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Major article

Qualitative findings from focus group discussions on hand hygiene compliance among health care workers in Vietnam

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Background: It is accepted by hospital clinical governance that every clinician's "duty of care" includes hand hygiene, yet globally, health care workers (HCWs) continue to struggle with compliance. Focus group discussions were conducted to explore HCWs' barriers to hand hygiene in Vietnam.

Methods: Twelve focus group discussions were conducted with HCWs from 6 public hospitals across Hanoi, Vietnam. Discussions included participants' experiences with and perceptions concerning hand hygiene. Tape recordings were transcribed verbatim and then translated into English. Thematic analysis was conducted by 2 investigators.

Results: Expressed frustration with high workload, limited access to hand hygiene solutions, and complicated guidelines that are difficult to interpret in overcrowded settings were considered by participants to be bona fide reasons for noncompliance. No participant acknowledged hand hygiene as a duty of care practice for her or his patients. Justification for noncompliance was the observation that visitors did not perform hand hygiene. HCWs did acknowledge a personal duty of care when hand hygiene was perceived to benefit her or his own health, and then neither workload or environmental challenges influenced compliance.

Conclusion: Limited resources in Vietnam are amplified by overcrowded conditions and dual bed occupancy. Yet without a systematic systemic duty of care to patient safety, changes to guidelines and resources might not immediately improve compliance. Thus, introducing routine hand hygiene must start with education programs focusing on duty of care.

It is well established that hand hygiene compliance is an effective measure for reducing the spread of health care–associated infection (HCAI) and multidrug-resistant organisms.[1] HCWs globally continue to struggle to comply with hand hygiene. In resource-limited healthcare settings where the burden of HCAI is high,[2] health care facilities are now introducing the concept of clinical governance through the dissemination of high-quality practice standards to ameliorate this issue. Inadvertently, however, these new programs fail to harness the collective support of key stakeholders and influential leaders expected to implement these programs at the grassroots level before commencement.

Although multimodal programs achieve initial increases in HCWs' hand hygiene compliance,[1,3-5] the effectiveness of such programs has been limited and often difficult to sustain.[5-10] Our understanding of the determinants of hand hygiene behavior is improving, but a multitude of cultural, behavior, and organizational factors remain to be understood.[11] In well-resourced countries, clinical governance underpins sophisticated quality programs across health care settings. Key components are a comprehensive quality improvement program, ongoing professional development, policies and procedures for managing risk and addressing poor performance, and professional accountability for the quality of care provided.[12]

Limited knowledge, scant data on HCAIs,[2] and overcrowded health care facilities create major challenges to introducing and driving patient safety programs in resource-limited settings, such as Vietnam. In 2012, health expenditures represented approximately 6% of the total gross domestic product of Vietnam.[13] Limited funding has led to delays in planned upgrades to clean water supply and sewage systems, resulting in poor access to clean water and thereby facilitating the spread of infectious diseases. These funding limitations have contributed to HCW and hospital bed shortages.[13,14] To explore barriers to hand hygiene in Vietnamese HCWs

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in these settings, we conducted focus group discussions with staff from major teaching hospitals in Hanoi.

METHODS

Setting

Six health care facilities representing central- and provincial-level health care were purposively selected based on their central location in Hanoi. These facilities are representative of busy public tertiary hospitals across Vietnam with a >500-patient bed capacity. Each facility has a hand hygiene policy and an infection control department responsible for monitoring hand hygiene compliance. Ethical approval was obtained from the National Institute of Hygiene and Epidemiology (NIHE) in Hanoi and the University of New South Wales in Australia. Ethical approval from the NIHE was accepted by each of the 6 hospitals, and informal consent was obtained from all HCWs to participate. The NIHE liaised with the hospitals and organized the focus discussion group schedule.

Participants and sample size

Focus groups were conducted between August 2010 and May 2011. Each focus group had approximately 8-12 participants. Data on HCW sex, age, and years of experience were not collected. At each hospital, participants were invited from selected hospital departments, and focus discussion groups were held separately for physicians and nurses. Participation was voluntary.

Procedure

Discussion topics included mask use and hand hygiene issues separately. Three trial focus group discussions conducted during training were excluded from our analysis. There were no other exclusions. A total of 12 focus groups were analyzed. To encourage participation, a modest incentive was offered to cover costs incurred at each health care facility. One of the authors (M.L.M.) trained a local epidemiologist to facilitate discussion and to probe unexpected or unusual responses. A senior officer from the NIHE who was located away from the table provided M.L.M. with concurrent translation during all discussion groups to validate methodology. Both S.S. and M.L.M. have infection control experience in Vietnam.

Each focus group session was conducted for no longer than 60 minutes. During each session, the initial discussion was about mask use, and once this discussion was exhausted, the facilitator introduced the topic of hand hygiene. Prompting questions were designed based on our observations of HCWs' hand hygiene behavior in the Vietnamese health care setting. Questions focused on the HCWs' understanding of HCAI and infection control practices, specifically hand hygiene. Questioning progressed from asking the HCWs to disclose facility-based HCAI rates and necessary controls to prevent disease transmission to hand hygiene compliance challenges and possible solutions.

Qualitative data analysis

Audiotapes of the full session were transcribed verbatim using standard word processing software. Transcripts were proofread and then translated to English by NIHE staff to ensure accurate translation of the dialogue. Transcripts were read independently by M.L.M. and S.S., who identified a list of themes and subthemes after reading a sample of interviews. If there was any ambiguity in translation, 1 researcher was able to check the original transcripts in Vietnamese (S.S.), and 1 researcher (M.L.M.) was present and received concurrent translation for all interviews. Transcripts were not examined separately by profession. Once themes and subthemes were agreed on, both researchers read and coded the remaining transcripts. A thematic framework around the codes was subsequently tested with a second sample of transcripts for modification. The framework was then tested against the full sample and refined.

RESULTS

Examination of the transcripts for themes revealed that the concept unifying all 3 themes was a dominating absence or acknowledgement of professional or ethical "duty of care" that an HCW should demonstrate to a patient when prioritizing prevention of adverse health consequences via the promotion of patient safety, specifically hand hygiene. We named this unifier "reduced duty of care" to patients. Discussion focused on duty to oneself and one's family, and the absence of duty of care to patients was consistent across nurses and doctors at all 6 hospitals and with previous studies.[15,16] Duty of care did not appear as a motivator of hand hygiene. Three major themes that emerged from our analysis, including minor recurring themes, were consistent in all groups, with self and family protection from possible risk of infection from HCWs associated with infection transmission, inadequate knowledge and beliefs of HCWs, complicated hospital guidelines, and access to hand hygiene sinks and solutions (Table 1). Major themes were connected by the minor themes and describe the facilitators and barriers to a duty of care for hand hygiene.

Theme 1: Priority for hand hygiene for oneself and duty of care to family and friends

Although participants recognized that hand hygiene can prevent HCAIs, it was explicitly acknowledged that their main motivation for practicing hand hygiene was to protect themselves, as well as their family and friends. Inability to adequately self-protect through hand hygiene was perceived as exposing family and friends to a risk of infection.

> Doctor, hospital D: We [doctors] wash our hands to protect ourselves, not because we are forced to.
> Nurse, hospital H: [If the hospital was not busy and hand hygiene solutions were available and accessible], we [nurses] would use them [hand hygiene resources] to protect ourselves first.

Table 1
Identified themes and subthemes describing factors influencing hand hygiene compliance among HCWs in Vietnam

Theme, subtheme	Description
Theme 1	Priority for hand hygiene for oneself and duty of care to family and friends
Subtheme A	Subjective risk perception of indications for hand hygiene for self-protection and family protection
Theme 2	Adherence to guidelines is compromised by HCWs' knowledge and beliefs
Subtheme A	HCWs' poor understanding of infection transmission
Subtheme B	Belief that the guidelines are complicated
Subtheme C	Translation of visitor hand hygiene by clinicians in their patient care
Subtheme D	Enforced hospital policy
Theme 3	Environment and resources influence hand hygiene compliance
Subtheme A	Inadequate hand hygiene/resources
Subtheme B	Understanding of the role of the environment and transmission of HCAIs

Doctor, hospital D: We [doctors] protect ourselves more than our patients.
Doctor, hospital H: We protect ourselves first and then our family.

Subjective risk assessments

With agreement that complete compliance with hand hygiene is unachievable, participants shared that they routinely conduct subjective risk assessments to differentiate between high-risk and low-risk patients, environments, and types of contact. They described being more attentive to hand hygiene in situations where they perceived an increased risk to themselves or an increased visual "dirtiness" or a feeling of being "dirty."

Doctor, hospital P: When we [doctors] conduct an examination on a normal patient to perform blood pressure or assess blood glucose levels, nobody performs hand hygiene.
Nurse, hospital H: When we [nurses] give an injection or connect an intravenous infusion, we rarely practice hand hygiene.
Nurse, hospital H: I only wash my hands with soap and water after performing blood-related medical practices.
Nurse, hospital P: We [nurses] are scared to see dirt on our hands, so we wash our hands with soap and water.

Theme 2: Adherence to guidelines is compromised by HCWs' knowledge and beliefs

Many HCWs expressed a belief that hospital hand hygiene guidelines did not consider daily routine clinical practices on a ward and the time it takes to perform hand hygiene, and that the guidelines were overcomplicated and not enforced. Participants used their own risk knowledge assessments to determine when to perform hand hygiene rather than adhering to hospital guidelines. The importance of adhering to the guidelines was overshadowed by prioritizing hand hygiene to situations when HCWs believed that they needed to protect themselves and to complete tasks promptly, especially when feeling pressured for time.

Nurse, hospital D: After the examination, we will know if it is risky [for cross- contamination]. So we will be ready to perform hand hygiene when we know it should be done.
Doctor, hospital D: We [doctors] do not need to practice hand hygiene when measuring a patient's blood pressure or temperature…Washing hands constantly wastes time.
Doctor, hospital H: It is inconvenient and time-consuming to go and wash hands at another location and then return to continue patient care activities.
Knowledge and beliefs about hand hygiene were poor and not considered an integral part of the clinical task, and as such, the HCWs did not acknowledge a duty of care to their patients.
Nurse, hospital H: We cannot wash our hands after contact with every patient, because we must continuously provide injections to children.
Doctor, hospital P: If we performed hand hygiene before and after patient care, we would spend the whole day washing our hands.
Participants were unanimous in the opinion that total compliance to hand hygiene is unachievable.
Doctor, hospital D: It is impossible to wash your hands continually.
Nurse, TB: It [hand hygiene compliance] cannot ever be 100%, but everybody must wash hands when they can.

Despite extensive scientific knowledge that forms the basis of the guidelines, HCWs question the efficacy of alcohol-based handrub (ABHR) to remove pathogens from their hands, and do not understand the importance of persistent antimicrobial action on the skin.

Doctor, hospital D: Washing hands with soap and water can remove bacteria from your hands; however, we [doctors] are unsure whether antiseptic solutions can kill them [pathogens] or not.
Doctor, hospital C: I feel unsafe when I use ABHR, so I wash my hands with soap and water.

The benefits of hand hygiene were raised; however, some participants remain unsure of the role of hand hygiene in reducing HCAIs and the need for compliance with the guidelines.

Doctor, hospital D: I think that if it [hand hygiene] is done well, the number of infected patients will decrease.
Nurse, hospital H: We [HCWs] should stop insisting on hand hygiene to prevent infection, because it is useless.

Participants could recite the World Health Organization (WHO) "My 5 Moments for Hand Hygiene"; however, they did not understand the rationale for performing all hand hygiene practices, which was complicated by complex local hospital guidelines, additional hand hygiene moments, and lengthy explanations.

Doctor, hospital P: It is hard to understand that after [performing hand hygiene] for one patient is [also covering] before [compliance with] another patient.
Nurse, hospital TB: Our [hospital's] "5 moments" is more complicated and detailed. I am confused and cannot remember it. We must wash our hands at 14 moments, 5 before and 9 after.

Although HCWs attended hand hygiene training and education sessions, they were frustrated by inadequate infrastructure when applying theory to practice.

Nurse, hospital D: We [HCWs] have attended a number of hand hygiene training sessions; however, the hospital infrastructure (lack of ABHR and sinks) is not adequate.
Doctor, hospital TB: If there are more places for handwashing, there are more chances to wash hands.

Most participants agreed with that gloves offer adequate self-protection and that glove use discourages HCWs from performing hand hygiene, because gloves were perceived to eliminate the need to perform hand hygiene after removal.

Nurse, hospital D: If my hands are clean after providing care for a patient, then I only need to change my gloves [and no hand hygiene].
Nurse, hospital T: I usually take my gloves off and wash my hands with running water but without soap.
Nurse, hospital D: Sometimes wearing medical gloves while providing patient care in the same room discourages us from washing our hands with water or antiseptic solutions.

If it's okay for visitors to not perform hand hygiene, then it's okay for me

Participants justified their poor hand hygiene compliance because visitors/family who assume the caregiver role do not perform hand hygiene.

Nurse, hospital H: The caregiver does not even wash her hands.

Unenforced hand hygiene hospital policy

Participants discussed their hospital's suboptimal methods for hand hygiene audits and disclosed their reluctance to individually promote hand hygiene compliance among peers for fear of causing offense.

> Doctor, hospital D: Nurses' [hand hygiene] compliance is monitored regularly. They [hospital hand hygiene auditors] seldom audit doctors' compliance with hand hygiene.
> Doctor, hospital D: In front of patients, we [doctors] do not dare to remind our fellow medical colleagues to practice hand hygiene.

Theme 3: Environment and resources influence hand hygiene compliance

Sinks and solutions

All groups emphasized that the major barrier to hand hygiene was the poor access to functional sinks and hand hygiene solutions. They blamed hospital administrative boards for not recognizing and supporting the infrastructure needed to encourage hand hygiene compliance.

> Nurse, hospital T: If there are more places for handwashing, then people will be more encouraged to wash their hands.
> Doctor, hospital C: We constantly run out of running tap water [in the hospital].
> Nurse, hospital D: It's so cold [the water] that the skin breaks on our hands and bleeds.
> Nurse, hospital C: Sometimes we use our clothes to wipe our hands dry. It would be better if we had hand towels.
> Doctor, hospital C: There is not enough ABHR bottles for every bed and not enough hand towels in the department. This was discussed in a department meeting, and it was determined that the supply was ample.

HCWs acknowledged that inadequate infrastructure, such as lack of towels or hand drying facilities, inhibits them from adhering to proper hand hygiene practices, thus reversing the benefits of hand hygiene.

> Doctor, hospital C: I would rather dry my hands on my clothes instead of wasting time to wait for the hand dryer to dry my hands.
> Nurse, hospital C: We should allow our hands to dry [after hand hygiene] before touching a patient, but sometimes our hands are still wet when we touch the patient, so we use anything to wipe our hands dry. This makes hand hygiene useless.

Despite HCWs' requests and suggestions to hospital management for improving access to hand hygiene tools, HCWs were still recalcitrant to hand hygiene. HCWs remain skeptical that increasing access would help improve the current hand hygiene compliance levels.

> Doctor, hospital H: If it [ABHR] were placed in patient rooms, patients and relatives would likely use them up.

Environment and transmission of HCAIs

Participants expressed agreement that the role of the environment was less important than the role of direct patient contact, and as a result moment 5 was often disregarded.

> Doctor, hospital D: [Moment 5—after contact with the patient environment] is too difficult to practice, so we disregard this moment.
> Nurse, hospital D: The feeling of touching the patient is different from that of touching the surroundings.

Participants acknowledged the benefits of hand hygiene compliance and offered solutions on how to promote hand hygiene compliance. They also acknowledged the importance of the physical environment and hand hygiene resources.

> Doctor, hospital D: It would be more convenient and sensible to have larger patient rooms with wider distances between beds and to have more hand hygiene sinks.
> Nurse, hospital H: It is hard to change infrastructure, because the director doesn't have enough money along with the right to change.

Other barriers to hand hygiene compliance cited by participants include skin damage caused by frequent cleansing and the smell of the cleansing solutions. HCWs suggested that hospitals invest in solutions that are more pleasant-smelling and less damaging to skin.

> Doctor, hospital P: [ABHR] chaps our hands, even causes bleeding.
> Nurse, hospital C: ABHR should have a pleasant smell. It would then encourage people to perform hand hygiene and not be a barrier.
> Doctor, hospital C: I want to have ABHR that dries quicker and is sweet-smelling. Everyone will be more comfortable with sweet-smelling ABHR, and it will reduce the stress for everyone.

Similar to other countries where patients' expectation for safe and clean care through overt hand hygiene was previously low, HCWs in Vietnam remain reluctant to demonstrate hand hygiene in front of patients, to avoid sending potential offensive messages implicating that the patient is contaminated or of a lower social status.

> Doctor, hospital D: Sometimes we [doctors] wash our hands once the patient leaves the consult room to avoid the patient observing and perhaps becoming offended.

We mapped our analysis to show these thematic connections (Fig 1). Central to the discussion is the core theme of a fundamental lack of duty of care to protect the patient against any adverse health consequences during the hospital admission. Contributing to the core theme are 3 main supporting themes: prioritizing hand hygiene for oneself, the external environment, and poor adherence with hospital guidelines. Infection risk to self, duty of care for family and friends, and HCWs' knowledge and beliefs are recurring main issues contributing to these themes. Minor themes are connected to illustrate direct or associated links with other minor or major issues.

DISCUSSION

Despite the revision of the National Infection Control Guidelines, the introduction of annual national hand hygiene campaign into Vietnam, translation of WHO hand hygiene hand hygiene tools and materials and a national pledge of commitment to the WHO's Clean Care Is Safer Care network,[17] adherence to and understanding of hand hygiene in Vietnam remains poor. Our study identifies the possible reasons that distract HCWs from hand hygiene compliance for the benefit of patients in a resource-limited country.

The majority of participants emphasized the need for self-protection from patient pathogens and family protection as the

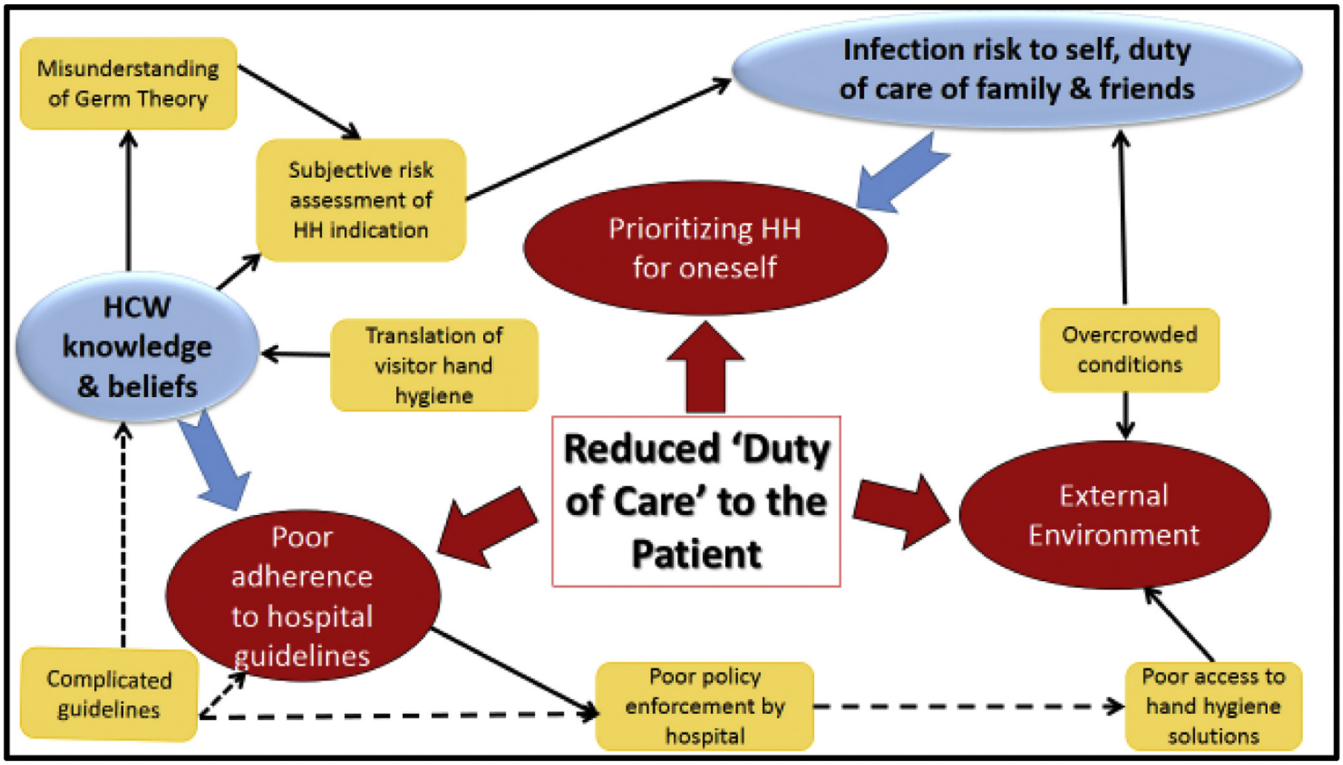

Fig 1. Schematic diagram illustrating factors that encourage HCWs to neglect the importance of "duty of care" to patients through HH compliance. ⇢ Associated links with major and minor themes. → Direct link with main and minor themes. ➡ Main issue contributing to the theme. The core theme from the focus groups discussions was a fundamental lack of duty of care to protect the patient against any adverse health consequences during the hospital admission. Three main supporting themes emerged from discussions: (1) prioritization of HH for oneself; (2) the external environment; and (3) poor adherence to hospital guideline. Minor themes are directly linked to or associated with these major themes.

key accelerator of their hand hygiene practices. Our results are consistent with the literature demonstrating greater hand hygiene adherence after patient contact and blood/body fluid exposure compared with before these incidents.[18-20] Most participants admitted to applying subjective risk assessment to determine the need to perform hand hygiene during a clinical encounter to preserve personal safety. Clinical encounters that were deemed "dirty" or "risky" rated higher for personal risk and necessitated hand hygiene compliance. The duty of care to protect patients was never considered; rather, the duty of care to oneself and one's family was a key factor determining hand hygiene compliance.

Despite evidence demonstrating the role of the environment in HCAIs,[21-25] participants admitted to negating the environment as a potential source of contamination and questioned the validity of the literature.

Many participants described hospital guidelines as complex and difficult to recall. Participants were not convinced of the effectiveness of performing hand hygiene and of using ABHR to reduce transient pathogens. Some participants questioned the need for such guidelines. HCWs questioned the necessity for hand hygiene during high patient workloads, and their fear of compromising clinical time management is consistent with previous findings.[26]

Our discussions emphasize the need for practical hand hygiene guidelines that are adapted to the local context, are user-friendly, and include scientific evidence to facilitate HCWs' understanding. Guidelines should be tested and reviewed for ease of application, especially in the face of specific challenges, such as family caregivers who do not perform hand hygiene and infrastructure problems. Guideline implementation should be accompanied by tailored education programs aimed at HCWs' understanding and address HCWs' lack of adoption of a duty of care to their patients' safety. Patient safety should be at the center of every HCW's actions and supported by hospital clinical governance programs. Infection prevention and control duty of care practices should be overtly integrated into clinical training, rather than taught as an additional component. Remodeling training to focus on duty of care starting before and continuing after patient contact may be a first step toward improving hand hygiene compliance in locations where hand hygiene has been historically absent.

Our study has several limitations related to the various levels of seniority and professional hierarchy present within the group discussions, including the possibility that participants might have answered according to the group's social norms for hand hygiene at the hospital. In addition, discussing challenges and constraints to complying with published guidelines is not common in Vietnam, where it is culturally appropriate to internalize opposition rather than openly discuss discordance.

We do not intend for our findings to be generalized to other HCW populations. As with any focus group discussions, even though both authors have "in-country" infection control and prevention experience, whether the participants' views accurately represent the actual situation is unclear. Nevertheless, our results reveal a number of opportunities to enhance hand hygiene programs in resource-limited health care settings where duty of care and practices lag behind those of highly resourced health care settings that have had time to normalize patient safety. Interventions to improve hand hygiene need to include improved access to hand hygiene solutions despite infrastructure challenges, along with education on disease transmission and the role of the environment in HCAI acquisition.

Our framework illustrates that merely addressing knowledge will not overcome the influence of compliance based around

self-protection. A behavioral theory-based intervention may be required to effectively address this major barrier to good compliance through a focus on HCWs' duty of care to their patients and a concurrent simple educational message for family caregivers that focuses on performing hand hygiene before touching patients.

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