THE RAND CORPORATION IS A RESEARCH ORGANIZATION THAT DEVELOPS SOLUTIONS TO PUBLIC POLICY CHALLENGES TO HELP MAKE COMMUNITIES THROUGHOUT THE WORLD SAFER AND MORE SECURE, HEALTHIER AND MORE PROSPEROUS.
MESSAGE FROM THE CHAIR AND THE PRESIDENT

RAND’s mission—to help improve policy and decisionmaking through research and analysis—guides the topics we choose to tackle, our methodological approaches, and our outreach. This year, it also helped inspire RAND to launch its most ambitious fundraising campaign to date.

Our campaign is focused on five priorities.

- **Countering truth decay.** “Truth decay” is the term we use to describe the diminishing role of facts and analysis in public life. As a nonpartisan institution that seeks to advance the public good through research and analysis, RAND is the only research institution that has already invested in an initiative to counter this grave, existential threat.

- **Rethinking and retooling institutions.** The 20th century saw the establishment of some of the world’s most strategic and beneficent organizations. RAND will help to design a revitalized set of institutions to promote security, stability, and prosperity for the century to come—instutions essential to the disciplined, long-term, consensus-driven, and coalition-building efforts on which clear, well-supported policy depends.

- **Strengthening and safeguarding communities.** In confronting global problems such as social and economic inequity, unsustainable cities, migration and displacement, and the health of an aging population, RAND understands the need to solve these problems where people are already experiencing them firsthand—in local communities. By working at the front lines of need, RAND can pilot and refine practical tools and approaches that others can deploy right away.

- **Catalyzing a new era of problem-solving.** The Pardee RAND Graduate School has a crucial role to play in fulfilling our campaign goals: It is an engine of new ideas and talent, and a vital platform for new tools and strategies. We will share what we develop with others, greatly expanding our capacity to bring about positive change.

- **Ensuring agility.** While the scope of the problems we are prepared to address is broad, the scope of emerging problems is even broader. Philanthropic dollars will allow us to meet unanticipated analytic needs rapidly and respond with agility to new research opportunities and evolving research priorities.

This annual report spotlights select research on critical topics we tackled in 2019—everything from disaster recovery efforts, the fentanyl crisis, and innovations in health care to countering extremism and challenges faced by military policymakers. It also tells the story of a mission-driven research organization, focused on impact, with an unparalleled breadth of expertise and a noble goal: to make individuals, families, and communities throughout the world safer and more secure, healthier and more prosperous.

As we embark on this campaign, we look back with pride on what we’ve accomplished and look forward to what more we can do through the power of philanthropy.

As always, we thank the clients, grantors, and donors who support our vision, make our work possible, and help us meet tomorrow’s demands today.

Karen Elliott House  |  Chair, RAND Board of Trustees

Michael D. Rich  |  President and Chief Executive Officer
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Each year, clients and grantors around the world turn to RAND for empirical, nonpartisan, and objective research and analysis, bringing us their most vexing and complex public policy challenges. RAND researchers pursue innovative solutions across a wide range of policy areas, including:

- Children, Families, and Communities
- Cyber and Data Sciences
- Education and Literacy
- Energy and Environment
- Health, Health Care, and Aging
- Homeland Security and Public Safety
- Infrastructure and Transportation
- International Affairs
- Law and Business
- National Security and Terrorism
- Science and Technology
- Workers and the Workplace

On the following pages, we share research highlights from 2019. These projects demonstrate an approach to problem-solving that is founded on rigor and dedicated to advancing the public good.
CHILDREN, FAMILIES, AND COMMUNITIES
CHIL AND FAMILY POLICY IN THE EU

The European Union has committed to improving the lives of children and families across its 27 member states. Researchers at RAND Europe have been tracking policy changes and public outcomes to gauge its progress.

Their reports, sponsored by the European Commission, have helped guide policy discussions by spotlighting developments in member states as well as the EU as a whole.

For example, European states have increasingly recognized the importance of early childhood education and care, and the lifelong impact it can have. A number of them have started to provide subsidies for high-quality programs, researchers reported.

The EU has also sought to ensure a better work-life balance for parents and other caregivers. In keeping with that, the European Parliament approved two months of nontransferable paid parental leave for each new parent, and ten days of paid paternity leave for new fathers. A few countries have also taken steps to provide financial support to large families.

The EU held a children’s summit in early 2019 as part of its twice-annual Presidency Summit. It pledged to ensure that children can participate in public decisions that affect their lives.

But the researchers also found areas that need improvement. The EU has declared that all children have a right to protection from poverty. Yet the most recent numbers suggest that one-quarter of the children in the EU are at risk of poverty or social exclusion. That’s especially true for migrant children.

Work continues on a Child Guarantee Scheme for Vulnerable Children. When completed, it will provide a framework for policies, legislation, and programs to provide essential services for children across the EU. The European Parliament has made it a political priority.

Learn more at www.rand.org/t/EP67946

“It is crucial that we not just identify these initiatives, but assess their impact. It is only through the collection of robust evaluation evidence that we can inform and shape future policy decisions.”

BARBARA JANTA senior analyst
ENHANCING EQUITY

The City of Pittsburgh has been taking a hard look at race, wealth, and opportunity, in partnership with researchers at RAND’s office there. The results show what disparity looks like in one American city, and provide a case study for how other cities might hold up a mirror to their own promises of equity.

Researchers working with financial and strategic support from the City University of New York Institute for State and Local Governance helped the city develop a series of indicators that it could track year to year. The indicators showed that black residents were nine times more likely to be homeless, and five times less likely to own their own businesses. Homicide rates improved across the city, but black residents were still nine times more likely to die a violent death.

The indicators focused mostly on disparities by race, but not always. They showed, for example, that residents of low-income neighborhoods had much higher rates of diabetes than residents of high-income neighborhoods. Female public high-school students were somewhat less likely than their male peers to enroll in science, technology, engineering, and math–based career and technical education programs.

The Pittsburgh Equity Indicators show that it’s possible to track disparities across many fields in a way that is transparent and can help guide good policy. The city government has plans to release millions of dollars for affordable housing and quality child care, guided in part by the indicators. It also has taken steps to require bias training for all police officers, and announced the creation of a dedicated Office of Equity.

“There are conversations about inequity happening all over the country. But how do you measure inequity? Before this work, there hadn’t really been such a systematic look at equity, in Pittsburgh or many other cities—not something that takes it all together and tries to see the whole picture.”

LINNEA WARREN MAY  
senior policy analyst

Learn more at www.rand.org/EP67846
ALGORITHMIC EQUITY

Algorithms are quietly everywhere. They influence car insurance rates, decide who should get called in for a job interview, and help courts calculate criminal sentences. So the question of what makes an algorithm fair has real societal weight.

But that’s a deceptively difficult question, researchers say. Algorithms are just pieces of computer code that can spot patterns and help solve complicated problems. In doing so, they might also replicate and exacerbate historical or structural unfairness. Complicating the problem: Standards of fairness change depending on the context.

People expect equal treatment in the courts, for example—but not in car insurance policies, where certain group characteristics help determine risks and rates. Answering whether a given algorithm is fair requires first answering under what circumstances, for whom, and by what standard.

That expanded discussion is urgently needed, the researchers concluded. Algorithms have shown that they can infer sensitive personal characteristics from un-sensitive data—guessing a person’s race from his or her address, for example. The industry needs frameworks, not a framework, to recognize and address equity challenges like those that come from greater use of algorithms.

That should start with greater transparency whenever an algorithm is at play in a decision that affects people’s lives. But it also requires a deeper, clearer understanding of the risks that algorithms can pose to fair and equitable decisionmaking—and a richer understanding of what we mean by fair and equitable in specific social institutions.

“THIS SUBJECT IS VITALY IMPORTANT RIGHT NOW. UNADDRESSD INEQUITIES CAN UNDERMINE THE STABILITY AND LEGITIMACY OF SOCIAL INSTITUTIONS, AND LEAD TO SEVERE ADVERSE IMPACTS FOR ALL.”

BENJAMIN BOUDREAUX
policy researcher

Learn more at www.rand.org/t/RR2708
STRENGTHENING ANALYTIC CAPABILITIES

The U.S. Department of Homeland Security (DHS) is working to expand its use of data to aid management decisionmaking and program oversight. An analysis of its current systems identified a number of opportunities to improve.

Researchers inventoried the data-analysis tools available to senior leaders, managers, strategic planners, and other headquarters staff. They found that demand for data analysis is high across the organization, but capabilities have not kept pace.

For example, analysts at DHS headquarters often work with basic spreadsheets or text files, such as budgets or strategic plans. That kind of unstructured, unstandardized data does not lend itself to rigorous analysis. Moreover, analysts don’t have a good way to share documents in real time, which makes it hard for them to collaborate.

The study, sponsored by the DHS Office of Policy, Strategy, and Analysis, did not assess the quality of analyses coming out of headquarters. Instead, researchers interviewed key personnel and analyzed data workflows to assess how those analyses are produced, and how they could be more effective. Their findings provide some first steps for DHS as it develops an “analytic agenda” to improve its use of data.

It should improve the quality of its data, and standardize the data wherever possible, researchers concluded. It also needs better platforms to share data and analytic tools. And it should seek to promote transparency and ensure its analyses are reproducible and reliable.

“DHS-HQ OFFICES HAVE CONSIDERABLY MORE DATA AT HAND THAN THEY ARE CURRENTLY ANALYZING. THE DIFFICULTY IN SYSTEMATICALLY ANALYZING THESE DATA SETS ARISES FROM THEIR HIGHLY UNSTRUCTURED NATURE.”

JEFFREY WENGER
senior policy researcher

Learn more at www.rand.org/t/RR2652
EDUCATION AND LITERACY
It takes more than good teachers and textbooks to give students the education they deserve. School districts that focused on developing good principals saw better student achievement outcomes on math and reading tests.

The districts were part of an initiative to build “principal pipelines” to cultivate and support school leaders. They set new standards, provided more opportunities for mentorship and on-the-job training, and tracked candidates as they moved through the pipeline. The Wallace Foundation funded the initiative and asked researchers to evaluate it.

Researchers looked at data from more than 1,000 pipeline schools, and compared them to similar schools that were not part of the initiative. They found that after three years, students in the pipeline schools were doing better than students in the comparison schools by an average of more than 6 percentile points in reading and nearly 3 points in math.

The pipelines had a positive and statistically meaningful impact on schools that needed it the most—those in the lowest quartile of student achievement. A more limited analysis suggested the effects, while still positive, were somewhat smaller in schools with higher rates of poverty or students of color.

The costs of running a principal pipeline amounted to around one half of 1 percent of a district’s budget, researchers estimated. Even after the Wallace funding ran out, they found, every one of the districts that participated continued to bring principals up through the pipeline.

“WE’RE NOT AWARE OF ANY OTHER DISTRICTWIDE INITIATIVES WITH POSITIVE EFFECTS ON STUDENT ACHIEVEMENT OF THIS MAGNITUDE.”

SUSAN GATES
senior economist
PATHWAYS FROM PRISON TO POSTSECONDARY EDUCATION

Researchers at RAND have spent years documenting the value of prison education, in cost savings as well as crime reduction. A program in North Carolina offers some important lessons for other states looking to bring higher education behind bars.

The state was part of a five-year pilot project called Pathways from Prison to Postsecondary Education. It was funded by a consortium of charitable foundations and overseen by the Vera Institute of Justice, which brought in RAND to help evaluate its implementation.

State prisoners who were accepted into the program completed at least two years of college-level course work before their release. Afterward, they received financial support and help with housing and transportation so they could finish their degrees or earn professional certificates.

But researchers found participants often needed more general education before they started their college work. State rules limited the fields they could major in, and state resource constraints limited where they could continue their education post-release. Many participants also struggled to keep up with full-time classes as they were transitioning back into society.

Other states interested in prison-college programs should consider hiring navigators to help participants manage the demands and expectations, researchers wrote. They also should make sure they have the rules and resources in place to help participants succeed, pre- and post-release.

The returns could be substantial. Previous RAND research has shown that prisoners who participate in education programs are 13 percentage points less likely to reoffend than those who don’t. For every dollar spent on prison education, states can save $4 or $5 on reincarceration costs.

“THE PROGRAM WAS GIVEN HIGH MARKS BOTH BY PARTICIPANTS AND PRISON OFFICIALS. BUT AN OVERARCHING LESSON IS THAT IT TAKES TIME TO IMPLEMENT A PRISON- AND COMMUNITY-BASED COLLEGE PROGRAM THAT HAS MANY PARTNERS AND TARGETS A POPULATION THAT HAS DIVERSE NEEDS.”

LOIS DAVIS
senior policy researcher

Learn more at www.rand.org/t/RR2957
REACHING GULF COAST RESIDENTS DURING DISASTERS

When disaster looms on the U.S. Gulf Coast, not everyone gets the message. Warnings and news updates too often fail to reach people at particular risk: racial and ethnic minorities, people living in poverty, and older adults.

Researchers surveyed more than 2,500 Gulf Coast residents to better identify ways to keep them informed before and during a crisis. Their study, sponsored by the Gulf of Mexico Research Initiative, highlighted some key differences in where people get their news, and whom they trust.

African-Americans, for example, were less likely than whites to say they use the radio as a source of news. They were more likely to trust national media and religious sources. Older adults, meanwhile, listed medical professionals and the national media as some of their most trusted sources.

Television was the most commonly used channel for news and information across all population groups, a finding that has held up despite the rise of social media. When it came to individual sources of information, doctors were the most trusted, followed by local media, academics, and friends and family.

The results underscore the fact that, in a crisis, emergency responders cannot rely on the same information channels to reach all people. Instead, they need to tailor their communications to better reflect the preferences of different populations.

That’s especially important on the Gulf Coast. The region has a greater share of older adults, racial and ethnic minorities, people living below the poverty line, and people with less than a college education than other parts of the country. Systemic inequalities along those demographic lines have been shown to exacerbate the risk people face in disasters.

And with sea-level rise, extreme temperatures, and severe hurricanes, the Gulf Coast can expect more than its share of those in the years to come.

Learn more at www.rand.org/t/EP67941

“ONE WAY TO IMPROVE PRE-CRISIS PLANNING IS TO IDENTIFY VULNERABLE GROUPS, LISTEN AND ENGAGE, AND TAILOR CRISIS COMMUNICATION STRATEGIES TO THEM. CONSIDERING THE VULNERABILITY OF THE REGION, PLANNING THAT ACCOUNTS FOR THE CHARACTERISTICS OF THE GULF COAST AND ITS RESIDENTS IS URGENT.”

ELIZABETH PETRUN SAYERS
behavioral and social scientist
“MEDICARE FOR ALL” COST ESTIMATES

What would “Medicare for All” really mean for health care costs and consumers? The New York Times challenged a team at RAND and other top experts to put together their best estimates. The RAND team’s top-level finding: A plan similar to those that have been discussed in Congress could raise overall health care costs by around 1.8 percent.

If such a plan were in place right now, total health care costs for 2019 would have been around $3.89 trillion, the RAND researchers estimated. That placed them roughly in the middle of the expert assessments.

The RAND team modeled a proposal in which the federal government would become the “single payer” in the health system. It would provide comprehensive health and long-term care coverage, replacing private insurance for most services. Consumers would pay into the health system through taxes rather than insurance premiums. If the new taxes were progressive, it’s possible that those in lower income brackets would see overall health care payments fall, while those in higher brackets would see them rise.

The government could lower administrative costs and try to negotiate lower provider payments and drug prices. But the demand for health care would rise, which could increase wait times. The RAND team assumed that unmet demand would equal half of new demand.

The researchers were not looking at any single proposal when they drew up those estimates, but on the broad outlines of several proposals that have been floated. They cautioned that, with few specifics to go on, their analysis required a number of assumptions about what such a plan would look like.

Learn more at www.rand.org/t/RR3106
THE FENTANYL CRISIS

Deaths involving fentanyl and other synthetic opioids surged from around 3,000 in 2013 to more than 30,000 in 2018. In response, researchers carried out the most comprehensive study to date of what’s driving the crisis, how it could play out in the future, and what may be done to save more lives.

They concluded that fentanyl and other synthetic opioids present a unique challenge to modern drug policy. These drugs, marketed on the open internet, are much cheaper than heroin and up to 30 times more potent. Drug dealers are mixing it into heroin to boost profits; some buyers don’t even know they’re getting it. It’s more useful to think of the crisis as a mass poisoning than as a traditional drug epidemic.

And it’s likely to get worse. Fentanyl and other synthetic opioids have so far been concentrated in some parts of the country while leaving others almost untouched. But they have started to appear in counterfeit pills and mixed with other drugs, expanding their reach into new markets. Fake prescription medications are a worrying trend, because individuals taking them may mistakenly think they are genuine products of known dose and consistency.

The United States needs to increase access to evidence-based treatment for people with substance-use disorders, and look for ways to disrupt the flow of synthetic opioids. But it also should consider innovative, and controversial, responses. Some approaches tried in other countries include supervising drug consumption to prevent overdoses from becoming fatal. Additionally, some countries allow individuals who do not benefit from other standard treatments, like methadone, to obtain and use medical-grade heroin under supervision. The researchers concluded that limiting policy responses to existing approaches seems unlikely to reverse the tide.

Learn more at www.rand.org/t/RR3117

“This is a new era. We haven’t seen anything like this since heroin first hit the streets more than 100 years ago.”

BRYCE PARDO
associate policy researcher
Funding for this research was provided by gifts from RAND supporters and income from operations.
HEALTH CARE INCENTIVES SAVE INFANT LIVES

A research project in Nigeria saved an estimated 260 young lives by giving pregnant women small incentives—around $14 each—to see a doctor before birth. If the program were expanded, it could prevent up to 85,000 stillbirths every year in Nigeria alone.

The country has some of the highest rates of newborn deaths in the world. Around a third of women receive no prenatal care. Working with a grant from the Eunice Kennedy Shriver National Institute of Child Health and Human Development, researchers looked at what it would take to get more women into formal health care, and what it would mean for their infants.

They recruited more than 10,000 pregnant women in five mostly rural Nigerian states for the study. They offered half of the women small cash payments to attend three prenatal checkups, deliver in a health facility, and attend one postnatal visit. The payments—of 5,000 Naira, or around $14—were about a third of what an average household spends on food every month.

Women who received the payments were twice as likely to use the full package of health services as those in the control group. Their children were 8 percent more likely to survive into their first few months—a number driven almost entirely by significant reductions in prebirth mortality.

The study provides some of the first credible evidence that giving women small incentives to use formal health care during pregnancy can save lives. It also suggests the focus should be on providing institutional care not just at birth, but throughout pregnancy. If it were scaled up to include every pregnant woman in Nigeria, the researchers estimate it could reduce the global number of stillbirths by 3 percent.

Learn more at www.rand.org/t/EP68048

“THE IMPROVEMENTS WE SAW IN CHILD HEALTH OCCURRED IN THE ABSENCE OF ANY MAJOR INVESTMENTS OR IMPROVEMENTS IN HEALTH CARE SERVICES. THIS SUGGESTS THAT THERE IS VALUE TO POLICIES THAT PROMOTE UTILIZATION, EVEN UNDER STATUS-QUO CONDITIONS.”

EDWARD OKEKE
senior policy researcher
HUMAN SMUGGLING

Smuggling unlawful migrants from Central America into the United States has become a lucrative industry worth at least $200 million a year, and possibly as much as $2.3 billion. The broad range in those numbers points to a significant challenge for the U.S. Department of Homeland Security as it seeks to combat human smuggling across the southern border.

Researchers found that the department needs more reliable information on the numbers of unlawful migrants traveling north, how they use smugglers, and how much they pay. It’s hard for law enforcement to effectively target human smuggling without more precise information about the industry and how smugglers operate.

The researchers estimated as many as 345,000 unlawful migrants made the journey from El Salvador, Guatemala, and Honduras in 2017. Most received help along the way, often from loose networks, informal groups, or independent operators with no apparent ties to transnational criminal organizations.

The researchers were, however, able to identify one way that criminal organizations do profit from human smuggling. Drug traffickers control key portions of the route, and charge migrants a tax, or piso, for the right to cross their territory. One key finding was that drug traffickers might be making between $30 million and $180 million a year in piso payments.

Tracking the flow of unlawful migrants and money from one smuggler to another presents challenges. But the researchers concluded the Department of Homeland Security could work more closely with foreign law enforcement agencies to disrupt local smuggling efforts.

At the same time, the department can take steps to collect better data to better inform policy and funding decisions. For example, it could develop a standard set of questions to ask migrants apprehended at the border. That could provide a much clearer understanding of the structure, operations, and funding of human smugglers.

Learn more at www.rand.org/t/RR2852

“HUMAN SMUGGLING INVOLVES MANY DIFFERENT TYPES OF ACTORS, AND WE FOUND WE COULD NOT CREDIBLY DISTINGUISH MOST CRIMINAL ORGANIZATIONS’ ACTIVITIES FROM THOSE OF INDEPENDENT OPERATORS AND OTHER ACTORS.”

VICTORIA GREENFIELD
senior economist
A WATER MANAGEMENT STRATEGY FOR MONTERREY

Monterrey, Mexico, is a city of 4 million people, and growing fast. It needs more water to ensure it can reliably meet the needs of its population, especially in the face of climate change.

Researchers partnered with Tecnológico de Monterrey, the largest private university in Mexico, to identify the most effective—and cost-effective—options. The Fondo de Agua Metropolitano de Monterrey (Monterrey Metropolitan Water Fund) sponsored their study.

It relied on a method of future planning developed at RAND called robust decision making (RDM). Researchers developed new computer models to simulate the performance of the water management system over hundreds of possible futures, and then identified adaptive infrastructure investment strategies that would perform well over most futures.

Regional water planners had considered a $3 billion aqueduct to pipe water from a river more than 300 miles away. But the models showed that would only be necessary under conditions of very high demand and very adverse climate changes.

Instead, the researchers recommended an investment plan that would meet the city’s short-term water needs but would cost less than one-sixth as much. It called for tapping new groundwater sources, building a new dam, and improving the efficiency of the existing water system. More-expensive projects—a desalination plant, another dam—could come online in the future if conditions warrant.

The study also showed that new water tariffs on upper-income households could reduce water use by an average of 3 percent. That would save hundreds of millions of dollars under low- and medium-growth scenarios.

The findings provided a foundation for the 2018 Monterrey Water Plan, the first long-range water management strategy in Mexico. Water planners have also expanded their monitoring of groundwater supplies, to better manage the water they have.

“OUR MANDATE FOR THIS PROJECT WAS TO SUPPORT THE DESIGN OF AN ENTIRELY NEW WATER MANAGEMENT STRATEGY TO MEET THE NEEDS OF THE REGION DESPITE THE GREAT UNCERTAINTY OVER FUTURE DEMAND AND WATER AVAILABILITY.”

DAVID GROVES
codirector, RAND Center for Decision Making Under Uncertainty;
codirector, RAND Climate Resilience Center
RUSSIA’S HOSTILE MEASURES IN EUROPE

Russia has the motivation and the means to cause trouble throughout Europe—not necessarily with military force, but with corruption, misinformation, and attacks on the rule of law. Its tactics demand a new approach from U.S. forces stationed on the continent.

Researchers looked at where and how Russia is likely to apply political, economic, diplomatic, and military pressure in the next few years. Their study, sponsored by the U.S. Army, relied on public reports, interviews with experts, and insights from a RAND symposium on Russian measures short of war.

It concluded that smaller countries in Southeastern Europe, as well as former Soviet republics like Ukraine, are especially likely to face Russian subversion. Russia wants to undermine NATO and the European Union in the region, and assert its own cultural and economic ties. Those countries are actually more likely targets than the Baltics, which are often seen as vulnerable.

The countries of Western Europe do not face such direct attempts at coercion. But there, too, Russia has cultivated relationships with far-right extremist groups to undermine social institutions and the rule of law.

Countering Russia is going to require a whole-of-government response from the European countries most at risk, with support from the United States. In particular, they need to bolster democratic institutions and provide media alternatives to Russian disinformation. The Army can help, researchers wrote, by building up not just its combat capabilities in Europe, but also its public affairs, civil affairs, and intelligence capabilities.

Learn more at www.rand.org/t/RR1793

“RESPONDING TO RUSSIAN HOSTILE MEASURES PLACES A NEW PREMIUM ON POLITICAL AWARENESS, AS WELL AS ON CRISIS MANAGEMENT AND RESPONSE. SOLDIERS NEED TO BE AWARE OF POLITICAL SENSITIVITIES AND THE RISKS OF INTERNATIONAL ESCALATION, AND BE PREPARED TO ACT APPROPRIATELY.”

RAPHAEL COHEN
senior political scientist
COUNTERING SECTARIANISM

Sectarian conflict is often seen as a defining feature of the modern Middle East. Yet the reality is much more complicated. At the local level, especially, communities are not nearly as riven or driven by sectarian prejudice as the conventional wisdom says they are.

But what makes communities resilient to the worst impulses of sectarianism—in particular, the deeply rooted grievances between Shi’a and Sunni Muslims? Researchers convened a group of Middle East scholars to examine communities in Lebanon, Bahrain, Syria, and Iraq as case studies. The Henry Luce Foundation funded the project.

The researchers found that weak borders, as in Syria, can allow sectarian agitators to penetrate a community. Political elites often fan sectarian tensions for their own gain. And steep socioeconomic disparities between one group and another can make those tensions much worse.

But sectarian violence is still the exception, not the norm. Even at the height of the civil war in Iraq, communities where Sunni and Shi’a Muslims lived together were often able to resist falling into sectarian conflict. In Lebanon, sectarian politics have started to give way to political movements focused more on economic development, education, and other issues of concern to all sides.

The international community can help by limiting support for sectarian leaders or parties and by de-escalating conflict between the two power poles of the Middle East, Saudi Arabia and Iran. It can also work to strengthen borders, and to open up space at the local level for nonsectarian political movements.
VIRTUAL SOCIETAL WARFARE

The United States faces a new and emerging category of cyber threat, one that will make malicious tweets and election meddling look crude by comparison. Researchers call it virtual societal warfare.

Russia and China already see themselves engaged in a war with the West to shape the very nature of reality, the researchers concluded. But the United States and other countries have only glimpsed the tip of what such adversaries will be able to accomplish as more and more of society goes digital.

Sophisticated video forgeries that appear to show people saying things they never did are starting to appear online. In the near future, adversaries might also be able to corrupt databases that underpin the economy, or manipulate the computer algorithms used in decisions ranging from home loan approvals to jail sentences.

Their purpose is not necessarily to cause physical damage, the researchers found. Instead, it’s to create a persistent sense of insecurity and anxiety, to make people think that basic institutions of democratic society cannot be trusted.

The study, sponsored by the U.S. Defense Department’s Office of Net Assessment, warned that the United States is running out of time to prepare. It needs to strengthen its cyber defenses, but that alone will not be enough.

As a society, it also needs to experiment with new ways to fact-check information, to inoculate people against disinformation and deception, and to enhance the security of vulnerable information networks such as the rapidly growing Internet of Things. National security will increasingly depend on society’s ability to safeguard its information environment, or “infosphere,” against all forms of disruption.

Learn more at www.rand.org/t/RR2714

“LARGE-SCALE INVASIONS OF ONE COUNTRY BY ANOTHER HAVE MOSTLY BECOME A THING OF THE PAST. BUT HOSTILE MANIPULATION OF THE INFOSPHERE AND THE SOCIAL FABRIC OF OTHER NATIONS MAY BE THE NEW FRONTIER OF AGGRESSION.”

MICHAEL MAZARR
senior political scientist
LEGAL CANNABIS: SUPPLY AND DEMAND

More than 25 percent of the U.S. population lives in states that have legalized cannabis sales and use for adults. Washington State was one of the early movers. Researchers working with the state’s Liquor and Cannabis Board analyzed how the market—and the product—has evolved there.

The researchers had provided baseline estimates of cannabis consumption to guide state policymakers before the first licensed stores opened in 2014. With a few years of data in the state’s seed-to-sale tracking system, state regulators wanted an update.

Most previous studies had measured the total weight of cannabis harvested and sold. The researchers went beyond that, estimating the amount of the active compound THC moving through the market.

They found that licensed stores sold around 26 metric tons of THC in the fiscal year that ended in June 2017. Most of that was as cannabis flower, followed by extracts for inhalation, such as vape pens or waxes. The volume of THC sold in the stores had nearly doubled since the previous year.

The researchers also used national and state surveys to estimate that Washington residents bought between 40 and 60 percent of their THC from the state’s licensed stores in the third year of the legal market. Most of the rest was likely still coming from the illicit market.

The study provides one of the most comprehensive pictures to date of one state’s legal cannabis market. As such, it provides lessons learned for other states and countries considering their own legalization initiatives.

Learn more at www.rand.org/t/RR3138

“The cannabis policy landscape is changing dramatically. Jurisdictions that have legalized cannabis—or are considering it—need reliable market information to make credible projections and conduct rigorous evaluations.”

Beau Kilmer
Director, RAND Drug Policy Research Center
LIABILITY IN THE AGE OF CYBERCRIME

Cars are becoming “fast, heavy artificial intelligences on wheels,” researchers cautioned—and that means they’re becoming vulnerable. Potentially billions of dollars ride on the question of who has the legal responsibility to keep hackers from grabbing the wheel or cutting the brakes.

Reality here is catching up to science fiction. In 2015, hackers showed that they could take control of a Jeep Cherokee through a hidden flaw in the entertainment system. The revelation prompted the first cybersecurity-related vehicle recall in U.S. history.

Researchers looked at how courts might assign blame in the future if a hacker taps into an autonomous vehicle and causes trouble. Precedent-setting negligence and product-liability cases provide some idea of the legal thinking a court might apply: Could someone have foreseen the problem and taken reasonable steps to fix it? The tougher question might be, Who’s the someone?

It could be an owner who missed a software update and left the car vulnerable to hackers. Or it could be a local government, if hackers were able to penetrate connected infrastructure. Car makers and software providers will also need to stay on top of potential vulnerabilities, even years after the car comes off the assembly line.

Existing laws and legal precedents should be enough to address most claims arising from hacked vehicles, the researchers concluded. But there is one scenario policymakers might want to consider. A mass hack of many vehicles at once might cause so much damage that no single insurance policy or class-action lawsuit could cover it. In a case like that, policymakers might want to have a legal backstop to cover the flood of claims, much like one they established after the 9/11 attacks.

“WE HAVE NO WAY OF KNOWING THE PROBABILITY OF HACKERS EXPLOITING AUTONOMOUS VEHICLES. I’LL MAKE THE CLAIM THAT IT’S NOT ZERO. HOPEFULLY THIS WILL HELP ADVANCE THE CONVERSATION ABOUT THESE ISSUES, TO BRING THAT RISK CLOSER TO ZERO.”

JAMES ANDERSON
director, RAND Institute for Civil Justice

Learn more at www.rand.org/t/RR2654
Funding for this research was provided by gifts from RAND supporters and income from operations.
SYDNEY HARBOUR BRIDGE
MONITORED BY
24hr VIDEO SURVEILLANCE
RTA
COUNTERING VIOLENT EXTREMISM IN AUSTRALIA AND ABROAD

Like many countries, Australia has spent tens of millions of dollars to combat the spread of violent extremism within its borders. And like many countries, it has done so without a clear understanding of what works, what doesn’t, and what could make its programs more effective.

To fill that gap, RAND Australia developed a framework to compare counter-extremism programs across countries and contexts. Its purpose is to help policymakers learn from the experiences of others and identify the most promising approaches.

Researchers looked at two Australian programs as case studies. One of them, an online magazine called The Point, covers international conflicts from a local perspective as a way to encourage more open discussion among young people. The other, Community Awareness Training, seeks to help families and service providers recognize early-warning signs of extremist thought or behavior.

Using the framework, researchers identified a number of programs around the world with similar aims and approaches. In Germany, for example, an online community of young people works to counter hate propaganda. A program in London trains people to intervene to keep young people out of violent gangs.

Those programs should be sharing information and identifying best practices to help each other counter violent extremism in all its forms. The RAND Australia project was meant to provide a foundation for that kind of global, coordinated effort. The stakes are high, as Australia has learned: Per capita, it is one of the largest source countries in the world for foreign fighters in Iraq and Syria.

“THERE’S BEEN AN INCREASE WORLDWIDE IN PROGRAMS TO COUNTER VIOLENT EXTREMISM, BUT IT’S NOT CLEAR THAT IT’S BEEN ACCOMPANIED BY A GOOD UNDERSTANDING OF WHAT APPROACHES ARE MOST EFFECTIVE. OUR PROJECT BEGINS AN ATTEMPT TO CHANGE THAT.”

JENNIFER D.P. MORONEY
senior political scientist
NEW PARADIGMS FOR AIR BASES

Facing stronger, more capable adversaries like China and Russia, the U.S. Air Force can no longer afford to operate the way it has since the end of the Cold War. Large air bases may have been an efficient way to deploy forces in the past; now, they’re vulnerable and target-rich.

Researchers working with the Air Force looked at what it would take to distribute forces to many smaller bases during a conflict. It’s much harder for an enemy to strike ten bases with a dozen fighters each, they reasoned, than a single base with 120 fighters.

Based on previous research and discussions, the researchers considered how the Air Force may need to adapt to operate out of three different types of bases in a future conflict. Stay-and-fight bases would be larger, well defended, and far from the front lines. Drop-in bases would be smaller and closer to the conflict, able to support air attacks for around a week at a time. And forward bases would be smaller still, designed to arm and refuel fighters and then shut down within hours.

Spreading forces out like that would require significantly more resources to staff and defend more bases. It also would require standing agreements with other countries to host more and smaller bases in the event of a conflict. And the Air Force might struggle to maintain communications between its many distributed bases, especially against an adversary with the means to disrupt communication networks.

It may need to delegate more authority to lower echelons to overcome that challenge, researchers concluded. It should also cross-train airmen so that they can cover multiple roles at smaller bases, such as servicing different types of aircraft. And it should put all of that into training, so that lines of authority transition smoothly in the event of a conflict.

“A CONFLICT WITH A GREAT POWER WILL OVERTURN TWO KEY ASSUMPTIONS THAT HAVE PREVAILED IN RECENT DECADES: THAT AIR BASES ARE SANCTUARIES AND COMMUNICATIONS ARE RELIABLE. IN SUCH A FIGHT, THE U.S. AIR FORCE WILL HAVE TO TRADE EFFICIENCY FOR SURVIVABILITY, AND TAKE A NEW APPROACH TO COMMAND AND CONTROL.”

MIRANDA PRIEBE
political scientist
THE FUTURE OF RUSSIA’S MILITARY

The Russian military will continue to modernize and improve in the coming years, researchers predicted in a study for the U.S. Army. Its focus, though, will be on establishing dominance in its immediate neighborhood, not on fighting a ground war with the West.

Researchers analyzed the political, economic, and social factors that will shape Russian military investments for the next 20 years. They concluded that the story will be one of steady but incremental improvement in Russian military capabilities, barring any unforeseen developments like a surge in the Russian economy.

Russia will continue to prioritize regional dominance, strategic deterrence, and internal security. Toward those ends, it will focus on improving its rapid-deployment forces, command and control, air defenses, and long-range strike capabilities. Its maneuver ground forces and artillery will likely see less change.

It has neither the resources nor the strategic interest to start a major conflict with the West. Nonetheless, it will compete for dominance in the former Soviet republics that it considers its near-abroad. It also might support proxy forces that undermine U.S. interests in other conflicts. The challenge for the U.S. military will be preparing for a range of Russian postures, from cooperation to conflict, without provoking escalation.

The United States should look for ways to support partner nations within Russia’s desired sphere of influence, the researchers concluded. That might mean providing more foreign-area officers, security-force assistance, information capabilities, and military medical units. At the same time, the Army should address gaps in its capabilities for high-intensity conflict, such as by improving air and missile defenses and strengthening communications.

Learn more at www.rand.org/vRR3099
"RUSSIA WILL CONTINUE TO FOCUS ON ACHIEVING REGIONAL DOMINANCE IN ITS NEIGHBORING STATES, EMPHASIZING THE READINESS AND PROFESSIONALIZATION OF A SMALL COMPONENT OF ITS OVERALL MILITARY FORCE."

ANDREW RADIN
political scientist
SCIENTIFIC RESEARCH ETHICS

Do all scientific disciplines play by the same rules of ethics? That’s more than a philosophical question; the answer could provide an ethical baseline for scientists working in new fields like artificial intelligence or synthetic biology.

The Intelligence Advanced Research Projects Activity posed the question to RAND researchers as it worked to develop ethical guidelines for its own research in those emerging fields. Researchers reviewed existing ethics and professional standards, and interviewed experts in the U.S., Europe, and China.

They identified ten fundamental principles that guide ethical research across fields and countries. Scientists and researchers should conduct themselves with professional competence, discipline, and integrity, and without conflicts of interest. They owe participants in their research the right to informed consent, beneficence, non-discrimination, non-exploitation, and privacy. And their research should perform a duty to society.

Where those principles vary from country to country or field to field, it’s often because of past ethical lapses, new advancements, or evolving cultural norms. Those variations raise the risk of “ethics dumping,” or researchers doing work in countries with less stringent ethical rules than their own.

The study could help guide scientists in emerging fields when they run into ethical challenges without a well-established set of ethical standards to fall back on. The study also provides a framework for research sponsors to make sure they are supporting ethical research—without unintentionally encouraging ethics dumping.

Learn more at www.rand.org/t/RR2912

“IF YOU DON’T KNOW WHERE TO BEGIN, HERE’S A STARTING POINT: TEN ETHICAL PRINCIPLES THAT EVERY SCIENTIFIC DISCIPLINE AGREES ON. THEY CAN HELP ADDRESS THE LACK OF CLEAR AND WELL-DEFINED ETHICS IN EMERGING DISCIPLINES.”

CORTNEY WEINBAUM
senior management scientist
MILITARY USE OF ARTIFICIAL INTELLIGENCE

The United States and other world powers are spending billions of dollars to automate at least some of the functions of war. That raises a critical question: What happens to our theories of deterrence when artificial intelligence is in the loop?

Researchers developed a wargame to begin exploring that question. The results provide a glimpse at how difficult future crises may be to manage.

The game imagined a future conflict between the United States, Japan, and South Korea on one side, and China on the other. All had developed autonomous systems to either make decisions or to carry out missions.

As the crisis escalated, that made it harder for the humans involved to read the intentions of the other side. They had to guess at what the machines were thinking, and the machines had to guess at what they were. That only raised the risk of misinterpretation, misperception, and catastrophic miscalculation.

To make matters worse, decisions made at machine speeds also escalated the crisis at machine speeds. At one point, for example, North Korea lofted a missile toward Japan in support of China.

An autonomous system shot it down—but then fired an unexpected strike at North Korea.

The results of the game showed that at least one element of deterrence will still hold in the age of AI: Putting human lives on the line sends a powerful signal. Early on, when machines were destroying other machines, the conflict lacked the urgency that it picked up immediately when human lives were at stake. In the future, to prevent an adversary from making a move, bots on the ground might not send enough of a deterrent message.

“THE UNITED STATES AND CHINA BOTH SEEM VERY COMMITTED TO INVESTING IN ARTIFICIAL INTELLIGENCE AND AUTONOMOUS SYSTEMS, BUT WE NEED TO ASK WHETHER SOME OF THOSE SYSTEMS ARE INHERENTLY MORE ESCALATORY. WE NEED TO AVOID A FUTURE WHERE THE FIRST TIME WE’RE ASKING THOSE QUESTIONS IS AFTER WE’VE FIELDED THESE SYSTEMS AND WE’RE IN A CRISIS.”

YUNA WONG
policy researcher
Funding for this project was made possible by the independent research and development provisions of RAND’s contracts for the operation of its U.S. Department of Defense federally funded research and development centers.
OPPORTUNITIES FOR ALL

Millions of Syrians have fled their homes amid civil war and now struggle to make a living as refugees in unfamiliar countries. Their numbers alone could make them an economic force in their host countries and in the broader Middle East—with some help.

A team of RAND researchers surveyed hundreds of Syrian refugee households to identify how they could better contribute to the social and economic well-being of their new countries. The researchers also conducted interviews and focus groups in Turkey, Jordan, and Lebanon. The study, sponsored by the Qatar Fund for Development, provided an expansive look at the challenges Syrian refugees face, and the opportunity they could represent.

It found that high percentages of Syrians who want to work cannot find jobs, especially women. In Jordan, for example, Syrian refugees often cannot get work permits. Lebanon allows them to work only in certain industries, such as construction or agriculture. And in Turkey, where they don’t speak the language, Syrians are often concentrated in border areas far from job centers.

Employers described Syrians as skilled and hard workers, and expressed compassion for their plight. But the study also found some resentment among workers, and fear that refugees would compete for scant jobs.

It recommended that host countries ease restrictions on Syrian workers and help them get the work permits they need. But it also urged those host countries to take steps to improve the prospects for all workers—by reducing red tape, for example, or helping businesses obtain financing. The international community could help by investing in large-scale infrastructure projects that would put Syrians and their hosts to work.

Learn more at www.rand.org/t/RR2653

“THERE’S GREAT POTENTIAL HERE. WE’VE PRESENTED OUR FINDINGS TO GOVERNMENTS, AID AGENCIES, AND NONGOVERNMENTAL ORGANIZATIONS THROUGHOUT THE REGION, AND THEY ARE BEGINNING TO INFORM FUTURE PROGRAMMING EFFORTS.”

KRISHNA KUMAR
director of International Research
A NEW WORKFORCE DEVELOPMENT AND EMPLOYMENT SYSTEM

Too many Americans still aren’t getting the education and training they need to compete in the 21st-century workforce. What would it take to fix that? To answer that question, researchers asked another: What would we want the American education and labor system to look like if we built it from scratch?

It would look less like the career ladder of the 20th century, they concluded, with workers climbing rung after rung until they retire. A 21st-century model should look more like a freeway, with offramps for workers to refresh their skills, earn new certificates or credentials, and then merge back into the workforce. As jobs change and evolve, workers in all industries need to become lifelong learners.

Students and workers also should not have to plan their futures with incomplete or outdated information about what their prospects look like. The system should track workforce demand in real time, forecasting when and where skills will be needed in the near future, and communicate that to educators and workers. One way to accomplish that is with electronic training records that track a worker’s education, skills, credentials, and work history.

The system needs to make sure people have equitable access to opportunities and learning throughout their working lives. It needs to do a better job of matching and re-matching skilled workers with open jobs. And it needs to recognize that education and employment are no longer two separate arenas, but two parts of the same whole.

Learn more at www.rand.org/t/RR2768

“The key takeaway from our report is that there isn’t any one single pathway anymore. We need to find ways to support workers on a multitude of pathways.”

MELANIE ZABER
associate economist
Funding for this research was provided by gifts from RAND supporters and income from operations.
AIR FORCE PILOTS: TO TRAIN OR RETAIN?

The U.S. Air Force faces growing competition from commercial airlines for some of its most highly trained, highly valued employees—its pilots. It wanted to know: Is it more cost-effective to keep increasing bonuses to retain the pilots it has, or to bring in more trainees to replace the pilots it might lose?

The answer was not even close: Pay the bonuses.

Researchers used a sophisticated retention model developed at RAND to simulate how a range of bonuses would affect pilot decisions to stay or go. Pilots earn those bonuses for every year of service they sign up for, beyond their initial active-duty obligation. They can currently make up to $35,000 in bonuses for each additional year.

The researchers found that bonuses of up to $100,000 per year would still cost less over time than training a new pilot from scratch. That’s because training a new fighter pilot can cost as much as $10.9 million, and a new bomber pilot costs up to $9.7 million. In fact, training the least expensive Air Force pilot—a C-17 transport pilot—still costs more than $1 million.

Increasing pilot bonuses will leave the Air Force with a more experienced corps of pilots than it may need or want, the researchers noted. That will drive up costs for salaries, retirement payments, and other allowances, in addition to the up-front bonus payments.

But the only alternative is to look for ways to decrease training costs without sacrificing pilot quality. And given the scale of those costs, any reductions would have to be significant to reverse the findings of the study.
“EVEN IF TRAINING COSTS WERE HALF OF WHAT WE ESTIMATED, INCREASING AVIATION BONUS PAYMENTS WOULD STILL BE AT LEAST AS EFFICIENT, IF NOT MORE EFFICIENT, THAN INCREASING ACCESSIONS TO SUSTAIN A GIVEN PILOT INVENTORY.”

MICHAEL MATTOCK
senior economist
GENDER DIVERSITY IN THE U.S. COAST GUARD

Women in the U.S. Coast Guard are more likely to leave earlier in their careers than men. Researchers working with the service's Office of Diversity and Inclusion wanted to know what it would take to reverse that trend. So they asked more than 1,000 women serving in the active-duty force.

In focus groups held at bases across the country, women described issues such as a lack of female leaders and role models, a culture of gender discrimination, and the difficulty of balancing family commitments with deployments. They singled out the Coast Guard’s weight standards, and its practice of assessing body fat by tape measure, as especially stressful and unreasonable.

Those concerns contribute to a retention gap between men and women that emerges in the first ten years of service, for officers and enlisted service members alike. This retention gap could substantially limit the number of women moving into the senior ranks in the years to come, researchers warned.

Their recommendations included some “quick win” solutions, such as better educating leaders about female-specific policies, as well as several longer-term reforms. They suggested updating personnel systems to ensure equal opportunities, looking for creative solutions to improve female berthing on ships, and using reservists to backfill positions when women go on parental leave. They also recommended rethinking those weight standards.

The Coast Guard formed a task force to review and implement the recommendations. It announced a new staffing model for new parents, and a pilot program to test new weight standards. It has also commissioned a follow-on study from RAND on the recruitment and retention of all under-represented minorities.

Learn more at www.rand.org/t/RR2770
Fifty years ago, RAND understood that the world had changed. Uncertainty and mistrust pervaded the public discussion of such critical issues as quality education, access to health care, civil rights, nuclear threats, and a foreign policy mired in interminable conflicts in far-off lands.

Fifty years ago, RAND realized it needed to lead the charge for a new approach to public policy and the new field of policy analysis. To do so required a new type of graduate school that would bring analytic rigor and new perspectives to the field—and new intellectual capital to RAND.

Fifty years ago, RAND founded the RAND Graduate Institute.

Pardee RAND Graduate School (as it’s known today) is celebrating its 50th anniversary with the same sense of urgency in the face of a rapidly changing world, deep uncertainty, and extreme polarization. The problems we face now, at the dawn of the third decade of the 21st century, demand new ways of thinking, a deep understanding of what it takes to effect change, and insights into both the implications of technology for society and how to leverage that technology for new, positive solutions. Advanced technologies have connected the world in new and exciting ways but have also generated unintended—and sometimes undesirable—consequences. So the leadership at RAND and Pardee RAND set out to reconceptualize what public policy graduate education must look like in this century. And we have once again taken bold action, building a public policy graduate school like no other and developing a new approach to policy analysis for our students, for RAND, and for our communities.

In particular, we recognized that solving today’s problems, and those in the future, requires a broader range of expertise, experience, and perspective. The three new policy engagement streams—Research, Analysis, and Design; Community-Partnered Policy and Action; and Technology Applications and Implications—will bring new perspectives into Pardee RAND and give today’s students and our RAND researcher faculty far more exposure to new approaches and techniques than were available to those of the 20th century. These streams are designed to take on increasingly complex social and systemic problems for a world in which the public sector is not the only source of public policy or policy solutions.
As a discipline, the seeds were sown when RAND established the first Ph.D. program devoted to public policy analysis. For five decades, those seeds have yielded powerful and effective tools and traditions that helped the public sector address some of the most challenging problems of the day. As we celebrate half a century of “Be the Answer” impact, we look forward to meeting the demands of tomorrow with action today.

“As we celebrate our 50th, Pardee RAND is once again leading the way with a new model for public policy graduate education, redefining the field of policy analysis, and taking on technology in the public—rather than private—interest. RAND’s graduate school is attracting more interest than ever. Each year, we increase the size and impact of our school in numbers of students, support to our faculty, and the new capabilities we provide to RAND for technology development and application and community partnerships.”

SUSAN MARQUIS
Dean, Pardee RAND Graduate School
Vice President, Innovation, RAND Corporation
The 2019 Cohort

12 women
11 men
7 countries of origin: Brazil, China, Costa Rica, Lebanon, Taiwan, the United Kingdom, and the United States
60% are fluent in a second language (e.g., Arabic, Chinese, Korean, Portuguese, and Spanish)
3 U.S. Air Force Academy graduates
72% hold advanced degrees, including the MA, MS, MPH, MPP, MPA, MSW, and MD
Degrees

The 2019 cohort arrived with degrees in a variety of disciplines, including

- anthropology
- applied math
- astronautical engineering
- biology
- dentistry
- economics
- energy and earth resources
- Hispanic studies
- industrial engineering
- international health and tropical medicine
- international management
- linguistics
- medicine
- philosophy
- physics
- political science
- public health
- social work
- technology and policy
James B. Lovelace chairs the Pardee RAND Graduate School Board of Governors and is a member of the RAND Campaign Cabinet. Gifts from the J.L. Foundation have provided more than a dozen dissertation awards to advance students’ success in the program. Jim and his wife, Anahita, are shown with doctoral candidates at a recent donor appreciation event.
PARDEE RAND HAS SET OUT TO REDEFINE PUBLIC POLICY. TODAY THE SCHOOL IS PIONEERING A NEW POLICY PARADIGM THAT MORE CLOSELY CONSIDERS WHO IS AFFECTED BY POLICY AND DOES NOT CONSTRAIN WHERE SOLUTIONS COME FROM.

The Pardee RAND Graduate School is a campaign priority for RAND.

An educational institution like no other, Pardee RAND has a crucial role to play in fulfilling our campaign mission: It will be an engine of new ideas and talent as well as a vital platform for new tools and strategies. It will also be a lab for exploring, experimenting with, and piloting new solutions for communities and for a fundamentally transformed world. We will share what we develop with our higher education peers as well as with the RAND project teams working to counter truth decay, redesign institutions, and revitalize communities.

We are deeply grateful to those whose leadership gifts were part of the early phase of the campaign. These generous gifts included:

- **$6 million** from Jim and Anahita Lovelace to further the Pardee RAND Graduate School’s efforts to redesign public policy education to better meet the needs of the 21st century
- **$6 million** from Susan F. and Donald B. Rice to support the school and provide unrestricted support for RAND
- **$3 million** from Frederick S. Pardee to expand the Pardee Initiative for Global Human Progress and strengthen the school’s global impact
- **$2.5 million** from Ann McLaughlin Korologos to establish the Ann Korologos Impact Award and provide unrestricted support for the school
- **$1 million** from the estate of Dr. Charles Wolf, Jr., and Theresa Wolf.
Joel Z. Hyatt welcomed supporters at An Evening with RAND, a November 2019 event hosted by president and CEO Michael Rich and the RAND Board of Trustees. The event was an opportunity to celebrate the impact of philanthropy at RAND.
The world is at a pivotal moment, where facts, analysis, and science are playing a diminishing role in public discourse and policymaking.

“Research and analysis—high-quality, objective, rigorous—are RAND’s stock-in-trade,” says Joel Z. Hyatt. “That’s why the world needs RAND now, today, more than ever, and why I am serving as chair of RAND’s fundraising campaign. I believe that no other research organization in the world is better equipped to devise solutions to today’s security, social, and economic challenges.”

Hyatt is a RAND trustee, but he’s been involved with the organization for more than 20 years, including as a donor. He was drawn to RAND, he says, because of its track record. “In its early years, RAND pioneered the field of Soviet studies, when the Cold War and the proliferation of nuclear weapons represented the existential threat to society as we knew it. Fifty years ago, RAND established one of the first public policy graduate schools. RAND would go on to pioneer the science of defining and measuring health care quality and create enduring methods that are still in use today. Its subsequent accomplishments—in fields as diverse as civil justice, terrorism and national security, education and labor, and science and technology—have made a lasting impact on the entire world.”

Philanthropy is especially essential at this moment. Government clients face increasing constraints and are less able to tackle many of the world’s complex and long-range problems, as they search for more immediate, short-term solutions. Philanthropic support gives RAND not only the resources but also the flexibility and independence to take on long-term problems, to develop new research methods, to work with local community members to implement solutions, and to focus on impact.

“The ultimate goal for RAND,” according to president and CEO Michael Rich, “is to restore facts and analysis to their rightful place as the foundation of policymaking. If RAND has an ideology at all, it’s to follow the facts wherever they might lead. No commercial spin. No political bias.”
Fueled by philanthropic dollars and our commitment to the public interest, RAND’s Gun Policy in America project is making an impact with key stakeholders and resulting in improvements in policy and decisionmaking. The project sought to provide insight into the question, What does scientific evidence say about the effects of various firearm policies on important outcomes, such as firearm deaths, violent crime, the gun industry, and participation in hunting and shooting sports? The researchers found a shortage of high-quality studies on the effects of gun policies, leading to their recommendation that the federal government increase funding for gun research.

Specifically, the authors recommended investing in research portfolios at the Centers for Disease Control and Prevention (CDC), the National Institutes of Health (NIH), and the National Institute of Justice. The report’s lead author elaborated on this point in March 2019 testimony before the House Committee on Appropriations subcommittee responsible for developing funding levels for the CDC and NIH, noting that, without an explicit appropriation from Congress, federal agencies may be reluctant to fund gun policy research.

**IN ITS 2019 YEAR-END SPENDING PACKAGE, CONGRESS PROVIDED $25 MILLION FOR THE CDC AND NIH TO CONDUCT GUN VIOLENCE RESEARCH. THIS FUNDING STREAM—THE FIRST OF ITS KIND IN 20 YEARS—JOINS LEGISLATION PASSED IN 2018 IN IMPLEMENTING RECOMMENDATIONS FROM THE RAND GUN POLICY IN AMERICA INITIATIVE.**
“My decision to initiate a research project to study gun policy in the United States came after many years of watching what seemed like an increasingly polarized and acrimonious ‘debate’ that rested on a sparse foundation of analytical findings. I knew that, at RAND, we could bring a unique perspective on the issues as a fiercely nonpartisan organization devoted to objectivity and analytic rigor. So, I established the RAND Gun Policy in America initiative, investing in a comprehensive effort that draws from the best of RAND’s interdisciplinary research talent.”

MICHAEL D. RICH
President and CEO, RAND Corporation
Opioids Uncharted

Despite federal, state, and local efforts to address opioid-involved deaths and addiction, the crisis continues to ravage parts of the United States. RAND research examining the nation’s complex opioid problem has received broad attention from the media and policymakers alike, laying the groundwork for high-level impact in the years ahead.

Recent RAND research offers strategies to address the sharp increase in fentanyl and other synthetic opioid deaths, including why these illicit substances are becoming entrenched in certain regions. Possible suggestions include innovative techniques to address the source of synthetic opioids; creative ways to disrupt online transactions; and supervised consumption sites, where trained staff monitor for overdose or risky injection practices of already purchased drugs. A RAND report drawing on international experiences with these sites could provide valuable insights for communities and decisionmakers.

Additional RAND research is forthcoming in 2020 on how opioid-use disorder influences family well-being, the history and potential impacts of opioid litigation, and barriers and opportunities for reversing the tide of the crisis.

Funding for the Opioids Uncharted project is provided by gifts from RAND supporters and income from operations. Additional research on opioid-related policy is conducted by the RAND-USC Schaeffer Opioid Policy Tools and Information Center—a collaborative effort with the USC Leonard D. Schaeffer Center for Health Policy—and funded by the National Institute on Drug Abuse.
Truth Decay

In 2019, we continued our donor-supported research on how to counter “truth decay”—the diminishing role of facts and analysis in American public life. Reports explored media literacy education as a tool for mitigating truth decay and how news presentation is changing in the digital age.

RAND researchers also created a database of online tools developed by nonprofits and civil society organizations that aim to fight the spread of disinformation. These include fact-checking resources, bot detectors, and media literacy apps.

The most recent report in the series sheds light on where Americans get their news and what sources they view as reliable. The study is based on survey data from the nationally representative RAND American Life Panel. Notably, the authors found that one-third of Americans use news platforms that they acknowledge are less reliable, mainly social media and peers.
Fundraising

With philanthropic gifts from individuals, foundations, and the private sector plus earnings from RAND’s endowment and operations, RAND is able to pursue visionary ideas; address critical problems that are under-researched; shape emerging policy debates; and devise innovative approaches for solving acute, complex, or provocative policy challenges.

This funding helps RAND support vital research pursuits and outreach activities that would otherwise go unfunded. Our donors share RAND’s commitment to quality and objectivity; entrust us with protecting these values in our work; and help RAND have an impact across the national and global policy landscape.

To learn more, visit www.rand.org/giving.

RAND gratefully acknowledges cumulative giving made to the Tomorrow Demands Today campaign between October 2017 and December 2019 by the following donors and grantmakers.

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Consumer Product Safety Commission
Department of Commerce
  National Institute of Standards and Technology
  National Oceanic and Atmospheric Administration
Department of Defense
  Defense Centers of Excellence
  Defense Security Cooperation Agency
Department of the Air Force
Department of the Army
  Medical Research Acquisition Activity
Department of the Navy
  Marine Corps
Joint Staff
Office of the Secretary of Defense
  Office of the Director, Cost Assessment and Program Evaluation
Office of Net Assessment
Under Secretary of Defense for Research and Engineering
  Defense Advanced Research Projects Agency
Special Operations Joint Task Force–Afghanistan
Unified Combatant Commands
Department of Education
  Institute of Education Sciences
Department of Health and Human Services
  Administration for Children and Families
  Agency for Healthcare Research and Quality
  Centers for Disease Control and Prevention
  Centers for Medicare and Medicaid Services
  Health Resources and Services Administration
National Institutes of Health
  Eunice Kennedy Shriver National Institute of Child Health and Human Development
  National Cancer Institute
  National Center for Complementary and Integrative Health
  National Heart, Lung, and Blood Institute
  National Institute on Aging
  National Institute on Alcohol Abuse and Alcoholism
  National Institute of Allergy and Infectious Diseases
  National Institute of Dental and Craniofacial Research
National Institute of Diabetes and Digestive and Kidney Diseases
National Institute on Drug Abuse
National Institute of Environmental Health Sciences
National Institute of Mental Health
National Institute on Minority Health and Health Disparities
National Institute of Nursing Research
Department of Homeland Security
  Countering Weapons of Mass Destruction Office
Cybersecurity and Infrastructure Security Agency
DHS Headquarters
Federal Emergency Management Agency
Management Directorate
Science and Technology Directorate
Transportation Security Administration
U.S. Coast Guard
U.S. Immigration and Customs Enforcement
U.S. Secret Service
Department of the Interior
  Bureau of Reclamation
Department of Justice
  National Institute of Justice
  Office of Justice Programs
Department of Labor
  Employee Benefits Security Administration
Department of State
  Bureau of Counterterrorism
  Bureau of International Security and Nonproliferation
  Bureau of Political–Military Affairs
  Bureau of Population, Refugees, and Migration
  Global Engagement Center
Under Secretary for Public Diplomacy and Public Affairs
Department of Transportation
  Federal Aviation Administration
Department of Veterans Affairs
Millennium Challenge Corporation
National Science Foundation
Office of the Director of National Intelligence
  Intelligence Community
  Performance Accountability Council
Securities and Exchange Commission

CLIENTS
U.S. State and Local Governments

Commonwealth of Massachusetts
   Department of Public Health
Commonwealth of Pennsylvania
   County of Allegheny
   Pittsburgh Public Schools
State of Arizona
   Pima County
State of California
   CalPERS
   City of Santa Monica
   Department of Health Care Services
   Department of Industrial Relations
   Department of Social Services
   Government Operations Agency
Los Angeles County
   City of Los Angeles Mayor’s Office
   First 5 LA
   Los Angeles Community College District
   Office of the County Counsel
   The Metropolitan Water District of Southern California
   San Bernardino Valley
   Municipal Water District
State of Colorado
   Department of Human Services
State of Illinois
   City of Chicago
State of Louisiana
   City of New Orleans

State of Maryland
   Prince George’s County
State of Michigan
   Michigan Indigent Defense Commission
State of New York
   NYC Opportunity
State of South Carolina
   State Fiscal Accountability Authority, Procurement Services
State of Utah
   Indigent Defense Commission

Non-U.S. Governments, Agencies, and Ministries

Commonwealth of Australia
   Department of Defence
European Union
   European Anti-Fraud Office
   European Commission
   Directorate-General for Communications Networks, Content and Technology
   Directorate-General for Employment, Social Affairs and Inclusion
   Directorate-General for Health and Food Safety
   Directorate-General for Migration and Home Affairs
   Executive Agency for Small and Medium-Sized Enterprises
   European Defence Agency
Federal Republic of Germany
   Federal Foreign Office
   Government of Canada
   Department of National Defence
   Government of Japan
   Government of Norway
   Ministry of Defence
   Ministry of Foreign Affairs
   Kingdom of Saudi Arabia
   The Netherlands
   Ministry of Justice and Security
   Republic of Korea
   Korea Institute for Health and Social Affairs

State of Qatar
   Qatar Fund for Development
United Arab Emirates
   Embassy of the United Arab Emirates
United Kingdom
   Defence Science and Technology Laboratory
   Department of Health and Social Care
   Department for Work and Pensions
   Home Office
   Ministry of Defence
   Ministry of Housing, Communities & Local Government
   National Institute for Health Research
   NHS England
   Public Health England
   Transport for London
   UK Research and Innovation
   Youth Justice Board for England and Wales
### International Organizations
- Basic Needs
- NATO
- Organisation for Economic Co-operation and Development (OECD)
- Sasakawa Peace Foundation
- World Bank

### Colleges and Universities
- Boston University
- Carnegie Mellon University
- Columbia University
  - Columbia University Medical Center
- Harvard University
  - Brigham and Women's Hospital
  - President and Fellows of Harvard College
- Indiana University
- Johns Hopkins University
- Medical University of South Carolina
- Monterey Institute of Technology and Higher Education (Tecnológico de Monterrey)
- New York University
- NORC at the University of Chicago
- Oregon Health & Science University
- Pennsylvania State University
- Qatar University
- Singapore Management University
- Tulane University
- UMass Lowell
- University of California
  - University of California, Davis
  - University of California, Irvine
  - University of California, Los Angeles
- University of Maryland
- University of Michigan
- University of New Hampshire
- University of New Mexico
- The University of North Carolina at Chapel Hill
- The University of North Carolina at Greensboro
- University of Pittsburgh
- University of Southern California
- The University of Texas
  - The University of Texas Health Science Center at Houston
  - The University of Texas at Tyler
- Vanderbilt University

### Foundations
- AANA Foundation
- Aetna Foundation
- Arnold Ventures
- Baton Rouge Area Foundation
- George W. Bush Foundation
- The California Endowment
- Carnegie Corporation of New York
- Carnegie Foundation for the Advancement of Teaching
- DICK'S Sporting Goods Foundation
- ECMC Foundation
- Education Endowment Foundation
- Bill & Melinda Gates Foundation
- Greater Rochester Health Foundation
- The John A. Hartford Foundation
- The Health Foundation
- Health Strategies of New Hampshire, Inc.
- The William and Flora Hewlett Foundation
- Henry L. Hillman Foundation
- Conrad N. Hilton Foundation
- The Robert Wood Johnson Foundation
- Ewing Marion Kauffman Foundation
- Korea Foundation
- Laughing Gull Foundation
- MacArthur Foundation
- McCormick Tribune Foundation
- Richard King Mellon Foundation
- Gordon and Betty Moore Foundation
- Nellie Mae Education Foundation
- New York State Health Foundation
- Overdeck Family Foundation
- The Pew Charitable Trusts
- Qatar Foundation
- Raikes Foundation
- The Rockefeller Foundation
- The Eric and Wendy Schmidt Fund for Strategic Innovation
- Charles and Lynn Schusterman Family Foundation
- Alfred P. Sloan Foundation
- The Stanton Foundation
- Bernard van Leer Foundation
- The Wallace Foundation
- Walton Family Foundation
- Ralph C. Wilson, Jr. Foundation
- Bob Woodruff Foundation
### Professional Associations
- American Academy of Hospice and Palliative Medicine
- American Association of Neuromuscular and Electrodiagnostic Medicine
- American Medical Association
- American Orthotic and Prosthetic Association
- California Association of Health Plans
- Pennsylvania Association of Nurse Anesthetists

### Other Nonprofit Organizations
- 3 Rivers Wet Weather
- AARP
- Advanced Robotics for Manufacturing Institute
- American Institutes for Research
- Ascendium Education Group
- Baycrest
- BellXcel
- Boston Medical Center
- Brilliant Corners
- California Health Care Foundation
- California Hospital Association
- California Mental Health Services Authority
- Corporation for Supportive Housing
- Criterion Education, LLC
- Education Northwest
- Equitas Academy
- ExpandED Schools
- Families Forward
- Families USA
- Gulf of Mexico Alliance
- Health Research & Educational Trust
- Inland Empire Health Plan
- Inter-American Development Bank
- JIR PFS (“Just-in-Reach” Pay for Success)
- Kentucky Valley Educational Cooperative
- Charles Koch Institute
- Leading Educators
- Maimonides Medical Center
- Massachusetts General Hospital
- Mayor’s Fund to Advance New York City
- Medical Device Innovation Consortium
- Memorial Sloan Kettering Cancer Center
- The MITRE Corporation
- The Monterey Metropolitan Water Fund (Fondo de Agua Metropolitano de Monterrey)
- National Academy of Sciences
- National Bureau of Economic Research
- National Committee for Quality Assurance
- NCMIC Foundation
- New Leaders for New Schools
- New Levant Initiative
- NYC Leadership Academy
- Oklahoma Partnership for School Readiness
- Pathfinder International
- Patient-Centered Outcomes Research Institute
- PCAOB (Public Company Accounting Oversight Board)
- PetSmart Charities
- Research Foundation of the City University of New York
- The Scripps Research Institute
- Seattle Children’s Research Institute
- Silicon Valley Community Foundation
- TNTP
- Vera Institute of Justice
- WestEd
- Wounded Warrior Project
- Youth Villages

### Industry
- Abt Associates
- AIA Group, Ltd.
- Alkermes
- Analytics of Aging, Inc.
- ARCADIS
- Arthur D. Little Middle East
- BiasSync
- Biogen
- Chevron Corporation
- codeSpark
- Mark Cuban
- Discovery
- ExactCare
- Ferring Pharmaceuticals
- Ford Smart Mobility
- Health Services Advisory Group
- Kidney Disease Medical Group Inc.
- Mathematica Policy Research
- Pharmavite
- Policy Studies Associates, Inc.
- Roche
- Rotem Strategy
- Schell Games
- Uber Advanced Technologies Group
- Velux Group
- VitalityHealth
- Wakely
- Westat
- The Wonderful Company
- John Wood Group PLC

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