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DR EPIC Program Skilled Nursing Facility Audit Report

Presented To:

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Program Manager

Disaster Ready Emergency Preparedness Infection Control (DR EPIC)

Project:

DR EPIC Program Skilled Nursing Facility (SNF) Audits

Audit Dates: March 3 through April 15, 2021

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1. EXECUTIVE SUMMARY

During the year of 2020, in the first year of the global SARS-COV-2 pandemic, the Arizona Department of Health Services provided funding to establish the Disaster Ready Emergency Preparedness and Infection Control (DR EPIC) program. Part of the program included industrial hygiene (IH) related education and technical assistance for Skilled Nursing Facilities (SNF). CSC was retained to support the DR EPIC IH program, and part of our service included evaluating ten (10) representative Arizona SNF facilities with respect to a variety of industrial hygiene health and safety topics, through in-person site visits (audits).

During the course of March 3, 2021 to April 15, 2021, CSC performed industrial hygiene focused health and safety audits of ten (10) Arizona Skilled Nursing Facilities (SNFs). The facilities were located in Phoenix, Chandler, Peoria, Surprise, and Tucson. CSC performed these audits with a combination of on-site interviews, observations, scored questionnaires, document reviews, indoor air quality (IAQ) and water quality measurements. At the end of the audit period, CSC compiled the results, which are presented within this document.

There are many possible IH topics that could have been scrutinized. CSC chose seven general categories that have strong health and compliance value, and that would be applicable to any Arizona SNF. CSC assessed the audited skilled nursing facilities with respect to the following general categories:

<ul style="list-style-type: none"> • Asbestos • Chemicals • Disinfection • Indoor Environmental Quality 	<ul style="list-style-type: none"> • Legionella • Pest Control • Respiratory Protection
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The results of the audit questionnaires are represented visually in Figure 1, shown below (pest control excluded):

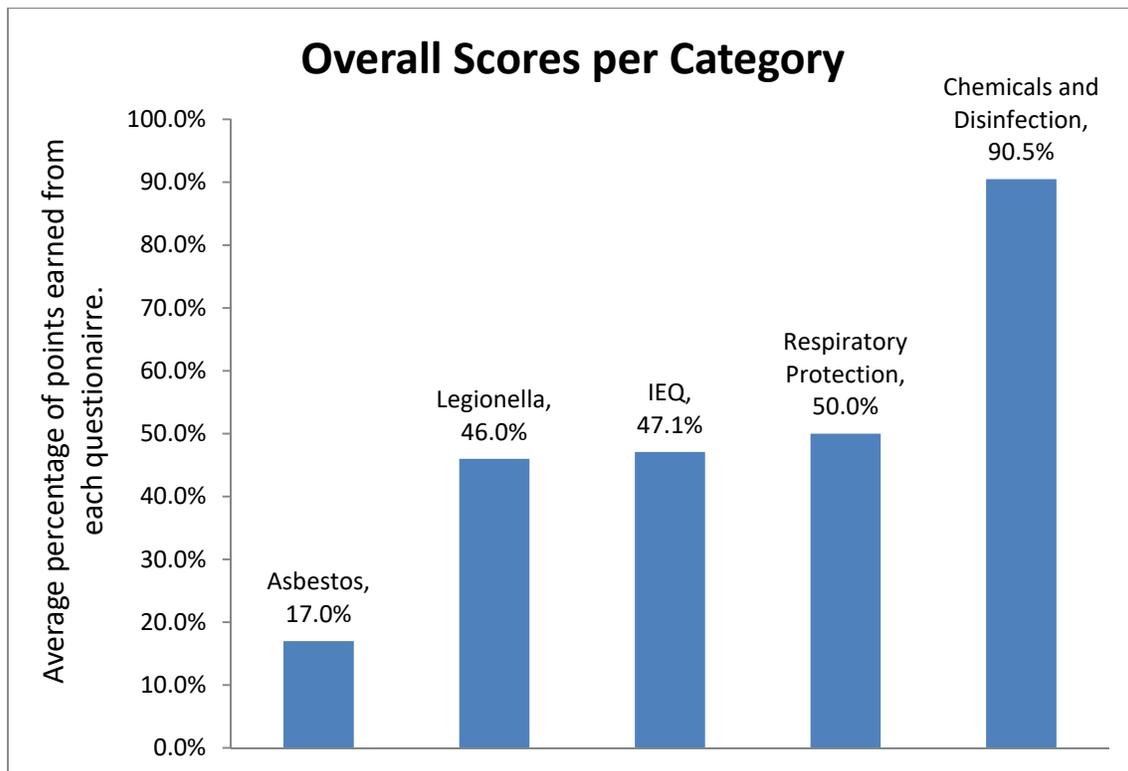


Figure 1. Summarization chart of questionnaire performance across all audited facilities. (100% would indicate scoring fully on all questions. 0% would indicate earning no points on any questions.)



CSC found that on average, Arizona SNFs that are served by the DR EPIC program have weak preparedness regarding asbestos issues, significant room for improvement in Legionella/water management and indoor air quality issues, and were very well prepared in the categories of chemical safety and storage and disinfectant usage. Pest control was universally subcontracted, making the topic not scorable, but the audited facilities generally performed well in this category with routine scheduled preventive maintenance and immediate on call pest control protocols. CSC found that about half of the audited SNFs had a fully compliant Respiratory Protection Program (RPP) in place. All other facilities that required employees to wear respirators (N95s) had no RPP in place at all and were either unaware of the requirement, or were aware but had not yet implemented the program.

Based on the result of these audits, CSC believes that, at a minimum, all SNFs served by the DR EPIC program should take the following actions to improve their health and safety situation:

- Establish or enhance their water management program to include comprehensive Legionella control elements. Include these elements in the regular maintenance schedule that is manually tracked or tracked via software (e.g. TELS Building Platform system).
- Perform a limited asbestos survey of commonly disturbed floor, wall, and ceiling materials.
- Establish an OSHA compliant Respiratory Protection Program if employees are issued respirators (N95s).
- Improve the indoor air quality by ensuring outdoor air is provided into the buildings and stale air is exhausted outside. Set HVAC units make up air dampers to draw in the appropriate amount of outdoor air. Verify that all exhaust fans and equipment are functioning properly and are preferably set to continuous on.
- Educate relevant staff on the above topics. Many issues found at these facilities were the result of inadequate awareness of the risk and regulatory requirements.

The remainder of this document addresses the finer details of the audits, including CSC's recommendations for improvements.

1.1. List of Abbreviations

ANSI	American National Standards Institute
ASHRAE	American Society of Heating, Refrigeration, and Air-Conditioning Engineers
CDC	Centers for Disease Control
DR EPIC	Disaster Ready Emergency Preparedness and Infection Control
EPA	Environmental Protection Agency
HVAC	Heating, Ventilation, and Air Conditioning
IAQ	Indoor Air Quality
IEQ	Indoor Environmental Quality
IH	Industrial Hygiene / Hygienist
IPM	Integrated Pest Management
NESHAP	National Emission Standards for Hazardous Air Pollutants
OSHA	Occupational Safety and Health Administration
PPE	Personal Protection Equipment
RPP	Respiratory Protection Program
SDS	Safety Data Sheets
SNF	Skilled Nursing Facility
WMP	Water Management Plan



2. METHODS

2.1. Interviews and Walkthrough

A typical site visit consisted of interviews with key staff and guided walkthroughs. The walkthroughs allowed CSC staff to assess key systems and identify good or poor performance that can affect the health and safety of facility occupants and comply with OSHA / EPA requirements.

A typical site visit would include interviews and / or walkthroughs guided by the following staff:

- Facility Administrator:
 - Initial discussions, administrator level questions, connecting with other key staff, and final debrief.
- Maintenance Administrator:
 - Walkthrough and assessment of key elements, such as the exterior area, the roof area, HVAC systems, differential pressures, chemical safety and storage, boiler rooms, cooling towers, biohazard storage, and laundry rooms.
- Nursing / Infection Control Administrator:
 - Reviewing respiratory protection program documents (fit testing, medical clearance) and Personal Protective Equipment (PPE) storage.
- Custodial Administrator:
 - Walkthrough and assessment of Safety Data Sheets (SDS), chemical safety and storage, disinfection methods, and PPE usage.

2.2. Scored Questionnaire

CSC prepared a questionnaire with scorable and non-scorable questions on a variety of industrial hygiene health and safety subjects, including compliance topics. Throughout the visit, staff members were asked identical base questions, and their responses were documented. When possible, the answers were verified by physical observation, paperwork confirmation, measurements, and additional clarifying questions. Audit questionnaires are proprietary, but can be made available for viewing upon request

The results of the scorable questions were processed and analyzed, with the results presented in this document. If a scorable question was not applicable to the facility, full points were given, as the site was not at risk for failing to address the particular topic. Non-scorable questions were utilized for on-site education and information purposes.

Below is a listing of the covered topics:

1. Asbestos
2. Chemical safety and storage
3. Disinfectants (concentration, dwell time, labeling)
4. Indoor Environmental Quality (IEQ)
 - a. HVAC system
 - b. Differential pressures
 - c. Water and mold



5. Legionella
 - a. Water Management Plan (Water heater temperature set points, delivered temperature, flushing routine, water filtration, and chlorine concentration)
 - b. Standing water and water features
6. Respiratory Protection Program
7. Pest Control
 - a. Integrated Pest Management (IPM)
 - b. Bedbugs
 - c. Nuisance birds
 - d. Rodents
 - e. Insects (Mosquito and Cockroach)

2.3. Real-Time Measurements

CSC collected real-time measurements throughout each facility for the following parameters:

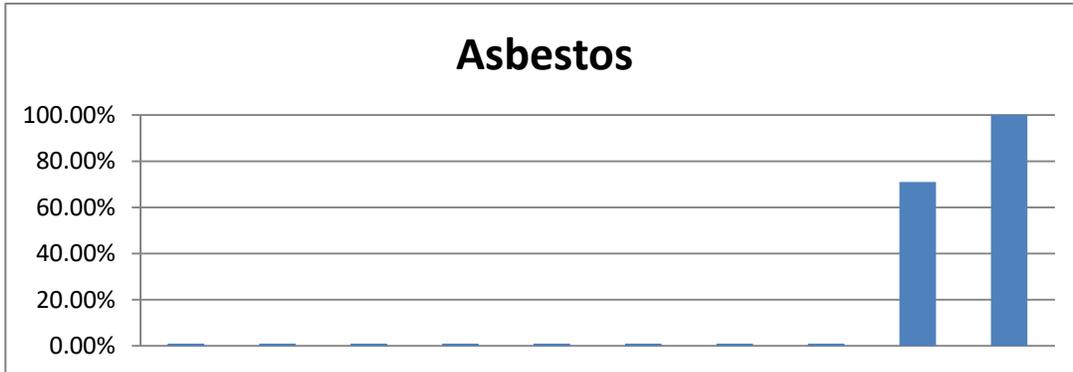
- Carbon Dioxide (CO₂) levels
 - To evaluate fresh air exchange
- Carbon Monoxide (CO)
- Volatile Organic Compounds (VOCs)
- Airborne Particulates
 - To identify particulate sources and evaluate fresh air filtration and exchange
- Water temperatures at boiler rooms and hot water outlets
 - To evaluate Legionella vulnerabilities and scalding potential
- Potable water chlorine levels at cold water outlets
 - To evaluate Legionella vulnerabilities
- Ambient air temperature and humidity
 - To evaluate ASHRAE recommended comfort levels and fresh air exchange.
- Pressure differentials via particulate smoke
 - To evaluate proper exhausts, and pressure differentials at critical barriers.



3. OBSERVATIONS AND RESULTS

As part of the DR EPIC program auditing protocol, individualized data per facility was to be shared with the specific site administrator / staff, but the information would remain anonymous when communicated at a higher level. As such, individual answers to questions and measurements are internalized and not included in this report. The following details generalized results of the DR EPIC audits.

3.1. Questionnaire Results Per Category



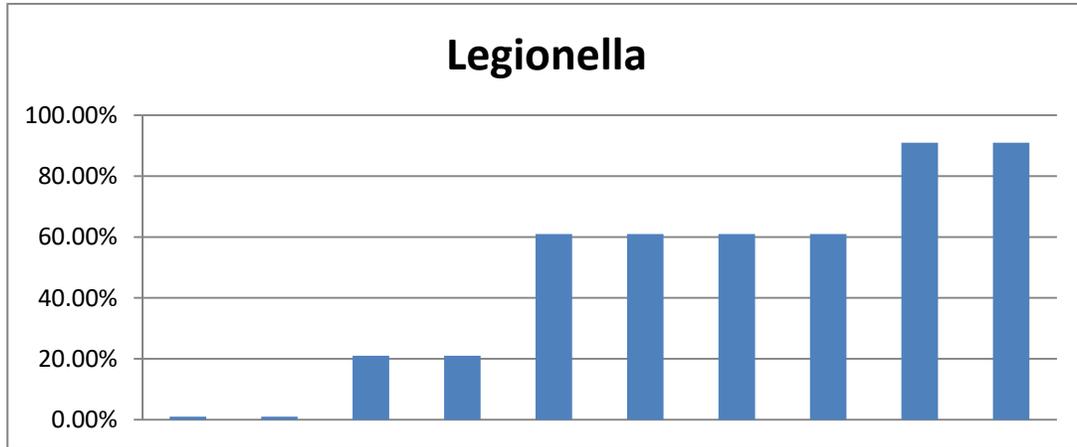


Figure 5. Legionella questionnaire results per facility as the percent of possible points.

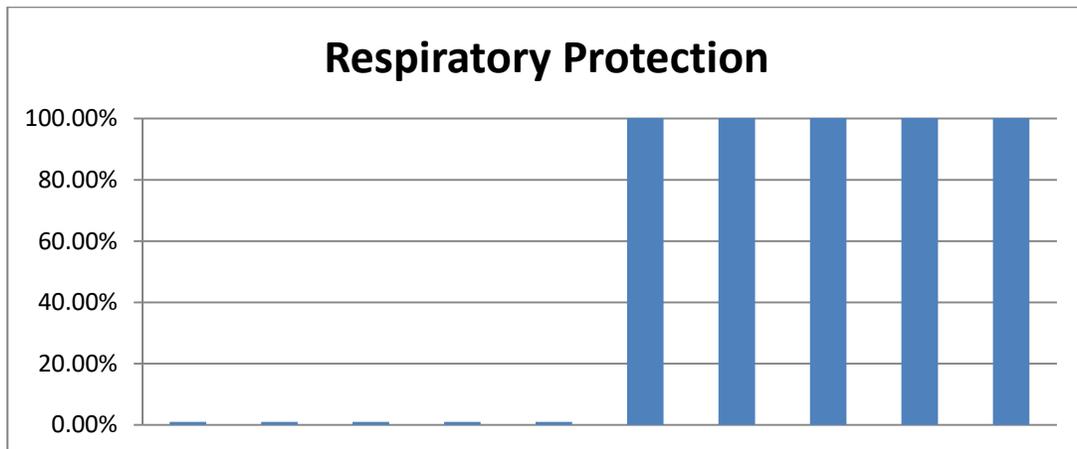


Figure 6. Respiratory protection questionnaire results per facility as the percent of possible points.

3.2. Pest Control Related Results

CSC found it difficult to fully assess the audited facilities on their pest control program, as all ten of the visited facilities subcontract out their pest control. In order to address most pest control questions, each individual business would need to be interviewed. CSC did review all the questionnaire elements with the relevant staff per audit to determine if any major issues were unaddressed.

The following are some general results from the audit interviews:

- No facilities had a localized integrated pest management (IPM) program.
- All facilities subcontracted out their pest control.
- No facilities described storing pest control chemicals on site.
- All facilities implemented a “see something, say something” approach to pest activity.
- All facilities said that bedbug inspections took place in some routine way.
- All facilities also subcontract out bedbug response actions. Of those that have had incidents, about half used heat treatment; others used pesticide treatment.



- About 30% of facilities had a pest related detractor in their kitchen area, either from unremoved food debris or dry plumbing traps.
- Over 50% of all facilities had gaps in their exterior structure that could be potential routes for pests.
- All facilities placed their dumpsters well away from building access points.
- No facilities' trash receptacles were overflowing, thus indicating that trash apparently is being disposed of in a timely manner as to reduce the risk of pests.
- Several facilities engaged in feeding wildlife, usually in the form of bird feeders. Droppings and loose seed were often present under the feeders. CSC observed two facilities feeding feral cats.

3.3. Overall Results Summary

The overall performance of all audited facilities is represented in Figure 1 in the executive summary section of this report and below:

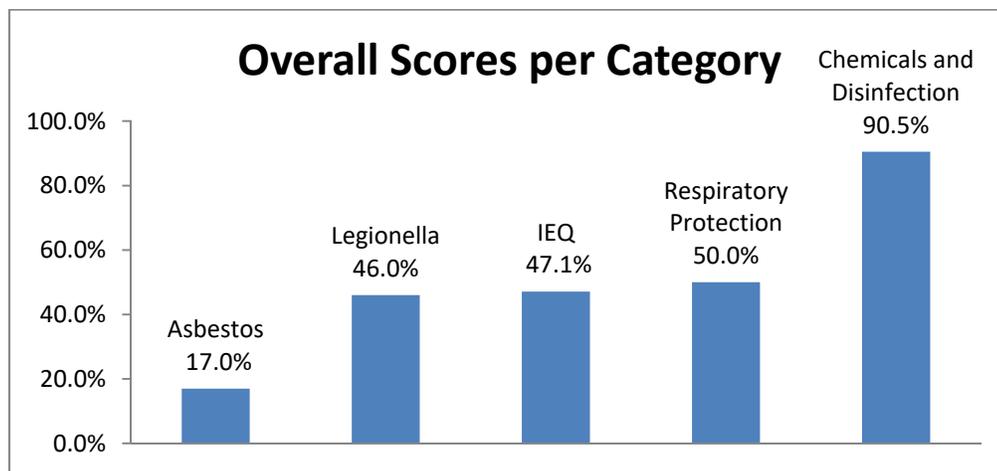


Figure 1. Summarization chart of questionnaire performance across all audited facilities, as percent of possible points per category.



4. CONCLUSIONS AND RECOMMENDATIONS

4.1. Asbestos related conclusions and recommendations

The audited facilities performed most poorly in the Asbestos category, on average failing to meet ~80% of CSC's assessment criteria. This illustrates a general lack of awareness of Asbestos risks and regulations. All sites not fully compliant with federal, state, and county requirements are susceptible to citation by OSHA, NESHAP, and ADEQ. Workers in facilities that do not perform asbestos surveys are potentially being exposed to asbestos whenever they disturb unsurveyed materials. Additionally, such disturbances can potentially release asbestos fibers into the HVAC system, spreading it throughout the facility, potentially exposing residents and staff, if appropriate measures are not in place. The lack of asbestos awareness and regulatory compliance poses a significant financial and health risk to all parties involved.

CSC recommends that all facilities perform asbestos surveys, at a minimum, on their most commonly disturbed building materials. This includes acoustic ceiling tiles, drywall systems, cove base and mastic, and flooring and mastic, among some other common materials that vary by site.

CSC also recommends that all facilities receive a basic education on asbestos risk management and regulatory requirements. CSC, ADEQ, and The Asbestos Institute of Arizona (TAI) provide education in asbestos awareness and regulatory requirements in the form of workshops, educational and certification courses, and presentations.

4.2. Chemicals and Disinfection related conclusions and recommendations

The audited facilities performed exceptionally well in the Chemicals and Disinfection category, meeting ~90% of CSC's assessment criteria. All interviewed custodial supervisors maintained accessible safety data sheet (SDS) binders, kept their SDS binders up to date, stored chemicals in restricted areas, and were aware of labeling requirements for secondary containers. Similarly, all interviewed custodians and custodial supervisors were aware of disinfectant preparation and dwell time requirements.

Some common issues in this category were:

- Lack of exhaust ventilation, or non-functional ventilation, in chemical storage areas and janitorial closets.
- Chemicals stored in rooms not designed for this purpose; being served by a standard HVAC system, allowing distribution of vapors to other areas if a spill occurs.
- Lack of negative pressure differential in chemical storage areas.
- Staff were not aware or were poorly aware of the requirement to desoil surfaces prior to applying disinfectant.

CSC recommends that facilities review the ventilation situation in their chemical storage areas. Chemicals should be stored in rooms that meet the following basic requirements:

- Area is inaccessible to unauthorized personnel.
- Area has a dedicated exhaust vent that is constantly operating.
- Area is under negative pressure to prevent release of vapors beyond the entrance.
- Area IS NOT served by HVAC supply or returns which will positively pressurize the area and / or redistribute vapors across the HVAC circuit in the event of vapor release.

CSC makes the following additional recommendations:

- Safety Data Sheet binders should include a table of contents and quick-reference tabs, to speed access to information in the event of a chemical exposure or injury.
- Eyewash stations, typically near chemical use or preparation areas, should be maintained by flushing the system occasionally to prevent bacterial colonization, and generally testing their functionality. Ideally, eyewash station flushing should be included in the maintenance schedule.



4.3. Indoor Environmental Quality (IEQ) related conclusions and recommendations

All audited facilities had some deficiencies in the IEQ and Mold category; on average failing to meet ~50% of CSC's assessment criteria. Some of the most common IEQ issues were:

- Lack of outdoor air exchange causing accumulation of carbon dioxide (CO₂), particulates, and bioeffluents.
- Dry plumbing traps, particularly at floor drains and vacant rooms, allowing sewer gas infiltration and potentially insects. Also, plumbing trap maintenance not in the maintenance schedule.
- Biohazard accumulation rooms not under negative pressure due to non-functioning exhaust venting or lack of exhaust venting.
- Isolation areas (quarantine, COVID isolation wing) not under negative pressure, allowing for potential migration of airborne pathogens into unprotected areas.
- Lack of written response plans for water intrusion events and mold discovery.
- Laundry rooms with degraded / moldy materials such as drywall.

CSC recommends, especially in light of the current SARS-COV-2 pandemic, that all facilities maximize the amount of outdoor air exchange to a level that is practical and acceptable. Including an outdoor air provision in the HVAC system mitigates the accumulation of unfiltered particulates, CO₂ and other bioeffluents, including airborne pathogen loading. Increasing the outdoor air provision does come with an energy cost penalty, which must be considered, but a sustainable non-zero outdoor air provision should be possible at every site.

CSC makes the following additional recommendations:

- Quarantine and pathogen isolation wings should be designed with cold → warm → hot transition zones that are supplemented by differential pressure that prevents backflow of airborne particulates into a less contaminated zone. Retrofitting facilities for such purposes can be challenging, but without proper pressure differentials, the benefits of establishing isolation areas are significantly reduced. CSC has provided guidance in establishing isolation wings and Airborne Infection Isolation Rooms (AIIRs) in skilled nursing facilities. The Centers for Disease Control (CDC) offers guidance on establishing and operating isolation wings and AIIRs:
 - <https://www.cdc.gov/infectioncontrol/guidelines/environmental/index.html>
 - <https://www.cdc.gov/niosh/topics/healthcare/engcontrolsolutions/expedient-patient-isolation.html>
- Similarly, biohazard accumulation rooms require a dedicated continuously functional exhaust to prevent release of pathogens to the surrounding areas.
- Ensure that HVAC filter exchange is part of the routinely scheduled HVAC maintenance, and that filters are labeled with the date of installation. HVAC systems with a low percentage of outdoor air provision should be supplemented with higher MERV level filtration, to help reduce the accumulation of fine particulates.
- In laundry washing areas, replace water-sensitive building materials with waterproof and chemical resistant materials (do not place such materials over drywall).
- Areas at risk of water damage can receive additional protection by installing water leak alarms.
- Ensure that plumbing traps are properly filled with water, and add checks / filling to the regular maintenance schedule. CSC endorses our proprietary water trap additive, Sewer Gas Solutions, which helps maintain trap water levels at low maintenance intervals.
- Recognize that aviaries, while providing psychological benefits, are also a source of particulates, allergens, and potentially pathogens. Aviaries should not be positioned near nurse stations, other medical treatment areas, or patient / resident rooms. They are best placed in common areas that can be visited, but are not constantly exposing patients / residents to their particulate release.



4.4. Legionella related conclusions and recommendations

All audited facilities had some deficiencies in the Legionella category; on average failing to meet ~50% of CSC's assessment criteria. Skilled Nursing Facilities host a demographic that is highly susceptible to Legionella exposure and infection. It is essential that these facilities have a water management plan that includes Legionella prevention.

Facilities that receive Medicare and Medicaid funding are required to incorporate Legionella controls in their water management program. As per the CMS memo QSO-17-30- Hospitals/CAHs/NHs, released on June 2, 2017, titled, "Requirement to Reduce Legionella Risk in Healthcare Facility Water Systems to Prevent Cases and Outbreaks of Legionnaires' Disease (LD)",

"Facilities must develop and adhere to policies and procedures that inhibit microbial growth in building water systems that reduce the risk of growth and spread of Legionella and other opportunistic pathogens in water."

Some of the most common Legionella issues were:

- Lack of a water management plan that included focused controls for Legionella and other waterborne microorganisms.
- Lack of end-point testing for deliverable temperatures and chlorine levels.
- Lack of a flushing regime, or a flushing regime that did not address underused and unused plumbing elements.

CSC recommends the following minimum requirements be met to prevent the establishment of Legionella bacteria within a facilities water system:

- Water heaters and hot water storage must be maintained at or above 140°F.
- Hot water delivery as close to the scalding limit as possible (typically 115°F - 120°F).
- Chlorine levels in potable cold water lines maintained and delivered in the 0.3 – 1 ppm range.
- Regular flushing of unused and underused water outlets to prevent stagnation and maintain chlorine levels.
- Identifying unused segments of the plumbing system (dead-legs) and eliminating them or adding them to the flushing regime.
- Establishing a water management plan that includes the above elements, compliant with the ANSI/ASHRAE Standard 188, Legionellosis: Risk Management for Building Water Systems.

4.5. Respiratory Protection Program related conclusions and recommendations

Overall, half (50%) of the audited facilities met the minimum requirements for an OSHA compliant Respiratory Protection Program. Unlike other categories, facilities that were aware of and attempted to implement the RPP program did so with full compliance. All other facilities were unaware of the RPP requirement, were aware but had not implemented a RPP, or, in one case, did not use respirators and therefore did not need a RPP.

As of March, 2021, OSHA had issued over \$4 million dollars in fines for RPP violations or failure to implement a RPP. All facilities that require workers to wear respirators must have an OSHA compliant Respiratory Protection Program in place, or they are putting their employees at risk and also risk receiving severe fines if discovered.

CSC recommends that all facilities that issue respirators (including N95s) to their employees establish an OSHA compliant Respiratory Protection Program (29 CFR 1910.134). CSC provides education and consultation services related to this topic.

Related to respiratory protection, CSC found that at some facilities, staff were storing used PPE in plastic bags hung on the wall. Other facilities were using paper bags. CSC recommends that any personal items that may retain moisture should be stored in breathable containers to allow for drying and prevent microbial growth.



4.6. Pest Control related conclusions and recommendations

As noted in the results section, all facilities subcontract out their pest control. All facilities implemented a “see something, say something” approach to pest activity. In general, CSC believes it is wise to subcontract out pest control, as this eliminates the need for training, certification, localized pesticide storage, etc. However, the facility sacrifices localized control and relies on the subcontractor to provide effective protections. This can create a false sense of security and allow for unaddressed issues as each side makes assumptions of the other.

CSC recommends that relevant facility leadership scrutinize their pest control provider to determine exactly which services are rendered and what topics require additional local effort. For example, it likely falls upon the local staff to review the grounds for debris and water sources that can serve as mosquito hatching sites. It also falls upon the local staff to detect pests that enter the building, including signs of bedbug presence.

It was common to find penetrations in facility exterior walls which could serve as access points for pests. These findings were always brought up during the exit interview.

CSC recommends that vegetation not abut the building, as it acts as habitat, retains moisture, and conceals pest activity. Approximately half of the audited facilities had this issue.

CSC recommends that if bird feeders are used, that they be placed over an easily maintained surface that can be regularly cleaned and excess food be removed. Bird droppings can be a source of Histoplasma and other pathogens. Bird feeders are often placed near resident windows, allowing for passage of pathogens into the unit when the windows are open. Two facilities had excessive deposits of bird droppings, and one site had the worst combination of droppings, food piled on the ground, a dripping spigot with pooling water, and trees that touched the roof, all in one area: a perfect situation for rodent infiltration.

4.7. Overall conclusions and recommendations

CSC found that on average, Arizona SNFs that are served by the DR EPIC program have weak preparedness regarding asbestos issues, significant room for improvement in Legionella management and indoor air quality issues, but were very well prepared in the categories of chemical safety and storage and disinfectant usage. Overall, there was a strong need for facilities that require employees to wear respirators (N95s) to establish OSHA compliant Respiratory Protection Programs (RPP), but those facilities that had a RPP in place were fully compliant. Pest control was universally subcontracted, making the topic not scorable, but the audited facilities generally performed well in this category.

Based on the result of these audits, CSC believes that, at a minimum, all SNFs served by the DR EPIC program should take the following actions to improve their health and safety situation:

- Establish or enhance their water management program to include comprehensive Legionella control elements. Include these elements in the maintenance schedule.
- Perform a limited asbestos survey of commonly disturbed building materials.
- Establish an OSHA compliant Respiratory Protection Program if employees are issued respirators.
- Ensure that HVAC fresh air / make up air dampers are set appropriately and that all exhaust/ ventilation fans are installed where needed and functioning continuously.
- Educate relevant staff on the above topics. Many issues found at these facilities were the result of inadequate awareness of the risk and regulatory requirements.



5. PICTORIAL EXAMPLES

5.1. Examples of opportunities for improvement



Photo 1: It was common to find utility sinks called “hoppers” which failed to drain or were inoperable. This becomes a sanitary issue and a legionella issue because the fixture cannot be effectively flushed.



Photo 2: Several sites had eyewash stations that did not drain to plumbed sewer lines. These stations are not amenable to flushing and their use would likely result in exposing the worker’s eyes to high bacterial loads. It is also likely that employees would rinse for less than the necessary time out of fear of overflowing the container.



Photo 3: Vegetation that touches the roof or extends beyond it becomes a route for rodent entry and can cause drainage issues on flat roofs due to leaf litter accumulation.



Photo 4: Vegetation against the building becomes pest habitat, traps moisture, and inhibits visual inspection of the building exterior.





Photo 5: Planters, etc. that are directly against the building can retain moisture, degrade the structure, promote termite establishment, and cause water infiltration if not properly drained.



Photo 6: All exterior penetrations should be sealed or include pest barriers.



Photo 7: Leaving food out for feral cats will attract other pests as well.



Photo 8: Outdoor storage such as this allows for pest nesting and mosquito breeding opportunities.





Photo 9: Cooling towers must be maintained to be in the best condition possible, to prevent the release of bioaerosols which may contain Legionella.



Photo 10: Abandoned plumbed areas require regular flushing or termination at the main water line to prevent water stagnation and Legionella development.



Photo 11: Replacing stained ceiling tiles will help diagnose roof or condensation leaks, removes potential mold sources, and presents an aesthetic of cleanliness.



Photo 12: Isolation / quarantine areas should be under negative pressure to prevent the release of airborne pathogens into common areas.





Photo 13: Storing reusable PPE in plastic bags prevents drying, allowing for microbial growth and preservation of viral particles.



Photo 14: Flat roofs require frequent inspections and clearing to prevent drain blockage and flow damming. Trees should be trimmed to reduce leaf litter accumulation and eliminate pest pathways.



Photo 15: Secondary containers must be labeled with the product name and a general hazard statement per OSHA requirements.



Photo 16: Water use areas should incorporate splash guard and waterproof construction.



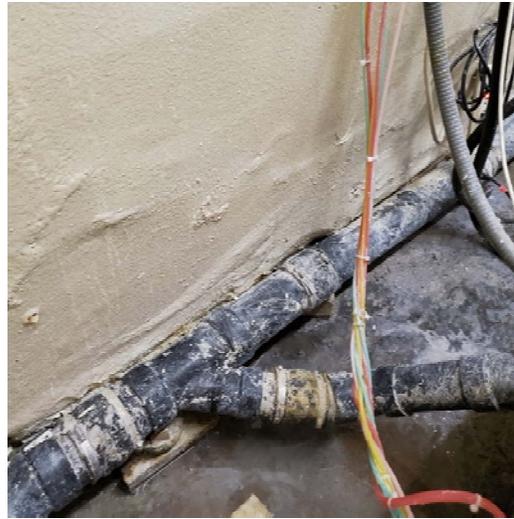


Photo 17: Water damaged wall systems are a common site in laundry and kitchen areas. Walls and floors in these areas should be as waterproof and chemical resistant as possible. Placing water resistant surfacing over water sensitive materials often causes more harm than good, as water “finds a way”, wicks up the susceptible material, and is trapped for an extensive time, allowing for degradation and mold development.



Photo 18: HVAC units and plenums should be regularly inspected and repaired when needed. Degraded HVAC duct lining and plenums will entrain and distribute potentially hazardous materials.

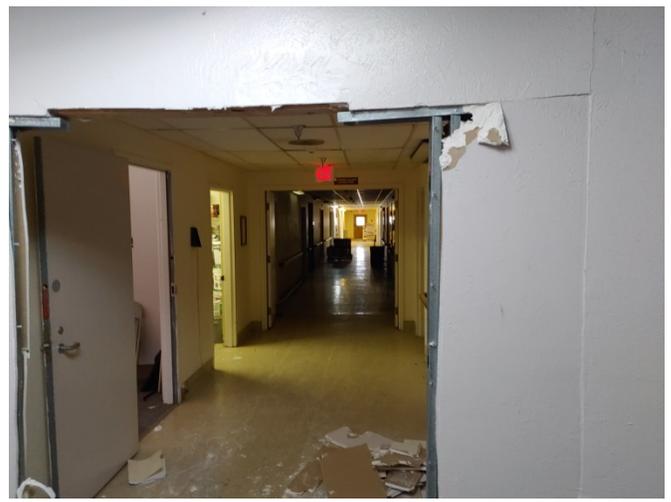


Photo 19: Renovations and repairs require the disturbed materials be tested for asbestos, for worker protection and to meet EPA NESHAP requirements.



5.2. Examples of good measures

Chemical Names	Dry times
Bleach Germicidal Cleaner	3 Minutes
PurTabs 1 gallon/5 tablets	4 Minutes
Virex II 256	10 Minutes
Surface must remain down for indicated time frame	

Photo 1: This disinfectant dwell time guide was affixed to the custodial cart, eliminating the need to memorize appropriate dwell times per product.



Photo 2: This isolation wing was properly under negative pressure compared to the common hallway.

PAGE #	NAME OF CHEMICALS	VENDOR
A		
B	Bueller 67	Hazard Industries
C	Clorox HealthCare 88 Fuzon Cleaner Disinfectant	Clorox Company
C	Clorox Garden Air Freshener	Hazard Industries
C	Clorox Commercial Solution Toilet Bowl Cleaner	Twin Med
C	Clorox Bleach Maxiblast Air Freshener	Hazard Industries
C	Clorox Bleach	Hazard Industries
C	Comet Crème Cleanser	Twin Med
C	Comet Crème Cleanser	Twin Med
D	Chemikleen	Twin Med
D	Chemikleen	Twin Med
D	Disinfectant - Stripper	Hazard Industries
E	Enzyme Active	Twin Med
E	Explosive	Hazard Industries
FG		
H	Hi-Gap	Hazard Industries
H	HS Detergent	Hazard Industries
IJ		
K		
L	Lemon Disinfectant	Twin Med
L	Lysol	Twin Med
M	Multi-Purpose Cleaner/Degreaser	Twin Med
M	Mandarin Cranberry Premium Foam Soap	Hazard Industries
M	Microdot Bleach Wipes	Twin Med
N	Neutral Floor Cleaner	Twin Med / KOK Int LLC
O		
P	Pure Bright Germicidal Ultra Bleach	Twin Med / KOK Int LLC
QR		
S	Sour Soft 70	Hazard Industries
T		
U V W		
XYZ		

IN CASE OF A MEDICAL EMERGENCY CALL: CHEM TECH EMERGENCY RESPONSE #1-800-255-3924

Photo 3: Safety Data Sheet binders with a table of contents and side tabs allow for quick reference in the case of chemical injury.



Photo 4: Using a graduated and marked measurement tool for mixing chemicals / disinfectants ensures the proper concentration is always reached.





Photo 5: Storing used PPE in breathable containers allows for drying and prevents further development of microbial growth.



Photo 6: Labeling filters with the date of installation is especially helpful to those encountering filters in the field



Photo 7: The ideal water tank temperature to prevent Legionella is above 140°F.



6. LIMITATIONS

The field observations, measurements, and research reported herein are considered sufficient in detail and scope to form a reasonable basis for a limited health and safety audit at the subject properties. The assessment, conclusions and recommendations presented herein are based upon the subjective evaluation of limited data. They may not represent all conditions at the subject property as they reflect the specifically targeted information gathered from specific locations. CSC warrants the findings and conclusions contained herein have been promulgated in accordance with generally accepted industrial hygiene methodology and only for the ten sites described in this report.

6.1. Use by Third Parties

This report was prepared pursuant to the contract CSC has with the client. That contractual relationship included an exchange of information about the subject property that was unique and between CSC and its client and serves as the basis upon which this report was prepared. Because of the importance of the communication between CSC and its client, reliance or any use of this report by anyone other than the client, for whom it was prepared, is prohibited and therefore not foreseeable to CSC.

Reliance or use by any such third party without explicit authorization in the report does not make said third party a third party beneficiary to CSC's contract with the client. Any such unauthorized reliance on or use of this report, including any of its information or conclusions, will be at third party's risk. For the same reasons, no warranties or representations, expressed or implied in this report, are made to any such third party.

6.2. Unidentifiable Conditions

This DR EPIC audit summary report has been developed to provide the client with information regarding apparent conditions relating to the specifically limited areas at the subject properties. Although CSC believes that the findings and conclusions provided in this report are reasonable, the assessment is necessarily limited to the conditions observed and to the information available at the time of the investigation. Due to the nature of the subject properties, there is a possibility conditions exist that could not be identified within the scope of the assessment or which were not apparent at the time of our site assessment. The assessment is also limited to information available from the client at the time it was conducted. It is also possible that the assessment methods employed at the time of the report may later be superseded by other methods. CSC does not accept responsibility for changes in the state-of-the-art.

We have employed state-of-the-art practices to perform this analysis of risk and identification, but this evaluation is limited in scope. Our services consist of professional opinions and recommendations made in accordance with generally accepted engineering principles and practices, and are designed to provide an analytical tool to assist the client. Clark Seif Clark or those representing Clark Seif Clark bear no responsibility for the actual condition of the structure or safety of a site pertaining to IAQ contamination regardless of the actions taken by the client.

Thank you for choosing Clark Seif Clark, Inc. to provide professional consulting services. If you have any questions regarding this report, please do not hesitate to contact us.

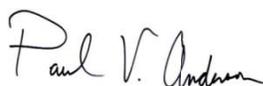
Thank you,
Clark Seif Clark, Inc.

Written by,

Peer reviewed and
accepted by,

Peer reviewed and
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