Form Title

Achievement File – Faculty Members Category

Excellence Award in University Education Development (TAJ)

For more information about the award, its conditions, criteria, and timetable, please visit the following link:

https://taj.iau.edu.sa

Guidelines for completing the current Achievement File

- This form (Achievement File) is a prerequisite to apply for the award.
- The Achievement File must be completed according to the current template and without adding or deleting any parts in the template.
- Only the fields colored in “white” should be completed.
- The number of words should not exceed 500 words “per field” unless indicated otherwise.
- The focus must be on one or a maximum of two practices.
- Certificates and evidence must be collected in a separate file as appendices or attached to the end of the current file. The evidence shall be mentioned in the appropriate fields of this file with a specific number (e.g., write: “see samples of students’ work attached in Appendix 5”).
- The submitted file must be in one language only: Arabic or English.
- Only one of the following font types should be used: Arial or Times New Roman.
- The font size should not exceed 12 points, and the line spacing should not exceed 2 (2 points).
- The “Achievement File” must be submitted in PDF format.
- The file must be complete by the applicant.
- The applicant must choose only one category from the categories specified for the award cycle.
- In conducting the evaluation processes, the Award Committee relies on the conditions and criteria announced for the award cycle.

For inquiries

Please contact the Deanship of Academic Development (Building D27)

Email Address: ded@iau.edu.sa
Phone: 013-333-2877

Award Cycle

Second Year

Category (select one)

Faculty Members Category

Main Applicant Information

Full Name
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Academic Rank
Lecturer
College
College of Applied Medical Sciences
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Information of Other Applicants

How many participants are involved in the current Achievement File?

4 participants

Complete the data below for all participants, and you can add rows as needed.

#	Name	Academic Rank	College	General Specialty	Sub-specialty	Office Phone	Mobile (optional)	E-mail Address
1.	Noorah Alnoaimi	Lecturer	College of Applied medical	Respiratory Care	Respiratory Care	NA		Naalnaimi@iau.edu.sa

			sciences					
2.	Njoud AbuAisah	Lecturer	College of applied medical sciences	Respiratory Care	Respiratory Care	NA		nsabuaisha@iau.edu.sa
3.	Omar Alomar	Lab technician	College of applied medical sciences	Respiratory Care	Respiratory Care	31301		oalomar@iau.edu.sa
4.								
5.								

Pledged

I declare that all information and data in this form are correct, and I have respected the intellectual property rights of all parties.
I agree
I understand that if it was announced that I was the winner of the award, and then the award committee decided to cancel the winning due to incorrect information/data, or forged documents that were discovered later, the cancellation will be announced in the same media through which the winning was announced.
I agree
If I am nominated as a winner, I agree to share my “Achievement File” with the academic community to benefit from my experience through the Deanship of Academic Development at Imam Abdulrahman bin Faisal University while preserving my intellectual property rights.
I agree

Summary of the Educational Practice

Thank you for your interest in participation. Please focus on one or a maximum of two practices.

Write a summary of the practice implemented, its importance, main results, impact, and recommendations for improvement.
(Not to exceed 2000 words)

Summary of practice implemented:

In medical education, the traditional approach of teaching is primarily composed of courses that are taught independently of each other where topics may overlap or might be taught from different aspects. For instance, students may learn about diseases in one course while learning how to assess or treat the disease in other courses. This traditional approach affects the students' learning in many aspects such as fragmentation of knowledge, ambiguity and inability to develop a comprehensive understanding of the covered topic.

The practice that we adopted involved developing a novel course under the title "Integrated Clinical Cases". The purpose of this first of its kind course is to integrate knowledge taught in various courses to create a meaningful comprehensive approach with an emphasis on knowledge linking, application while promoting clinical reasoning. This integration is made feasible by using carefully constructed clinical case scenarios covering multiple objectives assuring proper integration. These case scenarios are coupled with the utilization of high-fidelity simulation as a learning tool to simulate real-life patient encounter. The course was implemented using high fidelity simulation as an educational tool, in replacement of early clinical exposure where students often spend several weeks without actual patient contact or meaningful clinical skills practice.

The importance of integrated clinical cases course:

As mentioned earlier, teaching courses in isolation of each other may have several detrimental effects on learners. Often, information is repeated across the courses over the same topic in a manner that is confusing to the learner. Moreover, the information is often fragmented and are not interlinked properly which further hinders the learner's comprehension. It is important to address that learning several aspects of a topic in different courses in isolation of each other will result in poor understanding as learners may fail to grasp the full clinical picture at their first clinical encounter with the patient which can significantly impact the patient outcome on the long run.

Shoemaker came up with a well-rounded definion of an integrated curriculum that it's " Education that is organized in such a way that it cuts across subject matter lines, bringing together various aspects of the curriculum into a meaningful association to focus upon broad areas of study ". Thus, we can infer that Integration of courses in medical education is an effective solution to the issues mentioned earlier and it is thought to play a major role in bridging the gap between theoretical concepts taught in the class across different courses and with the actual clinical practice at the bedside.

Main results of integrated clinical cases course:

As this project is currently ongoing, it may be too early to report any results at the moment. However, the positive impact of integration in medical education has been confirmed in the literature. A study conducted on undergraduate medical students in india showed that students viewed integration positively as it aided in developing a comprehensive understanding of the topic with less fragmentation of knowledge (Neeli et al, 2019). Another study showed that students who underwent integrated teaching performed significantly better in post tests in comparison to students who was taught by the traditional approach (Shah and Jain, 2016). To our knowledge the practice we are currently implemented is the first of its kind in respiratory care programs across the region.

Impact of integrated clinical cases course:

The ultimate goal of the implemented practice is to improve the students' performance at the bedside, resulting in a better patient outcome by promoting advanced set of skills such as critical thinking, clinical reasoning and data analysis. This is achieved by several approaches within the practice. As mentioned earlier, literature shows that the students learn better in integrated courses.

In addition, the integrated clinical cases course promotes active learning, where students are segregated into small groups and are responsible of their own learning with the help of facilitators in class if needed. This approach aids in the development of many skills in the students such as critical thinking, teamwork, leadership, communication, conflict management and research skills. It is well known that active learning enhances understanding, motivation and retention of knowledge.

Recommendations for improvement:

Despite the well documented benefits of integration in medical education. Several challenges might be faced during the implementation phase. For instance, students may not be interested in active learning as they may find this approach intimidating. This issue was addressed earlier at the beginning of the course where the instructors assured the students that this is a safe learning environment and students is encouraged to participate even if they are unsure or not confident. In addition, the close monitoring of the group discussions and addressing any issues in any group promptly ensured an environment where students feel respected and appreciated. Another challenge might be the novelty of this practice where some faculty members may not feel well-versed with the approach or

tools utilized. To address this issue, proper orientation, training and multiple trial runs were conducted prior to the implementation of this practice.

What are the novelty and innovation aspects of this practice in general?

Up to our knowledge, it is the first time that the implementation of course integration is adopted in any respiratory care program in Saudi Arabia which confirms that this approach is novel and innovative.

The novelty and innovation of the integrated clinical cases course lies in the fact that it is based on carefully designed clinical cases that assures integration of several topics into a comprehensive case scenario. Several cases with varying learning objectives are incorporated in this course covering various aspects of patient care that is aligned to previous or ongoing courses that the students completed. This approach assures ensures retention of knowledge with real-time application of clinical concepts into the patient's case scenario.

Moreover, the integrated clinical cases course promotes an active learning environment. The students are allocated into small discussion groups and weekly objectives are given to them and students are responsible to search, discuss and debate information with the guidance, if needed, by facilitators in the classroom. This approach instills the sense of responsibility in the students as they are in charge of their learning process which further adds to the novelty of the integrated clinical cases course.

Additionally, this course incorporates high-fidelity simulation as a teaching tool where a state of the art mannequin is used to engage the students in a real-life case scenario. The students are placed at the center of patient care where they are allowed to gather information, assess and treat the patient accordingly, guaranteeing a holistic approach to patient care. Utilization of such sophisticated technology adds more strength and novelty to the implemented practice as knowledge is better conveyed in the way it will be utilized.

The novelty in this course further extends to the assessment methods where 15% of the course grade is assessing values and soft skills, such as teamwork, collaboration, communication skills and many other values that may not be easily addressed or assessed explicitly in any other course.

1. Idea

Thank you for your interest in participation. Please focus on one or a maximum of two practices.

Problem(s)

Horizontal and vertical integration using clinical simulation may help to address several challenges that students may face during their academic journey:

1- Fragmented learning: Separating courses might result in fragmented learning experiences in which students do not understand concepts as a whole. They may struggle to integrate knowledge from many courses to solve complex problems or comprehend broader concepts.
2- Limited integration of practical skills: Applied medical sciences often require comprehensive hands-on skills, such as therapeutic procedures, and diagnostic methods. Students may have fewer opportunities to integrate theoretical knowledge with practical application if these abilities are taught separately, which may result in a decrease in their level of proficiency in situations that are more representative of the real world.
3- Difficulty in address complex problems: The ability of students to solve difficult problems that require knowledge from multiple disciplines may be hindered if courses are taught in isolation from one another.

Solution(s)

1- Providing students with a linkage within the courses that are being taught during the same level and at various levels in the future allows them to engage in in-depth learning. This is accomplished by the use of the carefully designed case scenarios that ecnorporates several learning objectives pertaining to a specific theme giving a composite picture with simultaneous clinical demonstration.
2- The course utilizes high fidelity simulation as part of the teaching strategies to allow students to practice several skills learned from several courses and integrated in a specific case scenario simulating real-life situations This approach aids significantly in sharpening their clinical skills and formulate a holistic patient care approach.
3- In a healthcare setting, multidisciplinary approach is necessary to effectively address many medical challenges during patient care. To promote that understanding, integrated clinical cases that was mentioned earlier were carefully designed to promote the aforementioned multidisciplinary approach. Students can recognize linkages between many aspects of care or assessment pertaining to the patients and thus are better able to comprehend the diagnostic and therapeutic significance and how they intersect in a simulated real-world healthcare settings.
4- Improved Assessment and Evaluation: Integrated curriculum frequently includes an emphasis on problem-based learning and critical thinking abilities, which allow students to acquire the skills necessary to apply their knowledge in a variety of clinical settings. By doing so, they are more equipped to respond to new issues and to innovate within their profession.

Applied Strategies (Practices)

Integrated clinical cases refer to scenarios or exercises designed to simulate real-world patient encounters in a clinical setting. These cases are often utilized in the context of medical education and training. These cases provide a thorough learning experience by integrating several parts of medical knowledge, such as anatomy, physiology, pathology, pharmacology, and clinical skills.

Learners are provided with a patient's history, findings from a physical examination,

laboratory results, and diagnostic imaging investigations when they are working through integrated clinical cases. Afterwards, they are tasked with assessing the patient's condition, developing a treatment plan, and managing the case in accordance with the plan. To successfully manage the complexity of patient care, the cases frequently call for skills in critical thinking, problem-solving, and decision-making.

Learners and facilitators then gather for a debriefing session and encourage active participation and reflection followed by open communication and collaboration, to ask questions that are insightful, to solicit multiple perspectives, and to acknowledge the existence of diverse points of view. Participants are urged to consider the choices, actions, and ideas they had while running the simulation and examine the justifications for their decisions, talk about the merits of various approaches, and assess how their actions affected the results of patient care. Facilitators then provide constructive feedback that emphasizes strengths and areas needing growth. Concentrating on providing specific ideas and effective ways to improve performance in upcoming simulations and real-life clinical situations.

Students of the batch are then distributed into groups and provided with a set of clear objectives to discuss amongst themselves and research using specific references provided by the course instructors. Specify the learning objectives and goals for the simulation exercise. This aids in directing the conversation and guarantees that participants comprehend the intended learning outcomes of the event. Group mates encourage each other’s in-depth learning and the development of skills through the facilitation of debates by identifying learning points, discussing lessons learned, and formulate ideas for resolving gaps in knowledge or abilities through the use of this activity.

Students are asked to complete a Self-Assessment survey and are encouraged to engage in self-reflection and self-evaluation of their performance and experience. It is important to encourage individuals to recognize their own capabilities and limitations, establish personal learning objectives, and devise strategies for continuous growth.

Peer Assessment using a checklist is done in which each student is designated to assess one group mate anonymously. Anonymity helps mitigate bias and assures honesty which may result in more direct and helpful criticism, which will ultimately help the recipient develop and get better.
Facilitators are also involved in assessment using a Facilitator Assessment rubric which focuses on how students interact, work together, solve problems, and exhibit honesty, empathy, and respect to each other. Seek out instances that demonstrate leadership, effective communication, and contributions to teamwork.

Pedagogical basis for applied strategies (practices)

An integrated curriculum in applied medical sciences is based on several educational ideas and theories to offer students a well-rounded and thorough learning experience. Key pedagogical foundations include:

• Integrated courses frequently adopt the constructivist approach to learning, focusing on active involvement, problem-solving, and critical thinking. Students are urged to develop their comprehension of ideas by engaging in hands-on activities, inquiry-based learning, and real-world applications. • Contextual learning involves integrated curricula that prioritize learning in the context of clinical practice and real-world events. This method assists students in grasping the significance of their studies in relation to clinical practice and promotes the cultivation of clinical reasoning and decision-making abilities. • Integrated curriculum focuses on students' needs and interests, empowering them to be in control of their learning. Teachers act as facilitators, assisting students in delving into intricate subjects and helping when necessary. • Integrated curricula frequently incorporate a longitudinal approach by revisiting and reinforcing themes and concepts throughout the curriculum to ensure continuity and progression. This continuity helps students build upon prior knowledge and skills, facilitating deeper learning and retention.
College
College of Applied Medical Sciences
Academic Program
Respiratory Care
Academic Year
2023 - 2024
Course Title
Integrated Clinical Cases I
Course Code
RESP 213
Language of instruction
English
Lesson Title(s)
The strategy will be implemented throughout the course
Number of instructors or assistants in teaching the course
5 instructors
Student level (example: Fourth Year)
2nd year
Number of students (Direct beneficiaries)
Females (39 students) Males (33 students)
Participating entities from and outside the university (if any)
N/A
Duration of implementation
Second semester of AY 2023-2024
What are the novelty and innovation aspects of the idea/solution? -If any-
The integration of curriculum in applied medical sciences with the use of simulation brings several novel and innovative aspects to medical education:

1- Interdisciplinary learning involves integrating several disciplines into simulation exercises in practical medical sciences. This multidisciplinary method reflects the intricacy of actual medical practice and aids students in cultivating a thorough comprehension of healthcare.
2- Active learning where simulation encourages active participation, engagement, and problem-solving among students. Instead of passively absorbing information, students are actively involved in scenarios, making decisions, and experiencing the consequences, which promotes deeper learning and retention.
3- By engaging in repeated practice in realistic circumstances, students can achieve mastery of clinical skills and develop confidence in their abilities. Practical experience in a secure setting enables students to improve their skills and acquire the proficiency required for clinical work.
4- Simulation offers instant feedback to students, enabling them to reflect on their performance and make improvements. Faculty and peers can offer insightful feedback derived on observations made during simulation sessions, assisting students in pinpointing areas for improvement and progress.
5- Simulation can include ethical concerns and professional challenges often faced in healthcare environments, promoting ethical and professional development. By interacting with these scenarios, students can enhance their critical thinking skills, ethical reasoning, and professionalism, equipping them to handle intricate problems in their future professions.
6- Assessment and evaluation are enhanced by combining curriculum with simulation allows for thorough evaluation of students' knowledge, abilities, and competencies. Evaluating performance in simulation exercises can be done using objective criteria, which offers significant data for assessing student progress and program evaluation.
7- Advancements in simulation technology are providing new prospects for research and innovation in medical education. Faculty can investigate innovative simulation techniques, create tailored scenarios, and study the efficacy of simulation-based learning methods.

The integration of curriculum in applied medical sciences with simulation improves the educational experience by offering a dynamic, interactive, and immersive learning environment that readies students for the complexities of clinical practice.

2. Academic and professional qualifications

Have you ever attended training programs on active learning? (Yes or No)
If yes, please write the title and duration for each training program, and then attach the relevant certificates/evidence (maximum of 10 training programs only)

Refer to appendix 1 for relevant certificates
Omar Alomar's training programs:
Introduction to simulation-based education workshop - King Saud bin Abdulaziz University for Health Sciences, Al Ahsa 12/9/2022

Bashayer Alyami's training programs:
Peer Observation of Teaching 8/2/2024 (2 hours)
Values in a Global World 24/10/2023 (2 hours)
AI Tools in Literature Review 19/9/2023 (1 hour)
Generative Artificial Intelligence: A Game Changer in Higher Education 22/8/2023 (2 hours)

Noura Alnaimi's training Programs:
Artificial intelligence in teaching 28/11/2023 (2 hours)
Generative Artificial Intelligence: A Game changer in Higher Education 22/8/23 (2 hours)
The importance of artificial intelligence: Examining it's role in teaching and learning 20/8/23 (2 hours)
Learning through activities 22/8/23 (2 hours)

Njoud Abuaisha's training programs:
The importance of artificial intelligence: Examining it's role in teaching and learning 20/8/2023 (2 hours)
Generative Artificial Intelligence: A Game changer in Higher Education 22/8/2023 (2 hours)
Learning through activities 22/8/2023 (2 hours)

What are the resources (scientific and professional) that benefited/informed the active learning practices you have implemented (maximum of 10 resources)?

- National League for Nursing. (2005). Simulation Design Scale© (Student Version).
- National League for Nursing. (2005). *Student Satisfaction and Self-confidence in Learning ©.*
- National League for Nursing (2023). *Guided debriefing tool.*
- Onward and Upward: Introducing the Healthcare Simulation Standards of Best Practice, INACSL Standards Committee, Clinical Simulation in Nursing Volume 58, September 2021, Pages 1-4
- Hybrid Simulation In Healthcare: New Concepts And New Tools, Sally C. Brailsford, Proceedings of the 2015 Winter Simulation Conference L. Yilmaz, W. K V. Chan, I. Moon, T. M. K. Roeder, C. Macal, and M. D. Rossetti, eds.
- Comprehensive Healthcare Simulation: Implementing Best Practices in Standardized Patient Methodology, Gayle Gliva-McConvey Catherine F. Nicholas • Lou Clark, Springer Nature Switzerland AG 2020
- Essential Simulation in Clinical Education, Kirsty Forrest, Judy McKimm, Simon Edgar,1st edition 2013.
- Manual of Simulation in Healthcare 2nd Edited by Richard H. Riley, oxford university press
- https://simulationcanada.ca/resources/scenario-exchange/
- https://www.gaumard.com/advanced-hal-s3201

3. Implementation

Identify the Graduate Attributes intended to be enhanced.

A number of practices have been implemented as part of the Integrated Clinical Cases course in order to improve the following IAU graduates' attributes:

1. Commitment to values, ethics and responsibility
2. Knowledge application and lifelong learning
3. Active personality skills
4. Problem-solving and decision-making abilities
5. Digital and information technology abilities

Identify the intended learning outcomes, and the type of each learning outcome (knowledge, skills, values).

- **Knowledge:**
  1.1 Gather in-depth knowledge about the case.
- **Skills:**
  2.1 Evaluate the patient condition from the provided information.
  2.2 Come with a treatment plan from the provided information.
- **Values:**
  3.1 Display professionalism, teamwork, and work ethics.

What teaching methods and activities were used (within practice/strategy) to achieve each learning outcome?

- **K1.1:**
  - Case scenarios are designed for each simulation session to include various objectives that are driven from different courses related to the respiratory field. Simulation provides an active learning experience where students can actively engage with a sophisticated life-like manikin. Instead of passively receiving information, students can make decisions and observe the outcomes immediately, resembling a realistic patient environment. Through this hands-on approach, the student can gain a deeper understanding of the obtained knowledge and better connect it to what he/she already knows and what they intend to learn.
  - Group discussion where students given the opportunity to share their unique perspectives, experiences, and insights on a particular objective which is given by the instructor on a weekly basis. This exchange of ideas allows students to gain different viewpoints and broaden their understanding.
  - Self-learning is a main teaching methods used during the class time. With the instructor primarily acting as a facilitator of the learning experience and establishing a supportive environment. By guiding students in their learning journey rather than simply delivering information. Will help to empower

students to become active, independent, and lifelong learners, contributing to their academic success and personal development.

- **S (2.1, 2.2):**
  - During the simulation session, complex problems are often presented that require critical thinking and problem-solving abilities. Students need to analyze information, make decisions, and evaluate the consequences of their actions. This process encourages higher-order thinking skills and helps students develop their analytical and decision-making abilities.
- **V 3.1:**
  - Engaging in group discussions allows students to refine their communication skills. Specially that each group members were randomly selected. Through the group discussion they learn how to articulate their thoughts effectively, listen actively to others, and respond constructively.
  - Simulations involve collaborative learning, where students work together in teams to achieve a common goal. This promotes communication, teamwork, and the exchange of ideas. Students can learn from each other, share perspectives, and develop their interpersonal and communication skills.

What educational technologies are used (within practice/strategy)? -If any-

- High fidelity simulation used as an educational technology enhance learning by providing realistic and immersive experiences. By using its potentials and features to integrate different objectives from different courses, we offered an opportunity for our students to practice skills, make decisions, and gain confidence in a safe environment, ultimately improving their performance in real-world scenarios.
- Blackboard is used to distribute course materials, manage students' grades, post announcements, and using the email integration feature to enable ongoing communication and engagement.
- During the discussion session students are allowed and encouraged to use their smart devices to lookup information. In order to promotes active learning by encouraging them to take an active role in finding information and contributing to the discussion.

What are the novelty and innovation aspects of the teaching methods and activities? -If any-

This is the first time a whole course based on integrated clinical cases is being introduced. Using integrated clinical cases as a teaching method to integrate the students knowledge and skills from various courses and apply it to real-life patient scenarios. These cases typically involve presenting students with a patient's medical history, physical examination findings, and relevant diagnostic test results. Students are then tasked with analyzing the information, identifying problems, and developing appropriate management plans.

4. Results and verification

What are the most significant results achieved through current practice?

As the project is currently ongoing, it may be too early to report results at the moment. However, unofficial feedback gathered from the students is positive and confirms that the students are feeling more engaged. They have also confirmed that their understanding of clinical concepts was better. A number of students also stressed that the integration allowed them to see the “bigger picture” when applying different clinical concepts.

Moreover, several faculty members and the chairperson of the respiratory care program were invited to attend several sessions of the course and positive feedback has also been received. The most common comments received was that the course design and instruction methods effectively integrates the knowledge from the several courses. The utilization of high fidelity simulation has also been positively viewed. Several faculty members liked how the simulation added further reality to the information that the students learn allowing them to develop a sense of real-life patient encounter

What methods are used to assess the effectiveness of the practice?

The practice is being assessed by the following assessment methods:

1. Student self-assessment: since the students are at the center of this newly designed approach, Their input is collected by the requirement of them to fill a self assessment form weekly after class. This tool allows for assessment of students’ perception and feelings of this approach. And filling it weekly allows the student to judge their improvement or change on a regular basis.

2. Peer assessment: several members of senior faculty, the vice dean of academic affairs and an external faculty members were invited to attend several sessions of the course and their feedback was documented and taken into consideration to further fine-tune this newly implemented practice.

3. Subject matter expert assessment: The respiratory care department officially invited a subject matter expert to assess and provide feedback about the practice implemented, specifically on the use of clinical simulation as an educational tool in this practice.

What are the novelty and innovation aspects of assessment and evaluation methods? -If any-

Apart from scientific knowledge that will be assessed via written examinations, values assessment are central in this course. Since this novel course is highly based on group discussions and team learning, the facilitator evaluation during the group discussion is solely centered on assessing values. Where values such as communication, teamwork, leadership, participation and responsibility are carefully assessed using a specific rubric. The novelty of assessment in this practice lies in the focus of assessing values that might not be explicitely or easily assessed in any other course.

5. Review and Improvement
What are the review and improvement procedures implemented to enhance the practice?
During the early phase of conducting the integrated clinical cases cource, internal and external faculty members were invited to attend. Their feedback to enhance the practice is obtained and put into consideration for future implementation.
Have you conducted a peer observation -and/or- peer evaluation to improve the practice? (Yes or No) If yes, please attach evidence (maximum of 10 documents)
Yes. • Dr. Mansour Al-Asmri (Director of Clinical Skills and Simulation in Eastern Health Cluster) was invited to attend. His experience and insightful ideas contributed to the planning and improvement of the next ICC courses. • Dr. Shoug Alhumoud (Chairman of Respiratory Care department) is attending ICC classes on a regular basis and periodically conducts peer observation. (**See Appendix 2 for proof of invitation letter)**
Have you measured student satisfaction with the practice? (Yes or No) If yes, please attach the relevant evidence (maximum of 10 documents)
Yes. • Students are required to submit a self-assessment form weekly. Which focuses on two major domains: satisfaction with current learning and self-confidence in learning. **(See Appendix 3 for samples of student self-assessment)**
Have you conducted action research on the practice? (Yes or No) If yes, please attach the relevant evidence (maximum of 10 documents)
Yes, it is action research to be conducted, approved by the IRB (IRB-2024-03-028), which will assess the effect of high-fidelity simulation on Respiratory Care students' knowledge, level of confidence, and learning experience as a need to continuously evaluate and improve the teaching strategies provided. Using a validated questionnaire, the learning experience and level of confidence of the students will be evaluated following the simulation. The effect on knowledge will be assessed by comparing their performance in the subjects aligned to the simulation with their performance on exams from the previous semester, as well as to the performance of other students who completed the topics without simulation in the previous semester. **(see appendix 4 for IRB approval letter)**
Are there any "strong-relevant" research or studies that can be relied upon to improve this practice? (Yes or No) If yes, please write the titles of the research and studies using APA referencing style (maximum of 10 documents)
• Husain, M., Khan, S., & Badyal, D. (2020, September). Integration in Medical Education. Indian Pediatrics, 57(9), 842–847. • Neeli, D., Prasad, U., Atla, B., Kukkala, S. S. S., Konuku, V. B. S., & Mohammad, A. (2019, June 28). Integrated teaching in medical education: undergraduate

student's perception. International Journal of Research in Medical Sciences, 7(7), 2813.
- Dulloo, P., Vedi, N., & Gandotra, A. (2017). Impact of horizontal and vertical integration: Learning and perception in first-year medical students. National Journal of Physiology, Pharmacy and Pharmacology, 7(11), 1.
- Osadchii, O.E. (2020). Integrated curriculum: a contemporary innovation strategy in medical education.
- Kulasegaram, K.M., Martimianakis, M.A., Mylopoulos, M., Whitehead, C.R., & Woods, N.N. (2013). Cognition Before Curriculum: Rethinking the Integration of Basic Science and Clinical Learning. Academic Medicine, 88, 1578–1585.
- Yamani, N., & Rahimi, M. (2016). The Core Curriculum and Integration in Medical Education. Research and Development in Medical Education, 5, 50-54.
- Olson, J.F., Rinehart, J., Spiegel, J.J., & Al-Nakkash, L. (2019). Student perception on the integration of simulation experiences into human physiology curricula. Advances in physiology education, 43 3, 332-338.
- Eason, M.P. (2013). The use of simulation in teaching the basic sciences. Current Opinion in Anaesthesiology, 26, 721–725.
- Wijnen-Meijer, M., van den Broek, S., Koens, F., & ten Cate, O. (2020, December). Vertical integration in medical education: the broader perspective. BMC Medical Education, 20(1).

What are the novelty and innovation aspects of review and improvement procedures? -If any-

Peer evaluation by internal faculty members from the same department has been done sporadically. We intend to invite external faculty members of the same field of practice from different universities to share their insights and contribute to our ongoing improvement process with their own areas of expertise, which helps to ensure that high academic standards are maintained, and teaching and research are advanced. Furthermore, periodical follow-up on our progress is being shared by the team during departmental meetings for feedback on the work being done. We plan to collaborate with external experts in the field with clinical experiences to further our work with a comprehensive perspective.

6. Impact

What is the impact of the current practice?

The impact of the integrated clinical cases course includes the following:

- Limiting fragmentation of knowledge by assimilation of different aspects of a topic into a comprehensive, integrated approach
- Eliminating repetition of information which enhances students' comprehension
- Conveying knowledge in a holistic manner relevant to patient care.
- Enhancing clinical reasoning and critical thinking which ultimately enhances the patient's outcome at the bedside

• Aiding in bridging the gap between theoretical concepts and actual clinical practice in a healthcare setting • Using high-fidelity simulation enhance students' confidence and performance at the bedside. • Using high-fidelity simulation promotes aquision of several clinical skills by allowing students to practice repetitively until deemed competent. • Active learning plays a major role in improving the students' sense of responsibity and increases knowledge retention • Group discussions allow the students to learn various skills such as teamwork, collaboration, participation and many more\ • Creating an environment where values are practiced and enhanced
Have you shared the practice with the academic community (colleagues, department, college, university, other)? (Yes or No) If yes, please explain the methods through which you have shared with the academic community, attaching relevant evidence (maximum of 10 documents)
No.
Would you like to participate in the "Distinguished Educational Practices Forum" at the annual University Teaching and Learning Exhibition TLEX24? (Yes or No)
Yes
Attach some outstanding "authentic" examples of students' work achieved from the current practice, if any. Please write a brief description of each work, and attach the relevant evidence as appendices (maximum of 10 files)
An example of student's work in summarizing information gathered in group discussions is attached in **appendix 5**
Attach videos and/or photos that reflect the practice or work of students, if any. Please write a brief description of each work, and attach the relevant evidence as appendices (maximum of 10 files. Videos shall be attached as links –"unlisted" YouTube links are preferred).
Attached are several images taken during the classroom time for the simulation part and group discussion part of the course in **Appendix 6**

7. Evidence/Attachments
You can attach the appendices (evidence) on the next pages.

Appendix 1 :Relevant certificates for training programs

1.Ms. Bashayer Alyami certificates:

Participation Certificate

Information Learning and Research Commons, Directorate of Library Affairs is pleased to award the certificate to

Ms. Bashayer Alyami

for her participation in the training workshop on

Artificial Intelligence Tools in Literature Review

held on 19-09-2023

Dr. Mirza Muhammad Naseer
Head, ILRC

SCAN IT TO VERIFY AT HTTPS://LIBRARY.IAU.EDU.SA

CERTIFICATE OF TRAINING PROGRAM ATTENDANCE

The Deanship of Academic Development at Imam Abdulrahman bin Faisal University Certifies that

Bashayer H. Alyami

Has Attended an Online Training Session (for two hours), Entitled:

Generative Artificial Intelligence: A Game changer in Higher Education

On 22Aug 2023

Dean, Deanship of Academic Development

Dr. Mohammed S. Alkathiri

For validation/inquiries about this certificate, you may contact us at: dled@iau.edu.sa

جامعة الإمام عبدالرحمن بن فيصل
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY
عمادة تطوير التعليم الجامعي
Deanship of Academic Development

CERTIFICATE OF TRAINING PROGRAM ATTENDANCE

The Deanship of Academic Development at Imam Abdulrahman bin Faisal University Certifies that

Bashayer H. Alyami

Has Attended an Online Training Session (for two hours), Entitled:

Values in a Global World

On 24 Oct 2023

Dean, Deanship of Academic Development

Dr. Mohammed S. Alkathiri

For validation/inquiries about this certificate, you may contact us at: ded@iau.edu.sa :للتأكد من صحة هذه الشهادة يمكنكم التواصل على

جامعة الإمام عبدالرحمن بن فيصل
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY
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2. Mr.Omar Alomar

certificate

Kingdom of Saudi Arabia
Ministry of National Guard Health Affairs
King Saud bin Abdulaziz University for Health Sciences
Deanship of Postgraduate Education, Alahsa

CERTIFICATE
OF ATTENDANCE

THIS IS TO CERTIFY THAT

Mr. Omar Al Omar

HAS ATTENDED THE ACTIVITY ENTITLED:

Introduction to Simulation
Based Education
Workshop

At: King Saud bin Abdulaziz University for Health Sciences, Al Ahsa

12 SEP, 2022

Dr. Kamal Al Shaikh Mubarak
Associate Dean, Deanship of Postgraduate Education
King Saud bin Abdulaziz University for Health Sciences
MNGHA - Eastern Region

3. Ms. Noorah Alnoaimi certificates:

جامعة الإمام عبدالرحمن بن فيصل
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY
عمادة تطوير التعليم الجامعي
Deanship of Academic Development

CERTIFICATE OF TRAINING PROGRAM ATTENDANCE

The Deanship of Academic Development at Imam Abdulrahman bin Faisal University Certifies that

Noura Abdulhadi Saad Alnaimi

Has Attended Training Session (for two hours), Entitled:

The importance of artificial intelligence: Examining it's role in teaching and learning

On20 Aug2023

Dean, Deanship of Academic Development

Dr. Mohammed S. Alkathiri

For validation/inquiries about this certificate, you may contact us at: ded@iau.edu.sa

شهادة حضور برنامج تدريبي

تشهد عمادة تطوير التعليم الجامعي بجامعة الإمام عبدالرحمن بن فيصل، أن

نورة عبدالهادي النعيم

قد حضرت برنامجاً تدريبياً لمدة ساعتين/ بعنوان:

التعلم من خلال النشاط

بتاريخ ٦ صفر ١٤٤٥هـ

جامعة الإمام عبدالرحمن بن فيصل
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY
عمادة تطوير التعليم الجامعي
Deanship of Academic Development

CERTIFICATE OF TRAINING PROGRAM ATTENDANCE

The Deanship of Academic Development at Imam Abdulrahman bin Faisal University Certifies that

Noorah alnoaimi

Has Attended an Online Training Session (for two hours), Entitled:

Generative Artificial Intelligence: A Game changer in Higher Education

On 22Aug 2023

Dean, Deanship of Academic Development

Dr. Mohammed S. Alkathiri

For validation/inquiries about this certificate, you may contact us at: dad@iau.edu.sa

شهادة حضور
Certificate of Attendance

تشهد وكالة كلية العلوم الطبية التطبيقية
للتطوير والشراكة المجتمعية
بجامعة الإمام عبدالرحمن بن فيصل بأن

سعادة الأستاذة/ نورة عبدالهادي التميمي

قد حضرت ورشة عمل بعنوان:

الذكاء الاصطناعي في التعليم

بتاريخ 2023/11/28م الموافق 1445/05/14هـ

وكيل الكلية للتطوير والشراكة المجتمعية

الدكتورة/ نور بنت علي الخثلان

4. Ms. Njoud Abuaisha certificates:

جامعة الإمام عبدالرحمن بن فيصل
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY
عمادة تطوير التعليم الجامعي
Deanship of Academic Development

CERTIFICATE OF TRAINING PROGRAM ATTENDANCE

The Deanship of Academic Development at Imam Abdulrahman bin Faisal University Certifies that

Njoud Saud Abuaisha

Has Attended an Online Training Session (for two hours), Entitled:

Generative Artificial Intelligence: A Game changer in Higher Education

On 22Aug 2023

Dean, Deanship of Academic Development

Dr. Mohammed S. Alkathiri

For validation/inquiries about this certificate, you may contact us at: dled@iau.edu.sa

شهادة حضور برنامج تدريبي

تشهد عمادة تطوير التعليم الجامعي بجامعة الإمام عبدالرحمن بن فيصل، أن

نجود سعود أبو عايشه

قد حضرت برنامجاً تدريبياً لمدة ساعتين، بعنوان:

التعلم من خلال النشاط

بتاريخ ٦ صفر ١٤٤٥هـ

CERTIFICATE OF TRAINING PROGRAM ATTENDANCE

The Deanship of Academic Development at Imam Abdulrahman bin Faisal University Certifies that

Njoud Saud Abdulaziz Abuaisha

Has Attended Training Session (for two hours), Entitled:

The importance of artificial intelligence: Examining it's role in teaching and learning

On20 Aug2023

Dean, Deanship of Academic Development

Dr. Mohammed S. Alkathiri

For validation/inquiries about this certificate, you may contact us at: ded@iau.edu.sa :للتحقق من صحة هذه الشهادة يمكنك التواصل معنا على

Appendix 2: Proof of invititation letter:

المملكة العربية السعودية
Kingdom Of Saudi Arabia

جامعة الإمام عبد الرحمن بن فيصل
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY

وزارة التعليم
Ministry of Education

سعادة مدير إدارة المهارات الاكلينيكية والمحاكاة في تجمع الشرقية الصحي
د. منصور بن عايض الأسمري **المحترم**

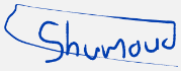
السلام عليكم ورحمة الله وبركاته،

يتشرف قسم الرعاية التنفسية، في كلية العلوم الطبية التطبيقية في الدمام، جامعة الامام عبد الرحمن بن فيصل، بدعوة سعادتكم لتقييم تجربة القسم في ادارة مقرر الحالات السريرية المتكاملة يوم الأربعاء الموافق 7 فبراير 2024 الساعة 12:30 مساءا.

يعتبر هذا المقرر فريد من نوعه في برامج الرعاية التنفسية، ويهدف لدمج المعلومات من مختلف المقررات في حالات سريرية تدفع الطالب لتحليل المعلومات والربط بينها. جزء من المقرر يعتمد على المحاكاة، لذا نأمل الاستفادة من خبراتكم في هذا المجال لتقييم التجربة وإعطاء الملاحظات لتطويرها والنمو بها.

مع جزيل الشكر والتقدير للوقتكم وجهدكم،

رئيسة قسم الرعاية التنفسية



د. شوق يوسف الحمود

Appendix 3: samples of students self-assessment:

Respiratory Care Department
College of Applied Medical Sciences
Integrated Clinical Cases 1
Student Self-Assessment
Student Name: Sajedah Alarab **ID:** 2230007055

IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY

Sa?sfac?on with Current Learning	Disagree	Neutral	Agree
1. I enjoyed the session.			✓
2. The cases used in this simula; on helped me to learn.			✓
3. The course provided me with a variety of learning materials and ac; vi; es to promote my learning the respiratory care curriculum.			✓
4. I demonstrated a high level of mo; va; on and I ac; vely sought addi; onal learning opportuni; es.			✓
5. I demonstrated excep; onal communica; on skills and I effec; vely conveyed ideas and informa; on.			✓
6. I demonstrated a deep understanding of personal strengths and areas for improvement.			✓
Self-confidence in Learning	Disagree	Neutral	Agree
7. I am confident that this course covered cri; cal content necessary for the mastery of respiratory care curriculum.			✓
8. I am confident that I am developing the skills and obtaining the required knowledge from this course to perform necessary tasks in a clinical seL ng			✓
9. I am confident that I am mastering the content of the course ac; vity that my instructors presented to me.			✓
10. I know how to get help when I do not understand the concepts covered in the simula; on.			✓
11. I know how to use simula; on ac; vi; es to learn cri; cal aspects of these skills.			✓

Instructions:

1- Students are required to submit one Self-Assessment at the end of each session.
2- It is graded as a Done/Not Done basis.

Respiratory Care Department

College of Applied Medical Sciences

Integrated Clinical Cases 1

Student Self-Assessment

Student Name: Fatimah Al Asire **ID:** 2230004937

جامعة الإمام عبدالرحمن بن فيصل
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY

Satisfaction with Current Learning	Disagree	Neutral	Agree
1. I enjoyed the session.			✓
2. The cases used in this simulation helped me to learn.			✓
3. The course provided me with a variety of learning materials and activities to promote my learning the respiratory care curriculum.			✓
4. I demonstrated a high level of motivation and I actively sought additional learning opportunities.			✓
5. I demonstrated exceptional communication skills and I effectively conveyed ideas and information.			✓
6. I demonstrated a deep understanding of personal strengths and areas for improvement.			✓
Self-confidence in Learning	Disagree	Neutral	Agree
7. I am confident that this course covered critical content necessary for the mastery of respiratory care curriculum.			✓
8. I am confident that I am developing the skills and obtaining the required knowledge from this course to perform necessary tasks in a clinical setting			✓
9. I am confident that I am mastering the content of the course activity that my instructors presented to me.			
10. I know how to get help when I do not understand the concepts covered in the simulation.		✓	
11. I know how to use simulation activities to learn critical aspects of these skills.			✓

Instructions:

1- Students are required to submit one Self-Assessment at the end of each session.
2- It is graded as a Done/Not Done basis.

Respiratory Care Department

College of Applied Medical Sciences

Integrated Clinical Cases 1

Student Self-Assessment

Student Name: Aisha Alshamrani **ID:** 2230004679

جامعة الإمام عبدالرحمن بن فيصل
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY

Sa? sfac? on with Current Learning	Disagree	Neutral	Agree
1. I enjoyed the session.			✓
2. The cases used in this simula; on helped me to learn.			✓
3. The course provided me with a variety of learning materials and ac; vi; es to promote my learning the respiratory care curriculum.			✓
4. I demonstrated a high level of mo; va; on and I ac; vely sought addi; onal learning opportuni; es.			✓
5. I demonstrated excep; onal communica; on skills and I effec; vely conveyed ideas and informa; on.		✓	
6. I demonstrated a deep understanding of personal strengths and areas for improvement.			✓
Self-confidence in Learning	Disagree	Neutral	Agree
7. I am confident that this course covered cri; cal content necessary for the mastery of respiratory care curriculum.			✓
8. I am confident that I am developing the skills and obtaining the required knowledge from this course to perform necessary tasks in a clinical seL ng			✓
9. I am confident that I am mastering the content of the course ac; vity that my instructors presented to me.		✓	
10. I know how to get help when I do not understand the concepts covered in the simula; on.			✓
11. I know how to use simula; on ac; vi; es to learn cri; cal aspects of these skills.			✓

Instructions:

1- Students are required to submit one Self-Assessment at the end of each session.
2- It is graded as a Done/Not Done basis.

Appendix 4. IRB approval letter:

Kingdom of Saudi Arabia
Ministry of Education
Imam Abdulrahman Bin Faisal University
Office of the Vice President for Scientific Research and Innovation

جامعة الإمام عبد الرحمن بن فيصل
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY

المملكة العربية السعودية
وزارة التعليم
جامعة الإمام عبد الرحمن بن فيصل
مكتب نائب الرئيس للبحث العلمي والابتكار

اللجنة الدائمة لأخلاقيات البحث على المخلوقات الحية

Institutional Review Board

NCBE Registration No. (HAP-05-D-003)

IRB Number	IRB-2024-03-028		
Project Title	Effect of High-Fidelity Simulation on RC students' knowledge, level of confidence, and learning experience		
Principal Investigator	Dr. Hana Jama AlSomali		
College	CAMS	**Department**	Respiratory Care
Approval Date	08/01/2024		

The application was reviewed and approved at Imam Abdulrahman Bin Faisal University IRB through an Expedited Review on Monday, 8 January, 2024.
Approval is given for eight months from the date of approval. Projects, which have not commenced within four months of the original approval, must be re-submitted to the University Institutional Review Board (IRB) Committee. If you are unable to complete your research within the validation period, you will be required to request an extension from the IRB Committee.

On completion of the research, the Principal Investigator is required to advise the Institutional Review Board if any changes are made to the protocol, a revised protocol must be submitted to the Institutional Review Board for reconsideration.

Approval is given on the understanding that the "Guidelines for Ethical Research Practice" are adhered to. Where required, a signed written consent form must be obtained from each participant in the study group.

Chairman of the Institutional Review Board

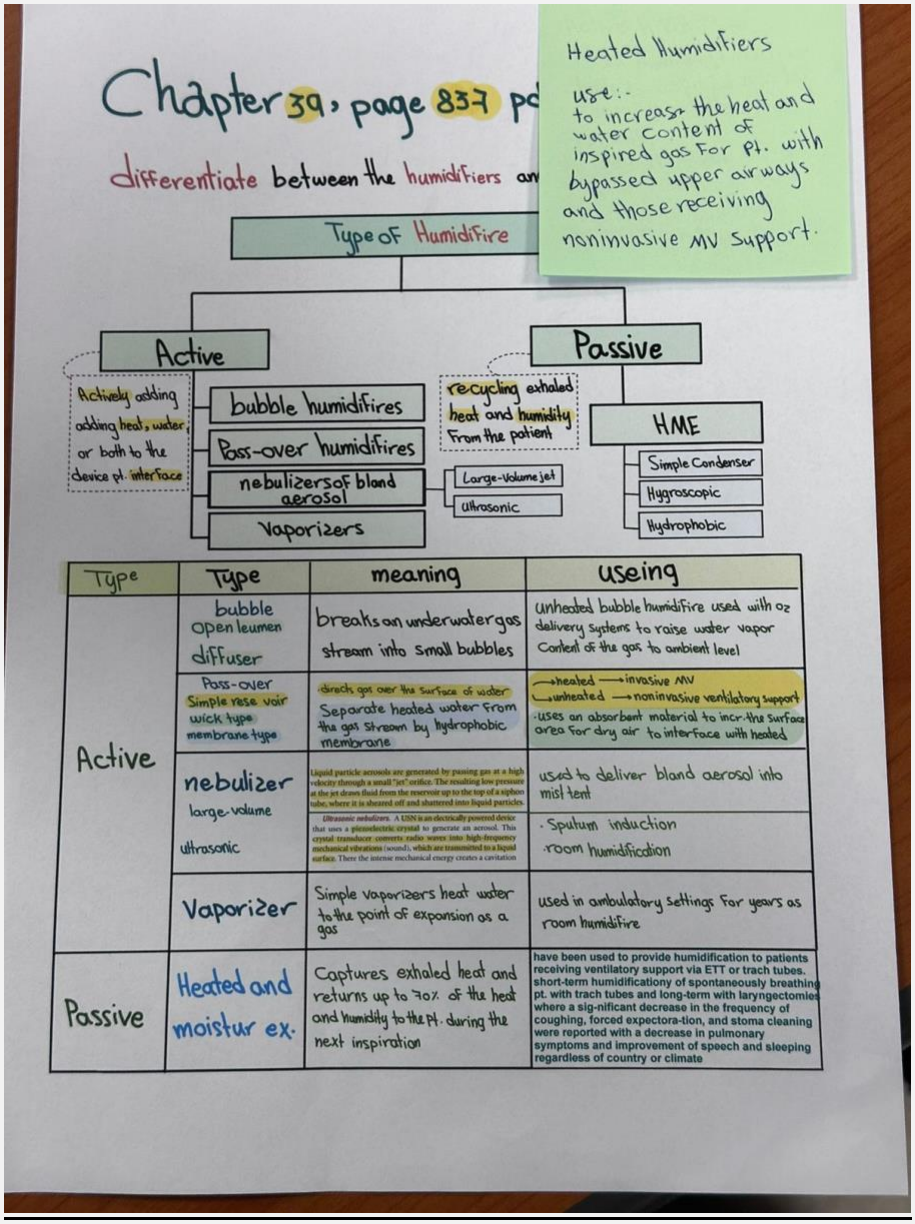
Professor Badr Abdulrahman Aljandan

17/1/2024

043 1 33 105

cc. - Dean, Deanship of Scientific Research.
- Director General, King Fahd Hospital of the University (KFHU).
- Dean, IRMC.
- Supervisor General for Quality and Safety, KFHU.
- Director, Monitoring Office for Research and Research Ethics.
- Director, Pharmacy @ KFHU.

Appendix 5: Sample of student's work:



Chapter 39, page 837 p

differentiate between the humidifiers ar

Heated Humidifiers
use:-
to increase the heat and water content of inspired gas For pt. with bypassed upper airways and those receiving noninvasive MV support.

Type of Humidifire

Active
Actively adding adding heat, water or both to the device pt. interface
bubble humidifires
Pass-over humidifires
nebulizers of bland aerosol
Large-Volume jet
Ultrasonic
Vaporizers

Passive
recycling exhaled heat and humidity From the patient
HME
Simple Condenser
Hygroscopic
Hydrophobic

Type	Type	meaning	useing
Active	bubble open leumen diffuser	breaks an underwater gas stream into small bubbles	Unheated bubble humidifire used with o2 delivery systems to raise water vapor Content of the gas to ambient level
	Pass-over Simple rese voir wick type membrane type	directs gas over the surface of water Separate heated water from the gas Stream by hydrophobic membrane	→heated → invasive MV ↳unheated → noninvasive ventilatory support ·uses an absorbent material to incr. the surface area for dry air to interface with heated
	nebulizer large-volume ultrasonic	Liquid particle aerosols are generated by passing gas at a high velocity through a small "jet" orifice. The resulting low pressure at the jet draws fluid from the reservoir up to the top of a siphon tube, where it is sheared off and shattered into liquid particles.	used to deliver bland aerosol into mist tent
		Ultrasonic nebulizers. A USN is an electrically powered device that uses a piezoelectric crystal to generate an aerosol. This crystal transducer converts radio waves into high-frequency mechanical vibrations (sound), which are transmitted to a liquid surface. There the intense mechanical energy creates a cavitation	· Sputum induction ·room humidification
	Vaporizer	Simple vaporizers heat water to the point of expansion as a gas	used in ambulatory settings for years as room humidifire
Passive	Heated and moistur ex.	Captures exhaled heat and returns up to 70% of the heat and humidity to the Pt. during the next inspiration	have been used to provide humidification to patients receiving ventilatory support via ETT or trach tubes. short-term humidificationy of spontaneously breathing pt. with trach tubes and long-term with laryngectomies where a sig-nificant decrease in the frequency of coughing, forced expectora-tion, and stoma cleaning were reported with a decrease in pulmonary symptoms and improvement of speech and sleeping regardless of country or climate

Appendix 6: pictures taken during the integrated clinical courses classtime during the simulation part and the group discussion part