

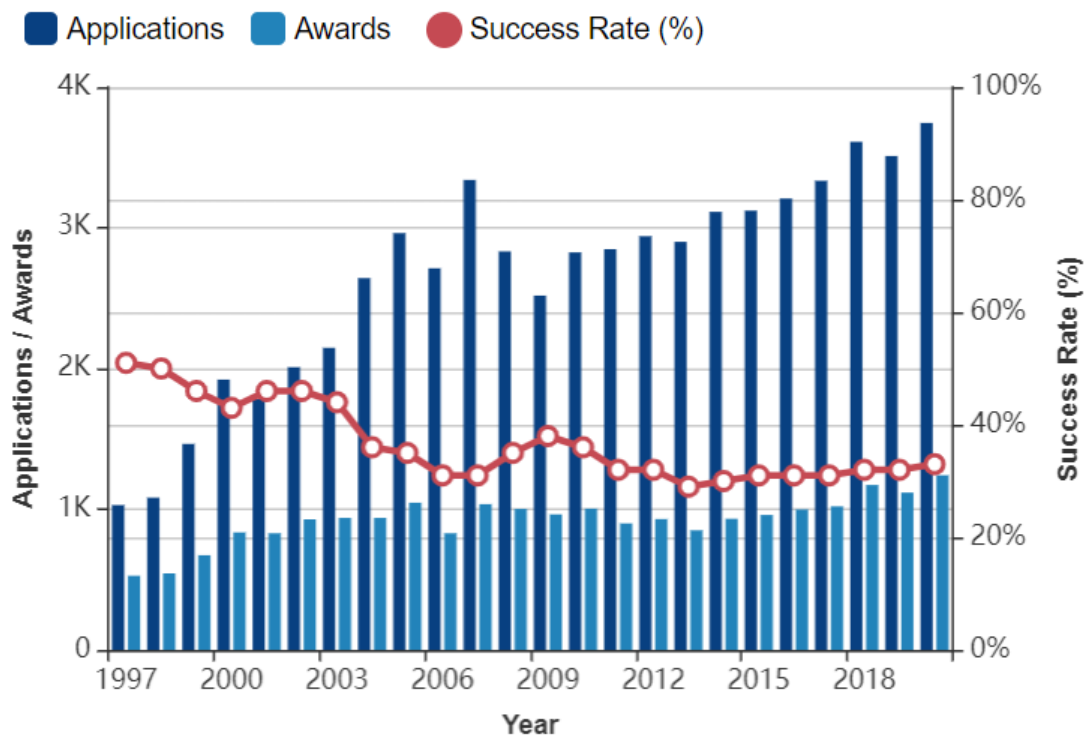
**EARLY CAREER PHYSICIAN-SCIENTIST SUPPORT**

Dear Senators Ed Markey (D-MA) and Thom Tillis (R-NC), and representatives Diana DeGette (D-CO-1) and Fred Upton (R-MI-6),

The below proposed bill directly addresses the endangered species phenomenon of physician-scientists, the cohort that will lead to new cures and preventions for tomorrow and keep us competitive with other nations. For example, China, invested [\\$322 billion in science funding in 2019](#), with early data from NSF suggesting [China has surpassed the US in research and development funding](#).

Physician-scientists carry out both research and provide patient care, enabling them to move forward insights on how to better address their patients’ diseases through research. Physician-scientists are considered an endangered species, representing only 1.5% of the biomedical workforce (Jain et al 2019). They have provided innumerable contributions to biomedical innovations, new life-saving therapies, and disease-preventive strategies (Sarma et al 2019). They have made up 37% of Nobel Laureates over the past 25 years and 41% of Lasker Award winners over the last 30 years (NIH, 2014). Transitioning from the resident, fellow to junior faculty career stages is the leakiest part of the physician-scientist pathway.

Those who are able to obtain career development awards such as NIH K08s and K23s are more likely to obtain independent research grants such as NIH R01s and stay in research. Additionally, more physician-scientists were successful in achieving independent funding during the NIH budget doublings (1998-2003) and (2004-2016) (Nikaj et al, 2019). However, due to the stagnation of the NIH budget, the number of applications for career development awards have increased and subsequently, the success rate has decreased, leading to good science not being supported:



Source: NIH IMPAC, Success Rate File (last updated March 2021)

Due to COVID-19, there has been an unprecedented delay and drop in research productivity due to halted studies, delegating research time to cover COVID-19-related clinical duties and reduction of funding opportunities by specialty foundations as a result of revenue loss due to the pandemic (Levine et al 2020, Wade et al, 2020). These have further threatened physician-scientists (Rao RC et al, 2021). Additionally, due to stalled research due to the pandemic, progress in addressing other diseases have been interrupted hindering the development of new therapies/prevention strategies for other conditions such as cancer and heart disease. (Figure 1).

## The leaky physician-scientist pipeline

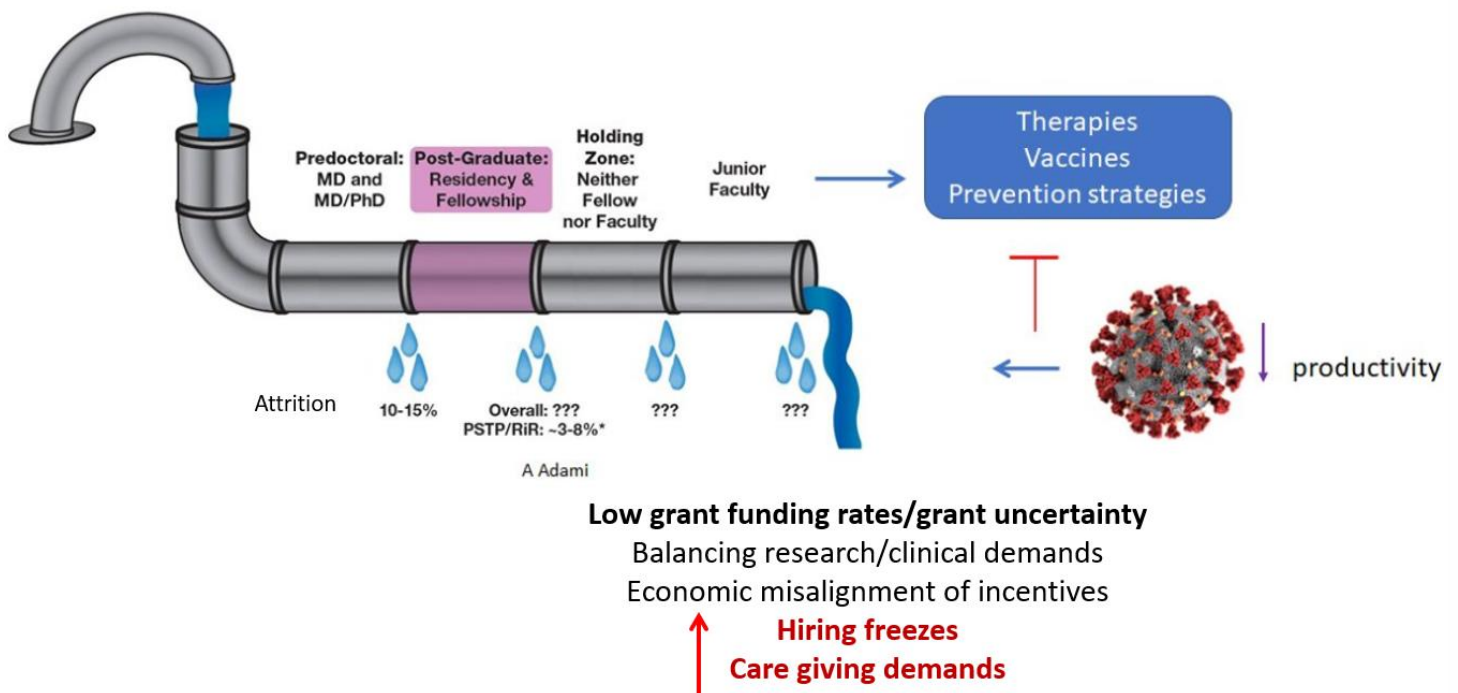


Figure 1: Leaky pipeline of physician scientists

The pandemic and the health sequelae are a threat to national security. Physician-scientists are poised to tackle these health challenges. To avoid losing a generation of physician-scientists, we propose

- An addition to the RISE act to support physician-scientists over the next 6 years in response to COVID-19 (**with plans to renew/continue it indefinitely**) for those who are graduating into the workplace (or those who are in their instructor/assistant professor positions) to enable the nation to "buy/secure" the research time of physician-scientists if they are planning on performing >50% research.
- Bill to support physician-scientists which will enable longterm support and investment

Ultimately, this effort aims to enable physician-scientists to stay in research careers. The major reasons for leaving research include the inability to obtain research funding, disparities in salaries between research track physician-scientists and full-time clinicians, and increased financial obligations during this time of life. Substantial investment has already been placed in physician-scientists during their early research and medical training years with significant expertise already acquired. An emergency bill that ensures continuing financial support for physician-scientists through these later stages of their training will protect against a lost return on investment.

We suggest that these components be added to the RISE act to address this urgent threat to physician-scientists:

Physician-scientist bridge funding candidate criteria:

- Demonstrates a research track record (i.e. performed dedicated research during medical training and/or obtained MS, MPH, PhD in addition to their MD/DO training)
- Plans to perform >50% research in their faculty position
- A trainee in residency/fellowship or an instructor/assistant professor who has not received a career development award

Candidates can be supported for a maximum of 3 years on this fund. They are encouraged to apply for research funds, and if they receive a grant that equals the salary of 100k, they will come off bridge funding.

This funding will have a base of \$100K/yr for a maximum of 3 years (covering 50% of their salary) for each graduating/early career physician-scientist. An additional \$50K/yr will be provided to the department for research and administrative support for the physician-scientist.

There are 3000-7000 trainees in this early-career pool based on the number of MD/PhD trainees in the country (AAMC, 2020 <https://www.aamc.org/media/8231/download>) and number of medical trainees intending research intense careers (Kwan JM, 2017 and Kwan JM 2020). Thus, the proposed budget is **\$1 billion/year**, a nominal amount given the importance of their research contributions. In addition, safeguarding our physician-scientists is a matter of public health, national security, innovation, and staying ahead of the curve on the international front. Additionally, in order to retain physician-scientists in research careers, increasing grants (NIH K and R01) dedicated to this cohort is needed. For example, physician-scientists with outstanding research projects are geared toward elucidating disease causes and how to address them that are not being funded because of low funding rates. To address this, part two of this bill will be to **increase NIH grants that are open only to physician-scientists by at least 30%**.

## Amendments to RISE act &

## Early Career Physician scientist support bill

### 3 year Bridge funding

Demonstrate a research track record, ie (performed dedicated research during medical training and/or obtained MS, MPH, PhD in addition to their MD/DO training)

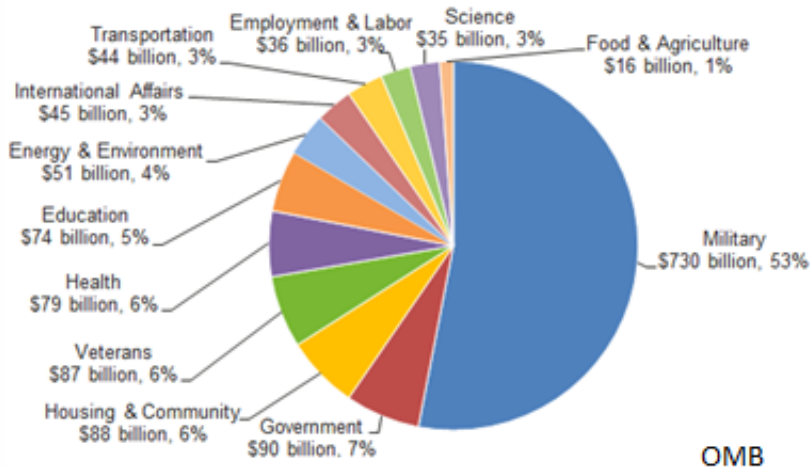
Research track faculty position. Instructor or assistant professor who does not have a career development award yet

Base fund of 100k/year for 3 years max (buys 50% of their time) for each graduating/early career physician-scientist.

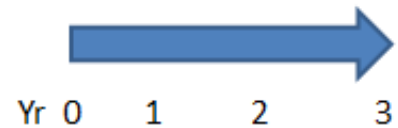
Additional \$50K/year will be provided to the department for research and administrative support for the physician-scientist

### Increase \$ funding by 30% K, R01s dedicated to physician scientists

Federal Discretionary Spending, FY 2019  
\$1.38 trillion



OMB



Terminal training Grad

For more permanence, in addition to the RISE act, we need a bill with similar components for ongoing dedicated physician-scientist support.

Thank you for your consideration of this crucial support for our physician-scientists.

Signed:

The American Physician Scientists Association (APSA) Executive Council, Committees and Board of Directors

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