Kentucky’s Growing Need for Medical Laboratory Practitioners

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Abstract

Context: The U.S. Bureau of Labor Statistics predicts a 15% growth in medical laboratory science (MLS) graduates from 2010 to 2020. Kentucky is underserved and has a high demand for medical laboratory technicians, especially in rural areas. The growth in the aging population will lead to increased demand for medical laboratory practitioners.

Objective: Estimate the need for graduates from medical laboratory science/technician programs and evaluate a potential educational model centered at the UK Center for Excellence in Rural Health that would build on in-place education and guide medical laboratory science graduates to underserved communities.

Design: Comparative analysis of Kentucky's population ratio of medical laboratory technicians with the seven states that border Kentucky. Data are from Bureau of Labor Statistics, Kentucky Labor Market Information System, and the Kentucky State Data Center.

Main Outcome Measure(s): Estimates of need for MLS graduates.

Results: Kentucky has a current need of 461 medical laboratory scientists and 1,067 medical laboratory technicians when compared to the seven states that border Kentucky.

Conclusions: The Center of Excellence in Rural Health can take the lead in the development of a baccalaureate program that educates and trains MLS students through an associate degree program, and prepares them for beginning a baccalaureate program. The program can meet the substantial need for MLS graduates and offer opportunities for new careers for persons displaced through downturns in the coal industry and other labor dislocations in Eastern Kentucky.

Key Job Characteristics of Medical Laboratory Scientists

- Perform, evaluate, and assure accuracy and validity of laboratory testing.
- Found in various settings including: healthcare, public health, research, government, agriculture, veterinary medicine, accreditation agencies, administration and management, consulting, education, industry, and sales.

UK CERHMLS student

Projected National Percent Change in Medical Laboratory Practitioner Employment, 2010-2020

Health and Diagnosis Testing Occupations

| Medical and Laboratory Technologists | Percent change in employment, projected 2010-20 | 2010-2020
|------------------------------------|-----------------------------------------------|----------
| Medical and Clinical Laboratory Technicians | 15% | 25%
| Medical Laboratory Technicians | 11% | 26%

National Employment Projections for Medical Laboratory Practitioners, 2010-2020

<table>
<thead>
<tr>
<th>Occupational Title</th>
<th>2010</th>
<th>2020</th>
<th>Percent Change</th>
</tr>
</thead>
</table>
| Medical and Laboratory Technologists | 310,000 | 375,900 | 20%
| Medical and Clinical Laboratory Technicians | 109,400 | 108,000 | 1%
| Medical Laboratory Technicians | 161,200 | 164,800 | 2%

Estimates of Additional Medical Laboratory Practitioner Positions to Meet Kentucky’s Needs

<table>
<thead>
<tr>
<th>MLS Role</th>
<th>Positions</th>
<th>Population</th>
<th>Need</th>
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</table>
| Medical Laboratory Technician | 52 | 0.52 | 439
| Medical Laboratory Technician | 60 | 0.60 | 1,071


Longterm Medical Laboratory Practitioner Employment Projections for Kentucky

<table>
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</thead>
<tbody>
<tr>
<td>Medical and Clinical Laboratory Technologists</td>
<td>1,920</td>
<td>2,040</td>
<td>120</td>
<td>0.6%</td>
</tr>
<tr>
<td>Medical and Clinical Laboratory Technicians</td>
<td>1,630</td>
<td>1,800</td>
<td>170</td>
<td>1.0%</td>
</tr>
<tr>
<td>All Occupations</td>
<td>1,895,230</td>
<td>2,130,660</td>
<td>235,430</td>
<td>1.2%</td>
</tr>
</tbody>
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Discussion

As with physicians, certified diabetes educators, and other health professions, the State’s rural communities are more likely to be underserved by graduates of medical laboratory science/technician programs. It is estimated based on current ratios that Kentucky will need at least an additional 461 medical laboratory scientists and 1,067 medical laboratory technicians by the year 2020. Kentucky’s need for medical laboratory practitioners could be even greater as a result of an estimated 630 thousand persons who will gain access to health care under the Affordable Care Act, the need for more healthcare because of the State’s aging population, and higher illness rates and severe health disparities among the residents of Kentucky’s 54 Appalachian counties requiring more laboratory testing.

The job forecast for MLS graduates is very positive. The Bureau of Labor Statistics cites, “Employment of medical laboratory scientists is expected to grow by 15 percent between 2010 and 2020, faster than the average for all occupations.” The volume of laboratory tests continues to increase with both population growth and the development of new types of tests.” This creates a wonderful opportunity for educating persons in Appalachian Kentucky who have lost their jobs because of downturns in the coal industry and those who have been prevented from pursuing a college education because of social and economic disparities. In addition to this positive workforce outlook, this provides the possibility of preparing graduates to meet the tremendous need for medical laboratory practitioners.

Conclusion

Community colleges have the potential to cost-effectively educate MLS students through an associate degree program (e.g., associate of science) and prepare them for beginning a baccalaureate program offered at the UK Center for Excellence in Rural Health. This program can help meet the substantial state-wide need for MLS graduates, increase the supply in high-need rural communities, and offer opportunities for new careers for persons displaced through downturns in the coal industry in Kentucky’s Appalachian counties. Further, such programs can create opportunities for first-generation college students and infuse the MLS health profession with talented individuals from underrepresented cultural, economic and social backgrounds.

The health service areas for many of our rural communities, especially our 54 Appalachian counties, are characterized by geographic barriers such as poor road conditions and mountainous topography, making commuting long distances to attend college classes a challenge. Many of these areas do not have Interstate access and public transportation systems in a few regions. Distance from college campuses also gives rise to major financial and psychological barriers for many wanting to pursue a bachelor’s degree in MLS.

The University of Kentucky is a public land grant university dedicated to improving people’s lives through excellence in education, research and creative work, service and healthcare. As Kentucky’s flagship institution, the University plays a critical leadership role by promoting diversity, inclusion, economic development and human well-being. The University of Kentucky Center of Excellence in Rural Health (CERH), was established in 1990 by legislative mandate. The UK CERH and its 150-member staff act as conduits between rural needs and university resources. The UK CERH embodies a novel approach to improving rural communities by simultaneously addressing education, health and economic issues.

UK’s College of Health Sciences (CHS) prepares students for professions such as physical therapy, athletic training, speech and communication disorders, and medical laboratory science. The UK Medical Laboratory Science Program has been one of the first programs in the United States. Graduates of the UK MLS Program are employed in laboratory and non-laboratory settings throughout the U.S. and internationally.

While the model being proposed will prepare more MLS graduates to compete in a growing national market for medical laboratory scientists, it is likely to produce a greater retention rate for graduates who wish to live and work in the rural communities where they were born and reared. This could have a major benefit for reducing rural shortages of medical laboratory practitioners.