




## Original Article

# “Our job is to break that chain of infection”: Challenges environmental management services (EMS) staff face in accomplishing their critical role in infection prevention

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### Abstract

**Objectives:** Contaminated surfaces in healthcare settings contribute to the transmission of nosocomial pathogens. Adequate environmental cleaning is important for preventing the transmission of important pathogens and reducing healthcare-associated infections. However, effective cleaning practices vary considerably. We examined environmental management services (EMS) staff experiences and perceptions surrounding environmental cleaning to describe perceived challenges and ideas to promote an effective environmental services program.

**Design:** Qualitative study.

**Participants:** Frontline EMS staff.

**Methods:** From January to June 2019, we conducted individual semistructured interviews with key stakeholders (ie, EMS staff) at 3 facilities within the Veterans' Affairs Healthcare System. We used the Systems Engineering Initiative for Patient Safety (SEIPS) framework (ie, people, environment, organization, tasks, tools) to guide this study. Interviews were audio-recorded, transcribed, and analyzed for thematic content.

**Results:** In total, 13 EMS staff and supervisors were interviewed. A predominant theme that emerged were the challenges EMS staff saw as hindering their ability to be effective at their jobs. EMS staff interviewed felt they understand their job requirements and are dedicated to their work; however, they described challenges related to feeling undervalued and staffing issues.

**Conclusions:** EMS staff play a critical role in infection prevention in healthcare settings. However, some do not believe their role is recognized or valued by the larger healthcare team and leadership. EMS staff provided ideas for improving feelings of value and job satisfaction, including higher pay, opportunities for certifications and advancement, as well as collaboration or integration with the larger healthcare team. Healthcare organizations should focus on utilizing these suggestions to improve the EMS work climate.

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Contaminated surfaces in healthcare settings contribute to the transmission of several pathogens including *Clostridioides difficile*, gram-negative bacilli, and norovirus.<sup>1–6</sup> Adequate environmental

cleaning is important in preventing transmission of these organisms and in reducing healthcare-associated infections (HAIs).<sup>2,7</sup> However, effective cleaning practices vary considerably.<sup>9–13</sup> Standardized environmental cleaning practices have been developed to improve cleaning efficacy and compliance.<sup>14–16</sup> Our team identified a need for standardized environmental cleaning practices and cleaning monitoring to improve cleaning compliance and reduce HAIs. Evaluation of daily environmental cleaning and disinfection practices in veterans affairs acute and long-term care facilities.<sup>17</sup> Despite these tools, environmental management services (EMS) staff still perceive barriers to environmental cleaning, including staffing, having adequate supplies and equipment, as well as education.<sup>18</sup>

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The Systems Engineering Initiative for Patient Safety (SEIPS) framework has been used extensively in healthcare to evaluate elements of the work system that can affect processes and outcomes.<sup>19</sup> The SEIPS framework was developed by human-factors engineers to guide the study of work systems, specifically people, organizations, tools and technology, tasks, and the physical environment. The SEIPS framework guided this study; each domain within SEIPS plays a vital role in the complex and often challenging process of environmental cleaning.<sup>8,9</sup> Limited data exist regarding EMS staff perceptions of barriers and facilitators to an effective EMS program,<sup>20</sup> particularly on the interventions developed to improve their job performance, which largely target EMS staff behavior through training and monitoring. We focused specifically on the “people” domain of SEIPS, particularly EMS staff and supervisors and their experiences and perceptions surrounding environmental cleaning as a first step in describing perceived challenges and ideas to promote an effective environmental services program.

## Methods

### Setting and participants

As part of a larger study on environmental cleaning practices, we conducted individual semistructured interviews with key stakeholders (ie, EMS staff, nursing, and infection prevention) at 2 mixed, acute-care and long-term care facilities (ie, community living centers) and 1 acute-care facility within the Department of Veterans’ Affairs Healthcare System (VAHCS) from January to June 2019. For this study, we focused on EMS staff interviews only. The study was approved by the VA Central Institutional Review Board (no. CIRB#18-10) and the Research and Development Committee at the Iowa City VAHCS. Informed consent was reviewed with all participants.

### Data collection

Prior to conducting the interviews, research coordinators at each of the 3 sites participated in ~10 hours of didactic training. The training was both skills based ( $n = 8$  hours) and knowledge based ( $n = 2$  hours), ranging from how to conduct qualitative interviews to identification and familiarization with environmental cleaning practices and general knowledge of infectious disease. Trainings were conducted by experts in each of the content areas. In addition, coordinators were assigned a mentor possessing qualitative method and implementation expertise. At the end of the didactic training, research coordinators performed practice interviews with their mentor and, when approved by their mentor, conducted study interviews with participants.

Interview guides were developed by the research team with questions informed by the SEIPS framework and facility environmental cleaning practices (Appendix 1). Interviews were conducted on day shifts during the work week when research coordinators were typically assigned to work and EMS staff availability was greatest. Interviews lasted 48 minutes on average and were audio-recorded using encrypted recorders and transcribed verbatim. One interview was not recorded due to participant refusal; therefore, detailed notes were used in analysis. Data collection stopped when thematic saturation was reached.<sup>21</sup>

### Data analysis

Transcripts were uploaded into MAXQDA, a qualitative data management and analysis software program (VERBI Software, Berlin, Germany). We conducted a thematic content analysis by first

focusing on inductive codes, which were later mapped onto domains of the SEIPS framework (ie, people, environment, organization, tasks, tools).<sup>19,22,23</sup> This process allowed the research team to prioritize EMS staff language and perceptions in the initial analysis, and then examine when and how inductive codes aligned with SEIPS while also highlighting content outside the framework. Our interdisciplinary team included trained social scientists from anthropology (H.S.R. and S.H.S.) and public health (M.K., C.C.G., E.B., and L.M.), including an infection control nurse (L.M.) with experience in environmental cleaning.

Among the transcripts, 64% were coded via group consensus (L.M., C.C.G., S.H.S., and E.B.), a process that involved all team members coding transcripts prior to meetings and the final coding consensus was entered into MAXQDA during group discussion. The remaining 36% were coded by paired members of the analysis team who followed the same process of independently coding transcripts and then meeting to reach consensus and enter final coding in MAXQDA. Paired consensus coding meetings started after the code book was developed. Group and paired consensus meetings continued throughout the analysis period. This process of continuous dialogue increases the validity and reliability of the coding process by refining the content boundaries of codes and improving coding consistency. For paired coding, unresolved questions were brought to the larger group analysis team (L.M., C.C.G., S.H.S., E.B., H.S.R., and M.K.) for resolution.

For this study, we focused on the codes for EMS staff, culture, staffing, value in work, and recommendations, which directly related to EMS staff perceptions and experiences with EMS programs. These codes mapped onto the “people” and “organization” SEIPS domains.

## Results

In total, 11 interview sessions were conducted with 13 EMS staff, including supervisors. Participant demographics are shown in Table 1. One of the predominant themes that emerged from the interviews were the challenges EMS staff perceived as hindering their ability to be effective at their jobs. EMS staff we interviewed felt they understood their job requirements and were dedicated to their work; however, they described challenges related to feeling undervalued and staffing issues. They also shared ideas for expanding opportunities for EMS staff and how to integrate EMS staff as valued as members of a comprehensive healthcare team. Additional representative quotations can be found in Table 2.

Participants at all sites viewed environmental cleaning as a vital component in HAI prevention.

“( . . . ) Without environmental cleaning, ( . . . ) you’re not breaking the chain of infection. Our job is to break that chain of infection and that’s what we teach in our service meeting that the virus or bacteria or pathogen ( . . . ), it has to get from a carrier to a receptor ( . . . ) our job is to remove that barrier. ( . . . ) our primary function is transmission prevention infection control ( . . . )” (EMS supervisor, site B)

“( . . . ) Reinforcing to staff that the criticality of their position and how what they do in their job, how that affects the overall outcome of patient care, so everybody likes to say that housekeeping staff are not a patient care or patient contact workforce, but I don’t know of anyone besides the RNs [who] spend more time with the patients of this facility than the housekeeping staff, and what they do on a day-to-day basis likely does have a direct impact on the outcome of that person’s visit.” (EMS staff, site B)

Despite perceptions that the EMS role is critical for infection control, EMS staff believed their role was undervalued by the broader healthcare team and within the organization.

**Table 1.** Characteristics of Interviewees

Individuals Interviewed	Total Participants (N=13)
Mean years at the VA <sup>a</sup>	7.38 (median, 5.5; IQR, 3.0–10.125)
Mean years in current position <sup>a</sup>	3.38 (median, 2.0; IQR, 1.375–3.25)
<b>Occupation<sup>a</sup></b>	
EMS supervisor	5
EMS staff	8
<b>Education<sup>a</sup></b>	
Did not complete high school	1
High school degree	3
Some college	3
Associate's degree	2
Bachelor's degree	3

Note. IQR, interquartile range.

<sup>a</sup>Missing 1 observation.

"I think that housekeepers are undervalued by the general staff (...) because people either sound fake when they're saying, 'Oh, you do such a great dah dah dah.' You know? Or they truly believe it and you don't know which is which. I don't know that people even pay much attention. I think we kinda blend into the background." (EMS staff, site B)

"I know that people will tell you, 'Hey, we couldn't run this place without you.' But when you watch actions it's like I care less whether you [are] here or not." (EMS staff, site C)

Another EMS staff indicated that if they were to raise concerns regarding cleaning policies and procedures it would "fall on deaf ears" (EMS staff, site B), reinforcing the perception that EMS staff voices are undervalued and unheard.

EMS staff expressed a need to be acknowledged as having a larger role in the healthcare team, especially regarding HAI prevention practices. They also desire to receive higher pay to align with the greater knowledge of infection prevention required in their position compared to cleaning positions outside healthcare.

"(...) Housekeeping is, really should be infection control or the frontline workers for infection control, but we get categorized as the term housekeeping when we're really trying to save lives. As much as the doctors are curing diseases, we're trying to prevent the disease from being transmitted (...). That burden (...) fall[s] onto housekeeping, which we [get paid] the same as somebody who work[s] at the 7-Eleven or the one-story motel where there's no infection control probably even in their thought processes." (EMS staff, site B)

Staffing issues were also identified as barriers, including high turnover rates and staff shortages leading to challenges in workload and performance.

"Because if they got you running all over the place, well then you won't be able to do your job. That's not good-, if I leave my stuff to go [to another assignment] (...) 'cause we're short. I'm doing a half-ass job both ways. (...) 'Cause I'm not getting my stuff done like it should." (EMS staff, site C)

A supervisor at another site described in detail the overarching issue of turnover within the field of EMS and how it drains resources:

"(...) there's all the lost productivity and the time and the money and energy of the three of us but then there's our trainers, there's the staff (...) in new employee orientation that spent 40 hours. Our trainers spend

80 hours. HR [Human Resources] spends hundreds of hours. We do interviews for hundreds of hours. (...) There's so much lost productivity. Turnover is so expensive (...) I don't know if anybody's calculated how much it costs to turnover one housekeeping aide. (...) On an annual basis, I think I turnover maybe (...) between 40 and 50 housekeepers?" (EMS supervisor, site B)

Further barriers were noted on the allocation of EMS staff time. For example, they are required to dedicate a significant amount of time to noncleaning activities such as completing computer-based trainings or attending in-person meetings. Without protected time to participate in required educational trainings and meetings, these activities can lead to EMS cleaning work being interrupted. This requirement may contribute to feeling undervalued, if EMS are not given adequate time to complete trainings that are essential for their job.

"(...) 'Cause basically how the eight hours is (...) we on our feet we have a lot of stuff to keep up with. It's not like we have a desk job where they say, 'Hey, you take off an hour [Name] and work on your TMS [Talent Management System, VA employees training website].' So you gotta kinda squeeze this in and we do 'em in meetings sometimes in the evening." (EMS staff, site C)

"Trying to figure out a way where I can get all the supervisors sitting down in one room at one time together and that's a very difficult thing to do when you're a seven-day-a-week, 24-hour-a-day operation, (...) on rare occasion that I do make that happen, somebody's gotta get up in the middle of their night and (...) attend a meeting." (EMS supervisor, site B)

Despite the challenges of meeting the standardized training requirements, EMS staff expressed an interest in additional education and training to expand their knowledge and improve their interactions with patients and families.

"(...) It might be nice if they could find other avenues to train or give us the opportunity, at least, to HAVE other avenues (...) I've thought about possibly for people who are working or going to work in community living centers on the hospice side, having some kind of, you know, one or two-day training on hospice and you know, a grief training. (...) just because it makes us more capable of not saying the wrong thing at the wrong time." (EMS staff, site B)

Participants had additional suggestions on ways to improve perceptions of their value and to boost morale related to expanded opportunities, including incorporating certifications or a reward system. However, both come with challenges within the federal human resources regulations around training and the options for staff rewards.

"(...) We've worked towards getting certifications for our housekeepers. There's [a] program (...) CHEST (...) Certified Healthcare Environmental Services Technician, we wanted to get all of our housekeepers certified with that program. Our training instructor is a certified trainer for that CHEST program, but due to VA regulations (...) because it comes with a certification, the VA won't pay for that training (...) [CHEST certification] which sets us aside from, we're not the janitor at the high school or Arby's or the 7-Eleven. (...) we really want to be seen as Environmental Services Technicians instead of housekeeping in a hotel." (EMS supervisor, site B)

"So more than 50% of the staff that work in this department [EMS] work either the PM or night shift so their contact and involvement with operation of the facility is small. There's not a [regular] basis they see their direct supervisors and other than that, they don't have too much of any contact with hospital management or nursing management (...) once a year the Infection Control Nursing staff come and give them some education (...) the federal system itself just prevents any real opportunity or any meaningful opportunity to reward staff for doing a good job (...) one of the few

**Table 2.** Supplementary Quotations of Key Themes From Semistructured Interviews With EMS Staff

EMS staff feeling undervalued by other healthcare workers	
EMS staff, site C	“Oh, people treat you like shit. You know, write that down, please. (...) Even our-, even our own office. Look DOWN on us. I mean it’s like we’re an embarrassment to be associated with them is what I feel. Not all of ‘em but there’s a few.”
EMS supervisor, site B	“I try to inform my housekeepers that this hospital won’t run more than 24 hours without us, and that’s really for me to tell them that their services are critical that the frontline housekeeper is so critical and I feel that we are a little bit de-valued in the facilities considering that critical nature that our tasks get accomplished on a daily basis, that the hospital literally will have to shutdown and close the doors if we are not there terminally cleaning the OR, terminally cleaning clinics (...). You can have the best surgeon and the best doctor, but if you have a dirty facility that’s not sanitized and it’s not clean, it’s not disinfected, they’re going to say that they did not get good health care, so that’s why I feel even though we’re the lowest paid people in the hospital, our services are as critical as the highest paid. We might not be performing the surgery, but we’re in there seconds after the surgery (...) as soon as that patient comes out of the OR, we’re turning over that room for the next patient. The surgeon cannot perform surgery more than once a day if we’re not there all day long. I mean, we’re part of that team, but we’re the least paid. And it’s not so much the money (...) it’s the satisfaction that you’re part of that team that you’re part of keeping this hospital running. But it’s a silent satisfaction that I guess to say we know we’re doing our job if nobody knows we were there. So, they know when you’re not there because the garbage is overflowing or their toilet paper on the floor in the front entryway of the hospital and it just looks horrible. (...) if your work goes so quietly in the night, (...) people come in and they just expect things to be clean and then healthy and refreshing, they don’t consider that somebody actually had to do that. (sighs)”
EMS staff, site A	“We’re not the most popular people. The nicest way to put it, there is staff, a healthy portion of the staff that their work ethic, is questionable, at best, and a lotta times, like if you go into a new area like your long-term, that there are some very lazy individuals and they’re not very proficient or thorough, and sometimes that reflects on the body. It’s almost like when you first come in, a lotta the staff, they’re questionable until you prove otherwise and they see you working and that you’re thorough and diligent.”
EMS staff, site A	“I think there’s a certain degree of common sense that has to be taken into consideration. (...) in this particular environment and sometimes I don’t necessarily feel that common sense is valued, you know? There’s a certain, you know, (...) everything has to be exactly this way or that way. Doesn’t necessarily make one a better-, more efficient, you know, there’s a certain procedure that has to be followed without a doubt to make sure that rooms are clean-, wanna make sure that the environment that we work in is, is gonna be safe (...), the best of oh uh best possible that we can get, but you know, I have seen things that could be improved upon. (...)”
EMS staff expressed a need to be acknowledged as having a larger role in the healthcare team	
EMS staff, site B	“(…) should we still be called housekeeping, you know, should we be called something more like Infection Control, [wh]at was the word we used before? Not specialist but like a frontline-, I can’t think of the word (...).”
EMS staff, site A	“[EMS staff’s role] would be to serve the staff (...) in a timely and efficient manner, so that they can do their jobs better ‘cause I kinda. I see myself also as nursing support, you know, whatever they need, we get for them and we work hand-in-hand with that.”
EMS staffing shortages and turnover are significant challenges	
EMS supervisor, site B	“But with the high turnover, I can’t keep ‘em in the one or two areas that they were trained in. So assigning them a new run because somebody’s sick or called in or quit or they don’t have anybody that day or it’s their day off. Putting somebody-, giving you the keys to the eighth floor and saying, ‘Here you go,’ well, how do you get to the eighth floor? What am I gonna do when I get there? And with the high turnover, like, my senior employees can do any run in any area because they know the basics so well and they’ve worked in every area that they can transition. The other factor is some of my staff, due to their PTSD or other factors, they cannot handle change or transition um, and you absolutely don’t want to put them in a different area. So, that inhibits them from being able to do their job. That they’re not familiar with the area because the high turnover.”
EMS staff, site C	I: Ok. All right, and do you, do you believe that you guys have enough staff? “Pffh haw. No. (...) I have help now in [unit]. It runs that way, but for months I had [unit] and [unit] and just was short-handed, you know? And ok, you know, I’ll do what I can do, you know? You know, train somebody (pause) and they’d move ‘em someplace else, so then I got [unit] again. (...) so I’ve been doing twice the work, so, therefore, (pause) I couldn’t take care of everything in eight hours.”
EMS supervisor, site B	“At the service meeting, we cover mandatory training and we put out general information for the month, and update about our current staffing, recruiting, our shortages (...) So, we’ll have a service meeting and then two weeks later we’ll have a training meeting, and the training meeting is down to the nuts and bolts, and right now, we have a six-month repeating schedule because our turnover is so high.”
EMS staff, site A	“This is another practice, especially like with our two supervisors, we’re so short-staffed that they often go and physically do the wor[k], cover work areas, so instead of supervising, they’re physically doing areas, trying to make sure things get done.” “(…) that goes into the staffing problems, too. (...) the supervisors don’t even have the time to go train somebody. That’s why they try to stick ‘em with someone else, because they’re doing whatever they’re doin’.”

ways for me to show appreciation to, for my staff is to dig into my own pocket and come up with some, you know, pizza or something like that on an occasion.” (EMS supervisor, site B)

Finally, one EMS program developed its own system to enhance communication and improve opportunities for EMS staff voices to be heard. This was accomplished by making space for EMS employee concerns and incorporating an EMS employee suggestion box.

“At our service meetings. (...) we always open the floor to are there any questions? Are there any comments? Are there any suggestions? We do have a suggestion box.” (EMS supervisor, site B)

## Discussion

EMS staff play a critical role in environmental cleaning and HAI prevention in healthcare settings. In our study, EMS staff clearly understood this critical role, but they did not believe it was

recognized or valued by the larger healthcare team. It is important to identify and understand work-system barriers and facilitators that EMS staff encounter as emphasized in frameworks such as SEIPS; however, perceptions and satisfaction of individual actors within a system are also important.

Similar to recent environmental cleaning literature, our findings suggest that EMS staff believe that environmental cleaning is an important aspect of infection prevention<sup>10,24,25</sup> that affects patient safety.<sup>26</sup> However, we found high turnover, staff shortages, workload pressures, and feelings of undervalue. In 2016, Bernstein et al,<sup>26</sup> also reported challenges in workload and workflow, specifically lack of time to perform cleaning tasks, as well as EMS staff feeling underappreciated by other healthcare workers. Another qualitative study reported that EMS staff attitudes and beliefs about their job may influence their intent to clean, including key themes such as “me versus them” and lack of appreciation.<sup>27</sup> These feelings of exclusion may stem from societal issues—the value, or rather lack of value, society places on the environmental services workforce. In 2021, the findings of Hewage et al<sup>28</sup> emphasized that EMS staff have low social status. As described in another recent study, “Environmental services is still an occupation that receives little attention in society and carries low occupational prestige in the United States.”<sup>29</sup> This larger issue of how society views EMS staff likely contributes to their feelings of undervalue and lack of appreciation, which also leads to high turnover among EMS staff.<sup>30</sup>

Our findings highlight EMS interest in receiving certifications, such as CHEST certification or Certified Healthcare Environmental Services Professional (CHESP), which may boost feelings of self-worth and improve how EMS staff are seen by other healthcare workers.<sup>31,32</sup> Furthermore, technician certification can add to knowledge, skills, and abilities required for classifying positions for higher pay grades, which may in turn increase retention.<sup>30</sup> EMS suggestions of certifications and ideas to expand their knowledge and communication may be linked to improving EMS job satisfaction and reducing turnover, which could result in more effective EMS outcomes. Furthermore, providing these opportunities and advancements may help change the overarching societal ways in which EMS staff are perceived. Healthcare organizations and leadership should consider incorporating these opportunities to improve EMS job satisfaction and foster culture changes to include EMS staff within the healthcare team.

In our interviews, EMS staff indicated the desire for acknowledgment as having a more significant role within the healthcare team. Collaboration between infection control and prevention teams and EMS has been shown to be associated with improved cleaning practices and reduced rates of antibiotic-resistant organisms.<sup>33–35</sup> Van Tiem et al<sup>36</sup> suggested that infection control and prevention teams may find EMS staff to be allies in identifying opportunities to improve infection control policies.

Our study is not without limitations. First, our study is restricted to EMS staff within the VA Healthcare System. Other non-VA healthcare systems may interact with EMS department staff differently. Second, our sample was a convenience sample restricted to EMS staff involved with environmental cleaning available on days and shifts that coincided with study team availability, and night and weekend shift EMS staff might have differing experiences. Also, overall, the sample consisted of experienced EMS staff with many years of experience. Voluntary response bias may have occurred given that our sample included only volunteers, which could have resulted in only those individuals with strong opinions on environmental cleaning being interviewed. EMS have jobs with limited access to e-mail or a private phone; thus, some

staff may be disadvantaged in terms of recruitment to participate. Finally, perceptions and opinions may differ based on power differentials between EMS staff and EMS supervisors; however, we interviewed EMS staff and supervisors separately to reduce the potential for bias by this power differential.

Our qualitative findings suggest the need to create a workspace for EMS staff where they feel like a valued member of the healthcare team. Feelings of undervalue, along with low pay and limited career advancement, often lead to high turnover rates. EMS staff provided ideas for improving feelings of value and job satisfaction, including higher pay, opportunities for certifications and advancement, as well as greater integration within the larger healthcare team. Healthcare organizations should focus on utilizing these suggestions to improve the EMS work climate, which has potential to address the underlying societal issues surrounding EMS staff and may increase job retention and improve patient safety through lower HAI rates.

**Supplementary material.** To view supplementary material for this article, please visit <https://doi.org/10.1017/ash.2022.261>

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