CAMB Student Newsletter

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In this issue

Letter from the Editors

Dear CAMB students, faculty, and alumni,

In this issue of the CAMB Student Newsletter, we highlight Dr. Siddharth Kishore's work on *GATA6* mutations in pancreas agenesis (DSRB, 2020 graduate) and chat with CAMB alumna Dr. Neha Pancholi about her path to becoming a science writer. We also report on Philly's pest with a dangerous appetite (the Spotted Lanternfly) and debut our new Opinion section with James Gesualdi's investigation into Penn, PILOTs, and educational equity. Finally, we say thanks to our Unsung Heroes - the custodial staff members, café employees, delivery personnel and security guards - who keep Penn and CHOP operating during these difficult times.

For additional articles and past publications, and to learn more about the CAMB Student Newsletter team, visit our blog at camb-newsletter.wix.com/blog. Current students interested in contributing to the CAMB Student Newsletter can contact us at camb.studentnews@gmail.com.

We hope you enjoy the November 2020 issue!

Sincerely,
Hannah Kolev and Sylvia Stankov
Editors-in-Chief

Research Spotlight

A Novel Single Nucleotide Polymorphism in Conjunction with Mutations in *GATA6* Contribute to Pancreas Agenesis

Somdutta Mukherjee

The pancreas plays a critical role in regulating blood glucose levels by secreting glucagon when blood glucose is low and insulin when blood glucose is high. Disruption of glucose homeostasis leads to diabetes, a disease that is increasingly prevalent worldwide. Although most cases of diabetes are classified as either "type 1" or "type 2", rare instances occur in which a developmental failure leads to pancreas agenesis (PA). Those born with PA do not have a pancreas and subsequently develop neonatal diabetes along with impaired pancreatic exocrine function. Most commonly, PA is caused by heterozygous mutations in the *GATA6* gene, but the mechanism by which these mutations lead to PA remain largely unknown.

Siddharth Kishore, a graduate of the Developmental, Stem Cell, and Regenerative Biology subprogram, focused his thesis work on understanding the role of GATA6 in PA development, and recently published his findings in *Cell Stem Cell*. As his model for this study, Sid employed human pluripotent stem cells (PSCs). PSCs, including embryonic stem cells (ESCs) and induced pluripotent stem cells (iPSCs) give rise to all cell types and allow the study of human development and disease. As an added bonus, PSCs are easily manipulated using genome editing technologies such as CRISPR/Cas9, making them valuable for studying the role of specific genes in development and disease.

Sid, who completed his thesis work in Dr. Paul Gadue's lab at CHOP, utilized an iPSC line derived from a PA patient with a four base pair duplication in one allele of *GATA6* ($iPS^{+/mut}$), with the ultimate goal of understanding how this particular mutation affects pancreas development. The mutation was corrected using CRISPR/Cas9 technology to generate a wildtype isogenic control line ($iPS^{+/+}$). To validate his results, Sid introduced the same four base pair duplication into a second genetic background, the Mel1 ESC line ($Mel^{+/mut}$) and utilized the unedited Mel1 ESC line as a wildtype isogenic control ($Mel^{+/+}$).

Once the lines were generated, Sid differentiated the stem cells into pancreatic progenitors (PP). As expected, both $iPS^{+/mut}$ and $Mel^{+/mut}$ differentiated less efficiently to the PP stage than their wildtype counterparts ($iPS^{+/+}$ and $Mel^{+/+}$, respectively). Interestingly, the corrected $iPS^{+/+}$ line generated the same amount of PP cells as the mutant $Mel^{+/mut}$. This pattern correlated with GATA6 expression: $iPS^{+/+}$ and $Mel^{+/mut}$ PP cells had similar GATA6 levels while $iPS^{+/mut}$ cells had even lower GATA6 levels. Several other pancreatic markers showed a similar pattern, suggesting that the GATA6 mutation causes a defect in pancreas development.

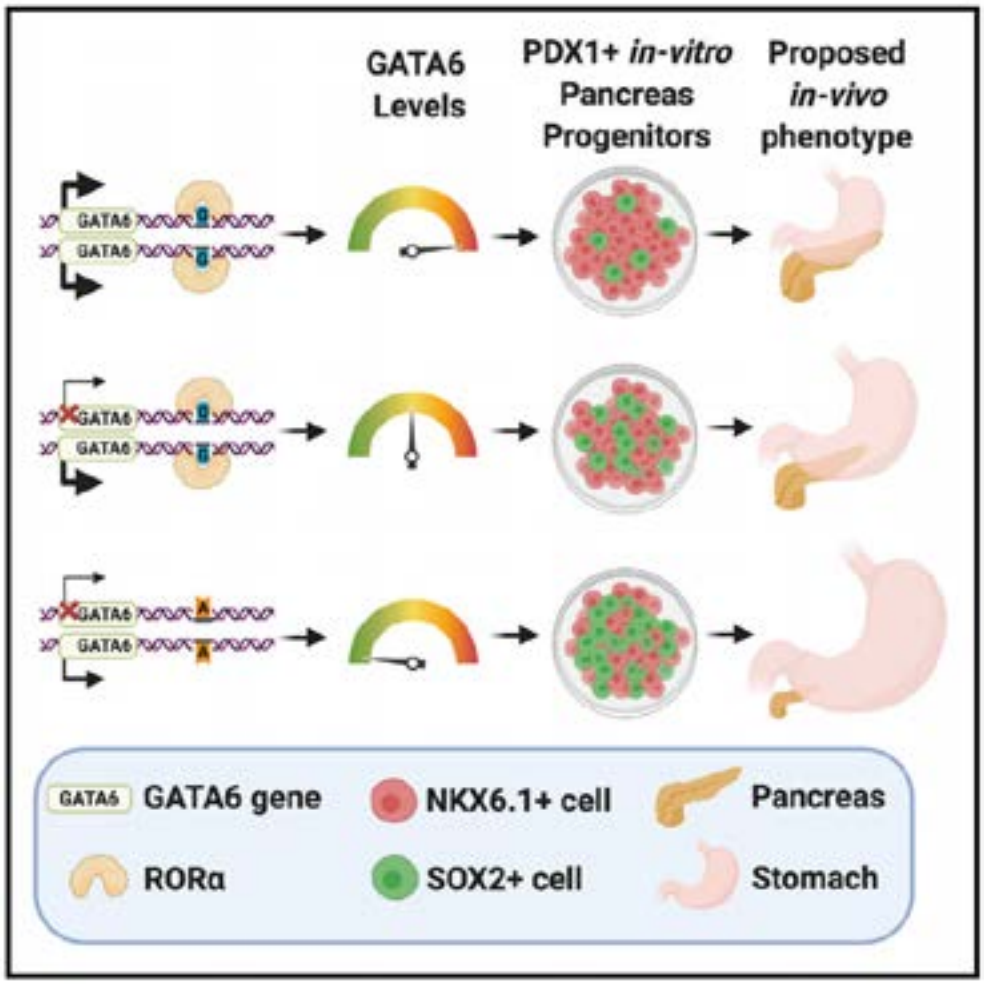
Interestingly, Sid also observed that PP cells from both the $iPS^{+/mut}$ and $Mel^{+/mut}$ lines had increased expression of *SOX2* and *IRX2,* two genes involved in stomach development. Moreover, the levels of *SOX2* and *IRX2* were significantly higher in the $iPS^{+/mut}$ line than in the $Mel^{+/mut}$ line. These findings suggest that in addition to the known duplication in *GATA6*, this iPSC line may harbor another genetic mutation that also impacts pancreas development.

To identify this second mutation, Sid explored non-coding regulatory regions and discovered a single nucleotide polymorphism (SNP) downstream of the *GATA6* gene. The iPSC line was homozygous for the minor allele A at this SNP, and the Mel1 ESC line was homozygous for the major allele G. This SNP was not linked to the mutation in the *GATA6* coding region. He examined sequencing data available from additional PA patients and found that they also carry the minor allele A. Interestingly, when the minor allele was on the allele opposite of the *GATA6* mutation (i.e. in trans), there was an even greater risk of PA.

Dr. Siddarth Kishore

To examine the effect of this SNP on PP cell generation, Sid introduced the minor allele A into the Mel1 ESC line. He saw that wildtype ESCs with the introduced minor allele ($Mel^{+/+ | A/A}$) had lower GATA6 levels and produced fewer PP cells than $Mel^{+/+}$ cells with the major allele. ESCs with both the introduced *GATA6* mutation and minor allele ($Mel^{+/mut | A/A}$) had even lower GATA6 levels and generated even fewer PP cells than the $Mel1^{+/+ | A/A}$ line. Additionally, $Mel^{+/+ | A/A}$ PP cells displayed increased expression of the stomach-related genes *SOX2* and *IRX2* when compared to $Mel^{+/+}$ PP cells; in $Mel^{+/mut | A/A}$ cells, this increase was even higher. Together, these results suggest that this particular mutation in *GATA6,* along with the SNP in the regulatory region, may cause a defect in pancreas development. Furthermore, this developmental defect may be due to a switch in cell fate from pancreas to stomach, as seen by the increased expression of stomach-related genes in the mutant pancreatic progenitor cells.

Finally, to determine the functional impact of the SNP, Sid looked for transcription factor binding domains present in this genomic region. He found that the G>A change at this SNP may potentially disrupt a RORα binding site. RORα is a transcription factor previously suggested to function during pancreas development. Sid examined the ability of RORα to bind this site and found that RORα bound less efficiently in the cell lines with the introduced minor allele ($Mel^{+/+ | A/A}$ and $Mel^{+/mut | A/A}$). He next added a RORα inhibitor during differentiation and observed reduced GATA6 levels and deceased PP cell yield in lines with the major allele; no effect was seen in lines carrying the minor allele. Sid's findings suggest that RORα binds to this regulatory region of *GATA6* only when the major allele is present, and in doing so, influences pancreas development. "I think it was really cool to find a non-coding genetic modifier for a rare disease using stem cells, and then test that hypothesis in a patient



Graphical abstract from Dr. Kishore's work on the identification of novel SNPs that affect pancreatic growth and development. [Kishore (2020) Cell Stem Cell.]

population. The fact that we could use genome editing to then dig deeper into the mechanisms was the icing on the cake!" Sid reflects.

In total, Sid's work identified a novel SNP in the non-coding regulatory region of *GATA6* and demonstrated that the minor allele of this SNP, in conjunction with a mutation in the *GATA6* coding region, leads to PA. Many PA patients exhibit mutations in *GATA6*, but the mutations have variable penetrance. Sid determined that many PA patients carry the minor allele SNP in *trans* with the *GATA6* mutation, explaining the varying degrees of severity of the disease. He hopes that expanding his observations to a wider cohort of patient pedigrees can move the field "to a point where [it can be incorporated] into genetic testing for family planning." In the future, Sid would like to identify direct targets of RORα to better understand its role in pancreas development, and to study the role of GATA6 in regulating cell fates. "I find it very interesting that GATA6 almost acts like a morphogen, in that levels of protein decide between [different] cell fates in the developing foregut," Sid says. The increased expression of stomach-related genes in *GATA6* mutants suggests that GATA6 is important for maintaining pancreas cell fate, but the mechanism of GATA6 function remains unclear. Sid's work gave insight into the biology of PA, and opened up exciting questions to be explored in further studies to enhance the overall understanding of pancreas development.

Alumni Spotlight
Neha Pancholi

Felicia Peng

As we think about our careers beyond graduate school, it's important to ask ourselves two questions: "What do I like about grad school?" and "What do I dislike about grad school?" For Dr. Neha Pancholi, a 2018 MVP graduate from the Weitzman lab, it was clear that she loved science communication. Neha loved learning about, talking about, and writing about science. Although she enjoyed discussing her research with others, she found herself wanting to learn more beyond the small niche occupied by her thesis project. Not surprisingly, Neha was ultimately drawn to a career in scientific writing. She now enjoys a position as a science writer for the American Association for Cancer Research (AACR). We had the pleasure of speaking with Neha about her experience as a science writer and her path to this career, which began largely as a co-founder of this publication, the CAMB Student Newsletter.

The following transcript has been condensed and edited for clarity.

Can you tell me about the organization you work for and your role within it?

The AACR is a nonprofit organization that supports cancer researchers through its mission to prevent and cure cancer. It publishes nine peer-reviewed journals and a magazine for patients and caregivers, funds research, and communicates with policymakers about the value of cancer research. The AACR also hosts international conferences on a variety of cancer research topics—the biggest conference is the AACR Annual Meeting, which usually hosts over 22,000 people.

I'm a science writer in the Communications and Public Relations department, and I primarily write scientific press releases for the media and articles for the AACR blog. The blog is directed toward both scientists and non-scientists, while the press releases are written for journalists. My job is to write about the latest topics in cancer research, including

research published in our journals and studies presented at our conferences. This often involves reaching out to prominent researchers to talk about their area of research or interviewing the scientists behind a particular research article.

Some of the articles I write are intended for a scientific audience, while others are meant to be lay-friendly. The topic, approach, and language I use for each piece vary depending on the intended audience.

What does a typical day as a science writer look like? How would you describe the pace of your job?

> **"Everyone coming out of CAMB is going to have a paper or two, but can you also write in a format different from a primary research article? Can you write a review? Can you write things that are more lay-friendly?"**

The first hour of my day is usually spent reading science news, since a big part of my job is being knowledgeable about the latest advances in cancer research and medicine. After that, it varies day-to-day. I have three regular meetings each week. One of these meetings is for the whole department to hear updates from each team. Another is with just my core team to touch base on what we're working on that week, bounce ideas off each other, and discuss any hurdles we might be facing in our projects. The third weekly meeting is to identify newsworthy studies to highlight through the blog or press releases.

Then I'll usually write, or conduct an interview with someone I'm writing a blog post or press release about. I may also be revising a piece, reading a paper, reviewing journal or meeting abstracts to identify exciting studies, preparing questions for an interview, or doing background reading on a topic I'm not as familiar with.

The workload is quite manageable for the most part. Of course, there are some days that are busier than others, but in general I get to work at my own pace, and I seldom work outside the normal 9-to-5 workday. Not all writing jobs are like this, though. Before this job I was in a medical writing position, writing videos and podcasts for pharmaceutical companies, which required longer hours and was extremely fast-paced.

When and how did you know scientific writing was a career path you wanted to pursue?

During grad school, I realized what I enjoyed most was putting together posters and presentations, even though this was actually one of the things I found to be the most difficult about grad school. I liked the challenge of taking the science I worked on and finding a way to communicate it to someone else who didn't have the same background.

I have also always loved writing, even through high school and college. During grad school, I wrote a little bit for a science blog, participated in a couple of editing groups, and served as a reviewer for the Journal of Emerging Investigators, an online journal that publishes research from middle and high school students. These experiences were instrumental in exposing me to a variety of writing formats and styles.

However, what I really wanted to do was write about the science going on at Penn. That opportunity really didn't exist when I was in grad school, so I ended up starting the CAMB Student Newsletter and serving as an Editor-in-Chief. Writing and editing for the newsletter really solidified my decision to pursue science writing as a career. I enjoyed the experience of reading and learning about diverse fields of science, then writing about them in a simple way that a non-scientist or someone without a PhD could understand.

Is a PhD required for your position? How has your degree helped you in your current work?

For the specific science writing position I hold, a PhD in biomedical science is required, but there are other science writing roles within the AACR that require different expertise and experience. We all bring our own

perspective and expertise to the table, which is really helpful and refreshing.

My training throughout grad school taught me how to understand scientific studies, ask the right questions about them, and see how they fit into the big picture. Before any conference, when we're deciding what topics to cover, we may review hundreds of abstracts within a matter of days. Being able to digest those quickly and understand their impact, especially when the topics may be outside your field of expertise, requires a strong scientific background.

We also cover talks during conferences. Part of my role is to attend meetings and write about them on the blog. Grad school definitely prepared me for understanding scientific talks and knowing which data need to be highlighted.

What do you think is most important for students who are gearing up for a writing career?

If you want to write, get writing experience. If you're a CAMB grad student, you should join the Newsletter team or something like it. Everyone coming out of CAMB is going to have a paper or two, but can you also write in a format different from a primary research article? Can you write a review? Can you write things that are more lay-friendly? Job applicants with diverse writing samples definitely stand out.

I would also say to expose yourself to things outside your area of research, whether that's joining a journal club, reading a science magazine, or talking with friends. I know that this can be difficult to do during grad school, especially early on when you're so focused on learning about your own project, but exposing yourself to other research is really helpful. This makes it easier to jump into something that's not your area of expertise. Once you have some level of familiarity with a topic, it's much easier to learn more about it than if you're starting from nothing.

I also learned a lot by reaching out to alumni, so use your network. That always sounds really intimidating, but it can be as simple as talking to a friend of a friend who ended up going down a career path that you're interested in. I have found that everyone is willing to talk about their experiences, and I learned so much just by hopping on the phone with someone for half an hour.

How did you learn how to write? Did you do any formal training in scientific writing?

Outside of high school and college English classes, I didn't have any formal training in writing. I learned a lot about scientific writing through postdocs in my grad school lab. Before I sent an abstract or paper draft to my PI, I would often have postdocs look at it. I also learned a lot from my PI's revisions.

I don't know if there's a way to get formal training, really. That's why I think just getting writing experience is key. The more you write, the better you get at it. You start to realize what works and what doesn't. It gets faster the more you do it, and the more things you write about.

A book that I really like is *Bad Advice*. It was written by Paul Offit, a physician at CHOP. He had some really interesting points in there about why science communication often fails. One thing he said that really stuck with me—and that I try to apply when I write—is that scientists often complicate any sort of statement they make, since they have been trained to say things extremely accurately. When you write a research paper, you have to be very specific and state exactly what you mean. When you write for the public, you're going to lose your message in doing that. Finding that balance between simplifying your message while keeping it accurate is critical.

What is the best thing about your job?

I think what I enjoy the most is how many different topics I'm exposed to. I love that in any given week, I might be reading or writing about a super basic study done in cell lines before switching over to writing about a clinical trial or an epidemiology study. Getting to learn about all these different topics and communicate that knowledge in creative ways is probably my favorite thing.

To learn more about the AACR and the content put together by its writing team, visit https://www.aacr.org/professionals/blog/.

Special Interest

The Spotted Lanternfly:

Philly's Pest with a Dangerous Appetite

Sarah Campbell

Moving from Baltimore to Philadelphia, I came to realize two absolute truths: city squirrels are fearless and will break into your apartment to steal your avocados, and Philadelphians are aggressive towards their bugs. In regard to the latter, I was walking to my first rotation lab in CTRB when I noticed the ground leading to the main entrance was littered with hundreds of insect carcasses. Sitting outside for lunch later that day, I quickly realized why. Everyone seemed to be going out of their way to violently stomp, squash, and kill these bugs en masse like a bizarre game of whack-a-mole. I passed it off as a quirky Philly thing. Now, a year later, I've joined in on the game and celebrate every successful squish (with only a twinge of guilt).

The spotted lanternfly (*Lycorma delicatula*), which is more closely related to the cicada than a fly, drives Philadelphians crazy, and rightfully so. At first glance, they are actually quite captivating. Their translucent forewings, speckled with Dalmatian-like black spots, are illuminated like a lantern by a second set of brilliant red wings nestled underneath. You can spot a flash of color as they fly clumsily through the air or hop lazily at your feet. They are perhaps best described by one Philly Reddit user as, "drunk little airplanes." These planthoppers are well-traveled, too; native to regions of China, Taiwan, Vietnam, and India, they invaded South Korea in 2004, Japan in 2009, and purportedly hitched a ride on a stone shipment from China to the U.S. in 2012. Since then, the first U.S. infestation was reported in 2014 in our very own backyard - Berks County, Pennsylvania. Today, there are established populations in over 26 Pennsylvanian counties, Delaware, New Jersey, and Virginia, with sightings in several bordering states. And of course, they are everywhere in the city (not even Chipotle is safe).

The pesky spotted lanternfly may seem harmless compared to the West Coast "murder hornet", but

A spotted lanternfly posing for a photo, caught at the Perelman School of Medicine campus.
Photo by Sarah Campbell

they threaten to destroy industries worth $18 billion and are being called by some as the worst invasive species the US has seen in over 150 years. It all starts with their appetite. Lanternflies possess needle-like mouthparts that can pierce into nutrient-rich, sap-containing plant phloem. Inefficient metabolizers with an insatiable sweet tooth, these bugs must ingest large quantities of the sugary sap throughout their entire lifecycle to secure enough nutrients for development and reproductive demands. The resulting depleted phloem

leads to weakened plants with oozing wounds and wilted branches, and their sticky excrement (aptly named, "honeydew") promotes sooty mold growth that causes permanent damage to their hosts. Perhaps fittingly, their preferred meal is also a destructive invasive species from China, but one that is widespread and abundant across North America: The Tree of Heaven (*Ailanthus altissima*). Yet, it is their promiscuous eating habits that are key to their destructive nature and set them apart from other invasive pests. Spotted lanternflies enjoy a wide host range of over 70 plant species, including fruit and hardwood trees, grape vines, and hops. These crops are vital to the nation's economy and directly threaten Pennsylvania's agriculture, wine, orchard, wood, and craft beer industries, to name a few. A 2020 Penn State report estimates current damages to Pennsylvania's economy at $50.1 million annually with a loss of nearly 500 jobs. If lanternfly populations spread to all 67 counties, the impact could be closer to $554 million per year with approximately 5,000 jobs lost [1]. Needless to say, these bugs mean business.

The Pennsylvania Department of Agriculture is doing everything in its power to slow down the spread of the spotted lanternfly and mitigate its imminent damage. Part of what makes this invader so insidious is its ability to travel with ease. An adult female can lay columns of 30-50 eggs on almost any smooth surface, which are then covered by a protective grey putty into a single egg mass. The in-

If you don't mind a few bugs,
Philadelphia is a lovely summer destination.

conspicuous color and shape make it very easy for egg masses to go unnoticed, say, on a slab of stone shipped across continents (sound familiar?). Adults can even hop on and cling to moving vehicles, potentially crossing into unchartered territories. In an effort to impede their travel plans, a quarantine was established in 2014 across all infested PA counties to restrict the movement of bug-friendly cargo between businesses, but this zone has continued to expand. Other containment strategies include host tree removal, scraping egg masses from infected surfaces, wrapping sticky traps around trees, and insecticide treatment. Unfortunately, these efforts are unlikely to keep up with the pace of lanternfly expansion in the long run.

Is there a light at the end of the tunnel? Well, maybe not a light, but definitely a lanternfly and a brighter future, nonetheless. In fact, the answer to fight this pest may be as simple as joining forces with its native enemy. With no natural predators in the U.S., spotted lanternfly populations are expanding at alarming rates. But, back home, lanternfly eggs and developing nymphs are food for parasitoid wasps that keep populations in check. Scientists hope to introduce lanternfly-killing wasps that are native to China to help combat the issue, employing a method called classical biological control. The USDA is currently studying the behavior and host specificity of two Chinese parasitoid wasps, *Dryinus browni* and *Anastatus orientalis*, to ensure the safety and efficacy of their release into the wild and avoid an ecological nightmare [2]. Back where it all started in Berks County, PA, reports of two dinct fungal pathogens capable of killing spotted lanternflies have researchers optimistic about another natural remedy [3]. There's also an exciting new training program at our very own PennVet that seeks to utilize dogs' powerful scent to track down spotted lanternfly egg masses [4]. Be on the look-out for one of the future trainees, a young German Shepherd named Lucky, who is set to become Pennsylvania's first Spotted Lanternfly scent detection dog.

Ultimately, it may be too late to fully eradicate this insect invader from our shores, but current management strategies and ongoing research could make our fears a thing of the past. So, what can you do to help? Stay informed, report sightings, check your car before driving, and most importantly, take this advice from the PA Department of Agriculture: "Kill it! Squash it, smash it… just get rid of it." Happy hunting!

For more information, check out the PA Department of Agriculture

To report a sighting, especially if you are outside of the quarantine zone, call 1-888-4BADFLY.

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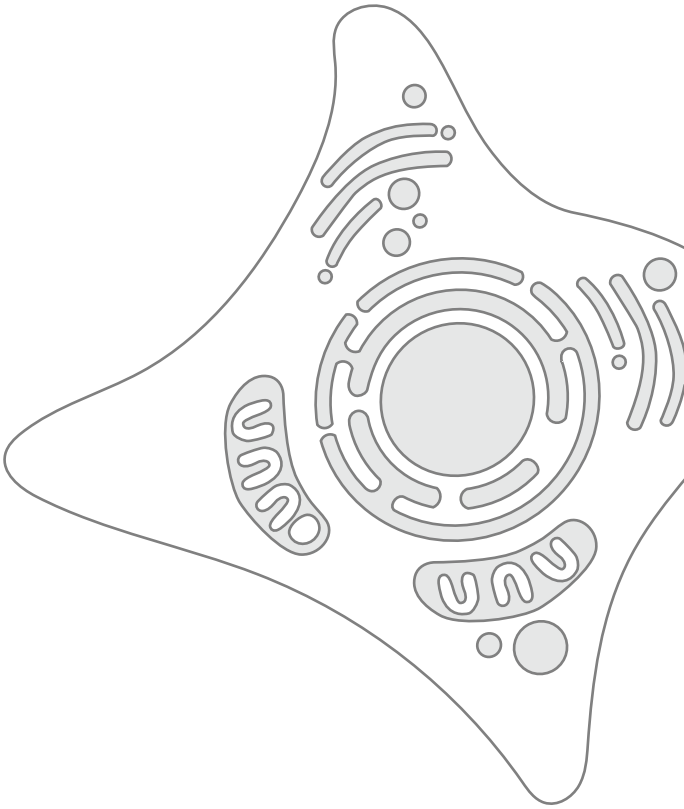

Eric Sucar, Penn's Office of University Communications

Opinion

Penn, PILOTs, & Educational Equity

James Gesualdi

The ongoing nationwide uprisings against police brutality and systemic racism have sent shockwaves through numerous institutions. Penn is no exception. In particular, Penn's exemption from property taxes and refusal to offer Philadelphia "payments in lieu of taxes" (PILOTs) has once again been raised by community organizations both on and off campus. One such group, Penn for PILOTs, has gathered over 1,100 faculty and staff signatures on a petition urging the University to commit to making annual financial contributions to an Educational Equity Fund administered jointly by the city and the school district of Philadelphia [1]. According to the group's website, this Education Equity Fund could be used to address a variety of growing problems for the city's public schools, such as shortages of teachers and librarians, cuts to physical and creative education, a lack of support services like bilingual staff and school nurses, and unmitigated health hazards in school buildings.

But how exactly did we get here in the first place? Why is Penn – the largest property owner and private employer in Philadelphia – exempt from paying property taxes [1, 2]?

Pennsylvania state law permits nonprofit institutions – such as universities and hospitals – to refrain from paying property taxes as a thank you for their role as "purely public charities". Nonprofits throughout the country enjoy similar exemptions. Despite this special designation however, many large nonprofits, including all universities in the Ivy League except for Penn, currently pay PILOTs to the cities in which they operate [3]. Our University's isolation from its peer institutions, as well as pressure from faculty, alumni, and Philadelphians in general, are bringing these issues to a head.

It hasn't always been this way; Penn spent several years in the late 90s contributing just under $2 million annually to the city at the behest of an executive order signed by then Mayor Ed Rendell [1]. Since 2000, however, the Board of Trustees has declined to continue these payments. When pressed for comments on the subject, University administrators tend to refer to Penn's many outreach programs in schools and other settings throughout the city, particularly those run by the Graduate School of Education and the Netter Center for Community Partnerships. One University spokesperson, Stephen MacCarthy, recently told the Daily Pennsylvanian that "we believe

that the depth of Penn's financial commitment and the breadth of programs we support has proven to be far more impactful than PILOTs have been in any city where such a program has been implemented."[4]

Penn for PILOTs, as well as undergraduate organizations such as the Student Labor Action Project and Police Free Penn, believe otherwise. Students and faculty cite widespread poverty throughout the city (Philadelphia is the poorest large city in the US) and assert that Penn's refusal of PILOTs despite ample wealth undermines its public mission of "fostering a vibrant inclusive environment and fully embracing diversity" [1]. In September, several professors held a virtual public press conference demanding that the University reverse its position on PILOTs. Based on research performed by Penn for PILOTs, these faculty are urging Penn to pay 40% of what it would owe in property taxes – a cool $36.4 million, or 0.3% of the $12.2 billion endowment – to the proposed Educational Equity Fund [1].

"Are [prestigious universities] operating as 'purely public charities' as their tax privileges suggest, or are they operating as large corporations, contributing to the gentrification and impoverishment of their neighborhoods?"

For context, other Ivy League Universities currently contribute several million dollars annually to their host cities. These figures range from $6 million by Cornell to $17 million by Yale. That said, activists in each of these cities have raised criticisms of these institutions for not doing enough to benefit their surrounding communities. The typical argument is that these payments are still too small of a fraction of these Universities' extremely generous endowments.

The debate surrounding PILOTs raises a fundamental question about the role of prestigious universities in general. Are they truly committed to fostering quality education in their communities? Are they operating as "purely public charities" as their tax privileges suggest, or are they operating as large corporations, contributing to the gentrification and impoverishment of their neighborhoods?

Philadelphia's public schools have been suffering for years. Dozens are still full of health hazards like lead paint or asbestos, and years of budget cuts have led to frequent school closures, high student to teacher ratios, and gaps in critical student services: issues that have become even more pronounced as schools struggle to switch to virtual learning. This controversy extends well beyond our academic community. Thousands of Philadelphians are speaking up to urge our University to take a leading role in mitigating these inequities.

University administration now has an opportunity to make a bold contribution toward economic justice. If Penn decides to contribute PILOTs to the city, Temple and Drexel will almost certainly follow suit. In the context of the impending economic recession as well as novel educational challenges imposed by the pandemic, these funds could provide a lifeline for our embattled public-school system. Further, if Penn were to begin making a contribution even half the size of the figure requested by Penn for PILOTs, it would be the largest payment by any Ivy League school. Thus, Penn has a chance to act as a leading force for educational equity both locally and regionally, and to exert pressure on its peer institutions to follow suit. The actions of the Board of Trustees in the coming months will reveal whether or not our University takes its mission statement seriously.

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Special Interest

Unsung Heroes:

The Custodian, Security, Café, and Delivery Staff Members

Kanika Jain and Aishwarya Pawar

Illustration by djvstock

"Oh, there's been no difference!" Surprised, I processed the most uncanny response to the most cliché question of 2020 –'How has the pandemic affected your life and work schedule?' I questioned further: "But aren't you a frontline worker?" His response: "I am! But I came to work before, I come to work now and I will keep coming." With a tumble of respect, gratitude, and concern, I thanked him for his time and returned to my lab.

My conversation with this frontline custodial worker left me puzzled. The one thing common to most of us is that life has been nothing but different since March 2020. At the onset of the COVID-19 pandemic, all non-essential research was halted, state-wide lockdowns were initiated, and many struggled with new work-from-home routines. Some worried about the health and safety of older relatives, while others juggled their time between child care and planning their next trip to the grocery store. And yet, with apparent calm and ease, this frontline custodial worker told me that his routine hadn't changed one bit, barring the addition of a mask and more frequent hand washing. This news left me facing the grim reality of frontline workers and our society's blind yet unwavering expectations of them.

Inspired by this conversation, I partnered with Aishwarya and the CAMB Student Newsletter team to interview additional custodial staff members, Abramson Café employees, delivery personnel, and security guards manning the entrances around campus. We distributed an anonymous survey to learn more about their working conditions during the pandemic, to raise support for their concerns, and to better appreciate their immense contributions. We were encouraged by the responses and support we received from most of the staff members, intrigued by the silence of a few others, and most importantly, surprised by the unconcerned attitudes of many. Summarized below are some of the issues raised by the respondents during the survey, and our take on how we, as CAMB students, can help resolve them.

A common sentiment that the entire working crew expressed, irrespective of their field of work, was their gratitude towards CHOP and Penn's management for adopting strict guidelines to ensure their safety right from the beginning. Just as multiple virtual town-hall meetings, discussion groups, and safety workshops became routine additions to our weekly schedule, the working staff received similar support and training from the management. The use of masks and sanitizers became compulsory and everyone was given strict instructions to maintain social distancing.

Aside from the added safety measures, workers across the board also had to adjust to some less-than-ideal changes. Many custodial staff workers were reassigned to clinical buildings to match the increasing workload. This move required additional training, added concern for their safety, and extended work hours. Despite strict guidelines from EHRS and Penn facilities for lab waste disposal, the custodial staff also told us about incidents of improper research waste disposal. These included used gloves and masks thrown in normal trash bins, and sharps disposed of in non-sharp containers where they can puncture through the collection bags. Our careless practices have often put the custodial staff at high risk for injury and are especially dangerous during a viral pandemic. Additionally, research staff members are the primary users of common spaces like washrooms and break rooms. Therefore, it's our responsibility to keep these spaces clean, correctly dispose of our trash, and avoid creating additional hurdles and health risks for the custodial staff.

Security staff found themselves newly responsible for ensuring that everyone entering Penn or CHOP buildings is authorized and symptom-free. The management also introduced new policies that prohibited overtime shifts and permitted leave time based on hours worked as opposed to the previous, guaranteed fixed amount of time. Recognizing their challenges, the next time we find ourselves annoyed by the inconvenience of an occasional slow-moving line or the tediousness of filling out PennOpen Pass every morning, we should remember to exercise patience and show compassion towards these essential workers.

Workers at the Abramson Cafe also expressed concern about campus dining. Cashiers at the Café described how difficult it is to enforce safe physical distancing practices for everyone who comes to the registers. These workers come in contact with hundreds of individuals every day, some of whom are doctors, nurses, and caregivers to patients. Taking extra precautions, like minimizing our contact with hard surfaces, wearing clean and properly donned masks, washing our hands frequently, and maintaining appropriate physical distancing, are paramount to our safety and the safety of others when in the Café.

Delivery personnel have also faced challenges in performing their jobs during this pandemic. They shared that it can be difficult to find lab personnel to sign for packages due to reduced working capacity. This puts them in a predicament, whereby they cannot easily return to the labs and/or might need to hold unclaimed packages on their person. To help, we can leave clear and detailed instructions for package deliveries on our lab doors or other visible spaces. Ideally, we can also designate a safe drop-off area on each floor for delivery persons to leave packages if a lab is empty or no one is around to accept them.

Acknowledging all the reported challenges faced by frontline workers during the pandemic - and in consideration of the steps we can take to make their working lives easier - we pose a bigger question to our readers:

Should frontline workers be given an option to temporarily opt-in/ opt-out of their work during a pandemic without it affecting their pay?

Largely, the research community was granted work-from-home privileges and the ability to decide whether to opt-in to research during Phase I re-opening of laboratories. This flexibility offered relief and support to employees and students with pre-existing health conditions, people who had to take care of their family members, commuters who could no longer travel safely, and those who didn't feel comfortable returning to the workplace. These situations could well apply to any of the essential frontline workers. Thus, we would like to encourage more flexibility in our expectations of these essential workers. Our survey showed that 80% of the working staff would have appreciated the option to opt-in or opt-out, while no one would have been opposed to having these options, a result that spoke volumes by itself. The remaining 20% answered that it wouldn't have mattered, they still would have come to work.

When asked if there was any way in which we (the researchers, students, and professors) can contribute towards helping staff members in their daily job, we received responses like, "Just continue doing awesome science!" and "Make sure science prevails!". It's truly an honor to receive their support and appreciation for the research conducted at Penn and CHOP. And yet, how often do we forget to thank the custodians working on our floor, the security staff guarding the doors day and night, the café staff catering to the clinicians, patient families, and the construction crews, and the delivery people who ensure we receive our precious reagents on time? Indeed, our heroes risk their lives on a daily basis to ensure that our work doesn't stop.

These are indeed unprecedented times. Our way of life has changed uniquely and drastically. While the isolation has allowed us a magnified and an introspective view into our own lives, it may also have rendered us somewhat blind to the troubles of others. We have tried to highlight the contributions and experiences of some of the most essential workers of the Penn Medicine and CHOP community during the pandemic. Each one of these frontline workers has worked diligently during the lockdown to enable the continuation of essential COVID-19 research and have played an instrumental role in ensuring our smooth return to research in June. Our hope is that everyone acknowledges our non-research colleagues that make science possible for scientists. The entire CAMB Newsletter team would like to pay a sincere tribute to our Unsung Heroes.

Thank you for reading.

For any questions, comments, concerns, or if you're interested in joining our team, please feel free to contact us at:
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