



JOHNS HOPKINS

BLOOMBERG SCHOOL
of PUBLIC HEALTH

**Center for Gun Violence
Prevention and Policy**

Changes to the legal landscape for civilian gun carrying and impacts on violent crime

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Outline



- **Background**



- **Legal Mapping and Analysis**

- Concealed carry policy, 1980–2021



- **Quantitative Analysis**

- Concealed carry policies and violent crime



- **Discussion: Conclusions and Implications**



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Four types of state concealed carry law

- ▶ Most states require a permit or license to carry a concealed gun and articulate specific permitting criteria
- ▶ State concealed carry laws can be sorted into four broad categories:
 - No Issue (ban) *Strict*
 - May Issue
 - Shall Issue
 - Permitless carry *Lenient*
- ▶ Shall issue and permitless laws are also called “Right-to-Carry” (RTC) laws



State laws governing public use are hotly debated

- ▶ Initial work in the 1990s (Lott & Mustard 1997)
 - More guns, less crime
 - Argued that violent crime would decrease if states made it easier to get a permit
 - Flawed
- ▶ Newer studies (e.g., Donohue et al. 2019)
 - Improved methods, show that states that made it easier to get a permit saw elevated violent crime rates
 - Potential flaws in legal analysis in some studies
- ▶ RAND summary report on gun policy evaluated studies of RTC laws
 - Several studies with many outcomes, strengths, and weaknesses



These laws have not been adequately studied

- ▶ The newer studies are generally better, but still limited
 - Often focus on RTC laws, improperly combining shall issue and permitless laws
 - Focus on overall policy categories, not specifics
- ▶ Specific permitting standards may help reduce violence
 - May keep high-risk applicants from acquiring permits
 - May encourage responsible gun ownership and use



Research question

- ▶ Are state concealed carry policies associated with violent crime rates and do specific permitting standards affect that association?
- ▶ Two pieces:
 - Longitudinal legal mapping and analysis
 - Quantitative policy evaluation



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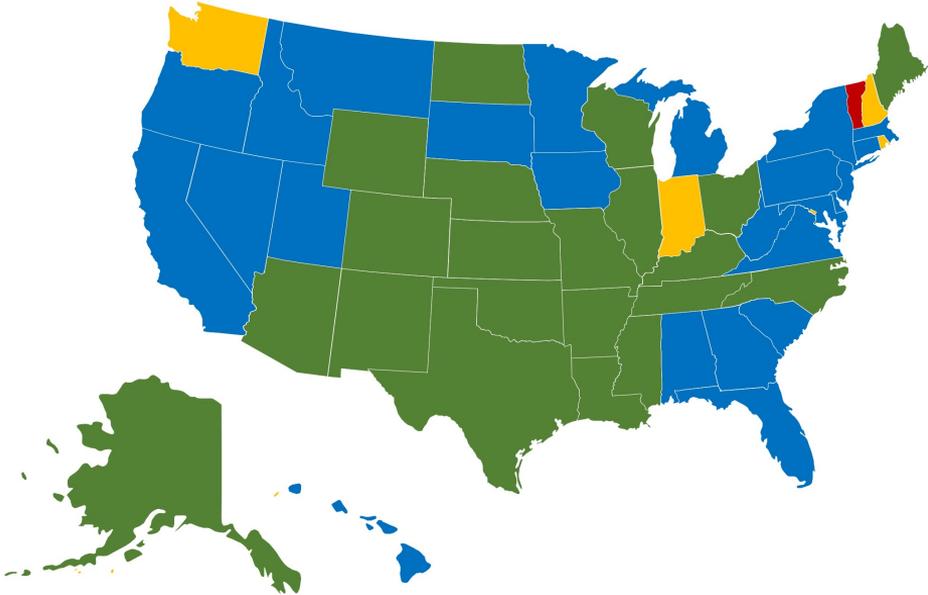
Legal mapping

- ▶ Legal research questions
 - How are states regulating concealed carry?
 - What specific permitting standards do states have?
 - How have state laws changed over time?
- ▶ Standard search terms in Westlaw, HeinOnline, Lexis, and state websites
- ▶ 50 states, 1980–2021
- ▶ State laws coded for overall permitting policy and for specific permitting standards

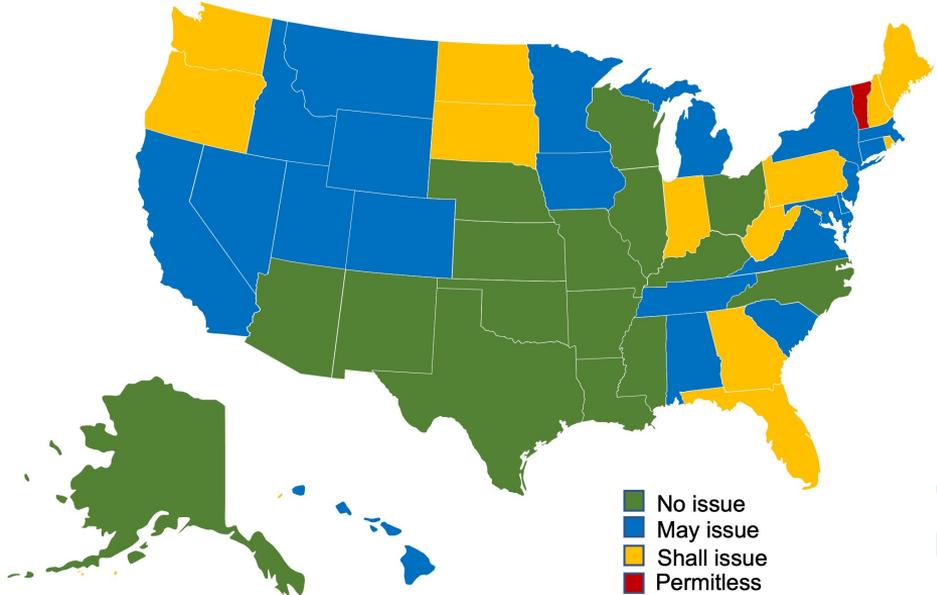


Concealed carry policies in 1980 and 1990

1980



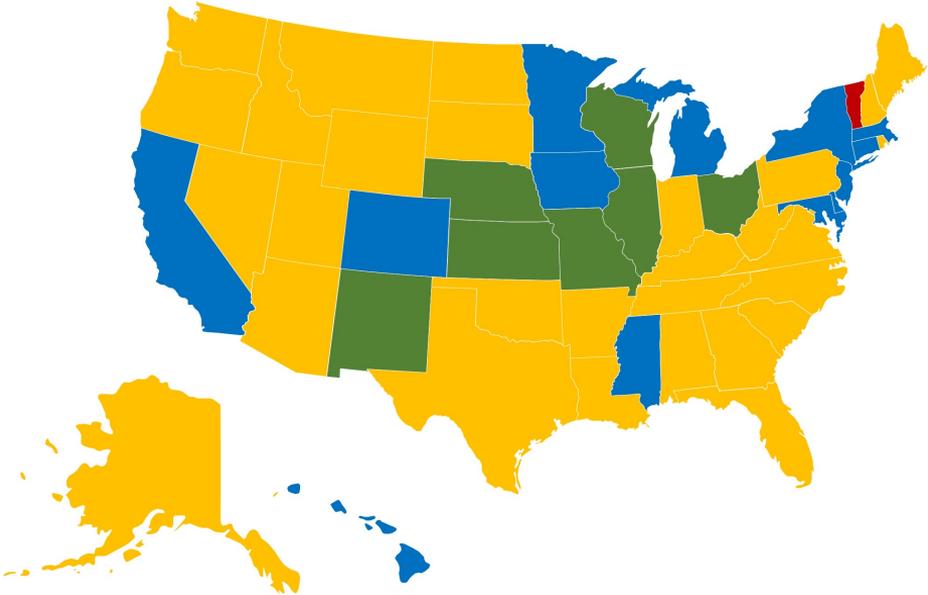
1990



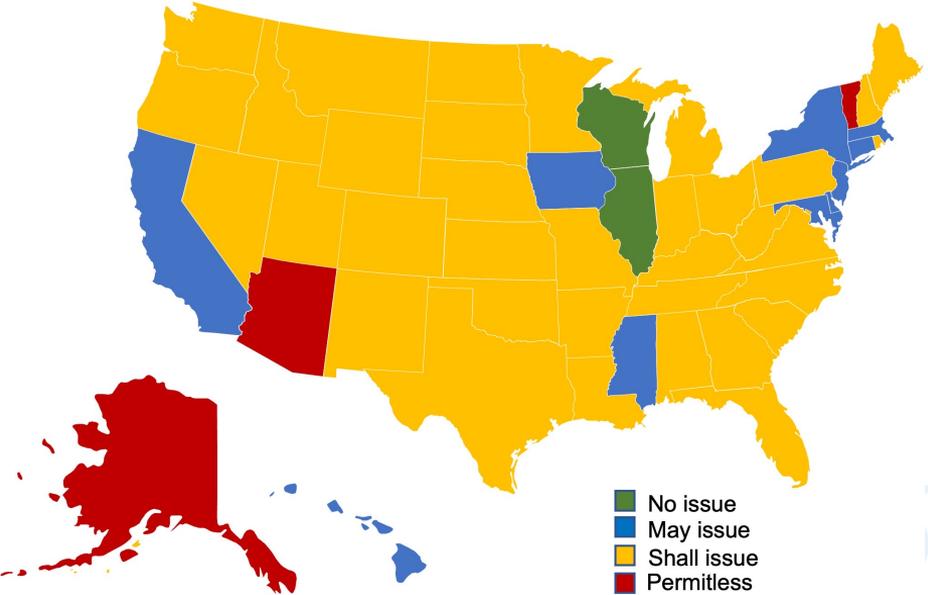
- No issue
- May issue
- Shall issue
- Permitless

Concealed carry policies in 2000 and 2010

2000



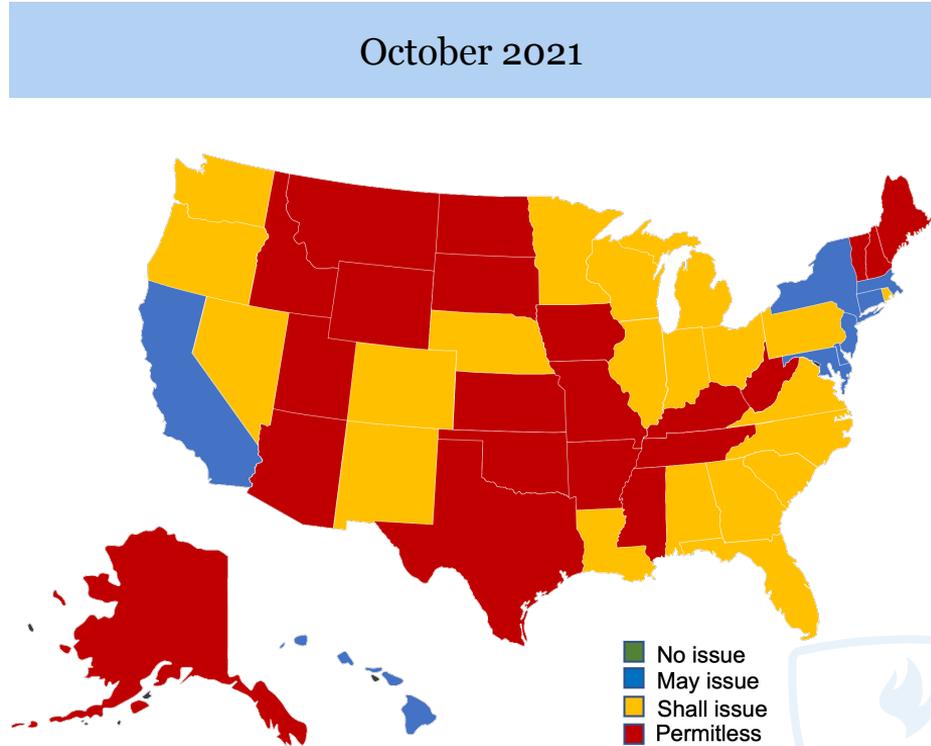
2010



- No issue
- May issue
- Shall issue
- Permitless

Concealed carry policies in 2021

- ▶ All states allow concealed carry
- ▶ 8 states with may issue laws
- ▶ 21 states with shall issue laws
- ▶ 21 states allow permitless carry



Specific permitting standards

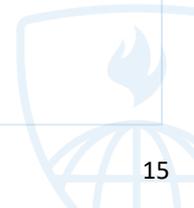
- ▶ Collected laws were reviewed and analyzed to identify specific permitting standards
- ▶ Several common standards relevant to violence prevention
 - Violent misdemeanor prohibitions
 - Training requirement
 - Live fire requirement
 - “Dangerousness” evaluation
 - Other broad “suitability” requirements
- ▶ Shift to shall issue
 - Additional permitting standards
 - Less discretion for law enforcement



Specific permitting standards

- ▶ Of states with a permit requirement in 1980 and 2019:

	1980 (n=28)		2019 (n= 36)	
	May issue (n=24)	Shall issue (n=4)	May issue (n=8)	Shall issue (n=29)
Violent misdemeanor	12.5%	0%	62.5%	69.0%
Training	12.5%	0%	87.5%	75.9%
Live fire	4.2%	25.0%	37.5%	48.3%
Dangerousness	4.2%	0%	12.5%	44.8%
Other suitability standard	75.0%	75.0%	87.5%	13.8%



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Research question & design

- ▶ Research question
 - What is the relationship between concealed carry policy and violent crime?
- ▶ Two pieces to quantitative analysis:
 - Interrupted time series approach
 - Augmented synthetic control + random effects meta-analysis
- ▶ Dependent variables (1980–2019):
 - Aggravated assault with a firearm, robbery with a firearm (FBI UCR)
 - Firearm homicide, nonfirearm homicide (NCHS)



Interrupted time series regression

- ▶ Negative binomial regression with state and year fixed effects
 - Independent policy variables: CCW policy (see next slide)
 - Legal covariates: permit to purchase, point of sale background check, stand your ground, violent misdemeanor prohibition (possession)
 - State demographic covariates (percent living in MSA, proportion black males 15–19, proportion white males 20–39, unemployment rate, poverty rate, ethanol consumption, incarceration rate, police employees per capita, per capita income)



Regression: independent CCW policy variables

- ▶ Several different models to evaluate different aspects of CCW policy
 1. Broad CCW policy category
 2. Shall issue with permitting standards (relative to SI w/o standard)
 - a) Training
 - b) Live fire training
 - c) Any VM-related prohibition
 - d) Suitability requirement
 - e) Dangerousness evaluation



Augmented Synthetic Control Method

- ▶ Augmented synthetic control (state-specific) + random-effects meta-analysis (average)
 - Extension of the synthetic control method (SCM)
 - Creates synthetic state—weighted combination of untreated states that approximates covariates and outcomes in pre-law period
 - Compare difference between treated state and synthetic state in post-law period
 - Outcome model to minimize pre-law root mean square prediction error
- ▶ Identical covariates, 10-years pre- and post-law change for each state



Results: May Issue

Regression

- ▶ **Across all models, states with may issue laws saw a lower level of violent crime relative to states with shall issue laws**
- ▶ In the model with no permitting standards:
 - Agg. Assault with firearm: IRR = 0.73*
 - Robbery with firearm: IRR = 0.76*
 - Homicide with firearm: IRR = 0.94*
 - Nonfirearm homicide: IRR = 0.94*

ASCM

- ▶ **Results are largely consistent with regression**
- ▶ Aggregate results show moving from may issue to shall issue is associated with increases in assault and homicide (rates per 100,000):
 - Agg. Assault with firearm: ATT = +15.2*
 - Robbery with firearm: ATT = -5.6
 - Homicide with firearm: ATT = +0.3*
 - Nonfirearm homicide: ATT = +0.12

• $p < 0.05$

• NOTE: Regression produces incidence rate ratio (IRR) and ASCM produces Average Treatment Effect on the Treated (ATT). These are different measures of effect estimate.



Results: Permitless

Regression

- ▶ **Permitless laws were less consistent, but states generally saw lower level of assault and robbery and no change in homicide relative to shall issue laws**
- ▶ In the model with no permitting standards:
 - Agg. Assault with firearm: IRR = 0.80*
 - Robbery with firearm: IRR = 0.81*
 - Homicide with firearm: IRR = 1.02
 - Nonfirearm homicide: IRR = 1.07

ASCM

- ▶ **Results are similar to regression results, with some differences.**
- ▶ Aggregate results show moving from shall issue to permitless is associated with no significant change (rates per 100,000):
 - Agg. Assault with firearm: ATT = -3.2
 - Robbery with firearm: ATT = -1.3
 - Homicide with firearm: ATT = -0.05
 - Nonfirearm homicide: ATT = -0.1

• p<0.05

• NOTE: Regression produces incidence rate ratio (IRR) and ASCM produces Average Treatment Effect on the Treated (ATT). These are different measures of effect estimate.



Results: Shall issue with live fire

Regression

- ▶ **Shall issue with live fire training, relative to shall issue with no live fire training:**
 - Agg. Assault with firearm: IRR = 1.07
 - Robbery with firearm: IRR = 1.24*
 - Homicide with firearm: IRR = 1.03
 - Nonfirearm homicide: IRR = 1.03

ASCM

- ▶ **Move from may issue to shall issue without live fire requirement:**
 - Agg. Assault with firearm: ATT = 8.31*
 - Robbery with firearm: ATT = 5.69
 - Homicide with firearm: ATT = 0.42*
 - Nonfirearm homicide: ATT = 0.22*
- ▶ **Move from may issue to shall issue *with* live fire requirement:**
 - Agg. Assault with firearm: ATT = 8.39
 - Robbery with firearm: ATT = 2.87
 - Homicide with firearm: ATT = 0.17
 - Nonfirearm homicide: ATT = 0.05

- $p < 0.05$
- NOTE: Regression produces incidence rate ratio (IRR) and ASCM produces Average Treatment Effect on the Treated (ATT). These are different measures of effect estimate.



Results: Shall issue with VM prohibition

Regression

- ▶ **Shall issue with VM, relative to shall issue with no VM:**
 - Agg. Assault with firearm: IRR = 0.82*
 - Robbery with firearm: IRR = 0.87*
 - Homicide with firearm: IRR = 0.93*
 - Nonfirearm homicide: IRR = 0.92*

ASCM

- ▶ **Move from may issue to shall issue without VM:**
 - Agg. Assault with firearm: ATT = 16.58*
 - Robbery with firearm: ATT = 7.84
 - Homicide with firearm: ATT = 0.39
 - Nonfirearm homicide: ATT = 0.32
- ▶ **Move from may issue to shall issue *with* VM:**
 - Agg. Assault with firearm: ATT = 2.80
 - Robbery with firearm: ATT = 3.33
 - Homicide with firearm: ATT = 0.28
 - Nonfirearm homicide: ATT = 0.08

• $p < 0.05$

• NOTE: Regression produces incidence rate ratio (IRR) and ASCM produces Average Treatment Effect on the Treated (ATT). These are different measures of effect estimate.



Results: Shall issue with Suitability

Regression

- ▶ **Shall issue with suitability req, relative to shall issue with no suitability req:**
 - Agg. Assault with firearm: IRR = 0.78*
 - Robbery with firearm: IRR = 0.91*
 - Homicide with firearm: IRR = 0.94
 - Nonfirearm homicide: IRR = 0.93*

ASCM

- ▶ **Move from may issue to shall issue without suitability req:**
 - Agg. Assault with firearm: ATT = 6.82*
 - Robbery with firearm: ATT = 3.84
 - Homicide with firearm: ATT = 0.38*
 - Nonfirearm homicide: ATT = 0.11
- ▶ **Move from may issue to shall issue *with* suitability req:**
 - Agg. Assault with firearm: ATT = 6.07
 - Robbery with firearm: ATT = 5.37
 - Homicide with firearm: ATT = -0.25
 - Nonfirearm homicide: ATT = 0.15

• p<0.05

• NOTE: Regression produces incidence rate ratio (IRR) and ASCM produces Average Treatment Effect on the Treated (ATT). These are different measures of effect estimate.



Results: Shall issue with Dangerousness

Regression

- ▶ **Shall issue with dangerousness eval, relative to shall issue with no dangerous eval:**
 - Agg. Assault with firearm: IRR = 0.94
 - Robbery with firearm: IRR = 0.79*
 - Homicide with firearm: IRR = 1.02
 - Nonfirearm homicide: IRR = 0.98

ASCM

- ▶ **Move from may issue to shall issue without dangerousness eval :**
 - Agg. Assault with firearm: ATT = 7.64
 - Robbery with firearm: ATT = 1.57
 - Homicide with firearm: ATT = 0.35
 - Nonfirearm homicide: ATT = 0.20
- ▶ **Move from may issue to shall issue *with* dangerousness eval :**
 - Agg. Assault with firearm: ATT = 6.37
 - Robbery with firearm: ATT = 7.99*
 - Homicide with firearm: ATT = 0.28
 - Nonfirearm homicide: ATT = -0.03

- $p < 0.05$
- NOTE: Regression produces incidence rate ratio (IRR) and ASCM produces Average Treatment Effect on the Treated (ATT). These are different measures of effect estimate.



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Implications, concerns, and continuing work

- ▶ Legal mapping reveals important nuances in state concealed carry policies
- ▶ May issue laws appear to be protective relative to shall issue laws, even with addition of specific provisions
- ▶ Permitting standards may hold promise as a mechanism for reducing or preventing increases in violence
 - Some differences between regression and ASCM results, but in general, VM- and training-related provisions may be protective



Implications, concerns, and continuing work

- ▶ Permitless results were somewhat unexpected. What could explain this?
 - More firearms → crime deterrent? Probably not
 - Omitted variable
 - Permitless states may differ in important ways from states that have not adopted permitless carry (% rural, % gun owners, etc.) → adoption of permitless law may not have changed *behavior*
 - Data limitations



Implications, concerns, and continuing work

- ▶ Shall issue laws may increase violence
- ▶ Specific permitting standards within shall issue laws may be protective
 - But need to evaluate equity and impact
 - Some provisions may open the door to de facto or de jure discrimination
 - More qualitative and quantitative work needed
- ▶ More quantitative analysis needed to fully understand relationship between permitting standards and fatal outcomes



Thank you!

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References

1. Wintemute GJ, Wright MA, Drake CM, Beaumont JJ. Subsequent criminal activity among violent mis- demeanants who seek to purchase handguns: risk factors and effectiveness of denying handgun purchase. *JAMA*. 2001;285(8):1019–1026.
2. Crifasi CK, Merrill-Francis M, McCourt A, Vernick JS, Wintemute GJ, Webster DW. Association between firearm laws and homicide in urban counties. *J Urban Health*. 2018;95(3):383–390.
3. Fleegler EW, Lee LK, Monuteaux MC, Hemenway D, Mannix R. Firearm legislation and firearm-related fatalities in the United States. *JAMA Intern Med*. 2013; 173(9):732–740.
4. Siegel M, Pahn M, Xuan Z, Fleegler E, Hemenway D. The impact of state firearm laws on homicide and suicide death rates in the US, 1991–2016: a panel study. *J Gen Intern Med*. 2019;34(10):2021–2028.
5. Rudolph KE, Stuart EA, Vernick JS, Webster DW. Association between Connecticut’s permit-to-purchase handgun law and homicides. *Am J Public Health*. 2015; 105(8):e49–e54.
6. Crifasi CK, Meyers JS, Vernick JS, Webster DW. Effects of changes in permit-to-purchase handgun laws in Connecticut and Missouri on suicide rates. *Prev Med*. 2015;79:43–49.
7. Webster D, Crifasi CK, Vernick JS. Effects of the repeal of Missouri’s handgun purchaser licensing law on homicides. *J Urban Health*. 2014;91(2):293–302.
8. Hasegawa R, Webster D, Small D. Bracketing in the comparative interrupted time-series design to address concerns about history interacting with group: evaluating Missouri’s handgun purchaser law. *Epidemiology*. 2019; 30(3):371–379.
9. Abadie A, Diamond A, Hainmueller J. Synthetic control methods for comparative case studies: estimating the effect of California’s tobacco control program. *J Am Stat Assoc*. 2010;105(490):493–505.
10. Donohue JJ, Aneja A, Weber KD. Right-to-carry laws and violent crime: a comprehensive assessment using panel data and a state-level synthetic control analysis. *J Empir Leg Stud*. 2019;16(2):198–247.

