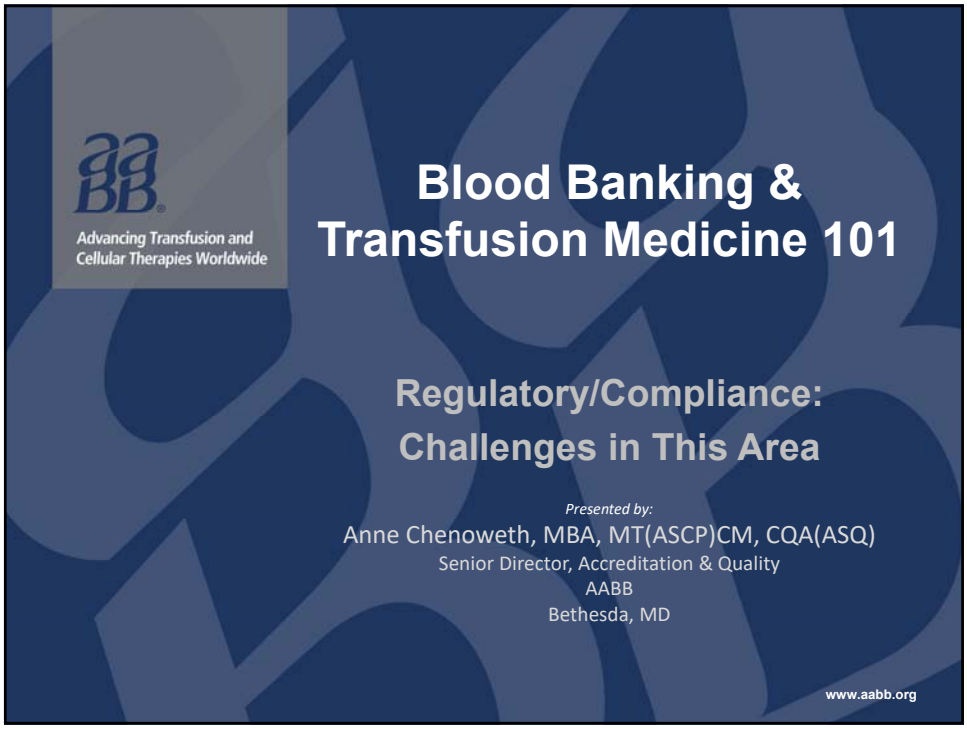

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Learning Objectives

After watching this video you should be able to….

- Discuss the workforce shortage and the challenges this poses.
- Describe the training and cost of training of the new workforce.
- Explain how Artificial Intelligence (AI) and other technologies will impact laboratory medicine.

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Laboratory Medicine Today

- Roughly 35,700 medical and clinical laboratory technologists and technicians employed in the United States
- The profession is suffering from a workforce shortage that is approaching crisis levels for medical laboratory technicians and medical laboratory scientists

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Factors in the shortage

- The retirement of the aging workforce
- An increase in demand for laboratory services
- Changes in the practice of clinical laboratory science due to technology advances; and
- Vacancy rates that exceed the number of MLS and MLT graduates

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Retirement

- Clinical laboratories are feeling the impact of the aging workforce, as experienced professionals who had delayed retirement due to economic uncertainties are now retiring, or planning to retire in the next five years, in greater numbers.
- The average expected five-year overall retirement rate is expected to be around 19.4%.

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Retirement

- Retirement is also impacting educational programs. In a survey of program directors for clinical laboratory science education, 41.2% of the programs that responded indicated their Program Director would be retiring in the next five years.
- Other types of faculty retirement rates include 37% of Professors, 31.7% of Associate Professors, 15.2% of Assistant Professors, 30.7% of Instructors, 20% of Teaching Specialists, 35.9% of Preceptors and 30.3% of Lecturers.

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However……..

- the demand for laboratory services is increasing due to population growth, an increase in the population aged 65 or older, and expanding molecular and esoteric tests

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In Addition……

- Other major advances in sophisticated technology and techniques require specialized knowledge and a greater skill set for those that perform and interpret new and evolving methods used for diagnosis and management of disease. This includes advanced molecular and genetic testing which is increasing rapidly in use

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And…..

- Vacancy rates are the reflection of difficulties in recruiting new professionals and retaining current staff.
- Current efforts to improve recruitment include signing bonuses, loan forgiveness, tuition reimbursement, and other incentives. These are not permanent solutions, and with reductions in laboratory reimbursements, may not be fiscally feasible.

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Workforce Shortages

- The Labor Department states that to maintain current levels we will need to graduate 12,000 more medical laboratory scientists to stay even however there are on average only 5,000 graduates each year

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Not a new phenomenon

- In June 16, 2000, representatives from twelve (12) different laboratory organizations and two (2) government agencies met in Chicago to participate in the first Summit on the "Shortage of Clinical Laboratory Personnel," sponsored by the Education Scientific Assembly of the American Society for Clinical Laboratory Science (ASCLS).

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Financial Difficulties of Training

- Undergraduate facilities vs on site clinical training

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Demand vs Graduation

- The enrollment and graduation of medical laboratory professionals is not keeping up with the rapidly rising demand
- The profession is educating less than half of the number of laboratory professionals needed.
- Constant threats of closure for MLS and MLT programs due to scrutiny from college and university leaders making financial decisions puts programs in jeopardy, primarily due to the high costs associated with operating these academic programs.

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Retention of the workforce

- The workforce shortage has made career prospects excellent for medical and clinical laboratory technologists and technicians who complete an accredited education program and earn professional certification.
- However, for hiring managers, recruitment is challenging.
- Stated reasons for difficulty in retaining laboratory personnel are insufficient job classifications and a lack of a clearly defined career ladder. The lack of funding for continuing education, advanced education, and tuition reimbursement also affects recruitment and retention.

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Vacancy

- When recruitment and retention efforts fall short, vacancies lead to employee stress and burnout.
- When vacancies occur, in order to cover the 24/7 schedules required in hospital settings, staff must extend working hours to double shifts and overtime, and expand their duties and responsibilities to meet laboratory and patient needs.
- These expanded duties can include cross-training in other disciplines within the laboratory

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Hidden Issue

- The shortage of medical laboratory professionals has largely gone unnoticed outside of the field. It is likely the full impact has not yet been felt, as medical laboratory professionals will continue to do what is necessary to provide quality results, at the expense of their work/life balance.

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Visibility

- The lack of visibility of the profession and salaries that are not comparable with the education level of other healthcare fields hamper the recruitment of students into MLT and MLS programs.
- While many college science students might be candidates for the profession, many fail to enter the profession merely because they were unaware of it.

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Awareness

- High school and middle school students are also unaware of the clinical laboratory science practice field.
- Clinical laboratory science is not currently included in STEM programs
- Recruitment efforts will be enhanced if we improve the visibility of the profession, promote recognition, and showcase the medical laboratory profession as a vital and promising health care career, with many opportunities.
- This effort should begin early in the educational process, potentially as soon as middle school, and in cooperation with STEM programs, to bring awareness of the profession to students as well as K-12 educators.

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Salary Concerns

- Education vs Salary
- Retention in the laboratory sciences

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Artificial Intelligence

- In the clinical laboratory, Chemistry and Hematology departments have been the earliest to adapt robotics and algorithms into its workflow.
- As early as 1984, the “EXPERT”, a consultation system-building tool, which is a knowledge-based Artificial Intelligence (AI) programme was developed at Rutgers University for enabling sequential laboratory testing and interpretation.

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New tech

- Continuous remote sensing of patients using “wearables” such as glucose monitoring devices, temperature, heart rate and respiratory rate monitors connected to a central computing device via the ubiquitous “Internet of things” will be the norm, with AI aided “ambient computing” changing the way futuristic patient care will be provided

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Personalized Medicine

- Advent of AI for use in interpreting complex information such as the IBM Watson Project for Medicine
- Use of technology to reduce drudgery and free up laboratory scientists for more complex testing and interpretation

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Future

- Awareness
- Compensation review
- Value and Visibility of the Profession

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Questions?

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