The Development and Characteristics of Local Education Agency Reopening Plans in Response to COVID-19: A Scoping Review Protocol

BACKGROUND

It was summer 2020. As Arizona entered its traditional start of the K-12 school year, the state faced some of the highest rates of coronavirus disease 2019 (COVID-19) in the nation[1]. Local Education Agencies (LEAs) confronted unprecedented uncertainty regarding how to reopen schools. In June, the Arizona Department of Education (ADE) presented its *Roadmap for Reopening Schools* [2], providing a set of recommendations for LEAs on how to approach the upcoming school year and "adaptable considerations to meet each community's unique needs."

Despite this guidance, mixed messages were rampant. At the federal level, the president pressured schools to reopen for in-person learning [3]. Meanwhile, the Arizona governor signed an executive order to delay the start of in-person learning until August 17th, 2020 [4]. Soon after, another executive order required the Arizona Department of Health Services (ADHS) to develop public health benchmarks for schools' safe return to in-person instruction. LEAs were expected to use those benchmarks to develop reopening plans that addressed distance learning, onsite support services for at-risk students, and onsite mitigation measures [5]. But local responses varied, influenced by diverse sociopolitical views, health and socioeconomic concerns, differential access to accurate information, and other factors [6-8]. What were LEAs to do?

Even in less tumultuous times, researchers have argued that school districts operate as complex adaptive systems nested within broader systems that change continuously in response to a variety of internal and external influences [9, 10]. As different elements, or *agents*, within the LEA system interact, information flows through positive and negative feedback loops that can lead to new, or *emergent*, phenomena [9-12]. Radford [13] has also argued in favor of a chaotic quality to the learning environment, with "a multiplicity of indeterminately interacting variables."

Immersed in an acute pandemic, Arizona's school systems teetered between complexity and chaos. The sudden onset of COVID-19 in March 2020 was unpredictable and incoherent, i.e., chaotic. Arizona schools were immediately closed [14], and LEAs struggled to develop real-time solutions for reaching students [6-8]. Over the ensuing months, chaos slowly gave way to complexity as the Centers for Disease Control and Prevention (CDC), the Office of the Arizona Governor, the ADE, and the ADHS developed and disseminated guidance [2, 4, 5, 15, 16]. By August, a new and continuously changing educational landscape had emerged, usurping the traditional learning model and its regulatory management.

Within this unfamiliar, multi-factorial, and difficult-to-predict landscape, LEAs were tasked with developing reopening plans that could effectively respond to pandemic conditions, community needs, and regulatory authorities. The work was daunting. After all, as complex adaptive systems theory posits, there are no "correct" solutions to solving a complex problem. Instead, agents within the system generate unique solutions that, at best, steer the agency away from unintended negative consequences and toward best-fit practices [10]. In this case, Arizona LEAs had some time—albeit not much—to consider state and federal guidelines alongside school community perspectives. As of August 1, 2020, reopening plans ("plans") were emerging from a mosaic of interactions, pressures, and other contextual factors.

These emergent solutions can be studied for general patterns to inform future guidance for decision-making [17, 18]. Of course, little is currently known about how LEAs have developed plans, or what characteristics are included in those plans. Given the lack of peer-reviewed literature in this area, the scoping review methodology is particularly well-suited for information extraction and analysis. Moreover, complex adaptive systems theory suggests that plans should vary widely in response to internal and external influences. Casting a broad net, the scoping review can be especially helpful during this early attempt to elucidate plan development and characteristics [19].

Review Questions and Objectives

This scoping review is designed to understand Arizona LEA reopening plans for the 2020-21 school year in response to COVID-19. It asks:

- What processes did LEAs use to develop district-level plans?
- What are the unique and shared characteristics of LEA plans?
- Do reopening plan processes and characteristics vary by key demographics?

The objectives are to:

1. Identify and retrieve plans for school year 2020-21 across Arizona K-12 public school districts. This includes plans made publicly available via LEA websites and state data regarding LEA plans.
2. Extract data to summarize: (a) process variables related to plan development and implementation; (b) common characteristics related to mitigation, learning models, support services, and food security; and (c) plan differences by key demographics: district Type 1 versus 7, grade levels served (K-5/6, K-8, 9-12, K-12), county, and free-and-reduced-price (FRPL) lunch rates.
3. Provide a dataset for future research into the relationship of reopening plan characteristics with public health outcomes.

Methods

Protocol Development

Scoping reviews have become increasingly popular to synthesize and analyze information from a broad assortment of materials, including the gray literature and gray data [20]. Comprehensive by definition, the scoping review helps to elucidate topical information or evidence, without focusing on the quality of that evidence [19]. This protocol responds to the rapidly evolving gray literature and gray data related to LEA reopening plans. During a short formative period (April-July 2020), the first author determined that LEAs commonly share school reopening information on LEA websites—versus, for example, other websites or state repositories. The ADE website was also found to house publicly available information related to reopening.

The protocol described here has been registered within the Open Science Framework (registration number: osf.io/yvr9x). It was developed using Arksey and O'Malley's five-step framework for scoping reviews [21], enhanced by Levac et al. [22] and the Joanna Briggs Institute [23]. Adapted to gray matter, only, the steps are: (1) identify the research question(s), (2) identify relevant gray matter, (3) select and review the relevant gray matter, (4) chart the data, and (5) collate, summarize, and report the results. For reporting this protocol, we employed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR), published in 2018 to help standardize reporting [24, 25].

Eligibility Criteria

This protocol uses a unique, two-staged approach to establish eligibility. In stage I, LEAs were examined against the *a priori* eligibility criteria for the LEA. In stage II, eligible LEA plans were reviewed to determine which plan materials were appropriate for inclusion.

Stage I: Determining Eligible LEAs. Table 1 provides detailed eligibility criteria for Arizona LEAs. LEAs were initially identified from the National Center for Education Statistics (NCES) 2019-20 Common Core of Data (CCD), which uses an LEA typology of Types 1-9 based upon how the agency is governed [26]. This scoping review focused on Type 1 (regular public school districts) and Type 7 (independent charters). The top portion of Figure 1 [27] illustrates how the LEA eligibility criteria from Table 1 were applied to determine the final list of 449 LEAs included in this scoping review.

Stage II: Identifying Eligible Reopening Plan Documents. Two general sources of LEA plan data were identified for collection: publicly available ADE data, and plans posted on LEA websites. During summer 2020, the first author explored the materials posted on LEA websites and found that the types of reopening plan documents were so extensive that they threatened project feasibility. In response, a second round of eligibility criteria was developed *for the LEA plan documents*. These criteria were informed by the study's theoretical framework, the emerging literature [28-32], state and federal guidance [2, 4, 5, 14-16], and the preliminary examination of a randomized 10% of all eligible LEA websites between July 16 and August 31, 2020. This work resulted in the criteria outlined in Table 2. The preliminary website examination also helped to optimize future search methods.

Search Strategy

Iterative data collection is occurring over the 2020-21 school year amid a rapidly evolving situation.

ADE Data. The ADE has made three data sets related to school reopenings publicly available: (1) the LEA's self-reported learning model (distance, hybrid, or in person) [33], (2) LEA Program Operator Waiver Opt-ins/Approvals for the Summer Food Service Program (SFSP) and National School Lunch Program (NSLP) [34], and (3) COVID-19 On-Site Learning and Services Waivers to exempt LEAs from providing the onsite student support services required by Executive Order 2020-51 [35]. These data sets are updated regularly. For this review, data collection is ongoing during the 2020-21 school year.

LEA Website Materials. A first-pass LEA plan collection took place during summer 2020, and a second was conducted during the fall/winter of 2020 to capture plan revisions made during the first few months of the school year. For LEAs without posted plans—including full mitigation or distance learning plans—by the second website review, a third review was completed by December 2020 to enable time for LEAs to update websites. During data extraction, websites will be revisited as needed for missing data, per the recursive charting process described below.

Website Progress. The lower portion of Figure 1 [27] shows that, to date, plan documents for 351 LEAs have been collected. In some cases, all reopening plan materials are uniform across multi-site charters that are a part of a larger parent organization. After the third website review, these plans were merged under the parent organization to represent a single LEA, similar to the multi-school structure of a regular public school district. This was dubbed an "easy" merge. If some but not all plan materials were uniform among multi-school charters, the plans were examined case-by-case. The decision on whether to merge these plans under the parent organization was based on the criteria that only one type (of potentially five) plan materials was different, and the differences were minor. These were dubbed "careful" merges.

Table 1. Eligibility Criteria for Local Education Agencies (LEAs)

Included	Excluded
LEA category type: [a] • Type 1 (regular public school district) • Type 7 (independent charter)	LEA category type: [a] • LEA type 4 (service agency) • LEA type 5 (state agency) • LEA type 8 (other education agency) • LEA type 9 (specialized public school district)
LEA based in Arizona [a]	Out-of-state LEA [a]
K-12 public school agency [a]	Private school [a] Community college LEA [a]
Serves ≥ 1 full grade level: elementary (grades K-5/6), middle (grades 6/7-8), and/or High (9-12) [a]	No grades offered [a] < 1 full grade level offered [a]
Open in school year (SY) 2019-20 [a]	Not open (closed or inactive) in SY 2019-20 [a] New in SY 2019-20 [a]
Serves general population [a,b]	Accommodation school district [a] Serves special population: [a,b] • All boys or all girls • At risk students • Adult high school students • Students with disabilities
Pre COVID, provided in-person learning [a,b]	Pre COVID, provided online only learning [a,b] Pre COVID, provided hybrid learning [b]
Enrollment ≥ 100 [a]	Enrollment < 100, or # students unavailable [a]
Offers general education through: [a,b] • "Core" academic subjects • STEM and STEAM districts • Alternative learning methods (e.g., Montessori, Steiner/Waldorf)	Offers specialized education: [a,b] • Through community partnerships • Curriculum centers on 1-2 topic areas beyond "core" academic subjects (e.g., performing arts, equine studies, athletics)
Active website [a,b]	Inactive website, or no website found [a,b]

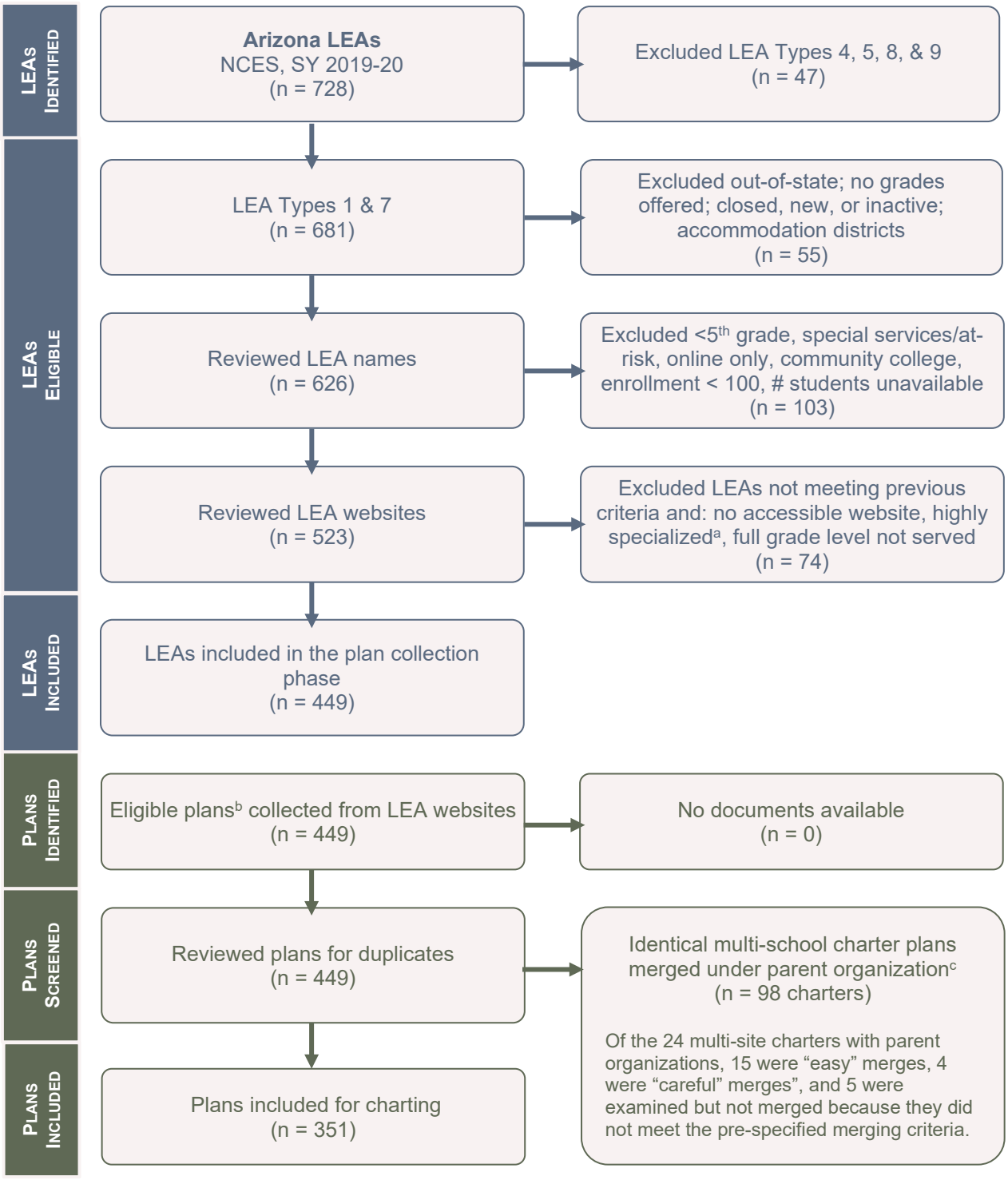
[a] From National Center for Education Statistics (NCES), 2019-20 Common Core of Data (CCD), available at: https://nces.ed.gov/ccd/. There were no LEA Types 2, 3, or 6 listed in the data set. [b] From individual LEA website descriptions.

Table 2. Eligibility Criteria for Reopening Plan Documents[a]

<table>
<tr><th>Included</th><th>Excluded</th></tr>
<tr><td>Available on any part(s) of the LEA website
Found on the district website (regular public health school districts)
Found on the parent organization and/or charter school website (charters)</td><td rowspan="2">Not available on the LEA website
Found only on other sites (e.g., Facebook)
Only found on individual school site(s) (applies only to regular public health school districts)
Not found</td></tr>
<tr><td>Plans for multi-school charters
Merged identical parent organization plans
Maintained individual charters' Distance Learning Plans (DLPs), if applicable</td></tr>
<tr><td>Formal plan: Comprehensive written plan or slideshow. May focus on COVID mitigation, return options, both, or additional topics.</td><td rowspan="6">Website information:
Provided as a 2020-21 calendar with no reference to COVID
In audio or video format, only
Posted as meeting agendas or minutes, only
Taken directly from the CDC or health department (or links to the CDC, health department, or other agency) that does not establish a relationship between plan development and the materials or agency, without tailoring to the LEA</td></tr>
<tr><td>Distance Learning Plan (DLP)[b] if and only if posted on the LEA website</td></tr>
<tr><td>Supplemental Materials: flier, FAQs, letter, press release, or web post related to reopening</td></tr>
<tr><td>Any material describing stakeholder engagement related to reopening (e.g., parent or school staff questionnaire, web post)</td></tr>
<tr><td>Any material describing how reopening plans or plan materials were developed (e.g., web post regarding integration of health department guidelines)</td></tr>
<tr><td>English + any additional language</td></tr>
</table>

[a]Developed based upon the emerging literature, state and federal guidance, and the preliminary examination of a randomly selected 10% of all eligible LEAs' websites related to reopening plans. [b]Per Executive Order 2020-41, *Prioritizing Kids and Schools During COVID-19*, all public schools may submit a DLP to provide distance learning without an approved Arizona Online Instruction program in 2020-21. Charter schools are required to submit DLP to the Arizona State Board for Charter Schools before implementing distance learning.

Figure 1. Flow Diagram (adapted from PRISMA[a])



[a] 2015 PRISMA Flow Diagram (http://www.prisma-statement.org/PRISMAStatement/FlowDiagram.aspx) [b]Excluded calendars; audio/video; meeting minutes or updates; CDC, health department, or other externally developed materials posted on LEA website. [b] Included all grade levels served when multi-school charters were combined, and calculated total size (students enrolled) by adding student enrollments from all individual charters.

Charting the Data

As with data collection, the data charting process will be recursive to ensure accuracy and trustworthiness across the two reviewers responsible for data extraction (TL and LB).

Codebook Development. A literature review provided initial guidance on data elements of interest. Specifically, the American Academy of Pediatrics' *State School Reopening Plans* [32], the CDC's *Preparing K-12 School Administrators for a Safe Return to School in Fall 2020* [16], and the ADE's *Roadmap for Reopening Schools* [2] suggested key plan elements to consider. These elements were compared against the review questions and objectives to develop a preliminary list of variables for iterative review and refinement.

After the literature review, the 351 LEAs identified for inclusion were randomized in Excel, and the first 35 (10%) were selected for preliminary review by the two reviewers. Both reviewers examined the LEA reopening plan materials independently to develop a list of common data elements for extraction. The reviewers then shared the two variable lists to discuss, expand, edit, and define them for application during charting. The first author (TL) initiated a codebook with variable categories, names, detailed descriptions of charting criteria, and additional charting guidelines. Next, the reviewers used Excel to independently chart the codebook variables for the first five LEA reopening plans within the randomized list. Upon completion, the reviewers met to compare results and refine the codebook and category placement. This meeting included a third, independent reviewer (CT) skilled in scoping review design and data extraction protocols. Key considerations for the discussion included: ensuring accuracy through clear, discrete (non-overlapping) charting criteria, and prioritizing key data elements important to answering the review questions.

Next, the two reviewers repeated the above process. They independently charted another set of five randomly selected plans using the revised codebook. After charting, they met—this time with another independent reviewer (KE) skilled in scoping reviews and the epidemiology of COVID-19—to discuss areas of discordance or uncertainty. The codebook was updated accordingly.

Interrater reliability (IRR) between the two reviewers was then tested. The reviewers independently charted the 35 randomized LEA plans (10% of the sample) using the most recent codebook. Each reviewer took notes related to further clarifications needed and suggestions for revisions. After charting was complete, the first author conducted an IRR test in STATA v15 for the 35 records. The analysis revealed an 89.2% agreement and a kappa of 0.78, ($p<0.000$), reflecting substantial agreement according to the benchmarks suggested by Landis and Koch [36]. Given the need for highly accurate charting, TL reviewed the results to identify persistent areas of discordance. The two reviewers met with third reviewer KE to discuss these areas, further refining the codebook. Each reviewer then used the revised codebook to update their coding for the 35 plans, and the PI ran a second IRR test to compare results. Reliability increased to 99.5% and a kappa of 0.99, ($p<0.000$), reflecting near perfect agreement according to the Landis and Koch benchmarks [36].

Future Date Extraction. Given the high IRR, the most recent codebook iteration (Tables 3 and 4) will be used by the two reviewers to independently chart all LEA reopening plans. During data extraction, the reviewers will meet periodically with a third reviewer to discuss any emergent issues related to the charting process and make any final codebook adjustments on an as-needed basis. In the event that revisions are made to the codebook guidelines, the reviewers will re-chart the data for the appropriate variables.

Table 3. Charting Categories

Category Code	Category Description	No. of Variables
LM	**L**earning **M**odel descriptions and strategies adopted by the LEA (2 variables from ADE data, 9 from LEA plan materials)	11
S	**S**upport services adopted by the LEA to address special populations or special needs	7
P	**P**rocess variables describing plan development (P-D) and/or plan implementation (P-I)	17
M	**M**itigation strategies outlined /adopted by the LEA	30
FS	**F**ood **S**ecurity-related measures adopted by the LEA to support nutrition access during the pandemic (6 variables from ADE data, 3 from LEA plan materials)	9

Table 4. Codebook Variables and Descriptions[a]

Variable	Description and Charting Guidance
LM1-NODAYS	Enter the number of instructional learning days in school year 2020-21.
LM2-ATTEND	Enter 1 for student attendance taken/tracked in the virtual setting.
LM3-TTT	Enter 1 for train-the-teacher on distance learning.
LM4-COMFAM	Enter 1 if plans establish regular progress updates to families for distance learning students.
LM5-DISTNC	Enter 1 if distance learning option is described in the plan.
LM6-HYBSTU	Enter 1 if hybrid learning option (same student learning in-person & online) is described in the plan.
LM7-IN_PERS	Enter 1 if a fully in-person (i.e., traditional) option is described in the plan.
LM8-LMS	Select the primary or most-mentioned online learning management system (LMS) adopted.
LM9-PLATFORM	Select the primary or most-mentioned videoconferencing platform adopted.
LM10-ADE-LM1	Enter the LEA learning model as of 12/1/20, as listed on the ADE's website tracker
LM10-ADE-LM2	Enter the LEA learning model as of 2/3/21, as listed on the ADE's website tracker
LM11-ADE-OLSW	Enter 1 for an approved COVID on-site learning & services waiver as of 12/28/20, as listed on the ADE site.
S1-TCHACCESS	Enter 1 if plan addresses support for access to technology.
S2-TCHUSE	Enter 1 if plan provides for tech support (ex., how to use Zoom or Google Classroom).
S3-IEP	Enter 1 for student support for special education (SPED) and/or individualized education plans (IEPs)
S4-ESL	Enter 1 if plan provides support for English learners (ESL) students.
S5-BHV	Enter 1 if plan addresses socioemotional learning (SEL) and/or behavioral/mental health services.
S6-BHV_SUP	Enter 1 if plan describes resources or references to SEL/behavioral/situational support materials.
S7-AT_RISK	Enter 1 if plan describes support for at-risk students beyond SPED/IEP/ESL, beyond normal procedures.
P1-D-ADE	Enter 1 if ADE or State Superintendent guidance referenced in plan development and/or revision.
P2-D-RDMAP	Enter 1 if plan specifically references the ADE Roadmap to Reopening.
P3-D-ADHS	Enter 1 if ADHS guidance referenced in plan development and/or revision.
P4-D-GOV	Enter 1 if Governor's Office or AZ laws/reps/mandates referenced in plan development and/or revision.
P5-D-CDC	Enter 1 if CDC guidance referenced in plan development and/or revision.
P6-D-FAM	Enter 1 if family input is referenced in plan development and/or revision (i.e., family engagement).
P7-D-TCR_STF	Enter 1 if teacher and/or school staff input referenced in plan development and/or revision.
P8-D-INDIG	Enter 1 if Bureau of Indian Affairs/other indigenous system referenced in plan development and/or revision.
P9-D-I-CHD	Enter 1 if County Health Department referenced in plan development and/or revision/implementation.
P10-D-I-MANAGE	Enter 1 if mitigation plan has a group/person responsible for developing, implementing, and/or revising
P11-I-POC	Enter 1 if plan includes a designated point-of-contact (POC) for COVID-related concerns.
P12-I-COMFAM	Enter 1 if plan includes regular COVID-related communication with families.
P13-I-COMMTHD	Enter 1 if COVID communications to families are offered in >1 way (e.g., email, Facebook, video).
P14-I-COMLANG	Enter 1 if COVID communications to families are offered in at least one other language.

P15-I-TRAIN	Enter 1 if plan includes training for employees on health & safety protocols (i.e., mitigation plan).
P16-I-FAM_ED	Enter 1 if plan includes education for families (parents, guardians) on mitigation protocols.
P17-I-REMIND	Enter 1 if mitigation-related signs are posted or mitigation step reminders/reinforcements are included
M1-RTC	Enter 1 if references benchmarks or outlines clear criteria for in-person return, including phased return.
M2-CASEPLAN	Enter 1 for any descriptions of a case/suspected case response plan.
M3-CASETRACE	Enter 1 if mitigation includes contact tracing for a case/suspected case.
M4-BUS	Enter 1 for any mitigation related to the school bus.
M5-DISMISS	Enter 1 for mitigation involving drop-off & pick-up, including dismissal procedures .
M6-CANCEL	Enter 1 for cancellation of large group gatherings or trips.
M7-SCREEN-S	Enter 1 for daily student health screenings by parents *or* school using checklist/other screen before entry.
M8-SCREEN-T	Enter 1 for daily teacher/staff health screenings by self/ school using checklist/other screen before entry.
M9-TEMP-S	Enter 1 for daily student temperature checks/screening with thermometers by the school before entry.
M10-TEMP-TS	Enter 1 for daily teacher/staff temperature checks/screening with thermometers before entry.
M11-TEMP-V	Enter 2 for visitor/vendor/contractor temperature checks/screening with thermometers before entry.
M12-MASK-S	Enter 1 if face mask required for students.
M13-MASK-TS	Enter 1 if face mask required for teachers/staff.
M14-MASK-V	Enter 2 if masks required for visitors, vendors, and/or contractors.
M15-MASK-ALL	Enter 1 if masks required at all times when indoors on campus, even when distanced (except when eating)
M16-PPE	Enter 1 for protection of self (vs. others) with PPE (ex., gloves), not including other-oriented masks.
M17-CLEAN-IN	Enter 1 for enhanced indoor cleaning protocols.
M18-CLEAN-PLAY	Enter 1 for enhanced cleaning of playgrounds or outdoor play areas.
M19-BARRIERS	Enter 1 for mitigation using physical barriers in any indoor areas.
M20-CAPFLOW	Enter 1 for limiting maximum capacity and/or directing traffic flow in any indoor areas.
M21-COHORT	Enter 1 for student class groupings or cohorts, or re-design of daily schedules to decrease contact.
M22-DESK	Enter 1 for spacing desks farther apart than usual, or setting up classrooms to mitigate spread.
M23-DISTNC	Enter 1 if physical distancing is encouraged or required on campus.
M24-CLS_SIZE	Enter 1 for mitigation specifically using reduced class size beyond general distancing.
M25-HNDWSH	Enter 1 for descriptions of handwashing/sanitizing protocols and/or stations.
M26-MEALS	Enter 1 for mitigation focused on mealtime environments.
M27-SHARE	Enter 1 for mitigation by minimizing the use of sharing physical items (science labs, school supplies, etc.).
M28-VENT	Enter 1 for enhanced ventilation as a preventative measure (not in response to suspected case)
M29-WATER	Enter 1 for mitigation to address water access in a hands-free/mouth-free way.
M30-SPORTS	Mitigation for athletics: 0=none, 1 =follows AIA/generic guidelines, 2=sports cancelled/sports-specific plan
FS1-FREEMEAL	Are there fee meals for students? 0 = not present, 1 = only in S, 2 = in DLP and/or FP (with or without S).
FS2-MEALBUS	Are meals delivered on bus routes? 0 = not present, 1 = only in S, 2 = in DLP and/or FP (with or without S).
FS3-MEALPKUP	Can families pick up school meals? 0 = not present, 1 = only in S, 2 = in DLP and/or FP (with or without S).
FS4-ADE-SFSP-P	Enter 1 for Program Operator Waiver for Summer Food Service Program (SFSP) Parent Pickup
FS5-ADE-SFSP-M	Enter 1 for Program Operator Waiver for SFSP Multiple Meal Distribution
FS6-ADE-NSLP-P	Enter 1 for Program Operator Waiver for National School Lunch Program (NSLP)/SBP/ACSP Parent Pickup
FS7-ADE-NSLP-M	Enter 1 for Program Operator Waiver for NSLP/SBP/ACSP Multiple Meal Distribution
FS8-ADE-FFVP-P	Enter 1 for Program Operator Waiver for Fresh Fruit & Vegetable Program (FFVP) Parent Pickup
FS9-ADE-FFVP-AS	Enter 1 for Program Operator Waiver for Fresh Fruit & Vegetable Program (FFVP) Alternate Sites

[a]The Excel codebook contains a full description of each variable within these categories.

SUMMARIZING AND REPORTING RESULTS

The charted data will be summarized using descriptive statistics. Plan comprehensiveness will be reported by category (Table 3), based on the number of variables addressed for binary data within each category. The limited number of ordinal variables will be translated into binary data to report comprehensiveness.

The charted variables will also be analyzed and reported by four key demographics:

LEA Type. Arizona public schools include a robust charter system as well as regular school districts. Thus, plan characteristics will be analyzed and reported separately for Type 1 and Type 7 LEAs.

Grade Level. Given that LEAs' general operating procedures tend to vary by student age, plan characteristics may also vary by the grade levels served. Therefore, results will be reported by grade level: K-5/6, K-8, 9-12, and K-12.

County. Arizona has 15 counties, each with a unique geographic, demographic, sociopolitical, and historical profile. LEAs may also have unique relationships with each county health department that influence plans. Therefore, results will be analyzed by county to elucidate any by-county variation in plan development, implementation, and/or characteristics.

Free-and-Reduced-Price (FRPL) Lunch Rates. Differential access to resources, including family income, can also influence LEA plans. We intend to use LEAs' free-and-reduced-price lunch (FRPL) rates as a proxy for access to resources. At a minimum, results will be analyzed and reported for two groups: LEAs with less than and greater than 50% FRPL enrollment rates.

Systems theory also highlights the importance of exploring the relationships among charted variables, in particular how process variables may interact to influence plan comprehensiveness across categories. To that end, regression analyses will be used to investigate potential associations.

Use of Findings. The results of this scoping review are intended to be shared within and beyond the academic community. They will provide a data set for planned research into the relationships of reopening plan characteristics with public health outcomes. Findings will be prepared for submission to a peer-reviewed journal. They will also be shared with the relevant Arizona state agencies, including the ADHS and ADE, along with systems-informed recommendations for state- and local-level crisis response in the education sector.

Discussion

Experts suggest that the COVID-19 pandemic is not likely to resolve anytime soon, and resurgence is a very real threat [37-40]. More generally, as population density, global connectivity, and animal-human interactions increase, so too does the future risk of other infectious disease pandemics, including influenza [41]. To adapt, school systems will need data-informed guidance to improve pandemic-related planning. In synthesizing the mosaic of LEA responses to the COVID-19 pandemic in one state, this scoping review can contribute to this guidance.

Moreover, the protocol itself offers a rigorous but adaptable methodology for exploring the gray literature and gray information around the LEA response to COVID-19. Indeed, the peer-reviewed literature and the U.S. at large are lacking local-level information about pandemic planning in the education sector. This review will provide three critical pieces of information related to how plans are developed, the characteristics of those plans, and variations in plan development and characteristics by key demographics.

The most notable limitation of this protocol is tied to the difficult-to-predict nature of the pandemic. This uncertainty challenges the systematic collection of reopening plans, which the authors found change continuously in response to external and internal influences. The data collection window identified in this protocol provides just a snapshot of the LEA response to COVID-19. While the

multiple rounds of data collection improved the likelihood of capturing some changes, there are many adaptations that will likely be made to LEA plans after data collection.

A key strength of this scoping review protocol is that it is theory-driven at every stage. The complex adaptive systems lens was used to develop the review questions. It also made clear that data collection must cast a wide net across a sea of gray information, which led to the scoping review as an ideal way to meet that need. Furthermore, by acknowledging how systems continuously adapt, systems theory also inspired the iterative nature of data collection and charting, and the protocol's attention to collecting process data regarding plan development and implementation. Perhaps most importantly, the theoretical framework adopted here has inspired plans to disseminate findings across multiple stakeholder groups that may influence future decisions related to a pandemic response.

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