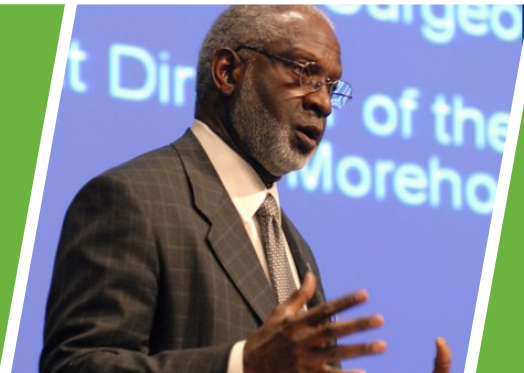


Two hundred educators, employers, and economic developers participated in Georgia's first Life Science Workforce Forum.



*Conference Briefing:*

## **Georgia Bio Life Science Workforce Forum**

David Satcher, former U.S. Surgeon general and former CDC Director, calls for industry-educator partnerships to show students how science and technology is used in the workplace.

### **"A Catalyst for Transforming Georgia's Bioscience Talent"**

was the theme of Georgia Bio's first Life Science Workforce Forum held on November 17, 2008 at the U.S. Centers for Disease Control and Prevention. The forum brought together pre- and post-secondary educators and business employers to identify and discuss common needs, trends, and ways educators and businesses can jointly improve the quality, quantity, and skills of Georgia's life sciences workforce.

Laurence Downey, former President and CEO of Solvay Pharmaceuticals, in his Welcome address provided an overview of Georgia Bio's pilot programs to develop Georgia's life science workforce in "The Innovation Crescent" (thirteen counties between Atlanta and Athens.) The Crescent, with about 85% of Georgia's life science industry, is strategic for Georgia's future economic growth. The pilot programs are directed to increasing student interest in bioscience, creating new standards-aligned tasks for middle and high school curricula, launching high school biotechnology courses, and having teachers collaborate to promote curricula development based on best practices and experiences. Science can be accessible, hands-on, and relevant when scientists and employers connect with educators and students. Georgia Bio is working to enhance avenues to foster these connections.

David Satcher, Director of the Satcher Health Leadership Institute and former U.S. Surgeon General and former CDC Director, next presented the Keynote Address. He emphasized the need to educate our children to respond to challenges in science and technology. "Yes I can" applies to our children when it comes to science and

*(continues inside)*



technology.” He echoed the concerns of influential people from his own personal life such as Dr. Benjamin E. Mays, as well as those expressed by then president-elect Obama. These encompassed the need to (1) to invest in our schools and teachers; (2) to foster partnership between schools, community, and businesses, (3) to recognize the critical role of parents in educating children, and (4) to create opportunities for students to see how science and technology is used in the workplace. The later can be accomplished through partnerships between schools and businesses, which will help to prepare Georgia’s future workforce.

Focusing on the partnership concept, panels of researchers, employers, and educators then presented their views and analysis of GA’s workforce.

### Research Panel: *A Profile of Georgia’s Life Science Workforce*

The Panel members were Jeffrey Humphreys, Selig Center for Economic Growth, Terry College of Business, UGA; Jan Youtie, Manager Policy Services, Enterprise Innovation Institute, Georgia Tech; and Marcia Jones, Public Service Associate, Center for Agribusiness and Economic Development, UGA. They addressed three questions: 1) What are the current strengths, weaknesses, opportunities and challenges of the workforce necessary to grow Georgia’s life science organizations? 2) How would you predict these issues would change in the next five years and why? 3) If charged with making the state’s life science talent recognized as a key factor for its success, what would be the strategies to achieve this goal?

The Panel had the following comments. They recognized the abundance of talent in Georgia, which the state wants to retain, but questioned the alignment of available talent with industry needs. Georgia’s life science industry is maturing and expanding faster than other job sectors, and the product pipeline is currently well stocked. A strength is the supply of skilled researchers (creating a competitive pool from which employers can choose) but the availability of skilled managers and technicians was a concern. Hence, they suggested the supply of talent produced

by Georgia’s higher education system meets numerical current and future needs of the bioscience industry, assuming only modest growth in the future. A shortfall in some areas of the bioscience workforce is projected, particularly in the medical/clinical laboratory technicians and technologists segments. In addition there is a substantial need for graduates with degrees in food technology, food laws, and food regulation with improved education in both retail farm supply business and wholesale agribusinesses. Because the bioscience industry is a major growth area, there is a need to regularly monitor workforce supply and demand in its various sectors and to investigate and evaluate program best practices.

The life science companies have large workforces and a greater proportion of positions that require college and post-college education. Graduates may distinguish themselves by demonstrating “soft skills”, such as business ethics, critical thinking/problem solving, customer relations, oral communication, software/computer competency, and relevant prior work experience, typically not taught in college curricula. Higher education could expand hands-on training and industry experience during the student’s educational program by offering part-time jobs and internships, and focusing on expanding students’ communication skills. K-12 education could provide career shadowing, and direct interactions with scientists to encourage and excite students about a bioscience career. All of these improvements, however, need life science company participation.

In summary, the panel concluded that students need more education to prepare them for the work environment and to fill the gap with skills such as problem solving, the ability to communicate, providing quality customer service, and taking initiative. More information about the researchers’ analysis of the labor market and Georgia Bio and Intellectual Capital Partnership Program (ICAPP) is available at: **Shaping Infinity**: <http://www.gabio.org/attachments32008003012005shaping%20Infinity%202008.pdf> **Bioscience**: [http://www.icapp.org/pubs/biosciences\\_workforce\\_update.pdf](http://www.icapp.org/pubs/biosciences_workforce_update.pdf) **Agribusiness**: [http://www.icapp.org/pubs/agribusiness\\_workforce.pdf](http://www.icapp.org/pubs/agribusiness_workforce.pdf)

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Laurence Downey, former CEO of Solvay Pharmaceuticals, describes Georgia Bio’s programs to sustain dynamic connections between employers and educators.





### Employer Panel: *Perspectives on Preparing Students to Meet Employer Needs*

Panel members were Stephen Thacker, Office of Workforce and Career Development, U.S. CDC; Stuart Zola, Yerkes National Primate Research Center of Emory University; Jennifer Maffia, Aerotek Scientific LLC; and Al Heacox, CryoLife, Inc.

They addressed three questions: 1) What are the strengths, weaknesses, opportunities and challenges you face to attract and retain your workforce? 2) How will these issues change in the next few years? 3) What would you tell the State to do to ensure an effective talent pipeline for immediate and long-term needs of your organization/industry in general?

The panel presented the following observations. Challenges for them were the labor pool with fewer well qualified individuals suited to employer/business requirements and aging of the current workforce. For example, by 2020 Georgia will need about 250,000 more public health workers, especially in the fields of nursing, epidemiology, laboratory science, and environmental health. There are increasing demands on public health agencies such as the CDC, which is both a national and a global resource. Focusing on the CDC, its Office of Workforce and Career Development (OWCD) must have sufficient talent to address poverty, aging, chronic disease, natural disasters, infections, and terrorism on both a daily and long term basis. It ensures organizations have the right talent, in the right jobs, at the right time. To enhance the quality and scope of training for CDC employees, the OWCD provides combined service and learning programs through public health fellowships, internships, residencies, and electives to postgraduate students. OWCD has programs that expose elementary through undergraduate students to public health occupations, e.g. Science Ambassadors to teach teachers about Public Health, Science Olympiad, Disease Detective Camp for high school students and a teaching epidemiology program (EXCITE).

Animal care and veterinary research sectors, such as at Yerkes National Primate Research Center, have workforce shortages.

Staffing, especially of technicians and senior veterinarians, cannot keep pace with scientific growth and advancement. To sustain the veterinary care workforce and contribute to the economic growth, there must be more collaboration among advanced training institutions such as UGA, CDC, and Georgia Tech.

The education/skill sets of graduates, especially in science and math at the K-12 level, must be improved. Georgia must create more awareness about bioscience employment opportunities. Current post secondary graduates have adequate basic science and math, but many lack the basic principles of the scientific method, tool selection/method adaptation, Good Laboratory Practices (GLP)/Good Manufacturing Procedures (GMP) experience, inadequate quality control and systems analysis, and regulatory knowledge (FDA, ISO (International Organization for Standardization)) skills. Bioscience graduates also require additional training on basic issues, such as documentation and universal precautions.

For the future, employers need to bolster and create awareness about life science opportunities in K-12 education and foster certificate training in special areas, e.g. GMP and clinical research. When possible, employers should cooperate with educators to offer work-study programs and internships to provide hands-on work experience and one-on-one scientist interactions. For its part, the Life Science Industry needs to promote Georgia as a diverse, affordable place to live and work. This can occur by hosting national and international bio, pharma, and life science events and by offering competitive salaries, attractive benefits, a challenging work environment, flexible schedules, and opportunities for career advancement.

### Education perspectives: *Preparing Georgia's Students for the Workforce*

The University System of Georgia (USG) P-16 Department leads and coordinates production and preparation of K-12 teachers, counselors, and leaders, and increases student learning and achievement in science and mathematics. Mark Pevey, Senior Executive Director of P-16 Initiatives, noted low numbers of

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# K-12 education improvements need life science company participation to prepare students for the work environment.

students entering and obtaining degrees in science, technology, engineering, and mathematics (STEM) professions. The critical factor is math and science teacher shortages because of retirement, recruitment and retention difficulty, and inadequate training.

One initiative to address these issues is the Partnership for Reform in Science and Mathematic (PRISM). PRISM's thrust is to increase and deepen public school and college student achievement and understanding in science and mathematics. PRISM has grouped K-12 teachers with college of education preparatory teachers and mathematic and science teachers to help develop remedial strategies. Examples of PRISM strategies are increasing teaching quality through recruitment, preparation, and professional learning; improving science/mathematics specialists and K-16 learning communities; providing K-12 teachers' incentives through a reward system; improving teachers' working environment; and improving the quality of science and mathematics specialists. PRISM conducts a public awareness campaign to increase student interest in science and mathematics by ads on billboards and mass transit, in magazines and newspapers, and numerous television spots. In concert with PRISM, the USG STEM Initiative is directed to increasing the number of K-12 students interested in STEM, increasing the number of students in college who pursue STEM disciplines, and increasing the number of teachers prepared in science and mathematics.

As a direct result of these initiatives, grades 3-5 science performance on the Georgia CRCT Assessments has doubled in PRISM districts compared to comparable non PRISM districts. Middle grades mathematics substantially improved along with increased numbers of students enrolled in challenging courses (e.g. chemistry). These changes in performance and increased student interests are not only due to the awareness campaign but also, according to the students themselves, the effect their parents have on them. Thus, there is a need for more parental involvement to promote their child's interest in STEM disciplines. (Parents guide: [www.mathsciencesuccess.org/](http://www.mathsciencesuccess.org/))

## Recommendations.

The Forum concluded with attendees selecting the highest priority recommendations for future action among identified during the forum: These were:

- Incorporate internships and/or job shadowing into formal education and work with business to ensure meaningful student experiences;
- Identify effective means of exposing science and tech applications to the "real world" including reaching students at a younger age;
- Increase public awareness about careers in life sciences;
- Increase interdisciplinary and inter-institutional collaborations; and
- Integrate business and technical knowledge in degree programs.

This Forum demonstrates the value of bringing together educators, economic developers, and industry to focus on a comprehensive scenario of student and worker preparation needs. The dynamics of this industry sector, its changing regulatory environment, and rapid growth mandate a regular assessment and communication of regional workforce skill, knowledge and supply needs. It is clear that employers must share responsibility with the state's educational systems to foster regional talent development instead of relying on imported talent.

The resulting recommendations illustrate priorities that must be addressed in a consistent and sustainable manner throughout the state in order to ensure a competitive workforce, and should guide priorities for investment in the future.

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The Life Sciences Partnership