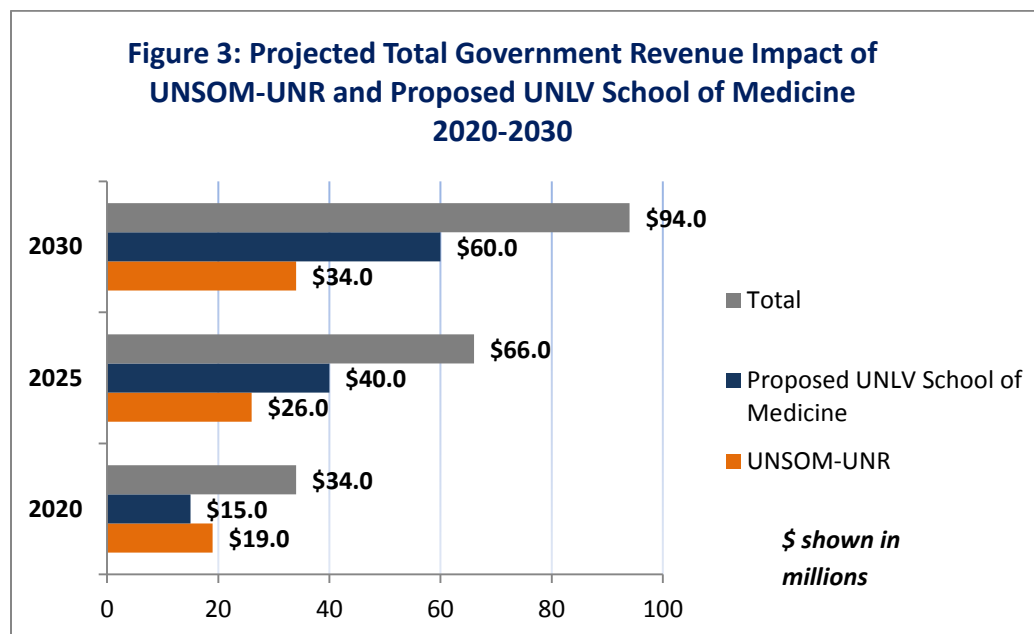


**Table 4: Total Employment Impact**

Total Employment Impact to the State of Nevada (in jobs)	2010	2020	2025	2030
Proposed UNLV School of Medicine	N/A jobs	2,006 jobs	5,353 jobs	8,000 jobs
UNSOM-UNR	2,396 jobs	2,800 jobs	3,400 jobs	4,560 jobs
<b>Total Employment Impact</b>	<b>2,396 jobs</b>	<b>4,806 jobs</b>	<b>8,753 jobs</b>	<b>12,560 jobs</b>

#### Government Revenue Impact (2010-2030)

- In 2030, Tripp Umbach estimates UNSOM-UNR will generate **\$34 million** in government revenue and the proposed UNLV School of Medicine is projected to generate **\$60 million** in government revenue. The combined government revenue impact of both state-supported medical schools in 2020 is **\$94 million** to the State of Nevada. With annual Government Revenue estimated at **\$94 million** in 2030, medical schools in Nevada are likely to produce a positive return on state investment (see Figure 3 and Table 5 below).



**Table 5: Total Government Impact**

Total Government Revenue Impact (in Millions) to the State of Nevada	2010	2020	2025	2030
Proposed UNLV School of Medicine	N/A	\$15 million	\$40 million	\$60 million
UNSOM-UNR	\$14 million	\$19 million	\$26 million	\$34 million
<b>Total Government Revenue Impact</b>	<b>\$14 million</b>	<b>\$34 million</b>	<b>\$66 million</b>	<b>\$94 million</b>

## Tripp Umbach Conclusions

As reflected in the figures and tables above, the economic impact of a new four-year medical school developed as a collaborative venture between UNSOM-UNR and UNLV will have approximately **\$300 million** more annual economic impact on the State Nevada at maturity, than the average state-supported peer-sized medical school in states containing more than one state medical school. Also, shown above is the economic impact related to additional growth potential of the existing UNSOM-UNR through close collaboration with the proposed UNLV School of Medicine. Not included in the estimates above are the multiple economic impacts associated with growth in clinical capacity at existing and new teaching hospitals, benefits of reducing export medical tourism, retaining Nevada patients who currently leave the state for advanced treatments, attraction of patients from outside the state who will come to Nevada for advanced treatments, expanded GME, and bio-science economic development through commercialization of research. Possibly the greatest economic driver in any region has to be the current and future medical residents who remain in the state for training, therefore, by establishing a new four- year, allopathic, medical school in Las Vegas, the health care needs of the residents of southern Nevada will be met. The current and expanding requirements of the ACA will be achieved and the region will have the necessary healthcare infrastructure to continue to grow and expand economically.

### Benefits of the UNSOM-UNR and UNLV Partnership Model Include:

- **Speed and Efficiency:** The speed at which a new medical school can be developed to meet market needs and drive economic development is greatly enhanced by a collaborative relationship between an established medical school and newly developed program. The speed at which the new collaborative medical school can attract faculty, researchers, high-quality students, and industry partnerships from the very beginning will place the new four-year medical school on a high trajectory for ultimate economic impact.

- **Fresh Dollars attracted to Nevada:** Coordinated academic medicine education programs in both Reno and Las Vegas will add significantly more and new streams of funding to the state.
  - UNSOM-UNR will also have the potential to receive more research from federal and private sources through statewide partnerships with UNLV – the two schools will have the opportunity to coordinate applications that leverage research capabilities at both schools and access to diverse statewide populations.
- **Maximum Growth Potential:** UNSOM-UNR and the proposed UNLV School of Medicine will be able to develop a stronger more regionally focused clinical business model, where faculty practice revenue can grow significantly through closer day-to-day working relationships with hospitals.
  - The growth of clinical services supported by two medical schools in the state's largest markets will increase the number of patients that remain in Nevada for care and may eventually attract patients from outside of the state, thereby increasing the economic impact to the healthcare sector.
- A joint effort by UNSOM-UNR and the proposed UNLV School of Medicine has the potential to better engage the foundation and philanthropic community and lead to greater financial support for both institutions.

- While, UNSOM-UNR and UNLV partnership is the recommended model for the development of a new medical school in Las Vegas, such a partnership would increase the opportunities for successful research partnerships with other existing healthcare partners in Las Vegas like:
  - Cleveland Clinic – Lou Ruvo Center for Brain Health
  - Roseman University for Health Sciences
  - Touro University Nevada
  - Spectrum Pharmaceuticals, Inc.
  - Clark County Social Services
  - Nevada State Health Division
  - Local and Regional Hospitals
  - Nathan Adleson Hospice
  - Federally Qualified Health Care Centers
  - SWITCH
  - Nevada State College
  - College of Southern Nevada

## Tripp Umbach Recommendations

- **Complete a detailed Business Plan for Medical Education Expansion** – Tripp Umbach recommends that UNSOM-UNR working in partnership with UNLV conduct a comprehensive business plan to assess program development, faculty/staff, site location, space, and financial needs. The business plan should also address a pathway for developing 240 new residency positions statewide.
- **Develop a Formal Partnership** – As per the recently signed Memorandum of Understanding, UNSOM-UNR working in partnership with UNLV, will guide a transparent process of developing a new, separately accredited four-year medical school in Las Vegas. Tripp Umbach recommends that through the Board of Regents, a “coordinating council” be established with representation from both universities to guide the implementation of the new program.
- **Secure Leadership** – Per LCME requirements, the Dean at the UNSOM-UNR will serve as Executive Dean for both the Reno and Las Vegas medical school programs during the six-year start-up and transitional period. A Las Vegas-based campus dean, who reports to both the Executive Dean at UNSOM-UNR and to the President of UNLV, will ensure close coordination between institutions, expedient implementation, and adherence to the timetable.
- **Expand Clinical Placements** – Tripp Umbach recommends that a statewide clinical network be established to ensure that placements and faculty relationships between both schools be coordinated from the very start.
- **Expand Graduate Medical Education** – Hospitals throughout the State of Nevada will need to invest immediately in establishing GME programs to ensure the success of the two state-supported allopathic medical schools to place graduates in advanced training programs. There is also an opportunity for rotations at FQHC’s and Community Health Centers in order to increase healthcare capacity in Nevada.
- **Ongoing Focus on Bioscience Economic Development** – Tripp Umbach recommends that a focused statewide effort to increase economic development through active bioscience industry promotion, medical tourism, IT, and external research begin in 2016.

- **Transfer from UNSOM-UNR to UNLV** – Tripp Umbach recommends that on January 1, 2020, the new UNLV School of Medicine will be transferred through a detailed Memorandum of Agreement from UNR to UNLV. After 2020, UNLV School of Medicine will be securely placed within the community and will continue to grow with strong collaborative connections with UNSOM-UNR.

## Appendix A: Justification of Need – National View

The United States (U.S.) is facing the largest physician shortage in its history, as the nation's population both grows and ages. Some theorists even believe that the U.S. will never be able to close the gap between the need for medical care and the number of physicians and other healthcare providers who provide such care. Within six years, the shortage of physicians will reach 150,000 nationally, as significantly more doctors will retire (the average age of all physicians is currently 56 years old) and it has been stated that fewer physicians will enter practice. Issues such as the aging of the U.S. population and implementation of federal healthcare reform – resulting in approximately 40 million Americans gaining access to health insurance – will only make the physician shortage more serious. “The nation's goal of having the very best physician workforce in the world faces challenges. The population is aging and becoming increasingly disparate in economic status. The healthcare delivery system is changing more rapidly than medical education. Even as healthcare systems face these new problems, past problems remain unsolved – physicians are poorly distributed geographically in relation to population needs and have become increasingly specialized, while primary care remains under-resourced.”<sup>18</sup>

The shortage of physicians in our country has transitioned from a broad focus of national attention to the front lines of the communities most negatively impacted by shortages of physicians and specialists. Approximately, one in five Americans already live in a region designated as having a shortage of primary care physicians and the concern is the number of doctors entering the field isn't expected to keep pace with demand.<sup>19</sup> Communities and regions must organize efforts to combat this trend. Grassroots efforts and strategies must be developed to help each region act in its own best interest to provide adequate healthcare services dedicated to the well-being of its communities.

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<sup>18</sup> Council of Graduate Medical Education (COGME): Twenty-First Report: Improving Value in Graduate Medical Education (August 2013).

<sup>19</sup> Newly Insured to Deepen Primary-Care Doctor Gap (June 2013).

## Justification of Need – Nevada Physician Shortage

### Nevada Physician Shortage

According to the AAMC, in 2010, Nevada ranked 45th in the country in the number of physicians per 100,000 population and 46th in the U.S. in the number of primary care physicians per 100,000 population. Considering the U.S. has a major shortage of primary care physicians right now, and that Nevada is even more acutely short-handed, the situation is likely to get worse as tens of thousands of people become newly insured under the ACA, which would ultimately increase the demand for healthcare services.

- Table 6 displays that Nevada ranked 46th in the U.S. in the number of active primary care physicians per 100,000 population. There were 90.5 primary care physicians per 100,000 population in the U.S. in 2010.<sup>20</sup>

**Table 6: Total Active Primary Care Physicians per 100,000 Population by Degree Type, 2010**

	Total Population	TOTAL ACTIVE PC PHYSICIANS			ACTIVE M.D.s		ACTIVE D.O.s	
		Number	Rate per 100,000	Rank	Number	Rate per 100,000	Number	Rate per 100,000
United States	309,050,816	279,719	90.5	N.R.	254,217	82.3	25,473	8.2
Nevada	2,654,751	1,889	71.2	46	1,669	62.9	220	8.3

- Table 7 displays that in 2010, nationally, over one-fourth (26.2%) of the active physician workforce was age 60 or older. The table also shows that 24.5% of Nevada's total active physicians were age 60 or older, and ranked 30th in the U.S.<sup>21</sup>

**Table 7: Active Physicians by selected age groups, 2010**

	TOTAL ACTIVE PHYSICIANS*	UNDER AGE 40		AGE 60 OR OLDER		Rank
	Number	Number	Percent	Number	Percent	
United States	798,236	140,464	17.6%	208,802	26.2%	N.R.
Nevada	5,257	816	15.5%	1,288	24.5%	30

<sup>20</sup> Population estimates are from the U.S. Census Bureau (Release date: February, 2011) and Physician data are from the AMA Physician Master file (December 31, 2010).

<sup>21</sup> Population estimates are from the U.S. Census Bureau (Release date: February, 2011) and Physician data are from the AMA Physician Master file (December 31, 2010).

- Approximately, 72.0% of Nevada’s population resides in Clark County (Las Vegas metropolitan area) alone and 15.2% lives in Washoe County (Reno-Sparks metropolitan area). Even though most of the rural and frontier counties in the state have fewer physicians (MDs and DOs) per capita (ranging from 0 to 88.4 per 100,000), Clark County has significantly fewer physicians (76.8/100,000) than the other two regions containing urban areas, Washoe County (90.5/100,000) and Carson City (114/100,000).<sup>22</sup> Table 8 compares the numbers of primary care physicians (MD and DO) in Clark County per capita with other geographic areas throughout the of Nevada.<sup>23</sup>

**Table 8: Active Physicians by selected age groups, 2010**

REGION/COUNTY	LICENSED PRIMARY CARE PHYSICIANS (MD AND DO)			
	NUMBER		TOTAL	NUMBER PER 100,000
	MD	DO		
RURAL AND FRONTIER				
CHURCHILL COUNTY	14	1	15	56.9
DOUGLAS COUNTY	26	8	34	67.5
ELKO COUNTY	22	5	27	51.9
ESMERALDA COUNTY	0	0	0	0.0
EUREKA COUNTY	0	0	0	0.0
HUMBOLDT COUNTY	6	2	8	45.7
LANDER COUNTY	2	0	2	33.6
LINCOLN COUNTY	2	0	2	47.2
LYON COUNTY	9	1	10	19.1
MINERAL COUNTY	3	1	4	88.4
NYE COUNTY	7	5	12	26.8
PERSHING COUNTY	2	0	2	28.3
STOREY COUNTY	0	0	0	0.0
WHITE PINE COUNTY	7	1	8	84.3
REGION SUBTOTAL	100	24	124	44.0
URBAN				
CARSON CITY	57	6	63	114.2
CLARK COUNTY	1,257	204	1,461	76.8
WASHOE COUNTY	325	39	364	90.5
REGION SUBTOTAL	1,639	249	1,888	80.0
NEVADA- TOTAL	1,739	273	2,012	76.2

<sup>22</sup> Clark County Community Health Status Assessment (2012).

<sup>23</sup> Nevada Rural and Frontier Health Data Book (2011 Edition).

- In 2012, the Commonwealth Fund Scorecard on Local Health System Performance<sup>24</sup> report published ratings of 306 U.S. major metropolitan areas in regard to quality of medical care and Las Vegas metropolitan area was ranked number 273 regarding prevention and treatment and 264 in regards to access (both ranking in the bottom 15%).

### **Nevada Mental Health Barriers**

Currently, there is also a lack of licensed psychiatrists in Clark County (4.5/100,000), which represents an emerging mental health concern for the community and Nevada. Although it is apparent that Clark County has too few primary care physicians, Tripp Umbach also views the mental health care provider shortage as a critical issue at present. The lack of mental health care providers puts excessive burden on the emergency departments, which can also affect the care received by patients who need immediate medical care.

Southern Nevada Health District<sup>25</sup> has collected preliminary data identifying frequent excessive wait times for mental health patients for emergency department evaluations and subsequent follow-up treatment or inpatient placement. This situation represents a crisis for mental health patients throughout Nevada.

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<sup>24</sup> The Commonwealth Scorecard on Local Health System Performance provides U.S. communities with comparative data to assess the performance of their healthcare systems, establish priorities for improvement, and set achievement targets. It tracks 43 indicators spanning four dimensions of health system performance: access, prevention and treatment, costs and potentially avoidable hospital use, and health outcomes.

<sup>25</sup> The Southern Nevada District Board of Health focus is to establish and conduct a comprehensive program of health, which includes the promotion of environmental health, exclusive of air quality matters, maternal and child health, control of communicable diseases and the further programming of the prolonging of life and the promotion of the well-being of the people of Clark County.

- Table 9 displays how Nevada performs among all states on a sample of important measures of healthcare quality from the 2012 National Healthcare Quality Report.<sup>26</sup> Nevada ranked in the bottom in the following areas: violent crime, suicide deaths, premature death, binge drinking and poor mental health days, which all pertain to mental health barriers.

**Table 9: Nevada's National Healthcare Quality Report Ranking**

Measure <sup>1</sup>		State Rank
<b>Violent Crime</b>	The number of murders, rapes, robberies, and aggravated assaults per 100,000 population.	50
<b>Suicide Deaths</b>	Number of deaths due to intentional self-harm per 100,000 population.	46
<b>Premature Death</b>	Number of years of potential life lost prior to age 75 per 100,000 population.	35
<b>Binge Drinking</b>	Percentage of population over age 18 that drank excessively in the last 30 days. Binge drinking is defined as five drinks for a man and four drinks for a woman on one occasion.	28
<b>Poor Mental Health Days</b>	Number of days in the previous 30 days when a person indicates their activities are limited due to mental health difficulties. (2011 BRFSS Methodology)	28

Source: <http://www.americashealthrankings.org/NV/2012>.

### Health Professional Shortage Area – HPSA

The U.S. Department of Health and Human Services Health Resources and Services Administration (HRSA) develops shortage designation criteria and uses them to decide whether or not a geographic area, population group or facility is a Health Professional Shortage Area (HPSA) or a Medically Underserved Area or Population (MUA/P).<sup>27</sup> HPSA's may be designated as having a shortage of primary medical care, dental, or mental health providers. They may be urban or rural areas, population groups, medical or other public facilities.

<sup>26</sup> The key function of the National Healthcare Quality Report (NHQR) is to summarize the state of healthcare quality and access for the Nation, and report on progress and opportunities for improving healthcare quality, as mandated by the U.S. Congress.

<sup>27</sup> Medically Underserved Areas (MUA) may be a whole county or a group of contiguous counties, a group of county or civil divisions or a group of urban census tracts in which residents have a shortage of personal health services. Medically Underserved Populations (MUPs) may include groups of persons who face economic, cultural, or linguistic barriers to healthcare.

- Table 10 displays both the national and state of Nevada's HPSA in the following areas: primary care, dental, and mental health.

**Table 10: Health Professional Shortage Areas**

Health Professional Shortage Area – HPSA	National Shortage – As of January 9, 2013	Nevada Shortage – As of September 12, 2013
<b>Primary Care HPSA's</b>	<b>5,900</b>	<b>283</b>
<ul style="list-style-type: none"> <li>➤ <i>Primary Care HPSAs are based on a physician to population ratio of 1:3,500. In other words, when there are 3,500 or more people per primary care physician, an area is eligible to be designated as a primary care HPSA. Applying this formula, it would take approximately 7,550 additional primary care physicians to eliminate the current primary care HPSA designations.</i></li> </ul>		
<b>Dental HPSA's</b>	<b>4,600</b>	<b>250</b>
<ul style="list-style-type: none"> <li>➤ <i>Dental HPSAs are based on a dentist to population ratio of 1:5,000. In other words, when there are 5,000 or more people per dentist, an area is eligible to be designated as a dental HPSA. Applying this formula, it would take approximately 6,600 additional dentists to eliminate the current dental HPSA designations.</i></li> </ul>		
<b>Mental Health HPSA's</b>	<b>3,800</b>	<b>92</b>
<ul style="list-style-type: none"> <li>➤ <i>Mental Health HPSAs are based on a psychiatrist to population ratio of 1:30,000. In other words, when there are 30,000 or more people per psychiatrist, an area is eligible to be designated as a mental health HPSA. Applying this formula, it would take approximately 2,200 additional psychiatrists to eliminate the current mental HPSA designations.</i></li> </ul>		

### Expected Population Growth Could Further Strain Delivery of Healthcare Services

Clark County experienced a dramatic increase in population between 2000 and 2010 and was, for part of that time, the fastest growing community in the U.S. In 2010, Clark County contained 73% of Nevada's population and accounted for 82% of the state's growth between 2000 and 2010. Nevada grew by >25% each of the last three decades, but was the only state in the U.S. to sustain that rate of growth between 2000 and 2010.<sup>28</sup>

According to the U.S. Census Bureau, Nevada has a current population of 2.75 million as of July 1, 2012 and the population is expected to grow to nearly 3.7 million by 2030<sup>29</sup>; an increase in population could further stress poorly-distributed healthcare resources. Also, projections

<sup>28</sup> U.S. Census Bureau, 2010 Census Briefs: Population Distribution and Change: 2000 - 2010.

<sup>29</sup> Woods & Poole Economics, Inc. (2013). The strength of Woods & Poole's economic and demographic projections stems from the comprehensive historical county databases and reflects simultaneous interchange accurately between metropolitan regions within the United States.

indicate that 25% of total residents will be age 65 or older, which could greatly strain delivery of healthcare services to members of that age group. Lack of access to physicians might inadvertently deny many older individuals of needed medical care.

### Need to Increase Physician Numbers and Accessibility

The United Health Foundation<sup>30</sup> Ranked Nevada 38th in Overall State Health Ranking.

- Table 11 shows how Nevada performs among all states on a sample of important measures of healthcare quality from the 2012 National Healthcare Quality Report. These measures include lack of health insurance, public health funding, and primary care physicians.

**Table 11: 2012 National Healthcare Quality Report Ranking on Selected Measures**

Measure <sup>1</sup>	Definition	State Rank
<b>Lack of Health Insurance</b>	Percentage of the population that does not have health insurance privately, through their employer or the government. Two-year average.	49
<b>Public Health Funding</b>	State funding dedicated to public health as well as federal funding directed to states by the Centers for Disease Control and Prevention and the Health Resources and Services Administration.	49
<b>Primary Care Physicians</b>	Number of primary care physicians (including general practice, family practice, OB-GYN, pediatrics and internal medicine) per 100,000 population.	47

Source: <http://www.americashealthrankings.org/NV/2012>

The physician shortage and need for medical education expansion in the State of Nevada mirrors the rest of the country. Currently, Nevada is one of the states with the lowest rate per capita of active primary care physicians, along with Mississippi, Utah, Texas and Idaho, according to the AAMC. The need for more doctors is so critical that the development of medical education, physician recruitment, and retention efforts must expand begin immediately to produce physicians that will remain in the southern Nevada region and state, assuring both public health and economic opportunity for all citizens. The State of Nevada must expand its medical education, research, and clinical missions in order to meet growing needs.

<sup>30</sup> The United Health Foundation works diligently to improve the quality and cost-effectiveness of medical outcomes; to expand access to healthcare services for underserved individuals; and to enhance the well-being of local communities.

It is clear that limited medical college capacity, physician demographics, and physician lifestyle changes are all significantly impacting the physician workforce in Nevada. Most medical experts believe that the only way to adequately address the physician shortage in our country is through the creation of new medical colleges.

Over the past six years, new and existing medical schools have responded to the impending physician shortage by increasing the number of graduates with the MD or DO degree by approximately 30%. Today, there are more than 160 medical allopathic (MD) and osteopathic (DO) medical schools graduating approximately 20,000 students annually. Developing a new four-year medical school at UNLV and expanding UNSOM – UNR’s current GME are good examples of ways to increase the number of Nevada medical students and the opportunity for students to stay through residency.

### National and Nevada Medical School Student Enrollment

Within the next section of this report, national and Nevada statewide data based on medical school student enrollment both allopathic (MD) and osteopathic (DO), physicians retained from UME, physicians retained from GME, and physicians retained from UME and GME combined are presented, further supporting our recommendation of creating a new, four-year medical school in Las Vegas.

- Table 12 displays that 80% of the students enrolled in medical schools in the U.S. were enrolled in public schools; while only one-fifth of students enrolled in osteopathic schools (20%) were enrolled in public schools.<sup>31</sup>

**Table 12: Students Enrolled in Medical or Osteopathic Schools for the 2010-2011 Academic Year**

Total Population		TOTAL STUDENTS ENROLLED IN MD OR DO SCHOOLS			STUDENTS ENROLLED IN MD SCHOOLS		STUDENTS ENROLLED IN DO SCHOOLS	
		Number	Rate per 100,000	Rank	Number	Rate per 100,000	Number	Rate per 100,000
United States	309,050,816	97,188	31.4	N.R.	77,761	25.2	19,427	6.3
Nevada	2,654,751	781	29.4	21	250	9.4	531	20

<sup>31</sup> Population estimates are from the U.S. Census Bureau (Release date: February, 2011) and Physician data are from the AMA Physician Master file (December 31, 2010).

- Table 13 shows the number of physicians retained from UME nationally and in the state of Nevada. Thirty-nine percent (39%) of Nevada medical school graduates stay in Nevada (22nd nationally), and if they complete a GME program in-state, the retention rate goes up to 58% (Nevada ranks 6th nationally).
- Table 14 displays the number of physicians retained from GME throughout the nation and in Nevada. After completing training in an ACGME-accredited program, 48% of physicians either stayed or returned to the state where they completed their most recent GME. Six of the top 10 states with the highest GME retention rates were in the West.<sup>32</sup>

**Table 13: Physicians Retained from UME**

	ACTIVE PHYSICIANS WHO GRADUATED FROM MD OR DO SCHOOL IN-STATE	ACTIVE PHYSICIANS WHO GRADUATED FROM MD OR DO SCHOOL IN-STATE AND ARE ACTIVE IN-STATE		
	Number	Number	Percent	Rank
United States	596,819	230,655	38.6%	N.R.
Nevada	1,225	480	39.2%	22

**Table 14: Physicians Retained from GME**

	ACTIVE PHYSICIANS WHO COMPLETED GME IN- STATE	ACTIVE PHYSICIANS WHO COMPLETED GME IN- STATE AND ARE ACTIVE IN-STATE		
	Number	Number	Percent	Rank
United States	759,058	362,763	47.8%	N.R.
Nevada	916	529	57.8%	6

<sup>32</sup> Population estimates are from the U.S. Census Bureau (Release date: February, 2011) and Physician data are from the AMA Physician Master file (December 31, 2010).

- Table 15 shows that retention rates were highest for physicians who completed both UME and GME in the same state. Two-thirds (67%) of the physicians who completed UME and GME in the same state remained in-state to practice. Physicians retained from both UME and GME combined, in the State of Nevada, is 80% (4th nationally). In terms of overall retention (i.e., UME and GME were completed in the same state), 8 of the top 10 states were in the South and West.<sup>33</sup>

**Table 15: Physicians Retained from UME and GME Combined**

	ACTIVE PHYSICIANS WHO GRADUATED FROM MEDICAL OR OSTEOPATHIC SCHOOL IN STATE AND COMPLETED GME IN STATE	ACTIVE PHYSICIANS WHO GRADUATED FROM MEDICAL OR OSTEOPATHIC SCHOOL IN STATE AND COMPLETED GME IN STATE, AND ARE ACTIVE IN-STATE		
	Number	Number	Percent	Rank
<b>United States</b>	<b>232,309</b>	<b>154,614</b>	<b>66.6%</b>	<b>N.R.</b>
<b>Nevada</b>	<b>180</b>	<b>144</b>	<b>80.0%</b>	<b>4</b>

<sup>33</sup> Population estimates are from the U.S. Census Bureau (Release date: February, 2011) and Physician data are from the AMA Physician Master file (December 31, 2010).

## **Appendix B – Key Stakeholder Interview Participant Organization**

- **Brookings Mountain West**
- **City of Henderson**
- **City of Las Vegas**
- **City of North Las Vegas**
- **Clark County Commission**
- **Clark County Social Service Department**
- **Clinical Simulations Lab of Las Vegas**
- **College of Southern Nevada**
- **Downtown Project-Las Vegas**
- **Nevada State Governor’s Office of Economic Development**
- **NSHE-Nevada System of Higher Education**
- **Regents of the University of Nevada**
- **Roseman University of Health Sciences**
- **Sunrise Hospital and Medical Center**
- **Touro Osteopathic University**
- **UMC-University Medical Center**
- **UNLV – Administration**
- **UNLV- College of Hotel Administration**
- **UNLV- Division of Research and Economic Development**
- **UNLV-School of Dental Medicine**
- **UNLV- School of Life Sciences**
- **UNLV-School of Nursing**
- **University of Nevada School of Medicine – University of Nevada Reno Administration (UNSOM-UNR)**
- **University of Reno – UNR Administration**
- **VA Southern Nevada Healthcare System**
- **Volunteers of Medicine in Southern Nevada**