EMPOWERING KIPS BAY'S FUTURE WORKFORCE:

The Kips Bay Science District Education & Workforce Vision

NYC/EDC

Fellow New Yorkers,

Nine months ago, we assembled the Kips Bay Science District Education and Workforce Task Force, seizing on an unprecedented opportunity to advance equitable economic development in our city's critical healthcare, life sciences, and public health ecosystems. Our vision at NYCEDC is to create a more vibrant, inclusive, and competitive economy that benefits all New Yorkers. In this report, we have outlined a bold vision for Kips Bay as a hub for educating and training the workforce and diverse entrepreneurs of the future—creating pathways into these high-growth ecosystems and fostering accessible, well-paying job and business opportunities essential for the future of New York's economy and the economic mobility of New Yorkers.

New York City has long been a global leader in healthcare, with its top-tier hospitals and training institutions. Long-term public and private commitments—including $1 billion through the City's LifeSci NYC Initiative and $620 million through the State's Life Science Initiative—have established the city as a national life sciences hub. Building on the strength of our health and life sciences institutions and investments and on the city's world-class education and workforce training, we have a unique opportunity to grow and lead within these key industries.

The Kips Bay Science District is at the heart of this opportunity. The District, already home to three major medical institutions, six higher education institutions and one million square feet of life sciences office and lab space, is the premier hub of New York City's healthcare and life sciences ecosystems. This is why we've continued to invest in innovative projects in the District, such as the Alexandria Center for Life Science, Deerfield Cure, Innovation East, and most recently, the Science Park and Research Center (SPARC) Kips Bay.

SPARC embodies our commitment to creating accessible opportunities for all New Yorkers, bringing together education, workforce, and industry all in one physical location to further collaboration and provide equitable, accessible career pathways for students coming from New York City Public Schools (NYCPS) and The City University of New York (CUNY)—the largest public school system and urban public university in the US, respectively. Governor Hochul and Mayor Adams have committed a combined $1.2 billion to bring three CUNY schools, new facilities for

New York City H+H and OCME, and a NYCPS STEM-focused high school and STEAM Center to half of the SPARC campus. The other half will include over one million square feet of privately built biotech space. The two parts of the campus, as well as the broader Kips Bay District, will be integrated through our workforce and entrepreneurship strategies creating unprecedented access and opportunity for CUNY and NYCPS students in the life sciences and healthcare industries.

Together, working in partnership with the Mayor's Office of Talent and Workforce Development (NYC Talent), the New York Alliance for Careers in Healthcare (NYACH), and nearly 50 other leaders in education, workforce, and industry, we are committed to delivering on the promise of SPARC and projects across Kips Bay. In crafting this vision, we have been guided by our mission: ***To develop a clear vision for the career pathways, programs, and partnerships needed to ensure Kips Bay provides equitable access for New Yorkers to the city's healthcare, life sciences, and public health education, training, and job opportunities.***

The work ahead of us will take time. This year, we focused on crafting a vision that reflects the input of experts across sectors, grounded in labor analysis and research. Together, we've identified the key challenges and opportunities for workforce development in the health and life sciences ecosystems and mapped out how we, as stakeholders in Kips Bay, through new programming and partnerships, will create and support integrated academic and career pathways for the District and beyond.

We are so grateful for the support our Task Force members have provided in creating this report and embarking on this ambitious plan.

Andrew Kimball
President & CEO
NYCEDC

COVER IMAGE SOURCE: Gerardo Somoza

Kips Bay Science District Education and Workforce Task Force

SOURCE: Jiin Wen

Neda Afsarmanesh, Director, Research Strategy and Program Development, NYU Langone Health

Alicia Alvero, Interim Executive Vice Chancellor for Academic Affairs, CUNY

Lauren Andersen, University Associate Provost for Careers and Industry Partners, CUNY

Nancy Baez, Senior Director, Strategy, NYC Public Schools

Stephanie Birmingham, Director of Community & Operations, NYCETC

Patricia Boyce, University Dean for Health and Human Services, CUNY

Christopher Braun, Associate Provost & Assistant Vice President, CUNY Hunter College

Daniel Bustillo, Executive Director, 1199 SEIU Training & Employment Funds

Louie Cao, Facilities Planning Director, CUNY School of Public Health

Tracey Capers, Director of Nursing, New York City H+H

Michelle Clarke, Deputy Commissioner Business Services, SBS

Erin Darcy, Director of Government Affairs, Consortium of Worker Education

Deepa Dhawan, Director, NYACH, NYC Mayor's Office of Talent and Workforce Development (NYC Talent)

Jennifer Dillon, Director of Talent, Innovation and Industry Partnerships, CUNY

Robert Domanski, Dean of Academic Innovation and Outcomes, CUNY Hunter College

Peter Englot, SVP of Communication and External Affairs, CUNY Hunter College

Beau Everett, Vice President of Real Estate, NYU Langone

Keri Faulhaber, Senior Vice President, JobsFirstNYC

Martin Forth, University Dean for K16 Initiatives, CUNY

Chandra Ghose, Chief Executive Officer, Emily's Entourage

Pete Gutierrez, Acting Dean of Health Sciences & Nursing, CUNY BMCC

Rebecca Hall, Director Community Engagement, 1199SEIU Training & Employment Funds

Terry Kidd, Assistant Vice President of Continuing Education & Workforce Development, CUNY BMCC

Susan Klitzman, Senior Associate Dean for Administration, CUNY School of Public Health

Cecilia Kushner, Chief Strategy Officer, NYCEDC

Daniel Liss, Senior Advisor, Industry Partnerships, NYC Mayor's Office of Talent and Workforce Development (NYC Talent)

Eliza Loehr, Senior Director, Strategy, NYC Public Schools

Matthew Malone, AIA Senior Vice President, Life Science Elevate Research Properties, Taconic Partners

Ann Marie Mauro, Joan Hansen Grabe Dean and Professor of the Hunter-Bellevue School of Nursing, CUNY Hunter College

Michael Meguerdichian, Senior Assistant Vice President of Simulation Education, New York City H+H

Greg Morris, CEO, NYCETC

Chris Palmedo, Associate Professor Media, Marketing & Communications, CUNY School of Public Health

Marjorie Parker, CEO and President, JobsFirstNYC

Marcia Peters, Chief Operating Officer, New York City H+H

Jessica Pohlman, Director of Operations at The Simulation Center, New York City H+H

Lesley Rennis, Professor of Community & Public Health Education, CUNY BMCC

Shawn Rux, Senior Executive Director, NYC Public Schools

Isha Sheth, Senior Director, Career Connected Learning, Infrastructure & Innovation, NYC Public Schools

Carolyn Silver, Executive Director, Futures and Options

William Slattery, Partner, Deerfield Management

Ghada Soliman, Doctoral Program Director, CUNY School of Public Health

Serge St. Leger, Jr., Senior Director, NYC Public Schools

Andrea Vaghy, Chief Program Officer, Workforce Professional Training Institute

Robert Van Pelt, Chief of Staff, NYC Office of Chief Medical Examiner

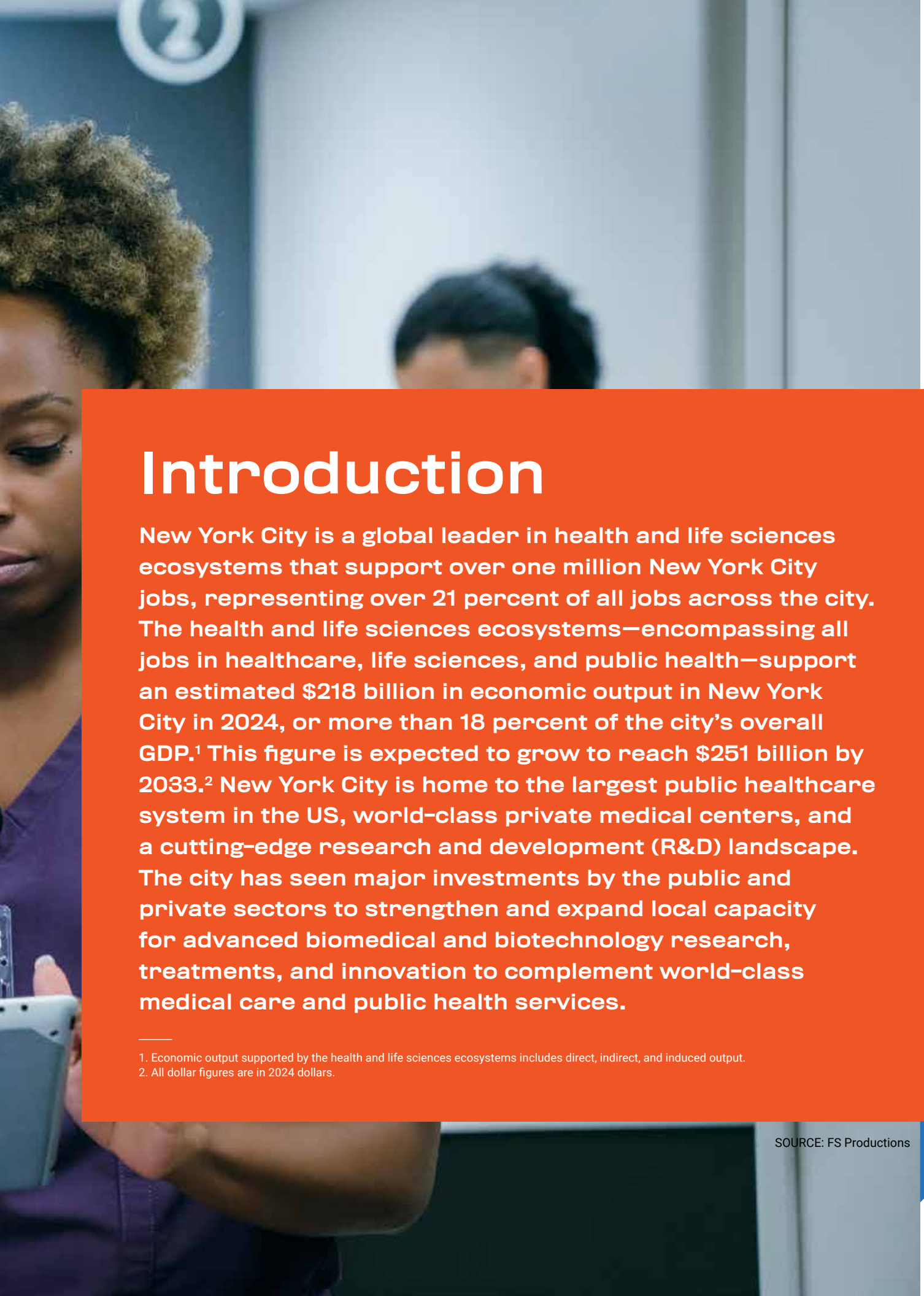
Jasmine Vega-Pegram, Executive Director, NYACH, NYC Mayor's Office of Talent and Workforce Development (NYC Talent)

Andrew Wallach, Ambulatory Chief Medical Officer, New York City H+H

Drew Weber, Strategic Campaign Coordinator, Consortium of Worker Education

Mark Weckel, Director of Youth Initiatives (Education Division) & Affiliated Scientist, (Center for Biodiversity & Conservation), American Museum of Natural History

Matthew Weir, President, Elevate Research Properties; Executive Vice President, Taconic Partners



Introduction

New York City is a global leader in health and life sciences ecosystems that support over one million New York City jobs, representing over 21 percent of all jobs across the city. The health and life sciences ecosystems—encompassing all jobs in healthcare, life sciences, and public health—support an estimated $218 billion in economic output in New York City in 2024, or more than 18 percent of the city's overall GDP.[1] This figure is expected to grow to reach $251 billion by 2033.[2] New York City is home to the largest public healthcare system in the US, world-class private medical centers, and a cutting-edge research and development (R&D) landscape. The city has seen major investments by the public and private sectors to strengthen and expand local capacity for advanced biomedical and biotechnology research, treatments, and innovation to complement world-class medical care and public health services.

1. Economic output supported by the health and life sciences ecosystems includes direct, indirect, and induced output.
2. All dollar figures are in 2024 dollars.

SOURCE: FS Productions

Healthcare, life sciences, and public health are integrated and deeply connected with many institutions, companies, and occupations straddling all three ecosystems. Increased demand for interdisciplinary care and community-based research has deepened the overlap between healthcare, life sciences, and public health. The growing integration of technology within and across these sectors has also led to the emergence of innovative applications, such as the use of AI and machine learning to accelerate drug and clinical trial development.

New York City's health and life sciences ecosystems also offer immense job opportunities—expected to grow 24 percent by 2033. To meet this opportunity and ensure the city remains highly competitive in these industries, it is critical that the City provide a continuum of accessible educational and workforce opportunities for its diverse and talented population.

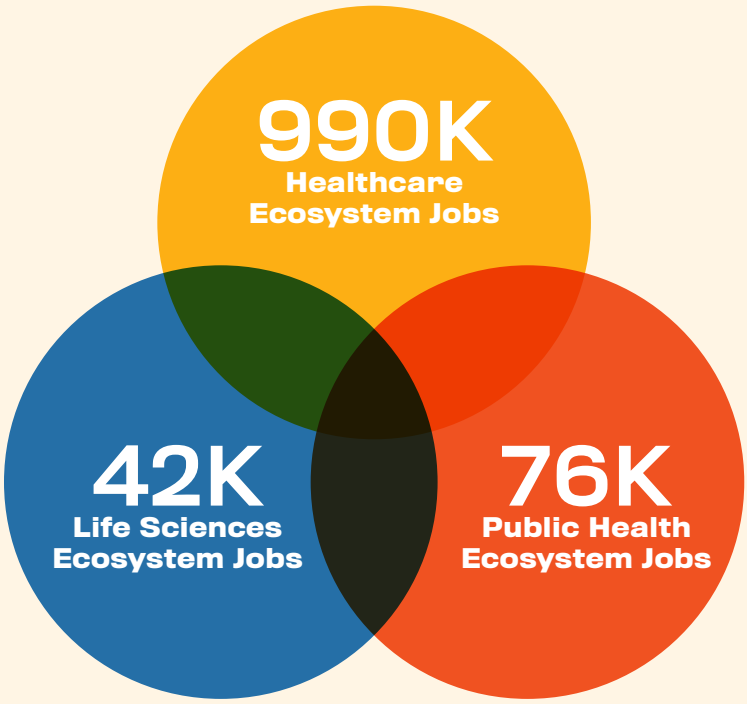
New York City is at the forefront of health and life sciences research, with a diverse talent pool, more than 100 disease-specialty foundations, 370 federally qualified health centers, 50 hospitals, and nine world-leading academic medical centers. Growing the life sciences has been a focus of the City and State over the past decade through programs like the City's $1 billion LifeSci NYC Initiative and the State's $620 million Life Science Initiative. The City's investments have gone to support the creation of commercial wet and dry lab space, spur new research and innovation, build a diverse pipeline of talent, and support early-stage companies. Most recently, the City and State announced the launch of the Chan Zuckerberg Biohub New York (CZ Biohub NY), leveraging public-private investment to drive collaboration around biomedical and biotechnology research. In Fiscal Year 2024, New York City received more than $2.7 billion in National Institutes of Health (NIH) grants, more than any other city, including Boston, which previously led for almost a quarter century. As a result of this track record of investment, New York City now has over 700 R&D-stage companies and established clusters of commercial life sciences development across the city, including the growing cluster in Kips Bay.

The Kips Bay Science District (the District, or Kips Bay) is at the center of the health and life sciences ecosystems, with an interconnected cluster of premier institutions. Bolstered by the largest municipal public healthcare delivery system in the United States—New York City Health and Hospitals (H+H)—Kips Bay is home to three major hospitals, six higher education institutions, and the Alexandria Center for Life Sciences, the city's first commercial life sciences campus. Located on the east side of Manhattan, the District will benefit from its concentration of major innovation hubs like Innovation East, Deerfield Cure, and the new Science Park and Research Campus (SPARC). This District will continue to drive innovation in New York City's growing health and life sciences ecosystems by bringing education and industry together and developing the next generation of talent within Kips Bay.

MISSION STATEMENT

To develop a clear vision for the career pathways, programs, and partnerships needed to ensure Kips Bay provides equitable access for New Yorkers to the city's healthcare, life sciences, and public health education training and job opportunities.

The New York City Health and Life Sciences Ecosystems



- **1.05 million jobs (2023)[3]**
- **21 percent of all jobs across New York City**
- **$218 billion in economic output[4] (2024)**

Definitions*

Health and life sciences ecosystems encompass jobs in healthcare, life sciences, and public health.

Each ecosystem includes sector- and non-sector-specific occupations in core industries, as well as sector-specific occupations in non-core industries. For example, this report's healthcare definition includes physicians and accountants at NYU Langone Health, as well as nurses working in public schools.

1. **Healthcare** includes the diagnosis, treatment, and care of people experiencing sickness and injuries, including direct support in these activities.
2. **Life Sciences** is the combined applications of biology and technology for the advancement of humanity, including the study of living organisms.
3. **Public health** is focused on improving and promoting the health of populations, including preventing populations from sickness and injury.

* Please see Appendix: Methodology & Analysis for details on sources and methodology

3. There is overlap in occupations between healthcare, life sciences, and public health which has been accounted for in our analysis. As a result, the Health and Life Sciences Ecosystems accounts for 1.05 million total jobs.
4. Job estimates are based on 2023 data, the most recent year available at time of analysis. Economic impacts are based on 2024.

Partnerships between the District's education, workforce, and industry leaders—made possible by SPARC's unique co-location of anchor institutions—are key to the ongoing success of the District. Recognizing that SPARC presents an unprecedented opportunity to catalyze innovation through close collaboration, New York City Economic Development Corporation (NYCEDC) assembled the ***Kips Bay Science District Education and Workforce Task Force***, composed of nearly 50 stakeholders. Led by NYCEDC and incorporating SPARC's anchor institutions including NYCPS, CUNY, NYC H+H, and OCME, the Task Force was convened to develop a clear vision for the career pathways, programs, and partnerships needed to ensure Kips Bay provides equitable access for New Yorkers to education, training, and job opportunities.

Led by NYCEDC on behalf of the Task Force, this report is the culmination of nearly a year of work. NYCEDC's efforts included a comprehensive labor analysis to identify "priority occupations" and career pathways, a thorough review of existing literature, a catalog of existing City programs to potentially scale, and the creation of 10 district-specific case studies to provide targeted insights about potential recommendations. Additionally, NYCEDC has engaged more than 50 stakeholders through eight working group meetings, over 15 interviews with employers, training organizations, community groups, and City representatives, and two full Task Force convenings to align on findings and recommendations.

This report provides an overview of NYCEDC's findings and outlines the Task Force's vision, providing a roadmap to ensure equitable access for New Yorkers to the city's health and life sciences education and job opportunities. It also identifies the District's priority occupations as those that offer well-paying opportunities, are accessible to New Yorkers, and are in-demand and well-aligned with the District's strengths in education, training, and employment. To make this vision a reality, the mission moving forward will be for partners to address long-standing challenges across the health and life sciences ecosystems by delivering results in accordance with the recommendations to support talent into priority occupations. Kips Bay partners will ensure career pathways to advancement are clear with strong support structures, developing sector-specific, industry-driven training programs that provide equitable job opportunities for all New Yorkers.

SOURCE: SOM / Miysis

The new Science Park and Research Campus (SPARC) will be a first-of-its-kind job and education center developing the next generation of talent to support the health and life sciences ecosystems. SPARC will transform the former CUNY Hunter College Brookdale campus into a state-of-the-art healthcare, life sciences, and public health hub, and will bring public realm improvements to the broader Kips Bay neighborhood. With over $1.2 billion in City and State investment committed and $2 billion in private investment anticipated, this visionary project is expected to create over 3,000 permanent jobs and 12,000 construction jobs, generate $42 billion in economic impact over the next 30 years, and establish a pipeline from New York City's public schools and public universities to well-paying careers in healthcare, life sciences, and public health.

SPARC will be anchored by new, modern facilities for the City University of New York (CUNY) Hunter College School of Nursing and School of Health Professions, the CUNY Graduate School of Public Health and Health Policy, and the Borough of Manhattan Community College's multiple healthcare programs. It will also include a NYCPS high school and a separate Science, Technology, Engineering, Art, and Mathematics (STEAM) Center providing hands-on and career-connected learning in healthcare and sciences. These education and training institutions will be further bolstered by the NYC Office of Chief Medical Examiner (OCME) and NYC Health + Hospitals, two critical organizations that will help connect students to direct workforce opportunities to increase exposure and preparedness for health and life sciences careers.


FLAMMABLE
KEEP FIRE AWAY

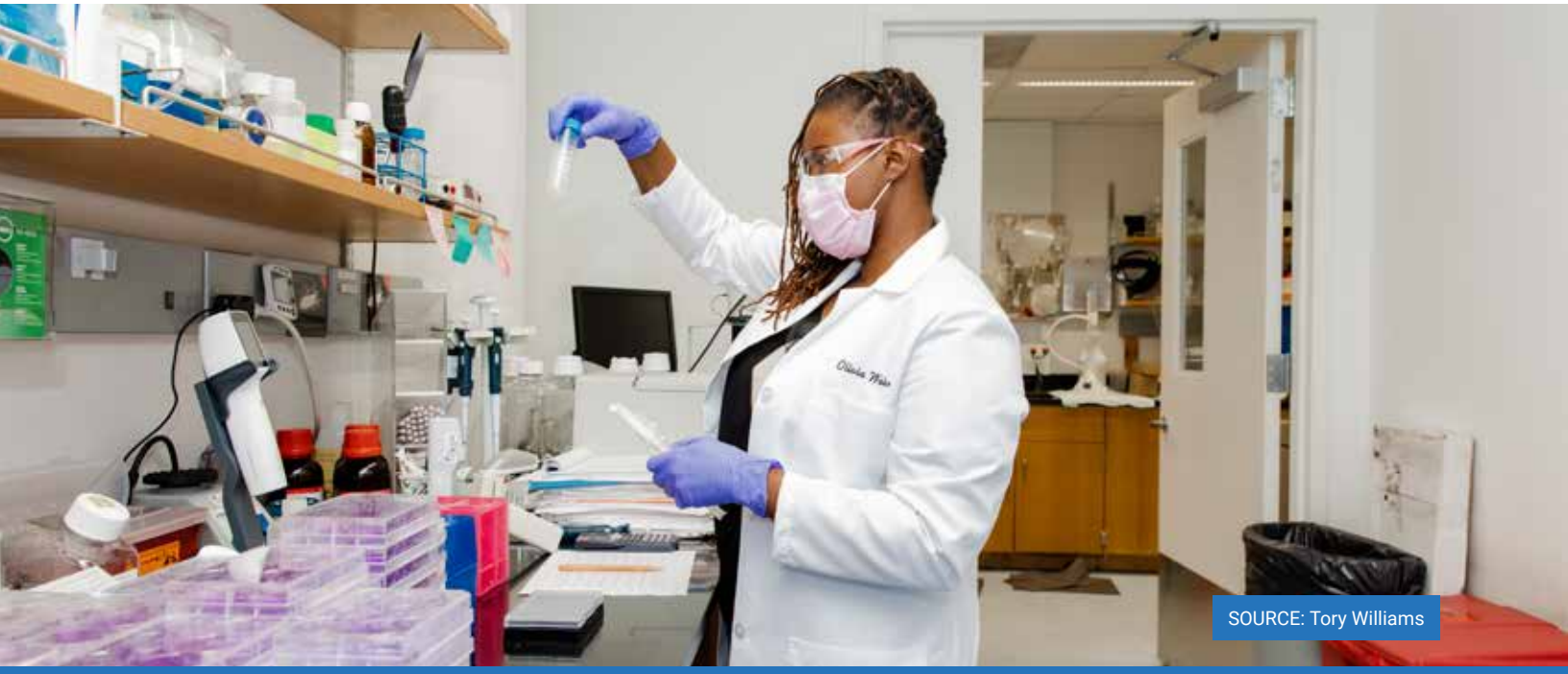
The New York City Health & Life Sciences Ecosystems

The health and life sciences ecosystems—encompassing jobs in healthcare, life sciences, and public health—supports immense economic activity in New York City, including 1.05 million jobs and almost $218 billion in economic output[ii]. With an average median wage of $38 an hour[5], many careers in the health and life sciences ecosystems offer living wages[6] and provide clear opportunities for economic mobility. The health and life sciences ecosystems account for 21 percent of all jobs across New York City, and is growing: by 2033, it will support 1.3 million jobs and $251 billion in economic output.[7]

5. The "average median" wage is the weighted average of the median wages for each occupation contained within the ecosystem.
6. MIT living wage for New York-Newark-Jersey City, NY: 2 Adults, 2 children, $34.26. The living wage shown is the hourly rate that an individual in a household must earn to support themselves and/or their family, working full-time, or 2080 hours per year. Last updated February 2024.
7. All dollar figures are in 2024 dollars.

SOURCE: Getty Images, Thomas Barwick

There are clear intersections between healthcare, life sciences, and public health, as academic and commercial R&D come together to advance critical scientific breakthroughs to improve health outcomes and integrated-care models become more prevalent to support preventative and long-term care. These intersections translate to the workforce, with similar occupations seen across all three fields, given the vital role of academic research and entrepreneurship. For example, **software developers**, **data scientists**, **clinical lab technicians**, and **general and operations managers** are critical across the health and life sciences ecosystems. Typically, these cross-ecosystem occupations require some subject-specific knowledge, but also demonstrate the opportunity within Kips Bay to bring together these partners to support growth through interdisciplinary partnerships and programs. As a center for academic excellence, institutions in Kips Bay will train and support New Yorkers who will lead scientific breakthroughs and launch dynamic new startups that improve health outcomes and enhance quality of life.



SOURCE: Tory Williams

The growing intersection between tech and health and life sciences

Technology has become an inextricable piece of the health and life sciences ecosystems, and as each field continues to grow and catalyze innovation, this bond will only deepen. The Task Force has already cited demand within health and life sciences for tech workers—including data scientists and software developers, whose jobs within health and life sciences are projected to grow 68 and 60 percent respectively in the next decade. As the sectors continue to advance, the District can expect to see even more growth in emerging interdisciplinary "dry lab" fields that integrate AI and machine learning into health and life science innovation.

Healthcare

Employing approximately 990,000 people and totaling approximately $208 billion in economic output, healthcare has a profound impact on New York City's economy.[iii]

OVERVIEW

New York City's healthcare workforce has grown by 36 percent since 2014—nearly three times the rate of the economy's overall growth. With almost one million people working in healthcare, the workforce makes up roughly 20 percent of the city's total workforce. The economic output supported by healthcare is projected to reach a total of almost $250 billion by 2033.[8]

A diversity of healthcare roles exist—patient- and non-patient-facing, research- and non-research-related, clinical and non-clinical—with many in-demand occupations offering living wages and advancement opportunities. The field offers clear ladders for advancement and opportunities for economic mobility, thanks to a robust workforce development network and strong public-private partnerships. With a certificate that typically takes a year, workers can enter the field as Licensed Practical Nurses (LPNs) earning $32 an hour, and progress to become **registered nurses** with the addition of a two- or four-year degree.[iv] **Registered nurses**, one of the largest healthcare occupations at 90,200 jobs, is poised to grow nine percent by 2033 and provides strong wages of $55 an hour. A nurse looking to continue to advance can receive a master's degree and become a **nurse practitioner**, a highly specialized role, which pays a median wage of $70 an hour.

CHALLENGES

Career advancement and higher-wage occupations in healthcare are critically bound to education, with nearly all top occupations that pay a living wage requiring at least a four-year degree. Average median healthcare wages are $32 an hour, which falls below the living wage threshold. Wages are growing more slowly than the citywide average, increasing only $2 since 2014.[9] This requires a workforce development strategy that clearly connects each segment of the education and workforce development network from high school to college, including a dedicated approach to upskilling and ongoing learning.

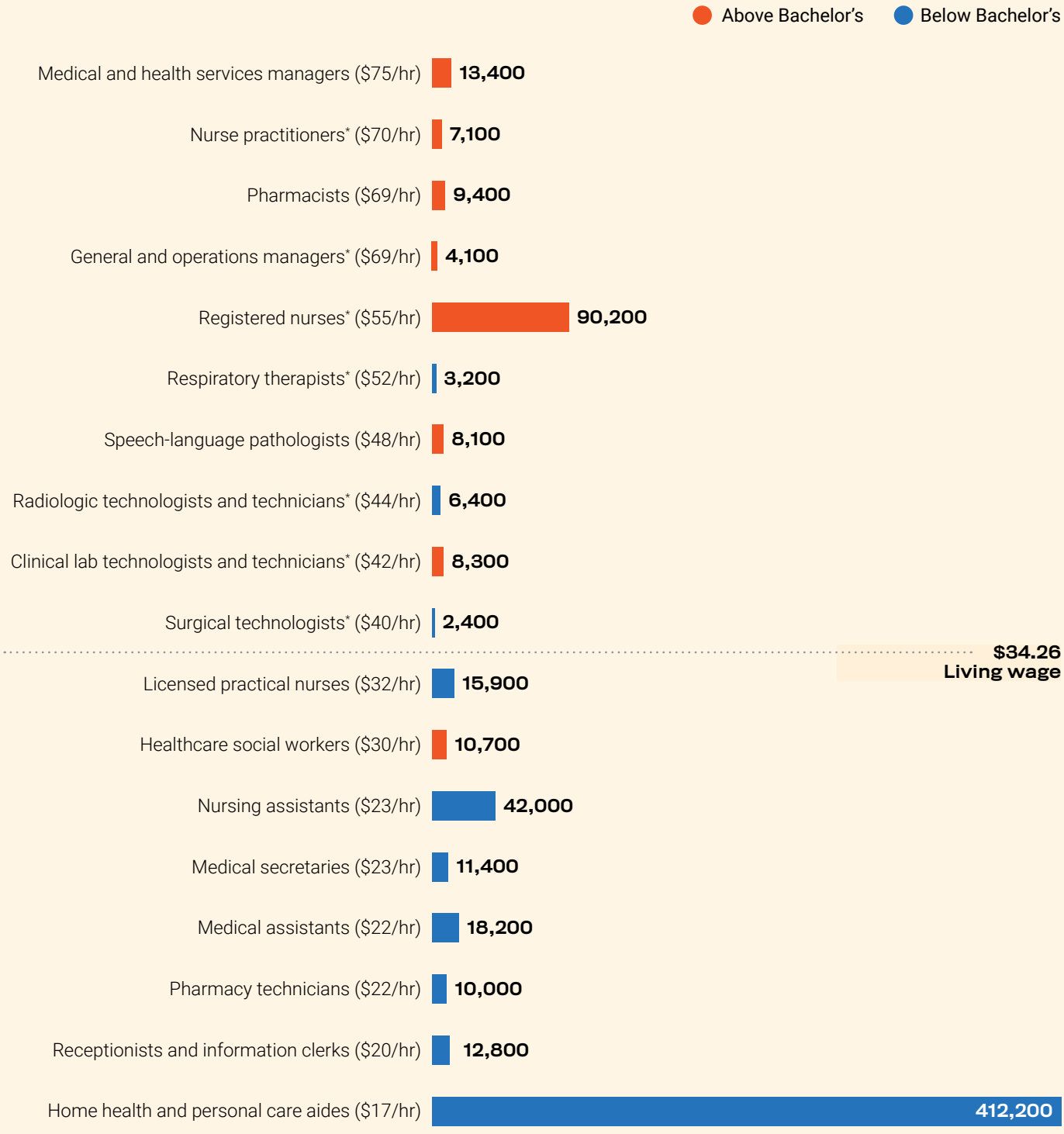
Healthcare is more diverse than the economy overall: 75 percent of workers are female, and 67 percent are non-white, but women and Black and Latino workers are disproportionately employed in lower-wage occupations. One occupation—home health aides—accounts for nearly 40 percent of people working in healthcare. Home health jobs, described above, pay low wages, require limited education, and are primarily held by women of color. Across the healthcare field there is wage disparity when race is considered. White workers make an average of $38 an hour, while Black and Latino workers respectively make $27 and $26 an hour. Closing these gaps will require scaling existing workforce programs, connecting and engaging with diverse talent to develop targeted programs to support advancement, and creating new entry-points that allow for growth.

Critical labor shortages exist in healthcare and have been exacerbated by the pandemic. The immense and inequitable cost of the COVID-19 pandemic changed the landscape and attitudes of the workforce, especially in New York City where trauma was extensive. Healthcare professionals are still recovering, with continued challenges especially in patient-facing roles. The pandemic exacerbated many labor shortages in the system and has challenged recruitment and retention. One critical

8. All dollar figures are in 2024 dollars.
9. Adjusted for inflation.

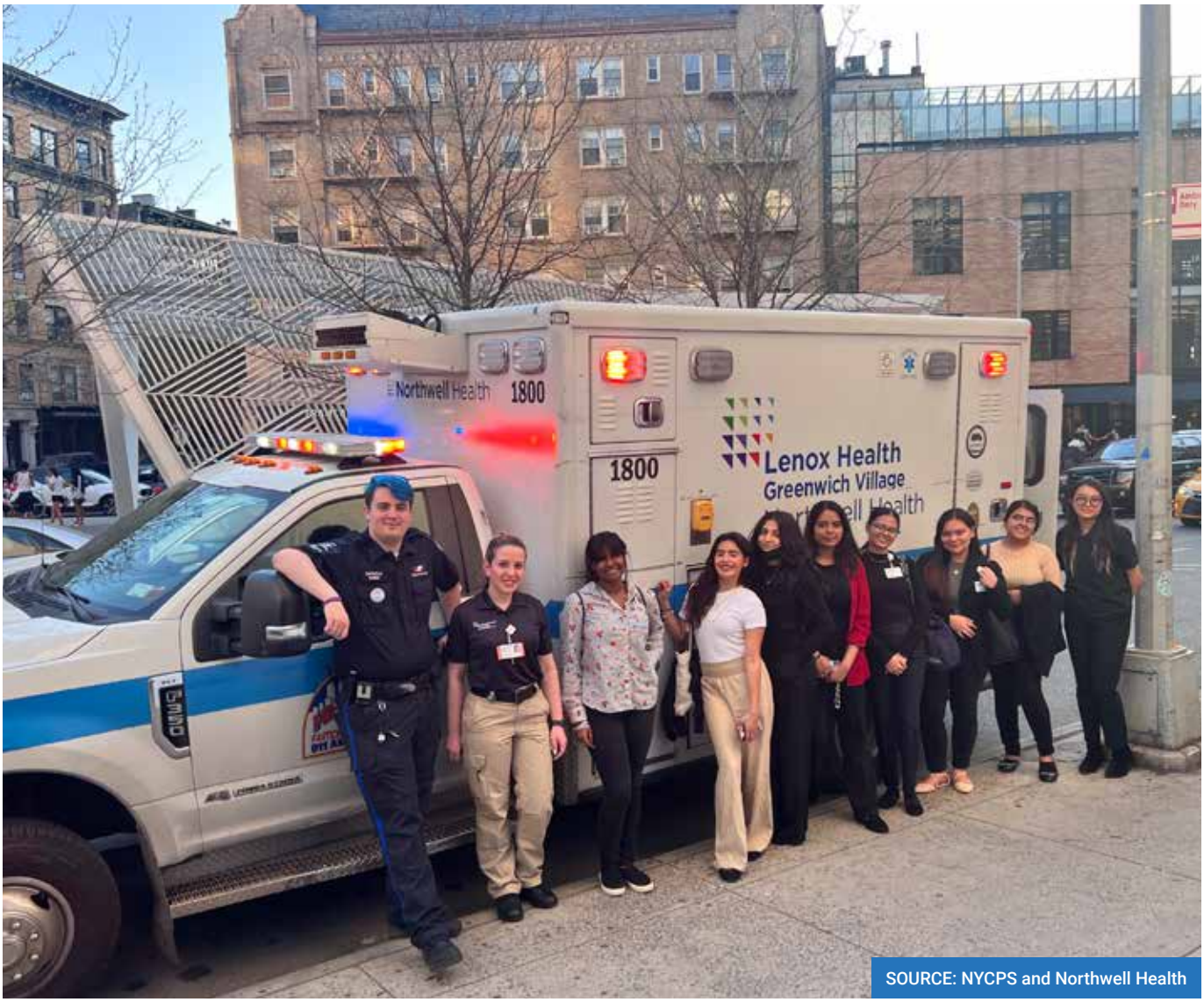
Academic Achievement and Wages in Healthcare Occupations

This graph shows some of the largest healthcare occupations. Nearly all occupations that provide a living wage require a four-year degree.



* Priority occupations, see page 24 for additional detail

example of this impact is the continued demand among employers for **registered nurses and nurse practitioners**. CUNY currently produces nearly half of the new nurses in New York City annually, with 70 percent of its graduates coming from historically underserved groups, making CUNY a pivotal partner in supporting this labor shortage. The CUNY Hunter-Bellevue School of Nursing provides a wide range of programs—including a Bachelor of Science (BS), Master of Science (MS), Advanced Certificate in Nursing, and Doctor of Nursing Practice (DNP) programs as well as its Evelyn Lauder Community Care Nurse Practitioner Program—that provide clear on-ramps from BMCC's Associate in Applied Science (AAS) in Nursing degree and Practical Nursing certification programs. However, CUNY Hunter is limited in the number of students it can admit into its BS Nursing program each year due to the national shortage of nurse faculty, limited science lab space, and competition for clinical sites. While these factors pose challenges to scaling, SPARC will provide needed space for the CUNY Hunter Nursing program and provide a pipeline to jobs by co-locating educational facilities with workforce opportunities.



SOURCE: NYCPS and Northwell Health

Life Sciences

At the cutting edge of science and technology, life sciences is nascent but growing rapidly, employing approximately 42,000 people and generating more than $16.5 billion in total economic output.

OVERVIEW

Employment in New York City's life sciences has grown 21 percent since 2014, with strong wages that have kept pace with citywide wage growth. Life sciences employs approximately 42,000 New Yorkers, with average median wages of $46 an hour. The ecosystem's total economic output is approximately $16.5 billion.

While most well-known for scientists and researchers with advanced degrees, life sciences support a wide range of jobs at every level of workers' careers. For workers who have a bachelor's degree or higher, the ecosystem provides tremendous opportunity in research and clinical related occupations. New York City has outpaced Boston in NIH funding for two years in a row, establishing its reputation as a top market for life sciences R&D. Many of life sciences' most well-known occupations are clinical or research-based: **clinical lab technicians**,[10] medical scientists, biological scientists, and **natural science managers** all earn well above the living wage. For workers without a bachelor's degree, technician roles across a variety of disciplines, including chemical technicians and **non-clinical lab technicians**, offer an entry point into the field and have median wages between $20 to $30 an hour. Life sciences also includes critical, non-core supportive roles like project managers, software developers, administrative support workers, and others.

Technology is altering the jobs and skills landscape for life sciences workers. Life sciences is rapidly changing as it uses cutting-edge technologies to address complex challenges, with important R&D work that requires specialization in data analysis, computational math, or other technologies. Non-traditional life sciences roles such as **software developers** and **data scientists** are becoming critical to the advancement of the ecosystem. Life sciences education and training programs should evolve to accommodate emerging industries and advance innovation and entrepreneurship in the ecosystem. Strong ties to the tech ecosystem, along with more exposure and outreach initiatives will help life sciences businesses recruit much-needed talent that may have limited awareness of these opportunities.

Finally, the landscape of life sciences employers is smaller and newer compared to the other two ecosystems. As life sciences and its companies mature, employers would like to see additional collaboration with workforce providers to identify in-roads to job training and entry-level occupations.

CHALLENGES

While life sciences as an ecosystem is as racially diverse as the overall economy, women and Black and Latino individuals are disproportionately concentrated in lower-wage occupations. This signals a need for programs to support diversifying life sciences occupations, especially for career advancement. Of the 20 largest life sciences occupations, just five meet or exceed the citywide average for Black representation, and only four meet or exceed the average for Latino representation. Higher-paying occupations also have substantially lower female representation, with many occupations paying below the citywide average.

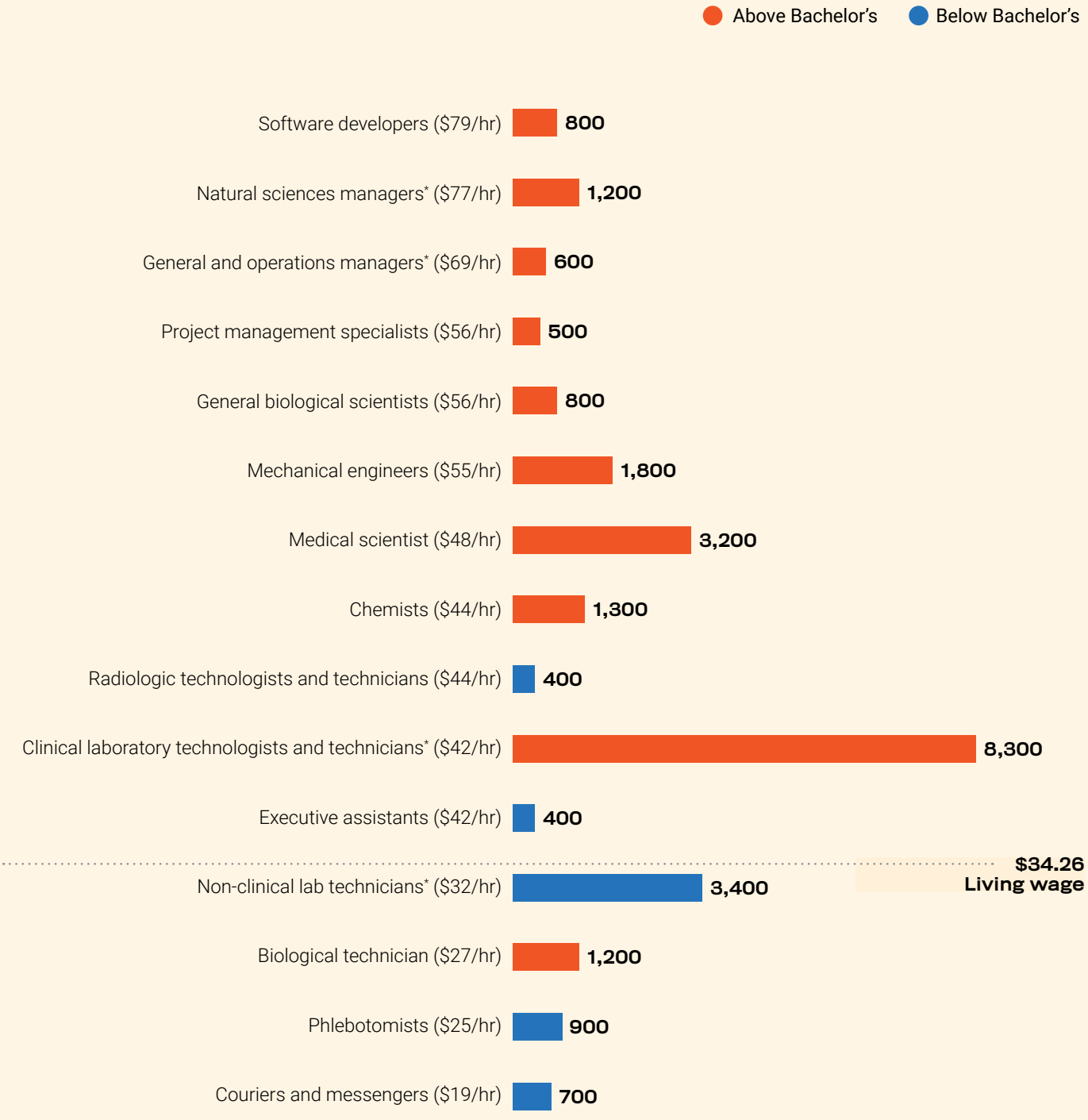
10. This occupation code includes both clinical lab technicians, an in-demand occupation for life sciences that typically requires a two-year degree, and clinical lab technologists, an in-demand occupation for healthcare that typically requires a four-year degree.

SOURCE: Julienne Schaer

Most life sciences occupations pay above the living wage; however, most of these jobs require a four-year degree. Stakeholders noted that young talent and adult learners, especially people of color and women, often lack awareness of the range of roles within the life sciences. The lack of exposure to research, patient and non-patient-facing, clinical and non-clinical, and innovation-focused roles can limit career and advancement opportunities. Stakeholders also indicated a lack of low- to mid-skill training programs, which are key to expanding opportunities within life sciences. Closing representation gaps will require intentional efforts by workforce partners and employers, including exposure programs and training aimed at increasing advancement for underrepresented workers. As a center for academic excellence, Kips Bay offers a chance to expand life sciences job opportunities to more New Yorkers, and better connect talent to advancement opportunities and four-year degrees. The District can support pathways from entry-point occupations through degree programs and into more advanced occupations, hosting the entire career pipeline from high school to adult learning in one location. For example, stakeholders noted labor shortages for clinical lab technicians, a role that requires a two-year degree. In the short-term, identifying occupations that can serve as a pathway into the clinical lab technician role, along with local degree programs accessible to Kips Bay employees, could begin to build and strengthen relationships between employers and trainers to establish a pipeline of talent. Longer-term, connecting Kips Bay partners NYCPS and CUNY with employers in the District—to create work-based learning experiences and increase exposure to career pathways—could encourage students to pursue careers in life sciences.

Academic Achievement and Wages in Life Sciences Occupations

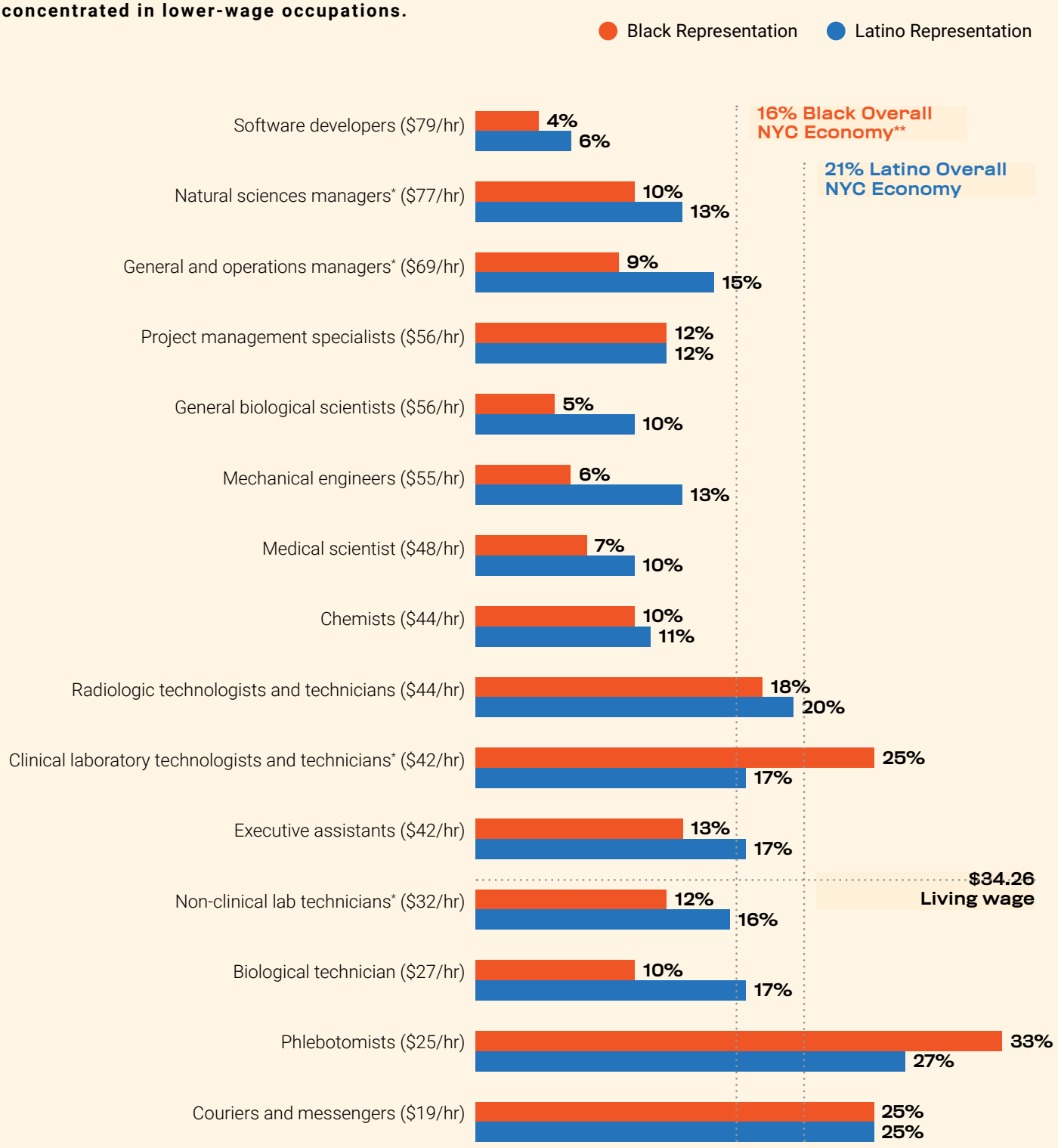
This graph shows some of the largest life sciences occupations. Nearly all occupations that provide a living wage require a four-year degree.



* Priority occupations, see page 24 for additional detail

Black and Latino Representation in Life Sciences Occupations

This graph shows some of the largest life sciences occupations. While life sciences as an ecosystem is as racially diverse as the overall economy, Black and Latino individuals are disproportionately concentrated in lower-wage occupations.



* Priority occupations, see page 24 for additional detail

** Percentage refers to demographics of the New York City Workforce.

Public Health

Over 76,000 people work in public health in New York City, supporting more than $18 billion in economic output.

OVERVIEW

Public health employs 76,000 people in New York City, which is home to the largest municipal public health department and healthcare system in the US. The city and the District have an immense opportunity to leverage these institutions—as well as the many public, private, and nonprofit organizations that provide public health services and training and conduct applied public health research and advocacy—to build strong education-to-workforce pipelines and strengthen career pathways in the ecosystem.

While the ecosystem saw a 19 percent increase in employment from 2014-2019, that growth stalled during the COVID-19 pandemic—a time when the importance of public health became increasingly clear. Assuring the population's health requires a continuum of services, programs, and policies to bridge the healthcare system (which centers on individual patient care) and the public health system (which includes the development and enforcement of health promotion policies and the assessment and assurance of population health).

By its nature, public health is interdisciplinary, spanning a range of industries, career pathways, and activities, from education and programming to research and policymaking and advocacy. A broad range of skills and capacities are required to support population health. Unlike healthcare and life sciences, public health has not historically been clearly defined or studied as an ecosystem: This report has defined public health roles as those focused on improving and promoting the health of populations, including the prevention of sickness and injury.

CHALLENGES

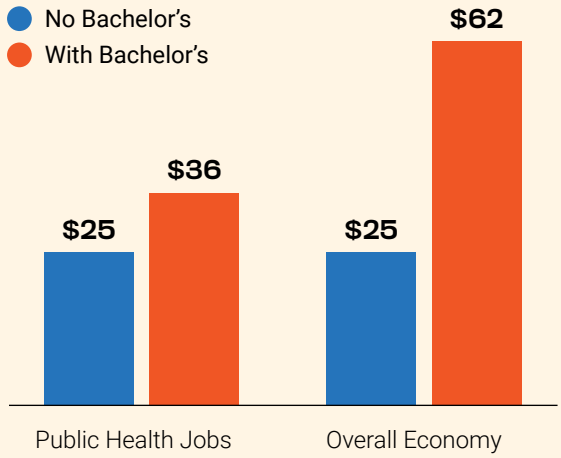
Many public health occupations face challenges around advancement and retention, with average median wages that fall below the living wage threshold at $32 an hour. This signals a need for policies that support advancement and upskilling within public health. Most critically, public health occupations that require a four-year degree do not see the same premium in wage growth as jobs in the overall economy—the increase is only $11 an hour compared with an increase of $37 an hour for the overall economy. As with healthcare and life sciences, there is a strong need for both exposure programs and training focused on advancement within the field. Programs that allow current employees to upskill through a work-study effort could allow for those with expertise to continue to advance in their careers. District education partners provide important access to advanced degree programs for workers, helping ensure further economic mobility and career progression. Public health offers careers across a spectrum of roles, with occupations spanning educational attainment and skill levels.

CUNY Graduate School of Public Health (SPH) is a key example of an institution providing the kind of upskilling required in public health. The school bolsters future growth of the ecosystem by preparing its students for advanced education and employment—98 percent of CUNY SPH graduates are employed or continuing their education. CUNY SPH offers advanced degrees in seven different specializations to support advancement into public health's highest-paying occupations including epidemiology, biostatistics, and environmental and occupational health sciences. Offerings include traditional public health degrees and specializations, but also focus on skills that are essential to public health such as communication, cultural competency, and leadership to support talent's advancement.

While the overall public health workforce is more diverse than the broader economy, representation is heavily concentrated in low-wage occupations. Many of public health's largest occupations have higher female representation than the overall economy, but a few of the highest-paying occupations have substantially lower representation than the remainderof the top occupations: For example, 40 percent of environmental scientists and specialists ($49 an hour) are women, compared to 52 percent of New York City's overall workforce. Likewise, occupations with the most diverse representation within public health pay well below the living wage, while occupations that pay above have racial representation far below the citywide average.

Entry-level occupations like community health workers highlight the disconnect between high-demand occupations and living wages. Community health workers (sometimes referred to as patient navigators or health liaisons) are frontline public health workers, advocating for the health needs of individuals and assisting community residents in communicating with providers or social services agencies. While there are often no educational requirements beyond a high school degree, these roles require significant cultural and linguistic skills tailored to the needs of a specific population or community. This occupation is growing—both historically, due to the significant infusion of federal and state resources for pandemic response, and looking ahead with recent State investments in integrating patient-focused care. However, these occupations continue to pay lower wages—with a median wage of $27 an hour. Additional efforts are needed to increase the wages in these roles and help talent advance to better-paying occupations in public health and healthcare.

Public Health Average Median Wages, With and Without Bachelor's



Types of Public Health Occupations

Public health offers a wide range of career opportunities across various disciplines and industries. These jobs are available at an array of educational requirements from entry-level, mid-career, and managerial positions. These occupations are essential to the sector and offer a glimpse into the interdisciplinary nature of public health as an industry:

- **Assistant environmental scientist**
- **Communications director**
- **Community health worker**
- **Data scientists and technician**
- **Epidemiologist**
- **Environmental health technician**
- **Health administrator**
- **Health education specialist**
- **Industrial hygienist**
- **Patient navigator**
- **Project coordinator**
- **Public health nutritionists**

Priority Occupations for the Kips Bay Science District

The Kips Bay Science District's priority occupations offer economic mobility for New Yorkers and serve District employers.

These priority occupations have been selected from among the largest in each ecosystem, offer well-paying opportunities, are accessible to New Yorkers, and are in-demand and well-aligned with the District's strengths in education, training, and employment. Kips Bay partners will implement the report's recommendations to ensure priority occupations' pathways to advancement are clear, coordinated, and supported by strong programs and wraparound services for people working in healthcare, life sciences, and public health.

Collectively, priority occupations represent almost 15 percent of jobs in the health and life sciences ecosystems. Given the interconnectedness of the health and life sciences ecosystems, occupations may span healthcare, life sciences, and public health. For example, a registered nurse may support the individual patient's needs in healthcare or work in public health to understand health issues affecting populations.

Factors used to determine Priority Occupations

Priority occupations were identified through extensive labor and occupational analysis, and in consultation with stakeholders. A list of all occupations in the health and life sciences ecosystems was narrowed to identify occupations that take the following factors into account.

- **SIZE AND GROWTH:** jobs that are among the largest in each ecosystem and are growing and identified as in-demand by employers.
- **ACCESSIBILITY:** a balance between jobs that do not require a four-year degree or have demonstrated pathways for non-degree holders, along with more advanced occupations that are attainable through years of experience and/or additional education.
- **LIVING WAGES:** jobs that offer a living wage of $34 an hour or have clear pathways to living wage roles.[11]
- **IN DISTRICT:** jobs that are present in Kips Bay and are critical for SPARC anchor tenants.
- **REPRESENTATION:** jobs that have clear gaps in representation across racial or gender lines, causing disparities in wealth-building opportunities.

In addition to priority occupations, this analysis has identified "entry-point" occupations that offer slightly lower wages but are highly accessible and have **clear pathways to advancement** into living-wage occupations through additional education and years of work experience:

- Licensed practical nurse (LPN)
- Certified nurse assistant (CNA)
- Community health worker

11. *MIT living wage for New York-Newark-Jersey City, NY – 2 Adults, 2 children, $34.26.* The living wage shown is the hourly rate that an individual in a household must earn to support themselves and/or their family, working full-time, or 2080 hours per year.

Ecosystem	Occupation	Median Wage	Jobs in the Ecosystems (2023)	Projected Growth (2033)	Education Required	% Female	% Black	% Latino
Healthcare	Surgical technologist	$40	2,400	8%	Below bachelor's	71%	31%	23%
	Radiology technician	$44	6,400	9%	Below bachelor's	65%	18%	20%
	Clinical lab technologists and technicians	$42	8,300	9%	Above bachelor's**	70%	25%	17%
	Respiratory therapists	$52	3,200	11%	Below bachelor's	58%	25%	17%
	Registered nurses	$55	90,200	9%	Above bachelor's*	87%	20%	13%
	Nurse practitioners	$70	7,000	30%	Above bachelor's**	88%	14%	12%
Life Sciences	Non-clinical lab technicians	$32	3,400	8%	Below bachelor's	56%	12%	16%
	Clinical lab technologists and technicians	$42	8,300	9%	Above bachelor's**	70%	25%	17%
	Natural science managers	$77	1,200	43%	Above bachelor's	58%	10%	13%
Public Health	Healthcare social workers	$30	13,200	54%	Above bachelor's	77%	30%	22%
	Mental health counselors	$30	13,600	51%	Above bachelor's	69%	30%	22%
	Environmental scientists	$49	1,400	-14%	Above bachelor's***	40%	6%	8%
Cross-ecosystem	General and operations managers	$69	5,100	24%	Above bachelor's	21%	4%	6%
	Data scientists	$69	650	68%	Above bachelor's	45%	7%	8%
	Software developers	$79	1,300	60%	Above bachelor's	32%	9%	15%

* Nurses can be licensed with an associate's degree, but must obtain a BS within 10 years.

** This occupation includes clinical laboratory technologists and technicians. Clinical laboratory technicians, an in-demand occupation for life sciences typically require a two-year degree. Clinical laboratory technologist, an in-demand occupation for healthcare, typically requires a four-year degree.

*** While this occupation has not seen growth in the last ten years, stakeholders report that the occupation is in demand as State and federal policy increasingly acknowledges the connections between environmental health and health outcomes.

Please see Appendix: Methodology & Analysis for details on sources and methodology


Stemi
2000

Developing Talent in Kips Bay Today

These programs exemplify the work already being done in the District that must be supported, replicated, and scaled to ensure strong talent pipelines into priority occupations. They serve as a model for future efforts as Kips Bay partners undertake their work to ensure continued growth and success of the health and life sciences ecosystems in New York City.

SOURCE: American Museum of Natural History, Science Research Mentoring Consortium

SOURCE: NYCPS

NEW YORK CITY PUBLIC SCHOOLS' STEAM CENTER

Re-imagining student learning and engagement in future careers through hands-on industry-based career connected learning.

New York City Public Schools' Science, Technology, Engineering, Arts, and Mathematics (STEAM) Centers serve as career exploration and preparation hubs for 11th and 12th graders in NYC's public school system. STEAM Centers partner with select high schools across the city to provide state-of-the art, work-immersive learning environments that equip students with the technical training they need to advance within one of several specific career pathways. Through the STEAM Center's industry partnerships, students develop professional networks through participation in a range of work-based learning experiences.

At SPARC, NYCPS will establish a high school and a separate STEAM Center to provide career-connected lab spaces and targeted technical training for partner schools across the city. NYCPS at SPARC will offer FutureReadyNYC health and life sciences pathways that integrate five of the strongest evidence-based interventions to enhance student awareness and preparation to launch successfully into careers in healthcare and life sciences: personalized advising, career-readiness skills, career-connected instruction, early college credits and credentials, and a sequence of work experiences including internships and apprenticeships.

Programming at the high school and STEAM Center will be designed to intentionally integrate higher education and employer partnerships at SPARC so students graduate with real skills and a strong foundation to enter and advance in careers in health, life sciences, and other occupations represented by the employers on this campus.

NYC H+H/ BELLEVUE SCHOOL OF RADIOLOGIC TECHNOLOGY

Job placements for nearly 100 percent of students into one of the District's priority occupations.

The NYC H+H/Bellevue School of Radiologic Technology provides a direct pathway into radiology technologist roles, an entry-level, living-wage occupation with median wages of $44 per hour. The 24-month certificate program is held at the NYC H+H/Bellevue campus. Graduates apply for the American Registry of Radiological Technologists Certification and New York State Licensure, helping ensure they are competitive in the job market.

The program has a nearly 100 percent completion, certification, and job placement rate and helps tackle retention issues through tuition reimbursement for students who work with Bellevue after graduation.

SOURCE: CUNY SPH, Firefly Innovations

CUNY GRADUATE SCHOOL OF PUBLIC HEALTH AND HEALTH POLICY'S FIREFLY INNOVATIONS

Empowering the next generation of public health entrepreneurs and innovators to create bold, scalable solutions that generate real-world impact.

Firefly Innovations is the premier public health entrepreneurship platform of the CUNY Graduate School of Public Health and Health Policy. It supports a community of entrepreneurs, academics, innovators, and investors working to develop, fund, and scale solutions to the most pressing public health challenges, while supporting academic excellence across the field.

Firefly's flagship program—the CUNY Public Health Innovation Accelerator—has supported 42 ventures and 101 entrepreneurs. With 90 percent of ventures led by minority founders and 50 percent by women, these ventures have secured over $5.6 million in new funding, expanded their operations, and created impactful jobs to drive meaningful, scalable change in public health.

SOURCE: NYC Office of Chief Medical Examiner

NEW YORK CITY'S OFFICE OF CHIEF MEDICAL EXAMINER (OCME) FORENSIC PATHOLOGY FELLOWSHIP PROGRAM

Training the next generation of medical examiners through the world's leading forensic pathology fellowship program.

The United States has roughly 750 trained medical examiners, significantly fewer than the 1,500-1,800 forensic pathologists needed nationally. In a field facing acute staffing shortages, the quality of OCME programs remains strong and continues to attract outstanding candidates. The Forensic Pathology Fellowship Program—the largest in the world—is highly selective, training 150 board-certified forensic pathologists since 1990. The program's graduates have gone on to work as chief medical examiners around the country.

The Fellowship offers a comprehensive range of resources for fellows, including world-class toxicology and histology laboratories, the largest public DNA crime laboratory in North America, and a molecular genetics laboratory—the only one of its kind in the country to be housed in a medical examiner's office.

SOURCE: NYCPS, CUNY

NEW YORK CITY PUBLIC SCHOOLS' INDUSTRY SCHOLARS PROGRAM

Giving students an opportunity to apply classroom knowledge to real-world work experience.

Launched in 2016, the Industry Scholars Program (ISP) offers industry-specific, and career-connected learning programs aimed at helping high school students apply knowledge from the classroom to real-world work experience. Operated by Grant Associates, the Program connects employers with career and technical education (CTE) and FutureReadyNYC high school students to advance their education and career aspirations to help build the future of New York City's workforce. To date, 24,790 students have participated from 179 NYCPS high schools, generating ~$17M in income for NYC communities. Notable ISP employer partners include MTA, Lincoln Center, Maimonides Medical Center, Montefiore Medical Center, Mount Sinai Health System, NYC DCAS, The Estee Lauder Companies, Hearst, and The Center for Cyber Safety and Education.

A Path Forward: Opportunities & Recommendations

Led by NYCEDC, nearly 50 members of the Kips Bay Science District Education and Workforce Task Force set out to develop a vision that ensures equitable access to healthcare, life sciences, and public health education and job opportunities for all New Yorkers. To implement this vision, the Task Force has provided recommendations for career pathways, programs, and partnerships.

SOURCE: Futureworks

The recommendations set out in this report build from robust labor analysis and engagement. Each recommendation advocates for collaboration between diverse stakeholders to advance the District's workforce ecosystem:

1. Scale and fund exposure-based learning opportunities for talent in the District.
2. Strengthen NYC students' career pathways through dual enrollment, transferable credits, and work-based learning opportunities.
3. Develop sector-specific, industry-driven training programs for talent into priority occupation career tracks.
4. Create an independent organization led by SPARC's anchor tenants to drive training and engagement.

Moving forward, partners will seek to implement these recommendations **to ensure priority occupation career pathways are clear, coordinated, and supported by strong programs**. The close proximity of the District's institutions and SPARC's anchors provides an unprecedented opportunity for Kips Bay partners to develop employer-driven, inclusive training programs that will serve as a front door for New Yorkers from all backgrounds to access quality job opportunities in these fast-growing sectors.

RECOMMENDATION #1:

Scale and fund exposure-based learning opportunities for talent in the district

CHALLENGE ADDRESSED

Stakeholders identified exposure programs—experiences that make talent more aware of opportunities in these fields—as a critical component to supporting New York City and Kips Bay talent, both to raise young students' awareness of potential job opportunities and to help close wage, race, and gender gaps in healthcare, life sciences, and public health jobs. Exposure programs can help provide a larger pool of talent for priority occupations, supporting talent as they consider various job opportunities. Stakeholders also noted opportunities to expand internships with employers, noting that smaller companies may need additional resources to adequately support talent and ensure they have the capacity to foster partnerships. Funding for these programs remains low because exposure programs often have less defined outcomes compared to traditional job training or higher education.

OVERVIEW & IMPLEMENTATION STEPS

This recommendation expands current exposure programs into the District, specifically for diverse populations and women, and would include supporting counselors and educators to learn about careers in the ecosystem to better guide students. Opportunities would bring awareness to talent on a wide variety of careers throughout the health and life sciences ecosystems: patient-facing, non-patient-facing, research, lab, and non-lab professions alike. Exposure programs should be long-term, immersive programs that provide students and talent with deeper engagement to understand job opportunities, find strong mentors, and build more meaningful relationships to support their network.

Implementation should involve engagement with employers at every level to build strong connections, and may include:

1. **Collaborating with the NYC Science Research Mentoring Consortium**—a partnership of over 20 NYC academic, research, and cultural institutions serving diverse high school students—to expand this program into Kips Bay. This would include funding and offering physical space for existing exposure programs that support women, Black, and Latino students.
2. **Funding existing NYCEDC programs to potentially scale in Kips Bay,** supporting long-term engagement opportunities for talent (e.g., Biobus, Genspace) and expanding employer partnerships through NYCEDC's LifeSci NYC Internship Program.
3. **Developing and expanding long-term opportunities to connect directly with employers,** including networking and mentorship opportunities for CUNY and NYCPS students (e.g., CUNY Career Mentorship Program), internships, entrepreneurship programming.

UNIVERSITY CITY; PHILADELPHIA, PA

A cluster of anchor institutions and life sciences companies creates opportunities for employer–driven job training, mentorship, and youth career exposure in STEM and health through FirstHand Labs.

Philadelphia's University City neighborhood is home to the University of Pennsylvania, Drexel University, and multiple medical institutions and life sciences companies. The 11-block University City District (UCD) was founded in 1997 to support placemaking, small businesses, and connections to career opportunities in the neighborhood.

Co-located education and employers to support young talent

The Science Center's FirstHand program serves youth from any Philadelphia middle and high school, focusing on career exposure to create a more equitable STEM talent pipeline:

- **Middle School Programs:** This program offers free, year-round learning experiences in STEM fields led by industry mentors with hands-on experiments in material science, DNA, and microscopy.
- **High School Sprints:** High school students from Philadelphia schools are invited to participate in sprints co-designed with and co-delivered by mentors. Current opportunities include a biotech crash course that allows students to practice lab skills with six biotech companies in University City Square.

FirstHand has served 2,500 students across 87 schools and engaged 348 STEM mentors from 95 different companies in the past ten years. In 2023, FirstHand served 292 students and facilitated eight paid internships.

Lessons for Kips Bay Science District

FirstHand demonstrates the value of co-locating exposure programs and employers, and together with UCD's larger workforce intermediary, they create an entire career pipeline in Philadelphia. The long-term nature of FirstHand's program allows mentors to capture students' attention for a longer period than a one-off experience, and teach real, transferable skills. FirstHand also reaches nearby residents, supporting the District's community. Given the District's co-location of employers and academic institutions, Kips Bay has an opportunity to replicate similar programming and support structures for talent.

SOURCE: American Museum of Natural History, Science Research Mentoring Consortium

THE NEW YORK CITY SCIENCE RESEARCH MENTORING CONSORTIUM, AMERICAN MUSEUM OF NATURAL HISTORY

Since 2013, this partnership has served over 5,145 students, providing youth from diverse backgrounds with paid internships, programming, and mentorship to support their pathways into STEM-related fields.

The Consortium is made up of 28 academic, research, and cultural institutions in NYC and provides high schoolers from diverse backgrounds access to innovative research internships to support their college and career pathways. Founded and managed by the American Museum of Natural History (AMNH), a Task Force member, the Consortium exposes high school students to in-depth research experiences that foster a sense of belonging to the scientific enterprise, refine their interests, and help them develop their own science identity. Programs not only help build technical skills but also provide mentorship and networking opportunities, creating a supportive community that holistically engages youth and cultivates long-term connections to STEM fields.

Particularly relevant to the Kips Bay Science District, over 85 percent of Consortium partners offer internships in the life sciences, leveraging the research expertise of institutions such as CUNY, Mt. Sinai, Memorial Sloan Kettering, and AMNH, and utilizing the assets of community science labs such as Genspace and Biobus. The Consortium model is scalable: Partners agree to guiding principles (e.g. commitment to equity, compensation of youth, mentor training for scientists), while allowing the design of programs to meet the strengths of partner institutions. Biobus's Junior Scientist Internship Program, for example, is a year-long program focusing on both science research and science communication, with youth participating in teaching and outreach events at Biobus's mobile and community labs. Another example is Mt. Sinai's Lloyd Sherman Scholars Program, a summer intensive research program focused on cancer biology and neurobiology, followed by academic year college and career support.

Annually, the Consortium supports and trains 380 scientist mentors and over 600 youth researchers, with 5,145 program alumni since 2013. The program reaches a diverse student body—56 percent of students identify as Black or Latino, and 65 percent identify as female—helping diversify talent into life sciences and health-related fields. A recent National Science Foundation-funded research project tracking a subset of Consortium students additionally found 75 percent of the youth involved are pursuing or have completed an undergraduate degree in STEM.

Lessons for Kips Bay Science District

With programs around the city, the New York City Science Research Mentoring Consortium will be a critical partner, giving students an opportunity to connect directly with employers through exposure and STEM pathway programs as well as long-term internship and mentorship opportunities located in the District. Scaling programs like those supported by the Consortium can reinforce building a diverse pipeline of talent into priority occupations for the District.

RECOMMENDATION #2:

Strengthen NYC students' career pathways through dual enrollment, transferable credits, and work-based learning opportunities

CHALLENGE ADDRESSED

Many occupations in the health and life sciences ecosystems require four-year degrees, including over 80 percent of occupations in life sciences. Healthcare occupations are bound to educational attainment as well, with strict credentialing, licensing, and certification requirements, making "earn-and-learn" and on-the-job training models challenging. This makes connecting high school and four-year degree institutions essential in building a strong career pipeline, allowing students to advance more easily and expanding equitable access to advanced coursework that supports accelerated degree completion and entry into these occupations.

This recommendation aligns directly with the goals of the City's "Action Plan for Young Adult Career Success,"[v] which emphasizes the importance of early career exploration opportunities, paid internships, and work experiences that are tied to school credits, transferable credits, and career connections between high school, college, and industry.

OVERVIEW & IMPLEMENTATION STEPS

To build a stronger career pipeline, New York City students need to be better connected to health- and life sciences-related careers through learning opportunities that integrate NYCPS, CUNY, and Kips Bay employers. This cohesive approach will ensure students are well positioned to earn accelerated degrees and acquire relevant skills to enter and thrive in health and life science occupations.

Advanced course work and credits must be well coordinated—aligned, stackable, and easily transferrable—so that students can navigate towards the completion of specific majors. Partnerships between NYCPS and employers are critical to ensuring curriculum, credentialing, and work-based learning experiences are mapped to pathways into priority and emerging occupations in health and life sciences.

As part of the implementation of NYCPS school and STEAM center, the below steps will be taken:

1. **Develop a NYCPS high school and STEAM center as a FutureReadyNYC model.** FutureReadyNYC integrates college and career preparation to successfully launch students into strong careers in high-wage, high-demand sectors. Students will enroll in career-connected pathways that will help them develop financial literacy, participate in career-connected coursework, gain hands-on work experience, earn early college credit and/or industry-relevant credentials, and receive personalized career advising to prepare for rewarding careers in health and life sciences.

2. **Develop pathways into Kips Bay priority occupations by engaging with Kips Bay partners and employers.** NYCPS will leverage existing knowledge of health-related pathways from other career-connected schools and develop new pathways into emerging life sciences occupations.

3. **Scale existing programs that support career-connected learning.** NYCPS and CUNY will expand FutureReady College Now, a dual enrollment program for high school students that offers advanced pathway-aligned coursework for specific majors in healthcare and life sciences.

4. **Integrate personalized college and career advising and high-quality work-based learning to enhance and reinforce classroom instruction.** For example, the District will build a stronger

career pipeline for students through targeted paid internships such as those provided by the AMNH Consortium and the Department of Youth and Community Development's (DYCD) Summer Youth Employment Program (SYEP). The close proximity of the District's partners and SPARC tenants will help facilitate easier access to earn-and-learn opportunities, such as internships and apprenticeships for students to explore, train, and build connections in their field of interest.

RESEARCH TRIANGLE HIGH SCHOOL; RALEIGH-DURHAM, NC

A dedicated STEM high school sits within Research Triangle Park District, allowing students to access hands-on learning opportunities with employers collocated in the District.

The Research Triangle Park (RTP) is strategically located in the Raleigh-Durham area, connecting three major research universities and leveraging the region's intellectual and educational assets to support innovation and technological development. RTP's focus on talent has included the establishment of an in-District high school, helping to support a pipeline for talent for the state's robust life sciences sectors and for the RTP.

Connecting high school with employers and four-year degree institutions

Educational and training institutions have emerged to support a pipeline of skilled workers for North Carolina's biotechnology and life sciences industries, particularly concentrated in RTP. Started as a nonprofit teaching immersion lab, the development of a public high school was encouraged by stakeholders to scale new models of STEM education.

The Research Triangle High School (RTHS) is an independent, public charter high school serving over 550 students, with approximately 60 percent identifying as students of color. RTHS leverages industry partnerships within RTP to provide a rigorous and career-focused STEM curriculum, complete with internships and lab-based projects for students, which supports a direct pathway into college. RTHS provides options for students to take AP courses and community college and UNC system courses. RTHS offers a model for strengthening STEM learning in classrooms through enhanced curricula and hands-on, engaging lab experiments providing clear pathways and programs into two- and four-year degree programs. The school is supported by UNC School of Medicine and NC State University, as well as employers such as IBM, Cisco, and Biogen. Of the 121 students enrolled in the class of 2024, over 80 percent enrolled in a four-year college and 17 percent in a two-year college.

Lessons for Kips Bay Science District

As a leader in innovation and life sciences, RTP demonstrates that the creation of a high school was needed to support the RTP District's talent development at an early stage as supported in this report's second recommendation. It also acknowledges the importance of connecting high schools with four-year degree institutions, building a strong career pipeline so talent can expand access and opportunities beyond their high school degree. While the school benefits from the co-location with employers, allowing for direct input into curriculum and internship opportunities, it also allows employers to network with early talent. Kips Bay's high school and STEAM Center can similarly benefit from the co-location and the connections with industry partners and higher education to support effective training for high school talent.

SOURCE: NYCPS, College Now

COLLEGE NOW

College Now is a FREE college transition, dual-enrollment program for NYCPS high school students, enabling students to develop academic momentum towards a college degree.

College Now, a partnership between CUNY and NYCPS, is a college transition dual-enrollment program for high school students. During the 2023-24 school year, the program engaged 28,268 students from 535 high schools to complete almost 40,000 unique course enrollments. College Now offers a variety of college credit courses in different subject areas to increase exposure among students, including biology, chemistry, psychology, engineering, computer sciences, and other health- and life-sciences-related coursework. It enables high school students to develop academic momentum towards a college degree while providing them with an opportunity to earn free college credits in high school.

CUNY's STEM Research Academy (STEM RA)—an advanced program within CUNY's College Now program—strengthens the career pipeline into healthcare by offering STEM-focused coursework, paid work experience, and mentoring. This comprehensive approach equips participants with essential skills and professional connections, ensuring students are better prepared for successful healthcare careers.

Lessons for Kips Bay Science District

Dual-enrollment programs can jumpstart a student's higher-education journey while saving on tuition expenses, providing a smoother transition to college for students. Career-pathway-aligned dual enrollment and dual credit can specifically address access to underserved student populations and accelerate degree completion. Given the health and life sciences ecosystems' reliance on degrees, scaling College Now would support talent in the transition to college, which is essential to strong education-to-workforce pipelines in the District.

SOURCE: NYCEDC, LifeSci Internship Program

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION LIFESCI INTERNSHIP PROGRAM

NYCEDC's LifeSci Internship Program has supported over 1,000 students to develop the next generation of life sciences leaders.

Providing quality paid internships for undergraduate and graduate students, NYCEDC's LifeSci Internship Program seeks to develop the next generation of life sciences leaders. The program engages employers to identify internship opportunities, performs initial recruitment and screening processes, and subsidizes wages for CUNY students and interns placed with small businesses and nonprofit organizations. The program is open to all students who are from the City or currently enrolled in New York City-based colleges, or universities. Interns are invited to participate in a range of pre-internship bootcamp training programs, networking receptions, career panels, and site tours to support professional networking and exposure.

To date, the NYCEDC LifeSci Internship Program has placed over 1,000 New York students in life sciences internships at 220 businesses. It has supported students from diverse backgrounds, with 58 percent of participants identifying as female, 14 percent as Black, and 15 percent as Latino. The program has led to longer-term opportunities with 43 percent of students receiving offers to continue in their role.

Lessons for Kips Bay Science District

Kips Bay partners can leverage the LifeSci Internship Program in a number of ways. Employers can directly hire interns, and CUNY can support a pipeline of talent, grow earn-and-learn opportunities, and engage employers to build networking and mentorship opportunities for talent in the District.

RECOMMENDATION #3:

Develop sector-specific, industry-driven training programs for talent into priority occupation career tracks

CHALLENGE ADDRESSED

Healthcare, life sciences, and public health each have unique talent challenges, including:

- **Healthcare:** Critical labor shortages exist across all levels of nursing, including a trainer shortage. While programs exist, scaling them remains a challenge.
- **Life Sciences:** Career pathways within life sciences are not as clearly defined as in healthcare due to the ecosystem's ever-evolving nature and technological advancements. Partnerships are necessary among employers and providers to identify inroads to job training to support low- to mid-skill workers and diversify talent into this field.
- **Public Health:** A number of public health's largest occupations have wages lower than the living wage threshold, and those occupations that require a four-year degree do not offer the same boost to wages seen in other occupations. Supporting upskilling partnerships between employers and CUNY can provide talent with pathways to advancement and stronger wages.

These challenges must be tackled by each sector. Research shows that sector-specific employment programs lead to substantial increases in earnings, training, and career services received, as well as attainment of occupational credentials and certificates. Priority occupations and recommendations are therefore sector-specific.

OVERVIEW & IMPLEMENTATION STEPS

Ensuring career pathways are clear and offer strong support structures will be core to the success of the District's health and life sciences ecosystems. Training will follow workforce best practices including employer-driven programming, robust wraparound services, and strong outcomes tracking. Programs will also include pathways for young talent and adult learners.

1. **Develop and scale industry-driven job training programs focused on the District's priority occupations**
   a. Scale existing programs to support recruitment and advancement of nurses, such as the Evelyn Lauder Community Care Nurse Practitioner Program in the Hunter-Bellevue School of Nursing at CUNY Hunter College, which increases the number of nurse practitioners entering the workforce and accelerates their time to graduation, easing the financial burden of training and advancing their career pathways.
   b. Develop job training programs for non-clinical lab technicians, with CUNY and providers collaborating with new life sciences employers (noted below).
   c. Develop upskilling opportunities for NYC H+H public health employees, allowing adult learners to advance through scalable programs in NYC. NYC H+H employs talent with critical experience working in the field who need additional formal credentials to advance.

2. **Convene Kips Bay's life sciences employers to develop a district-specific program for low- to mid-skill workers**
   a. Convene NYU Langone, Deerfield Cure-affiliated companies, and other Kips Bay life sciences employers to partner with workforce providers and anchor tenants to develop and scale training programs for low- to mid-skill workers.

b. Develop initiatives that incentivize onsite private sector companies to host interns and hire talent, including providing access for pre-screened, high-quality talent and building opportunities for employer talent connections.
c. Scale or develop employer-driven opportunities into life sciences entry-level and mid-level priority occupations (e.g., lab technicians), engaging workforce providers and employers.

Note: Creating sufficient pipelines will be key to ensuring success for these pathways and programs—both by increasing capacity within traditional education pipelines and through alternative, innovative working and learning models that accelerate training and shorten workers' time to licensure (e.g., mediums such as virtual reality, augmented reality, and hi-fidelity simulation).

BALTIMORE ALLIANCE FOR CAREERS IN HEALTHCARE; BALTIMORE, MD

This public-private partnership connects employers, educators, and community-based organizations to enable apprenticeships and internships that lead to hiring, credentialing, and upskilling in health careers for youth and adults.

The Baltimore Alliance for Careers in Healthcare (BACH) was founded as a systematic, employer-led approach to fill critical shortages at Baltimore-area hospitals through entry-level training programs and career advancement support. BACH addresses the dual problems of healthcare hiring shortages and Baltimore's poverty rate with the thesis that good jobs create stronger, healthier communities. Its programs have served over 2,200 workers. The Alliance reports that 86 percent of participants are Black and 83 percent are female. BACH implements a range of programs including:

- **Youth Immersion Program:** 35 local high school juniors and seniors per summer undertake a five-week, paid summer internship shadowing health professionals, gaining on-the-job experience, and learning medical technology. Participants get support planning a path to college, certification, or the workforce.
- **Pre-Employment Training:** The BACH Training Institute offers free training for multiple tracks based on needs identified by healthcare employers. Examples include training for certified nursing assistants, medical assistants, and various technicians.
- **BACH Apprenticeship Program:** BACH partners with employers and educational institutions to provide apprenticeship programs for current healthcare employees as well as underemployed immigrants and refugees. There are currently five apprenticeship options, and candidates receive a salary with benefits, a career coach, and support services.

BACH reports that 75 percent of talent completes training, and nearly all of those who complete their program earn industry-recognized credentials. For the BACH apprenticeship specifically, 100 percent of respondents retained employment after the apprenticeship.

Lessons for Kips Bay Science District

BACH demonstrates the importance of convening public-private partnerships as part of its approach toward addressing hiring shortages in healthcare. As a collaborative, they analyzed labor data to inform career-targeted programs for talent leveraging multiple partners, a clear replicable model for Kips Bay.

SOURCE: Hunter-Bellevue School of Nursing

CUNY HUNTER-BELLEVUE SCHOOL OF NURSING'S EVELYN LAUDER COMMUNITY CARE NURSE PRACTITIONER PROGRAM

This opportunity answers the city's growing demand for nurse practitioners with a program focused on creating accessible, high-quality career pathways.

The Hunter-Bellevue School of Nursing's Evelyn Lauder Community Care Nurse Practitioner Program at CUNY Hunter College works to increase the number of nurse practitioners entering the workforce by accelerating students' time to graduation and easing the financial burden of their training through fellowships that provide substantial financial support. The The Evelyn Lauder Nurse Practitioner Program supports 25 student fellowships and provides funding for senior nurse practitioner faculty and other program resources and student support. The program includes a strong partnership between CUNY Hunter and NYC H+H, in which CUNY Hunter students train in NYC H+H community-based hospitals and clinics throughout the NYC boroughs. This approach provides nurse practitioner students with real-world experience and establishes a strong talent pipeline between the organizations.

Launched in 2022, the Lauder Nurse Practitioner Program increases accessibility and pathways for the many nurses interested in advanced education while advancing health equity and catalyzing high-quality healthcare in underserved communities across New York City, where nearly all of CUNY Hunter's nursing graduates remain to serve after graduation.

Lessons for Kips Bay Science District

Scaling existing programs like the Evelyn Lauder Community Care Nurse Practitioner Program will provide the scaffolding needed to support advancing talent's careers in the District.

RECOMMENDATION #4:

Create an independent organization led by SPARC's anchor tenants to drive district training and engagement

CHALLENGE ADDRESSED

SPARC anchor tenants and the broader Task Force expressed interest in establishing a more formal entity to encourage collaboration and support the partners in executing these recommendations. Community organizations that were engaged throughout this process also expressed interest in collaborating with each other and with members of the Task Force.

Workforce development is not stagnant. Programs and partnerships will continue to evolve to meet these new needs. Ensuring the District's workforce programs are responsive to changing skillsets, industry demands, and talent needs is critical to the sustainability of the District and expanding employment opportunities and economic mobility for all New Yorkers.

OVERVIEW & IMPLEMENTATION STEPS

A governance entity could support the initiation and scaling of programs among groups and anchor tenants and would be essential to sustaining those partnerships and investments over time. This entity would act as the on-the-ground partner to identify where opportunities exist and implement them with partners to deliver on the District's goals. A governance entity also has the unique position to motivate additional partners to participate by becoming a one-stop-shop for employers and providers and by creating a clear platform and implementation plan.

Acting as a collaborative, this organization would create guiding principes and governing structures to manage programs that advance the District's workforce development and engage with local community organizations. Its focus would be to ensure industry-driven, equitable pathways with clear support structures for talent into Kips Bay priority occupations.

- **Develop a steering committee** composed of anchor institutions, employers, and community organizations that sets its strategy, targets, and accountability.
- **Act as a connector between committee members and additional stakeholders** by providing technical assistance to get programs off the ground and meet collective goals. This entity could organize regularly scheduled gatherings to promote information sharing and collective problem solving.
- **Promote accountability and progress** by ensuring annual reporting by member organizations to indicate successes and remaining work to accomplish.

MISSOURI TECH FIRST INITIATIVE; ST. LOUIS, MO

Investing in a stronger, more connected tech workforce ecosystem that diversifies talent in high-growth industries, the Cortex Innovation District secured a $7 million grant to support apprenticeships and partner-led job-training programs with wraparound services.

The Cortex Innovation District was established in 2002 by five St. Louis anchor institutions—Washington University, BJC HealthCare, Saint Louis University, Missouri Botanical Garden, and the University of Missouri-St. Louis—who collectively pledged $29 million in equity to acquire land on a former industrial site. Initially founded as an economic development engine for commercializing medical and biotechnology, Cortex now prioritizes attraction, entrepreneurship, and talent development in life sciences, technology, and cybersecurity.

Innovation districts invest in talent pipelines

Cortex launched the Missouri Tech First Initiative, a regional effort to provide free job training and certification for all Missouri residents, especially those underrepresented in bioscience, technology, and cybersecurity. The Initiative has established partnerships with the Chamber, the Tech Council of Greater St. Louis, Tabernacle Community Development Corporation, and more than ten training partner organizations. Cortex also expanded a multitude of programs to further the City and Innovation District's talent needs, including:

- **Tech training:** Cortex leveraged recent funding to partner with several training providers including CompTIA, LaunchCode, NPower, and Per Scholas. These short-term programs support underrepresented talent in tech jobs with a combination of classroom and on-the-job training as well as wraparound services.
- **BioSTL apprenticeship:** BioSTL, a Cortex-based innovation hub, is launching a biotech-focused apprenticeship program. They intend to recruit participants from the community and provide wraparound services, including childcare and transportation.
- **Employer engagement:** Cortex partners with the St. Louis Agency on Training and Employment (SLATE) to connect jobseekers and employers in the District. Missouri Tech First's HIRENOW initiative engages employers to rethink hiring requirements and asks corporate partners to participate in mentoring activities and sign a pledge to consider hiring candidates who have successfully completed in-District programs.

Lessons for Kips Bay Science District

Missouri Tech First Initiative demonstrates the necessity for innovation districts to invest in talent pipelines to ensure that nearby residents benefit from growth, and to support the long-term success of high-growth industries. After recognizing this need, Cortex unified its workforce efforts to more effectively attract funding for industry-driven training. Its leadership allows the Cortex Innovation District and its partners to develop programs that meaningfully serve high school to adult-age participants. Training opportunities at each level connect directly to jobs in the Cortex Innovation District while providing support to eliminate barriers for participants.


Northwell
Health

Next Steps

Together, partners will identify and seek to fill gaps in career pathways to develop, advance, and scale programs that support talent into the priority occupations. While this report provides analysis and recommendations to advance the Kips Bay Science District's efforts, the Task Force acknowledges there is much work to be done.

In 2025, the Task Force will establish a curated steering committee devoted to articulating a time-bound action plan to advance each of the recommendations expressed in this report. This will necessitate a series of planning sessions to ensure the intentionality of efforts to support the District, the ecosystem, and most importantly, New Yorkers.
Most essential to that effort will be to explore creating, convening, and launching an independent organization led by SPARC's anchor tenants (Recommendation #4) to drive this work forward. There is work the governance entity could and should begin to tackle now to bring together large institutions and community-based organizations to facilitate collaboration, ensuring the recommendations in this report are executed.

SOURCE: NYCPS and Northwell Health.

Appendix

Acknowledgements

This report reflects the hard work and dedication of NYCEDC, NYC Talent, the Kips Bay Science District Education and Workforce Task Force, and more. The success of this effort would not have been possible without many stakeholders' involvement and care. Thank you to those who've contributed their time to help support this report.

Kips Bay Science District Education and Workforce Task Force members

Special thanks to the Kips Bay Science District Education and Workforce Task Force, who drove the findings of this report through their participation in Task Force meetings, working group sessions, and interviews.

Interview Participants

Neda Afsarmanesh, Associate Director of Research Strategy, NYU Langone Health

Lauren Andersen, University Associate Provost for Careers and Industry Partnerships, CUNY

Patti Boyce, University Dean for Health and Human Services, Nursing, CUNY

Rachel Cato, Partnerships Director, Lower East Side Employment Network (LESEN)

Robert Domanski, Dean of Academic Innovation and Outcomes, CUNY Hunter College

Ben Dubin-Thaler, Founder and Executive Director, BioBus

Calaine Hemans-Henry, Assistant Commissioner, Bureau of Workforce Development & Training, Department of Health & Mental Hygiene

Angie Kamath, Dean, NYU School of Professional Studies

Office of Manhattan Borough President Mark Levine

Daniel Liss, Executive Director, New York Alliance for Careers in Healthcare (NYC Mayor's Office of Talent and Workforce Development)

Ann Marie Mauro, Joan Hansen Grabe Dean and Professor, Hunter-Bellevue School of Nursing, CUNY Hunter College

Sandra McKee, Chair, Manhattan Community Board 6

Marcia Peters, Chief Operating Officer, NYC Health + Hospitals/ Bellevue

Office of Councilmembers Keith Powers, NYC Council District 4

Lesley Rennis, BMCC CUNY Public Health

Isha Sheth, Senior Director of Pathways Strategy, NYC Department of Education

William Slattery, Partner, Deerfield Management

Maria Strangas, Assistant Director of Science Research Experiences, American Museum of Natural History

Persephone Tan, Deputy Chief of Staff, NYC Office of Chief Medical Examiner

Jeanie Tung, Director of Business Development and Workforce Partnerships, Henry Street Settlement

Robert Van Pelt, Chief of Staff, NYC Office of Chief Medical Examiner

Mark Weckel, Director of Youth Programming, American Museum of Natural History

Hannah Weinstock, Senior Director of Workforce Development, LaGuardia Community College

Latasha Wright, Co-Founder and Executive Scientific Officer, BioBus

City Leadership

Andrew Kimball, President & CEO, NYCEDC

Abby Jo Sigal, Executive Director, Mayor's Office of Talent & Workforce Development

Cecilia Kushner, Chief Strategy Officer, NYCEDC

NYC Office of the Mayor

Aaron Charlop-Powers

Diandra Malahoo

NYCEDC Drafting Team

Mikko Baylosis

Julieanne Herskowitz

Dillon Kadish

Ian Kapron-King

Hayoung Kim

Joan Kim

Monica Malowney

Kyle Marks

Jenny Osman

Viq Pervaaz

Erin Tou

Mary Beth Williams

Consultant Team

HR&A

PINGPONG DESIGN

URBANE

Methodology & Analysis

Labor Analysis Methodology

Ecosystem Definition & Occupational Analysis: HR&A developed an analytical methodology to capture the entirety of New York City's health and life sciences ecosystems across all five boroughs. HR&A conducted a comprehensive review of existing literature and precedents, reviewing the definitions and core functions of each ecosystem. This began by reviewing over 30 relevant reports to understand ecosystem definitions used by institutions across all three ecosystems individually—healthcare, life sciences, and public health. Through this, HR&A developed and refined a list of relevant industries and occupations and established a working definition for each individual ecosystem based on their core purpose and activity. HR&A then validated each working definition through engagement with stakeholders. Each ecosystem's definition includes both ecosystem-specific jobs (e.g., doctors, chemists) as well as supporting roles within ecosystem-specific organizations (e.g., HR managers, accountants) that are unique to that ecosystem.

NYCEDC's life sciences industry definition was used as per NYCEDC's 2022 report titled ***Life Sciences in the NYC Metro***. For healthcare, HR&A and NYCEDC heavily built from CHWS's 2018 report ***Emerging Roles and Occupations in the Health Workforce***. For the healthcare definition, Lightcast isolates all public ownership jobs into a separate NAICS code. Assuming the same staffing patterns as the private ownership entities, HR&A isolated the public share of jobs for each ecosystem and added them to the sizing estimates. Staffing patterns refer to the number of workers in an industry classified by the types of occupation they perform. Lightcast also does not include NAICS 923120—Administration of Public Health Programs in its classification. Using the ratio of jobs in this NAICS from BLS data, HR&A isolated the Administration of Public Health Programs jobs and added them to the sizing estimates.

Unlike the other two sectors, public health has rarely been defined. Building off definitions by New York Department of Health (DOH), BMCC, and California Department of Public Health, as well as engagement with public health experts from DOH, BMCC, CUNY SPH, and NYC H+H, methodology focused on an occupational-based analysis of public health, preparing a detailed map of each identified industry and core occupations with justifications to match the written definition. To define the entire ecosystem, this analysis removed any duplicate occupations that exist in multiple ecosystems.

Industries are based on the 2022 NAICS codes as defined by the US Census Bureau. Occupations are based on the 2018 Standard Occupational Classification (SOC) codes as defined by the Bureau of Labor Statistics and the Occupational Information Network (O*NET), a comprehensive database of occupational attributes and characteristics which uses questionnaires to collect data on the educational levels and skills required to effectively perform a job.

Further, HR&A used the average of demographic and wage information for the various occupations, weighted by the occupational share in the ecosystem to arrive at the demographic and wage composition numbers discussed in this report.

Labor Data: In analyzing characteristics of the health and life sciences ecosystems, HR&A used Lightcast. Lightcast (formerly known as EMSI Burning Glass) is a leading national provider of employment data and economic impact analysis. Lightcast clients include the New York State Department of Labor, North Carolina Department of Commerce, and Oklahoma Department of Commerce. HR&A utilized Lightcast's Analyst tool to estimate the size of the New York City health and life sciences ecosystems (including life sciences, healthcare, and public health) and its associated

wages, educational requirements, and demographics. Lightcast gathers and integrates labor market data from a wide array of sources, including the US Bureau of Labor Statistics Quarterly Census of Employment and Wages (QCEW) and Occupational Employment Statistics (OES), US Bureau of Economic Analysis, O*NET, US Census Bureau American Community Survey (ACS) and County Business Patterns (CBP), and state departments of labor. Integrating data from multiple sources allows Lightcast to provide a broad accounting of employment that is unavailable from any one traditional source. HR&A relied on Lightcast data pertaining to three classes of workers:

1. QCEW/UI employees: All jobs covered by federal/state unemployment insurance.
2. Non-QCEW employees: Jobs exempt from unemployment insurance coverage including the military, railroads, and small nonprofits.
3. Self-Employed: Jobs held by people who consider self-employment a significant part of their income.

Lightcast's proprietary estimation process enables it to accurately report detailed data for every county in the United States, and even employment data which is undisclosed by government sources due to confidentiality issues. Lightcast reports industry-level data to the six-digit NAICS code, and occupational data to the five-digit SOC code. Moreover, Lightcast provides a "crosswalk" between industry and employment data (staffing patterns and inverse staffing patterns) that enabled HR&A to account for core jobs in core industries, core jobs in non-core industries, and non-core jobs in core industries. Lightcast also reports the most common educational or training requirements for each of the 800+ SOC codes based upon data from the US Bureau of Labor Statistics.

Economic Impact Analysis: HR&A's economic impact analysis estimates the multiplier effects of the health and life sciences ecosystems in the economy in terms of jobs, earnings, and economic output. HR&A utilized the IMPLAN input-output model to estimate the economic impacts of the health and life sciences ecosystems and looked at income tax and sales tax generated by the ecosystem to determine the overall fiscal impact.

HR&A designated the five boroughs of New York City as the study area. The economic impact study is designed to measure the impact of existing employment in the health and life sciences ecosystems in terms of employment, employee compensation, and economic output (spending) generated:

- Employment includes full-time and part-time jobs.
- Employee compensation includes wage and salary income as well as employee benefits and employer-paid payroll taxes.
- Economic output is the total value of production across all industries in the economy. It is equivalent to total spending in the economy.

Healthcare includes the diagnosis, treatment, and care of people suffering from sickness and injuries, including direct support in these activities.

Healthcare Industries

621111	Offices of Physicians (except Mental Health Specialists)
621112	Offices of Physicians, Mental Health Specialists
621210	Offices of Dentists
621310	Offices of Chiropractors
621320	Offices of Optometrists
621330	Offices of Mental Health Practitioners (except Physicians)
621391	Offices of Podiatrists
621399	Offices of All Other Miscellaneous Health Practitioners
621491	HMO Medical Centers
621492	Kidney Dialysis Centers
621498	All Other Outpatient Care Centers
621610	Home Health Care Services
622110	General Medical and Surgical Hospitals
622210	Psychiatric and Substance Abuse Hospitals
622310	Specialty (except Psychiatric and Substance Abuse) Hospitals
623110	Nursing Care Facilities (Skilled Nursing Facilities)
621991	Blood and Organ Banks
621493	Freestanding Ambulatory Surgical and Emergency Centers
621910	Ambulance Services
621999	All Other Miscellaneous Ambulatory Health Care Services
621340	Offices of Physical, Occupational and Speech Therapists, and Audiologists
621410	Family Planning Centers
621420	Outpatient Mental Health and Substance Abuse Centers
624120	Services for the Elderly and Persons with Disabilities
623210	Residential Intellectual and Developmental Disability Facilities
623220	Residential Mental Health and Substance Abuse Facilities
623311	Continuing Care Retirement Communities
623312	Assisted Living Facilities for the Elderly
623990	Other Residential Care Facilities
621511	Medical Laboratories
621512	Diagnostic Imaging Centers

Healthcare Occupations

11-9111	Medical and Health Services Managers
19-1042	Medical Scientists, Except Epidemiologists
19-3033	Clinical and Counseling Psychologists
19-3039	Psychologists, All Other
29-1011	Chiropractors
29-1021	Dentists, General
29-1022	Oral and Maxillofacial Surgeons
29-1023	Orthodontists
29-1024	Prosthodontists
29-1029	Dentists, All Other Specialists
29-1031	Dietitians and Nutritionists
29-1041	Optometrists
29-1051	Pharmacists
29-1071	Physician Assistants
29-1081	Podiatrists
29-1122	Occupational Therapists
29-1123	Physical Therapists
29-1124	Radiation Therapists
29-1125	Recreational Therapists
29-1126	Respiratory Therapists
29-1127	Speech-Language Pathologists
29-1128	Exercise Physiologists
29-1129	Therapists, All Other
29-1131	Veterinarians
29-1141	Registered Nurses
29-1151	Nurse Anesthetists
29-1161	Nurse Midwives
29-1171	Nurse Practitioners
29-1181	Audiologists
29-1211	Anesthesiologists
29-1212	Cardiologists

29-1213	Dermatologists
29-1214	Emergency Medicine Physicians
29-1215	Family Medicine Physicians
29-1216	General Internal Medicine Physicians
29-1217	Neurologists
29-1218	Obstetricians and Gynecologists
29-1221	Pediatricians, General
29-1222	Physicians, Pathologists
29-1223	Psychiatrists
29-1224	Radiologists
29-1229	Physicians, All Other
29-1241	Ophthalmologists, Except Pediatric
29-1242	Orthopedic Surgeons, Except Pediatric
29-1243	Pediatric Surgeons
29-1249	Surgeons, All Other
29-1291	Acupuncturists
29-1292	Dental Hygienists
29-1299	Healthcare Diagnosing or Treating Practitioners, All Other
29-2031	Cardiovascular Technologists and Technicians
29-2032	Diagnostic Medical Sonographers
29-2033	Nuclear Medicine Technologists
29-2034	Radiologic Technologists and Technicians
29-2035	Magnetic Resonance Imaging Technologists
29-2036	Medical Dosimetrists
29-2042	Emergency Medical Technicians
29-2043	Paramedics
29-2051	Dietetic Technicians
29-2052	Pharmacy Technicians
29-2053	Psychiatric Technicians
29-2055	Surgical Technologists
29-2056	Veterinary Technologists and Technicians
29-2057	Ophthalmic Medical Technicians
29-2061	Licensed Practical and Licensed Vocational Nurses

29-2072	Medical Records Specialists
29-2081	Opticians, Dispensing
29-2091	Orthotists and Prosthetists
29-2092	Hearing Aid Specialists
29-2099	Health Technologists and Technicians, All Other
29-9021	Health Information Technologists and Medical Registrars
29-9091	Athletic Trainers
29-9093	Surgical Assistants
29-9099	Healthcare Practitioners and Technical Workers, All Other
31-1132	Orderlies
31-1133	Psychiatric Aides
31-1121	Home Health Aides **(Combined with Personal Care Aides in Lightcast)**
31-1122	Personal Care Aides **(Combined with Home Health Aides in Lightcast)**
31-2011	Occupational Therapy Assistants
31-2012	Occupational Therapy Aides
31-2021	Physical Therapist Assistants
31-2022	Physical Therapist Aides
31-9011	Massage Therapists
31-9091	Dental Assistants
31-9092	Medical Assistants
31-9093	Medical Equipment Preparers
31-9094	Medical Transcriptionists
31-9095	Pharmacy Aides
31-9097	Phlebotomists
31-9099	Healthcare Support Workers, All Other
29-2011	Medical and Clinical Laboratory Technologists*
29-2012	Medical and Clinical Laboratory Technicians*
31-1131	Nursing Assistants

Life Sciences Definition: Combined applications of biology and technology for the advancement of humanity, including the study of living organisms

Life Sciences Industries	
325411	Medicinal and Botanical Manufacturing
325412	Pharmaceutical Preparation Manufacturing
325413	In-Vitro Diagnostic Substance Manufacturing
325414	Biological Product (except Diagnostic) Manufacturing
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing
334517	Irradiation Apparatus Manufacturing
339112	Surgical and Medical Instrument Manufacturing
339113	Surgical Appliance and Supplies Manufacturing
339114	Dental Equipment and Supplies Manufacturing
339115	Ophthalmic Goods Manufacturing
339116	Dental Laboratories
541713	Research and Development in Nanotechnology
541714	Research and Development in Biotechnology
541715	Research and Development in the Physical, Engineering, and Life Sciences
621511	Medical Laboratories*
621512	Diagnostic Imaging Centers*

Life Sciences Occupations	
11-9121	Natural Sciences Managers
17-2031	Bioengineers and Biomedical Engineers
17-2041	Chemical Engineers
17-2131	Materials Engineers
17-2141	Mechanical Engineers
19-1021	Biochemists and Biophysicists
19-1022	Microbiologists
19-1029	Biological Scientists, All Other
19-1042	Medical Scientists, Except Epidemiologists*
19-1099	Life Scientists, All Other

19-2031	Chemists
19-4021	Chemical Technicians
19-4099	Life, Physical, and Social Science Technicians, All Other
29-2011*	Medical and Clinical Laboratory Technologists*
29-2012*	Medical and Clinical Laboratory Technicians*

Public Health Definition: Improving and promoting the health of populations, including preventing populations from sickness and injury.

Public Health Industries

923120	Administration of Public Health Programs
624210	Community Food Services
624230	Emergency and Other Relief Services
813212	Voluntary Health Organizations
621410	Family Planning Centers*

Public Health Occupations

19-1041	Epidemiologists
19-2041	Environmental Scientists and Specialists, Including Health
19-4042	Environmental Science and Protection Technicians, Including Health
21-1015	Rehabilitation Counselors
21-1018	Substance Abuse, Behavioral Disorder, and Mental Health Counselors
21-1019	Counselors, All Other
21-1022	Healthcare Social Workers
21-1023	Mental Health and Substance Abuse Social Workers
21-1029	Social Workers, All Other
21-1091	Health Education Specialists
21-1093	Social and Human Service Assistants
21-1094	Community Health Workers
21-1099	Community and Social Service Specialists, All Other
29-9092	Genetic Counselors

Key Reports Analyzed to Support This Report

- A Decade of Growth: New York's Life Sciences Industry, Partnership Fund for New York City
- Impact: Healthier, Longer Lives for New Yorkers, Fund for Public Health NYC
- Current Health Care Employment in New York State by Setting and Region, Center for Health Workforce Studies
- Emerging Roles and Occupations in the Health Workforce, Center for Health Workforce Studies
- Healthcare Reform and the New York Landscape, New York Alliance for Careers in Healthcare
- Unequal Ground: The Impact of Industrial and Occupational Segregation on Women's Economic Outcomes in New York City, Women Creating Change and the New School Center for New York City Affairs
- Significant Industries: A Report to the Workforce Development System, New York Bureau of Labor Market Information and Division of Research and Statistics
- Strategies for Enumerating the US Governmental Public Health Workforce, A Joint Report of the Center of Excellence in Public Health Workforce Studies, School of Public Health, University of Michigan, and the Center of Excellence in Public Health Workforce Research and Policy, College of Public Health, University of Kentucky
- The Health Care Workforce in New York State: Trends in the Supply of and Demand for Health Care Workers, Center for Health Workforce Studies
- New York Life Science Ecosystem Study, HR&A and Regeneron
- Life Sciences in the NYC Metro, NYC Planning and NYCEDC
- Annual Report, NY Office of Strategic Workforce Development and NY Empire State Development
- SRMC 2024 Visual Report
- CUNY HHS Nursing Programs
- SPARC Master Plan
- HSPH Harvard

Endnotes

[i] Mayor Adams Signs Bill to Bolster New York City's Life Sciences Sector, December 2023.

[ii] Economic output includes direct, indirect, and induced activity.

[iii] Workers can qualify as Registered Nurses with a two-year degree but must obtain a Bachelor of Science in Nursing within 10 years.

[iv] MDRC Sector-Based Training Programs, February 2024.

[v] Pathways to an Inclusive Economy: An Action Plan for young Adult Career Success

EMPOWERING KIPS BAY'S FUTURE WORKFORCE:

The Kips Bay Science District Education & Workforce Vision

NYC/EDC