Introduction

At least 42,249 Americans died from opioid overdoses in 2016, a 28 percent increase from 2015, according to the National Center for Health Statistics, a division of the Centers for Disease Control and Prevention (CDC). Opioids now kill more Americans each year than guns, breast cancer or automobile accidents and have contributed to the shortening of the average U.S. life expectancy for two consecutive years. The last recorded decrease in U.S. life expectancy was in 1993, due to the AIDS epidemic. The last time life expectancy decreased in two consecutive years was in 1962 and 1963 due to an influenza outbreak.\(^1\)\(^2\)

As of early April 2018, approximately 115,000 Americans were listed on the national organ transplant registry waiting on a lifesaving organ transplant, with a new person added to the list every 10 minutes.\(^3\) Despite advancements in technology and surgical techniques, a large gap remains between the number of organs needed and the supply of donated organs. While 95 percent of U.S. adults support organ donation, only 54 percent have enrolled to be organ donors.\(^4\) Every day, an average of 95 organ transplants are performed in the United States,\(^5\) and an average of 20 Americans die daily waiting for a transplant.\(^6\) Contributing to this tragic scenario is the fact that only three in 1,000 deaths in the United States occur in a manner conducive to organ donation.\(^7\)

Given the ongoing opioid crisis, the link between these seemingly disparate issues is an important one. This SLC Regional Resource raises policy considerations and highlights the connections between the ongoing opioid crisis and the national shortage of organs for transplantation. Additionally, an examination of the history and process of organ donation and transplants is provided, as well as actions taken by the federal government and state governments to facilitate and promote organ donation. A discussion of how the national opioid crisis, critical to this discussion, is affecting organ transplant rates is included.

History of Organ Transplantation

While organ transplantation did not become common until the 1900s, research suggests that doctors and scientists experimented with organ transplantation involving animals and humans as early as the 1700s.\(^8\) At the turn of the 20th century, European doctors attempted to treat renal failure by transplanting kidneys from animals—including monkeys, pigs and goats—into humans. The survival rate, within days of the surgery, was zero. However, in 1905, Austrian ophthalmologist Eduard Zim performed the world’s first successful corneal transplant, restoring vision to a male patient. In 1936, Ukrainian doctor Yu Yu Voronoy transplanted the first human kidney from a deceased donor. While the procedure itself was successful, the recipient passed away shortly after the surgery due to organ rejection.\(^9\)
The first successful living organ transplantation surgery was performed at Boston’s Brigham Hospital in 1954, when Dr. Joseph Murray and Dr. David Hume transplanted a kidney from a patient to his twin brother. Another notable breakthrough occurred in 1962, when Drs. Murray and Hume performed the first successful transplant surgery involving a deceased donor, transplanting a kidney. In subsequent years, these groundbreaking surgeries were followed by other milestones. The first successful heart, pancreas and liver transplants were performed in the 1960s, while the first successful single and double lung transplants were performed in the 1980s.10,11

**The Process of Organ Transplantation**

Americans have three ways to affirm their intent to be an organ donor: 1) registering online with Donate Life America—a national nonprofit organization that strives to promote organ donation—at DonateLife.net or a statewide Donate Life affiliate, 2) enrolling as an organ donor on a driver’s license or other government-issued identification card, and/or 3) listing themselves as an organ donor in a will.12 The existing options are few, and due to the infrequency of obtaining and renewing a driver’s license and the inherent issues and timing of executing a will, the current options become even less expedient.

There are two primary methods of organ procurement: upon death or as a living donor. Organs that may be donated by a deceased donor include the heart and heart valves, lung, liver, kidney, pancreas and intestines, while a living donor may donate one of two kidneys, one of two lobes of the liver, part of a lung, part of a pancreas or part of the intestines.13 For partial donations, the portion removed is not enough to affect organ functionality of the donor.

Approximately 60 percent of organ donations in the United States come from a deceased donor.14 Months, years or even decades after registering to become an organ donor, an individual may experience a fatal accident or illness or pass from natural causes. To enable deceased organ donation, an individual must be declared brain dead in a hospital while connected to a ventilator to keep oxygenated blood flowing through the organ(s), which occurs only in about three out of every 1,000 deaths in the United States. The cause of death is an additional concern. Most patients who are evaluated for organ donation have experienced a stroke, brain aneurysm, drug overdose or suffered fatal injuries from a car accident. A patient is not considered for organ donation until all other lifesaving procedures have been attempted.15,16,17 After being declared brain dead by a doctor, a specially trained representative from an organ procurement organization (OPO)—a private, nonprofit organization certified by the Centers for Medicare and Medicaid Services,† working to increase the number of organ donors and coordinate the donation process—is dispatched to the hospital to evaluate the patient’s medical viability.18,19

Next, a representative from the OPO, or specially-trained hospital staff, talks to the patient’s next-of-kin about the patient’s desire to be an organ donor.‡ The patient’s medical information and hospital zip code are entered into an online database managed by the United Network for Organ Sharing (UNOS)—a national nonprofit organization headquartered in Richmond, Virginia, originally formed in 1986 as the Southeast Organ Procurement Foundation—to begin the organ allocation process. Using the online database, the donor’s organs are matched with the best possible recipient, considering the donor’s medical conditions and proximity to the recipient. After the organs are surgically removed, they are transported to the receiving hospital(s) and transplanted into the recipient(s).20

Deceased organ donors do not pay for any of the costs of their donation, including the transplant surgeries or organ preservation/transportation. These costs are funded by the transplant recipient, usually through their private insurance, Medicare or Medicaid.21

The other organ donation method is a living donation, representing approximately 40 percent of organ donations. It is a generally accepted principle that living

† For a list of all 58 OPOs in the nation, please visit: https://www.organdonor.gov/awareness/organizations/local-opo.html.
‡ In years past, a relative could override the patient’s decision to donate, but the practice was eliminated by the 2006 Uniform Anatomical Gift Act (UAGA), discussed at greater length on page 7.
organ donation has no negative effects on the donor, but research on the topic is limited. However, there are concerns from some in the medical field that subtle medical problems could develop over years. Currently, the National Institutes of Health is conducting a study to determine if there are any negative effects from making a living donation. 

The steps of a living organ donation resemble those of a deceased organ donation, but with two major differences: 1) living donors may choose their organ recipient, and 2) the donor may be responsible for some of the costs associated with their donation (although grants and tax incentives often are available to cover some of these costs). The National Living Donor Assistance Center is a federally funded program under the purview of the U.S. Department of Health and Human Services (HHS) that reimburses up to $6,000 of expenses—including travel, meals and lodging—incurred through the donation process. To qualify, donors must have household incomes no greater than 300 percent of the Federal Poverty Guidelines. Additionally, some states offer tax credits or incentives to living organ donors.

Some patients may experience a waiting time of months or years to receive a donated organ. The length of time depends on multiple factors, including:

» Blood type
» Tissue type
» Height and weight of donor and recipient
» Size of donated organ
» Medical urgency
» Time on the organ waiting list
» Distance between the donor’s hospital and the potential donor
» Number of donors in the local area
» The transplant center’s criteria for accepting donated organs.

Furthermore, different organs require varying methods of preservation, in which the organ is removed from the patient and flushed with a cooled solution to remove all blood, to remain viable between removal and transplantation. For example, a heart or lung will need four to six hours of preservation to remain viable, while a kidney will require 24 to 36 hours of preservation. After the organ is preserved, it is placed on ice and transported to the recipient’s hospital. Transplant teams generally have less than eight hours to transport the preserved organ.

**Geography and Liver Donation**

The United Network for Organ Sharing divides the United States into 11 geographic regions. When a patient needs an organ, they are matched with a donor in their region through the Organ Procurement and Transplantation Network. This system is intended to optimize the use of donated organs, as a liver is only viable for approximately eight hours after removal. However, this system has led to issues, such as a patient not receiving a donated organ that is nearby, but in another region. Presently, UNOS is considering revising the system for liver transplants, such that a patient could be matched with a donor in their region and one within a 150 nautical-mile radius (172.6 mile).

**Opioids and Organ Donation: A New Variable in the Equation**

Opioids—a class of drugs that works on the opioid receptors in the brain—are used to treat pain and can be habit forming. According to the National Institute on Drug Abuse, a division of the National Institutes of Health, opioids are considered to be generally safe when taken for a short time as prescribed by a doctor. However, prescription opioids—including oxycodone, hydrocodone, codeine and morphine—frequently are sold on the black market by patients who received legal prescriptions. The national opioid crisis has reached record levels in the last several years, with at least 42,249 Americans dying from opioid overdose deaths in 2016, up from 33,091 opioid overdose deaths in 2015.

Fentanyl, a synthetic opioid originally used as an anesthetic, has been particularly deadly. The drug—100 times more potent than morphine and 50 times more potent than heroin—is identical in appearance to heroin, causing some users to inadvertently take fentanyl instead of

* Opioids are distinct from opiates, which are derived from the opium plant.
heroin. A lethal dose of heroin is 30 milligrams, while a lethal dose of fentanyl is 3 milligrams.  

According to the National Institute on Drug Abuse, the number of prescription opioid overdoses in the United States increased 340 percent from 2001 to 2014, with the number of heroin overdoses increasing approximately 600 percent during the same period. Ten years ago, drug overdoses accounted for 3 percent of the organ donor population. In 2017, 13 percent of organ donations came from drug overdoses. 

A recent CDC report cites a 30 percent increase nationally in opioid overdoses from July 2016 to September 2017, with the South experiencing a 14 percent increase. While statistics for the year 2017 are not yet available, analysts expect the crisis to continue. Some experts have called for doctors and medical personnel to follow up with overdose survivors after they have been revived to help facilitate addiction treatment and recovery as one method of intervention. However, in areas of high opioid use, this approach may be logistically challenging. There is a growing trend among state legislatures to shift the emphasis from incarceration to treatment.

In October 2017, the HHS deemed the opioid crisis a national health emergency. This step allows the department to appoint temporary special personnel and to work with the Drug Enforcement Agency to expand access to telemedicine to combat addiction. 

Table 1 depicts the 2016 per capita opioid overdose rate for the 15 SLC member states and the percentage change from 2015. Nearly all SLC states experienced an increase in overdose rates from 2015 to 2016. West Virginia, which has the highest per capita opioid overdose death rate in the nation, is considered by many the epicenter for the opioid crisis. 

One unanticipated outcome to emerge is the increased availability of organs donated from opioid overdose victims. While an opioid overdose may cause death, the drugs often leave organs unharmed. Additionally, the average organ donor who dies from a drug overdose is in their early 30s—approximately 10 years younger than the average organ donor—with some victims passing away after their first dose. In the past five years, overall organ transplantation rates have been increasing.

### Table 1: 2016 opioid overdose death rates by state

<table>
<thead>
<tr>
<th>State</th>
<th>2016 opioid overdose death rate*</th>
<th>Percent change from 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>7.4</td>
<td>+23%</td>
</tr>
<tr>
<td>Arkansas</td>
<td>5.9</td>
<td>-18%</td>
</tr>
<tr>
<td>Florida</td>
<td>14.4</td>
<td>+53%</td>
</tr>
<tr>
<td>Georgia</td>
<td>8.8</td>
<td>+5%</td>
</tr>
<tr>
<td>Kentucky</td>
<td>23.6</td>
<td>+12%</td>
</tr>
<tr>
<td>Louisiana</td>
<td>7.7</td>
<td>+22%</td>
</tr>
<tr>
<td>Mississippi</td>
<td>6.2</td>
<td>+17%</td>
</tr>
<tr>
<td>Missouri</td>
<td>15.9</td>
<td>+36%</td>
</tr>
<tr>
<td>North Carolina</td>
<td>15.4</td>
<td>+29%</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>11.6</td>
<td>+4%</td>
</tr>
<tr>
<td>South Carolina</td>
<td>13.1</td>
<td>+15%</td>
</tr>
<tr>
<td>Tennessee</td>
<td>18.1</td>
<td>+13%</td>
</tr>
<tr>
<td>Texas</td>
<td>4.9</td>
<td>+4%</td>
</tr>
<tr>
<td>Virginia</td>
<td>13.5</td>
<td>+36%</td>
</tr>
<tr>
<td>West Virginia</td>
<td>43.4</td>
<td>+21%</td>
</tr>
<tr>
<td>United States</td>
<td>13.3</td>
<td>+28%</td>
</tr>
</tbody>
</table>

*These numbers are per 100,000 residents and age-adjusted. Age-adjustment makes groups with varying ages more like the standard population distribution to increase uniformity and comparability. 

Source: “Opioid Overdose Death Rates and All Drug Overdose Death Rates per 100,000 Population (Age-Adjusted),” Kaiser Family Foundation, accessed April 9, 2018, [https://www.kff.org/other/state-indicator/opioid-overdose-death-rates/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D](https://www.kff.org/other/state-indicator/opioid-overdose-death-rates/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D).

Figure 1 depicts the increase in deceased organ donors from 2013 to 2017, nationally. According to UNOS, preliminary data indicates that the number of total organ donors (16,462) and the number of deceased donors (10,286) both set records in 2017.41

Dr. David Klassen, chief medical officer for UNOS, told CNN “about 40 percent of the increase [in the past five years] tracks back to the drug intoxication issue.” The data that UNOS collects does not indicate which drug caused the overdose, but data on the increasing number of opioid overdoses, nationally, strongly suggest that opioids are playing a large role. “The opioid epidemic is clearly not something anyone expected. It’s clearly a tragic situation. But there is a little bit of a silver lining.”42

Experts caution that the opioid epidemic is not the sole cause of the increase in organ donations. Advances in medical technology, increased public awareness of the importance of organ donation, and 2013 guidelines from the Organ Procurement and Transplantation Network that reclassified intravenous drug users as being at increased risk—instead of high risk—of carrying human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C virus (HCV), also contributed to the growth in donation rates. Under the 2013 guidelines, doctors are encouraged to discuss with potential recipients the risks and benefits of accepting organs from increased risk donors. The guidelines address potential organ donors who have contracted HIV, HBV, or HCV so recently that the disease would be undetected during testing. Compliance with the new guidelines is optional for doctors and medical professionals.43,44

Opt-In vs. Opt-Out

In the United States, potential organ donors must register or opt-in to donate. In comparison, in 25 European nations, all residents are presumed to be donors and must register to remove themselves from the donor registry, referred to as an opt-out or “presumed consent” policy.45 (At the time of this writing, the English and Scottish Parliaments are considering legislation to become

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**Figure 1**

National deceased organ donors by year and cause of death

![Bar chart showing annual deceased organ donors by cause of death from 2013 to 2017.](https://unos.org/data/)

opt-out nations.\textsuperscript{46}) According to a 2012 study conducted by Stanford University and Cornell University, in nations with presumed consent policies, as many as 90 percent of citizens are enrolled as organ donors, while as few as 15 percent of citizens in opt-in nations choose to donate their organs.\textsuperscript{47}

As depicted in Table 2, eight of the 10 nations with the highest rates of deceased organ donations are opt-out nations. Conversely, Table 3 demonstrates that nine of the 10 nations with the highest rate of living organ donations are opt-in nations. These figures concur with a 2014 academic study which found that deceased donor rates are higher in opt-out nations, living donor rates are higher in opt-in nations, and the presence of opt-out policies influenced donation rates. The study also determined that opt-out policies were associated with an increase in the number of livers and kidneys transplanted. However, the authors warn that in some nations, including France and Brazil, the introduction of opt-out policies led to a decrease in donations, possibly because of mistrust of medical professionals.\textsuperscript{48}

A bill introduced in the Texas Legislature in 2017 would have made Texas the nation’s first opt-out state. House Bill 1938 would have added the following question to

<table>
<thead>
<tr>
<th>Nation</th>
<th>2016 worldwide deceased organ donors by nation</th>
<th>2016 worldwide living organ donors by nation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Deceased donors per million residents</td>
<td>Living donors per million residents</td>
</tr>
<tr>
<td>Spain (Opt-Out)</td>
<td>43.4</td>
<td>45.8</td>
</tr>
<tr>
<td>Croatia (Opt-Out)</td>
<td>38.6</td>
<td>43.8</td>
</tr>
<tr>
<td>Portugal (Opt-Out)</td>
<td>32.6</td>
<td>33.9</td>
</tr>
<tr>
<td>Belgium (Opt-Out)</td>
<td>31.6</td>
<td>27.3</td>
</tr>
<tr>
<td>United States (Opt-In)</td>
<td>31.0</td>
<td>22.2</td>
</tr>
<tr>
<td>France (Opt-Out)</td>
<td>28.7</td>
<td>18.6</td>
</tr>
<tr>
<td>Malta (Opt-In)</td>
<td>25.0</td>
<td>18.6</td>
</tr>
<tr>
<td>Czech Republic (Opt-Out)</td>
<td>25.0</td>
<td>16.7</td>
</tr>
<tr>
<td>Austria (Opt-Out)</td>
<td>24.9</td>
<td>18.3</td>
</tr>
<tr>
<td>Finland (Opt-Out)</td>
<td>24.7</td>
<td>18.3</td>
</tr>
</tbody>
</table>


all new driver's license applications: “Would you like to refuse to join the organ donor registry?” The bill was opposed by several organ donation organizations in the state, including Donate Life Texas, because the organizations feared the language would add confusion to the registration process. The bill was not passed out of the Transportation Committee.59

Colorado, Connecticut, Pennsylvania and New York have considered similar legislation, with numerous organ donation organizations opposing the legislation fearing that opt-out policies would create a backlash, as it may be perceived that a person’s organs become property of the state upon their death and may result in fewer persons registering to become organ donors. According to a 2012 national survey conducted by HHS, 51 percent of respondents reported that they would support opt-out policies. However, 23 percent reported that they would remove themselves from the donor registry if their state adopted opt-out policies. As of this writing, no states have adopted opt-out policies for organ donation.60

Legislation and Policies
Uniform Anatomical Gift Act

In 1968, the National Conference of Commissioners on Uniform State Laws—also known as the Uniform Law Commission (ULC)—drafted the Uniform Anatomical Gift Act (UAGA) as model legislation to increase legal uniformity among states. The 1968 UAGA includes the requirement of a will or other written document (i.e. organ donor card or driver’s license) to establish donor consent; establishment of the minimum age to make an organ donation (18 years old); codification of the legal power to donate organs, eyes and tissues; and a “good faith” clause shielding persons from criminal and civil liability if they are acting in good faith and in accordance with the Act. The model legislation further states that the doctor who determines the time of death may not be involved in any organ removal procedures, to avoid the appearance of a conflict of interest.51,52,53

By 1971, the 1968 UAGA was adopted by all 50 states and the District of Columbia, with only minor variations between states—on items such as the minimum age to become an organ donor. (The state of Alaska set the minimum organ donor age at 19 years old.) Despite the Act’s widespread adoption, only four states were willing to procure organs from a donor based only on the existence of an organ donor card, with the remaining states deferring to the wishes of relatives. Additionally, the Act did little to close the gap between the demand and available supply of organs for transplant.54

To address these concerns, the ULC drafted an update to the UAGA in 1987. The updated UAGA, which repealed the 1968 version, explains that a decedent’s relatives could not override his or her desire to be an organ donor, requires medical personnel to ask a patient about his or her organ donation preference “on or before admission to a hospital,” and to ask the patient’s relatives of the patient’s organ donation preference “at or near the time of death of a patient.”55,56 Additionally, Section 4 permits medical examiners to authorize organ donation without the consent of the donor’s next of kin, provided that the examiner made a “reasonable effort” to contact the next of kin. With many states apprehensive about the idea of requiring medical personnel to make inquiries at such sensitive times and medical examiners authorizing organ donation without the consent of the donor’s next of kin, only 26 states adopted the 1987 UAGA.57

With half of the nation adhering to the 1968 UAGA and half following the 1987 revision, the ULC drafted a third version of the UAGA in 2006 to eliminate legal differences by creating new standards. The 2006 UAGA, also known as the Revised Uniform Anatomical Gift Act, contains updates including legal recognition of an individual’s organ donor status as declared on their driver’s license or government-issued ID card, elimination of donor status overrides by the donor’s relatives, creation of standards for organ donor registries, and repeal of the state’s prior version of the UAGA.58 Currently, the 2006 UAGA has been adopted by 46 states and the District of Columbia.59

National Organ Transplant Act

In 1984, with survival rates for organ transplants and demand for organs increasing, the U.S. Congress passed the National Organ Transplant Act (NOTA), which banned the sale of organs, established the Task Force
on Organ Transplantation and permitted HHS to pro-
vide grants to organ procurement organizations. The
legislation also called for the creation of the Scientific
Registry of Transplant Recipients and formed a unit
within HHS to manage these functions. Finally, NOTA
created the Organ Procurement and Transplantation
Network (OPTN), a national network to promote organ
transplants, operated by a private organization and man-
aged by HHS. All transplant hospital programs, organ
procurement organizations and transplant compatibility
laboratories in the nation are members of OPTN.

Since 1986, UNOS has worked with HHS to provide
this national network. Since securing the first federal
contract, UNOS has created a national organ sharing
system to increase the efficient use of donated organs;
developed a system to collect and analyze an organ trans-
plant waiting list and donor data; and assisted persons
and organizations interested in organ transplantation
with the process.

SLC Member States

The 2006 version of the UAGA has been passed in 14
states in the SLC region. Florida passed the original ver-
sion of the UAGA in 1968 and has passed many revisions
to the law in subsequent years, but has not passed the
2006 revision. All 15 states in the SLC region have passed
legislation to encourage the practice of organ donation,
allowing residents to register to become organ donors
through the state DMV (or similar entity) or through a
state organ donation registry.

A discussion of all statewide legislation and policies
regarding organ donation is beyond the scope of this SLC
Regional Resource. However, to highlight the importance
that SLC member states place on organ donation, the
following section highlights statewide organ donation
legislation related to funding and tax incentives; state
and private sector employee leave laws; and education/
awareness initiatives. Table 4 provides organ donation
statistics for the 15 SLC member states. In this table
and all subsequent references, “actual donors” refers to
individuals who donated organs, not individuals who
registered to be organ donors. Data on the number of
individuals registered as organ donors was unavailable.

Table 5 provides an overview of state organ donation
laws in SLC member states.

Alabama

The Legislature adopted the 2006 version of the UAGA
in 2008. Additionally, Section 22-19-71.1 of the Code of
Alabama requires the Alabama Law Enforcement Agency
(ALEA) to create and implement a program promoting
organ donation and provide information on organ donation
at all driver’s license offices. The ALEA allows
individuals to renew their driver’s license and register to
be an organ donor online. Each year, in recognition of
National Donor Day on February 14, the state encour-
gages all individuals renewing their license to register to
become an organ donor.

Arkansas

In addition to passing the 2006 version of the UAGA in
2007, the General Assembly has passed several laws related
to organ donation. A law passed in 2005 permits taxpay-
ers to deduct up to $10,000 of unreimbursed expenses
incurred due to a living organ donation. Expenses may
include travel, lodging, lost wages and medical costs.
Additionally, Arkansas grants state and public school
employees up to 30 days of paid leave for living organ
donations and up to seven days of paid leave for bone
marrow donation. The state requires private sector
employers to provide their employees up to 90 days of
unpaid leave for living organ donations. If a private sector
employer provides paid leave for living organ donation,
the state grants a 25 percent tax credit to the employer
for the wages paid.

In 2003, the General Assembly created the Organ Donor
Awareness Education Trust Fund, which is adminis-
tered by the state treasurer, state auditor and the state
chief fiscal officer. The fund, which accepts grants and
donations, is designed to promote organ donation using
educational and informational materials. Another law
passed in 2003 states that driver education courses and

\footnote{A tax credit lowers a taxpayer’s tax liability by a specified amount. A tax credit cannot lower a taxpayer’s liability to less than zero. Tax credits differ from tax deductions, which lower a taxpayer’s taxable income.}
Care Administration (AHCA) to two-year terms. Furthermore, the state law specifies guidelines for the AHCA to certify organ procurement organizations. The Revised Uniform Anatomical Gift Act does not contain these three aspects or equivalents. Additionally, Section 765.5155 of the Florida Statutes calls for the AHCA to identify a private contractor to maintain the state’s donor registry and education program. This contractor also must provide an annual report to the AHCA detailing the number of donors on the registry and amount of financial contributions; analyzing registration rates and donor characteristics; and reviewing educational campaigns and activities completed each year. Donate Life Florida, the state affiliate of Donate Life America, is the designated contractor.

**Georgia**

In 2008, Georgia passed the Revised UAGA. Like Arkansas, the state permits taxpayers to deduct up to $10,000 of expenses incurred due to making a living organ donation. Also like Arkansas, Section 45-20-31 of the Official Code of Georgia grants state employees up to 30 days of paid leave for living organ donations and up to seven days of paid leave for bone marrow donation.

**Kentucky**

In addition to following the 2006 UAGA, Kentucky recognizes the fourth week of April each year as Organ Donor Awareness Week, in conjunction with the declaration of April as National Donate Life Month. During this week, the governor and the Legislature honor organ donors.

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**Table 4: 2017 Organ Donation Statistics**

<table>
<thead>
<tr>
<th>State</th>
<th>Actual Living Donors</th>
<th>Actual Deceased Donors</th>
<th>Total Actual Donors</th>
<th>State Population</th>
<th>Total Actual Donors Per Million State Residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>87</td>
<td>172</td>
<td>259</td>
<td>4.8 million</td>
<td>53.9</td>
</tr>
<tr>
<td>Arkansas</td>
<td>22</td>
<td>74</td>
<td>96</td>
<td>3 million</td>
<td>32</td>
</tr>
<tr>
<td>Florida</td>
<td>264</td>
<td>680</td>
<td>944</td>
<td>20.9 million</td>
<td>45.2</td>
</tr>
<tr>
<td>Georgia</td>
<td>173</td>
<td>288</td>
<td>461</td>
<td>10.4 million</td>
<td>44.3</td>
</tr>
<tr>
<td>Kentucky</td>
<td>71</td>
<td>117</td>
<td>188</td>
<td>4.4 million</td>
<td>42.7</td>
</tr>
<tr>
<td>Louisiana</td>
<td>84</td>
<td>183</td>
<td>267</td>
<td>4.7 million</td>
<td>56.8</td>
</tr>
<tr>
<td>Mississippi</td>
<td>29</td>
<td>110</td>
<td>139</td>
<td>2.9 million</td>
<td>47.9</td>
</tr>
<tr>
<td>Missouri</td>
<td>95</td>
<td>283</td>
<td>378</td>
<td>6.1 million</td>
<td>61.9</td>
</tr>
<tr>
<td>North Carolina</td>
<td>135</td>
<td>308</td>
<td>443</td>
<td>10.2 million</td>
<td>43.4</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>50</td>
<td>189</td>
<td>239</td>
<td>3.9 million</td>
<td>61.2</td>
</tr>
<tr>
<td>South Carolina</td>
<td>55</td>
<td>176</td>
<td>231</td>
<td>5 million</td>
<td>46.2</td>
</tr>
<tr>
<td>Tennessee</td>
<td>99</td>
<td>281</td>
<td>380</td>
<td>6.7 million</td>
<td>56.7</td>
</tr>
<tr>
<td>Texas</td>
<td>482</td>
<td>897</td>
<td>1,379</td>
<td>28.3 million</td>
<td>48.7</td>
</tr>
<tr>
<td>Virginia</td>
<td>208</td>
<td>212</td>
<td>420</td>
<td>8.5 million</td>
<td>49.4</td>
</tr>
<tr>
<td>West Virginia</td>
<td>26</td>
<td>54</td>
<td>80</td>
<td>1.8 million</td>
<td>44.4</td>
</tr>
</tbody>
</table>


high school health courses must include information on organ and tissue donation.

**Florida**

Florida’s organ donation laws combine aspects of both the 1968 and 2006 UAGA with several variations. Florida’s law creates a ranked list of relatives and associates who may choose to make an anatomical gift if the decedent has not made his or her wishes known and has not designated a “health surrogate” to make such decisions. Florida’s legislation also establishes an Organ Transplant Advisory Council, comprised of 12 physicians appointed by the secretary of the Agency for Health Care Administration (AHCA) to two-year terms. Furthermore, the state law specifies guidelines for the AHCA to certify organ procurement organizations. The Revised Uniform Anatomical Gift Act does not contain these three aspects or equivalents.
<table>
<thead>
<tr>
<th>State</th>
<th>Version of the UAGA codified</th>
<th>State incentives and requirements to increase organ donation</th>
<th>State employee leave laws for organ donation</th>
<th>Private sector employee leave laws for organ donation</th>
<th>Organ donation education/awareness initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>2006</td>
<td>Up to $10,000 Organ Donation Tax Deduction, § 26-51-2103. 25 percent tax credit for employers who provide paid leave, § 21-4-215.</td>
<td>Up to 30 days of paid leave for organ donation. Up to 7 days of paid leave for bone marrow donation § 21-4-215.</td>
<td>Up to 90 days of unpaid leave, § 11-3-205.</td>
<td>Information at all DMV offices, § 22-19-71.1</td>
</tr>
<tr>
<td>Arkansas</td>
<td>2006</td>
<td>Up to $10,000 Organ Donation Tax Deduction, § 26-51-2103. 25 percent tax credit for employers who provide paid leave, § 21-4-215.</td>
<td>Up to 30 days of paid leave for organ donation. Up to 7 days of paid leave for bone marrow donation § 21-4-215.</td>
<td>Up to 90 days of unpaid leave, § 11-3-205.</td>
<td>Organ Donor Awareness Education Trust Fund, § 20-17-502. Information in high school courses, § 6-16-501.</td>
</tr>
<tr>
<td>Florida</td>
<td>1968*</td>
<td>Donor registry and education program, § 765.5155.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Georgia</td>
<td>2006</td>
<td>Up to $10,000 Organ Donation Tax Deduction, § 48-7-27.</td>
<td>Up to 30 days of paid leave for organ donation. Up to 7 days of paid leave for bone marrow donation, § 45-20-31.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Louisiana</td>
<td>2006</td>
<td>Up to $7,200 Organ Donation Tax Credit, § 47:297:N. 18 percent tax credit to employers who provide paid leave, § 47:287.758.</td>
<td>Up to 40 hours of paid leave for bone marrow donation, § 40:1263.4.</td>
<td>Up to 40 hours of paid leave for bone marrow donation, § 40:1263.4.</td>
<td>Louisiana Organ Procurement Agency partners with driver education programs.</td>
</tr>
<tr>
<td>Mississippi</td>
<td>2006</td>
<td>Up to $10,000 Organ Donation Tax Deduction, § 27-7-18.</td>
<td>Up to 30 days of paid leave for organ and bone marrow donation, § 25-3-103.</td>
<td></td>
<td>Information in driver education courses, § 37-25-5.</td>
</tr>
<tr>
<td>Missouri</td>
<td>2006</td>
<td>Up to 30 days of paid leave for organ donation. Up to 5 days of paid leave for bone marrow donation. §105.266</td>
<td></td>
<td></td>
<td>Information at all DMVs and secondary schools § 194.299. Organ Donor Trust Fund, § 143.1016.</td>
</tr>
</tbody>
</table>
### Table 5 (continued) State organ donation laws in SLC states

<table>
<thead>
<tr>
<th>State</th>
<th>Version of the UAGA codified</th>
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<th>Private sector employee leave laws for organ donation</th>
<th>Organ donation education/awareness initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Carolina</td>
<td>2006</td>
<td>License to Give Trust Fund established, § 20-7.4.</td>
<td>Up to 30 days of paid leave for organ donation, Up to 5 days of paid leave for bone marrow donation, §74-840-2.20(B).</td>
<td>Information at all DMV offices, § 20-7.3. Organ Donation Awareness/Donate Life Month, § 103-12.</td>
<td></td>
</tr>
<tr>
<td>Oklahoma</td>
<td>2006</td>
<td>Up to $10,000 Organ Donation Tax Deduction, §68-2358(E).</td>
<td>Up to 30 days of paid leave for organ donation, §8-11-65. Up to 40 hours of paid leave for bone marrow donation, §44-43-80.</td>
<td>Oklahoma Organ Donor Education and Awareness Program Revolving Fund, §63-2220.3.</td>
<td></td>
</tr>
<tr>
<td>South Carolina</td>
<td>2006</td>
<td>Up to 30 days of paid leave for organ donation, §8-11-65. Up to 40 hours of paid leave for bone marrow donation, §44-43-80.</td>
<td>Up to 40 hours of paid leave for bone marrow donation, §44-43-80.</td>
<td>Donate Life South Carolina, § 44-43-1310.</td>
<td></td>
</tr>
<tr>
<td>Tennessee</td>
<td>2006</td>
<td></td>
<td></td>
<td>Schools are encouraged to promote awareness of organ donation, § 49-6-1012.</td>
<td></td>
</tr>
<tr>
<td>Texas</td>
<td>2006</td>
<td>Up to 30 days of paid leave for organ donation, Up to 5 days of paid leave for bone marrow donation Texas Government Code, §661.916.</td>
<td></td>
<td>Glenda Dawson Donate Life-Texas Registry, Texas Health and Safety Code § 692A.020.</td>
<td></td>
</tr>
<tr>
<td>Virginia</td>
<td>2006</td>
<td>Up to $5,000 Organ and Tissue Donation Tax Deduction, § 58.1-322.03.</td>
<td>Up to 30 days of paid leave for organ and bone marrow donation, § 2.2-2821.1.</td>
<td>Information in driver education courses, § 22.1-205.</td>
<td></td>
</tr>
<tr>
<td>West Virginia</td>
<td>2006</td>
<td>Up to 120 hours of paid leave for kidney and liver donation, Up to 56 hours of paid leave for bone marrow donation, §29-6-27 and §29-6-28.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Florida adopted the 1968 UAGA and has passed significant revisions in subsequent years.

**Sources:**
donors and the surviving family members of organ donors with a ceremony in the Capitol rotunda. All organ donors are recognized collectively by citation, with copies of the citation available upon request to the donor or donor’s family.76

House Bill 84 (2018), which unanimously passed both chambers of the Legislature, requires coroners and medical examiners to contact the Kentucky Organ Donor Affiliates (KODA), the commonwealth’s organ procurement organization, if a decedent’s body is medically viable for organ or tissue donation. Prior to the bill’s passage, only hospitals were required to notify KODA when a decent who had registered as an organ donor passed away. The bill also is known as “Courtney’s Law,” in honor of the late Courtney Flear, who had signed her driver’s license indicating her intention to be an organ donor, but was not referred to KODA after she died from injuries sustained in an automobile accident.77,78

Louisiana

In 2010, the Legislature passed the 2006 UAGA. Additionally, the state grants a tax credit up to $7,200 on individual tax returns for expenses incurred due to making a living organ donation.79 The state also requires all employers, public and private, to provide up to 40 hours of paid leave for bone marrow donation.80 When an employer provides paid leave for a living organ donation, the state provides an 18 percent tax credit to the employer for the wages paid. This tax credit also will cover the costs that an employer may incur for the development of an employee bone marrow donation education program, payments to a healthcare provider for determining a donor’s tissue type, and employee transportation to a medical facility for a bone marrow donation procedure.81

The Louisiana Organ Procurement Agency administers the state’s organ donor registry and recovers organs for transplants. The agency also works in partnership with Donate Life Louisiana, the state’s Donate Life affiliate, to promote the importance of organ donation through outreach and education, including providing materials to driver’s education courses in the state.82

Mississippi

Mississippi adopted the Revised UAGA in 2008. Also, like Arkansas and Georgia, Mississippi allows a tax deduction up to $10,000 for any expenses incurred resulting from making a living organ donation.83 State employees are granted up to 30 days of paid leave for living organ or bone marrow donation, one of the most generous organ donation leave laws in the South.84 Driver education courses in public schools are required to include instruction on the process of organ and tissue donation.85

Missouri

The General Assembly passed the 2006 UAGA two years after its creation. Missouri also grants state employees up to 30 days of paid leave for making a living organ donation and up to five days of paid leave for bone marrow donation.86 Section 194.299 of the Missouri Revised Statutes requires information on organ donation to be shared with residents obtaining or renewing a driver’s license and requires secondary schools to implement organ donation awareness programs, funded through donations to the state’s organ donor program fund.87 Section 143.1016 of the Missouri Revised Statutes establishes the Missouri Organ Donor Trust Fund to receive donations.88

North Carolina

In 2008, the General Assembly adopted the Revised UAGA. Additionally, Section 20-7.4 of the North Carolina General Statutes establishes the License to Give Trust Fund to receive donations from individuals and organizations and allocate those funds for initiatives that promote and educate about organ and tissue donation.89 Section 20-7.5 establishes the License to Give Trust Fund Commission to administer the fund. The commission’s members are appointed by executive and legislative branch leadership, with the governor appointing seven members, president pro tempore of the Senate four members, and the speaker of the House of Representatives four.90 Furthermore, the Division of Motor Vehicles is required to make donor cards that declare an individual’s donor status available at motor vehicle offices to all organ donors.91 Additionally, the state recognizes April as Organ Donation Awareness/Donate Life Month in accordance with
National Donate Life Month, as instituted by Donate Life America.\footnote{92}

\section*{Oklahoma}

Three years after its creation, the Legislature approved the 2006 UAGA. Like Arkansas, Georgia and Mississippi, Oklahoma allows a tax deduction up to $10,000 for any expenses incurred from making a living organ donation.\footnote{93} Furthermore, like neighboring Missouri, Oklahoma grants state employees up to 30 days of paid leave for making a living organ donation and up to five days of paid leave for bone marrow donation.\footnote{94} Like other states with similar programs, the state’s Oklahoma Organ Donor Education and Awareness Program Revolving Fund was established to raise awareness of the importance and value of organ donation. The fund helps to pay for informational materials, educational programs in public schools and grants to organ procurement organizations in the state.\footnote{95}

\section*{South Carolina}

Like Oklahoma, South Carolina adopted the 2006 UAGA three years after the model legislation was drafted. Similar to Missouri and Oklahoma, South Carolina allows state employees to take up to 30 days of paid leave for a living organ donation\footnote{96} and up to 40 hours of paid leave for bone marrow donation.\footnote{97} Additionally, the state requires private sector employers to provide employees up to 40 hours of paid leave for bone marrow donation.\footnote{98} Section 44-43-1310 of the South Carolina Code of Laws establishes Donate Life South Carolina as a nonprofit organization to promote and encourage organ and tissue donation in the state.\footnote{99} The organization is administered by a board of directors, whose 10 members are appointed by the governor.\footnote{100}

\section*{Tennessee}

In 2007, the General Assembly codified the 2006 UAGA. Under Section 49-6-1012 of the Tennessee Code, school districts are encouraged to promote organ and tissue donation.\footnote{101} In July 2017, the Tennessee Department of Safety and Homeland Security partnered with Donate Life Tennessee to promote the importance of organ donation. As part of the “Bells for Life” pilot program, each time someone registers as an organ donor at a state Drivers Service Center, a staff member invites the newly registered donor to ring a bell and receive a round of applause from staff. For the first phase of the pilot program, six of the state’s 86 Drivers Service Centers are participating. At the start of the program, 34 percent of licensed drivers in the state were registered as organ donors; the goal is to register 50 percent of licensed drivers as organ donors.\footnote{102,103}

\section*{Texas}

Like Oklahoma and South Carolina, the Texas Legislature adopted the 2006 UAGA in 2009. Also, like Missouri, Oklahoma and South Carolina, Texas offers state employees up to 30 days of paid leave for making a living organ donation and up to five days of paid leave for bone marrow donation.\footnote{104} In 2005, the Legislature called for Donate Life Texas, the statewide affiliate of the national Donate Life America organization, to maintain and administer a statewide organ donor registry entitled the Glenda Dawson Donate Life-Texas Registry. The legislation also established the Glenda Dawson Donate Life-Texas Registry Fund to receive donations from individuals and organizations and use those funds to design and distribute organ donation educational materials to prospective donors.\footnote{105} The registry and fund are named in honor of the late Representative Glenda Dawson, a kidney transplant recipient and organ donation advocate.\footnote{106}

\section*{Virginia}

One year after its creation, the Virginia General Assembly adopted the 2006 UAGA. Furthermore, Section 58.1-322.03 of the Code of Virginia allows taxpayers to deduct up to $5,000 of unreimbursed expenses incurred due to a living organ donation.\footnote{107} Like Mississippi, Virginia state employees are permitted up to 30 days of paid leave for organ or bone marrow donation.\footnote{108} Section 22.1-205 of the Code instructs the Board of Education to establish a standardized driver education program that includes organ and tissue donor awareness.\footnote{109}

\section*{West Virginia}

West Virginia passed the Revised UAGA in 2008. Additionally, Section 29-6-28 of the West Virginia Code
grants state employees up to 120 hours of paid leave for a living donation of a liver lobe or kidney and up to 56 hours of paid leave for bone marrow donation.\textsuperscript{110}

Conclusion

The opioid crisis cannot be overlooked as a significant variable in the discussion of organ donor laws. State policymakers have an opportunity to consider a number of practical and long-term policy options that could increase the number of organ donations as well as expand the existing mechanisms available to become an organ donor.

Recognizing the relatively small number of organ transplants that occur annually in the United States relative to the population—whether via living or deceased donations—couple with the alarmingly high death rate associated with the opioid crisis, state policymakers are at a juncture where a closer examination of current laws addressing organ donation may be warranted.

With an average of 20 Americans dying each day while waiting for an organ transplant,\textsuperscript{111} there is a clear need for states to find innovative and effective measures to reduce this number. While this number may never be zero, there are several practical and immediate measures that states may consider adopting to optimize the current organ donation process. Policies designed to promote living organ donation may be part of the solution. The adoption of an opt-out organ donation system also may warrant consideration. This approach has been successful in Europe, but may face hurdles in the United States, as the perception is that upon death a person’s organs become property of the state. Some have argued that overturning the section of the National Organ Transplant Act that prohibits the sale of organs would lead to more organ donations.\textsuperscript{112} However, there are concerns that this might result in a system that would permit, or perhaps encourage, individuals to sell their organs for financial gain.

State legislators may wish to consider the following recommendations:

» Creating state task forces to review moving from an opt-in policy to an opt-out policy for organ donation
» For those states seeking to implement an opt-out policy, crafting language that is unambiguous
» Increasing opportunities and frequency at state agency points-of-contact for citizens to affirm their wish to be an organ donor
» Lowering fees to renew/obtain a driver’s license when enrolling as an organ donor
» Requiring education on organ donation in driver education (or other) public school courses
» Producing more public service announcements on the importance of organ donation
» Requiring employers to provide paid or unpaid leave to employees who make living organ donations
» Providing tax deductions/credits to individuals who make living organ donations
» Encouraging medical personnel to inform drug overdose survivors about the value of organ donation

With no immediate solution to the opioid crisis, the linkage between the unprecedented number of opioid related premature deaths and ameliorating the shortage of organ donations may present policy options that previously did not exist. Policymakers may consider these recommendations or may develop new policies with input from organ procurement agencies, medical personnel and addiction experts. Ultimately, a multifaceted approach may prove the most beneficial.

Further Resources

The following websites provide useful information for individuals who want to learn more:

» United Network for Organ Sharing, https://unos.org/
» Donate Life America, https://www.donatelife.net/
» National Institute on Drug Abuse, https://www.drugabuse.gov/
Endnotes


20. Ibid.

35. Nadia Kounang, “Drug overdoses contribute to record number of organ donors.”
38. “Opioid Overdose Death Rates and All Drug Overdose Death Rates per 100,000 Population (Age-Adjusted),” Kaiser Family Foundation, accessed April 9, 2018, https://www.kff.org/other/state-indicator/opioid-overdose-death-rates/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D.
39. Nadia Kounang, “Drug overdoses contribute to record number of organ donors.”
42. Ibid.
43. Ibid.
47. Leah Samuel, “To solve organ shortage, states consider ‘opt-out’ organ donation laws.”
54. Ibid.
55. Ibid.
70. Arkansas Code, § 20-17-502.
73. Florida Statutes, Section 765.5155.
76. Kentucky Revised Statutes, § 2.240.
79. Louisiana Revised Statutes, 47:297.
80. Louisiana Revised Statutes, 40:1263.4.
83. Mississippi Code, § 27-7-18.
84. Mississippi Code, § 25-3-103.
86. Missouri Revised Statutes, § 105.266.
87. Missouri Revised Statutes, § 194.299.
88. Missouri Revised Statutes, § 143.1016.
91. North Carolina General Statutes, § 20-7.3.
93. Oklahoma Statutes, §68-2358(E).
94. Oklahoma Statutes, §74-840-2.20(B).
95. Oklahoma Statutes, §63-2220.3.
100. South Carolina Code of Laws, §44-43-1320.
101. Tennessee Code, § 49-6-1012.
107. Code of Virginia, § 58.1-322.03.
110. West Virginia Code, §29-6-28.
This report was prepared by Nick Bowman, research and publications associate for the Southern Legislative Conference of The Council of State Governments. This report reflects the policy research made available to appointed and elected state officials by the Southern Office of The Council of State Governments (CSG).

Opened in 1959, the Southern Office of CSG promotes intergovernmental cooperation among its 15 member states, predominantly through the programs and services provided by its Southern Legislative Conference (SLC). Legislative leadership, members and staff utilize the SLC to identify and analyze government policy solutions for the most prevalent and unique issues facing Southern states. Meanwhile, SLC member outreach in state capitols and coordination of domestic and international delegations, leadership development and staff exchange programs, meetings, and fly-ins programs, meetings, and fly-ins support state policymakers and legislative staff in their work to build a stronger region.

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