WEB SERIES
Medical & Public Health Considerations of COVID-19

SCHOOL RE-OPENINGS DURING COVID-19

JULY 29, 2020
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- Director for Education, National Emerging Special Pathogen Training and Education Center; Program Director, Serious Communicable Diseases Unit at Emory University Hospital, Atlanta, GA
More Than 6,300 Coronavirus Cases Have Been Linked to U.S. Colleges

By Wenyi Cai, Danielle Ivory, Mitch Smith, Alex Lemonides and Lauryn Higgins  July 29, 2020

Protesters gather at Capitol to support reopening in-person classes at schools

Teachers Union Considers Strikes Over School Reopenings

As the coronavirus pandemic continues to surge, the American Federation of Teachers says ‘nothing is off the table’ to keep students and teachers safe.
RE-OPENING SCHOOLS DURING COVID-19

THE PANDEMIC V. SCHOOLS: PREVENTING AND CONTROLLING INFECTIONS

- Claire Barnett, MBA, Founder & Executive Director, Healthy Schools Network, Saratoga Springs, NY

OCCUPATIONAL HEALTH AND INDOOR AIR AT SCHOOL

- Allen Barkkume, MS, Industrial Hygiene Consultant, New Jersey Work Environment Council, Trenton, NJ
Children are not just little adults.
Uniquely vulnerable to environmental hazards
Still developing; specific behaviors
Cannot recognize threats or articulate exposures

Schools are not just little offices.
Densely occupied; occupants are 95% women and children
Mix of processes under one roof
Poor facilities: air, sanitation, molds, chemicals, legacy toxics
No consistent funding; minimal oversight
All states require children to attend school.

School and childcare facilities have environmental health problems that impact children’s health, thinking, and learning.

No federal agency has the capacity or authority to identify, track, or remediate these problems.

OSHA covers all private schools; 24 states have adopted State OSHA Plans for public school employees.

No state provides environmental public health services for children at risk or with suspected exposures in these settings.

The poorest children have the schools in the worst physical condition.

CO2: Adult critical thinking skills begin a steep decline at 1,000 ppm; this classroom shows over 4,000 ppm. Research in U.S. classrooms has shown CO2 levels often at 2,000-3,000 ppm.
LEGACY TOXICS UNADDRESSED
POOR MAINTENANCE = POOR INDOOR ENVIRONMENTS
Indoor Environment Challenges:

- Filled with dust catchers
- If and how to clean; what to disinfect
- Pests drawn to food and plants in classrooms
- Air flow impeded
- Fire hazards

**Cost to clean up? ZERO**

NB- cluttered classrooms do not appear in media stories about reopened schools in Europe
DISPROPORTIONAL BURDEN OF THE PANDEMIC

The Black, Latinx, and Native American communities hit hardest by COVID will send their children back to the poorest schools in the worst condition.

A fragmented, local approach will speed the spread the virus, deepen disparities, and sow confusion.
CALL TO ACTION - PANDEMIC VS. SCHOOLS

Coalition for Healthier Schools
...providing the national platform and the forum for environmental health at school, since 2001...

Coordinated by Healthy Schools Network

Healthy Schools Network

WEC
A Public Health Imperative: Keeping Children Safe at School

The State’s Role: Providing Public Health Guidance to Schools
- State convenes stakeholders to develop template “School Infection Prevention and Control Plans”
- State establishes hotline and system to follow up on complaints, as well as mandated protocol for schools to report attendance and new infections
- Local schools convene stakeholders to adapt state template plan and adopt as policy

The Condition of School Facilities Affects the Transmission of the Virus

School Staff Vulnerability, COVID-19, and Schools

Appendices
- Federal and other resources; Indoor air, water systems; molds; cleaning and disinfecting, symptoms
States must provide and local schools must adopt **School Infection Prevention and Control Plans** that specify how the facility will be operated and maintained to reduce the presence of the virus, and how occupancy rates and occupants will be managed for optimal health and learning.

- **Reopen Facility - Routine Inspections**
  - Prioritize cleanups and repairs; save list
  - Check building systems:
    - drinking water, air/HVAC, plumbing, electrical, communications

- **Assess Exterior and Interior Spaces**


- **Inventory and stock supplies:** products for cleaning and disinfecting, masks and PPE, ventilation/AC filters, water filters, soap, hand sanitizer, paper towels, toilet tissue; HEPA vacuums, mops, cleaning cloths, etc.

- **Stay Open**
  - **Schedule**
  - **Cleaning and disinfecting (high touch surfaces)**
    - Regular safer pest control inspections
    - HVAC/air and ventilation maintenance
  - Track and respond to facility complaints and illnesses
  - Update maintenance schedule if needed to address one-time or persistent problems

- **Closures**
  - Unexpected opportunity to address priority repairs
CLEANING, SANITIZING, DISINFECTING

Cleaning with soap and water will decrease the presence of the human coronavirus (SARS-CoV-2) on surfaces and objects, which reduces the risk of exposure. Handwashing with soap and water for 20 seconds deactivates and removes the virus.

Sanitizing lowers the number of germs on surfaces to a safe level, judged by public health standards or requirements. Products used to sanitize are not registered to kill viruses.

Disinfecting deactivates viruses on surfaces, but viruses return every time dirty hands or droplets touch the surface. Not all disinfectants kill the coronavirus. Read and follow all directions exactly, including observing the product “dwell time”.

WARNING. Do not overuse disinfectants. Do not allow children to apply disinfectants or to use disinfecting wipes. If your facility has been unoccupied for weeks, the coronavirus will no longer be active. If your school is pressured to use more pesticidal products, check with your public health agency. If vendors are pressuring schools to buy “new” or “emerging” products, schools may save money by checking the [EPA N-List](https://www.epa.gov/pesticides) to see if the product is registered as effective against the human corona virus.
Cleaning and Disinfecting

- Inventory all cleaning supplies; restock

Cleaning for Healthy Schools

- **NYS Joint Memo on Cleaning and Disinfecting Appendix C (2020)**
- Washington State Department of Health on Cleaning for Healthy Schools
- Enhanced Green Cleaning Training Manual (NYS 2010)

Disinfectants: EPA N List

- Safer Disinfectants (Responsible Purchasing Network)

- Read and follow directions on product labels.
- Children must not use school cleaning and disinfecting products.
CLEANING FOR HEALTHY SCHOOLS

START-UP TOOLS FOR SCHOOLS

Three Things You Can Do to Get Started

Tips for School Staff

Cleaning for Health, Tips for Success: Vendors

Building Evaluation: Green Cleaning Check List

FAQ: The Cost of Certified “Green” Cleaners

NIOSH - Protect Yourself: Cleaning Chemicals and Your Health

Model Fragrance-Free Policy

New York State's Green Cleaning Program

The Nurse's Office: Cleaning the Safe and Healthy Way, Guidance for School Nurses

Disinfecting and Sanitizing in Child Care Centers: Model Recommendations from San Francisco Asthma Task Force

Healthyschools.org/cleaningforhealthyschools
CLEANING AND DISINFECTING

New York State Joint Education and Health Memo on Cleaning and Disinfecting
Appendix C (2020)

Step 1: Cleaning: Always clean surfaces prior to use of disinfectants in order to reduce soil and remove germs.

Step 2: Disinfection: Cleaning of soiled areas must be completed prior to disinfection to ensure the effectiveness of the disinfectant product.

Examples of frequently touched areas in schools:
- Classroom desks and chairs
- Door handles and push plates
- Kitchen and bathroom faucets
- Light switches
- Buttons on vending machines and elevators
- Shared telephones
- Shared computer keyboards and mice
- Bus seats and handrails.

Note: Computer keyboards are difficult to clean due to the spaces between keys and the sensitivity of its hardware to liquids.
OCCUPATIONAL HEALTH AND INDOOR AIR AT SCHOOL

Allen Barkkume
MS, Industrial Hygienist for New Jersey Public Schools Staff
REOPENING A DORMANT BUILDING

Recognized Hazards, Irritants, and Unsafe Conditions

- Lead paint management
- Pest management (after long period of dormancy)
- Drinking water systems flush (legionella)
- Indoor air quality (mold, allergens, chemicals, etc.)
Indoor Air Quality Policy

- 23 states have adopted policies that embed at least two key steps of US EPA IAQ Tools for Schools indoor air quality management program.

**US EPA IAQ "Tools for Schools" Toolkit**

- Prevent, identify, and resolve problems at low cost (before seeking professional help)

**US EPA Fresh Air: Optimal HVAC Management for Improved Health**

- Master class on ventilation and filtration
- Focus on nursing/health care suite, isolation room, restrooms, etc.
**INDOOR AIR CONSIDERATIONS**

**School Infection Prevention and Control**
- Create a **Handbook** for dissemination of the plan
- Provide training to staff and students
- Offer training to parents/guardians
- Communicate changes in procedures and policies

**Topics Addressed in the Plan**
- Staffing
- Screening
- At-Risk staff and student population
- Face coverings, masks, PPE
- Sanitizing, handwashing
- Modify scheduling, transportation, after school activities, community use of facility
Prioritizing Risk Management

- The National Institute of Occupational Health and Safety hierarchy of controls is a framework for protecting workers and all building occupants from recognized hazards.

- The risk of infection by SARS-CoV-2 (the virus that causes COVID-19) can be mitigated most effectively by eliminating the presence of infected individuals in the building through stringent security controls.

- The next most effective means of reducing hazards is typically to replace the hazard, although in the case of infectious disease, this level of control does not apply.

- An example of using engineering controls would be to maximize the introduction of outdoor air for ventilating the building.

- Administrative controls could include staffing or scheduling modifications, or clear communications with parents and the community on proper isolation criteria.

- Finally, personal protective equipment (PPE) can also be made available, although it should be considered that relying on PPE to reduce the risk is a control method of last resort.
Airborne Transmission

- Transmission of SARS-CoV-2 through the air is sufficiently likely that airborne exposure to the virus should be controlled.
- Changes to building operations, including the operation of heating, ventilating, and air-conditioning systems, can reduce airborne exposures.

Source: ASHRAE, Statement on airborne transmission of SARS-CoV-2, May 2020

Reducing Transmission

- Ventilation and filtration provided by [HVAC] systems can reduce the airborne concentration of SARS-CoV-2 and thus the risk of transmission through the air.
- Unconditioned spaces can cause thermal stress to people that may be directly life threatening and that may also lower resistance to infection.

Source: ASHRAE, Statement on operation of heating, ventilating, and air-conditioning systems to reduce SARS-CoV-2 transmission, May 2020

Lack of Indoor Air Quality Controls

- HVAC systems in 36,000 buildings should be updated or replaced.
- (These are only the schools that already have HVAC systems)
- No entity at the national or federal level (and often none at the city or state level) routinely monitors environmental hazards or exposures.

Source: US Government Accountability Office (GAO), K-12 Education: School Districts Frequently Identified Multiple Building Systems Needing Updates or Replacement, June 2020
**Thermal Comfort**
- 68.5 to 75 in the winter, 75 to 80.5 in the summer
- 30-60% relative humidity
- Maintain human comfort
- Reduce potential for spread of airborne pathogens
- Limit potential for mold growth in building structure and finishes


**Filtration**
- Ensure filtration in all mechanical equipment
- Verify correct installation
- Develop standards for frequency of replacement
- MERV 13 if equipment allows - pressure drop must be less than the fan capability

-Source: ASHRAE, Reopening Schools, June 2020

**Ventilation**
- ASHRAE Standards are the bare minimum
- And only for buildings with existing HVAC systems
- ASHRAE Standards are engineering-based
- Not health-based

**NJ PEOSH IAQ Standard**
- Must have written plan, <1000 ppm CO2

**California OSHA Aerosol Transmissible Disease Standards**
- Health care workers, tuberculosis
SOURCES OF SUPPORT FOR PUBLIC SCHOOL FACILITIES

- **FEDERAL**
  - FEMA
  - Tribal Nations
  - Military and Impact Zone

- **STATES**
  - 38 states provide some grant support for public school facilities
  - The poorest communities have the schools in the worst condition due to their reliance on local property taxes and or unreliable or inequitable state contributions

**PROPOSED FEDERAL SOURCES**

- **Reopen and Rebuild America’s Schools Act of 2020**
  - FY20 $10 Bn to help reopen poorest schools
  - $100 Bn over ten years to Rebuild

- **US EPA’s Healthy Schools Initiative**
  - PB FY20 requests $50M
  - Coalition requests $65M
... for children ... health ... environment ... education ... and communities ... since 1995 ...
THANK YOU!
PLEASE REACH OUT IF YOU HAVE ANY QUESTIONS

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  Lisa Moreno, MD, MS, MSCR, FAAEM, FIFEM, President of American Academy of Emergency Medicine, New Orleans, LA

  Sheryl Heron, MD, MPH, FACEP, Professor & Vice-Chair of Faculty Equity, Engagement & Empowerment, Emory University, Atlanta, GA

- **Wednesday, August 5, 2020 at 3:00 PM EDT**
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