The Economics of a Mindful Return for Community College CTE Programming

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I.   Background

The professions and industries sustaining the United States during the Covid-19 pandemic are direct beneficiaries of career and technical education (CTE) offered by the nation's community colleges. Similarly, the industries that will help the country rise out of the crisis will be dependent on these programs and the graduates community colleges produce. In order to maintain a robust and diverse American workforce, talent development must continue through face-to-face experiences at community colleges, particularly in America's key career and technical education sectors. The interpersonal engagement, deep relationships, trust and desire to explore a trade developed through meaningful physical connections, and these experiences, are essential for the future of the workforce pipeline. Both tactile learning and interpersonal experiences define the majority of effective CTE education.

This is the second report by the American Association of Community Colleges (AACC). The first listed the critical industry sectors for course prioritization once campus leaders return, or seek to expand, their offerings to more students in face-to-face experiences post-COVID-19. During the week of April 13, 2020, AACC contacted a set of workforce and economic development leaders across the country to discuss the economics of mindful return for CTE programs at community colleges. AACC has recommended that certain CTE programs be prioritized for upcoming teaching and training on campus, since offering certain CTE programs entirely online ranged from problematic to impossible or illegal. Executives, workforce, and facility oversight leaders were consulted to craft this document, as follows:

- AACC affiliate councils
    - National Coalition of Advanced Technology Centers (NCATC)
    - National Council for Workforce Education (NCWE)
    - National Partnership for Environmental Technology Education (National PETE)
    - Organization for Associate Degree Nursing (OADN)
- California Community Colleges Chancellor's Office
- Gateway Technical College, Wisconsin
- Laramie County Community College, Wyoming
- Linn-Benton Community College, Oregon
- Warren County Community College, New Jersey

II.   Findings

During COVID-19 many community colleges have remained open in service to the students, even though the physical campuses have been closed. The weeks of April 13 and May 20, 2020 have shown an increased interest by community colleges to begin intensive discussions about the logistics for reopening and/or expanding access to physical campuses that continued to conduct limited face-to-face programming. Generally, CTE instruction has been halted in the wake of the pandemic. The few programs that continued providing in-person teaching were often public safety-related courses and

deemed critical. Their operation was only possible with exemptions from public health officials and additional safety protocols.

In California, the state with the most community colleges in the country, vice chancellor of workforce and economic development for the California Community Colleges Chancellor's Office, Sheneui Weber, affirmed AACC's CTE priority sectors and stance on simulation, "it is unlikely that we will have the capability (cost, actual technology and manpower) to move the hands-on courses online. Our colleges will have to remain open on a limited basis to continue to offer these courses (those currently as defined by the Essential Personnel Guidance from the State). Many courses such as welding, construction, auto, electrical, EMT, public safety and even culinary would be difficult to move online. Even if virtual simulation software were available, it is not realistic for students to be able to download memory and central processing unit (CPU)-intensive software onto their laptops or devices, or to distribute virtual reality (VR) headsets to students. That level of technology is still not currently widespread or cost effective for implementation widely in our system."

Another way to highlight this issue is to look at nursing programs. Nursing is the largest healthcare profession In the country with 52% of the nursing workforce graduating from community college programs across the country. It is essential that nursing education continues during this time to ensure this talent pipeline for the country. In 2015, a three-phase research student was completed and published by the National Council of State Boards of Nursing which provided substantial evidence that up to 50% simulation can be effectively substituted for traditional clinical experience in all prelicensure core nursing courses, however, these experiences must be well-controlled. While a great enhancement to nursing education, simulators simply cannot replace all face-to-face learning and hence, community college campus re-openings will be essential for this talent pipeline to persist.

Most colleges have the primary objective of maintaining the ability for students to continue their education as much as possible in this highly disruptive environment. However, until the COVID-19 tests and/or vaccine are both developed and available, community colleges will continue to see fewer students enrolled in CTE programs. Linn Benton College in Oregon compared their CTE student enrollment this week against the exact same point last year; the 8th day in the current term. CTE student enrollment is down by 25% as compared to last year. Now is the appropriate time to plan and structure the responsible opening/expansion of the key CTE programs noted as essential for America's economic recovery and well-being.

Gateway Technical College's Emergency Vehicle Operations Course (EVOC) is offered as an example as a course that continued during the COVID crisis. The EVOC course is an essential component of the 17-week Law Enforcement Academy which is governed by the state of Wisconsin. The state continued to need a police force, and worked with the college to allow for the instruction. Three days of driving instruction was required. At the time, the state had also instituted a ban on gatherings of any more than 10 individuals. Historically, Gateway Technical College's EVOC was run with a student sitting in the driver's seat, the instructor in the front passenger's seat, and two to three additional students in the back seats. Each student would watch the driver and listen to the instruction. Students would trade out for the driving position every 15 minutes. The vehicle and classroom were cleaned once an evening.

During the COVID crisis, leadership decided to adapt the instruction to one instructor for one student at a time, with the instructor sitting in the backseat of the car rather than beside the student. While this broke the six-foot social distance rule, it was as far back as the vehicle spacing could allow. Both student and teacher wore masks taking extra precautions to manage themselves, and any mutually touched items such as door handles, light switches, etc.

That same cohort of students also had classroom-based instruction. Historically, the cleaning crew came in at the end of each night and performed a general cleaning which consisted of wiping down of tables, sweeping, mopping, etc. During the COVID crisis, for this cohort of students, again, leadership determined an adaptation was required. The program staff agreed to take on a portion of the cleaning and disinfecting, so both the students and faculty periodically wiped down the tables, chair and any materials utilized during classroom instruction. The facilities team was switched to two shifts (morning and evening) and, depending on the time of the course, a cleaning shift would come in two-hours prior to classroom instruction, and two hours after classroom instruction, to do a deep clean that included detailed cleaning and disinfecting of all surfaces and high contact areas. While the students were in the classroom, or in the common area at lunch break, the facilities team would alternately deep clean and disinfect the common area or the classroom. In short, from one general cleaning at the end of each day, to four time-bound deep cleanings a day, became the norm, for one program alone.

Cleaning is considered the removal of visible dirt and germs but does not necessarily kill germs. Disinfecting is the use of chemicals that will not necessarily make a surface clean, but it will kill most germs on that surface. The Centers for Disease Control and Prevention (CDC) has posted guidance on "Environmental Cleaning and Disinfection Recommendations" as well as "Interim Recommendations for US Community Facilities with Suspected/Confirmed COVID-19." Presuming colleges will eventually have someone on campus that has COVID-19, a review of the standards of "Interim Recommendations for US Community Facilities with Suspected/Confirmed COVID-19" is necessary.

A frequently updated list of products that have been approved by the Environmental Protection Agency (EPA) for use against COVID-19 can be found here. In several instances, orders for these items are backlogged and member colleges have been having their facility teams inventory cleaning supplies and check storage areas to cross reference what they currently possess against the EPA's list. Each product has requirements for use to ensure appropriate cleaning and disinfection. In many cases, there is a requirement for contact time for each product. Often referred to as "contact" or "kill" time, these requirements are critical to effective disinfection. A presentation to train faculty and administrative staff has been created by National PETE on this topic is offered for immediate review (Appendix 1).

Gateway Technical College employs a 35-member facility team that covers the cleaning of approximately 20 buildings. General cleaning for a traditional (tables and chairs) classroom takes approximately 30 minutes. A general bathroom cleaning takes approximately 30 minutes. More complex laboratory space takes approximately 60 minutes. General cleaning involves sweeping the floors, disinfecting the top of surfaces, and similar practices conducted by facility staff wearing reasonable (but not extensive) personal protective equipment. During the Gateway Technical College's EVOC course, the facilities executive was able to find products already in the college's inventory with a 10 minute "kill" time" per surface.

Consideration should be taken for the type of facility that is being sanitized. Standard classrooms and communal spaces are easily sprayed and cleaned whereas complex laboratories and technical education spaces will require different methods and/or products. Figures 1-6 illustrate the high variability and complexity of facilities within the nation's community colleges.

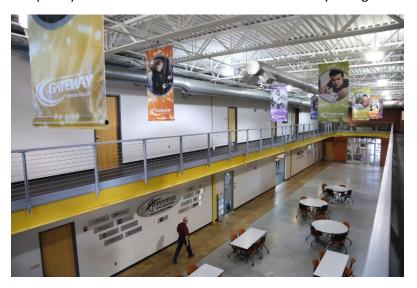*Figure 1, Gateway Technical College*

Photo provided by Thomas Cousino, Associate Vice President of Facilities and Security

Figure 2 Gateway Technical College

Photo provided by Thomas Cousino, Associate Vice President of Facilities and Security

Figure 3 Gateway Technical College

Photo provided by Thomas Cousino, Associate Vice President of Facilities and Security

Figure 4 Gateway Technical College

Photo provided by Thomas Cousino, Associate Vice President of Facilities and Security

Figure 5 Gateway Technical College

Photo provided by Thomas Cousino, Associate Vice President of Facilities and Security

Figure 6 Gateway Technical College

Photo provided by Thomas Cousino, Associate Vice President of Facilities and Security

Even if conducted in unison by a group of trained facilities staff working simultaneously to spray workstations, tools, floors, and technology, manufacturer's suggested application times and instructions will still apply. These necessary cleaning protocols will require a significant increase in facilities staff time, or the college will not be able to consistently provide safe and clean common areas and labs.

III. The Economics of a Mindful Reopening of CTE Programs

Colleges range widely across AACC's membership, but the economics of a standard U.S. dollar does not. It is simple math - the economics of cleaning and disinfecting will not work in the short term for a total campus reopening. Financial expectations, equipment necessities, and quality protection of all the equipment and spaces is all now the new normal for institutions, and hence, mindfulness matters. Consistent protection is not viable for all students and staff to return to campus for the next weeks, and potentially months. Taking into account the fine lines of local control, these CTE topics are determined to be the most critical for the coming week/s and are offered to AACC members for immediate discussion on behalf of their faculty, administrative staff, and students:

- Social distancing guidelines for conducting safe return and movement on campus
- Social distancing guidelines for conducting safe instruction, particularly the CTE programs determined to be inappropriate for online instruction
- Expectations of colleges regarding provision of safety equipment (face mask, shields and gloves) to faculty and students teaching and/or participating in courses
- Expectations of cleaning procedures for dynamic (beyond tables and chairs) classrooms
- Any innovations, such as colleges using fabrications labs to digitally print 3D N95 masks, should be rapidly shared for student, staff and community PPE purposes

Responsible and Phased Approaches

A phased approach to reopening in-person instruction is necessary and prudent. Equally, it is reasonable to prioritize critical workforce programs that impact the labor market to open first. Programs for prioritized re-opening should include:

- First responder, frontline healthcare occupations, and public safety programs
- Programs with refined skills, heavy machinery, extreme physical performance, and/or those with specialized personal protective equipment in critical infrastructure programs (energy/water/wastewater, food and agriculture, manufacturing, transportation/distribution/logistics)

It is reasonable to expect that the initial phases of reopening might at first feel and look exceedingly cold, calculated, or harsh. The first phase will be the antithesis of what all community colleges have built for generations. It is understood that the "community" element is a fundamental part of the community college name and culture. It feels counterintuitive to prioritize programming, to keep community members out of the common areas, to act less inclusive and be more exclusive at this moment, but tone and context for these messages matter. Our institutions are community-based, reflective of those who need us the most, and a visual representation of empowerment and uplifting opportunities in service to industry. If the nation's community businesses do not thrive, the country and our overarching workforce will not thrive.

Teaching and learning is a shared experience, not a transactional one. Our passion and connection are not lost during this time by any of the member colleges or executives making these hard decisions,

rather, these choices are based on mathematics and economics. Without confidence that the environment is safe, none will return to campus in a long-term status. These are the choices that will allow colleges to continue to operate for generations to come with the least amount of risk in a highly dynamic and chaotic time.

AACC is offering the following for consideration regarding social distancing guidelines for conducting safe return and movement on campus should align with guidance from official sources:

1. Reduce Access
   - Consider reducing the number of entrance/exit points for each facility. While there may have been 30 different doors students, faculty, and administrators entered pre-COVID, channeling traffic through the minimum number of points will allow for more rigorous control of physical spaces.
   - Reduce or consolidate teaching days on campus to allow dedicated time and human resources for enhanced cleaning protocols.
   - Limit access and consolidate laboratory space in order to allow facilities staff to focus their time and attention on fewer spaces with deeper cleanings.
   - Limit or prohibit gathering in common areas such as libraries, cafeterias, student halls, etc.
   - Utilize directional signage or stickers to manage movement of individuals through key spaces.

2. Establish Point of Entry Protocols
   - Consider utilizing plexiglass to form a barrier between administrative staff at the primary points of entry.
   - Implement legal requirements for individuals entering your college/public spaces once they are made available in your state and identify daily procedures for monitoring and reporting for each point of entry.
   - Consider placing signage on the floors or walls with clear messaging to address social distancing. Remember that the tone of this signage matters. While messages might include "please wait here to be called to the desk," and "thank you for standing at least this far away from the person next to you", they can also be written as "stand this far back" or "do not cross this line." As your campus rebuilds its trust in public spaces and carries your institutional culture, choose those phrases responsibly.
   - Customize and utilize a COVID-19 self-assessment at the point of entry for every person, every day. A sample self-assessment tool sample can be found here.

3. Publicly promote a staggered return using all media channels, scrolling signs, welcome banners, etc. to recognize who is allowed back and when (e.g., "We are excited to welcome back the ABC class this week! We cannot wait to see XYZ cohort next week!")

4. Expect to embed occupational health and safety into all curricula.

AACC is offering the following for consideration regarding social distancing and personal protection equipment (PPE) guidelines for conducting safe CTE instruction on campus:

- Prioritization of courses that require face-to-face interaction, including
  - first responder and public safety programs
  - programs with refined skills, heavy machinery, extreme physical performance, and/or those with specialized personal protective equipment in critical infrastructure programs (energy/water/wastewater, food and agriculture, manufacturing, transportation/distribution/logistics).
- Courses that warrant priority should be delivered with strict safety measures to protect student, faculty, and staff.
- Each class offering in-person instruction should document each student's use of equipment where possible. Consider assigning specific desks, welding booths, individual tools or equipment, etc. to each student and track these assignments in the event reporting needs to be conducted.
- Whereas messaging before may have been, "come hang out", for the immediate future, it should be "come only for classes"

AACC is offering the following for consideration regarding expectations of colleges providing safety equipment (face mask, shields, gloves, hand sanitizer) to faculty and students teaching and/or participating in courses:

Messaging about the expectations for providing personal protective equipment should be clear. Students, faculty, and staff should know what the college will provide with regard to safety (i.e., masks, gloves, hand sanitizer). Even when provided by the college for some courses, there is not enough money, time, or points of dispensing these highly perishable items at a rate that will keep the every individual person safe every day.

- Set clear messages about personal accountability. Each student or staff member who comes on campus must understand they are to be accountable for their own protection, and the health and wellness of every person they interact with during their time on the campus.
- Set expectations and clearly message that people must bring their own personal protective equipment for daily use.
- Attempt to acquire hand sanitizer and issue it to each staff person and manage the inventory of these bottles for campus (not personal) use.
- Attempt to acquire and position large bottles of hand sanitizer in wall-mount units so they remain fixed in each room versus moved to other locations.
- Recognize and message that gloves are not effective with combined with poor sanitary practices and constant use. People are too often brazen when they wear safety gloves. Hand washing is considered more effective. Reaffirm these messages not just at the points of entry at the campus, but at the outset of each class.
- Post reminder messages to reiterate best practices, such as "remember not to touch your face" and "wash hands for 20 seconds."

AACC is offering the following for consideration regarding expectations of cleaning procedures for lab spaces:

Community colleges conduct remarkably impressive tactile teaching. It is not uncommon for a cohort of 15 to 20 automotive students to touch the same car with their instructors within a short time period. Automotive technology classes provide examples of the complexities of cleaning and disinfection in these hands-on teaching environments. One example involves placing a container the size of a trailer near the building so that the car can be put into the trailer and exposed to certain chemicals that will touch each surface of the vehicle for an established period. The contact time of the chemical to surface is important, as is the setup of the decontamination process. This process is similar to what ambulance crews that encounter a positive COVID-19 case would do for ambulances. Attempting to adopt a strategy of disinfecting everything at all times is not mindful solution for most CTE programs because it is not a sustainable practice. Equally so, in a tool and die shop, the concept of cleaning each tool bit between every class for each student is nearly impossible. Figures 7-9 illustrate the complexity of tool sets ranging from the Studley Tool Chest, a benchmark in the world of woodworking, to a modern-day set of automotive tools used in community college courses.

Figure 7 Studley tool chest

Figure 8 Snap-On toolbox and set for automotive students

Figure 9 Snap-On toolbox and set for automotive students

Construction training is provided at most of the nation's community colleges. Construction programs often share student materials and tools between job sites and the classroom. Enacting strict protection protocols on campus may not provide protection for all CTE programs. Construction trade education is just one example that highlights the scope of the potential for cross-contamination as students move between their job and classroom sites.

Laboratory and experiential learning environments will require special attention and protocols. Even with the best cleaning and disinfecting protocols and more facility staffing, every institution simply will not be able to protect every surface of every building, all day, every day.

AACC is collecting innovative solutions, as are many of the members, affiliate councils, and respective industry partners to share with the broader higher education community such as, colleges using their fabrications labs to digitally print 3D N95 masks and/or sewing capability lessons learned are wanted and should be rapidly shared for student, staff and community PPE purposes. As uncovered, AACC will share findings quickly and widely.

IV. Conclusion

America and her community colleges are resilient, and this is an all-hands-on-deck moment. Each community and campus leader should not feel remorse regarding their decisions to keep the institution financially solvent while also acting in the best interests of the individuals who set foot on the campus. Future recommendations will be gathered, refined, and communicated to the field so that the country's community college system can best position their institutions and communities to re-engage students, faculty, and administrators, and keep them safe as they work to rebuild the nation's workforce pipeline.

In addition to the immediate actions, checklists and protocols, AACC encourages members to reassess how to build a diverse, robust, and inclusive workforce of the future. Ensuring the enrollment and graduating class looks like the community post-COVID will likely require hard conversations about digital equity and broadband. Access, persistence and success must all be revisited during this educational reset, and as NCWE's Executive Director, Darlene Miller noted "while we might immediately think of the faculty upskilling and professional development to prepare the campus for a return, we also need to double down on strategies to serve low-skilled and low-income students who will be the most impacted economically." How we assess students and consider new metrics for success such as competency-based skill acquisition rather than credit hours is a discussion worthy of having in this new environment. While new technology is rapidly connecting and forcing innovation and advancements, we must now hold ourselves accountable to track not only industry needs, but new industry hiring processes. In the last few weeks, Walmart speeded up their hiring process following a large commitment to hiring thousands of American workers. An interview protocol that used to take two-week interview is now down to a 24-hour process inclusive of a decision and provisional offers. Our most meaningful and mindful work on the foreseeable horizon is envisioning how we want our institutions to serve the students and companies of the future.

Appendix 1

Cleaning and Disinfecting Your Facility

Essential Worker Protection

How to Clean and Disinfect

- Clean surfaces using soap and water
- Practice routine cleaning of frequently touched surfaces
- High touch surfaces include:
  - Tables
  - Doorknobs
  - light switches
  - Countertops
  - Handles
  - Desks
  - Phones
  - Keyboards
  - toilets,
  - Faucets
  - sinks, etc.

Content provided by National PETE

Disinfect

- Clean the area or item with soap and water or another detergent if it is dirty. Then, use disinfectant.

- **Recommend use of EPA-registered household disinfectantexternal icon.**
  Follow the instructions on the label to ensure safe and effective use of the product.
  Many products recommend:

  - Keeping surface wet at least one minute (see product label)

  - Precautions such as wearing gloves and making sure you have good ventilation during use of the product.

Disinfection Solutions

- Diluted household bleach solutions may used on appropriate for the surface.

- Unexpired household bleach will be effective against coronaviruses when properly diluted.
  Follow manufacturer's instructions for application and proper ventilation. Never mix household bleach with ammonia or any other cleanser.
  Leave solution on the surface for **at least 1 minute.**

  - 5 tablespoons (1/3rd cup) bleach per gallon of water or

  - 4 teaspoons bleach per quart of water

- **Alcohol solutions with at least 60-70% alcohol may also be used.**

Content provided by National PETE

Soft Surfaces

- For soft surfaces such as **carpeted floor, rugs, and drapes**
    - **Clean the surface using soap and water** or with cleaners appropriate for use on these surfaces.
    - **Launder items** (if possible) according to the manufacturer's instructions. Use the warmest appropriate water setting and dry items completely or **disinfect with an EPA-registered household disinfectant.**
        - [Disinfectants](#) that meet EPA's criteria for use against COVID-19.

Disinfection of Electronics

- **Follow manufacturer's instruction** for cleaning and disinfecting.

- If no guidance, **use alcohol-based wipes or sprays containing at least 60-70% alcohol.** Dry surface thoroughly.

Content provided by National PETE

Laundry

- Launder items according to the manufacturer's instructions. **Use the warmest appropriate water setting** and dry items completely.

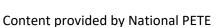- **Wear disposable gloves** when handling dirty laundry from a person who is sick.

- Dirty laundry from a person who is sick **can be washed with other people's items.**

- **Do not shake** dirty laundry.

- Clean and **disinfect clothes hampers** according to guidance above for surfaces.

- Remove gloves, and **wash hands right away.**

Laundry Guide

anythinggoeslifestyle.co.uk

Washing- bowl and water symbol

Do not wash | Washing symbol with max temperature | Hand wash only

Dry Cleaning- Circular symbol

Professional clean | Do not dry clean | Indicates to professional cleaners the chemicals to use

Bleaching- triangle symbol

Bleaching symbol | Bleaching with chlorine | Non chlorine bleach | Do not bleach

Drying- square symbol, tumble dry; square with circle

Line dry | Dry flat | Tumble dry | Tumble dry low | Tumble dry high | Do not tumble dry

Ironing- iron symbol

Ironing symbol | Low iron | Medium iron | High iron | Do not iron

Cleaning and Disinfecting a Sick Building

- **Close off areas** used by the person who is sick.

- **Open outside doors and windows** to increase air circulation in the area. **Wait 24 hours** before you clean or disinfect. If 24 hours is not feasible, wait as long as possible.

- Clean and disinfect **all areas used by the sick person:**
  - Offices
  - Bathrooms
  - Common areas
  - Shared electronics
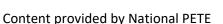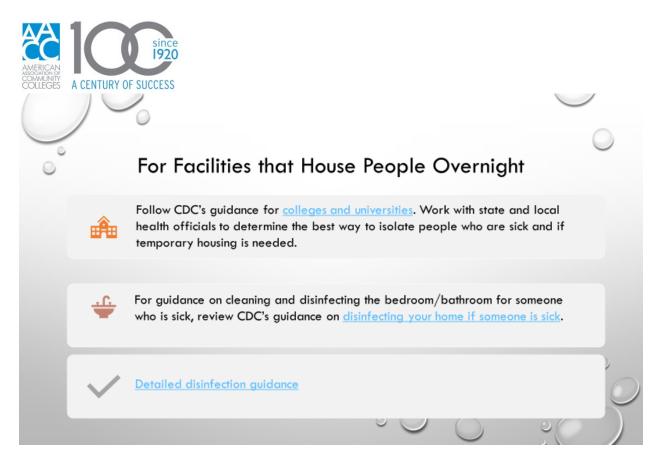
Content provided by National PETE

When Cleaning

- Wear disposable gloves and gowns or Tyvek for all tasks including handling trash.
- Wash your hands often with soap and water for 20 seconds.
  - If soap and water unavailable use hand sanitizer or 60-70% alcohol.
- Additional times to wash hands:
  - After blowing one's nose, coughing, or sneezing.
  - After using the restroom.
  - Before eating or preparing food.
  - After contact with animals or pets.
  - Before and after providing routine care for another person who needs assistance (e.g., a child).

Additional Considerations for Employers

- Educate workers to recognize symptoms of COVID-19.
- Provide instructions on what to do if they develop symptoms within 14 days after a possible exposure.
- Develop policies for worker protection and provide training to all cleaning staff prior to providing cleaning tasks.
  - Training should include when to use PPE, what PPE is necessary, how to properly don, use, doff and how to properly dispose of PPE.
- Ensure workers are **trained on the hazards of the cleaning chemicals** in accordance with 29CFR 1910.1200.
- Comply with the Bloodborne Pathogen standard 29 CFR 1910.1030

Content provided by National PETE

For Facilities that House People Overnight

Follow CDC's guidance for colleges and universities. Work with state and local health officials to determine the best way to isolate people who are sick and if temporary housing is needed.

For guidance on cleaning and disinfecting the bedroom/bathroom for someone who is sick, review CDC's guidance on disinfecting your home if someone is sick.

Detailed disinfection guidance

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