G SOCIAL IMPACT

OVERVIEW

The Equal Justice Center would dramatically improve the provision of legal services to Philadelphians in need and make a real difference in the lives of individuals, their families and the broader community. The EJC will have at least these social impacts:

First, the EJC will significantly benefit individuals and families who receive direct services from the legal aid nonprofits located in the building. Improved outcomes for these clients on crucial issues – employment, health, housing, family stability, etc. – will in turn benefit the community as a whole. We estimate the EJC will serve over 40,000 individuals and families annually, and produce an aggregate social and economic benefit for the community of $202 million per year. In addition, tens of thousands of Philadelphians will benefit from impact litigation, policy work, and advocacy by legal aid nonprofits – activities that will be made more efficient as a result of their co-location.

Second, the EJC will centralize, integrate, and streamline the provision of legal aid and related social services for dozens of organizations. The precedent-setting impact of co-location will both improve the operations of these organizations and also increase the efficacy of the services they provide, thereby enhancing the benefits for clients and the positive impacts on the broader community. For example, clients will be able to access related services at one central location, empowering them to resolve multiple problems more quickly and effectively, and allowing the legal aid advocates to collaborate in new ways. Further, by co-locating diverse nonprofits that specialize in public welfare services, new opportunities for collaboration will develop between legal aid advocates.

Third, increased employment and business expenditures of the nonprofits located in the building are expected to further extend the EJC's social and economic impact and enhance the local community. These nonprofit organizations employ over 300 attorneys and support staff, with a combined annual budget exceeding $25 million. In addition, hundreds of lawyers from the Philadelphia legal community volunteer pro bono services through these organizations and will be meeting with the organizations and their clients regularly.

IMPACT FOR CLIENTS AND THE BROADER COMMUNITY

CLIENTS SERVED

The 20 -25 potential legal aid nonprofits to be located in the EJC serve an annual aggregate total of over 40,000 clients (individuals and families), as well as tens of thousands more who benefit from impact litigation and advocacy. These clients face urgent and critical problems affecting their legal rights and the quality of their lives. They may live in poverty, struggle to maintain employment, have disabilities, face issues of aging, meet challenges with their immigrant status, or have been affected by violence and abuse. The multiple nonprofits based in the EJC will provide a comprehensive set of legal services addressing these issues.

The legal aid sector, as represented by the thirty-eight grantees of the Philadelphia Bar Foundation (PBF), served the following numbers of clients in the most recent twelve-month period for which data is available (2015):

Legal Aid Service (for selected issues)	# Clients Served (annual data for 38 PBF grantees)
Aggregate Total	*60,904*
Civil Rights	877
Consumer Finance	2,301
Disabilities	2,318
Education	4,002
Elder Law	1,290
Employment	2,568
Family Law	10,428
Health	2,335
Housing	15,176
Immigration	4,475
Juvenile Law	1,265
Public Benefits	3,272
Other	10,597

A substantial number of individuals and families in need will come to the EJC to receive services, support, and information. The EJC will be a national model for the provision of legal services and will greatly strengthen this work in Philadelphia.

FINANCIAL IMPACT

The social and economic benefits of legal services have been quantified and calculated through the use of impact formulas designed after peer-reviewed and published research. When clients achieve a successful outcome through assistance from legal aid organizations, the affected individuals and families improve their life circumstances and avoid harmful outcomes. This positive social and economic impact multiplies as the benefits received directly by legal aid clients ripple through the broader community in both the short run and long run.

For example, when a legal problem is successfully addressed and resolved, both the client and the whole community benefit from the resulting improvement in family stability, safe housing, educational opportunities, needed health care, new or continued employment, increased income for food and clothing, and more. It is noteworthy that a legal aid case on one issue, such as domestic violence, often has wide ranging benefits for multiple aspects of the lives of the people involved, including the health of all family members, the education of their children, and the ability of the parent(s) to maintain employment. Calculations for the social and economic impact of legal services take these various factors into consideration, to the extent supported by credible research and available data.

As described below, the Philadelphia Bar Foundation is implementing a long term project to calculate the social and economic impact of the legal services provided by its grantees. The EJC incorporates these impact measurements into the operations of the organizations co-located in the building. Although this "benefit calculator" project is in its very early stages, we believe the calculations described below fairly represent the potential impact of the EJC. As part of this EJC proposal, we will emphasize our capacity and commitment to utilize this cutting-edge approach as an integral part of the EJC, as well as showing examples of current impact calculations.

Overall, the legal aid nonprofits operating through the EJC may have an annual social and economic impact totaling at least $202 million. This represents the annual individual and community benefits resulting from legal services to clients through the EJC. Over a twenty-five year period, reflecting more of the overall lifespan of the EJC building, the aggregate benefit could be expected to exceed $5.05 billion. These estimates are a very conservative projection[1] and reflect the benefits to the individual clients, their families, and the broader community. The collective impact calculation is comprised of the following components, further detailed in Appendix X:

- For purposes of this EJC proposal, annual client services data was obtained from 16 legal aid nonprofits. This data addresses six areas of service, reflecting only a very small part of the many dozens of services actually provided by these organizations. This small subset of legal services generally reflects the kind of work performed by the legal aid nonprofits to be located in the EJC. We then applied research-based impact formulas to the client services data and extrapolated to assume similar results for the full range of organizations participating in the EJC. At least 20 - 25 legal aid nonprofits are expected to co-locate in the EJC building.

- We applied impact formulas to the client data for legal services addressing the following issues: avoiding homelessness; achieving child care, receiving education leading to high school graduation; receiving or maintaining legal immigration status; obtaining positive family law outcomes including child support and custody; and obtaining or maintaining adequate public benefits such as food stamps, SSI/SSD, and Medicaid.

- Based on a total of 18,142 clients served annually by 16 organizations in these six areas of service, the aggregate annual social and economic impact is $91 million.

- Extrapolating from this result for the full range of legal aid services provided by the larger number of organizations actually expected to operate in the EJC – 20 to 25 nonprofits in total – a conservative impact estimate of the full scope of the project is $202 million annually.

We present preliminary calculations here to illustrate the overall personal and community-wide benefits generated from legal services and to highlight the powerful ways we can use such metrics as part of the EJC. The detailed explanations in Appendix X demonstrate our commitment to high standards, full transparency, and collaborative sharing of the exciting prospects for using these impact formulas, as well as provide clarifications as to the current limitations of these early stage calculations. The Philadelphia Bar Foundation will continue to build the capacity to make these benefit calculations in a more comprehensive, in-depth, and precise manner.

By providing a common work space for 20 - 25 legal aid nonprofits, the EJC allows these providers the opportunity to establish common systems for client intake, attorney collaboration and referrals, and to use metrics to document and assess the outcomes and impact of services provided. The impact formulas described above will allow the legal aid organizations to develop productive service strategies, seek grant funding for high-impact areas of work, and focus on best practices that have the most significant benefits for clients.

COMMUNITY BENEFITS

Legal services ensure the effective provision of other social services and government programs in Philadelphia. Legal aid nonprofits and their talented and dedicated staff are crucial to maintaining the quality of life in our city. The organizations based in the EJC address the full scope of the most challenging problems faced by all individuals, families, and communities. Without a vibrant network of legal aid providers, well-being would decline for people and neighborhoods throughout Philadelphia.

The central role of legal aid in community well-being may be under-appreciated, because the role of attorneys is often misunderstood. Legal aid nonprofits have such a significant impact on the community because they serve individuals and families who experience three distinct types of problems: (i) legal issues that no other agency can fully resolve, such as complex educational barriers for immigrant children or students with disabilities; (ii) individual or family legal emergencies that could devolve into seriously negative long term consequences for health, safety, or family stability; and (iii) situations where client needs and rights are not adequately addressed by government programs, such as the termination of public benefits or the denial of needed services.

Legal aid advocates address these crucial issues directly and comprehensively, often integrating their assistance and collaborating closely with other social services and government agencies. In short, the legal services system ensures that individuals and families in need do not fall between the cracks, and that the most challenging client circumstances are addressed before unresolvable crises occur. In addition, some of the most impactful and rewarding work of legal aid staff involves providing community education, written materials, and training for individuals and groups, helping them to proactively deal with situations before legal problems arise.

In all of these ways, the legal aid nonprofits located in the EJC will ensure for all people in Philadelphia that housing is affordable, employment is attainable, education is successful, and health care is accessible. Most community leaders in Philadelphia understand and value the vital community benefits of legal aid, although this impact is challenging to quantify

It should also be noted that the nonprofit legal aid organizations located in the EJC are commonly engaged in supporting other community-based entities, such as schools, health centers, businesses and civic groups. Legal aid lawyers often make educational presentations to community groups and support grassroots efforts to strengthen parent engagement in schools, family health initiatives, and improvement of community facilities. Co-locating 20-25 legal aid providers in the EJC will certainly benefit the surrounding community in these and other ways.

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[1] For example, these calculations are conservative and underestimate the total impact by not including cumulative benefits for clients as sustained over time for each individual served. The calculated impact would be higher if the cumulative benefits were considered.

IMPACT FOR LEGAL AID NONPROFITS AND RELATED SOCIAL SERVICE ORGANIZATIONS

The EJC will house the majority of the legal aid providers in Philadelphia in one place, 20-25 organizations in all. Potential tenants include organizations such as Community Legal Services, Philadelphia Legal Assistance, and Regional Housing Legal Services.[2]

Currently, most legal services organizations occupy their own separate offices and have their own intake procedures, conference rooms, IT arrangements, libraries, and other infrastructure. The organizations are chronically underfunded and severely limited in their ability to meet the vast need for client services. Moreover, as the office market in Center City becomes more expensive and the rate of conversion of office buildings to residential housing continues, legal aid nonprofits face a future with less available space at affordable prices.

By providing a central building with guaranteed fixed rent and the possibility of ownership, the EJC will permanently transform the capacity of the city's legal aid system to sustain its operations and meet client needs. A shared physical location will create operational efficiencies and collaborative program opportunities, freeing up much-needed resources for direct client services. Such improvements are expected to include a centralized client intake system, shared conference rooms, and shared "back office" functions for accounting, purchasing, and employee benefits. The EJC will not only allow funds to be redirected in efficient ways toward client services, but will also provide opportunities for attorneys and other professionals from different organizations to interact on a daily basis and improve collaboration in the provision of these services.

Most importantly, the co-location arrangement has huge potential benefits for the clients of legal aid organizations. It is not unusual for a potential client to reach out to one legal services program, only to discover that their needs must also be addressed by a different program. By having most organizations in one place, clients will make fewer trips and will be more likely to receive comprehensive, coordinated legal services. Similarly, co-location will greatly increase client access to non-legal programs housed within the legal aid agencies, such as the Financial Empowerment Center at Community Legal Services. The EJC will give clients a single point of access and help them to resolve legal problems more easily and more rapidly.

IMPACT ON ECONOMIC FACTORS IN THE NEIGHBORHOOD

The impact of the EJC facility itself includes direct economic benefits, beyond the significant advantages generated for people and communities as described above. The office building will bring over 300 employees to work each day on the site, as well as hundreds of lawyers in the Philadelphia community who also provide pro bono services working with the organizations. The 20 - 25 legal aid nonprofits operating in the building have annual expenditures of over $25 million, including spending on office supplies and other overhead items that can benefit businesses in the surrounding neighborhood. Over 40,000 clients of the legal aid organizations will visit the EJC each year, bringing additional business to area merchants.

COMMITMENT TO MEASURING AND TRACKING SOCIAL IMPACT OVER TIME

The Project Team, and more specifically the Philadelphia Bar Foundation, are firmly committed to using the EJC project to help legal aid nonprofits to expand and strengthen their individual and collective capacity to use social impact measures. As described above, the Bar Foundation is already in the early stages of a cutting-edge effort to use research-based impact formulas to document the impact of this work. Co-location of 20 – 25 organizations and a new, shared client-intake system will allow for the generation of greatly improved data. Sharing a common space will also increase collaboration among organizations, which could further improve service provision and delivery, and performance measurement. The co-location of agencies will facilitate the expanded use of such data into all aspects of operations for the various programs, including helping to identify priorities for services to maximize impact, training and supervising staff to increase productivity, and an enhanced ability to recognize opportunities for outreach to people and communities in need of legal aid on crucial issues. In this and other ways, the EJC will serve to strengthen and transform the legal services network in Philadelphia.

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[2] Law Project; Pennsylvanians for Modern Courts; Philadelphia Legal Assistance (w/CBAP); Philadelphia VIP; Public Interest Law Center; Regional Housing Legal Services; SeniorLaw Center (w/CARIE); Support Center for Child Advocates; Tenant Union Representative Network; Women Organized Against Rape; Women's Law Project; Philadelphia Bar Foundation.

APPENDIX X
ECONOMIC BENEFIT FORMULAS
Theodoros Arapis, PhD, and Michael A. Posner, PhD[3]

SUMMARY OF RESULTS

The annual economic benefit generated by the nonprofit legal aid organizations located in the Equal Justice Center is conservatively estimated to be over $202 million. This annual estimate reflects the benefit to individuals and families directly receiving legal services as well as the benefit to the broader community. Over a 25-year period, the aggregate economic benefit could be expected to exceed $5.05 billion. These calculations are based on the seven impact formulas detailed below and on client services data submitted by 16 nonprofit legal aid organizations[4] in Philadelphia.

For purposes of these calculations, the terms "economic benefits" or "economic impact" are equivalent to the "social and economic impact" of the nonprofit legal services organizations expected to co-locate in the Equal Justice Center. These terms are further described in the narrative section of this proposal.

METHODOLOGY

The economic benefit generated by legal services (and other social services) is commonly calculated through the use of research-based mathematical formulas. The formulas used for purposes of this Equal Justice Center proposal were based on those given to us by the Philadelphia Bar Foundation on September 29, 2016. These were modified from the impact formulas utilized and published by the Robin Hood Foundation (Metric Equations, 2014). The formulas are based on research and experience through use of these metrics over many years by the Robin Hood Foundation. The Bar Foundation is familiar with the use of similar formulas by other foundations and legal services entities throughout the nation, including "A Report on Pennsylvania's Access to Justice Act, FY 2004-2011" (Prepared for Pennsylvania IOLTA Board, An organization of the Supreme Court of Pennsylvania, May 2012),

In general, the calculations below reflect choices to utilize more conservative estimates and calculations – whenever such options were available – so that we can feel secure that the reported amount is either accurate or an underestimate (degree unknown). For each formula provided, we performed the following steps:

a. Checked the success rates for legal representation and advice, labeled as Y and Z, for accuracy. While we found support for the success rate (34%) used for Z (see Smith, Thayer, and Garwold, 2012), we were unable to find support for the success rate used for Y. This rate was determined by Robin Hood staff calculations. Further, the Metric Equations report provides no explanation of the calculations involved. We chose to use a lower rate (90%) to produce more conservative estimates.

b. We checked all dollar value components of the formulas and adjusted for location. All dollar value components of the Bar Foundation formulas are based on the Metric Equations report, which uses data relevant to New York City. Therefore, we updated these numbers to reflect the Philadelphia status quo.

c. When necessary, we adjusted the dollar value components of the formulas for inflation.

d. We found no support for using a time period multiplier in the formulas. Therefore, we believe that annual estimations provided below are a more conservative, if not better, option.

After the formulas were determined, a final economic benefit estimation was calculated. This calculation used information provided to us by the Philadelphia Bar Foundation on November 14, 2016 which included the number of clients and types of service by each of sixteen nonprofit legal aid organizations in Philadelphia (listed above). We used the most recent year to determine annual numbers. These numbers were entered into the formulas below in order to achieve the estimated economic benefit calculation of $91 million. This total was then extrapolated based on the 40,000 clients expected to be served annually through the 25 organizations possibly located in the EJC to achieve the final $202 million impact estimate.

1. SUPPORTING HIGH SCHOOL GRADUATION

Bar Foundation Formula: $[(X)*(50\%)*(\$7,500)] * 10$,

- X: number of students attending Philadelphia public schools and receiving legal services where such assistance is very likely to have allowed the students to stay on track to graduate high school and avoid dropping out

- 50% is the dropout rate for students attending Philadelphia public schools

- $7,500 is the difference in annual income between high school graduates and dropouts

- 10 is the number of years for which the income gap is accounted for

Adjusted Formula: [(X)*(65%)*($9,620)],

– **65%:** high school graduation rate for the School District of Philadelphia for 2015 (PA Department of Education, 2016). We selected the high school graduation rate over the drop out rate, as dropout does not necessarily mean that the student will not graduate from high school. Further, the 50% dropout rate reported in the Bar formula is based on the Metric Equations report, which is only relevant to NY city.

– **$9,620:** national income gap between high school graduates and dropouts (BLS, 2015). Using information from BLS (see Figure 1), we calculated the weekly earnings difference between workers with high school diploma ($678) and workers with less than high school diploma ($493). Then we multiplied the earnings difference with 52 to reflect an annual estimation.
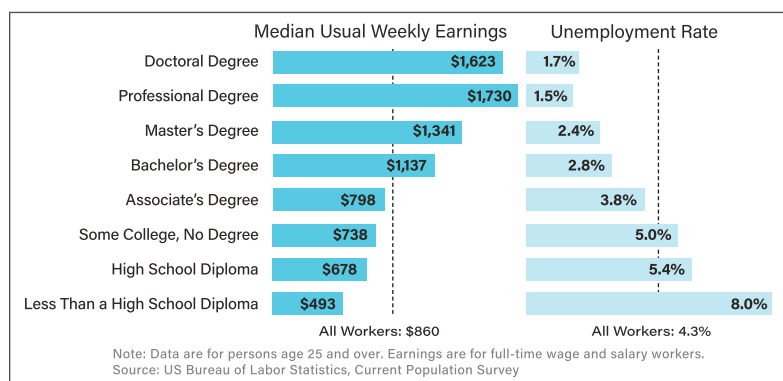

FIGURE 1: EARNINGS AND UNEMPLOYMENT RATES BY EDUCATIONAL ATTAINMENT (2015)

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BLS – Bureau of Labor Statistics. (2015). Employment Projections.
Available at: http://www.bls.gov/emp/ep_chart_001.htm

PDE – Pennsylvania Department of Education. (2015). Cohort Graduation Rate.
Available at: http://www.education.pa.gov/Data-and-Statistics/Pages/Cohort-Graduation-Rate-.aspx#tab-1

2. AVOIDING HOMELESSNESS

Bar Foundation Formula: (X) * [(Y%*95%) + (Z% * 34%)] * 12,200,

– X: number of families with children of school age receiving legal services where such assistance is very likely to have allowed the family to avoid becoming or remaining homeless

– Y: percentage of families served receiving full/substantial representation. And 95% is the percentage of these families likely to have achieved a successful outcome

– Z: percentage of families served receiving counsel and advice only. And 34% is the percentage of these families likely to have achieved a successful outcome

– $12,200 is the aggregate benefit of avoiding homelessness including avoiding foster care placement, avoiding illness, avoiding mental health issues, and so on

Adjusted Formula: (X) * [(Y% * 90%) + (Z% * 34%)] * $8,386,

– The Bar Foundation formula uses the same success rate for housing law cases (e.g. eviction) with the one reported at the Metrics Equation report (95%). This rate derived out of Robin Hood staff calculations used for formula #57 (Legal Services: Housing Law, pp. 71). Please note that there is no literature that supports this rate, nor the Metric Equations report provides further information about the exact calculations involved. We advise use this number with caution.

We chose to decrease the success rate to **90%** (attorney websites advertise 90%-95% success rate on housing law cases) to provide a more conservative estimate.

– **34%:** This success rate derives out of a recent report entitled "Final report on the Survey of Clients: Provided with advice or brief services by Pennsylvania Legal Aid Programs funded under the Access to Justice Act" (Smith, Thayer, and Garwold, 2012). In brief, Smith et al. (2012) conducted 400 interviews of legal service clients to assess the effectiveness of Pennsylvania's legal aid assistance programs (e.g. telephone-based legal assistance – helplines; brief services). According to their findings 1 out of 3 recipients of such services reported positive outcomes.

– **$8,386:** aggregate benefit for avoiding homelessness for the Philadelphia region. Below we describe the two reports used for calculating the suggested benefit of avoiding homelessness:

a. A recent report found that the average societal cost for child being homeless in Pennsylvania is $37,168 per year (Perlman & Willard, 2012). According to Perlman and Willard (2012), a child that experiences homelessness faces increased risk for "short and long-term health issues, development, and well-being."

In fact, they face greater risk for asthma (Cutuli, Herbers, Rinaldi, Masten, and Oberg, 2009), ear infections (Weinreb, Goldberg, Bassuk, and Perloff, 1998), iron-deficiency based anemia (Grant, Shapiro, Joseph, Goldsmith, Rigual-Lynch, Redlener, 2007). Further, they are more likely to need mental health services due to the trauma related to being homeless (Guarino, Bassuk, 2010). Research also shows that homelessness could be detrimental on a child's development (National Scientific Council on the Developing Child, 2007) and face academic difficulties, which may require special education services (Dworsky, 2008; Garcia, Buckner,

Brooks, Weinreb, Bassuk, 1998) or even result to not graduating from high-school (School District of Philadelphia, 2009). Based on the same study average cost of a child not being homeless in the state of Pennsylvania averaged at $6,419.

b. A 2010 study by Project Home, a Philadelphia based non-profit organization that provides services for homeless, found that the aggregate benefit for not being homeless in Philadelphia for 2010 was $7,715. Therefore, we believe it is more appropriate to use Project Home's estimation in the avoiding homeless economic impact formula. Please note that this estimation was adjusted for inflation using Consumer Price Index (CPI) information from the Bureau of Labor Statistics (BLS). 2015 served as the base year for this adjustment. After the adjustment the benefit for not being homeless in the Philadelphia area came out to $8,386.

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3. ACHIEVING CHILD CARE

Bar Foundation Formula: (X) * (6%) * 20,000 * 10

– X: number of families receiving legal services where such assistance is very likely to have allowed the family to enroll or maintain enrollment of their children in a child care program

– 6%: increased rate of employment as a result of obtaining child care for children

– $20,000: average annual earnings for the low-income population

– 10 is the number of years for which the income gap is accounted for

Adjusted Formula: (X) * (5%) * 15,080 * 10

– **5%:** According to Matthews (2006), families in poverty receiving assistance with childcare have a 12 to 15% increased rate of employment. In Philadelphia 430,000 out of 1,547,600 residents (28%) live under the federal poverty line. However, poverty in Philadelphia is especially high (42%) for single mother households (Shared Prosperity Philadelphia, 2013). Therefore, we estimate that childcare assistance could increase employment rate for Philadelphia single mother households by approximately 5 to 6%.

Please note that we selected to use 5% increase rate of employment due to childcare assistance to produce a more conservative estimate.

– **$15,080:** average annual earnings for the minimum wage workers. This calculation is based on the Commonwealth's hourly minimum wage of $7.25 (National Conference of State Legislatures, 2016). We assume that minimum wage workers are employed full time (2,080 hours per year).

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National Conference of State Legislatures, "State Minimum Wages|2016 Minimum Wage by State"
Available at: http://www.ncsl.org/research/labor-and-employment/state-minimum-wage-chart.aspx

Shared Prosperity Philadelphia, "Our Plan to Fight Poverty," 2013
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4. FAMILY LAW

Bar Foundation Formula: (X) * [(Y% * 95%) + (Z% * 34%)] * $6,400 *10

- X: number of individuals receiving legal services where such assistance is very likely to have allowed the individual to receive a favorable outcome in contested matrimonial cases, child support cases, custody and visitation, foster care adoptions, and orders of protection

- Y: percentage of families served receiving full/substantial representation. And 95% is the percentage of these families likely to have achieved a successful outcome

- Z: percentage of families receiving counsel and advice only. And 34% is the percentage of these families likely to have achieved a successful outcome

- $6,400: aggregate benefit of receiving these favorable family law outcomes based on research about the weighted average benefit of various outcomes

- 10 is the number of years for which the income gap is accounted for

Adjusted Formula: (X) * [(Y% * 90%) + (Z% * 34%)] * $ 12,862

- The Bar Foundation formula uses the same success rate for family law cases (e.g. orders of protection) with the one reported at the Metrics Equation report (95%). This rate derived out of Robin Hood staff calculations used for formula #56 (Legal Services: Family Law, pp. 64). Please note that there is no literature that supports this rate, nor the Metric Equations report provides further information about the exact calculations involved. We advise use this number with caution.

  We reduced the success rate to **90%** (attorney websites advertise 90%-95% success rate on family law cases) as a more conservative estimate.

- **34%:** This success rate derives out of a recent report entitled "Final report on the Survey of Clients: Provided with advice or brief services by Pennsylvania Legal Aid Programs funded under the Access to Justice Act" (Smith, Thayer, and Garwold, 2012). In brief, Smith et al. (2012) conducted 400 interviews of legal service clients to assess the effectiveness of Pennsylvania's legal aid assistance programs (e.g. telephone-based legal assistance – helplines; brief services). According to their findings 1 out of 3 recipients of such services reported positive outcomes.

- **$12,862:** aggregate benefit for receiving family law services. For more details please see below:

  o Child health care: in Pennsylvania CHIP (a Medicaid extension program) is the Children's Heath Insurance Program for uninsured children and teens. The cost for CHIP depends on the number of children and the family's annual income (see chipcoverkids.com for more details). Based on the median household income in Philadelphia ($36,836 - the Pew Charitable Trusts, 2015) it is safe to assume that CHIP is free for most families. However, we have included in our estimations the full cost of CHIP, which equals $264 monthly per child ($3,168 annually – see chipcoverkids.com).

Following the methodology from the Metric Equations report (see formula #54 – Legal Entitlements Law, pp. 56) we applied a 10% weight on CHIP's annual cost. This reflects that only 10% of the family law service recipients will acquire child health care by court order. After the weight is applied the benefit of legal services for Child health care are estimated to **$317.**

o Child support: In Pennsylvania child support calculations derive out of the Income Shares model (National Conference of State Legislatures, 2016). Based on this model child support involves the consideration of numerous components including the spouses net income and earning capacities, standard of living during the marriage, the age and physical, mental, and emotional health of the spouses, length of marriage, etc. (for more details see Rule 1910.16-1 Amount of Support – Support Guidelines). Following the Pennsylvania Law support for one person cannot be lower than the federal poverty level – $930 per month (**$11,160** annually) according to the US Department of Human and Health Services (2016). However, research indicates that only two-thirds of parents will actually receive court ordered child support (see Cancian and Meyer, 2005). As a result our estimate for the benefit of court ordered child support decreases to **$7,440.**

o Orders of protection: Based on Aos et al. (2004) the value of avoiding child abuse equals to $24,000 a year. After adjusting for inflation using the Consumer Price Index from the Bureau of Labor Statistics the benefit of avoiding child abuse for 2015 equals to $30,113.

Following the methodology from the Metric Equations report (see formula #56 – Legal Services: Family Law, pp. 64) we applied the following weights on the aggregate benefit for Orders of protection:

a. 65%: According to Mcfarlane et al. (2005) and Wislon et al. (2001) 65% of women would be abused again without the order

b. 50%: According to McFarlane et al. (2005) an order of protection could reduce violence between 50% and 70%. Please note that he low end estimate will produce less bias.

c. 10%: Based on information from the Robin Hood Foundation clients, only 10% seek help for attaining an order of protection.

Applying the aforementioned weights we estimate that the benefit of Orders of protection in Philadelphia for 2015 equals to (((30,113 * 0.65) * (0.5)) * (0.1))) = **$979**

o Foster care adoption: According Hansen (2006) the benefit of adoptions is estimated at $70,200. After adjusting for inflation using the Consumer Price Index from the Bureau of Labor Statistics the benefit of adoption equals to $82,533. Following the methodology from the Metric Equations report (see formula #56 - Legal Services: Family Law, pp. 64) we applied a weight of 0.05 on foster care adoption cost and reached an annual cost of **$4,126.**

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5. IMMIGRATION

Bar Foundation Formula: (X) * [(Y% * 95%) + (Z% * 34%)] * $1,500 * 10

– X: number of individuals receiving legal services where such assistance is very likely to have allowed the individual to receive legal immigration status

– Y: percentage of families served receiving full/substantial representations. And 95% is the percentage of these families likely to have achieved a successful outcome

– Z: percentage of families receiving counsel and advice only. And 34% is the percentage of these families likely to have achieved a successful outcome

– $1,500: aggregate benefit of receiving legal immigration status

– 10 is the number of years for which the income gap is accounted

Adjusted Formula: (X) * [(Y% * 90%) + (Z% * 34%)] * $13,076

– The Bar Foundation formula uses the same success rate for immigration law cases with the one reported at the Metrics Equation Report (95%). This rate derived out of Robin Hood staff calculations used for formula #58 (Legal Services: Immigration Law, pp. 74). Please note that the Metric Equations report does not provide information about the calculations involved to compute this success rate. We chose to use a lower success rate (90%) to yield a more conservative estimate.

– Someone could become a Lawful Permanent Resident (LPR) through Green Card or Naturalization. Each year, about 6 million people apply for LPR status – Green Card, Work Visa, Citizenship (American Immigration Center). According to the Department of Homeland Security (DHS), in 2014 about 1 million people (1,016,518 to be exact) were granted LPR status. Based on the aforementioned, the success rate for receiving LPR status appears to be 17%. However, it is not possible based on existing data to determine by how much legal service can influence one's chance of becoming a LPR. Therefore, we advise caution when using the success rate provided by the Robin Hood Foundation.

– **34%:** This success rate derives out of a recent report entitled "Final report on the Survey of Clients: Provided with advice or brief services by Pennsylvania Legal Aid Programs funded under the Access to Justice Act" (Smith, Thayer, and Garwold, 2012). In brief, Smith et al. (2012) conducted 400 interviews of legal service clients to assess the effectiveness of Pennsylvania's legal aid assistance programs (e.g. telephone-based legal assistance – helplines; brief services). According to their findings 1 out of 3 recipients of such services reported positive outcomes.

– **$13,076:** Studies have consistently found that LPR status generates better economic outcomes. Generally, LPR status creates more job opportunities in all economic sectors – public, nonprofit, private. Government jobs for instance, require LPR status (Shierholz, 2010). Further, being a LPR could also indicate to employers good use and understanding of English and possession of "good moral character" (USCIS, 2012). Others have suggested that LPR is an assurance for employers who might be concerned with potential sanctions imposed to them due to hiring illegal immigrants (Mazzolari, 2009).

According to the Pew Research Center (2007), the 2007 median household income for illegal immigrants was approximately $36,000, about $14,000 lower than the median household income for US citizens. A more recent study found that in 2012 naturalized immigrants can earn on average $43,579, when non-citizen immigrants earn $28,797 (Pastor and Scoggins, 2012).

Based on the aforementioned, setting the income difference between LPR and illegal immigrants at $14,000 is a logical assumption. Considering that unemployment rate in the Philadelphia Metropolitan area as of June 2016 was 6.4% (BLS, 2016) we applied a weight of 0.934 on this income gap difference. As a result we estimated the income gap between Philadelphia LPR and illegal immigrants at $13,076.

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6. PUBLIC BENEFITS

Bar Foundation Formula: (X) * [(Y% * 95%) + (Z% * 34%)] * $5,000 * 3

– X: number of individuals receiving legal services where such assistance is likely to have allowed the individual to obtain or maintain public benefits in cases involving food stamps, SSI/SSD, public assistance, or Medicaid.

– Y: percentage of families served receiving full/substantial representations. And 95% is the percentage of these families likely to have achieved a successful outcome

– Z: percentage of families receiving counsel and advice only. And 34% is the percentage of these families likely to have achieved a successful outcome

– $5,000: aggregate benefit of obtaining or maintaining these public benefits, based on research about the weighted average benefit of the various public benefit programs

– 3: number of years for which the impact is accounted for as part of this calculations

Adjusted Formula: (X) * [(Y% * 90%) + (Z% * 34%)] * $3.637

– The Bar Foundation formula uses the same success rate for public benefit cases with the one reported at the Metrics Equation report (95%). This rate derived out of Robin Hood staff calculations used for formula #54 (Legal Services: Entitlement Law, pp. 56). Please note that the Metric Equations report does not provide information about the calculations involved to compute this success rate. Therefore, use caution when applying this weight. Using a lower success rate (90%) will yield a more conservative estimate.

– **34%:** This success rate derives out of a recent report entitled "Final report on the Survey of Clients: Provided with advice or brief services by Pennsylvania Legal Aid Programs funded under the Access to Justice Act" (Smith, Thayer, and Garwold, 2012). In brief, Smith et al. (2012) conducted 400 interviews of legal service clients to assess the effectiveness of Pennsylvania's legal aid assistance programs (e.g. telephone-based legal assistance – helplines; brief services). According to their findings 1 out of 3 recipients of such services reported positive outcomes.

– **$3,637:** aggregate benefit of obtaining or maintaining public benefits. For more details please see below:

  o The average monthly **Food Stamp** benefits in 2014 per person in Pennsylvania were $119, or $1,433 annually. Further, there is no limit as to how long a participant is eligible for Food Stamps; rather, eligibility is based upon maximum growth, monthly income, and household size. It is also worth noting "[h]ouseholds may have $2,250 in countable resources, [...] or $3,250 in countable resources if at least one person is age 60 or older, or is disabled" (United States Department of Agriculture, 2016). Furthermore, a household of one is able to earn as much as $1,287/month in gross income to qualify. For a household of two, the limit is 1,736 and for three people, the limit is raised to $ 2,184 (USDA, 2016).

Most recent statistics estimate there are approximately 1,830,489 Pennsylvanians (about 14%) on Food Stamps per month. (Kaiser Family Foundation, 2015). For Philadelphia though, it appears that use of Food Stamps is above the state average. According to a 2009 New York Times report by Bloch, DeParle, and Geneloff 26% of Philadelphia residents participated in Food Stamps.

We have adjusted the Food Stamp annual benefit of $1,433 for inflation using the CPI from the Bureau of Labor Statistics. Consistent with previous calculations 2015 served as the base year for this adjustment. After adjusting for inflation Food Stamp benefits equal to $1,452 annually. We also applied a 0.26 weight to reflect the Philadelphia participation rate in Food Stamps. As a result we estimate the annual benefit of Food Stamps for Philadelphia residents at **$377.**

o   The **Supplemental Security Income** (SSI) value differs based on age, marital status, independent/dependent status, domiciliary care, personal care boarding home, or Medicaid facility (see Figure 2 below). For an eligible independent person, they have access to a $733 monthly (or **$8,796** yearly) payment, which includes both federal and state payments combined (Social Security Administration, 2016).

There is **no time limit** for which recipients of SSI can hold this service in Pennsylvania; the only requirements are: "people who are 65 or older, as well as blind or disabled people of any age, including children" whose value of the items they own is no greater than "$2,000 if you are single or less than $3,000 for married couples living together" (this does not include the value of their home/car) (Social Security Administration, 2016).

According to Social Security Administration (2015) in 2015 109,532 out of 1,553,000 Philadelphia residents (7%) received SSI. As a result we applied a 0.07 weight in SSI annual payment to reflect the Philadelphia rate of participation. After applying this weight SSI benefit is estimated at **$616.**

o   Pennsylvania **Medicaid** spending per beneficiary is, on average, **$7,811.** New eligibility requirements went into effect in 2015, and are listed as follows: "all legally present adults in the Commonwealth of Pennsylvania – parents or not – are eligible for Medicaid with household incomes up to 138 percent of poverty, as long as they meet Medicaid's immigration requirements. Children are still eligible for Medicaid or CHIP if their household income doesn't exceed 319 percent of poverty level." (HealthInsurance.org, 2016). Therefore, you may receive Medicaid as long as you continue to meet the requirements.

According to the Kaiser Family Foundation (2016) 18% of Pennsylvanians were covered by Medicaid. Therefore, we applied a weight of 0.18 to reflect the percent of Pennsylvania's that receive the Medicaid benefit. After applying this weight we estimate the Medicaid benefit at **$1,406.**

o   Pennsylvania residents who qualify for Medicare can receive hospital care (Part A) and physician services (Part B). Although most qualify for free coverage, we included in our estimations full cost for Part A and Part B. For 2016, full cost for Part A and Part B equals to $411and $105 per month respectively or $4,932 and $1,260 annually (Medicare.gov).

According to the Kaiser Family Foundation, in n2016 about 2,533,515 (20%) of Pennsylvanians were covered by Medicare. Therefore, we applied a weight of 0.20 to reflect the percent of Pennsylvania's that receive the Medicare benefit. After applying this weight we estimate the Medicare benefit at **$1,238.**

MONTHLY SSI PAYMENT AMOUNTS	
Not all SSI recipient receive the maximum amount. Your payments may be lower if you have other income.	
Category	**2016 Total Monthly Payment**
Independent Living Status	
eligible person	$733.00
Eligible Couple	$1,100.00
Living in Someone Else's Household	
Eligible person	$488.67
Eligible Couple	$733.34
Domiciliary Care (DOMCARE)	
Eligible person	$1,167.30*
Eligible Couple	$2,047.40*
Personal Care Boarding Home (PCBH)	
Eligible person	$1,172.30*
Eligible Couple	$2,057.40
Medical Facility	
Eligible person	$30
Eligible Couple	$60

* These amounts include federal and state payments combined

FIGURE 2: MONTHLY SSI PAYMENT CATEGORIES

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7. MEDICARE/MEDICAID

Bar Foundation Formula: (X) * [(Y%* 95%) + (Z% * 34%)] * $8,000 * 3

- X: number of individuals receiving legal services where such assistance is likely to have allowed the individual to obtain or maintain Medicare or Medicaid.

- Y: percentage of families served receiving full/substantial representations. And 95% is the percentage of these families likely to have achieved a successful outcome

- Z: percentage of families receiving counsel and advice only. And 34% is the percentage of these families likely to have achieved a successful outcome

- $8,000: aggregate benefit of obtaining or maintaining Medicare or Medicaid, based on research about the weighted average benefit of the various public benefit programs

- 3: number of years for which the impact is accounted for as part of this calculations

Adjusted Formula: (X) * [(Y%* 90%) + (Z% * 34%)] * $2,644

- The Bar Foundation formula uses the same success rate for Medicaid cases with the one reported at the Metrics Equation Report (95%). This rate derived out of Robin Hood staff calculations used for formula #59 (Legal Services: Medicaid/Medicare Law, pp. 75). Please note that the Metric Equations report does not provide information about the calculations involved to compute this success rate. Therefore, use caution when applying this weight. Using a lower success rate (90%) will yield a more conservative estimate.

- **34%:** This success rate derives out of a recent report entitled "Final report on the Survey of Clients: Provided with advice or brief services by Pennsylvania Legal Aid Programs funded under the Access to Justice Act" (Smith, Thayer, and Garwold, 2012). In brief, Smith et al. (2012) conducted 400 interviews of legal service clients to assess the effectiveness of Pennsylvania's legal aid assistance programs (e.g. telephone-based legal assistance – helplines; brief services). According to their findings 1 out of 3 recipients of such services reported positive outcomes.

- **$1,406:** As mentioned in the Public Benefits formula, Pennsylvania **Medicaid** spending per beneficiary is, on average, $7,811. New eligibility requirements went into effect in 2015, and are listed as follows: "all legally present adults in the Commonwealth of Pennsylvania – parents or not – are eligible for Medicaid with household incomes up to 138 percent of poverty, as long as they meet Medicaid's immigration requirements. Children are still eligible for Medicaid or CHIP if their household income doesn't exceed 319 percent of poverty level" (HealthInsurance.org, 2016).

  According to the Kaiser Family Foundation (2016) 18% of Pennsylvanians were covered by Medicaid. Therefore, we applied a weight of 0.18 to reflect the percent of Pennsylvania's that receive the Medicaid benefit. After applying this weight we estimate the Medicaid benefit at **$1,406.**

- Pennsylvania residents who qualify for Medicare can receive hospital care (Part A) and physician services (Part B). Although most qualify for free coverage, we included in our estimations full cost for Part A and Part B. For 2016, full cost for Part A and Part B equals to $411and $105 per month respectively or $4,932 and $1,260 annually (Medicare.gov).

  According to the Kaiser Family Foundation, in n2016 about 2,533,515 (20%) of Pennsylvanians were covered by Medicare. Therefore, we applied a weight of 0.20 to reflect the percent of Pennsylvania's that receive the Medicare benefit. After applying this weight we estimate the Medicare benefit at **$1,238**.

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Auburn University   **Auburn, AL**
Ph.D. in Public Administration and Policy   2011
Concentration: Public Budgeting and Finance
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Kennesaw State University   **Kennesaw, GA**
Master of Arts in Public Administration and Public Policy   2006
Concentration: Regional Policy and Administration

University of Macedonia   **Thessalonica, Greece**
Bachelors of Science in Economic Science   2004

Area of Expertise

Government and Non-Profit Financial Management

Budgeting

Research Design

Statistical Analysis

Professional Experience

Assistant Professor   Fall 2012 to present
Department of Public Administration, Villanova University, Villanova, PA
Courses: Financial Management (MPA 8003); Analysis and Research II (MPA 8006)

Adjunct Faculty   Fall 2011 to Spring 2012
Department of Political Science, Auburn University, Auburn, AL
Courses: Public Finance (POLI 4140); Intro to Public Administration (POLI 3250); Organization Theory (POLI 3260)

Associate Research Director   Spring 2008 to Spring 2012
The American State Administrators Project (ASAP), Co-directed by the late Deil S. Wright, Ph.D. and Cynthia J. Bowling, Ph.D.
Responsible for generating the electronic survey form, survey distribution of web and paper-based surveys, data collection, statistical analysis, and scholarly research papers

Research Assistant   Fall 2009 to Summer 2011
Center for Governmental Services (CGS), Auburn University, Auburn, AL
Responsible for survey design (paper-based and electronic forms), random sampling, data collection, statistical analysis, reports, and presentations

Publications

Arapis T. & V. Reitano. (2016). "A Glimmer of Optimism in Government Savings Accumulation? An Empirical Examination of Municipal Unassigned Fund Balance in Florida." Public Finance Review.

Arapis, T. (2016). Budgeting and Finance for City Services. In C. K. Palus & R. Dilworth (Eds.), Guide to Urban Politics and Policy in the United States. Thousand Oaks, CA: Sage Publications, Inc.

Arapis T. & D. Grady. (2015). "State Financial Reporting Evolution: What if CAFRs Could Talk?" Journal of Government Financial Management, Vol. 64 No.2.

Arapis T. (2013). "Enterprise Fund Transfers and Their Impact on Governmental Spending and Revenue Patterns of Georgia Municipalities." Journal of Public Budgeting, Accounting, and Financial Management, Vol. 25 Issue 3.

Arapis T. & B. Georgianni. (2013). "The Impact of Authority States on Local Finances under Periods of Cyclical Fluctuation: The Cases of North Carolina and Florida." Journal of Government Financial Management, Vol. 62, No. 1.

Arapis T., Reitano, V., & E. Bruck. "The Fiscal Savings Behavior of Pennsylvania School Districts through the Great Recession." (Under Review, Public Budgeting & Finance).

Arapis T. & V. Reitano. "Examining the Evolution of Cross-National Fiscal Transparency." (Under Review, The American Review of Public Administration).

Arapis t. & V. Reitano. "Accumulating and Maintaining Fiscal Savings: From Theory to Practice." (Under Review, Journal of Government Financial Management).

Opinion Editorials (Selected list)

Arapis T. (2016). "Pa. has more to do on school funding fairness," Philadelphia Inquirer.

Arapis T. (2016). "Greek Residents put up 'Walls of Kindness' to feed needy," Philadelphia Inquirer.

Arapis, T. (2015) "Why Reform Will Fail in Greece," The Huffington Post.

Arapis, T. (2015). "Margarita Metallinou: Memories of a Greek Biologist" CosmosPhilly.

Arapis, T. (2015). "Greferendum: Those Who Broke Greece Must Fix It!" CosmosPhilly.

Conference Presentations (Selected List)

"Budgeting During Uncertain Times; The Case of Pennsylvania School Districts," with Vincent Reitano and Earl Bruck. Paper Presented at the 2016 Annual Northeastern Conference of Public Administration (NECoPA), November 11-13, Harrisburg, PA.

"Making a Case for Better Budgeting; Studying the Determinants of Revenue Forecasting Among Pennsylvania School Districts," with Vincent Reitano and Earl Bruck. Paper Presented at the 2016 Annual Southeastern Conference of Public Administration (SECoPA), November 11-13, Raleigh, NC.

"Assessing Charter School Savings Behavior with Unconditional Quantile Regression," with Vincent Reitano and Bruce McDonald. Paper presented at the 2015 Annual Conference of the Association for Budgeting and Financial Management (ABFM), October 1-3, Washington DC.

"No School District Left Behind? Exploring the Fiscal Reserve Behavior of Pennsylvania Schools," with Lauren Miltenberger, Earl Bruck, and Vincent Reitano. Paper presented at the 2014 Annual Northeastern Conference of Public Administration (NECoPA), November 6-8, Portsmouth, NH.

"Fiscal Condition Determinants Before and After the Great Recession: Lessons Learned From the School Districts of Pennsylvania," with Lauren Miltenberger, Earl Bruck, and Vincent Reitano. Paper presented at the 2014 Annual Conference of the Association for Budgeting and Financial Management (ABFM), October 2-4, Washington D.C.

"State Oversight of Local Finances: An Overview and Evaluation of State Monitoring Systems," with Emilia Allen. Paper to be presented at the 2014 Annual Southeastern Conference of Public Administration (SECoPA), September 17-20, Atlanta, GA.

"Examining Local Fiscal Reserve Behavior Under the New Normal: What do North Carolina, Georgia, and Florida Municipalities Tell Us?" Paper presented at the 2013 Annual Southeastern Conference of Public Administration (SECoPA), September 25-28, Charlotte, NC.

"The Impact of Authority States on Local Finances Under Periods of Cyclical Fluctuation," with Brennan Georgianni. Paper presented at the 2012 Northeastern Conference of Public Administration (NECoPA), November 2-3, Boston, MA.

"Strong v. Weak Authority States: Examining State Intervention on Local Finances," with Brennan Georgianni. Paper presented at the 2012 Annual Conference of the Association for Budgeting and Financial Management (ABFM), October 11-13, New York City, NY.

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Education

Ph.D. 2006 – **Biostatistics**, Boston University School of Public Health.
Thesis: "Propensity Scores: When Are They Needed and Methods of Implementation"
Arlene Ash, Advisor.
M.S. 1996 - **Statistics**, Carnegie Mellon University.
Awarded Full Tuition Scholarship and Teaching Assistantship.
B.A. 1994 - **Statistics and Economics**, University of Rochester.
Distinction in Statistics, *Distinction* in Economics, *Dean's List* all semesters.
Certificate of Special Citation in Mathematical Economics, Management Certificate in Information Systems, Certificate in Actuarial Studies.

Accreditation   Accredited Professional Statistician (PStat®) from the American Statistical Association since 2011.

Special Skills   Worked with Computers including Unix, DOS, Windows, HTML, LaTeX, PowerPoint, Word, Excel, Access, and statistical software including SAS (including macro programming), Minitab, S+/R, nQuery, DataDesk, JMP, StatTransfer, DBMS copy, DBMS engines, PHStat, and Excel's statistics toolpack. Proficient in Hebrew and Spanish.

Teaching Experience

August 2005 – Present, Villanova University Department of Mathematics and Statistics, Villanova, PA
Associate Professor of Statistics (2011 – Present), Assistant Professor of Statistics (2005 – 2011):
Undergraduate courses include Introductory Statistics (for non-majors), Statistical Methods (for STEM majors), Business Statistics, and Statistics for Health Care Research (for nursing majors). Graduate courses include Regression Methods, Statistical Methods I and II, Nonparametrics, Survival Data Analysis, and Statistical Programming. Developed courses on becoming a teacher of statistics and statistical programming. Research includes statistics education research, public health research, dealing with selection bias in observational studies through the use of propensity scores, and Medicare overpayment extrapolation. Supervised student research projects in education, ecology, and public health.

September 2015 – July 2016, University of Cambridge, Cambridge, UK
visiting faculty: collaborated with faculty in the Statistics Laboratory, Department of Pure Mathematics and Mathematical Statistics, Centre for Mathematical Sciences and Faculty of Education. Gave presentations at University of Cambridge, Plymouth University, Hills Road Sixth Form College, and Data Insights Cambridge.

September 1999 – February 2005, Boston University School of Dental Medicine, Boston, MA
Instructor: Designed syllabus and lectured biostatistics course for 35-45 post-graduate dental students. Initiated modification to the curriculum with Assistant Dean for Advanced Education expanding statistical training of students by extending the class into second semester, including computer training and journal article review. Provided guidance to students conducting individual research.

September 2002 – December 2004, Boston University Department of Mathematics & Statistics, Boston, MA
Lecturer: Designed syllabus and lectured a two-semester introductory statistics course, including SAS, for 125 undergraduate students. Supervised teaching fellow and graders. Supervised student research projects.

September 1998 – June 2004, Boston University School of Public Health, Boston, MA
Instructor (2002 – 2003): Designed and co-lectured two semesters of intermediate biostatistics and one semester of introduction to statistical computing (using SAS) for medical fellows and other public health students.
Lab Coordinator (2000 – 2004)**:** Designed computer laboratory modules for introductory biostatistics course using Excel for MPH students. Hired and supervised instructors.
Lab Instructor: Lectured and graded for Excel lab supplement for introductory biostatistics course using Excel for MPH students.

May - June 1996, Department of Statistics, Carnegie Mellon University.
Instructor: Designed syllabus and responsible for classroom lecturing, computer lab supervision, and assigning grades for introductory statistics class of 34 students.

January 1992 – May 1996, Departments of Statistics, University of Rochester/Carnegie Mellon University
Teaching Assistant: Lectured to 10-40 students. Held office hours and review sessions. Administered and graded exams. Nine semesters including Applied Statistics I, Sampling Techniques, Statistical Reasoning, Statistical Methods.

Other Professional Experience

November 2001 – Present, Independent Consultant.
Independent Consultant: As an Accredited Professional Statistician of the American Statistical Association, provide statistical and technical expertise on a contractual basis. Work includes statistical expert and expert witness relating to Medicare overpayment determination and insurance fraud (including testifying before an ALJ), analysis of educational data, and public health research. Biostatistics educator and consultant for medical residents at a local hospital.

June 1998 – October 2005, Boston Medical Center's Data Coordinating Center and Health Care Research Unit, Boston, MA
Statistical Manager: Served as data manager, statistical programmer and manager, and biostatistician involved in all aspects of medical and public health studies with various departments and offices throughout Boston University School of Public Health, Boston University School of Medicine, and Boston Medical Center. Published articles in peer-reviewed journals and assisted in grant writing. Supervised and trained research assistants. Presented research at internal and national professional meetings. Projects included examining mortality following heart attacks, Medicare resource use before end-of-life, follow-up to abnormal mammography, Haitian study of breast and pap screening, Massachusetts small area variation in hospital outpatient/inpatient use, examining the effects of respite care on readmission, a behavioral modification study at STD clinic, analyzing the physical and neuropsychological development in a cohort of babies with in-utero exposure to cocaine, working for the Research Data Assistance Center - a CMS (HCFA)-funded group to help non-profit researchers use Medicare data, and providing statistical support for the Section of General Internal Medicine at Boston Medical Center as part of the Health Care Research Unit.

July 1996 – May 1998, New England Research Institutes, Boston, MA.
Biostatistician: Analyzed proficiency panel data and assessed and developed scoring methods for new HIV assays. Determined methods and conducted analyses for *Hemophilia Growth and Development Study*. Assisted in proposal development. Taught short courses on S-PLUS and "SAS for non-statisticians". Designed and maintained Public Health links page and internal macro/function library with HTML interface. Trained new statistician.

July 1993 - September 1994, Office of the Vice-President for Enrollment, Placement, Alumni Relations, and Development, University of Rochester. Rochester, NY.
Program Assistant: Conducted research on student aid grants. Supervised four students doing coding and recording of surveys. Designed and analyzed control groups. Oversaw data analysis. Edited book. Invited to and attended Rochester Conference on Career Related Work and Student Aid. Assisted in publication of Shaping the College Experience Outside the Classroom by James Scannell and Kathleen Simpson (1995).

January 1993 - May 1994, Learning Assistance Services, University of Rochester. Rochester, NY.
Study Group Leader: Designed and taught study groups and review sessions for statistics classes.
Program Assistant: Responsible for locating, interviewing, and hiring statistics study group leaders. Maintained groups during the year. Conducted intake interviews with students to determine type of tutoring or assistance needed.

June - August 1991, United States Department of Energy, Washington, D.C.
Statistical Aide for the Office of Statistical Standards, Energy Information Administration: Researched causes for outlying data, reviewed reports, and assisted in estimating energy models.

Peer-Reviewed Publications

1. *Preparing All Students for the Data-driven World.* Christo Dichev, Darina Dicheva, Lillian Cassel, Don Goelman, Michael A. Posner. Accepted for publication in Symposium on Computing at Minority Institutions, 2016.
2. *Smoking, Alcohol Consumption and Binge Drinking Among Young Adult Childhood Cancer Survivors Surveyed in the National Longitudinal Study of Adolescent Health.* Mary Ann Cantrell, Michael A. Posner. Accepted for publication at Journal of Adolescent and Young Adult Oncology, 2016.
3. *Four Perspectives on Flipping the Statistics Classroom: Pedagogy to Enhance Student-Centered Learning.* Shonda R. Kuiper, Robert H. Carver, Michael A. Posner, Michelle Everson. Problems, Resources, and Issues in Mathematics Undergraduate Studies (PRIMUS), 2015; 25(8), 655-682. doi: 10.1080/10511970.2015.1045573
4. *Exposure Patterns in the Digital Domain: A Demographic Analysis of Media Use and Access in the United States.* Daniel E. Trucil, Leonard Shyles, Emory Woodard IV, David J. Penyak, Heather Hundley, Michael A. Posner. Canadian Social Science, 2014; 10(5); 1-14. doi:10.3968/4967
5. *Psychological Distress Between Young Adult Female Survivors of Childhood Cancer and Matched Female Cohorts Surveyed in the Adolescent Health Study.* Mary Ann Cantrell, Michael A. Posner. Cancer Nursing, 2014; 37:4; 271-277. doi: 10.1097/NCC.0000000000000105. (Cited 2 times according to Google Scholar)
6. *Using Fun in the Statistics Classroom: An Exploratory Study of College Instructors' Hesitations and Motivations.* Lawrence M. Lesser, Amitra A. Wall, Robert H. Carver, Dennis K. Pearl, Nadia Martin, Shonda Kuiper, Michael A. Posner, Patricia Erickson, Shu-Min Liao, Jim Albert, John J. Weber III. Journal of Statistics Education, 2013; 21(1); 1-33. www.amstat.org/publications/jse/v21n1/lesser.pdf. (Cited 8 times according to Google Scholar)
7. *The Impact of a Proficiency-based Assessment and Reassessment of Learning Objectives System on Student Achievement and Attitudes.* Michael A. Posner. Statistics Education Research Journal, 2011; 10(1); 3-14. (This research led to a $2.4mil, 4-year National Science Foundation Discovery Grant (DRK-12) entitled "Engaging Secondary School Students and Teachers Through a Proficiency-based Assessment and Reassessment of Learning Objectives (PARLO) System in Mathematics." Cited 10 times according to Google Scholar)
8. *Managing the Grading Paradox: Leveraging the Power of Choice in the Classroom.* Shoshana Dobrow, Wendy K. Smith, Michael A. Posner. Academy of Management Learning & Education, 2011; 10(2); 261-276. (Cited 14 times according to Google Scholar)
9. *Cigarette Smoking and Alcohol Use Among Adolescents and Young Adults with Asthma.* Elizabeth Dowdell, Michael A. Posner, M. Katherine Hutchinson. Nursing Research and Practice, 2011. doi:10.1155/2011/503201. (Cited 10 time according to Google Scholar)
10. *Brief Substance Abuse Treatment with Urban Adolescents: A Translational Study.* Michael J. Mason, Michael A. Posner. Journal of Child & Adolescent Substance Abuse, 2009; 18:2;193-206. (cited 8 times according to Google Scholar)
11. *Post-Hospital Medical Respite Care and Hospital Readmission of Homeless Persons.* Stefan Kertesz, Michael A. Posner, Stacy Swain, Arlene Ash, Michael Shwartz. Journal of Prevention and Intervention in the Community, 2009; 37:1-14. (This research was used in congressionally mandated review of the impacts of respite units and in a European study of respite units. Cited 33 times according to Google Scholar)
12. *Improving Follow-Up to Abnormal Breast Cancer Screening in an Urban Population: A Patient Navigation Intervention.* Tracy A. Battaglia, Kathryn Roloff, Michael A. Posner, Karen M. Freund. Cancer, 2006; 109(2 Suppl): 359-67. (cited 181 times according to Google Scholar)
13. *Evaluation of the Center for Disease Control and Prevention's Recommendations Regarding Routine Testing for Human Immunodeficiency Virus on an Inpatient Service. Who are we missing?* Greenwald, JL, Rich, CA, Bassega, S, Posner, MA, Maeda, JL, Skolnik, P. Mayo Clinic Proceedings, 2006: 81(4): 452-8. (cited 20 times according to Google Scholar)
14. *Pap Smear Rates Among Haitian Immigrant Women in Eastern Massachusetts.* Eric Green, Michael A. Posner, Karen M. Freund, Michele David. Public Health Reports, 2005; 120: 133-139. (cited 29 times according to Google Scholar)
15. *Do Variations in Disease Prevalence Limit the Usefulness of Population-Based Hospitalization Rates for Studying Variations in Hospital Admissions?* Michael Shwartz, Erol Pekoz, Arlene Ash, Michael A. Posner, Joseph Restuccia, Lisa Iezzoni. Medical Care, 2005; 43: 4-11. (cited 25 times according to Google Scholar)
16. *Mammography Use.* Michele David, Linda Ko, Michael A. Posner, Eric Green, Karen M. Freund. Journal of the National Medical Association, 2005;97:2:1-9. (cited 26 times according to Google Scholar)
17. *Comparing the Importance of Disease Rate Variation vs. Practice Style Variation in Explaining Small Area Variations in Hospitalization Rates for Two Respiratory Conditions.* Erol Pekoz, Michael Shwartz, Lisa Iezzoni, Arlene Ash, Michael A. Posner, Joseph Restuccia. Statistics in Medicine, 2003; 22:1775-1786. (cited 11 times according to Google Scholar)

18. *Using Claims Data to Examine Mortality Trends Following Hospitalization for Heart Attack in Medicare.* Arlene S. Ash, Michael A. Posner, Lindsey Bramwell, Jeanne Speckman, Shakira Franco, Andrew Yacht. Health Services Research 2003:38:5:1253-1262. (cited 68 times according to Google Scholar)
19. *Do "We Just Know"? Masked Assessors' Ability to Accurately Identify Children with Prenatal Cocaine Exposure.* Ruth Rose-Jacobs, Howard Cabral, Michael A. Posner, Jennifer Epstein, Deborah Frank. Journal of Developmental and Behavioral Pediatrics 23(5):340-346, October 2002. (cited 10 times according to Google Scholar)
20. *Cervical Cancer Screening Rates in Haitian Communities in the Greater Boston Area.* Green EH, Ko LK, Posner M, Freund KM, Prudent N, David M.. Journal of General Internal Medicine 2002;16 (s1):159.
21. *Children Who Witness Violence and Parent Report of Child Behavior.* Marilyn Augustyn, Deborah Frank, Michael A. Posner, Barry Zuckerman. Archives of Pediatric and Adolescent Medicine 156:800-803, August 2002. (cited 34 times according to Google Scholar)
22. *Quantifying Practice Effects in Longitudinal Research with the WISC-R and WAIS-R: A Study of Children and Adolescents with Hemophilia and Male Siblings Without Hemophilia.* Patricia A. Sirois, Michael A. Posner, James A. Stehbens, Kate A. Loveland, Sharon Nichols, Sharyne M. Donfield, Terese S. Bell, S. D. Hill, Nancy Amodei, and the Hemophilia Growth and Development Study. Journal of Pediatric Psychology, 27;2;121-131, March 2002. (cited 8 times according to Google Scholar)
23. *Comparing Standard Regression, Propensity Score Matching, and Instrumental Variables Methods for Determining the Effectiveness of Mammography in Older Women.* Michael A. Posner, Arlene Ash, Michael Shwartz, Karen Freund, Mark Moskowitz. Health Services and Outcomes Research Methodology, 2001; 2:279-290. (cited 33 times according to Google Scholar. Used in course at Case Western Reserve University. Winner, 2001 Health Policy in Statistics Section Student Paper Competition.)

Other Publications

1. *Collaboration to Meet the Statistical Needs in the Chemistry Curriculum.* Marie Davidian and Charles Kutal. Journal of Chemistry Education, 2013. doi: 10.1021/ed400516y. Drafted the letter as part of the ASA Statistics Education and Chemistry Work Group.
2. *Response to 'Statistics a la* Mode'. K. Scott Alberts, Nancy Boynton, Brian Gill, Patricia Humphrey, John McKenzie, Michael A. Posner, and Andrew Zieffler. *AmStat News*, February 2012.
3. *Letter to the Editor.* K. Scott Alberts, Nancy Boynton, Brian Gill, Patricia Humphrey, John McKenzie, Michael A. Posner, and Andrew Zieffler. *Math Horizons*, February 2012.
4. *Module 8: Inference for One Proportion.* Michael A. Posner (author). Statistical Pathways ("Statway"), a yearlong college-level statistics course targeted at developmental mathematics students. The Charles A. Dana Center and the University of Texas at Austin. Funded by the Carnegie Foundation for the Advancement of Teaching. Released June 2011 (Carnegie Foundation) and September 2011 (Dana Center).
5. Modified Powerpoint slides accompanying Ken Black's Business Statistics for Contemporary Decision Making, 7th edition. Wiley Publications. 2011.
6. *Toward Assessing Understanding of Prerequisite Knowledge for Sampling Distributions.* Michelle Sisto, Tisha Hooks, Michael A. Posner, Dale Berger. Proceedings from the International Conference on Teaching Statistics, 2010.
7. *Evaluating Pedagogical Techniques In Introductory Statistics: Proficiency Grading And Assignment Resubmission.* Michael A. Posner. Proceedings from the International Association of Statistics Education Conference on Assessment, August 2007. (cited 2 times according to Google Scholar)
8. *Final Report: Risk Adjustment Models to Examine AMI Mortality Trend.* Arlene S. Ash, Michael A. Posner, Christine Chaisson, Jeanne Speckman, Shakira Franco, Andrew C. Yacht, Deb Caldwell, Michael Hadad, Mark A. Moskowitz. Centers for Medicare and Medicaid Services. December 2001. Revised in June 2002.
9. *Final Report: More Disease: How Major a Factor is Higher Utilization?* Michael Shwartz, Arlene Ash, Michael A. Posner, Erol Pekoz, Joseph Restuccia. Agency for Healthcare Research and Quality, Grant #R03 HS09832-01. August 2001.
10. Assisted in publication of Shaping the College Experience Outside the Classroom (The University of Rochester Press) by James Scannell and Kathleen Simpson (1996).

Publications – In Progress

1. *Deployment of Information and Communication Technologies (ICTs) in Democratic States vs. Authoritarian Regimes: What Difference Does it Make?* Len Shyles, Michael A. Posner, Erickson Lee. Submitted 2016.
2. *Teachers changing practice: Sustained professional development and its influence on ninth-grade mathematics teachers' instructional and assessment practices.* Kathleen Krier, Nancy Lawrence, Michael A. Posner. Submitted to Teaching and Teacher Education, 2016.

3. *Invasive sedge stabilized dunes more than native grass during Superstorm Sandy*. Bianca R. Charbonneau, Louise S. Wootton, John P. Wnek, Jonathan A. Langley, Michael A. Posner. Submitted to Journal of Applied Ecology, 2016.
4. *Proficiency-based Assessment and Reassessment of Learning Outcome (PARLO): A Three-Year RCT of the Impacts of a Competency-based Grading System on Students and Teachers*. Michael A. Posner, Nancy R. Lawrence, Kathleen Krier, Jennifer Roem. To be submitted to American Education Research Journal, 2016.
5. *A Fallacy in Research on Student Attitudes: The Impact of the First Day*. Michael A. Posner, Molly R. Passarella. To be submitted to the Journal of Statistics Education, 2016.
6. *The Relationship Between Attitudes and Content Mastery in Statistics Classrooms*. Michael A. Posner, Joseph Reiter. To be submitted to the Journal of Statistics Education, 2016.
7. *The Elusive Outcome That We Should Care More About: The Impact of Attitudes and Content on Long-term Retention in Statistics*. Michael A. Posner, Meghan Buckley. To be submitted to the Journal of Statistics Education, 2016.
8. *Delving Into Bad Graphics: How Much of an Impact Does it Have on Decision Making?* Michael A. Posner, Joseph Reiter. To be submitted to the Journal of Statistics Education or Business Education Journal, 2016.
9. *Instructor Characteristics Associated with Student Appreciation of Statistics*. Michael A. Posner, Phil Yates. To be submitted to the Journal of Research in Mathematics Education, 2016.
10. *Expectations, Challenges, and Shifts: Parents/Guardian Involvement in their Children's Proficiency-based Mathematics Education*. To be submitted to School Community Journal, 2016. Nancy R. Lawrence, Kathleen Krier, Michael A. Posner.
11. *Weighting within Strata: A New Method of Propensity Score Sample Selection*. Michael A. Posner. Submitted to Health Services Outcomes Research and Methodology. Revise and Resubmit.
12. *Demographic Content Diversity in Streaming Videos: Implications for FCC Policy Regulation*. Leonard Shyles, Emory Woodard, Brett Lysak, Heather Hundley, Michael A. Posner. Submitted to Information Society, 2010. Revise and Resubmit, 2010. Resubmitted, 2010.
13. *Unplugged*. Kaley Carpenter, Michael A. Posner, Meghan Buckley, Molly Passarella. In progress.
14. *Retention in Colleges*. Trudi Tedjeske, Michael A. Posner, Molly Passarella. In progress.
15. *PARLO – Instructional Support*. Nancy Lawrence, Kathleen Krier, Michael A. Posner. In progress.
16. *PARLO – Quakertown*. Michael A. Posner, Nancy Lawrence, Kathleen Krier, Jennifer Ellis. In progress.
17. *PARLO – Involving Parents in the Student Learning Process*. Nancy Lawrence, Kathleen Krier, Michael A. Posner. In progress.
18. *Should I Use Gain Scores to Determine Treatment Effect from a Pretest-Posttest Design?: A Simulation Study*. Michael A. Posner. In progress.
19. *Sample Size Estimation for Test of Homogeneity with one sample fixed*. Michael A. Posner. In progress.
20. *Ratio Estimation for Medicare Fraud Detection*. Michael A. Posner. In progress.
21. *Efficient Extrapolation for Overlapping Samples for Fraud Detection*. Michael A. Posner. In progress.

Grants (Total of $3.2mil Federal, $160k other)

Awarded
1. Training a New Generation of Statistics Educators (TANGO Stat Ed). National Science Foundation Improving Undergraduate STEM Education program. Three year, $571,091 grant through the IUSE solicitation. Principal Investigator. Create regional hubs to promote statistics education, including establishing mentor relationships and professional development opportunities. My role is Principal Investigator, 2015-2017.
2. Training a New Generation of Statistics Educators (TANGO Stat Ed). This Member Initiative from the American Statistical Association extends the NSF TANGO Stat Ed project to pair community college instructors with statistics education mentors on a national level. Principal Investigator. One year, $10,000. 2015-2016.
3. Data Computing for All: Developing an Introductory Data Science Course in Flipped Format. National Science Foundation Improving Undergraduate STEM Education program. Three year, $235,044 planning grant. Co-Principal Investigator, 2014-2017.
4. Engaging Secondary School Students and Teachers Through a Proficiency-based Assessment and Reassessment of Learning Objectives (PARLO) System in Mathematics. National Science Foundation Discovery Grant (DRK-12). $2.4 million, 4-year grant to examine an assessment paradigm in 9th grade algebra and geometry classes through a randomized controlled trial of 44 schools. Based on the Young Women's Leadership Charter School in Chicago and Posner's classroom-based research study. Statistician and Co-Principal Investigator. 2010-2015.
5. Founding Director, Center for Statistics Education. Awarded grant to create a Center of Excellence in College of Liberal Arts and Sciences at Villanova University. This three year, $50,000 grant supported

creating professional development opportunities, promoting statistics education research, and examining interdisciplinary opportunities in teaching statistics across the college. 2013-2016. The Center has been offered continuing support through the Dean's office and through self-sustaining endeavors since then.
6. Villanova Institute for Teaching and Learning Faculty Associate grant. This grant buys a tenured faculty member out of one course in exchange for teaching-related service or research. $5,125. My project will support classroom-based research and promote the scholarship of teaching and learning among the faculty. Fall 2013.
7. Consultant, statistics curriculum. Education Consortium for the Advancement of STEM in Egypt (ECASE). $25 million grant funded through World Learning, The Franklin Institute, the 21st Century Partnership for STEM Education, and the Teaching Institute for Excellence in STEM (TIES). This project serves to advise the Egyptian Ministry of Education to establish and evaluate a STEM curriculum in five STEM model schools. 2012-2016.
8. Villanova Institute for Teaching and Learning Minigrant entitled "DEVeloping an Inverted Classroom Experience in Statistics (DEVICES)". PI: Michael A. Posner. $5260. 2012-2013.
9. Sub-award from National Science Foundation-funded Math Science Partnership of Greater Philadelphia for $40,000 over two years to study formative assessment in the statistics classroom. My role is Principal (sole) Investigator, 2006-2008.
10. "Examining the Link Between Being a Survivor of Childhood Cancer and Risky Behaviors in Adolescence" through the Center for Nursing Research at the Villanova University College of Nursing. PI: Mary Ann Cantrell. $3000. My role is statistician. 2008.
11. Examining the Visual Impairment of Women through the Center for Nursing Research at Villanova University College of Nursing. PI: Nancy Sharts-Hopko. $1500. My role is statistician. 2009.

Under Review/In Progress
1. Core PARLO. Three year, $1.5mil grant to explore deeper implementation of PARLO in five high schools. My role is consultant.
2. Statistics Summer Experience for Non-Statistician Educators (StatSENSE). Considering submitting for 2017.
3. IES or PDE grant for professional development in statistics. Considering submitting for 2016.

Not Awarded
1. Distress Screening and Service Recommendations for Psychosocial Oncology. A Phase I SBIR Grant to the National Institutes of Health. Serving as statistical consultant. Submitted Dec 2013 – not awarded. Resubmitted Aug 2014. $225,000.
2. PARLO Middle Grades. Submitted to Institute for Education Sciences of the US Department of Education, Sept 2013. Three year, $1.5mil grant to move PARLO into middle grades. Role is Co-PI.
3. NOVEL PRISM (New Opportunities at Villanova for Evidence-based Learning to Promote Interest in STEM for non-Majors). Submitted to NSF, July 2013 and February 2014. Two-year, $250,000 planning grant through the WIDER (2013) and IUSE (2014) solicitations.
4. "CAUSE-and-EFFECTS: Consortium for the Advancement of Undergraduate Statistics Education's Evaluation Foundation For Effective Communities of Teachers of Statistics," is a five-year, $5 million grant to provide the infrastructure to implement, disseminate, evaluate, and sustain innovations in statistics education. Villanova is a collaborator (I am serving as PI) along with Ohio State University, University of Minnesota, the American Statistical Association, and the Inter-university Consortium for Political and Social Research. The Mathematics Association of America and the American Mathematical Association for Two Year Colleges are also participants. Submitted in 2011 and again in 2012.
5. V-SCIENCE - Villanova Sciences Committed to Interdisciplinary Endeavors and Civic Engagement. Howard Hughes Medical Institute. $1,531,943. My role is evaluator. Submitted 2012.
6. National League for Nursing's 2008 Education Grants Program grant with Dr. Marilyn Fetter. $12,800.

Evaluator/Advisory Board/Reviewer
1. NSF DUE grant entitled "Playing Games with a Purpose: A New Approach to Teaching and Learning Statistics." PI: Shonda Kuiper, Grinnell College. This three year, $199,975 grant to the Division of Undergraduate Education examines the roles of statistical games in student learning. I am an advisor/evaluator on this grant.
2. Evaluator, "Semester Conversion: Too Many Students, Too Little Time." Statistics evaluator for Ohio State University's Learning Technology Departmental Impact Grant. One year, $37,892 grant to examine successful pedagogical strategies in larger introductory statistics class at The Ohio State University, 2011-12.
3. NSF REESE grant entitled "Gender-Ethnic Identification and the Development of STEM Achievement Behaviors." PI: Nicole Else-Quest of the Villanova University Department of Psychology. This is a

longitudinal study of the development of gender differences in STEM attitudes and achievement across four major ethnic groups of students in Philadelphia public schools. Total grant award is $284,402.

Presentations

1. *Should we prepare students for our tests or for the workforce?: Evaluating long-term retention*. Joint Statistical Meetings, 2016.
2. *Making Valid Inferences in Observational Studies using Propensity Scores*. Data Insights Cambridge, 2016. Plymouth University (UK), 2016.
3. *Deployment of Information and Communication Technologies (ICTs) in Democratic States vs. Authoritarian Regimes: What Difference Does it Make?* Presented by Len Shyles. NCA Convention, 2016.
4. *Results from PARLO: An NSF-Funded RCT of a Proficiency-based Assessment Paradigm in the Greater Philadelphia Area*. Faculty of Education Invited Talk, University of Cambridge, 2016. REL-NEI Proficiency-and Competency-based Learning Researcher Meeting, 2016.
5. *Statistician! The Hottest Career of the 21st Century*. Plymouth University (UK), 2016. Hills Road Sixth Form School, Cambridge, UK, 2016.
6. *Data Science for All: An Introductory Course for Non-Majors, in Flipped Format*. SIGCSE, 2016.
7. *Brainstorming Data Science as a Fluency Course for Non-Majors and as a New Specialization*. SIGCSE Birds of a Feather session, 2016.
8. *Statistics Education Research: It Takes a Village*. Plenary talk at US Conference on Teaching Statistics, 2015.
9. *Welcome to the Village: Developing a Personal Stat Ed Research Agenda*. US Conference on Teaching Statistics, 2015.
10. *A Flipped Classroom approach to Introductory Data Science*. US Conference on Teaching Statistics, 2015.
11. *Are Pie Charts Really So Bad? An Experiment in Data Visualization*. Joint Statistical Meetings, 2015.
12. *Statistics Education in the Era of Big Data and Data Science*. Philadelphia Area Statistics Teachers Alliance, 2015.
13. *Academic Speed-Dating: Walk Away With Eight Immediately Applicable Ways to Invigorate Your Teaching*. VITAL Teaching and learning Strategies, 2015.
14. *A Practical Example of Expected Value*. Philadelphia Area Statistics Teachers Alliance, 2015.
15. *Barriers, Successes, and the Future of PARLO*. PARLO Summer Conference, 2014.
16. *A Fallacy in Student Attitude Research: The Impact of the First Class*. International Conference on Teaching Statistics, 2014 and Joint Statistical Meetings, 2012
17. *Igniting Evidence-based Instructional Change...One Classroom-based Evaluation at a Time*. VITAL Workshop, 2013 and VITAL Teaching and Learning Strategies, 2014.
18. *Flipped Class: The Challenges and Benefits of Changing the Classroom Dynamic to be Consistent with Cognitive Learning Theories and Focus on Student-Centered Learning*. Joint Mathematics Meetings, 2014.
19. *Educational Research and Evidence-based Education...One Path in a Maze of Opportunity*. Invited presentation for Education 220: Changing Pedagogies in Math and Science Education at Bryn Mawr College, 2011 and 2013.
20. *Mathematical Connections* at Malvern Preparatory School. Invited speaker about the role of a statistician in the field of mathematics, 2013.
21. *Flipping the Classroom: Changing the Classroom Model to Enhance Student-centered Learning and Optimize Use of Time*. US Conference on Teaching Statistics, 2013.
22. *DEVeloping an Inverted Classroom Experience in Statistics (DEVICES)*. Villanova Institute for Teaching and Learning's Teaching and Learning Strategies, 2013.
23. *Using Fun in the Statistics Classroom: An Exploratory Study of Hesitations and Motivations of USCOTS 2011 Attendees*. US Conference on Teaching Statistics, Poster & Beyond Session, 2013.
24. *To Flip or Not To Flip? Lessons from the Trenches*. Villanova University Technology Expo, 2013.
25. *Statistics Education in the Modern Era*. Colloquium presentation for Division of Biostatistics, Thomas Jefferson University, 2013.
26. *Using Hybrid Assessments: Promoting Learning Without Drowning in Grading*. Temple University Faculty Conference on Teaching Excellence, 2013.
27. *Assessment Reassessed: On The Road to Persistence and Proficiency in Mathematics*. STEMathon, 2013. Presented by co-investigators.
28. *Engaging Students Through a Proficiency-based Assessment and Reassessment of Learning Outcomes (PARLO) System*. Joint Mathematics Meetings, 2013.
29. *Did My New Teaching Strategy Work? Ideas for Doing Classroom-based Research*. Invited presenter/facilitator, Villanova Institute for Teaching and Learning "Food for Thought" series. December, 2012.

30. *Practicing What We Preach: Evidence-based Evaluation of your Pedagogical Innovations*. Alder Award Winners Presentations. Mathfest, 2012.
31. *An Innovative Assessment Paradigm: From Classroom to NSF-Funded Research Study*. National Conference of Teachers of Mathematics Regional Conference, 2011.
32. *FREE CLICKERS!: Using PollEverywhere for Formative Assessment in the Classroom*. Joint Mathematics Meetings, 2011. CAUSE Webinar, 2011. Villanova University's Teaching and Learning Strategies, 2011.
33. *Weighting Within Strata: A New Propensity Weight*. American Education Research Association, 2011, as part of symposium on *Propensity Score Analysis: Current Issues and New Developments*. Joint Statistical Meetings, 2009. International Conference on Health Policy Statistics, 2008.
34. *Engaging Secondary Students and Teachers in Proficiency-based Assessment and Reassessment of Learning Outcomes (PARLO)*. American Educational Research Association, 2011. Collaborative Mathematics Education Research Group, 2011. National Science Foundation Discovery Research K-12 Meeting, 2010. Co-presented with Nancy Lawrence. Psychology of Mathematics Education – North America Conference. 2010 (presented by Kathleen Krier)
35. *Should I Use Gain Scores to Determine Treatment Effect from a Pretest-Posttest Design?: A Simulation Study*. Joint Statistical Meetings 2010.
36. *Instructor Characteristics Associated with Student Appreciation of Statistics*. Presented by Phil Yates. Joint Statistical Meetings 2010.
24. *Toward Assessing Understanding of Prerequisite Knowledge for Sampling Distributions*. Presented by Michelle Sisto, International Conference on Teaching Statistics, July 2010. Presented by Tisha Hooks, Joint Statistical Meetings, 2010.
37. *Using Online Homework Assessments*. Roundtable at Joint Statistical Meetings, 2010.
38. *Assignment Resubmissions: Classroom-based Innovations...from Research to Practice*. Villanova Institute for Teaching and Learning's Teaching and Learning Strategies, 2010 and Lilly DC Conference on College and University Teaching, 2010.
39. *Managing the Grading Paradox: Leveraging the Power of Choice in the Classroom*. Presented by Shoshana Dobrow, 2010 Academy of Management Annual Meeting. Awarded "Best Paper" and published in Best Paper Proceedings. Awarded Management Education and Development Division Best Paper in Graduate Management Education. Presented at Lilly East Conference on College and University Teaching, 2010 (co-presented by Michael A. Posner and Wendy K. Smith).
40. *The Health-Related Quality of Life of Childhood Cancer Survivors*. Presented by Mary Ann Cantrell. Villanova University College of Nursing 2010 Annual Research Symposium on "The Many Dimensions of Nursing Research".
41. *Demographic Diversity: Exposure Patterns in the Digital Domain*. National Communication Association's 96th Annual Convention, 2010. Presented by Daniel Trucil.
42. *Letting Go of the Idea that Stats can't be FUN and FUNctional*. With Dennis Pearl, Larry Lesser, and Shonda Kuiper. Invited presentation. US Conference on Teaching Statistics, 2009.
43. *Towards an Understanding of Prerequisite Knowledge of Sampling Distributions*. With Dale Berger, Michelle Sisto, and Tisha Hooks. US Conference on Teaching Statistics, 2009.
44. *The Magic of Statistics…Revealed*. Philadelphia Area Statistics Teachers' Alliance, May 2009. 2007 United Stated Conference on Teaching Statistics.
45. *Making Valid Inferences from Observational Studies Using Propensity Scores*. Villanova University's Department of Mathematical Sciences Colloquium, March 2009. Saint Joseph University's Department of Mathematics Colloquium, March 2009. Kutztown University of Pennsylvania's Department of Mathematics Colloquium, February 2009.
46. *Proficiency-based Assessment and Reassessment of Learning Objectives: An Evidence-based Experiment*. Young Mathematicians Network Poster Session, Joint Statistical Meetings, 2009. Math Science Partnership of Greater Philadelphia Research Meeting, 2009. Joint Statistical Meetings, 2008. Villanova University's Institute for Teaching and Learning's "Teaching and Learning Strategies 2008". Lilly-East Conference on College and University Teaching, 2008 (best poster award).
47. *Digital Diversity: Age, Race/Ethnicity, and Gender of Streaming Video Performers*. National Communication Association's 95th Annual Convention, 2009. Presented by Len Shyles.
48. *Outcomes-based Proficiency Assessment in an Introductory Statistics Course: An Experiment*. Joint Mathematics Meetings, 2008. Math and Science Partnership Research Conference, October 2007 (work presented in abstentia by Robert Styer).
49. *Evaluating Pedagogical Techniques: Proficiency Grading and Assignment Resubmission*. 2007 International Association of Statistics Education Conference on Assessment.
50. *When Standard Regression Fails: The Role of Propensity Scores*. 2007 Joint Statistical Meetings.
51. Research in progress talk. 2007 Math Science Partnership of Greater Philadelphia Research and Evaluation Team.
52. *Secondary Data Analysis*. Villanova University College of Nursing, 2007.

53. *Experiences from Formative Assessment Seminar.* 2007 Math Science Partnership Learning Network Conference. Co-presented with Victor Donnay.
54. *Formative Assessment.* Villanova University's Institute for Teaching and Learning's "Teaching and Learning Strategies 2006", May 18, 2006.
55. *Examining the Trends and Predicting Future Medicare Cost of Non-Melanoma Skin Cancer.* Ross Zeltser, Gary Rogers, Michael A. Posner. 2005 American Society for Dermatologic Surgery (ASDS) ACMMSCO Combined Annual Meeting.
56. *Differences in Medicare Utilization at End of Life by Race, Ethnicity and Age.* Amresh Hanchate, Yinong Young-Xu, Michael A. Posner, Veeran-Anne Singh, Ezekiel Emanuel, Norman Levinsky, Arlene Ash, Jennifer Fonda. American Public Health Association, 2004. Winner, 2004 Betty J. Cleckley Minority Issues Research Award. This work lead to the publication of *Can Primary Care Visits Reduce Hospital Utilization Among Medicare Beneficiaries at the End of Life?* (Kronmen, et. al., J Gen Intern Med 23(9):1330-5).
57. *The Effect of Previous AMI on Mortality Following Subsequent AMI.* Michael A. Posner, Arlene S. Ash, Eric Green. Medical Care Section, American Public Health Association, 2003. Winner, 2003 Student Paper Competition for Medical Care Section of the American Public Health Association.
58. *Does Hospital Discharge To A Homeless Medical Respite Unit Avert Readmission?* S.G. Kertesz, S. Swain, M. Posner, M. Shwartz, J. O'connell, A.S. Ash. Society of General Internal Medicine, 2003.
59. *Acculturation in Haitians.* Eric Green, Michael A. Posner, Karen Freund, Michele David. Society of General Internal Medicine, 2003.
60. *Comparing Standard Regression, Propensity Score Matching, and Instrumental Variables Methods for Determining the Effectiveness of Mammography in Older Women.* Joint Statistical Meetings, 2001. Award best student paper by Health Policy Statistics Section.
61. Using Medicare and Medicaid Data for Health Services Research. International Conference on Health Policy Research, 2001.
62. HCFA/CMS 103 course – Introduction to Medicare Cost and Payment Data. Six times, 1999-2001.
63. Using SAS Macros. Data Coordinating Center, Boston University School of Public Health, 2000.
64. *Prevalence of STDs Among Homeless Persons Not Seeking Medical Care.* Jonathan Howland, Barbara L. Lambl, Sara Minsky, Patricia Martins, Michael Posner, Ellen Klein, William DeJong, Peter A. Rice. American Public Health Association, 1999.
65. *Predicting Recurring Disease Among Patients Presenting at an Inner-city STD Clinic.* Howland J, Minsky S, Martins P, Posner M, Klein E, Rice PA, Lambl BL, DeJong W. International Society of STD Research, 1999.
66. S+ for statisticians and SAS for non-statisticians. New England Research Institutes, 1997-1998.

Awards and Honors

- American Statistical Association's 2012 Waller Education Award. National award given to one early-career college-level educator for outstanding contributions to and innovation in the teaching of elementary statistics.
- Mathematical Association of America's 2012 Henry L. Alder Award for Distinguished Teaching by a Beginning College or University Mathematics Faculty Member. National award given to a beginning (up to 7 years) faculty whose teaching has been extraordinarily successful and whose effectiveness in teaching undergraduate mathematics is shown to have influence beyond their own classrooms.
- Villanova University's Faculty Award for Innovative Teaching, 2010. This award is given annually to a full-time professor whose courses employ creative techniques to enhance student learning and growth.
- A-mu-sing content winner. Best Video and Best Overall Entry for "Stats Can Be Cool You See" (http://www.youtube.com/watch?v=4rKQtDb4VjU). Consortium for the Advancement of Undergraduate Statistics Education, 2013.
- Best paper award, Management Education and Development Division Best Paper in Graduate Management Education, *"Managing the grading paradox: Leveraging the power of choice in the classroom".* Printed in the Best Paper Proceedings for the 2010 Academy of Management Meeting.
- Best poster presentation, Lilly-East Conference on College and University Teaching, 2008. *Proficiency-based Assessment and Reassessment of Learning Objectives: An Evidence-based Experiment*
- Selected as Project NExT Fellow, Mathematical Association of America, 2006-2007.
- Nominated and accepted as full member of Sigma Xi scientific research society, 2006. Previously nominated and accepted as associate member, 1996.
- 2004 Betty J. Cleckley Minority Issues Research Award, American Public Health Association Meeting for *Differences in Medicare Utilization at End of Life by Race, Ethnicity And Age.*
- 2003 Student Paper Award from Medical Care Section of the American Public Health Association. *The Effect of Previous AMI on Mortality Following Subsequent AMI.* Presented at the American Public Health Association in 2003 in San Francisco.

- 2001 Health Policy in Statistics Section Student Paper Award for *Comparing Standard Regression, Propensity Score Matching, and Instrumental Variables Methods for Determining the Effectiveness of Mammography in Older Women.* Presented at the Joint Statistical Meetings in 2001.
- Dean's Award for Dissertational Research, 2001 Boston University Graduate Student Science Research Day.
- Semi-finalist in ASA Hands-On Statistics Activity Competition for "The Magic of Statistics…Revealed". 2010.
- Honorable mention, 2002 Boston University Biostatistics Department Student Paper Award Competition.
- Nominated for 2004 Norman A. Scotch Award for Excellence in Teaching, the highest award for teaching at the Boston University School of Public Health.
- Nominated for Boston University School of Medicine Educator of the Year award, 2000.
- Nominated for Carnegie Mellon University's 1996 Graduate Student Teaching Award.

Professional Service

- Associate Editor, Journal of Statistics Education. 2012-present.
- Associate Director for Professional Development, Consortium for the Advancement of Undergraduate Statistics Education, 2010-2016.
- Co-chair, MAA/ASA Joint Committee on Statistics Education, 2015-2016. Also served as member from 2009-2016 (three terms). Appointed by President of Mathematics Association of America. Chair, subcommittee on PREP workshop, 2012.
- Executive Committee Member-at-Large, Section on Statistical Education of the American Statistical Association, 2010-2012 and 2015-2017.
- Educational Outreach Officer, American Statistical Association, Philadelphia Chapter. 2012-16.
- Member, Mathematics Advisory Group (MAG) for Transforming Post-Secondary Education (TPSE) in Mathematics, 2016.
- Member, Working Group on Statistics Education Research Objectives. 2015-16. Appointed by President-elect of American Statistical Association.
- Member, Judea Pearl Causal Inference in Statistics Education Prize Committee, 2012-2016. Appointed by President-elect of American Statistical Association.
- Collaborative Mathematics Education Research Group (CoMERG), 2010 – Present. Brings together Mathematics Education researchers in the Philadelphia region.
- Creator and Moderator, LinkedIn Professional Networking Group for American Statistical Association's Accredited Professional Statisticians (PStat), 2011 – present.
- Member, American Statistical Association Statistics Education and Chemistry Work Group, 2013.
- Member, Planning Committee, U.S. Conference on Teaching Statistics (USCOTS), 2013, and Electronic Conference on Teaching Statistics (eCOTS), 2012 and 2014. Moderated three sessions at eCOTS 2012.
- Member, Committee to Revise the GAISE (Guidelines for Assessment and Instruction in Statistics Education) College Report, 2012-2013.
- Project NExT Consultant, 2012-2013 and 2013-2014.
- Co-taught mini-course on Teaching Introductory Statistics, Joint Mathematics Meetings – 2011, 2013 and 2014.
- Reviewer, NSF grant proposals, 2011 and 2014.
- Chair and Creator, Award Creation Committee, Robert V. Hogg Award for Excellence in Teaching Introductory Statistics, SIGMAA on Statistics Education, 2011-2012.
- Chair-Elect (2008), Chair (2009), and Past-Chair (2010) of Special Interest Group of the Mathematical Association of America for Statistics Education.
- Member, ASA Public Awareness Workgroup to increase public awareness about the profession of statistics, 2011. Appointed by President of American Statistical Association.
- Selected for participation in "Research Retreat on Teaching and Learning Statistics at the Postsecondary level" to set the national research agenda for Statistics Education Research. Twelve participants were selected from across the country. June, 2010.
- Selected for American Statistical Association's Member Initiative Workshop on Statistics Education Graduate Programs. One of 17 attendees assisted in writing proposal on how to create and foster statistics educations research and graduate programs in the United States. October, 2008. Report approved by ASA executive board in 2009.
- Selected as participant in CAUSEmos research cluster to develop collaborative research teams in statistical education research, 2007-2009. Selected as participant in CAUSE research cluster to examine the use of fun

in the statistics classroom, 2009-2011. Selected as participant in CAUSE research cluster to examine student attitudes towards statistics, 2009-2011.

- Presented CAUSE workshop on Teaching Introductory Statistics, Joint Mathematics Meetings 2010.
- Expert reviewer, Reasoning about P-values and Statistical Significance (RPASS-6), 2007.
- Poster competition judge. Special Awards Judge for the American Statistical Association of Philadelphia at Delaware Valley Science Fair, 2008. Undergraduate student poster judge, Joint Mathematics Meetings, 2007 and 2008. Coordinator of Special award for Excellence in Statistics for Joint Mathematics Meetings, 2009.
- Invited speaker for University of Delaware's "Faculty Roles in Institutions of Higher Education" on July 2, 2008. Spoke with students about being junior faculty member at Villanova.
- Member, Math Science Partnership of Greater Philadelphia's Research and Evaluation Team, 2006 – 2008.
- Member, Program Committee, Boston Chapter of the American Statistical Association, 1997-2005. Served three terms as Treasurer, 2000-2005.
- Refereed 15+ articles for *Medical Care*, *Health Services Outcomes Research and Methodology*, *The American Statistician*, *Journal of Statistics Education*, and *Statistics Education Research Journal*.
- Chaired, moderated, and organized over 30 sessions, panels, or roundtables at the Joint Statistical Meetings, Joint Mathematics Meetings, MathFest, and American Educational Research Association Meetings.

University Service

- Founding Director, Center for Statistics Education. A Center for Excellence in the College of Liberal Arts and Sciences, 2013 – present.
- Member, Graduate Applied Statistics Committee, 2005 – present.
- Member, BS-MS 5-year program in Applied Statistics Committee, 2005 – present.
- Course Coordinator, Business Statistics (MAT1430), 2011 – present.
- Faculty Associate, Villanova University School of Business Center for Business Analytics, 2010 – present.
- Faculty Associate, Villanova University College of Engineering Center for Data Analytics of Dynamic Systems, 2015 – present.
- Member, College of Liberal Arts and Sciences, College Assessment Committee, 2013 – present.
- Creator and Moderator, LinkedIn Professional Networking Group for Villanova University Applied Statistics Graduate Program Alumni, 2009 – present.
- Member, Department of Mathematics and Statistics Social Networking Committee, 2013 – present.
- Course Coordinator, Business Statistics (MAT1430), 2011 – present.
- Member, Faculty Congress Task Force on Carnegie Reclassification, 2014-2015.
- Member, ad hoc Faculty Congress Committee on Surveying Faculty, 2014-2015.
- Statistics Education Consultant (volunteer), interdisciplinary "Joining Forces" project with the College of Nursing and the Center for Nursing Science and Clinical Inquiry at Landstuhl Regional Medical Center (LRMC) in Germany. LRMC is the largest American military hospital outside the USA. Servicing 218,000 active duty military and their dependents throughout Europe, North Africa and the Middle East, LRMC houses the "Combat Casualty Program and treats ill and wounded troops from such "down range" locations as Afghanistan. 2013 – 2015.
- VITAL Faculty Associate. 2014. Taught workshop and offered consulting services to faculty on conducting classroom-based research.
- Member, Department of Mathematics and Statistics Hiring Committee, 2011-2012, 2012-2013, and 2013-2014.
- Member, College of Liberal Arts and Sciences Task Force for the online Bachelors of Arts degree, 2013.
- Member, Villanova International Leadership Team, 2012-2013. University-wide committee to strengthen global leadership and engagement. Appointed by Vice President for Academic Affairs.
- Member, College of Liberal Arts and Sciences Strategic Futures Committee, 2012-3.
- Member, College of Liberal Arts and Sciences Task Force for E-Learning, 2013.
- Member, College of Liberal Arts and Sciences, Search Committee for Director of Assessment, 2013.
- Assisted in creating a track on the Flipped Classroom for the Villanova University Technology Expo, 2013. Presented at Tech Expo on the Flipped Classroom.
- Member, Villanova School of Business Master of Science in Analytics Committee. 2010 – 2013. Group created the Master of Science in Analytics program.
- Member, Villanova School of Business Undergraduate Curriculum Taskforce Subcommittee on Statistics, 2010. Worked with colleagues in VSB to create new 4-credit statistics course required of all business students.

- *Did My New Teaching Strategy Work? Ideas for Doing Classroom-based Research*. Invited presenter/facilitator, Villanova Institute for Teaching and Learning "Food for Thought" series. Nov 2012.
- *The Flipped Classroom*. Invited presenter/facilitator, Villanova Institute for Teaching and Learning "Food for Thought" series. Mar 2013.
- "Diversity of Faith Traditions" invited presenter. Villanova University's Office of Mission and Ministry, Nov 2012.
- Faculty advisor, Villanova University Hillel, 2006 - 2007. Active faculty member, 2005-present. Organized guest lecture on "Moral Education in Public and Private Schools" by Rabbi Dr. Judd Levingston, co-sponsored with Office of Mission and Ministry, Program in Ethics, and Department of Education and Human Services, February 25, 2010.
- Chair, Department of Mathematical Science's Diversity Committee, 2005 - 2006.
- Presenter, Villanova Institute for Teaching and Learning's "Teaching and Learning Strategies," 7 times from 2006-present.
- SafeZone volunteer, 2007 – present.
- Invited to represent the Biostatistics Department at Boston University School of Public Health's planning retreat to determine the future direction of the school, 2004.
- Student representative, Faculty Search Committee, Department of Biostatistics, Boston University School of Public Health, 2002-2004.

Professional Memberships

- Member, *American Statistical Association*, 1991-present.
- Member, Philadelphia Area Statistics Teachers Alliance (PASTA), 2008-present.
- Member, *Mathematical Association of America*, 2005-present.
- Member, *The International Association of Statistical Education,* 2007-present.
- Member, *The American Educational Research Association*, 2008-present. Organized symposium for AERA Meeting, 2011.
- Member, *Sigma Xi* Scientific Research Society. Full member, 2006 – present. Associate member, 1996-2006.
- Member, *American Public Health Association*, 1999-2005.
- Member, *Society of Clinical Trials*, 1997-1999.
- Member, Boston Area SAS User's Group, 1997.

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