Development or "BETA" dataset policy coding documentation

Background

This dataset records, by policy area and state, the sequence of policy actions taken. Policy actions within a state and policy area are linked by policy IDs, which enables better tracking of how policies evolved over time in terms of their issuance, expansion, easing, and/or ending. Introduced in May 2020, the dataset provides more granular detail on policy actions coordinated by state government leadership (i.e., governors and/or public health departments as empowered by governors) in response to COVID-19 in the United States (US).

Externally, this dataset is referred to the "BETA" dataset. The original intention was to transition initial policy coding fully to this format and to use a script to automatically update the original "production" dataset format (i.e., the "production" dataset contains consolidated or summary versions of each policy chain captured in the "development" dataset). This script remains in-progress and thus we maintain both datasets.

The key difference between the "development" and "production" datasets is that the latter is meant to provide a summary of key policy types and their changes over time by state, while the "development" dataset is meant to provide a more comprehensive set of information on policy evolution. All data coded and entered in these datasets are subject to revision and updating. These revisions and update serve two purposes: First, they address the challenges of translating qualitative policy data into quantitative data formats that aim to be machine-readable. Second, they correct any newly discovered errors in data entry or in coding decisions, which are a particular risk in the rapidly evolving policy landscape of state-level responses to COVID-19.

Variables, definitions, and coding documentation

File: "USstatesCov19distancingpolicyBETA.csv". Prior datasets are archived with date stamps in the format of YYYYMMDD. Archived datasets are dated with the date they were uploaded to GitHub.

PID: Policy ID, or the unique ID for each policy action. PIDs are used to link policy actions (i.e., Extends, Expands, Eases, Ends, Depends, Joins, Leaves) to each other. PIDs are six characters, with the first two characters indicating the two-letter state postal code and the next four being numerical format with leading zeros (i.e., PIDs of AK0001, AK0002 for two separate policies in Alaska). The numbers associated with each PID are arbitrary, and do not reflect the ordering of policy implementation, nor do they reflect the total number of mandates enacted by a given state.

Multiple policy actions can come from a single order, and some earlier policies received "later" PIDs because they were identified upon further review. Instead, they should be viewed as **unique identifiers** for the different types of policy actions taken, which then can be linked together over time as they are acted upon by future orders.

A past PID can only be linked once in a new entry – that is, a new policy can only act on a past policy through a single policy action variable (i.e., Expands, Eases, Ends, Depends, Joins, Leaves). However, an earlier can simultaneously appear under (possibly different) policy action variables of several later policies if the "contents" of the older policy now apply to different substate locations (SWGeo==0) or populations (SWPop==0) *and* have variable levels of restriction. This may take the format of numeric limits on gatherings, a particular business sector re-opening while the remainder are required to stay closed, among others.

Assuming proper coding and data entry, an analyst should be able to construct "policy chains" over a policy area by state (or in theory, by substate locations with coordinated state-level government policy response). If a certain type of policy is no longer active (e.g., ending a policy completely, or downgrading to a recommendation), one PID entry is used to end the policy chain.**location_id**: State-level unique identifier per the Global Burden of Disease (GBD) study.

This allows for merging this dataset onto other state-level data or estimates published by the GBD study and/or other US state-level estimates produced by the Institute for Health Metrics and Evaluation (IHME).

StateFIPS: State-level Federal Information Processing Standard (FIPS) code. This allows for merging this dataset onto any other state-level dataset using State FIPS codes as state-level identifiers.

StatePostal: Two-letter state postal code. This allows for merging this dataset onto any other state-level dataset using state postal codes as state-level identifiers.

StateName: State name. We currently track policies for the 50 US states and the District of Columbia; US territories such as Puerto, the US Virgin Islands, and Guam are not included in this dataset.

StatePolicy: String or character variable for state policies. As of November 5, 2020, this dataset includes actively tracked 16 policies (with 2 being phased out of use: BusinessHealthSafety and SchoolHealthSafety). More detailed definitions, descriptions, and how they are coded are provided in the table below (pages 3-11).

Mandate: Binary variable on whether the policy is a mandate (1) or is a recommendation (0). This is coded based on the order's phrasing (e.g., "residents are advised to stay at home and avoid unnecessary travel" would be coded as 0 for mandate as a "StayAtHome" policy). This variable was added on March 30, 2020.

StateWide: Binary variable indicating whether the policy applied statewide (1), or whether the policy is only applicable to sub-state geographic areas (e.g., counties) or sub-populations within a state (e.g., individuals aged 65 and older). If either SWGeo or SWPop is 0, StateWide is also 0.

SWGeo: Binary variable indicating whether the policy is applied for all geographic areas in the state (1) or whether the policy is only applicable to sub-state geographic areas (e.g., counties). If SWGeo is coded as 0, StateWide will also be coded as 0. This variable was added May 2, 2020.

SWPop: Binary variable indicating whether the policy is applicable to the state's full population (1) or whether the policy is only applicable to sub-populations (e.g., individuals aged 65 and older, individuals with chronic and/or severe health conditions). If SWPop is coded as 0, StateWide will also be coded as 0. This variable was added May 2, 2020.

Curfew: Binary variable on whether a policy involves a time-based restriction – the equivalent of a curfew – and is thus coded as 1 if specific times apply to the policy. For any policy with Curfew coded as 1, at least one time-based variable – CurfewStart, CurfewEnd – also will be included to reflect when this policy starts and/or ends. To date, examples include limited stay-at-home orders from 10:00 pm to 5:00 am and requirements to close certain businesses by certain hours (e.g., bars must close by 10:00 pm); note that limited hours of alcohol sales but otherwise allowing businesses to remain open are not considered a curfew-based policy. Removing or adding a time-restriction is not currently coded as an easing or expansion unless the policy fundamentally changes (e.g., a full stay-at-home order is replaced by a time-restricted stay-at-home order; restaurants move from permitting indoor services that end at 10:00 pm to only having outdoor services without time restrictions). This variable was added on December 3, 2020; we have sought to include all policies issued since this time and will be actively working to capture historical time-based restrictions over the next few months.

Policies under "StatePolicy", definitions, and policy action examples		
StatePolicy	**Definition**	**Policy action variables and corresponding examples**
EmergDec	Emergency declaration; currently includes State of Emergency, Public Health Emergency, Public Health Disaster declarations, Civil Emergency declarations, and other permutations of state-level declarations of emergency in response to COVID-19. States usually some kind of time limit on states of emergency (e.g., 15 days, 30 days), but others appear to not have any temporal requirements (i.e., these emergency declarations are in effect until otherwise rescinded by the governor) Note that some states may have multiple types of emergency declarations at once (e.g., state of emergency and public health emergency). We have sought to generally capture these separately if possible, as well as document the type of emergency declaration issued.	• **Extends**: continues the status of a state's emergency declaration; this is frequently used in this dataset. • **Expands**: increases the level of emergency declaration (e.g., extreme disaster emergency declaration in Idaho); note that this is rarely used in this dataset. • **Eases**: reduces the level of emergency declaration (e.g., scaling down from a super disaster emergency declaration); note that this is rarely used in this dataset. • **Ends:** the state of emergency is no longer active, and/or is actively repealed or struck down.
GathRestrict	Restriction of gathering. These include a formal mandate or an executive order that uses phrasing such as "prohibits all mass gatherings" (per definition of mass gathering) and "constituents must avoid large gatherings (with Mandate==1), as well as recommendations (coded as Mandate==0) using phrasing that stops short of a formal restriction (e.g., "advises against mass gatherings" and "constituents should avoid gatherings of more than 100"). Absolute numeric limits, as imposed for indoor or outdoor gatherings, as well as for religious venues or gatherings, are listed under InGathLim and OutGathLim variables. Relative numeric limits, as expressed in percentage capacity, are recorded in PolicyCodingNotes. Note that here gathering restrictions are focused on social or public gatherings of individuals rather than limits placed on the number of people who can be patrons or receive in-person services at a business or office. Again, these limits are captured in PolicyCodingNotes at present. If a state has not issued a formal gathering restriction but has enacted a stay-at-home order, a gathering restriction without clear limits is also included at the time of stay-at-home order enactment. ***Note:*** *GathRestrict used to only include mandates (Mandate==1), whereas GathRecom was always Mandate==0. Starting November 2, 2020, GathRecom was discontinued and is now GathRestrict with Mandate==0.*	• **Extends**: continues the status of a previous gathering restriction of the same absolute numeric limits across InGathLim, OutGathLim, InGathLimReligious, OutGathLimReligious. • **Expands**: at least one of the absolute numeric gathering variables decreases, resulting in a stricter gathering restriction. If a policy includes a combination of stricter and less strict gathering limits (e.g., indoor limits reduce to 10 but outdoor increase to 50), the policy must be first eased or expanded, and then the second policy action is coded. • **Eases**: at least one of the absolute numeric gathering variables increases, resulting in a less strict gathering restriction. If a policy includes a combination of stricter and less strict gathering limits (e.g., indoor limits reduce to 10 but outdoor increase to 50), the policy must be first eased or expanded, and then the second policy action is coded. • **Ends:** a gathering restriction is either ended in full or replaced with a gathering recommendation, and thus ends the mandated policy chain.

StayAtHome	Policy instructing individuals to stay at home for all non-essential activities. Coding a case as a stay-at-home order mandate requires the executive order to using phrasing indicative of a mandate (e.g., "must stay at home"); otherwise it is coded as 0 for the "Mandate" variable if it uses advisory phrasing. Coding does not distinguish among states' classification of essential versus non-essential activities, as they vary substantially by state. Shelter-in-place and stay-at-home orders are considered to be equivalent. Stay-at-home recommendations are coded as such if a governor explicitly urges state residents to remain at home or minimize activities outside of their place of residence through an official state medium (e.g., governors' website press releases, radio address). Mandates require a formal order.	• **Extends**: continues the status of a previous stay-at-home order. • **Expands**: moves from a recommendation to mandate; applies to all populations and not solely at-risk populations. • **Eases**: a stay-at-home order moves from requiring all populations to stay at home to only a subset (e.g., individuals older than 65 years and/or with a high-risk health condition); substantially eases what constitutes 'essential activities' (e.g., California's May 8 order substantially altered what was considered permissible activities outside of the home for counties that completed Phase 2 attestation). • **Ends:** a stay-at-home order moves from a mandate to a recommendation, and thus ends the mandate; a governor explicitly rescinds a stay-at-home order or does not renew it in an extension.
BarRestrict	Restriction or limitation of bars, breweries, wineries, tasting rooms, and/or other venues where alcoholic beverages are consumed on-premises and sales of on-site alcohol consumption is the primary function of the venue (i.e., bars/bar areas contained within restaurants are coded within RestaurantRestrict, as are venues that may be called bars, pubs, etc. but have food licenses). At least 50% of revenue must be derived from alcohol sales, or these establishments are not those with a food license (again, those are coded under RestaurantRestrict). This variable was added on July 6, 2020. Coding a case as a restriction requires a formal restriction on operations (e.g., offsite consumption only, limiting services to only take-away, delivery, or curbside drop-off) or mandate for reducing operations (e.g., bar closure must occur unless capacity is limited to no more than 25% or no more than 10 patrons onsite at a time).. The level of this restriction is captured in the BusinessRestrictLevel variable (FullClose, TakeawayOnly, OutdoorOnly, IndoorAllowed). Bar restrictions are considered ended when no more requirements are in place for capacity and seating. Note that changing the timing of when alcohol sales can occur (e.g., requiring venues to halt sales by 10:00 pm) is not coded as a formal expansion, but will be documented in PolicyCodingNotes wherever possible. Recommended closures are not considered as part of this coding scheme; all BarRestrict entries are Mandate==1.	• **Extends**: continues the status of a previous bar restriction. • **Expands**: requires closure for in-person services or moves a higher BusinessRestrictLevel (i.e., OutdoorOnly from IndoorAllowed); shifts to a lower capacity limit from one that is higher (i.e., 25% capacity now required, from previously permitting up to 50%). • **Eases**: shifts from a more strict BusinessRestrictLevel to a less stringent one (i.e., TakeawayOnly to OutdoorOnly; OutdoorOnly to IndoorAllowed); shifts to a higher capacity limit from a lower one (i.e., permits 75% capacity indoors from an earlier limit of 50%). • **Ends:** moves from a mandate to a recommendation; no longer requires any kind of occupancy limits or seating arrangements that would otherwise potentially reduce the number of people who can patronize these venues.

RestaurantRestrict	Restriction or limitation of restaurants and other venues where food is consumed on-premises. Establishments where alcohol is served and may be called a bar or like venue but have a food license are coded within the RestaurantRestrict policy category as they are viewed as operating more like a restaurant than a bar. Coding a case as a restriction requires a formal restriction on operations (e.g., offsite consumption only, limiting services to only take-away, delivery, or curbside drop-off) or mandate for substantially reducing operations (e.g., restaurant closure must occur unless capacity is limited to no more than 25% or no more than 10 patrons onsite at a time)). The level of this restriction is captured in the BusinessRestrictLevel variable (i.e., FullClose, TakeawayOnly, OutdoorOnly, IndoorAllowed). Restaurant restrictions are considered ended when no more requirements are in place for capacity and seating. Note that changing the timing of when alcohol sales can occur (e.g., requiring venues to halt sales by 10:00 pm) is not coded as a formal expansion, but will be documented in PolicyCodingNotes wherever possible. Recommended closures are not considered as part of this coding scheme; all RestaurantRestrict entries are Mandate==1.	• **Extends**: continues the status of a previous restaurant restriction. • **Expands**: requires closure for in-person services that were previously permitted or moves a higher BusinessRestrictLevel (i.e., OutdoorOnly from IndoorAllowed); shifts to a lower capacity limit from one that is higher (i.e., 25% capacity now required, from previously permitting up to 50%). • **Eases**: shifts from a more strict BusinessRestrictLevel to a less stringent one (i.e., TakeawayOnly to OutdoorOnly; OutdoorOnly to IndoorAllowed); shifts to a higher capacity limit from a lower one (i.e., permits 75% capacity indoors from an earlier limit of 50%). • **Ends:** moves from a mandate to a recommendation (and thus will no longer be coded for this dataset); no longer requires any kind of occupancy limits or seating arrangements that would otherwise potentially reduce the number of people who can patronize these venues.
OtherBusinessClose	Mandate to close or substantially reduce operations of any category of business that are not classified under restaurants or bars. Coding a case as an "OtherBusinessClose" requires an order to use phrasing indicative of a mandate (e.g., "casinos must close", "operations at fitness centers and entertainment venues must cease by date"). We code substantial reduction in operations as requiring businesses to reduce capacity to a maximum of 25% or 10 patrons onsite at a business at a time, whichever is provided in the policy. We recognize that this is to some degree an arbitrary threshold; revisiting if or how to incorporate capacity limits in separate variables will be considered in the future. A given state may have multiple cases of other business closures as they often occurred in phases (e.g., fitness centers and gyms on March 13, 2020; casinos and entertainment venues on March 15, 2020; personal service businesses like barbers and nail salons on March 19, 2020). If a state clearly treated these in separate executive orders, we sought to track them separately as well. If the state was either clearly or seemingly expanding upon previously closed businesses, we coded these entries as expansions rather than separate policy chains.	• **Extends**: continues the status of a previous set of business restrictions. • **Expands**: requires closure for in-person services that were previously permitted or moves a higher BusinessRestrictLevel (i.e., OutdoorOnly from IndoorAllowed); shifts to a lower capacity limit from one that is higher (i.e., 25% capacity now required, from previously permitting up to 50%). • **Eases**: shifts from a more strict BusinessRestrictLevel to a less stringent one (i.e., TakeawayOnly to OutdoorOnly; OutdoorOnly to IndoorAllowed); shifts to a higher capacity limit from a lower one (i.e., permits 75% capacity indoors from an earlier limit of 50%). • **Ends:** moves from a mandate to a recommendation (and thus will no longer be coded for this dataset); no longer requires any kind of occupancy limits or seating arrangements that would otherwise potentially reduce the number of people who can patronize these businesses.

	The relative levels of restriction are sought to be captured in the BusinessRestrictLevel variable (FullClose, TakeawayOnly, OutdoorOnly, IndoorAllowed). We recognize that this variable provides only a coarse categorization of relative business restrictions, and that such designations are subject to policy coder decisions. When some businesses are permitted to re-open or required to close, be in a different BusinessRestrictLevel, capacity designation but others are not (and were otherwise contained in the same entry), our coding approach is to split the entry across whatever sectors are changing under Eases, Expands, or Ends and then Extend whatever is unchanged per the latest policy. Recommended closures are not considered as part of this coding scheme; all OtherBusinessClose entries are Mandate==1.	
NEBusinessClose	Mandate to close all non-essential businesses. Coding a case as a closure order requires the executive order to use phrasing indicative of a mandate (e.g., "non-essential businesses are required to close", "non-essential businesses must cease operations by date"). Coding does not distinguish among states' classification of essential versus non-essential businesses, as they vary substantially by state. Unless states are expressly issuing separate orders regarding the operations of different sectors, we code the issuance of a NEBusinessClose as an expansion of all previous OtherBusinessClose entries and those closures are covered within that entry. As states ease restrictions by sector or type of business, we code the first action as easing an NEBusinessClose and the continued closure all other businesses under a new OtherBusinessClose entry via Extends. NEBusinessClose may also be coded as not FullClose under BusinessRestrictLevel if a state issues an order to substantially limit the capacity of non-essential businesses, else they will be required to cease operations. Similar to OtherBusinessClose, we code substantially limiting the capacity of non-essential businesses as a maximum of 25% capacity or no more than 10 patrons onsite at a business at a time, whichever is provided in the policy. We recognize that this is to some degree an arbitrary threshold; revisiting if or how to incorporate capacity limits in separate variables will be considered in the future.	• **Extends**: continues the status of all non-essential business closures. • **Expands**: NEBusinessClose does not involve expansions; OtherBusinessClose can expand to a NEBusinessClose entry. • **Eases**: allows for at least one type of business or sector to re-open with a less strict business restriction (i.e., moving from full closure to curbside only, or moving from full closure to some type of onsite in-person services). • **Ends:** all non-essential businesses may re-open at full capacity and without restrictions on onsite operations (i.e., requirements of at least 6 ft physical distancing, requirements on all patrons being seated). This has not been a common policy action to date unless a governor fully ends all restrictions and/or a court strikes down emergency powers.
BusinessHealthSafety	Starting November 5, 2020, this policy type is currently being phased out of the dataset.	

BusinessMask	Policy that involves requiring employees to wear masks or other mouth and nose coverings as part of business operations. These policies may also involve requirements for customers to wear face coverings while patronizing specific sectors (e.g., personal care services) that would not be otherwise captured within a PublicMask policy. This policy was added on November 5, 2020. *Note: BusinessHealthSafety used to encompass business-based mask requirements, as well as broader health and safety requirements for businesses as they re-opened for in-person service. Starting on November 5, 2020, BusinessHealthSafety is being phased out of the dataset.*	• **Extends:** continues the status of the previous policy on business mask requirements. • **Expands:** applies to more business types or sectors; explicitly requires patrons and employees to wear face coverings in a specific sector (e.g., personal care services). • **Eases:** applies to fewer business types or sectors; no longer requires patrons to wear face coverings whereas employees must continue to wear them. • **Ends:** no longer requires the use of face coverings by employees, and/or moves to a recommendation from a mandate.
SchoolClose	Formal closing of (at minimum) public K-12 schools. Where possible, additional information on types of school closings are provided in "PolicyCodingNotes". If states explicitly close K-12 schools and higher education institutions via separate executive orders, we code these as separate policy chains. We do not include childcare or early child learning care services as part of this policy type. SchoolRestrictLevel is used to provide broad categories of school closures or restrictions.	• **Extends**: continues the status of the previous school closure or restriction level. • **Expands**: applies to more types of schools (private and charter schools, higher education) than the previous school closure or restriction, and/or reflects an increased level of restriction or closures for schools than the previous entry. This can also reflect a shift from recommending that schools close (and thus allowing school districts and/or local authorities to determine school status) to requiring that schools close. • **Eases**: reflects a decreasing level of restriction for schools compared to its previous level, and/or applies to fewer school types than the previous entry (e.g., allows grades 6-12 to resume in-person instruction while K-5 remain fully remote). • **Ends**: state-level executive or agency devolves school re-opening responsibilities to districts and/or local authorities; governor issues an order requiring schools to provide in-person learning.
SchoolHealthSafety	Starting November 5, 2020, this policy type is currently being phased out of the dataset.	
SchoolMask	Policy that involves requiring students to wear masks or other mouth and nose coverings while at school. *Note: SchoolHealthSafety used to encompass school-based mask requirements, as well as broader health and safety requirements for school as they re-opened*	• **Extends:** continues the status of the previous mask policy at schools. • **Expands:** applies the mask policy or requirements to wear face coverings at more types of schools or grades (e.g., now requiring K-

	for in-person activities and instruction. Starting November 5, 2020, SchoolHealthSafety is being transitioned out of the dataset.	12, rather than only grades 6-12). This also can reflect a shift from recommending masks at schools to mandating them by a state authority (i.e., governor, public health department). • **Eases:** applies to fewer types of schools or grades (e.g., now only requires wearing face coverings among grades 6-12 rather than K-12). • **Ends:** shifts from a mandate to recommendation for wearing face coverings at schools, ending the policy chain of mandates; devolution from state-level policies on school health and safety requirements to local authorities and/or school districts.
PublicMask	Policy that recommends or requires individuals to wear masks or other mouth and nose coverings when they are outside their places of residence in the public. Mask mandates are coded as Mandate==1 and the relative level or applicability of the mask mandate is reflected under PublicMaskLevel. Recommendations are coded as Mandate==0 without any corresponding PublicMaskLevel. This policy type does not reflect requirements around mask use or other types of personal protective equipment mandated as part of business operations, either routine or under efforts to ease distancing policies to re-establish in-person operations of business establishments. This policy type was added April 25, 2020.	• **Extends:** continues the status of the previous policy on wearing masks or face coverings in public. • **Expands:** shifts from a recommendation to mandated mask policy; requires the use of face coverings across broader settings (e.g., requiring masks in all indoor settings [Mandate2 under PublicMaskLevel] in public instead of only specific settings [Mandate1 under PublicMaskLevel]; requiring masks in all indoor settings and outdoors when at least 6 ft of physical distancing [Mandate3 under PublicMaskLevel] instead of a less comprehensive mask policy); requires a broader range of populations to wear masks (e.g., all medically able individuals 2 years and older *versus* all medically able individuals 10 years and older). • **Eases:** shifts from a more comprehensive mask requirement to a less comprehensive one (e.g., moves to only requiring masks in public in retail stores and transportation [Mandate1 under PublicMaskLevel] from all non-residential/public indoor settings [Mandate2 under PublicMaskLevel]). • **Ends:** shifts from a mandate to a recommendation for wearing face coverings in public, ending the policy chain of mandates; explicitly no longer extending a previous mask mandate; a court order striking down an executive or public health order and thus rendering it no longer in effect.

CaseIsolation	Policy that requires individuals with confirmed coronavirus infection (via testing) or suspected infection to self-isolate for a specified period of time, or when they no longer test positive for infection. This policy type may also include requirements for quarantine of individuals who have been identified as high-risk for developing COVID-19 due to their close contact to patients with confirmed or suspected infections, including sharing the same residence. This policy type is different from "Quarantine" in this dataset, which refers to policies that require self-quarantine for individuals entering a state from any or particular points of origin. This policy type was added April 25, 2020	• **Extends:** continues the status of the previous policy on case-based isolation requirements. • **Expands:** shifts from a recommendation to a mandate for case-based isolation practices; requires more types of individuals with exposure to confirmed infections than a previous policy (e.g., only those who tested positive or were presumed positive based on symptoms were required to isolate, and a new policy now requires close contacts to isolate as well). • **Eases:** requires fewer types of individuals to isolate (e.g., no longer requiring contacts exposed to a confirmed case); allows for more options to reduce the time of case-based isolation (e.g., show x number of negative tests within x days rather than the previous x-day requirement). • **Ends:** shifts from a mandate to a recommendation that individuals who test positive for coronavirus, who are presumptive cases, and those with exposure to confirmed infections (and thus ends the policy chain of mandates); formally rescinds a case-based isolation order.
Quarantine	Quarantines mandated for people entering the state, requiring a period of self-isolation. Quarantines may be imposed on all people entering the state, out-of-state residents, or travelers from a particular state or city. Quarantine length and exemptions per testing are included in the "PolicyCodingNotes" variable. Locations that this travel-based quarantine applies to are listed under the variable "AppliesTo" separated by commas. This policy type was added April 3, 2020.	• **Extends**: continues the previous status of a travel-based quarantine. • **Expands**: increases requirements pertaining to a travel-based quarantine, such as moving from a recommendation to a mandate; moving from what was previously a domestic travel quarantine to also include international travel; and requiring a longer quarantine period than previously instituted. • **Eases**: reflects a decreasing level of restriction for a travel-based quarantine, such as only requiring travelers from states that exceed a certain test positivity rate to quarantine when the previous policy applied to any out-of-state travel; providing a testing option in lieu of a 14-day quarantine period. • **Ends:** involves a prior quarantine order being rescinded; moving from a mandate to a recommendation, which involves ending the mandated quarantine policy chain and starting a new policy chain of recommendations

TravelRestrictIntra	Restrictions on travel within the state. These restrictions can be between cities or counties or within them. The "StateWide" variable reflects whether these restrictions are applicable to across the state (coded as 1) or only for local areas (coded as 0). This policy type was added April 3, 2020.	• **Extends:** continues the previous status of within-state travel restrictions. • **Expands:** shifts from a recommendation to mandated within-state travel restrictions; applies this restriction to more types of people or sectors (i.e., all individuals except for essential workers or those executing essential services cannot travel within the state *versus* a prior policy that only limits leisure/non-business travel). • **Eases:** relaxes restrictions for certain groups of people (e.g., individuals with business-based travel needs). • **Ends:** involves the prior travel restriction policy being rescinded; moving from a mandate to a recommendation; the state devolving these requirements or decision-making to local authorities.
TravelRestrictExit	Policies which prohibit residents of a state from leaving the state. These policies may have exceptions for essential businesses or individuals conducting essential services (e.g., healthcare workers transferring patients to higher level hospital). This policy type was added April 3, 2020.	• **Extends:** continues the previous status of restrictions on travel outside a state. • **Expands:** shifts from a recommendation to mandated policy on exiting a state; applies this restriction to more types of people or sectors (i.e., all individuals except for essential workers or those executing essential services cannot travel outside the state *versus* a prior policy that only limits leisure/non-business travel). • **Eases:** relaxes restrictions for certain groups of people (e.g., individuals with business-based travel needs). • **Ends:** involves the prior travel restriction policy being rescinded; moving from a mandate to a recommendation; the state devolving these requirements or decision-making to local authorities.
TravelRestrictEntry	Travel restriction mandates that limit non-residents from entering a given state. These policies may have exceptions or exemptions for essential businesses or their employees, and they may include restrictions for commercial lodging for non-residents. This policy type was added April 8, 2020. This policy may apply broadly to all non-residents, or specifically prohibit individuals who have tested positive for the coronavirus or are presumptive cases from entering the state. This is a separate policy from "Quarantine," which	• **Extends:** continues the previous status of restrictions on travel into a state. • **Expands:** shifts from a recommendation to mandated policy on entering a state; applies this restriction to more types of people or sectors (i.e., all individuals except for essential workers or those executing essential services cannot travel into a state *versus* a prior policy that only limits leisure/non-business travel).

| | permits travelers to enter at a state but requires them to complete a quarantine period prior to onward travel within the state. | • **Eases:** relaxes restrictions for certain groups of people (e.g., individuals with business-based travel needs). |
| | | • **Ends:** involves the prior travel restriction policy being rescinded; moving from a mandate to a recommendation; the state devolving these requirements or decision-making to local authorities. |

CurfewStart: The start time of a time-based restriction, coded on a 24-hour cycle using a HHhMM format. For instance, if a time-limited stay-at-home order spans from 10:00 pm to 5:00 am, CurfewStart would be 22h00. If bars are required to close by midnight, CurfewStart would be 23h59. This variable requires Curfew to be coded as 1. This variable was added on December 3, 2020.

CurfewEnd: The end time of a time-based restriction, coded on a 24-hour cycle using a HHhMM format. For instance, if a time-limited stay-at-home order spans from 10:00 pm to 5:00 am, CurfewEnd would be 05h00. If a business restriction involves closure by a certain time (e.g., 11:00 pm, so 23h00 for CurfewStart) but the policy does not specify the times at which businesses are permitted to reopen, CurfewEnd will be left blank. This variable requires Curfew to be coded as 1. This variable was added on December 3, 2020.

InGathLim: Absolute numeric limit for gatherings indoors (count of maximum individuals). If no limit is provided, this variable is blank. If gatherings of individuals outside the same household of any number are prohibited, this is coded to 0. Relative capacity limits are included in PolicyCodingNotes. If a policy includes different absolute thresholds for private (residential) indoor gatherings and public (non-residential) indoor gatherings, the higher of the two is included under InGathLim and any deviation is included in PolicyCodingNotes. This variable was added on July 30, 2020.

OutGathLim: Absolute numeric limit for gatherings indoors (count of maximum individuals). If no limit is provided, this variable is blank. If gatherings of individuals outside the same household of any number are prohibited, this is coded to 0. If this value does not equal "InGathLimit" for the same entry, the prior gathering coding system included two separate entries to reflect these differences; these different limits are now shown as components of the same policy ID. Relative capacity limits are included in PolicyCodingNotes. If a policy includes different absolute thresholds for private (residential) indoor gatherings and public (non-residential) indoor gatherings, the higher of the two is included under OutGathLim and any deviation is included in PolicyCodingNotes. This variable was added on July 30, 2020.

InGathLimReligious: Absolute numeric limit for gatherings indoors at houses of worship or churches, as well as other types of religious, spiritual, and worship gatherings (count of maximum individuals). If a location has exemptions for indoor weddings or funerals, these exemptions are noted in PolicyCodingNotes rather than reflected in this variable. Relative capacity limits are included in PolicyCodingNotes. This variable was added on July 30, 2020.

OutGathLimReligious: Absolute numeric limit for gatherings outdoors at houses of worship or churches, as well as other types of religious, spiritual, and worship gatherings (count of maximum individuals). If a location has exemptions for outdoors weddings or funerals, these exemptions are noted in PolicyCodingNotes rather than reflected in this variable. Relative capacity limits are included in PolicyCodingNotes. This variable was added on July 30, 2020.

BusinessRestrictLevel: Reflects broad categories of business restrictions. This variable was introduced to better reflect the main differences in permitted business operations that have emerged over the course of the US COVID-19 epidemic: full closure, curbside or takeaway only, permission for in-person outdoor services only, and permission for in-person indoor services. We recognize these categories may not necessarily reflect the range of business restrictions experienced and that they are subject to interpretation by the policy coder. This variable is used for BarRestrict, RestaurantRestrict, OtherBusinessClose, and NEBusinessClose. Differences in relative or absolute capacity levels are

currently included in PolicyCodingNotes where applicable. This variable was added on November 5, 2020. BusinessRestrictLevel groupings are as follows:

- **FullClose:** Businesses are required to fully close for any kind of customer or in-person operations except for whatever minimum business operations are permitted (e.g., employees providing maintenance functions).
- **TakeawayOnly:** Businesses are permitted to have curbside, take-away or take-out, delivery, drive-through, and like modes of service that do not permit customers or patrons to remain on-premises with the exception of picking up items ordered. (These restrictions were typically the strongest applied to restaurants, bars, and similar establishments.)
- **OutdoorOnly:** Businesses are permitted to provide in-person services and/or to have patrons visit their premises, but only outdoors. In some cases, patrons may be permitted to briefly go indoors to place an order, pick-up items, and/or to use the restroom. No onsite services or patronage can occur indoors.
  - *Example:* Personal care services like hair salons and barbershops are permitted to re-open but only to services provided outdoors.
- **IndoorAllowed:** Businesses are permitted to provide in-person services and/or to have patrons visit their premises indoors. In some cases, certain indoor areas may remain restricted even when indoor services are permitted (e.g., bar areas, billiard areas, or dance floors). This restriction is considered to remain in effect if 100% capacity is permitted but the policy still mandates that patrons are seated and/or must maintain at least 6 feet of physical distancing.
  - *Example:* Bars may re-open to in-person services indoors but must operate under 25% capacity, all patrons must be seated, and counter service is not permitted unless physical barriers are installed between seating.

<u>SchoolRestrictLevel:</u> Reflects a broad categories of school closures and restrictions. This variable was introduced in an effort to better reflect the main differences in permitted school operations that have emerged over the course of the US COVID-19 epidemic: no in-person instruction or activities permitted, some in-person instruction or activities can occur (e.g., hybrid model, on-campus extracurricular activities), and in-person instruction allowed. We fully recognize that these categories may not necessarily reflect the range of school restrictions experienced and that they are subject to interpretation by the policy coder. Instead, these categories should be viewed as coarse classifications of school operations as determined by state-level orders and an evolving effort to better represent school closures in the US. Note that we view many other policy coding efforts (e.g., examples) as detailed, especially states have devolved school operations amid the COVID-19 pandemic to local authorities, school districts, among others. This variable was added on November 5, 2020. SchoolRestrictLevel groupings are as follows:

- **NoInPerson:** Schools are closed to all in-person instruction and school-based activities. Most policies permit minimum school operations and school-based meal programs to continue as essential services.
- **LimitedInPerson:** Schools can have limited in-person activities, such as school-based extracurricular activities like sports practices or marching bands; some summer school activities or instruction; and so on. The hybrid model that many schools have adopted, wherein schools are permitted to have some in-person instruction paired with remote-only instruction (either through rotating days of this format or groups of students), is categorized under this group.
- **InPersonAllowed:** Schools are permitted to have in-person instruction and activities. Sometimes this coding will result in a ending of the SchoolClose policy, namely in situations where the governor or state agency coordinating COVID-19 response have determined that they will no longer be restricting school operations and policies are thus devolved to local authorities. When a state continues to coordinate substate phases and school opening status, this categorization is used to reflect that dynamic. Further, if a state allows for some levels of schooling to re-open but not all (e.g., Pre-K to 5th grade may reopen, but 6-12 schools may not), this coding will be used without fully ending the SchoolClose policy.

13

PublicMaskLevel: Reflects the relative applicability of mask policies to the general public across settings. We are currently only applying these categorizations to mask mandates, not recommendations; we will consider this as useful in the future. This variable was added on July 13, 2020. PublicMaskLevel groupings are as follows:

- **Mandate1:** These policies reflect a limited mask mandate, with fairly limited scope to the public (i.e., shared transportation services, government buildings, certain types of stores such as retail, or in specified settings such as large gatherings where social distancing is not possible).
- **Mandate2**: These policies reflect a broader mask mandate, requiring the use of masks or cloth face coverings by the public across sectors indoors or in enclosed spaces. This includes waiting in line to enter indoor spaces, as well as shared transportation.
- **Mandate3:** These policies reflect mandates that require the use of masks or cloth face coverings by the public across indoor spaces, as well as outdoor settings where social distancing is not possible (i.e., at least 6 feet between individuals who are not part of the same household).

DateIssued: Date of policy issuance. The date of signing of the policy document (e.g., executive order) was used wherever possible. Format is YYYYMMDD (e.g., March 16, 2020 is 20200316).

DateEnacted: Date of policy enactment: the date of when the policy would be enforced, per descriptions available in policy documents. The format is YYYYMMDD. All policies with a date of 11:59 pm YYYYMMDD are coded as YYYYMMDD+1 (e.g., a policy that goes into effect at 11:59 pm on April 14, 2020 will be coded as 20200415). In the "beta" dataset, if a policy is eased, the date of easement would be considered "DateEnacted" for that particular policy action and then the policy it eases would be listed under "Eases." The same applies for a policy that "Ends" – "DateEnacted" is when the ending of a given policy is in effect.

DateExpiry: Date of policy expiry, if or as provided in the policy issuance or executive order. This date is meant to reflect when the policy or order would be in effect until or unless additional action is taken to extend, amend, or halt its status. The format is YYYYMMDD. All policies with a date of 11:59 pm YYYYMMDD are coded as YYYYMMDD+1 (e.g., a policy that goes into effect at 11:59 pm on April 14, 2020 will be coded as 20200415). This variable was added on March 29, 2020.

DateEnded: Date the policy is ended. This date is meant to reflect when a policy is ended, particularly if it is halted or reversed prior to its expiry date. The format is YYYYMMDD. All policies with a date of 11:59 pm YYYYMMDD are coded as YYYYMMDD+1 (e.g., a policy that goes into effect at 11:59 pm on April 14, 2020 will be coded as 20200415).

- *Note:* In the "beta dataset" the date of policy ending is propagated up the policy type and level it ended at the date of ending. For instance, if a mandate prohibiting more than 50 people gathering is ended on May 15 (20200515) but earlier restrictions in that policy chain prohibited more than 10 people gathering from March 25 to April 25 (i.e., the time at which gathering restrictions were eased to a maximum of 50 people), 20200515 would be added to DateEnded for all GathRestrict entries with 50 for gathering limits but not those with 10. This is to help reduce potential confusion regarding when a policy actually ended; in this case, propagating DateEnded of 20200515 to a policy restriction on 10 people would suggest that that policy was in effect until 20200515 rather than until 20200425 (the time at which it was eased to a mandated gathering restriction of up to 50 people).

Extends: Policy id (PID) that a given mandate or policy action extends. This usually means that the previous policy will be in effect beyond its previous expiry date. In other cases, this "policy action" variable reflects the continuance of a given policy in a substate location

- *Example:* AK0004, a restaurant restriction in Alaska, was issued on 20200317, enacted 20200318, and had an initial expiry date of 20200401. AK0020, which was issued on 20200327 and enacted on 20200328, has AK0004 under the "Extends" variable, reflecting that this policy is extended until the DateExpiry listed for AK0020 (20200411). If (or when in this case) AK0020 is extended by a new order, AK0020 would be listed on that "Extends" (which was AK0033).
- *Example:* MT0036 includes several business sectors that were not permitted to reopen on 20200427 (i.e., gym and fitness centers, places of assembly like movie and performance theaters, bowling alleys, and casinos). On 20200504, casinos are permitted to reopen at limited capacity (50%), but the remaining businesses must remain closed. MT0029 thus has MT0036 under Eases, reflecting the eased restrictions for casinos, while MT0036 has MT0036 under Extends, continuing the closure of the other business types under a new entry.

Expands: Policy id (PID) that a new mandate or policy expands. This is meant to capture the expansion of the relative strictness or comprehensiveness of a given policy, not changes in what locations or populations it applies to. Note that we do not currently code expansions as changes in operating hours (e.g., requiring businesses to close by 11:00 pm), though we will include this information as available in PolicyCodingNotes. Rather, we seek to reflect changes in the ways and how many people are permitted to interact with each other. Examples are provided below as well as in the policy type table on pages 3-11. This variable was added on May 2, 2020.
- *Example: A* new gathering restriction limits groups of people to no more than 10 after the prior restriction allowed for up to 25 people.
- *Example:* A new business restriction lowers the occupancy limit to no more than 25% capacity after a previous order permitted up to 75% capacity.
- *Example*: A new mask mandate requires wearing a face covering in all public indoor and outdoor settings where at least 6 feet of physical distancing cannot be maintained. The prior mandate was limited to only government buildings, representing a policy expansion.
- *Example:* A stay-at-home advisory urging people to remain at home except for essential activities is replaced by a mandate requiring people to stay-at-home.

Eases: Policy id (PID) that a new mandate or policy eases. This means that while a previous policy is not fully ended yet, its earlier restrictions or mandates are no longer as strong or comprehensive. This is meant to reflect the relaxation of the relative strictness or comprehensiveness of a given policy (i.e., the opposite of "Expands"), not changes in what locations or populations it applies to. Note that if a policy moves from a mandate to a recommendation, the mandated policy chain is ended and a new policy chain begins for the recommendations. In addition, we do not currently code easing as changes in operating hours (e.g., allowing businesses to operate beyond 12:00 am), though we will include this information as available in PolicyCodingNotes. Rather, we seek to reflect changes in the ways and how many people are permitted to interact with each other. Examples are provided below as well as in the policy type table on pages 3-11. This variable was added on May 2, 2020.
- *Example*: A new gathering restriction limits groups of people to no more than 25 after the prior restriction only allowed for up to 10 people.
- *Example*: A new order allows for previously closed businesses to re-open to up to 25% capacity indoors.
- *Example:* A new order permits for limited activities (e.g., sports practices, extracurricular activities) at schools whereas the previous status of school operations was distance/remote-based learning.
- *Example:* An updated travel quarantine order allows for exemptions to the mandatory 14-day quarantine if travelers show negative COVID-19 test results within a specified time of travel.

Ends: Policy id (PID) that a new mandate or policy ends. This means that the prior policy or executive order has either been formally ended, rescinded, or repealed. Note that if a policy moves from a mandate to a recommendation, the mandated policy chain is ended and then a new policy chain of recommendations is started. In addition, if a state-level policy is devolved to local authorities, such that the governor or state-level agency empowered to make COVID-19 response policies clearly indicates they will no longer be issuing restrictions and that onward decision-making/policies will be set by local governments or public health agencies, this is coded as ending the state-level policy. Tracking policy actions taken outside of state-level authorities, while absolutely vital for COVID-19 response, is currently outside of our scope of work. Examples are provided below as well as in the policy type table on pages 3-11. This variable was added on May 2, 2020.

- *Example:* A new gathering policy no longer requires limits to the number of people who can gather, and now only recommends avoiding activities or groups of more than 100 people.
- *Example:* An updated executive order omits the previously included section on requiring people to stay-at-home except for essential services; further searches confirms that the stay-home-order was not renewed.
- *Example:* The governor or state-level agency empowered to close schools announces that schools may re-open for in-person instruction while providing recommended guidelines for when districts or schools should consider alternative teaching models. This kind of policy action devolves decision-making to local authorities, ending the state-level policies governing what schools can and cannot do.
- *Example:* A state supreme court rules that a given executive order is unconstitutional and/or outside the purview of the executive or agency that issued it. Policies based on that order are then ended if no stay on the decision is provided.

Depends: Starting on November 5, 2020 we are no longer including this variable.

Joins: Policy id (PID) that a new mandate or policy unites with more locations at the same level of restrictions or closures. This variable is used to reflect the "joining" of locations under a given phase of restrictions; for instance, if 10 counties moved to Phase 2 one week and then another 5 moved from Phase 1 to Phase 2 one week later, Joins would be used to "unite" locations under the same level of restrictions or closures. This variable is not used to join different groups of eased (or expanded) business closures (e.g., personal care services, retail, places of public amusement like bowling alleys); it is expressly used to reflect shifts in locations under the same types of restrictions or closures. This variable was added on July 6, 2020.

Leaves: Policy id (PID) from which a prior set of mandates or policies are moving from. This variable is used to reflect the "leaving" of locations under a prior phase of restrictions to a new group or phase of restrictions. Use of "Leaves" is generally accompanied by "Joins," which reflects the previous set of locations experiencing a given set of restrictions. This variable was added on November 5, 2020.

- *Documentation notes.* The policy action variables of Eases and Expands were previously used to reflect groups of locations moving to a different level of policy restrictions. In an effort to make sure these policy action variables more directly reflect changes over time to the policy itself rather than what locations a given policy applies to, we introduced the Leaves variable and have sought to recode Eases and Expands to only reflect policy changes. The Ends variable is still used to signify when a given group of locations have experienced an ending of a given policy.

AppliesTo: List of locations, separated by commas (,), to which a given policy applies. Prior to November 5, 2020, this information was primarily captured in PolicyCodingNotes. We have sought to transfer this information out of PolicyCodingNotes with the hopes of providing machine-readable variable by which users can assess sub-state restrictions (as coordinated by a state-level executive or agency, and thus SWGeo==0 in this dataset), or locations a

given travel policy is applied to (e.g., quarantine requirements for a list of states with test positivity exceeding 10% for 7 days). This variable was added on November 5, 2020.

PolicyCodingNotes: Coder notes. Information on specific businesses closed, type of emergency declaration, potential exceptions, relative capacity limits, etc., are provided here. Over time we have sought to translate these qualitative notes into additional variables (e.g., PublicMaskLevel), and thus will be updated accordingly whenever possible. Based on our own testing and feedback from others, we aim to avoid using characters known to break code. Identified characters to date are:

- **Quotation marks, both single and double: (") and (').** When quoting content we include (quote) statement (quote). We omit possessive quotation marks (e.g., Governors rather than Governor's), recognizing that it is better to avoid breaking code than to adhere to preferred grammar.
- **Semi-colons: (;)**. We remove all semi-colons from quoted content, replacing them with commas or the next best option, and aim to not use them ourselves.
- **Percentage (%).** We write out percent or abbreviate as pct rather than use the percentage sign.

PolicySource: Currently available hyperlink for each policy issued. If or when we discover the hyperlink has changed, we will seek to replace the dead link; however, some states have over-written past policies and they cannot be easily recovered; we aim to capture the original order or content with PolicySourceID PDFs.

PolicySourceID: Name of the PDF source used for each policy. For policies or orders wherein a website page is the only available source, the page was converted to a PDF and saved under "source" on GitHub. When multiple sources are provided

LastUpdated: Date of last update for the given state-policy observation. The format is YYYYMMDD.

LastUpdatedNotes: Coder notes on last updates. This reflects notable changes since the last update, especially if a date has been recoded (e.g., switching to coding orders enacted at 11:59 pm on date1 to date1+1 for its enactment timing) or the "StatePolicy" type has been amended (e.g., some initial coding of "NEBusinessClose" policies were applicable to non-essential in-person retail businesses only, not all non-essential businesses as defined by state).

ReReviewed: Binary variable indicating whether a state has been "re-reviewed" and new variables (e.g., BusinessRestrictLevel, business capacity limit variables, Leaves, AppliesTo) have been incorporated for this state (ReReviewed==1). Once this process is complete, we will remove this variable. This variable was added on November 5, 2020.

UpdatingSource1: Primary source for updating policies for a given state.

UpdatingSource2: Secondary source for updating policies for a given state.

Production or "current" dataset policy coding documentation

File: "USstatesCov19distancingpolicy.csv". Prior datasets are archived with date stamps in the format of YYYYMMDD. Archived datasets are dated with the date they were uploaded to GitHub.

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location_id: State-level unique identifier per the Global Burden of Disease (GBD) study. This allows for merging this dataset onto other state-level data or estimates published by the GBD study and/or other US state-level estimates produced by the Institute for Health Metrics and Evaluation (IHME).

StateFIPS: State-level Federal Information Processing Standard (FIPS) code. This allows for merging this dataset onto any other state-level dataset using State FIPS codes as state-level identifiers.

StatePostal: Two-letter state postal code. This allows for merging this dataset onto any other state-level dataset using state postal codes as state-level identifiers.

StateName: State name. We currently track policies for the 50 US states and the District of Columbia; US territories such as Puerto, the US Virgin Islands, and Guam are not included in this dataset.

StatePolicy: String or character variable for state policies. As of November 5, 2020, this dataset includes 16 policies. More detailed definitions, descriptions, and how they are coded are provided in the table below (pages 19-22).

Mandate: Binary variable indicating whether the policy applied is a mandate (1) or is advisory or a recommendation (0). This is coded on the basis of the order's phrasing (e.g., "residents are advised to stay at home and avoid unnecessary travel" would be coded as 0 for mandate as a "StayAtHome" policy). This variable was added on March 30, 2020.

StateWide: Binary variable indicating whether the policy applied statewide (1), or whether the policy is only applicable to sub-state geographic areas (e.g., counties) or sub-populations within a state (e.g., individuals aged 65 and older). Additional information on policies as they apply to sub-state geographies or states are available in the "BETA" dataset.

Curfew: Binary variable on whether a policy involves a time-based restriction – the equivalent of a curfew – and is thus coded as 1 if specific times apply to the policy. For any policy with Curfew coded as 1, at least one time-based variable – CurfewStart, CurfewEnd – also will be included to reflect when this policy starts and/or ends. To date, examples include limited stay-at-home orders from 10:00 pm to 5:00 am and requirements to close certain businesses by certain hours (e.g., bars must close by 10:00 pm); note that limited hours of alcohol sales but otherwise allowing businesses to remain open are not considered a curfew-based policy. Removing or adding a time-restriction is not currently coded as an easing or expansion unless the policy fundamentally changes (e.g., a full stay-at-home order is replaced by a time-restricted stay-at-home order; restaurants move from permitting indoor services that end at 10:00 pm to only having outdoor services without time restrictions). This variable was added on December 3, 2020; we have sought to include all policies issued since this time and will be actively working to capture historical time-based restrictions over the next few months.

(Continued on page 22; the following pages [pp 19-21] detail state policies included in this dataset)

Policies under "StatePolicy" and definitions	
StatePolicy	**Definition**
EmergDec	Emergency declaration; currently includes State of Emergency, Public Health Emergency, Public Health Disaster declarations, Civil Emergency declarations, and other permutations of state-level declarations of emergency in response to COVID-19. States usually some kind of time limit on states of emergency (e.g., 15 days, 30 days), but others appear to not have any temporal requirements (i.e., these emergency declarations are in effect until otherwise rescinded by the governor) Note that some states may have multiple types of emergency declarations at once (e.g., state of emergency and public health emergency). We have sought to generally capture these separately if possible, as well as document the type of emergency declaration issued.
GathRestrict	Restriction of gathering. These include a formal mandate or an executive order that uses phrasing such as "prohibits all mass gatherings" (per definition of mass gathering) and "constituents must avoid large gatherings (with Mandate==1), as well as recommendations (coded as Mandate==0) using phrasing that stops short of a formal restriction (e.g., "advises against mass gatherings" and "constituents should avoid gatherings of more than 100"). Absolute numeric limits, as imposed for indoor or outdoor gatherings, as well as for religious venues or gatherings, are listed under InGathLim and OutGathLim variables. Relative numeric limits, as expressed in percentage capacity, are recorded in PolicyCodingNotes. If a state has not issued a formal gathering restriction but has enacted a stay-at-home order, a gathering restriction without clear limits is also included at the time of stay-at-home order enactment. *Note: GathRestrict used to only include mandates (Mandate==1), whereas GathRecom was always Mandate==0. Starting November 2, 2020, GathRecom was discontinued and is now GathRestrict with Mandate==0.*
StayAtHome	Policy instructing individuals to stay at home for all non-essential activities. Coding a case as a stay-at-home order mandate requires the executive order to using phrasing indicative of a mandate (e.g., "must stay at home"); otherwise it is coded as 0 for the "Mandate" variable if it uses advisory phrasing. Coding does not distinguish among states' classification of essential versus non-essential activities, as they vary substantially by state. Shelter-in-place and stay-at-home orders are considered to be equivalent. Stay-at-home recommendations are coded as such if a governor explicitly urges state residents to remain at home or minimize activities outside of their place of residence through an official state medium (e.g., governors' website press releases, radio address). Mandates require a formal order.
BarRestrict	Restriction or limitation of bars, breweries, wineries, tasting rooms, and/or other venues where alcoholic beverages are consumed on-premises and sales of on-site alcohol consumption is the primary function of the venue (i.e., bars/bar areas contained within restaurants are coded within RestaurantRestrict, as are venues that may be called bars, pubs, etc. but have food licenses). At least 50% of revenue must be derived from alcohol sales, or these establishments are not those with a food license (again, those are coded under RestaurantRestrict). This variable was added on July 6, 2020. Coding a case as a restriction requires a formal restriction on operations (e.g., offsite consumption only, limiting services to only take-away, delivery, or curbside drop-off) or mandate for reducing operations (e.g., bar closure must occur unless capacity is limited to no more than 25% or no more than 10 patrons onsite at a time). The level of this restriction is captured in the BusinessRestrictLevel variable (FullClose, TakeawayOnly, OutdoorOnly, and IndoorAllowed). Bar restrictions are considered ended when no more requirements are in place for capacity and seating. Note that changing the timing of

	when alcohol sales can occur (e.g., requiring venues to halt sales by 10:00 pm) is not coded as a formal expansion, but will be documented in PolicyCodingNotes wherever possible. Recommended closures are not considered as part of this coding scheme; all BarRestrict entries are Mandate==1.
RestaurantRestrict	Restriction or limitation of restaurants and other venues where food is consumed on-premises. Establishments where alcohol is served and may be called a bar or like venue but have a food license are coded within the RestaurantRestrict policy category as they are viewed as operating more like a restaurant than a bar. Coding a case as a restriction requires a formal restriction on operations (e.g., offsite consumption only, limiting services to only take-away, delivery, or curbside drop-off) or mandate for substantially reducing operations (e.g., restaurant closure must occur unless capacity is limited to no more than 25% or no more than 10 patrons dining onsite at a time). The level of this restriction is captured in the BusinessRestrictLevel variable. Restaurant restrictions are considered ended when no more requirements are in place for capacity and seating. Note that changing the timing of when alcohol sales can occur (e.g., requiring venues to halt sales by 10:00 pm) is not coded as a formal expansion, but will be documented in PolicyCodingNotes wherever possible. Recommended closures are not considered as part of this coding scheme; all RestaurantRestrict entries are Mandate==1.
OtherBusinessClose	Mandate to close or substantially reduce operations of any category of business that are not classified under restaurants or bars. Coding a case as an "OtherBusinessClose" requires an order to use phrasing indicative of a mandate (e.g., "casinos must close", "operations at fitness centers and entertainment venues must cease by date"). We code substantial reduction in operations as requiring businesses to reduce capacity to a maximum of 25% or 10 patrons onsite at a business at a time, whichever is provided in the policy. We recognize that this is to some degree an arbitrary threshold; revisiting if or how to incorporate capacity limits in separate variables will be considered in the future. A given state may have multiple cases of other business closures as they often occurred in phases (e.g., fitness centers and gyms on March 13, 2020; casinos and entertainment venues on March 15, 2020; personal service businesses like barbers and nail salons on March 19, 2020). If a state clearly treated these in separate executive orders, we sought to track them separately as well. The relative levels of restriction are sought to be captured in the BusinessRestrictLevel variable (FullClose, TakeawayOnly, OutdoorOnly, IndoorAllowed). We recognize that this variable provides only a coarse categorization of relative business restrictions, and that such designations are subject to policy coder decisions. Recommended closures are not considered as part of this coding scheme; all OtherBusinessClose entries are Mandate==1.
NEBusinessClose	Mandate to close all non-essential businesses. Coding a case as a closure order requires the executive order to use phrasing indicative of a mandate (e.g., "non-essential businesses are required to close", "non-essential businesses must cease operations by date"). Coding does not distinguish among states' classification of essential versus non-essential businesses, as they vary substantially by state. NEBusinessClose may also be coded as not FullClose under BusinessRestrictLevel if a state issues an order to substantially limit the capacity of non-essential businesses, else they will be required to cease operations. Similar to OtherBusinessClose, we code substantial reduction in operations as requiring businesses to reduce capacity to a maximum of 25% or 10 patrons onsite at a business at a time, whichever is provided in the policy. We recognize that this is to some degree an arbitrary threshold; revisiting if or how to incorporate capacity limits in separate variables will be considered in the future.
BusinessMask	Policy that involves requiring employees to wear masks or other mouth and nose coverings as part of business operations. These policies may also involve requirements for customers to wear face coverings while patronizing specific sectors (e.g., personal care services) that would not be otherwise captured within a PublicMask policy. This policy was added on November 5, 2020.

SchoolClose	Formal closing of (at minimum) public K-12 schools. Where possible, additional information on types of school closings are provided in "PolicyCodingNotes". If states explicitly close K-12 schools and higher education institutions via separate executive orders, we code these as separate entries. We do not include childcare or early child learning care services as part of this policy type. SchoolRestrictLevel is used to provide broad categories of school closures or restrictions.
SchoolMask	Policy that involves requiring students to wear masks or other mouth and nose coverings while at school. This policy was added on November 5, 2020.
PublicMask	Policy that recommends or requires individuals to wear masks or other mouth and nose coverings when they are outside their places of residence in the public. Mask mandates are coded as Mandate==1 and the relative level or applicability of the mask mandate is reflected under PublicMaskLevel. Recommendations are coded as Mandate==0 without any corresponding PublicMaskLevel. This policy type does not reflect requirements around mask use or other types of personal protective equipment mandated as part of business operations, either routine or under efforts to ease distancing policies to re-establish in-person operations of business establishments. This policy type was added April 25, 2020.
CaseIsolation	Policy that requires individuals with confirmed coronavirus infection (via testing) or suspected infection to self-isolate for a specified period of time, or when they no longer test positive for infection. This policy type may also include requirements for quarantine of individuals who have been identified as high-risk for developing COVID-19 due to their close contact to patients with confirmed or suspected infections, including sharing the same residence. This policy type is different from "Quarantine" in this dataset, which refers to policies that require self-quarantine for individuals entering a state from any or particular points of origin. This policy type was added April 25, 2020
Quarantine	Quarantines mandated for people entering the state, requiring a period of self-isolation. Quarantines may be imposed on all people entering the state, out-of-state residents, or travelers from a particular state or city. Quarantine length and exemptions per testing are included in the "PolicyCodingNotes" variable. Locations that this travel-based quarantine applies to are listed under the variable "AppliesTo" separated by commas in the BETA dataset. This policy type was added April 3, 2020.
TravelRestrictIntra	Restrictions on travel within the state. These restrictions can be between cities or counties or within them. The "StateWide" variable reflects whether these restrictions are applicable to across the state (coded as 1) or only for local areas (coded as 0). This policy type was added April 3, 2020.
TravelRestrictExit	Policies which prohibit residents of a state from leaving the state. These policies may have exceptions for essential businesses or individuals conducting essential services (e.g., healthcare workers transferring patients to higher level hospital). This policy type was added April 3, 2020.
TravelRestrictEntry	Travel restriction mandates that limit non-residents from entering a given state. These policies may have exceptions or exemptions for essential businesses or their employees, and they may include restrictions for commercial lodging for non-residents. This policy type was added April 8, 2020. This policy may apply broadly to all non-residents, or specifically prohibit individuals who have tested positive for the coronavirus or are presumptive cases from entering the state. This is a separate policy from "Quarantine," which permits travelers to enter at a state but requires them to complete a quarantine period prior to onward travel within the state.

CurfewStart: The start time of a time-based restriction, coded on a 24-hour cycle using a HHhMM format. For instance, if a time-limited stay-at-home order spans from 10:00 pm to 5:00 am, CurfewStart would be 22h00. If bars are required to close by midnight, CurfewStart would be 23h59. This variable requires Curfew to be coded as 1. This variable was added on December 3, 2020.

CurfewEnd: The end time of a time-based restriction, coded on a 24-hour cycle using a HHhMM format. For instance, if a time-limited stay-at-home order spans from 10:00 pm to 5:00 am, CurfewEnd would be 05h00. If a business restriction involves closure by a certain time (e.g., 11:00 pm, so 23h00 for CurfewStart) but the policy does not specify the times at which businesses are permitted to reopen, CurfewEnd will be left blank. This variable requires Curfew to be coded as 1. This variable was added on December 3, 2020.

InGathLim: Absolute numeric limit for gatherings indoors (count of maximum individuals). If no limit is provided, this variable is blank. If gatherings of individuals outside the same household of any number are prohibited, this is coded to 0. This variable was added on July 30, 2020.

OutGathLim: Absolute numeric limit for gatherings indoors (count of maximum individuals). If no limit is provided, this variable is blank. If gatherings of individuals outside the same household of any number are prohibited, this is coded to 0. If this value does not equal "InGathLimit" for the same entry, the prior gathering coding system included two separate entries to reflect these differences; these different limits are now shown as components of the same policy ID. This variable was added on July 30, 2020.

InGathLimReligious: Absolute numeric limit for gatherings indoors at houses of worship or churches, as well as other types of religious, spiritual, and worship gatherings (count of maximum individuals). If a location has exemptions for indoor weddings or funerals, these exemptions are noted in PolicyCodingNotes rather than reflected in this variable. This variable was added on July 30, 2020.

OutGathLimReligious: Absolute numeric limit for gatherings outdoors at houses of worship or churches, as well as other types of religious, spiritual, and worship gatherings (count of maximum individuals). If a location has exemptions for outdoors weddings or funerals, these exemptions are noted in PolicyCodingNotes rather than reflected in this variable. This variable was added on July 30, 2020.

BusinessRestrictLevel: Reflects broad categories of business restrictions. This variable was introduced to better reflect the main differences in permitted business operations that have emerged over the course of the US COVID-19 epidemic: full closure, curbside or takeaway only, permission for in-person outdoor services only, and permission for in-person indoor services. (We recognize these categories may not necessarily reflect the range of business restrictions experienced and that they are subject to interpretation by the policy coder.) This variable is used for BarRestrict, RestaurantRestrict, OtherBusinessClose, and NEBusinessClose This variable was added on November 5, 2020. BusinessRestrictLevel groupings are as follows:

- **FullClose:** Businesses are required to fully close for any kind of customer or in-person operations except for whatever minimum business operations are permitted (e.g., employees providing maintenance functions).
- **TakeawayOnly:** Businesses are permitted to have curbside, take-away or take-out, delivery, drive-through, and like modes of service that do not permit customers or patrons to remain on-premises

with the exception of picking up items ordered. (These restrictions were typically the strongest applied to restaurants, bars, and similar establishments.)
- **OutdoorOnly:** Businesses are permitted to provide in-person services and/or to have patrons visit their premises, but only outdoors. In some cases, patrons may be permitted to briefly go indoors to place an order, pick-up items, and/or to use the restroom. No onsite services or patronage can occur indoors.
  - *Example:* Personal care services like hair salons and barbershops are permitted to re-open but only to services provided outdoors.
- **IndoorAllowed:** Businesses are permitted to provide in-person services and/or to have patrons visit their premises indoors. In some cases, certain indoor areas may remain restricted even when indoor services are permitted (e.g., bar areas, billiard areas, or dance floors). This restriction is considered to remain in effect if 100% capacity is permitted but the policy still mandates that patrons are seated and/or must maintain at least 6 feet of physical distancing.
  - *Example:* Bars may re-open to in-person services indoors but must operate under 25% capacity, all patrons must be seated, and counter service is not permitted unless physical barriers are installed between seating.

SchoolRestrictLevel: Reflects a broad categories of school closures and restrictions. This variable was introduced in an effort to better reflect the main differences in permitted school operations that have emerged over the course of the US COVID-19 epidemic: no in-person instruction or activities permitted, some in-person instruction or activities can occur (e.g., hybrid model, on-campus extracurricular activities), and in-person instruction allowed. We fully recognize that these categories may not necessarily reflect the range of school restrictions experienced and that they are subject to interpretation by the policy coder. Instead, these categories should be viewed as coarse classifications of school operations as determined by state-level orders and an evolving effort to better represent school closures in the US. Note that we view many other policy coding efforts (e.g., examples) as detailed, especially states have devolved school operations amid the COVID-19 pandemic to local authorities, school districts, among others. This variable was added on November 5, 2020. SchoolRestrictLevel groupings are as follows:
- **NoInPerson:** Schools are closed to all in-person instruction and school-based activities. Most policies permit minimum school operations and school-based meal programs to continue as essential services.
- **LimitedInPerson:** Schools can have limited in-person activities, such as school-based extracurricular activities like sports practices or marching bands; some summer school activities or instruction; and so on. The hybrid model that many schools have adopted, wherein schools are permitted to have some in-person instruction paired with remote-only instruction (either through rotating days of this format or groups of students), is categorized under this group.
- **InPersonAllowed:** Schools are permitted to have in-person instruction and activities. Sometimes this coding will result in a ending of the SchoolClose policy, namely in situations where the governor or state agency coordinating COVID-19 response have determined that they will no longer be restricting school operations and policies are thus devolved to local authorities. When a state continues to coordinate substate phases and school opening status, this categorization is used to reflect that dynamic. Further, if a state allows for some levels of schooling to re-open but not all (e.g., Pre-K to 5th grade may reopen, but 6-12 schools may not), this coding will be used without fully ending the SchoolClose policy.

PublicMaskLevel: Reflects the relative applicability of mask policies to the general public across settings. We are currently only applying these categorizations to mask mandates, not recommendations; we will consider this as useful in the future. This variable was added on July 13, 2020. PublicMaskLevel groupings are as follows:

- **Mandate1:** These policies reflect a limited mask mandate, with fairly limited scope to the public (i.e., shared transportation services, government buildings, certain types of stores such as retail, or in specified settings such as large gatherings where social distancing is not possible).
- **Mandate2**: These policies reflect a broader mask mandate, requiring the use of masks or cloth face coverings by the public across sectors indoors or in enclosed spaces. This includes waiting in line to enter indoor spaces, as well as shared transportation.
- **Mandate3:** These policies reflect mandates that require the use of masks or cloth face coverings by the public across indoor spaces, as well as outdoor settings where social distancing is not possible (i.e., at least 6 feet between individuals who are not part of the same household).

DateIssued: Date of policy issuance. The date of signing of the policy document (e.g., executive order) was used wherever possible. Format is YYYYMMDD (e.g., March 16, 2020 is 20200316).

DateEnacted: Date of policy enactment: the date of when the policy would be enforced, per descriptions available in policy documents. The format is YYYYMMDD. All policies with a date of 11:59 pm YYYYMMDD are coded as YYYYMMDD+1 (e.g., a policy that goes into effect at 11:59 pm on April 14, 2020 will be coded as 20200415).

DateExpiry: Date of policy expiry, if or as provided in the policy issuance or executive order. This date is meant to reflect when the policy or order would be in effect until or unless additional action is taken to extend, amend, or halt its status. The format is YYYYMMDD. All policies with a date of 11:59 pm YYYYMMDD are coded as YYYYMMDD+1 (e.g., a policy that goes into effect at 11:59 pm on April 14, 2020 will be coded as 20200415). This variable was added on March 29, 2020.

DateEased: Date the policy is eased. This date is meant to reflect when a policy is eased, relative to its original mandate or recommendation. This does not reflect the timing at which a policy is actively ended; instead, this reflects the timing at which original restrictions are not as strict or comprehensive without fully ending the policy. The format is YYYYMMDD. The format is YYYYMMDD. All policies with a date of 11:59 pm YYYYMMDD are coded as YYYYMMDD+1 (e.g., a policy that goes into effect at 11:59 pm on April 14, 2020 will be coded as 20200415).

DateEnded: Date the policy is ended. This date is meant to reflect when a policy is ended, particularly if it is halted or reversed prior to its expiry date. The format is YYYYMMDD. All policies with a date of 11:59 pm YYYYMMDD are coded as YYYYMMDD+1 (e.g., a policy that goes into effect at 11:59 pm on April 14, 2020 will be coded as 20200415).

DateReexpanded1: First date at which a previously eased policy is re-enacted or re-instituted in some manner. This does not necessarily mean a previous restriction or closure is fully in effect again; instead, it reflects when a state starts, at minimum, re-establishing some type of mandated restriction or closure (e.g., reducing capacity limits from 50% to 25%, requiring restaurants to end indoor dining while still permitting outdoor services) after the state began lifting restrictions. This variable was added on July 2, 2020.

DateReeased1: First date at which a previously expanded policy is eased again in some manner. This does not necessarily mean a previous easing or lifting of restrictions is fully reinstituted; instead, it reflects when a state starts, at minimum, to re-ease a restriction or closure after it was expanded (e.g., increasing capacity limits to 50% again after they were reduced to 25% as a re-imposed measure). This variable was added on August 17, 2020.

PolicyCodingNotes: Coder notes. Information on specific businesses closed, type of emergency declaration, potential exceptions, relative capacity limits, etc., are provided here. Over time we have sought to translate these qualitative notes into additional variables (e.g., PublicMaskLevel), and thus will be updated accordingly whenever possible. Based on our own testing and feedback from others, we aim to avoid using characters known to break code. Identified characters to date are:
- **Quotation marks, both single and double: (") and (').** When quoting content we include (quote) statement (quote). We omit possessive quotation marks (e.g., Governors rather than Governor's), recognizing that it is better to avoid breaking code than to adhere to preferred grammar.
- **Semi-colons: (;).** We remove all semi-colons from quoted content, replacing them with commas or the next best option, and aim to not use them ourselves.
- **Percentage (%).** We write out percent or abbreviate as pct rather than use the percentage sign.

PolicySource: Currently available hyperlink for each policy issued. If or when we discover the hyperlink has changed, we will seek to replace the dead link; however, some states have over-written past policies and they cannot be easily recovered. For additional information specific policies, refer to the "BETA" dataset and corresponding PDFs under ~\sources on GitHub.

LastUpdated: Date of last update for the given state-policy observation. The format is YYYYMMDD.

LastUpdatedNotes: Coder notes on last updates. This reflects notable changes since the last update, especially if a date has been recoded (e.g., switching to coding orders enacted at 11:59 pm on date1 to date1+1 for its enactment timing) or the "StatePolicy" type has been amended (e.g., some initial coding of "NEBusinessClose" policies were applicable to non-essential in-person retail businesses only, not all non-essential businesses as defined by state).

ReReviewed: Binary variable indicating whether a state has been "re-reviewed" and new variables (e.g., BusinessRestrictLevel, business capacity limit variables, Leaves, AppliesTo) have been incorporated for this state (ReReviewed==1). Once this process is complete, we will remove this variable.