

# STATE OF EXECUTIONS IN 2014

A snapshot of capital punishment implementation in the U.S.

## Lethal injection protocols:

**Three-drug combination:** Midazolam or pentobarbital + vecuronium + potassium chloride

*Used in 2014 with midazolam:* Florida, **5**; Oklahoma, **1**

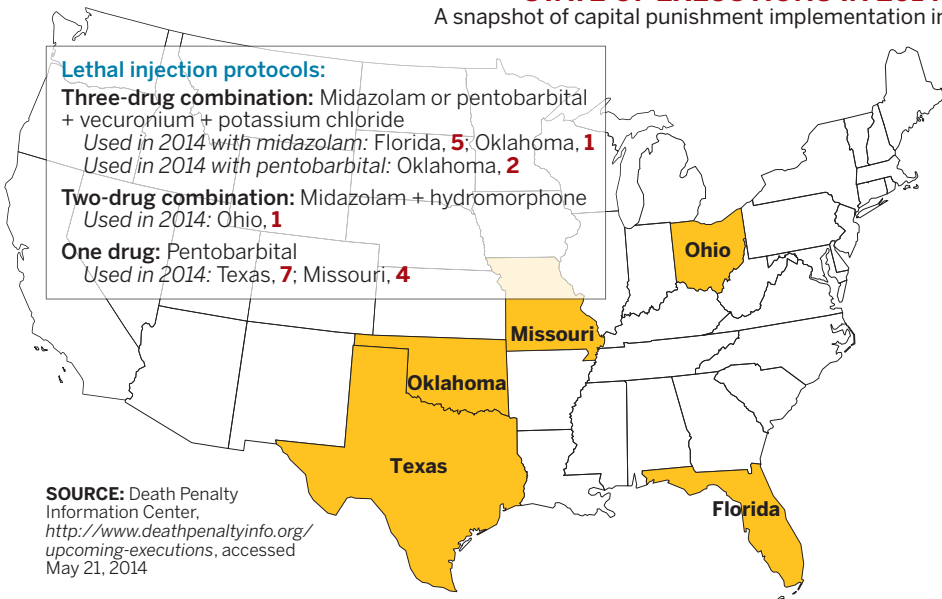
*Used in 2014 with pentobarbital:* Oklahoma, **2**

**Two-drug combination:** Midazolam + hydromorphone

*Used in 2014:* Ohio, **1**

**One drug:** Pentobarbital

*Used in 2014:* Texas, **7**; Missouri, **4**



**SOURCE:** Death Penalty Information Center,

<http://www.deathpenaltyinfo.org/upcoming-executions>, accessed May 21, 2014

## Midazolam hydrochloride

**Drug class:** Benzodiazepine sedative

**Biological mechanism:** Depresses central nervous system activity by binding to neurotransmitter receptors

**Major medical uses:** Antianxiety, sedation, induce amnesia, anticonvulsant

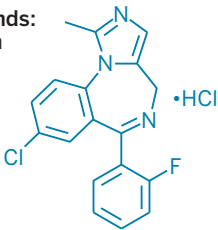
**Execution use:** Induce unconsciousness, stop breathing

**Alternative compounds:**

Diazepam, lorazepam

**Number of manufacturers<sup>a</sup>:** 9

(diazepam: 1, lorazepam: 5)



<sup>a</sup> For single-ingredient FDA-approved injectable or intravenous formulations. **SOURCE:** Drugs@FDA, <http://www.accessdata.fda.gov/scripts/cder/drugsatfda/index.cfm>, accessed May 20, 2014

## Vecuronium bromide

**Drug class:** Muscle relaxant

**Biological mechanism:** Inhibits muscle contraction by blocking neurotransmitter receptors

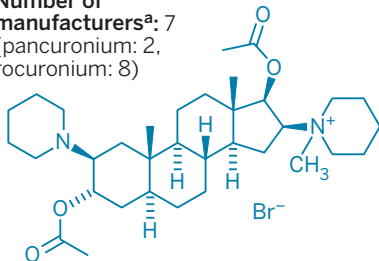
**Medical use:** Induce paralysis for intubation or surgery

**Execution use:** Stop breathing

**Alternative compounds:** Pancuronium bromide, rocuronium bromide

**Number of manufacturers<sup>a</sup>:** 7

(pancuronium: 2, rocuronium: 8)



## Pentobarbital sodium

**Drug class:** Barbiturate anesthetic

**Biological mechanism:** Depresses central nervous system activity by interfering with neurotransmitter action

**Major medical use:** Anticonvulsant

**Execution use:** Induce unconsciousness, stop breathing

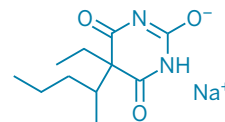
**Alternative compounds:** Thiopental sodium, phenobarbital, propofol

**Number of manufacturers<sup>a</sup>:** 1

(thiopental: 0,

phenobarbital: 0,

propofol: 3)



## Potassium chloride

**Therapeutic class:**

KCl

**Electrolyte replenisher**

**Biological mechanism:** Alters voltage potential across ion channels

**Medical uses:** Stop heart for cardiac procedures, electrolyte replenisher

**Execution use:** Stop heart

**Number of manufacturers<sup>a</sup>:** 4

## Hydromorphone hydrochloride

**Therapeutic category:** Opioid analgesic

**Biological mechanism:** Alters central nervous system activity by binding to neurotransmitter receptors

**Major medical uses:** Pain relief

**Execution use:**

Stop breathing

**Alternative compounds:**

Morphine sulfate,

fentanyl citrate

**Number of manufacturers<sup>a</sup>:** 4

(morphine: 5,

fentanyl: 3)

