



Talent at Risk: The Crisis Facing Global Health Research and What Can Be Done

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Mapping the Discovery Workforce for HIV/AIDS, Tuberculosis, Malaria, Polio, and Malnutrition

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Executive Summary

For three decades, the global health community has driven historic progress against HIV/AIDS, tuberculosis, malaria, polio, and malnutrition—the key diseases that are the focus of this report. Mortality rates have plummeted. And a generation of scientists built the tools and knowledge to advance towards eradication. At the heart of these achievements lies a vital but vulnerable resource: the discovery workforce — researchers, scientists, and technical specialists whose innovations enable disease eradication. (The discovery workforce working on these five diseases is the focus of this report: throughout, we will refer to these as ‘key workers’, in ‘key roles’, working on ‘key diseases’.)

That progress is now at risk. Structural weaknesses in the talent pipeline, compounded by politically driven cuts to research funding, threaten to slow — or even reverse — advances. Currently, **fewer than 1% of eligible talent enters key roles**, with particular recruitment challenges among men. Retention, however, is the more urgent problem:

- **Eighty-five percent** of people in key discovery roles leave within five years.
- Some do at least stay within medical R&D: **ten percent** transition to better-funded competing disease areas such as cancer or influenza. the National Institutes of Health (NIH) provides twice as much funding for cancer as for HIV/AIDS, tuberculosis, malaria, polio, and malnutrition combined (80% of which is for HIV/AIDS). Moreover, cancer and other non-infectious diseases garner vastly greater private-sector funding, as well.
- But **more than twice as many move into the private sector**, often in manufacturing or pharmaceutical R&D, where pay and job security far exceed public-health research. **More workers move out of key roles to work for Merck alone than transition into cancer research.**

Even for those who remain, productivity is badly eroded by bureaucracy. **Up to 44% of research time is lost to grant writing, compliance, and operational tasks** — work essential to experiments but inefficiently assigned to highly trained scientists.

The retention crisis is being intensified by shocks to the research environment:

- **Cuts to essential research infrastructure:** Any renewed push to reduce NIH indirect cost rates from what has been typically over 50% to just 15% at leading research universities would threaten to undermine severely the facilities, equipment, and support systems that make high-level R&D possible.
- **Vulnerability of key talent hubs:** Half of the discovery workforce for priority diseases comes from just 1.8% of U.S. degree-granting postsecondary institutions, yet many of the most important colleges to the talent pipeline — including Harvard, UCSF, and Columbia — face acute financial and political pressures that threaten their ability to sustain these programs.
- **Erosion of the talent pipeline’s foundations:** Broader federal budget cuts — including the closure of USAID — are dismantling the teaching, mentoring, and laboratory infrastructure that draws students into discovery careers, weakening the upstream supply of future researchers.

- **Restricted upstream pipeline:** A cross-cutting challenge is the narrow and uneven pipeline, which limits the field's resilience and reduces access to untapped talent pools.

These dynamics feed a vicious cycle. Reduced funding and infrastructure increase administrative burdens and insecurity, pushing more talent toward private industry or better-funded fields. This depletes the workforce needed for breakthrough while simultaneously shrinking lab size, reducing career opportunities for aspiring scientists, and forcing underfunded programs to accept fewer students. The result is compounding loss of both current and future talent.

The evidence suggests we can still train enough scientists; the challenge is keeping them in the field and enabling them to spend their time on science rather than paperwork.

This analysis identifies three interconnected failures driving the current crisis:

1. Inability to compete with private-sector opportunities;
2. Excessive administrative overhead that drains research time; and
3. Deteriorating infrastructure that supports productive science.

Sustaining progress toward eradication will require:

- **Shoring up the pipeline** — especially at universities most critical to discovery talent;
- **Making scientific careers more secure and rewarding**, with stable, flexible funding tied to individuals rather than just projects; and
- **Reducing friction** by investing in infrastructure and support staff that free scientists to focus on research.

This report maps the talent landscape, diagnoses key vulnerabilities, and proposes targeted interventions to protect and accelerate progress toward the eradication.

Introduction

The last 30 years have seen extraordinary gains in global health. Deaths from HIV/AIDS have fallen by 70%¹ from their peak in 2004. Polio is on the brink of eradication. Malaria and tuberculosis mortality rates have dropped sharply. These gains were not inevitable—they were won through decades of sustained investment in vaccines, diagnostics, treatments, and, crucially, the people who make such advances possible. This “discovery workforce” of scientists, researchers, and technical specialists generates the breakthroughs that turn the idea of eradication into reality.

We now face a dangerous inflection point. The diseases closest to elimination are also the hardest to defeat, demanding sustained innovation, deep expertise, and stable research environments. At the same time, the political and financial climate for science — especially in the United States — is shifting in ways that put the entire enterprise at risk.

Recent shocks have targeted the very infrastructure that produces and retains discovery talent. The closure of the United States Agency for International Development (USAID), deep cuts to the National Institutes of Health (NIH) budget, and attempts to reduce NIH indirect cost recovery rates (from what has typically been over 50% at leading universities to just 15%) are stripping or threatening resources from the institutions that anchor the global health talent pipeline. These cuts are landing on an already fragile system where:

- **Leakage is draining capacity:** 85% of those entering key discovery roles leave within five years, sometimes to better-funded disease areas, but more often to the private sector.
- **Administrative overload is eroding productivity:** Scientists lose nearly half their research time to grant-writing, compliance, and operational work that could be handled by support staff.
- **The pipeline remains narrow and uneven:** A small number of universities produce a disproportionate share of the workforce, and key demographic groups — particularly men and those from lower-income backgrounds — remain underrepresented.

This report draws on occupational profiles, educational histories, funding data, and international comparisons to map the current state of the discovery workforce for HIV/AIDS, tuberculosis, malaria, polio, and malnutrition. It examines where and why talent is being lost, how political and funding shocks are accelerating that loss, and what targeted actions could stabilize and strengthen the workforce at this critical moment.

These five conditions—HIV/AIDS, tuberculosis, malaria, polio, and malnutrition—occupy a central place in global health because they combine an exceptionally large burden of preventable death with clear scientific pathways for progress. Together they account for millions of deaths each year, disproportionately affecting children and young adults in low- and middle-income countries. Unlike many health challenges where solutions remain uncertain, the biological mechanisms behind these conditions are well understood and decades of research have demonstrated that targeted investments in vaccines, diagnostics, therapeutics, and nutrition interventions can dramatically reduce mortality.

At the same time, progress against these diseases depends on sustained scientific innovation. HIV/AIDS, tuberculosis, and malaria continue to evolve through drug resistance and shifting transmission patterns, requiring new generations of treatments, diagnostics, and vaccines. Polio illustrates a different challenge: the final stage of eradication, when cases are rare but persistent, demands intense surveillance, technical expertise, and continual refinement of vaccination strategies. Malnutrition, meanwhile, sits upstream of many other health outcomes. Improving nutrition in pregnancy and early childhood not only prevents death directly but also strengthens immune systems, improving the effectiveness of vaccines and treatments across the health system.

What links these priorities is the degree to which progress depends on a specialized discovery ecosystem. Breakthroughs in vaccine platforms, drug regimens, diagnostic technologies, and nutritional science emerge from a relatively small global network of laboratories, universities, clinical trial sites, and public-health research institutions. Sustaining that ecosystem requires a continuous supply of scientists, researchers, and technical specialists capable of translating scientific insight into deployable solutions. The following analysis focuses on that discovery workforce—mapping where it is concentrated, how it is trained, and why it is increasingly at risk.

The stakes are clear: without decisive intervention to keep talented researchers in the field and focused on science, the hard-won gains of the last thirty years could stall — or even reverse.

Methodology Overview

This analysis draws on a combination of occupational profiles, educational histories, funding data, and international comparisons to map the discovery workforce for HIV/AIDS, tuberculosis, malaria, polio, and malnutrition. We identified ‘key roles’ — scientific and technical positions directly tied to discovery research — through targeted keyword searches and classification using a large language model, then compared career trajectories against a peer group with similar academic and occupational backgrounds. Additional data from job postings and skill requirements provided insight into evolving competencies, while institutional and funding analyses highlighted structural vulnerabilities. Together, these methods offer a comprehensive picture of where global health talent originates, how it progresses, and where it is most at risk of loss.

The Talent Pipeline: Structure and Stress Points

The discovery workforce for HIV/AIDS, tuberculosis, malaria, polio, and malnutrition is small, specialized, and concentrated in a limited set of roles and institutions. It is the human engine behind every vaccine, diagnostic, and treatment breakthrough — but its stability is increasingly at risk.

While the pipeline produces world-class talent, it is narrow and uneven, relying heavily on a few universities and research programs. Entry-level research roles dominate, and career progression depends on sustained institutional support and access to specialist facilities. This concentration means that disruptions at just a handful of institutions can reverberate across the global health R&D ecosystem.

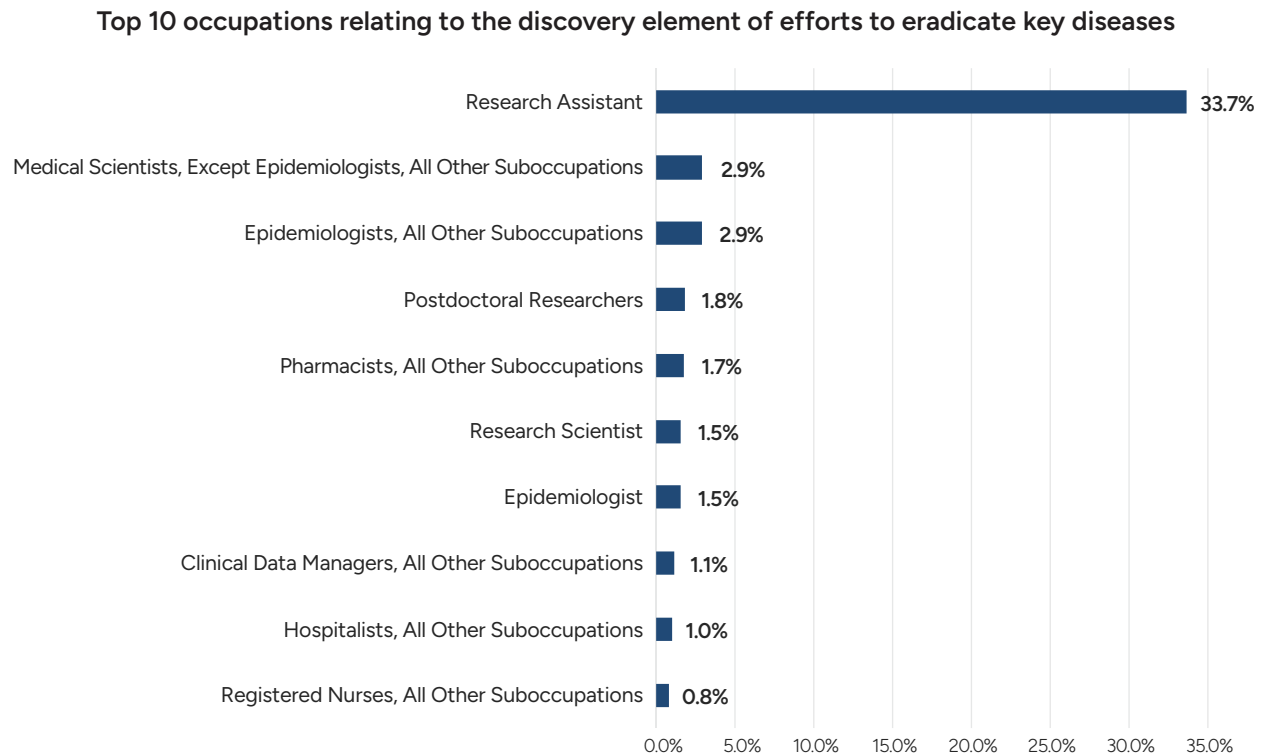
This section examines workforce composition, origins, and the structural vulnerabilities that feed directly into the leakage crisis.

Composition by Disease and Role

The workforce is heavily weighted toward HIV/AIDS, which accounts for 87% of roles (over 70,000 positions). Tuberculosis has 7% (about 6,000 roles), malaria 5% (roughly 4,000), and polio and malnutrition together account for fewer than 400 positions combined. This imbalance reflects historical funding priorities and the maturity of each disease's research ecosystem.

Across all disease areas, a few occupations dominate. Research Assistants comprise about one-third of positions, serving as the primary entry point for graduates. Other significant roles include Medical Scientists, Epidemiologists, Postdoctoral Researchers, and Pharmacists. Specialized occupations exist — such as Dietitians/Nutritionists in malnutrition or Molecular and Cellular Biologists in malaria — but their numbers are small.

Figure 1. Most common occupations among key roles

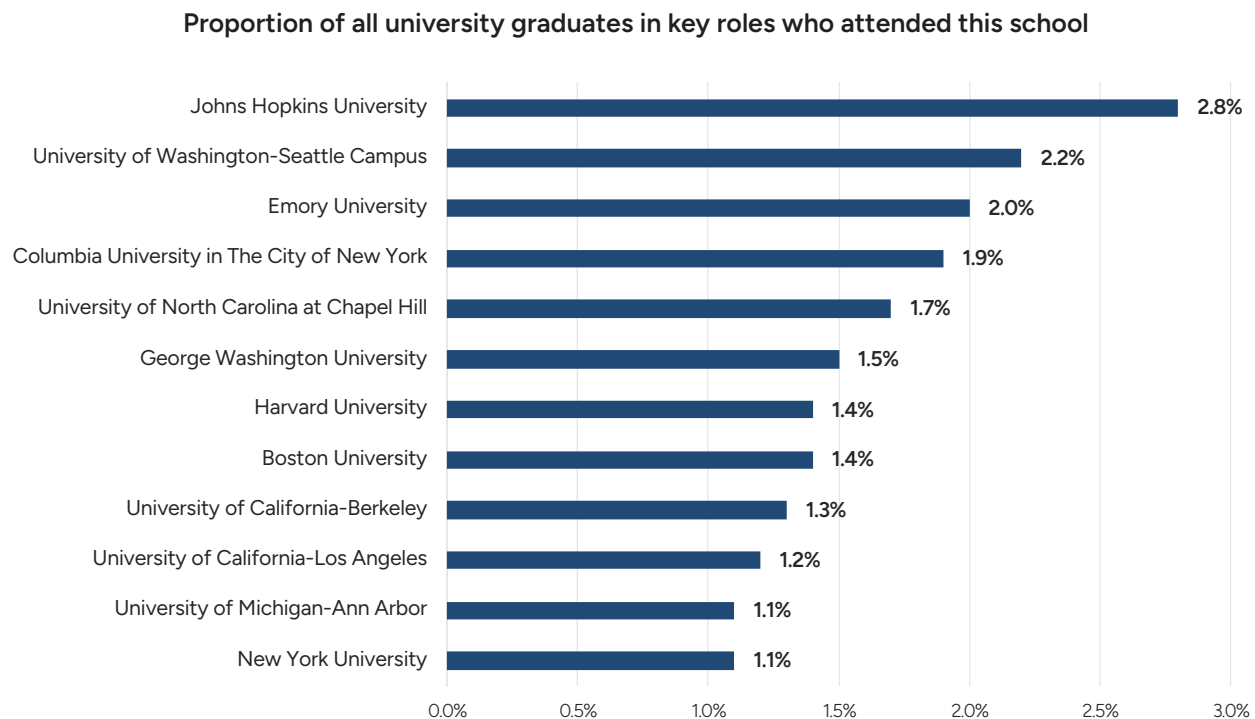


Source: Burning Glass Institute

Geographic and Institutional Concentration

The pipeline is not only small; it is geographically and institutionally concentrated. Half of the global discovery workforce for priority diseases comes from just 1.8% of U.S. degree-granting postsecondary institutions, with Johns Hopkins University alone producing 3%. We see a similar pattern when looking solely at graduates who go into a key role directly after completing their education. This uneven distribution creates structural risk: shocks to U.S. institutions — from funding cuts to political interference — could have immediate and severe effects on workforce capacity.

Figure 2. Top universities feeding key roles



Source: Burning Glass Institute

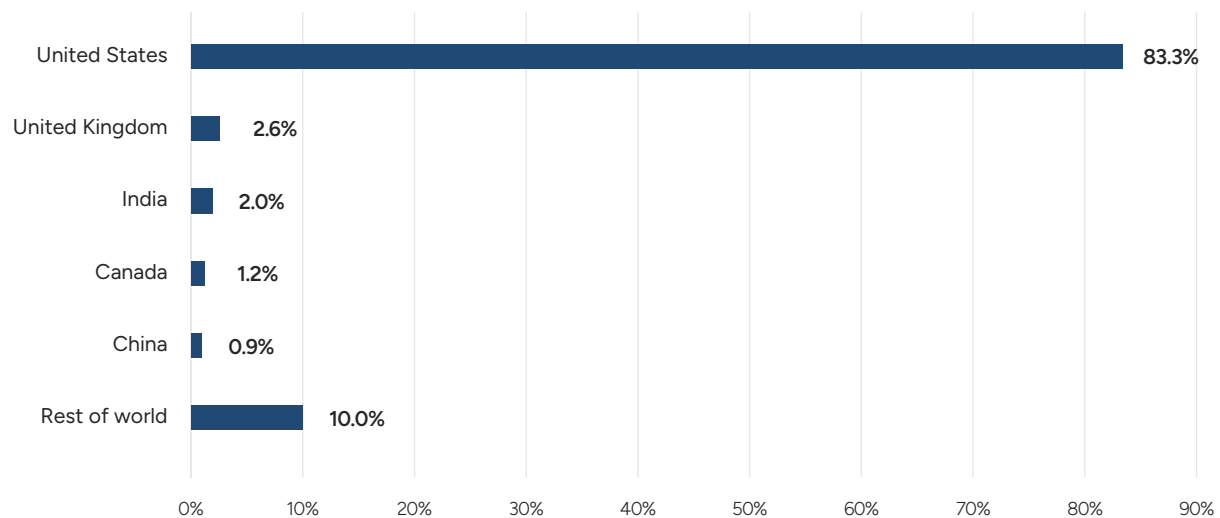
About 17% of U.S.-based key workers hold doctorates earned abroad. The United Kingdom, India, Canada, and China are leading sources; the rest of the world collectively accounts for just over 10% of this talent. However, a true assessment of geographic vulnerabilities across the broader discovery workforce is harder: many researchers with U.S. doctorates omit undergraduate details from their profiles, making it difficult to gauge how many earned bachelor's or master's degrees overseas.

Even so, two things are clear: immigrants play a major role in U.S. R&D, and U.S. colleges play a dominant part in the education of the workforce working to eradicate key diseases globally. In a context in which there have been moves to limit access to U.S. graduate programs for foreign students, this raises two potential emerging threats:

- A shift in where research and discovery talent is located, moving away from the U.S. This could create a mismatch between where qualified talent is (global) and where the investment still tends to go (heavily U.S.-focused). Even if funding was available to rebalance that investment globally, the transition wouldn't be smooth. It would take time for universities and innovation hubs outside the U.S. to build up enough new programs and enroll enough students to fill the gap left by top American institutions that have traditionally dominated, were they to quickly decline in importance for this field.

- Risks to the supply chain both in the U.S. and globally. Given the preponderance of U.S. colleges in the make-up of the talent pipeline, a U.S. system closing itself to foreign talent risks an under-supply of students and, in time, workers in American institutions. On the other side of the ledger, the global pipeline risks an under-supply of education providers and facilities suitable to meet the demand of students who would otherwise have gone to study in the U.S.

Figure 3. U.S.-based workers in key roles holding doctorates, by country where doctorate was earned



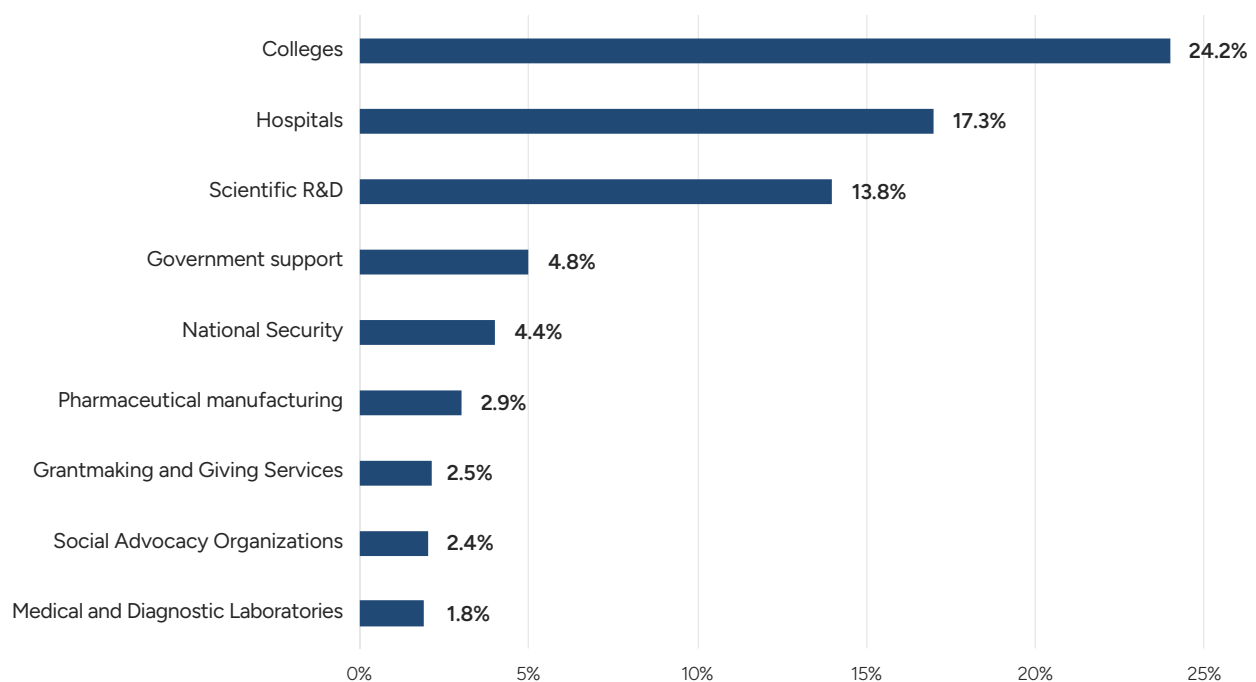
Source: Burning Glass Institute

Educational Pathways

The discovery workforce is highly educated: 38% hold doctorates and another 40% have a master's degree. Graduate-level growth has been strongest in epidemiology, microbiology/immunology, and biostatistics — disciplines aligned with discovery needs. Public health degrees have grown over the decades but have recently plateaued, raising questions about future supply.

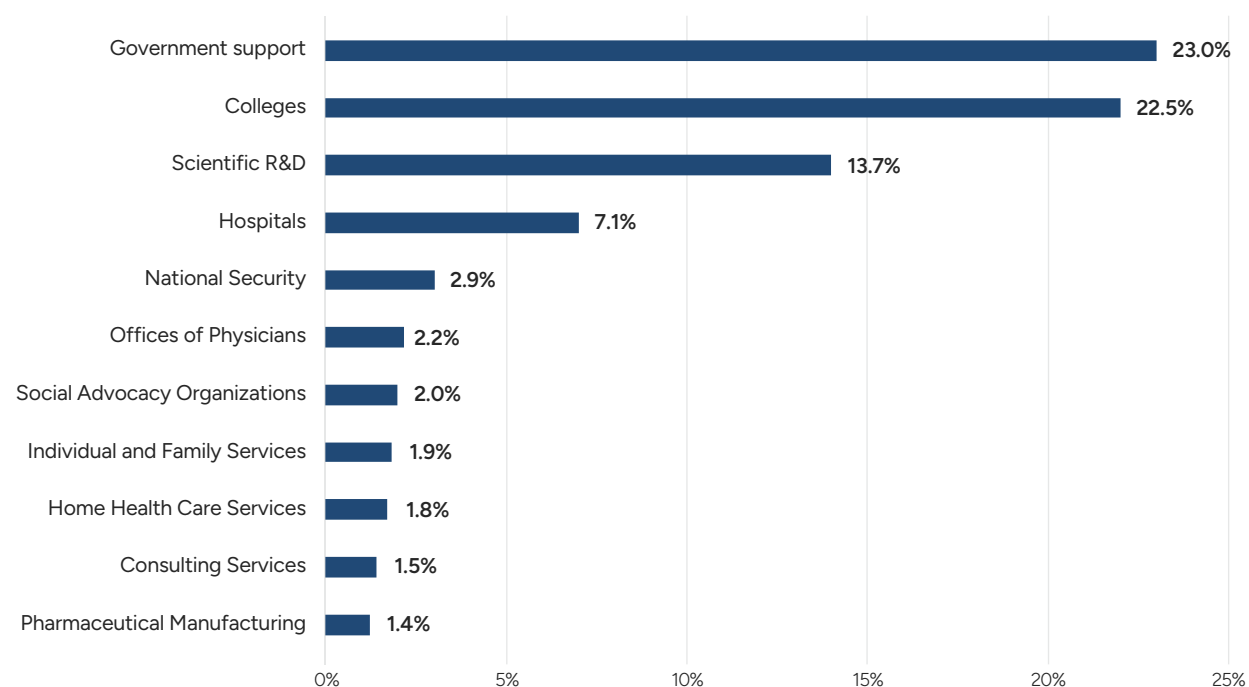
For the universities that are top suppliers of talent to the field, the biggest sectors absorbing discovery talent are Colleges, Hospitals, and Scientific R&D – with the exception of Emory, which provides a particular track into relevant government support roles, particularly the Centers for Disease Control and Prevention, with which it has deep ties.

Figure 4. Sectoral distribution across key roles - Johns Hopkins graduates



Source: Burning Glass Institute

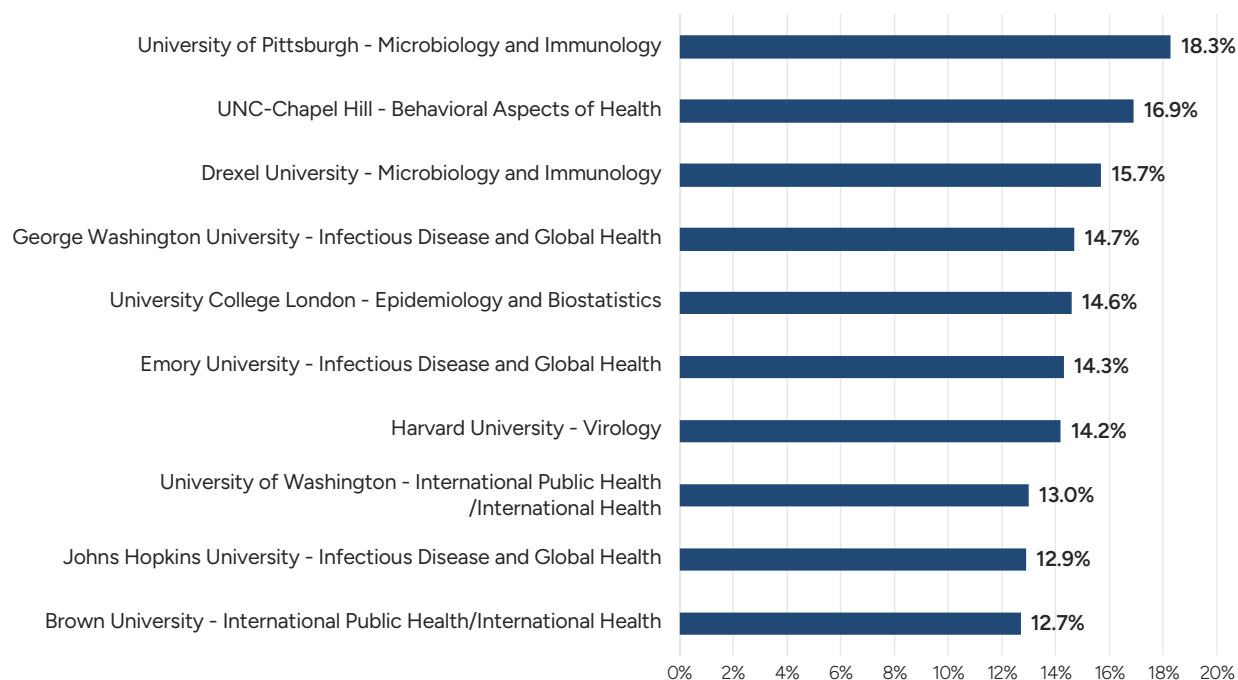
Figure 5. Sectoral distribution across key roles - Emory graduates



Source: Burning Glass Institute

At the bachelor's level, the University of Washington produces the largest number of graduates entering key roles; at the master's and doctoral levels, Johns Hopkins leads. Certain programs have especially high conversion rates into key roles—for example, microbiology/immunology at the University of Pittsburgh (18% of graduates) and Drexel University (16%); infectious disease and global health at George Washington University (15%); and epidemiology and biostatistics at University College London (UCL) (15%).

Figure 6. Proportion of program graduates who enter key roles



Source: Burning Glass Institute

However, workforce data indicates that the share of graduates from some programs who enter key roles is declining. By contrast, there has been a significant increase in Master's-level epidemiologists. These changes reflect rising educational prerequisites (e.g., fewer workers with bachelor's in psychology, but more with clinical psychology PhDs). That said, the data suggest an overall decline in traditional lab-intensive concentrations alongside a shift toward data- and analytics-focused pathways, which may erode "bench" expertise vital for lab-heavy diseases like malaria.

Figure 7. Degree-major combos for key profiles that increased/decreased the most

Degree	Program	Share 2010-14	Share 2020-24	% change
Master's	Epidemiology	3%	5%	89%
PhD	Clinical Psychology	1%	2%	70%
PhD	Medicine	10%	14%	46%
PhD	Philosophy	4%	6%	41%
Master's	Business/Commerce, General	4%	5%	36%
PhD	Microbiology and Immunology	5%	3%	-42%
Bachelor's	Psychology, General	2%	1%	-43%
Bachelor's	Registered Nursing	3%	1%	-49%
PhD	Molecular Biology	3%	1%	-70%
PhD	Immunology	4%	1%	-71%

Qualification levels within the discovery workforce have undergone a small but meaningful shift from 2000 to 2024, marked by a reversal in the prevalence of doctoral versus master's degrees held by individuals in key roles. In the early 2000s, doctoral degrees were generally more common, ranging from 39% to 44%, often exceeding the share of those with only a master's degree. For instance, in 2008, 44% held doctorates compared to 39% with master's degrees. While master's degrees occasionally matched or slightly surpassed doctorates in specific years (e.g., 40% master's vs. 39% doctorate in 2003), doctorates generally maintained a slight lead.

A significant shift began around 2009 and solidified by 2011. In 2009, master's degrees first showed a clear lead (42% vs. 39% for doctorates). This trend became dramatic by 2011, when master's degree holders surged to 46%, while doctorates declined to 36%. This period marks the definitive crossover where master's degrees became the more prevalent qualification.

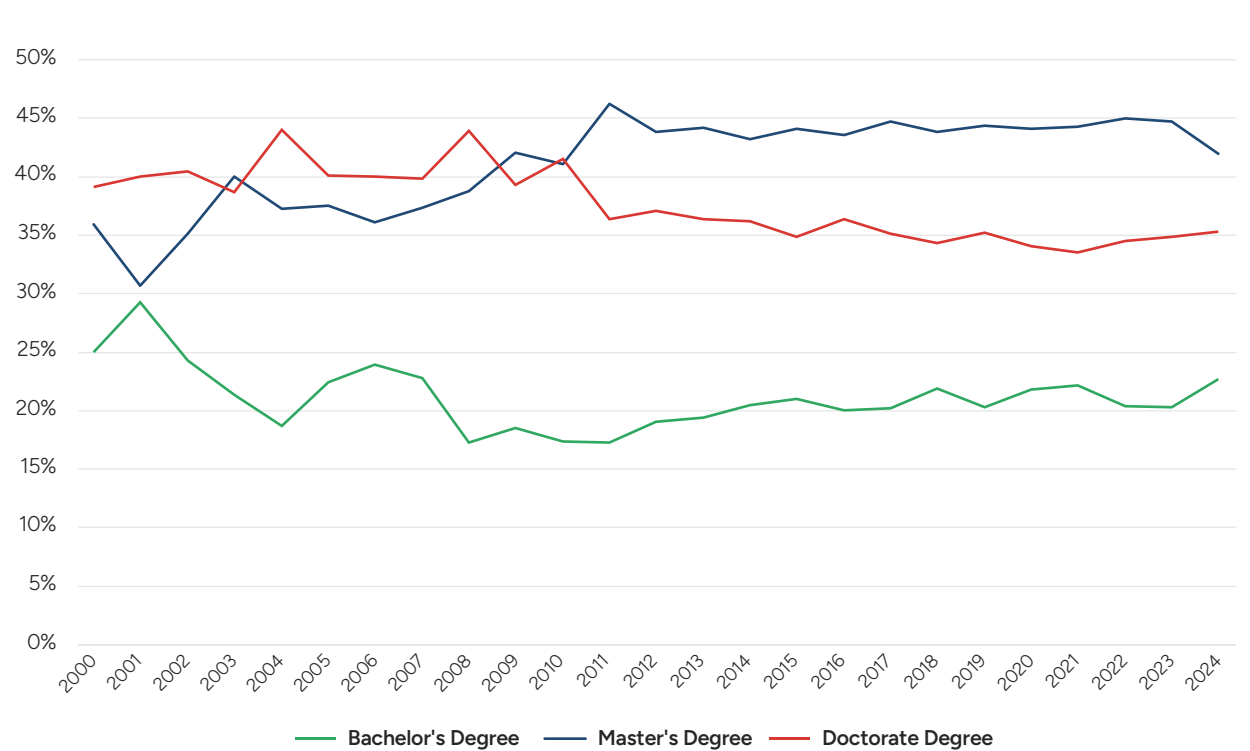
Since 2012, this new distribution has largely stabilized. Master's degrees have consistently been the dominant qualification, typically accounting for 43-46% of the workforce, while doctoral degrees have settled into a range of 34-37%. This establishes a persistent lead of approximately 8-11 percentage points for master's degree holders over doctorate holders in recent years.

Notably, the absolute number of individuals holding both doctorate and master's degrees in key roles saw substantial growth from 2000 to 2023, indicating a significant expansion of the discovery workforce. While the demand for doctorates has not diminished in absolute terms — indeed, the rate at which they have joined the labor force of key workers has more than quadrupled over this period — the growth in master's degree holders has outpaced that of doctorates, leading to the observed shift in qualification levels. This trend suggests that the field's expansion either created a larger proportion of roles suitable for master's-

level expertise, or drove employers to fill positions previously deemed doctoral-level with master’s holders to meet overall demand.

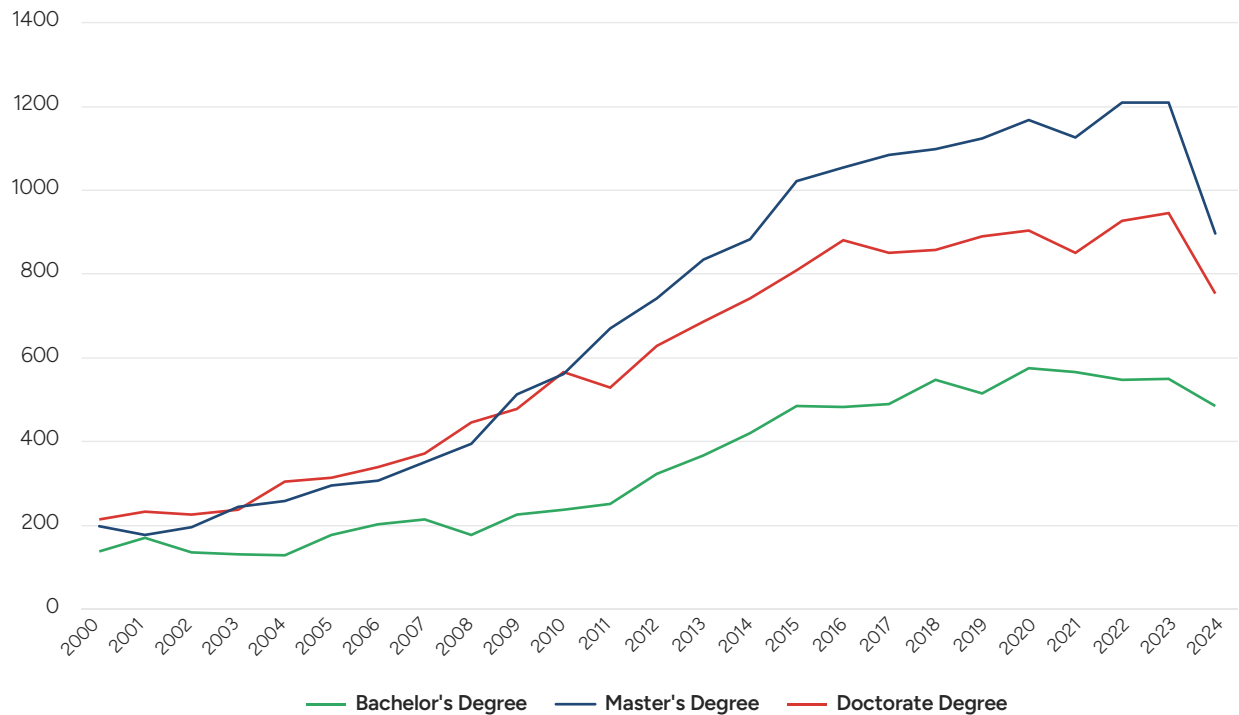
Recent changes to the political and funding environment may alter the landscape. Reduced funding and political security within the sector could affect both demand and supply in unpredictable ways, potentially reversing the previous decade’s growth.

Figure 8. Highest educational qualification of key workers by year of graduation



Source: Burning Glass Institute

Figure 9. Number of people working in key roles by educational qualification and year of graduation



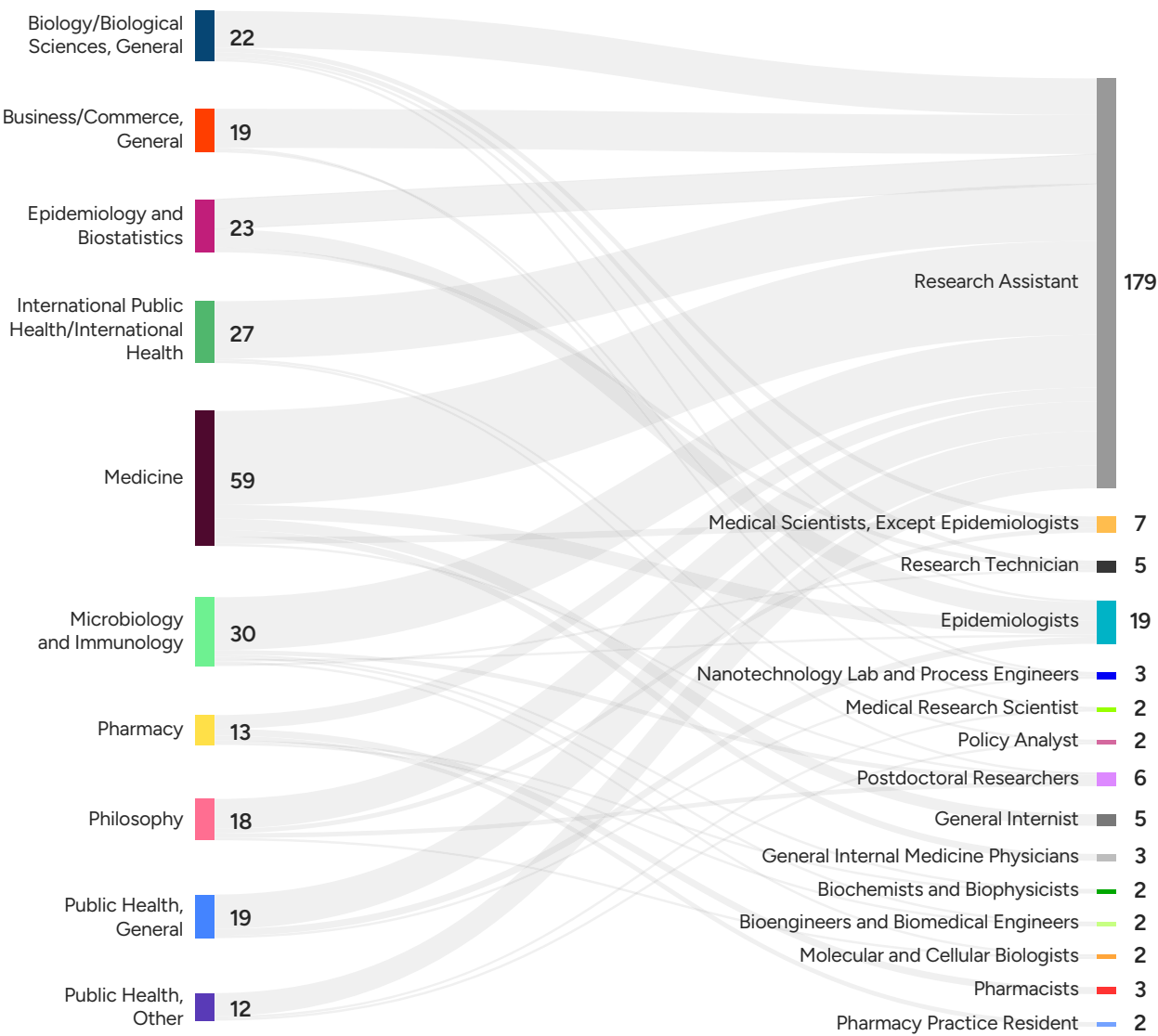
Source: Burning Glass Institute

Career Paths into Discovery Work

Most entrants funnel through “Research Assistant” roles, regardless of educational background. Only 23% start in a key role immediately; the rest arrive four to five years post-graduation, often after time spent in adjacent roles. This “conversion gap” is a high-risk period for talent loss to other sectors or disease areas.

Because RA-coded roles dominate early-career entry, improving job quality, mentoring, and access to core facilities at this level could disproportionately boost retention. Many high-demand occupations — such as biostatistics, data science, and clinical data management — also recruit from outside traditional biomedical majors, reflecting the field’s interdisciplinary pull.

Figure 10. Dominant landing spot is Research Assistant



The chart shows the top 15 occupations (across all majors combined) that serve as entry points into key careers for graduates from top schools in top majors who started directly in key roles.

The sectoral distribution of roles across nations, perhaps unsurprisingly, closely reflects their distinct national funding priorities.

In the National Health Service-centric U.K., the proportion of key workers in General Medical and Surgical Hospitals is particularly high (21% vs 14% in the U.S.). In Australia, where there is a greater emphasis on independent, mission-driven medical research institutes, 33% of key workers are in Scientific Research and Development Services, compared with 14% in the U.S.

For its part, the U.S. has the highest proportion in Colleges, Universities, and Professional Schools, reflecting the historic strength and high levels of funding in this area. However, in a political and funding environment where funding is projected to be severely constrained, this area faces a high risk of faltering. In the long term, international comparisons make clear that alternative distributions are viable. In the short to medium term, however, disruption to established funding channels risks disrupting the talent pipeline, particularly in the absence of a clear vision for a desired alternative.

Figure 11. International comparison of discovery workforce for key diseases by sector

	USA	UK	Canada	Australia	Switzerland	South Africa
Colleges, Universities, and Professional Schools	18.9%	13.5%	18.0%	13.2%	9.5%	11.5%
Scientific Research and Development Services	14.2%	18.0%	7.1%	32.3%	15.9%	26.9%
General Medical and Surgical Hospitals	13.8%	20.8%	13.0%	10.5%	15.1%	
Executive, Legislative, and Other General Government Support	8.7%	1.6%	7.7%	3.6%	3.2%	11.5%
Pharmaceutical and Medicine Manufacturing	6.1%	10.6%	3.8%	4.5%	10.3%	
Medical and Diagnostic Laboratories	3.0%	3.9%	2.1%	4.1%	1.6%	
Home Health Care Services	2.5%	0.7%	5.3%	0.9%	0.8%	3.8%
Offices of Physicians	2.1%	0.9%	2.4%	1.8%	0.8%	
Health and Personal Care Retailers	2.0%	0.4%	1.5%	1.4%	0.8%	
National Security and International Affairs	1.5%	1.1%	0.3%		10.3%	3.8%
Social Advocacy Organizations	1.3%	2.3%	1.2%	0.5%	1.6%	3.8%

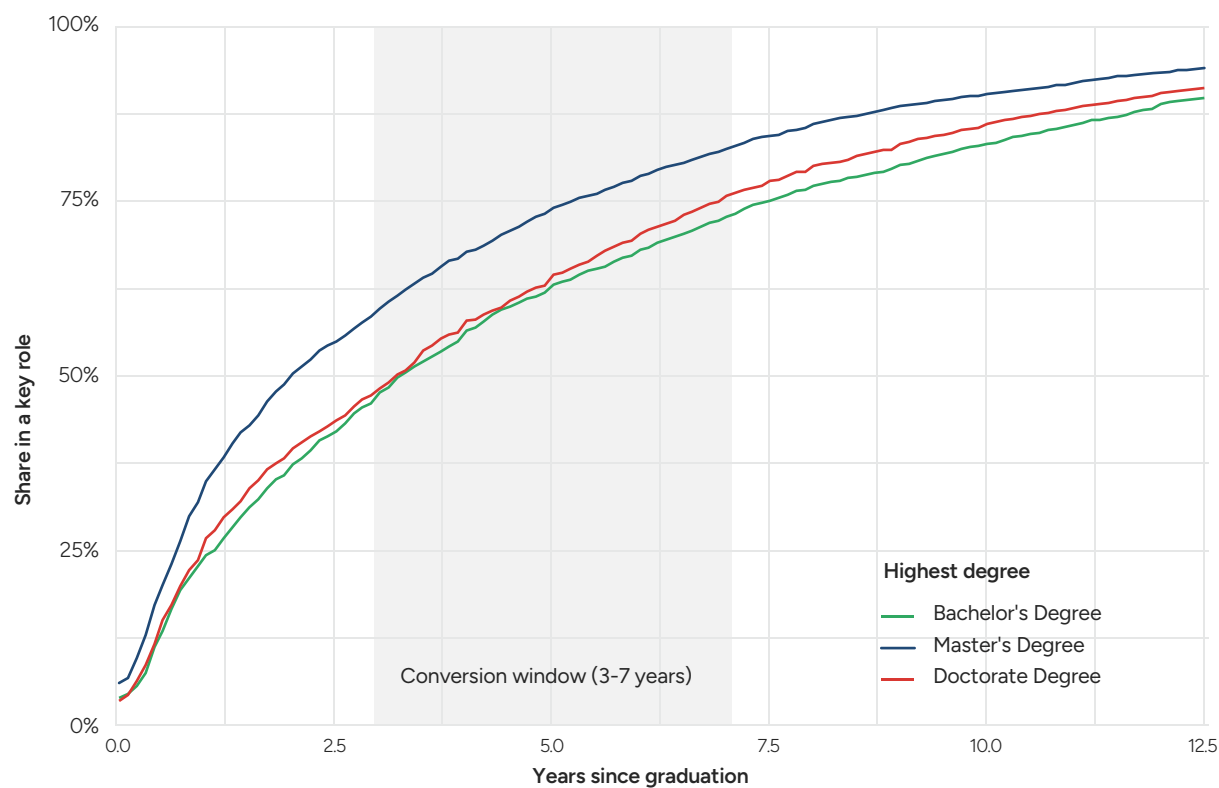
Source: Burning Glass Institute

Transfer windows

A significant proportion of those who enter a key discovery role immediately after graduating actually began working in the role before or during completion of their final degree: 55% of bachelor's, 66% of master's, and 74% of doctoral graduates. This group typically remained in that first role for a substantial stretch, averaging 28% of total career time for bachelor's holders, 22% for master's, and 25% for PhDs. However, when they eventually leave their first key role, they are more likely to leave the field entirely, moving into occupations outside our areas of interest.

By contrast, later entrants usually pivot into key roles four to five years after graduation (4.0 years for bachelor's, 4.8 for master's, 5.1 for doctoral) and spend less time in their first key post (21%, 14%, and 18% of career time, respectively). This creates a predictable three-to-seven-year conversion window when adjacent talent is most at risk of drifting to better-funded disease areas or higher-paid industry roles. This period also presents a window for targeted interventions such as bridge fellowships, flexible early- to mid-career funding, and structured mentorship. After this point, there are still entries into key roles, but entry rates increasingly flatten.

Figure 12. Entry points into key roles for professionals starting elsewhere



Source: Burning Glass Institute

Demographic Profile

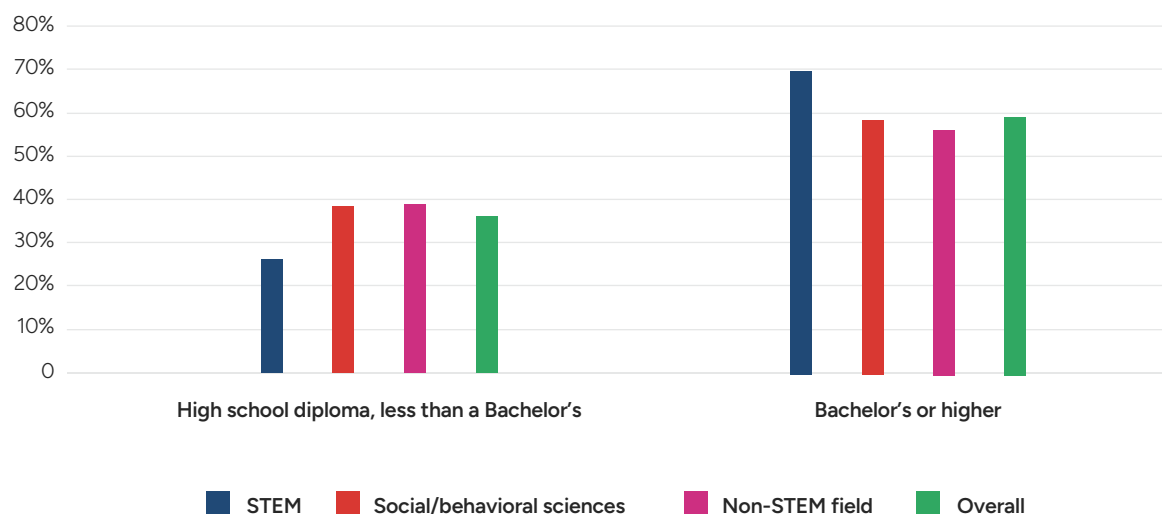
The workforce is predominantly female (61%), a higher proportion than the 51% female representation among science graduates with relevant majors graduating from top schools contributing to the talent pipeline for key workers. A quarter (26%) of the workforce are aged 55 or older and could retire within a decade, further straining the already narrow talent pipeline. Men and those from lower-income backgrounds remain underrepresented, with socioeconomic barriers limiting entry into advanced programs such as MD-PhDs.

SOCIOECONOMIC BARRIERS TO ENTRY

Research shows that socioeconomic background sharply influences entry into advanced biomedical training. Specifically, a study of US MD-PhD program admissions from 2014-2019 found that applicants from households earning less than \$50,000 were 16% less likely to be accepted than their wealthier peers, even after adjusting for academic metrics and other applicant characteristics, indicating persistent socioeconomic inequity in access to physician-scientist training.²

This is compounded by early educational disparities: 70% of STEM majors have at least one parent with a bachelor's degree, compared with 57% for non-STEM fields.

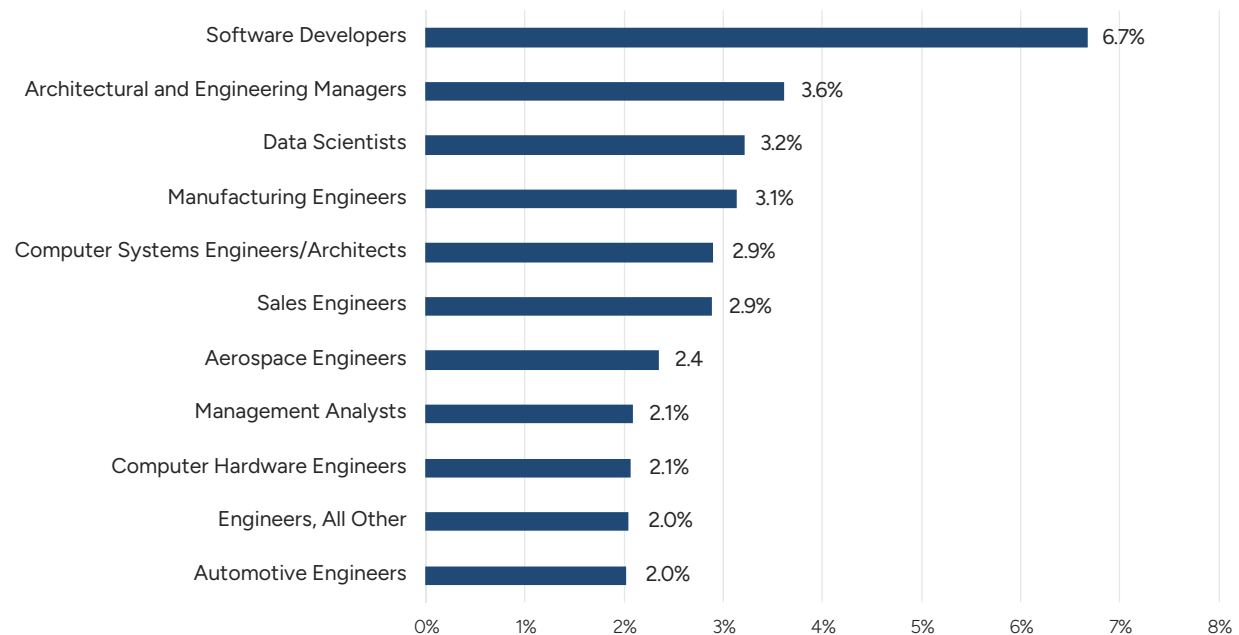
Figure 13. College major by parents' educational attainment



Source: National Postsecondary Student Aid Study (NPSAS)

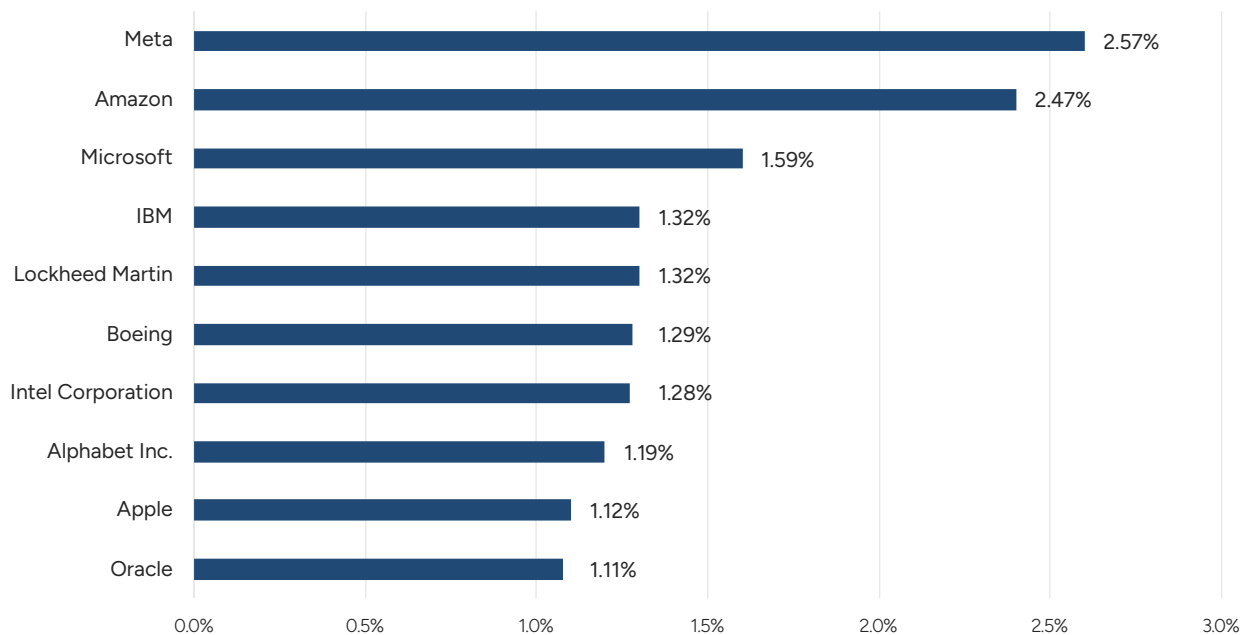
Until recently, software development has posed the greatest competition for graduates from top STEM programs (defined as the top 100 schools according to US News and World Report with STEM majors). This competition is especially pronounced for men and workers from low-income households, groups that are already underrepresented in key discovery roles. Consequently, the discovery field's primary competitors for talent are often tech giants like Meta and Amazon.

Figure 14. Most common first occupations for top STEM graduates



Source: Burning Glass Institute

Figure 15. Most common first employers for top STEM graduates



Source: Burning Glass Institute

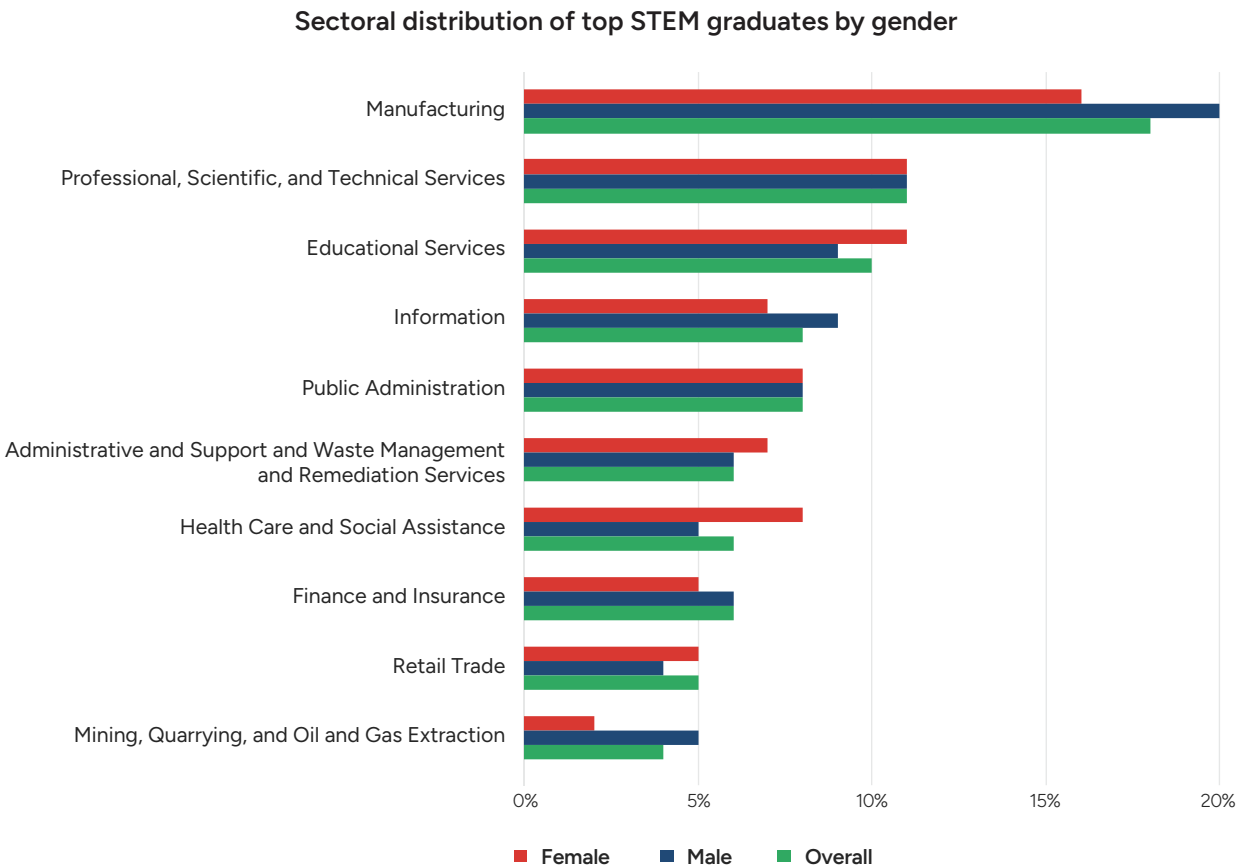
A clear gender gap exists in the career paths of top STEM graduates: women are far more likely to pursue roles in life sciences-focused companies. For male STEM graduates, by contrast, top 10 employers include the Navy, Army, Air Force, ExxonMobil and IBM, whereas for women, these include Roche, Pfizer, Merck, Johnson & Johnson, the FDA, and NIH.

Figure 16. Top 10 employers of top STEM graduates by gender

Male	Female
U.S. Navy	Thermo Fisher Scientific
Amazon	Amazon
Thermo Fisher Scientific	Roche
U.S. Air Force	Pfizer
ExxonMobil	Merck
IBM	Bayer
U.S. Army	FDA
Meta	Meta
Chevron	The National Institutes of Health
Bayer	Johnson & Johnson

Sectoral analysis also reflects this tendency: men are more likely than women to go into Manufacturing or Information sectors, while women enter Education Services or Health Care and Social Assistance at comparatively higher rates.

Figure 17. Sectoral distribution of top STEM graduates by gender



Source: Burning Glass Institute

Profile of adjacent talent

Of course, a substantial pool of qualified talent never enters the discovery pipeline at all. To understand their alternatives, we analyzed graduates with hard-science degrees from the 150 colleges most represented in key discovery roles. Our focus was on majors that are at least twice as common among current key-role workers compared to the broader graduate population. This group represents individuals who could be in key roles.

Less than one percent (0.7%) of this group — the most eligible talent for the pipeline — goes into key roles. Another 22% enter related roles such as Research Assistants, Pharmacists, and Medical Scientists (these occupations are at least twice as common among workers in key-role workers than in the overall workforce). However, the remaining 77% pursue unrelated occupations, most often postsecondary teaching roles or commercial management roles.

Figure 18. Top related and unrelated roles pursued by eligible talent

Top related roles	Top unrelated roles
Research Assistants	Teaching Assistants, Postsecondary
Pharmacists	Chief Executives
Medical Scientists, Except Epidemiologists	Project Management Specialists
Hospitalists	Sales Managers
Clinical Research Coordinators	Postsecondary Teachers, All Other

One year after graduation, Educational Services is the largest sector for these graduates; by year five, Hospitals take the lead. Over the first decade, Chemical Manufacturing's share grows from 8% to 13% — an increase of more than 50% — consequently drawing talent away from Educational Services and Hospitals. The shift in career destination matters: as academic and medical research jobs become less stable, the appeal of higher-paid, more secure positions in manufacturing and related industries strengthens.

Figure 19. Adjacent-talent sector drift

Sector	One year after graduation	Five years after graduation	Ten years after graduation
Educational Services	16.7%	13.2%	14.8%
Hospitals	14.3%	15.6%	15.4%
Professional, Scientific, and Technical Services	11.0%	12.0%	12.4%
Chemical Manufacturing	8.0%	10.7%	12.7%
Ambulatory Health Care Services	5.4%	5.4%	5.4%
Health and Personal Care Retailers	2.5%	2.4%	1.8%
Executive, Legislative, and Other General Government Support	2.1%	2.7%	2.7%
Administrative and Support Services	2.1%	2.2%	1.7%
National Security and International Affairs	2.0%	2.0%	1.7%
Religious, Grantmaking, Civic, Professional, and Similar Organizations	1.9%	1.8%	1.6%

Occupational patterns tell the same story. Many start as Research Assistants, but within 5-10 years, a notable share has moved into Natural Sciences Managers (predominantly found in Chemical Manufacturing), or into the likes of legal and sales roles.

Figure 20. Adjacent-talent sector drift: occupations that increased/decreased most

Occupation	One year after graduation	Five years after graduation	Ten years after graduation	Percentage point change
Postsecondary Teachers	4.8%	4.6%	7.0%	2.2%
Chief Executives	1.0%	1.6%	2.7%	1.7%
Natural Sciences Managers	1.2%	1.8%	2.8%	1.7%
Lawyers	0.2%	1.0%	1.6%	1.3%
Sales Managers	0.9%	1.5%	1.8%	0.9%
Life, Physical, and Social Science Technicians	0.8%	0.2%	0.1%	-0.7%
Pharmacy Technicians	0.8%	0.3%	0.1%	-0.7%
Biological Technicians	0.9%	0.4%	0.2%	-0.7%
Medical Assistants	0.9%	0.2%	0.1%	-0.8%
Research Assistants	8.8%	4.7%	3.9%	-4.9%

Stress Points in the Pipeline

Despite its strengths, the structure of the pipeline makes it highly susceptible to disruption:

- **Overreliance on a limited set of institutions:** Any funding cut or political attack on a relatively small number of universities could destabilize the entire system.
- **Limited early-career anchoring:** Only 23% of workers enter a key discovery role immediately after graduation; the rest typically arrive four to five years later. This creates a vulnerable “conversion gap” where potential talent can be lost to other sectors or disease areas.
- **Demographic imbalances:** The underrepresentation of men and lower-income students narrows the available pool of workers and leaves untapped talent on the sidelines.
- **Dependence on volatile funding streams:** The universities that anchor this pipeline rely heavily on federal research funding and high indirect cost recovery rates to maintain labs, equipment, and specialist facilities. Any renewed push to cut NIH indirect rates would threaten the very infrastructure that sustains training and research in these fields.

This concentration of training hubs makes the pipeline systemically fragile. Without action to broaden and strengthen it, each shock increases the risk of losing irreplaceable capacity. Leakage — the steady outflow of trained researchers — thrives in this environment, as the next section details.

Leakage Dynamics: Where and Why Talent Is Lost

The single biggest threat to the discovery workforce is not a shortage of new entrants — it's the steady outflow of trained researchers to other disease areas and sectors. This leakage drains capacity, erodes institutional knowledge, and forces the system to constantly replace talent instead of building depth and continuity.

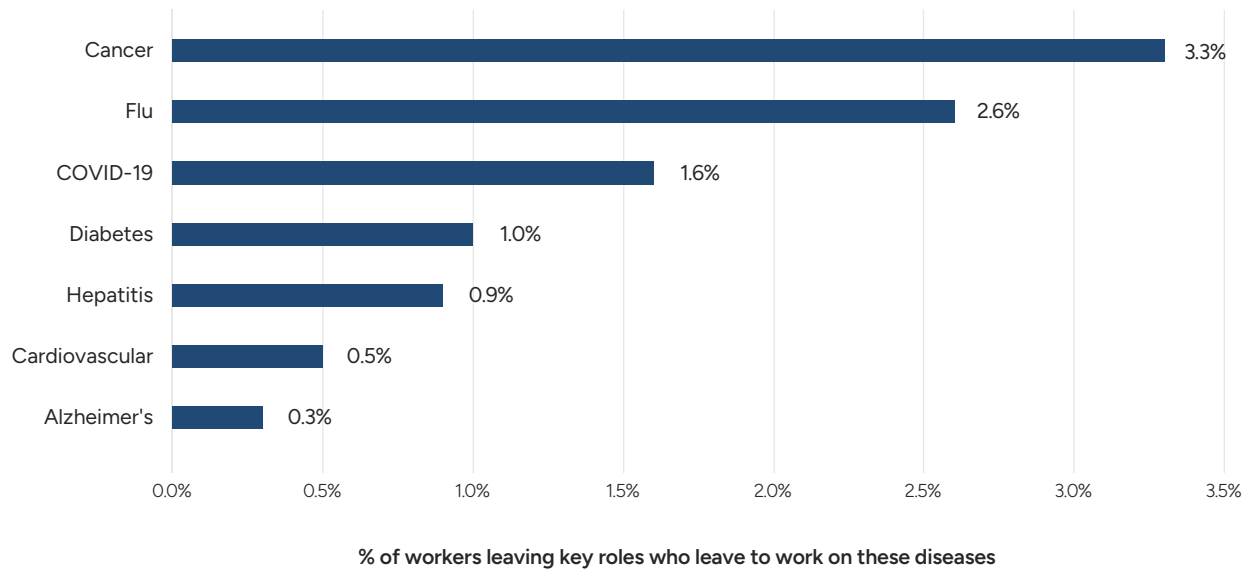
Our analysis finds that **85% of individuals entering key discovery roles for HIV/AIDS, tuberculosis, malaria, polio, and malnutrition leave within five years**. These departures are not evenly distributed across destinations — and they often represent permanent losses to the public health research ecosystem.

Where the Talent Goes

Career exits from key roles follow two main paths:

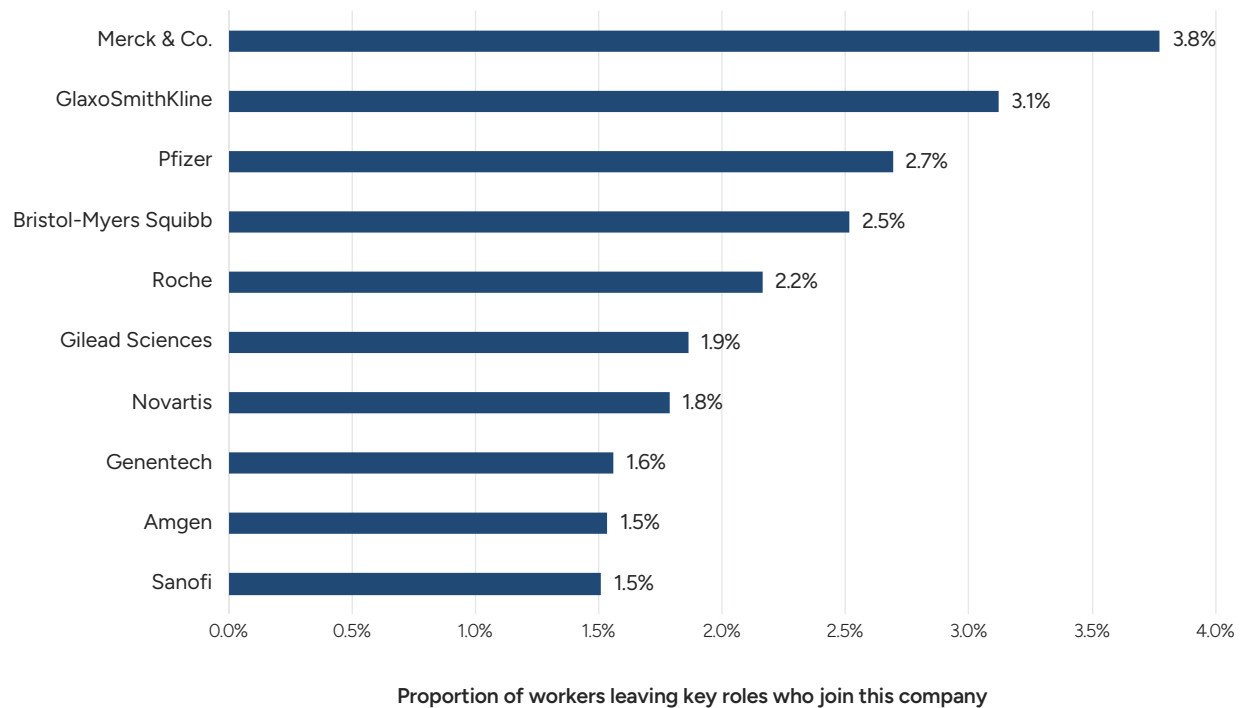
- **To competing disease areas:** About 10% of leavers move into better-funded fields such as cancer, influenza, COVID-19, and diabetes. Cancer alone attracts more than 3% of those who leave, aided by the fact that NIH funding for cancer research is roughly double the combined total for HIV/AIDS, tuberculosis, malaria, polio, and malnutrition (with 80% of that combined total going to HIV/AIDS).
- **To the private sector:** Approximately 22% move into primarily profit-oriented sectors, most often pharmaceutical manufacturing and R&D. Salaries, benefits, and job security are typically far higher than in public health research. About half of those who enter manufacturing never return to public-sector or academic research. The companies that are most commonly the exit destination for talent from key roles are all big pharmaceutical manufacturing organizations, with Merck alone accounting for 4% of talent pipeline leakage into sectors outside of Health, Education or government support.

Figure 21. Exit destinations by disease area



Source: Burning Glass Institute

Figure 22. Most common employers as destination for workers leaving key roles outside of Health, Education and Government



Source: Burning Glass Institute

When the Losses Occur

Leakage tends to occur at two critical points in a researcher's career:

- 1. Early-career exits:** Individuals leave after their first post-education role, often without moving to another disease area. This is especially common among those who entered key roles directly after graduation — a group that tends to stay in a single role for a long period and then leave the field entirely rather than move to a different key position.
- 2. Mid-career shifts:** Experienced professionals transition to better-funded scientific domains or higher-paying private-sector roles, often taking with them years of specialized expertise and leadership experience.

For those who don't start in a key role, the average time to enter one is four to five years after graduation. This "conversion gap" is a vulnerable period in which adjacent fields and industries can attract talent before they ever join the discovery workforce.

Push and Pull Factors

Several forces are accelerating leakage:

- Funding disparities:** Diseases like cancer and Alzheimer's receive significantly more NIH funding than most of the key diseases in this report, making them more attractive for researchers seeking stability and resources.
- Opportunity costs:** The private sector offers higher pay, more security, and clearer promotion pathways. For mid-career researchers with families or financial obligations, these factors can outweigh mission-driven motivations.

Figure 23. NIH disease-area funding

Research/Disease Areas (Dollars in millions and rounded)	2024 NIH funding
Cancer	\$8,050
Alzheimer's Disease	\$3,859
HIV/AIDS	\$3,293
Cardiovascular	\$2,771
Coronaviruses	\$1,436
Diabetes	\$1,151
Tuberculosis	\$578
Influenza	\$480
Hepatitis	\$357
Malaria	\$242

Summing It Up

The data show that while the pipeline can train enough qualified scientists, it struggles to keep them. Without interventions designed to make these roles more secure, better resourced, and more rewarding, the field will remain in a constant state of churn — undermining the goal of disease eradication.

Leakage can have a compounding indirect effect on the workforce. Every experienced researcher lost means not only the absence of their direct contributions, but also the loss of mentorship, institutional memory, and continuity in long-term projects. In diseases where breakthroughs can take years or decades of sustained work, this disruption can be particularly damaging.

As we explore in the following sections, administrative overload is consuming far too much research time in key roles, driving frustration and burnout. Threats to indirect cost recovery and cuts to federal budgets are eroding the core facilities and support systems that make productive science possible. Together, these forces compound the leakage crisis by making research careers less sustainable and less rewarding.

The Red Tape Crisis: Scientists Doing Everything But Science

Even when discovery researchers remain in the field, many are not spending the bulk of their time on actual discovery. Instead, they are caught in a cycle of administrative work, operational chores, and grant-chasing that diverts them from the high-value scientific activity they were trained to do.

The numbers are stark: up to 44% of research time is consumed by non-research tasks.³ This is not a marginal inefficiency — it is nearly half of the available capacity being siphoned away from innovation and problem-solving.

The Sources of the Drain

The administrative load comes from multiple directions:

- **Grant writing and management:** With typical NIH grant success rates hovering around 20%, scientists spend enormous amounts of time preparing proposals that are unlikely to be funded. Even successful grants usually last only three to five years, forcing a constant cycle of re-application and renewal.
- **Compliance and reporting:** Post-award requirements involve extensive documentation, financial reporting, and regulatory compliance—particularly responsibility associated with protections for animal and human subjects—that are handled by principal investigators or senior researchers in many labs.
- **Operational work:** In the absence of adequate technical support, researchers often perform tasks that do not require their level of expertise, such as logistical tasks, data handling, and animal/insect colony maintenance.
- **Infrastructure maintenance:** Threats to indirect funding put at risk the dedicated staff to maintain equipment, manage hazardous waste disposal, or oversee core facilities at schools that are key sources for the talent pipeline. Where colleges lack these staff, these responsibilities often fall to the scientists themselves.

The Innovation Penalty

Short grant cycles and an emphasis on publication metrics further skew research toward “safe” projects with predictable outcomes. Riskier, potentially transformative work — such as novel vaccine platforms or unconventional treatment strategies — often takes too long to yield results to fit within a three-year funding cycle.

This creates what some researchers describe as an “innovation penalty”: the more ambitious the work, the less compatible it is with the current funding model. The result is not only slower progress toward eradication, but also greater frustration for scientists who entered the field to solve big problems, not to maximize short-term publication counts.

Why This Fuels Leakage – and the Bottom Line

The task allocation crisis directly feeds the retention problem. When nearly half a researcher's time is spent on tasks that could be handled by specialized staff — and when the research they do manage to complete is constrained by short grant cycles and narrow publication incentives — the appeal of better-resourced positions in other disease areas or the private sector grows stronger. For early-career scientists, this reality can prompt an early exit; for mid-career professionals, it becomes the final push toward more stable, better-compensated roles elsewhere.

The discovery workforce is already small and under strain, and every hour lost to grant paperwork, compliance checklists, and other operational tasks is an hour not spent on the breakthroughs these diseases require. Unless the funding system is restructured to reduce administrative burden and provide adequate technical support, even the researchers who remain will be working at a fraction of their potential — undermining the field's ability to deliver the innovations needed for eradication.

The Funding Infrastructure Collapse

The discovery workforce cannot function without the research infrastructure that supports it — the labs, specialized equipment, core facilities, and expert staff that make high-level science possible. In global health R&D, this infrastructure is disproportionately concentrated in a small number of universities that combine world-class expertise with the physical and organizational capacity to sustain it. That foundation is now at risk of crumbling.

The Indirect Rate Crisis

For decades, the NIH has reimbursed top research universities for half or more of their “indirect” costs (i.e., the expenses that keep research running but fall outside direct project budgets). These include:

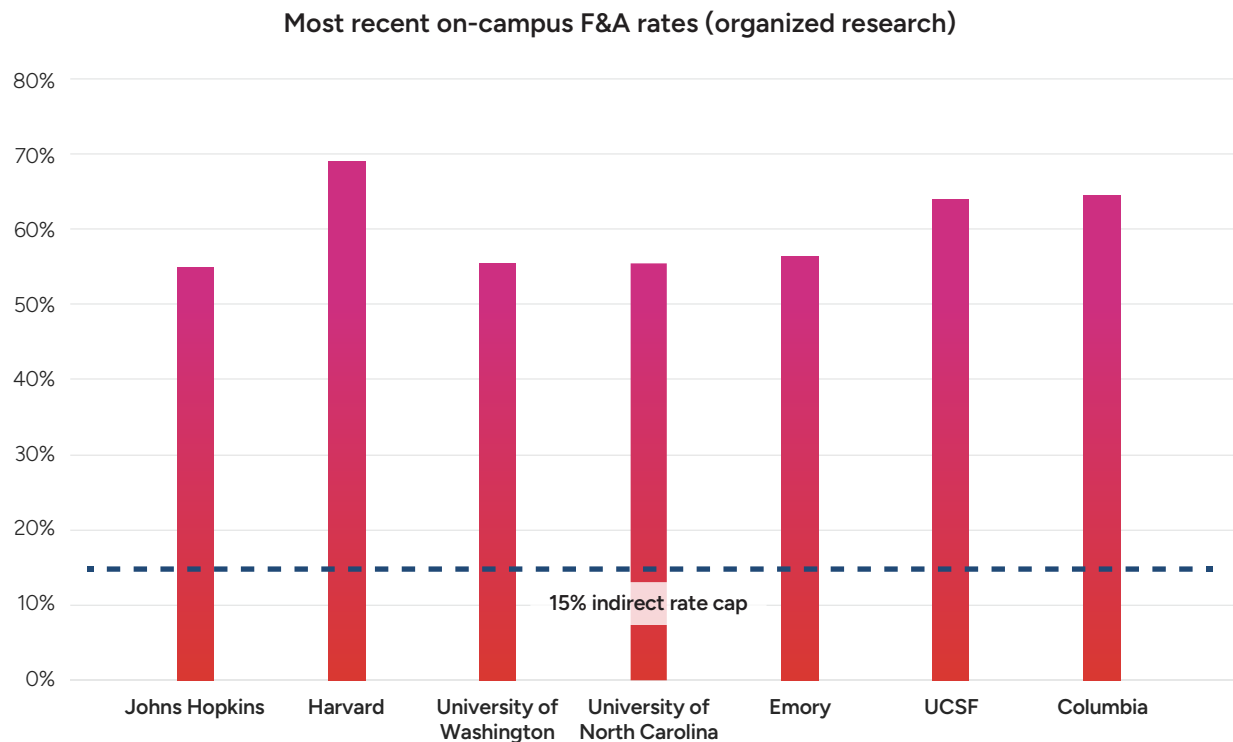
- Laboratory space, utilities, and building maintenance
- High-tech equipment purchase and upkeep
- Administrative and grant management support
- Hazardous waste disposal and biosafety systems
- Data storage and computing infrastructure

However, in February 2025, the NIH announced plans to cap indirect cost rates at just 15%. This would not be a simply budget trim; it would be a fundamental restructuring of how research is financed. For biomedical research on key diseases — which often requires animal facilities, specialized biosafety labs, and clinical trial infrastructure — indirect costs are especially high. Slashing this funding would mean universities must either find alternative revenue sources or scale back (and, in some cases, shut down) the facilities and programs that sustain discovery work. While attempts to push these cuts through appear to have paused, they have not been taken off the table.

The Institutions at Risk

The impact will be concentrated and severe. As discussed earlier in this report, half of the discovery workforce for priority diseases comes from just 1.8% of U.S. colleges; indeed, just 12 universities produce 20% of the entire workforce for HIV/AIDS, tuberculosis, malaria, polio, and malnutrition research. These include Johns Hopkins, the University of Washington, Emory, Columbia, UNC Chapel Hill, George Washington University, Harvard, Boston University, UC Berkeley, UCLA, the University of Michigan, and NYU.

Figure 24: Indirect-costs gap at key universities vs. proposed NIH cap



Source: Burning Glass Institute

Several of these institutions, including politically embattled universities like Columbia and Harvard, are already under financial and political pressure. Losing tens of millions in reimbursement of indirect costs could mean:

- Closure of specialized research facilities
- Reduction or elimination of shared equipment pools
- Loss of core technical staff who keep labs operational
- Increased direct charges to research grants for basic services

CASE IN POINT: WHAT A HIGH-FUNCTIONING TALENT HUB LOOKS LIKE

Many of the universities that produce the highest proportion of the discovery workforce for HIV/AIDS, tuberculosis, malaria, polio, and malnutrition combine strong reputations in global health with highly facilitative research environments. These institutions don't just attract students who are already interested in global health — they shape and retain them by offering:

- Stable access to **core facilities** tailored to key diseases.
- **Pilot funding** to support early-stage or high-risk research.
- Embedded **collaborative networks** across labs and disciplines.
- Regular **scientific convenings** that give early-career researchers visibility and professional connections.

Example: *The Malaria Research Institute at Johns Hopkins University*

- Provides pilot funding for malaria researchers.
- Operates within a network of 16 collaborating labs.
- Maintains three dedicated core facilities — including mosquito production and malaria parasite production units.
- Hosts events such as *Vector Encounter 2025*, alongside other specialized conferences for early-career scientists.

These strengths are often underpinned by substantial federal research funding with high indirect cost recovery rates, which sustain expensive biomedical infrastructure such as insectaries, biosafety labs, and advanced imaging platforms. The risk is clear: if indirect cost caps were to force these universities to scale back facilities, lay off technical staff, or close specialized cores, the entire discovery workforce pipeline for the five diseases would lose some of its most productive and well-connected nodes.

The USAID Shock and Broader Budget Cuts

The NIH cuts are not occurring in isolation. The closure of the United States Agency for International Development (USAID) and broader federal budget reductions are dismantling other parts of the ecosystem that feed the discovery pipeline. Teaching, mentoring, and lab-based training programs — especially those tied to global health — are losing funding, reducing the flow of new talent into the field and weakening the supportive networks that help retain it.

These trends degrade the research environment in ways that go beyond balance sheets. As the next section shows, they set in motion a self-reinforcing feedback loop — one in which infrastructure decline and workforce leakage make each other worse.

The Doom Loop:

Infrastructure Loss Meets Retention Risk

The retention crisis in the discovery workforce is being accelerated — and in some cases triggered — by the structural weaknesses in how research is funded, staffed, and supported. The two major drivers we have identified, the **task allocation crisis** (described earlier) and the **collapse of research infrastructure**, are tightly intertwined. Infrastructure decline magnifies the administrative and operational burdens scientists face; in turn, those burdens make it harder to retain talent, which further weakens infrastructure capacity.

Here's how the cycle works:

1. **Infrastructure deteriorates** — Budget cuts force universities to close facilities, lay off technical staff, and reduce shared equipment access.
2. **Operational work shifts to scientists** — Without support staff, researchers spend even more time on administrative and operational tasks instead of conducting research.
3. **Research time and satisfaction drop** — The proportion of time spent on high-value scientific work shrinks, morale declines, and frustration grows.
4. **Experienced talent leaves** — Better-funded disease areas or private-sector roles offer more resources, stability, and support, making the exit decision easier.
5. **Institutional capacity erodes further** — Departures reduce mentorship, institutional memory, and the ability to run complex projects, which, in turn, accelerates infrastructure decline.

The result is a self-reinforcing loop: fewer resources mean more burden on scientists; more burden drives departures; departures further reduce capacity to win and manage funding, which deepens the resource gap.

Without intervention, this cycle risks hitting a tipping point where even well-funded projects cannot find or keep the talent needed to deliver breakthroughs. The next section outlines how protecting infrastructure and restoring research time can break this feedback loop.

Solutions:

Making Research Careers Sustainable

The discovery workforce for HIV/AIDS, tuberculosis, malaria, polio, and malnutrition is too small, too concentrated, and too fragile to withstand continued leakage and infrastructure decline. The good news is that the drivers of this crisis are identifiable — and solvable — with targeted interventions that improve retention, increase productivity, and stabilize the research environment.

These solutions directly map to the core problems outlined above: the task allocation crisis, the collapse of research infrastructure, and the need to compete for and retain talent in a tight global market for scientific skill.

1. Reduce Administrative Burden and Restore Research Time

The clearest, fastest-acting way to improve retention is to give scientists back the time they were trained to use on discovery. Today, nearly half of that time is consumed by grant paperwork, compliance checklists, and operational chores — a misuse of scarce, highly skilled talent.

Three changes can make an immediate difference:

- **Hire dedicated grant and compliance staff** so that principal investigators and research teams can spend more time on science and less on paperwork.
- **Build shared technical support pools** for lab maintenance, equipment calibration, and essential but routine work — from mosquito colony upkeep to biosafety protocols — so that PhD-level researchers aren't doing tasks that trained technicians can handle.
- **Streamline federal reporting requirements** by using standardized formats and allowing multi-year reporting for long-term projects.

These steps tackle the task allocation crisis head-on, increasing the proportion of time scientists spend on high-value research and reducing frustration that drives them out of the field.

2. Protect and Strengthen Research Infrastructure

The Funding Infrastructure Collapse section makes clear that without functioning labs, core facilities, and technical staff, even the best researchers cannot deliver breakthroughs. Protecting this capacity is as important as hiring the scientists themselves.

Options include:

- **Pursue policy options to protect budgets** for high-infrastructure research fields, or secure carve-outs for global health discovery work. (Philanthropy can also play a role by reducing restrictions in its funding to offset new federal caps.)

- **Create emergency bridge funding pools** for top workforce-producing institutions to keep core facilities running and staff employed during funding transitions.
- **Invest in shared regional facilities** that multiple institutions can access, reducing duplication while maintaining high-quality capacity.

Stabilizing infrastructure boosts productivity and makes roles more attractive to early- and mid-career scientists, who are more likely to stay if they have access to the tools and facilities they need.

3. Close the Early-Career Conversion Gap

Many scientists who ultimately enter key discovery roles do so four to five years after graduation, often after working in adjacent fields. This “conversion gap” is a high-risk period for losing talent to competing disease areas or higher-paid industry jobs.

Interventions to shorten this gap and anchor early-career scientists in the field could include:

- **Funding targeted fellowships and “on-ramp” programs** that place recent graduates directly into key discovery roles.
- **Pairing early-career hires with structured mentorship and clear promotion pathways**, increasing the likelihood they build long-term careers in the field.
- **Offering retention bonuses or loan repayment programs** for graduates who remain in key roles for five years or more.

Early anchoring is one of the most cost-effective ways to reduce leakage before it starts.

4. Compete With Better-Funded Disease Areas

Funding disparities are a major pull factor drawing researchers out of the five target diseases. To keep high-demand roles filled — from molecular biologists to clinical trial managers — global health discovery work must be competitive.

Options include:

- **Match or exceed salary offers** from competing fields for high-demand roles like epidemiologists, molecular biologists, and clinical trial managers.
- **Create multi-disease “joint appointments”** that allow researchers to split time between a key disease and a better-funded area, ensuring they remain in the global health ecosystem.
- **Expand targeted grant programs** for high-risk, high-reward projects in these five diseases to attract ambitious researchers.

5. Build a More Diverse, Resilient Talent Pipeline

Long-term sustainability depends on drawing from the widest possible pool of talent — including groups underrepresented in the current workforce. Socioeconomic barriers and uneven institutional sourcing leave valuable potential untapped.

Opportunities to support the talent pipeline include:

- **Investing in scholarships and pathway programs** for students from low-income backgrounds and underrepresented groups to enter advanced degree programs in relevant fields.
- **Partnering with international universities** to diversify workforce sources and reduce over-reliance on a small number of U.S. institutions.
- **Supporting mid-career reentry programs** to incentivize scientists who have left the field to return.

Evidence shows targeted recruitment works:

- Undergraduate research experiences and curriculum improvements boost STEM retention (Barlow & Villarejo, 2004; Pender et al., 2010; Slovacek et al., 2012).
- Programs like Meyerhoff Scholars have produced disproportionate numbers of underrepresented minorities who go on to earn STEM PhDs (Maton et al., 2009).
- Minority-focused summer research programs see more than 60% of participants enter graduate school.

In practice, this would involve:

- Funding scholarships, stipends, and loan repayment for low-income and underrepresented students entering relevant PhD and MD-PhD fields.
- Supporting undergraduate summer research programs and early-exposure lab placements in key disease areas.
- Partnering with top-producing universities to expand proven cohort-based models (e.g., Meyerhoff).
- Creating targeted outreach to underrepresented male students, who remain a minority in the current discovery workforce.

6. Extend Funding Horizons

Short grant cycles force scientists into a constant scramble for renewal, skewing research toward “safe” projects with near-term outputs. Extending funding horizons removes this constraint and allows for more ambitious, potentially transformative work.

Practical steps:

- **Shift from three-year to five-year grant cycles** for complex, long-term discovery projects, reducing the frequency of funding cliff risks and giving researchers more stability.
- **Incorporate milestone-based renewal mechanisms** that reward steady progress without forcing a full reapplication process every cycle.

Longer horizons make it possible to take the intellectual and technical risks needed to achieve breakthroughs.

FLEXIBLE, LONGER-TERM FUNDING AS A MODEL

One model to consider is the Howard Hughes Medical Institute Investigators initiative's flexible, long-term grant program. Research on scientific grant funding (Azoulay & Li, 2020) shows that well-designed, less restrictive grants are especially effective for supporting early-stage and exploratory science, enabling investigators to take risks and pursue innovative directions without the constant burden of securing new funding. By reducing administrative requirements, offering stable multi-year support, and targeting established researchers in HIV/AIDS, tuberculosis, malaria, polio, and malnutrition, funders in this space could remove major barriers to productivity and significantly increase the quality and impact of research.

The Payoff

These measures are not just about keeping scientists in their jobs. They are about preserving the capacity to end major global health threats. By reducing administrative drag, protecting infrastructure, competing effectively for talent, and offering more stable career paths, we can reverse the leakage trend and build a workforce capable of sustaining breakthroughs until these diseases are eradicated.

Solutions Map: Breaking the Feedback Loop

Core Problem	Impact on Workforce	Targeted Solutions
Task allocation crisis (Scientists losing up to 44% of research time to administrative and operational tasks)	Lower productivity, frustration, early exits	• Reduce administrative burden and restore research time; • Extend funding horizons
Collapse of research infrastructure (Threatened indirect cost cap, USAID closure, facility shutdowns, loss of technical staff)	Loss of capacity, degraded work environment, increased operational burden on scientists	• Protect and strengthen research infrastructure; • Reduce administrative burden (through technical support pools)
Early-career conversion gap (4-5 year delay before many graduates enter key roles)	Adjacent talent lost to other sectors or disease areas	• Close the early-career conversion gap; • Build a more diverse, resilient talent pipeline
Competition from better-funded fields (Salary and resource gaps, especially in cancer, Alzheimer's, etc.)	Mid-career leakage to other disease areas	• Compete with better-funded disease areas; • Extend funding horizons
Narrow & uneven talent pipeline (Overreliance on a few US universities, underrepresentation of men and low-income backgrounds)	Vulnerability to shocks, underused talent pools	• Build a more diverse, resilient talent pipeline; • Close early-career conversion gap

Conclusion:

Holding the Line on Discovery Capacity

The fight against HIV/AIDS, tuberculosis, malaria, polio, and malnutrition will not be won through a single breakthrough. Instead, it demands the steady, sustained work of a highly specialized discovery workforce. Today, that workforce is too small, too concentrated, and too fragile to absorb the losses it is experiencing. The problem extends beyond a narrow funnel of talent entering the field. The more significant challenge is the 85% who depart within five years, often drawn away by better-funded disease areas or opportunities in the private sector. We have identified the core drivers of this attrition: scientists spending nearly half their time on non-research tasks, the erosion of research infrastructure, and a funding environment that prioritizes short-term outputs over long-term impact.

These forces are not acting independently. They compound and amplify one another, collectively pushing the discovery workforce toward a critical juncture. Continued attrition risks eroding institutional capacity, mentorship networks, and decades of accumulated expertise that cannot be rapidly rebuilt.

The necessary interventions — reducing administrative burden, protecting research infrastructure, closing the early-career conversion gap, competing effectively with other fields, expanding diversity pipelines, and extending funding horizons — are well-defined and achievable. Implementation would not only retain more scientists but enhance both productivity and job satisfaction in these roles.

The timing of these interventions matters. Delays risk narrowing the window for preserving discovery capacity. Yet the solutions remain achievable if pursued now.

Appendix

Methodology

Identifying Key Roles

We defined the target population as individuals working in scientific or technical roles directly related to R&D efforts around five major global health diseases: HIV/AIDS, malaria, tuberculosis, malnutrition, and polio.

SEARCH AND CLASSIFICATION PROCESS

- **Search strategy:** We used targeted keywords for each disease in job descriptions and profile headline summaries to identify potentially relevant records.
- **Classification approach:** A large language model (LLM) was applied to evaluate whether each profile met the relevance criteria.
- **Inclusion criteria:** Roles had to be focused on scientific discovery or technical research (e.g., vaccine trials, basic laboratory research, lab management, technical project management).
- **Exclusion criteria:** Roles centered primarily on healthcare delivery, non-technical work, or unrelated functions (e.g., clinicians, administrative staff, HR, legal) were excluded.

Skills Analysis

We identified online job postings relevant to one or more of the five target disease areas by searching for disease-specific mentions in the job description text. For each posting, we extracted associated skills and applied statistical and natural language processing techniques to:

1. Calculate the frequency and relative importance of each skill by disease area.
2. Track changes in skill demand over time based on the posting year, allowing us to identify emerging and declining competencies.

Peer Group Definition

To create a comparison baseline, we constructed a “peer” group of individuals who have never worked in key roles but share core professional characteristics with those in key roles.

Inclusion requirements:

- Match to at least one relevant profile on both:
 - Sub-occupation (using standardized job classification codes)
 - Field of academic study

This approach ensures the peer group reflects comparable educational and occupational backgrounds, enabling more meaningful analysis of career trajectories and sector transitions.

Selection Logic: Major–Occupation Combinations

Our analysis of career patterns focuses on common field-of-study and occupation pairings among high-achieving professionals. We restricted the universe of analysis to individuals meeting **both** of the following criteria:

Institution attended: One of the following top universities:

- Johns Hopkins University
- University of Washington – Seattle
- University of North Carolina at Chapel Hill
- Harvard University
- University of California – San Francisco
- University of California – Los Angeles
- University of California – Berkeley
- University of Pennsylvania
- University of Michigan – Ann Arbor
- Columbia University in the City of New York

Field of study: One of the following top majors:

- Medicine
- Pharmacy
- Biology/Biological Sciences, General
- Public Health, General
- International Public Health / International Health
- Epidemiology and Biostatistics
- Philosophy
- Business/Commerce, General
- Microbiology and Immunology
- Public Health, Other

These filters improve comparability across individuals and strengthen the reliability of observed patterns in educational and career trajectories.

Mapping Transitions to Competing Disease Areas

To identify the disease areas that attract talent leaving key roles:

1. We isolated each individual's **most recent experience in a key role**.
2. We identified their **first subsequent role** with a start date after the end date of their tenure in a key role.
3. We scanned job titles and descriptions for keyword matches to specific health domains (e.g., cancer, HIV, diabetes, TB, cardiovascular disease, malnutrition).
4. We aggregated results to determine the share of individuals moving into each disease area.

This process allowed us to quantify the most common “destination” domains — and, by extension, the most significant competitors for global health discovery talent.

Endnotes

¹ <https://www.unaids.org/en/resources/fact-sheet>

² Nguyen, Mytien, et al. "Socioeconomic Diversity in Admissions to MD-PhD Programs, 2014-2019." *JAMA Network Open*, vol. 7, no. 3, Mar. 2024, doi:10.1001/jamanetworkopen.2024.1951.

³ <https://thefdp.org/wp-content/uploads/FDP-FWS-2018-Primary-Report.pdf>

