

Policy Takeaways for *Biotech Manufacturing Apprenticeships: A Case Study in Workforce Innovation*

Expanding domestic production of pharmaceutical and biological products is a key policy priority to reduce reliance on foreign suppliers, strengthen supply chains for critical products, and prepare for the next generation of new biopharmaceutical products that are expected to come to market. Yet, the current workforce is already straining to meet industry growth.

Biopharmaceutical production requires skilled technicians—many without four-year degrees—who understand safety protocols, clean room operations, and biological or chemical processing. Apprenticeship programs are one proven way to fill this gap, offering hands-on training for good-paying, technically skilled jobs. But these programs need infrastructure, investment, and coordination to succeed.

Our Report:

CSET's new case study examines the North Carolina Life Sciences Apprenticeship Consortium (NCLSAC), a public-private effort to build a new apprenticeship pathway for biological and pharmaceutical manufacturing. We interviewed the people who designed and launched the NCLSAC to better understand the process of standing up such a program. While the report is intended to provide practical guidance to those building similar programs, it also highlights what policymakers can do to enable and support effective workforce development initiatives.

Key Opportunities for Policy:

1. Invest in resources and infrastructure.

Interviewees emphasized that the NCLSAC was built on a foundation of pre-existing assets, including a network of community colleges and workforce development boards, convening organizations, and an established, industry-recognized technical training program. Support sustainable funding for regional workforce hubs, technical education programs, and public-private intermediaries that can convene employers and providers. Provide continued funding for pre-apprenticeship programs.

2. Improve workforce data collection and sharing.

Program designers relied on labor market studies and industry data to assess hiring needs and skills gaps. Information about where—and why—workforce gaps exist is critical to target training efforts effectively. Support regular, regional labor market studies and ensure timely access to data on the types, skill sets, and quantities of in-demand roles, projected industry growth, and talent pipeline gaps.

3. Expand flexible funding for apprenticeship programs.

Creating and sustaining new programs, registering occupations, and conducting outreach takes time and resources. The most sustainable initiatives blend federal, state, employer, and philanthropic funding across many different stakeholders. Increase federal and state funding for both start-up and sustainment costs, including supports like stipends, mentorship, and child care, through federal, state, and local funding streams such as Perkins V, the NSF Advanced Technological Education (ATE) program, the Strengthening Community Colleges Training Grants Program, the National Apprenticeship Act, and related state initiatives.

4. Enable outreach and recruitment.

Interviewees identified two primary barriers for potential apprentices: awareness and access. Many job-seekers were unaware of opportunities in biopharmaceutical manufacturing, or unable to access them due to costs, training gaps, or the need to maintain current employment. The NCLSAC responded with high-touch outreach, including participating in a community ambassador program that built awareness and trust in underrepresented communities. Support recruitment initiatives and reduce barriers to entry, like the Apprenticeship Ambassador Initiative and the former WANTO grant program, particularly for historically underserved communities to engage new populations in the industry.

5. Support multi-stakeholder convenings.

Apprenticeships take coordination between training programs, employers, community partners, and state and local governments to succeed. In North Carolina, the state's life sciences economic development partnership played a central role in convening stakeholders and maintaining alignment. Create or strengthen regional convening mechanisms to align employer needs, education capacity, and public funding opportunities.

Bottom Line

Reshoring critical manufacturing and strengthening supply chains will depend not only on advanced technologies but on the people trained to operate them. Apprenticeships offer a practical, inclusive pathway to build that workforce—especially for roles that do not require a four-year degree. But realizing this potential requires policy support: foundational resources and infrastructure, up-to-date workforce data, robust funding, targeted outreach, and coordinated leadership. Investments in these areas will pay dividends in economic resilience, national health security, and access to good jobs across the country.