

Analyzing the Dynamics of Stakeholder Awareness, Feedback, and Perceived Laboratory Compliance in Health Sciences

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ABSTRACT:

Compliance with the requirements of the current Nursing Curriculum for Science and Skills Laboratories is significant to the quality of teaching-learning experience to develop competencies in various simulated healthcare settings. This study evaluated the dynamics of stakeholders' awareness, perceptions, and feedback regarding the laboratory compliance of the College of Health Sciences at Camarines Sur Polytechnic Colleges, Nabua, Camarines Sur, in alignment with CHED Memorandum Order (CMO) No. 15, series of 2017. Employing a quantitative, descriptive-correlational design, the researcher surveyed nursing students, and faculty, selected through stratified random sampling, and administrators, and laboratory staff through total enumeration. Analysis of the validated four-point Likert scale questionnaire and CMO guidelines revealed high levels of both stakeholder awareness (Average Weighted Mean [AWM] = 3.47) and perceived compliance (AWM = 3.47), with the highest marks given to visible safety measures like ventilation and fire safety. However, scores were significantly lower regarding physical space limitations (Weighted Mean [WM] = 3.22) and consumable resource availability (WM = 2.90). Statistically, a significant positive relationship was established between stakeholder awareness and compliance perceptions ($t\text{-test} = 4.43, p < 0.001$), while Welch's test confirmed significant variations in feedback across different stakeholder groups ($F = 17.9, p < 0.001$). Ultimately, while foundational safety standards are successfully met, persistent spatial and resource limitations highlight the need for targeted infrastructure upgrades, systematic inventory tracking, group-specific consultation channels, and the integration of virtual laboratory tools to support a comprehensive five-year compliance strategic plan.

Keywords: AI-driven marketing; digital real estate; Bangalore; residential housing; market dynamics.

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Introduction:

Globally competent nurses emerge from a foundation of quality education that integrates

theoretical learning with simulated and hands-on experiences starting in their formative years. These practice-based opportunities enrich a

student's knowledge, skills, and attitudes, allowing them to gain lifelong expertise during clinical exposures in hospitals, clinics, or community settings. Critically, these essential competencies are also developed within school-based science and skills laboratories, which provide a controlled environment where students can master psychomotor skills and techniques before engaging in direct patient care.

The standard for these laboratories has evolved globally over more than a century, transitioning from the simple models used in the late 1800s to the high-fidelity simulation and dedicated demonstration rooms employed today (Singleton, 2020). While international bodies like the United Kingdom's Nursing and Midwifery Council (2024) and the United States National Council of State Boards of Nursing (2024) set rigorous simulation standards, regulatory oversight in the Philippines is managed primarily by the Commission on Higher Education (CHED, 2024).

Moreover, CHED (2024) dictates the primary base for laboratory compliance through its Memorandum Orders, most recently CMO 15, s. of 2017, which provides the current standards, guidelines, and policies for the Bachelor of Science in Nursing (BSN) Program.

Within this regulatory framework, the College of Health Sciences (CHS) of Camarines Sur Polytechnic Colleges (CSPC) has maintained Level IV re-accreditation status for its BSN program under the Accrediting Agency of Chartered Colleges and Universities in the Philippines (MICT-Web Development Unit, 2022). To preserve this high standing and

improve its overall outcomes, this study aimed to explore the dynamics of their stakeholders' regulatory requirement awareness, perceptions of laboratory compliance and feedback. By gathering feedback from students, faculty, staff, and administrators, the study sought to identify specific areas where the laboratories may fall short of the BSN program requirements and to understand how their feedback is influenced by the relationship of their awareness and their perception of compliance.

The insights gained from this study is aimed to ultimately improve the strategies to achieve enhanced laboratory compliance and the overall outcomes for the students and other stakeholders of the College of Health Sciences.

Methodology:

This study employed a quantitative, descriptive-correlational design at the College of Health Sciences, Camarines Sur Polytechnic Colleges. Participants included BSN students (Levels II–IV) and faculty selected via Slovin's formula and stratified random sampling, alongside administrators and laboratory staff selected through total enumeration. Data were gathered using a validated, self-administered four-point Likert scale questionnaire, supplemented by a documentary analysis of CHED Memorandum Order (CMO) 15 s. 2017.

Statistical treatments included weighted means to assess awareness and compliance levels, a t-test to examine the relationship between awareness and perceptions of compliance, and Welch's test to analyze feedback variances among the different stakeholder groups.

Scale	Scale Interval	Verbal Interpretations
4	3.50–4.00	Highly Aware/ Fully Compliant/ Strongly Agree
3	2.50–3.49	Aware/ Compliant/ Agree
2	1.50–2.49	Moderately Aware/ Partially Compliant/ Disagree
1	1.00–1.49	Not at All/ Not Compliant/ Strongly Disagree

Results:**Stakeholders' Perceptions of Laboratory Compliance in the College of Health Sciences,
Camarines Sur Polytechnic Colleges, Nabua, Camarines Sur****Table 1. Stakeholders' Awareness of the Laboratory Requirements as Mandated by the CMO 15
s. 2017**

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. The current standards outlined in Philippine Presidential Decree 856 (Code of Sanitation) and RA 6541 (The National Building Code) should be followed by laboratories.	3.40	Aware	20
2. The recommended and required equipment is listed in each course requirement as per CMO	3.35	Aware	23
3. A system for the identification should be observed for laboratory supplies, equipment, and models.	3.55	Highly Aware	7
4. The science laboratory classroom must accommodate a maximum of twenty (20) students.	3.17	Aware	25
5. At least one (1) fire extinguisher should be placed in each science laboratory/skills laboratory in nursing outside its door and a record of expiry date and refill must be attached to it.	3.61	Highly Aware	2.5
6. The laboratory should have at least two (2) doors serving as the entrance and the exit.	3.50	Highly Aware	11
7. Rooms should be designated as separate laboratories for Anatomy and Physiology, Chemistry, Physics, and Microbiology and Parasitology.	3.60	Highly Aware	4
8. Safety and emergency care facilities/amenities shall be available and must be equipped within laboratory rooms.	3.61	Highly Aware	2.5
9. It must be conducive to practice learning and demonstration, which must have a well-ventilated and well-lighted environment.	3.63	Highly Aware	1
10. It must have at least 8 meters by 14 meters or 112 square meters area allocated for practice and demonstration.	3.24	Aware	24
11. It simulates the hospital setting (major areas) which is furnished with the basic equipment, instruments, and supplies, which aids in the improvement of the skills in performing procedures in nursing.	3.54	Highly Aware	8.5
12. A maximum of forty (40) students can be accommodated in an amphitheater style room for demonstration with lavatory supplied with running water.	3.45	Aware	15
13. There is a practice space for return demonstration where there is one (1) bed to two (2) students at any given moment, or the bed to practicing student ratio is 1:2.	3.38	Aware	22
14. There should be a basic demonstration model, such as a Birthing Model.	3.54	Highly Aware	8.5
15. There should be a basic demonstration model, such as the Newborn Model.	3.58	Highly Aware	5

16. There should be an Adult-bisexual-model for basic demonstration of Basic Life Support.	3.47	Aware	13
17. There should be an Adult-bisexual-model for basic demonstration of Tracheostomy Care.	3.42	Aware	19
18. There should be an Adult-bisexual-model for basic demonstration of Colostomy Care.	3.39	Aware	21
19. There should be an Adult-bisexual-model for basic demonstration of Catheterization.	3.44	Aware	16.5
20. There should be an Adult-bisexual-model for basic demonstration of Enema.	3.43	Aware	18
21. There should be an Adult-bisexual-model for basic demonstration of Parenteral/ Intravenous (IV).	3.46	Aware	14
22. The demonstration models should have a ratio to practicing students equivalent to 1:10 (1 demonstration model to 10 students), to facilitate learning.	3.49	Aware	12
23. There should be equipment for Electrocardiogram (ECG) monitoring demonstration.	3.44	Aware	16.5
24. There should be equipment such as Suction Apparatus.	3.56	Highly Aware	6
25. Establishing Virtual Skills Laboratory for Higher Education Institutions are strongly encouraged in order to enhance and augment the achievement of learning objectives prior to actual hands-on experience.	3.52	Highly Aware	10
Average Weighted Mean	3.47	Aware	

This section presents the stakeholders' awareness of the laboratory requirements as depicted in Table 1 which revealed that stakeholders possess a strong foundational understanding of mandated laboratory requirements, evidenced by an overall Average Weighted Mean of 3.47 ("Aware"), which successfully establishes the essential groundwork necessary for achieving high institutional compliance with CMO 15 s. 2017. The most prominent pattern in the data indicates that awareness is highest regarding visible environmental and safety standards, such

as ventilation (WM = 3.63), followed by safety and emergency amenities (WM = 3.61), and availability of fire extinguisher (WM = 3.61), these factors are critical in ensuring a safe and effective learning environment, highlighting the importance stakeholders place on practical learning conditions. Whereas the lowest relative knowledge exists for technical metrics like specific classroom capacities (WM = 3.17) and exact spatial dimensions (WM = 3.24) signifying that there may be slight gaps in understanding or implementation in some areas.

Table 2. Perceptions of Various Stakeholders on the Current State of Laboratory Compliance of the College of Health Sciences with CMO 15 s. 2017

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. The current standards outlined in Philippine Presidential Decree 856 (Code of Sanitation) and RA 6541 (The National Building Code) should be followed by laboratories.	3.41	Compliant	10
2. The recommended and required equipment is listed in each course requirement as per CMO	3.35	Compliant	15.5
3. A system for the identification should be observed for laboratory supplies, equipment, and models.	3.44	Compliant	6.5

4. The science laboratory classroom must accommodate a maximum of twenty (20) students.	3.22	Compliant	25
5. At least one (1) fire extinguisher should be placed in each science laboratory/skills laboratory in nursing outside its door and a record of expiry date and refill must be attached to it.	3.50	Fully Compliant	1
6. The laboratory should have at least two (2) doors serving as the entrance and the exit.	3.37	Compliant	14
7. Rooms should be designated as separate laboratories for Anatomy and Physiology, Chemistry, Physics, and Microbiology and Parasitology.	3.45	Compliant	3.5
8. Safety and emergency care facilities/amenities shall be available and must be equipped within laboratory rooms.	3.45	Compliant	3.5
9. It must be conducive to practice learning and demonstration, which must have a well-ventilated and well-lighted environment.	3.43	Compliant	8.5
10. It must have at least 8 meters by 14 meters or 112 square meters area allocated for practice and demonstration.	3.29	Compliant	22.5
11. It simulates the hospital setting (major areas) which is furnished with the basic equipment, instruments, and supplies, which aids in the improvement of the skills in performing procedures in nursing.	3.39	Compliant	12
12. A maximum of forty (40) students can be accommodated in an amphitheater style room for demonstration with lavatory supplied with running water.	3.31	Compliant	20
13. There is a practice space for return demonstration where there is one (1) bed to two (2) students at any given moment, or the bed to practicing student ratio is 1:2.	3.33	Compliant	18.5
14. There should be a basic demonstration model, such as a Birthing Model.	3.44	Compliant	6.5
15. There should be a basic demonstration model, such as the Newborn Model.	3.45	Compliant	3.5
16. There should be an Adult-bisexual-model for basic demonstration of Basic Life Support.	3.40	Compliant	11
17. There should be an Adult-bisexual-model for basic demonstration of Tracheostomy Care.	3.33	Compliant	18.5
18. There should be an Adult-bisexual-model for basic demonstration of Colostomy Care.	3.27	Compliant	24
19. There should be an Adult-bisexual-model for basic demonstration of Catheterization.	3.34	Compliant	17
20. There should be an Adult-bisexual-model for basic demonstration of Enema.	3.30	Compliant	21
21. There should be an Adult-bisexual-model for basic demonstration of Parenteral/ Intravenous (IV).	3.38	Compliant	13
22. The demonstration models should have a ratio to practicing students equivalent to 1:10 (1 demonstration model to 10 students), to facilitate learning.	3.43	Compliant	8.5
23. There should be equipment for Electrocardiogram (ECG) monitoring demonstration.	3.29	Compliant	22.5
24. There should be equipment such as Suction Apparatus.	3.45	Compliant	3.5

25. Establishing Virtual Skills Laboratory for Higher Education Institutions are strongly encouraged in order to enhance and augment the achievement of learning objectives prior to actual hands-on experience.	3.35	Compliant	15.5
Average Weighted Mean	3.47	Compliant	

This section presented the perceptions of various stakeholders on the current state of laboratory compliance of the College of Health Sciences with CMO 15 s. 2017 as reflected in Table 2 which reveals that stakeholders generally perceive the College of Health Sciences' laboratories as meeting mandated standards, supported by an overall Average Weighted Mean of 3.47, which is verbally interpreted as "Compliant." A clear pattern emerges showing that stakeholders perceive the highest level of adherence in visible safety and core infrastructure requirements, with the indicator for fire extinguisher availability ranking first (WM = 3.50; Fully Compliant), while perception of compliance is lowest regarding specific, measurable constraints such as the

maximum accommodation of twenty students per classroom (WM = 3.22) and followed by the indicator on the exact spatial dimensions (WM = 3.29). This significant divergence underscores that while basic safety protocols are seen as firmly in place, stakeholders perceive gaps in meeting prescriptive physical space and capacity metrics. This finding shows that current facility limitations or high student numbers may be impacting the perceived compliance of operational logistics; further suggesting that the institution should move beyond general safety to address these specific spatial and ratio requirements if it aims to achieve a universal perception of Full Compliance.

Table 3. Stakeholders' Feedback on the Compliance of the College of Health Sciences on the Specific Areas of Laboratory Facilities

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. There are sufficient quantities of necessary laboratory equipment available for use.	2.99	Agree	13
2. All laboratory equipment is functional and in good working condition.	3.03	Agree	12
3. The laboratory has adequate safety measures and emergency protocols in place.	3.39	Agree	2.5
4. The laboratory space is adequate for the number of students using it.	2.90	Agree	14.5
5. There are adequate resources (e.g., chemicals, specimens) available for laboratory activities.	2.90	Agree	14.5
6. Laboratory schedules are well-managed to avoid overcrowding and ensure compliance.	3.10	Agree	11
7. Waste disposal procedures in the laboratory comply with CHED regulations.	3.41	Agree	1
8. The laboratory has adequate ventilation and lighting as per CHED standards.	3.31	Agree	6.5
9. Laboratory manuals and instructional materials comply with CHED guidelines.	3.36	Agree	4
10. Regular maintenance and calibration of laboratory equipment are performed as required by CHED.	3.33	Agree	5

11.The laboratory facilities are conducive to effective learning and simulation activities.	3.30	Agree	8
12.The laboratory has adequate storage for equipment and materials.	3.25	Agree	10
13.The laboratory layout facilitates efficient workflow and safety.	3.26	Agree	9
14.Stakeholders have access to technical support for laboratory equipment issues.	3.31	Agree	6.5
15.The laboratory complies with all relevant health and safety regulations standards.	3.39	Agree	2.5
Average Weighted Mean	3.22	Agree	

Table 3 demonstrates that stakeholders generally affirm compliance across specific laboratory facility areas, supported by an Average Weighted Mean of 3.22, verbally interpreted as "Agree." A distinctive pattern in the data indicates that stakeholders provide the strongest positive feedback on procedural and safety-oriented elements, with waste disposal compliance ranking first (WM = 3.41), closely followed by both health standards (WM = 3.39) and safety measures (WM = 3.39) which tied in the succeeding rank; conversely, feedback is weakest regarding tangible resources and operational capacity, specifically the adequacy of consumable resources (WM = 2.90) and adequacy of laboratory space (WM = 2.90). This significant variance highlights that while stakeholders recognize the college's successful adherence to regulatory safety and administrative protocols, they simultaneously perceive strain related to resource availability and space constraints. Moreover, for the correlational analysis, the null hypothesis (Ho) is rejected having a computed t-test of 4.43 for the Relationship Between the Stakeholders' Awareness of the Laboratory Requirements and the Perceptions of Various Stakeholders on the Current State of Laboratory Compliance of the College of Health Sciences where the p-value is less than 0.001 being less than 0.05 pointedly suggesting that no significant relationship between stakeholders' awareness and their perceptions of laboratory compliance has been established. This suggests that statistically, there is a significant relationship among the stakeholders' awareness of the laboratory requirements as per CMO 15 s. 2017 and their

perceptions of the laboratory's current compliance status. Likewise, the computed Welch's F value is 17.9, and the p-value is less than 0.001. Because the p-value is less than 0.05 significantly, the null hypothesis (Ho) is rejected, which suggests that no significant difference is established in the feedback across stakeholders. This means that there is a significant difference in the feedback provided by various stakeholders regarding the laboratory compliance of the College of Health Sciences with CMO 15 s. 2017.

Discussion:

The findings reveal a structural divergence between high policy-level alignment and ground-level operational strain. While stakeholder awareness and perceived compliance with CMO 15 s. 2017 align at a strong overall Average Weighted Mean of 3.47 ("Aware" and "Compliant"), this consensus is driven by highly visible safety elements like ventilation (WM = 3.63), waste disposal (WM = 3.41), and fire extinguishers (WM = 3.61 for awareness; 3.50 for compliance). In contrast, scores drop to their lowest levels regarding physical and tangible limits, specifically student capacity (WM = 3.17 and 3.22), spatial dimensions (WM = 3.24 and 3.29), and laboratory space, and consumable adequacy (WM = 2.90 for both). This variance indicates that facility constraints and student volume strain physical operations, necessitating a pivot from administrative oversight toward targeted capital investments in space and supplies to achieve full compliance. The results evidently show the dynamics of Awareness, Feedback, and Perceived Laboratory Compliance which implies

that stakeholders who are more aware of the laboratory requirements set by CHED tend to have more accurate or positive perceptions of the current state of laboratory compliance. In other words, an increase in awareness among stakeholders, such as faculty, administrators, and students, about the standards mandated by CMO 15 s. 2017 appears to positively influence their evaluation of the laboratory facilities and compliance. Thus, improving stakeholders' understanding of laboratory requirements could enhance the perceived compliance and overall quality of laboratory facilities. The rejection of the null hypothesis implies that stakeholders, have differing perceptions of the compliance status in different areas of laboratory facilities. These differences could be due to factors such as individual experiences, areas of focus, or specific roles and responsibilities within the institution. This variability in feedback underlines the importance of considering multiple stakeholder views when assessing compliance and identifying areas that require improvement. Therefore, this study emphasizes the importance of gathering comprehensive feedback from all stakeholders to address the diverse needs and expectations in enhancing laboratory facilities and compliance, specifically with the facilities, supplies, and equipment paramount to the laboratory activities being conducted within each science and skills laboratory. Constant feedback from the stakeholders will further improve its compliance to specific laboratory requirements, thus improving its services.

Conclusion:

This study concludes that while stakeholders are generally highly aware of and satisfied with the laboratory safety and emergency standards mandated by CMO 15 s. 2017, critical operational challenges remain regarding physical space limitations and resource adequacy. Although basic compliance in areas like fire safety and ventilation is firmly established, significant gaps persist in meeting prescriptive spatial dimensions, student capacity limits, and consumable availability (such as chemicals and specimens). Furthermore, a significant relationship between stakeholder awareness and positive compliance

perceptions underscores the value of continuous, targeted information campaigns. Because feedback profiles vary significantly among students, faculty, and administrators, the institution must adopt tailored evaluation and consultation mechanisms. Ultimately, addressing these physical and communication gaps through targeted policy recommendations—including infrastructure upgrades, systematic resource management, and the integration of virtual laboratory tools—will provide the framework for a robust five-year strategic plan to achieve full regulatory compliance and elevate the clinical learning experience.

Recommendations:

Based on the findings of the study, the following are recommended:

1. Regular CMO 15 s. 2017 Training: Implement recurring workshops, seminars, and digital campaigns to keep faculty, students, and administrators continuously updated on mandated laboratory standards.
2. Continuous Compliance Assessments: Conduct periodic physical audits and stakeholder feedback surveys to monitor emerging facility concerns and ensure laboratories consistently align with CHED benchmarks.
3. Optimized Resource and Space Management: Deploy a comprehensive inventory tracking system for consumables (chemicals, specimens) and redesign laboratory layouts to better accommodate growing student populations.
4. Targeted Awareness Programs: Integrate regular compliance and safety updates into orientations, department reviews, and the core curriculum to directly foster a positive institutional culture of compliance.
5. Tailored Stakeholder Consultations: Establish dedicated forums and group-specific feedback channels (surveys for students, faculty, and administrators) to address the distinct operational needs of each demographic.
6. Strategic Policy & Infrastructure Upgrades: Modernize physical facilities, increase budget allocations for practical resources, establish

regular equipment maintenance schedules, and introduce a Virtual Skills Laboratory to safely complement hands-on training.

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References

- Camarines Sur Polytechnic Colleges. (2022). College of Health Sciences holds Level IV AACCCUP re-accreditation. CSPC MICT-Web Development Unit. <https://www.cspc.edu.ph>
- Commission on Higher Education. (2024). Commission on Higher Education (CHED) Memorandum Order No. 15, Series of 2017. <https://ched.gov.ph/issuances/>
- Singleton, M. (2020). Flashback Friday – Practice Makes Perfect: The History of Simulation. <https://nursing.virginia.edu/news/flashback-history-of-simulation/>
- National Council of State Boards of Nursing. (2020). NCSBN simulation guidelines for prelicensure nursing programs. <https://www.ncsbn.org/publications/ncsbn-simulation-guidelines-for-prelicensure-nursing-programs>
- Nursing and Midwifery Council. (2023). Standards for pre-registration nursing programmes. <https://www.nmc.org.uk/standards/standards-for-nurses/standards-for-pre-registration-nursing-programmes/>