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Peer education for medical students on health promotion and clinical risk management

Laura Brunelli^{1,2}, Annarita Tullio³, Giuseppe Perri¹, Lucia Lesa⁴, Lucrezia Grillone^{1,4}, Giulio Menegazzi⁵, Corrado Pipan^{1,3}, Francesca Valent³, Silvio Brusaferrò¹, Maria Parpinel¹

Abstract:

CONTEXT: Health promotion (HP) and clinical risk management (CRM) topics are seldom discussed during medical school lessons. Peer-assisted learning (PAL) has long occurred informally in medical education, and interest in this method has recently grown, as it is considered a valuable technique for both tutors and tutees.

AIMS: The aim was to evaluate the impact of HP and CRM PAL intervention on medical students' (tutees) knowledge level.

SETTINGS AND DESIGN: A PAL intervention has been implemented at Udine University medical school during 2017. It was composed of lectures and practical activities conducted by ten near-peer tutors.

METHODS: The effectiveness has been evaluated by giving tutees: (1) a knowledge multiple-choice questionnaire, before and after the intervention; (2) a satisfaction questionnaire; and evaluating (3) tutees' group assignments.

STATISTICAL ANALYSIS USED: We performed descriptive analysis; then McNemar, Wilcoxon signed rank, Wilcoxon Mann-Whitney, and *t*-tests were applied.

RESULTS: The number of students addressed by PAL intervention was 62. Difference in total correct answers among pre- and post-intervention questionnaires showed a statistically significant improvement ($P < 0.0001$), both when analyzing it globally and by area (HP/CRM). Students' satisfaction for CRM was greater than for HP area ($P = 0.0041$).

CONCLUSIONS: This educational intervention based on PAL showed its effectiveness producing a statistically significant improvement in students' knowledge. Our findings confirm that PAL could be a feasible method for HP and CRM topics.

Keywords:

Education, health promotion, learning, medical students, peer group, risk management

Introduction

Peer-assisted learning (PAL), defined by Topping as the development of knowledge and skills through active help and support among status equals or matched companions, has been described as a situation in which people from similar social groupings, who are not professional

teachers, help each other to learn and learn themselves by teaching.^[1] PAL distinguishes the actors of the process in tutors, those peers who transmit and share knowledge and information, and tutees, those who receive and benefit from knowledge sharing.^[1] Some authors also distinguish peers, people belonging to the same group such as classmates, from near-peers, students who are either a bit older, have recently

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¹Department of Medicine, University of Udine, ²Accreditation and Quality Unit, Central Friuli University Integrated Trust, ³Hygiene and Clinical Epidemiology Unit, Central Friuli University Integrated Trust, ⁴Medical Directorate, Central Friuli University Integrated Trust, ⁵HTA Unit, Regional Trust for Healthcare Coordination, Udine, Italy

Address for correspondence:

Dr. Laura Brunelli,
Via Colugna 50, 33100
Udine, Italy.
E-mail: laura.brunelli@uniud.it

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graduated or belong to the following year, or trainees on the same level of medical education.^[2,3] PAL has long informally occurred in medical education, but interest in this educational method has recently grown.^[3,4] Many examples of PAL implementation showing benefits for both tutors and tutees are reported in literature as far as Objective Structured Clinical Examination,^[5] peripheral venous catheter insertion,^[6] surgical skills,^[7,8] and ultrasound image interpretation teaching^[9,10] are concerned. PAL has been claimed to offer a valuable method of enriching students' learning experience^[11] and can include classes, small group seminars, interactive modules, video viewing, and notes revision, all of them also allowing open debates about difficult or tricky topics for learners.^[5,12] Students involved in PAL reported that tutors could provide a level of training comparable to the one delivered by experts.^[5,13] Tutor benefits, summed up by Burgess *et al.*,^[14] include development of professional attributes (i.e. leadership qualities, assessment and feedback techniques, and ability to admit uncertainty) and knowledge content understanding (i.e. knowledge revision, opportunity to reflect on own gaps, and deeper level of contents' understanding). PAL also could tackle generational and cultural gaps which are often current between teachers and students and may foster in motivating and encouraging tutees to learn and improve themselves.^[15] In fact, when the knowledge gap between teachers and learners is very wide, the achievement of such understanding level may seem impossible, finally leading to learners' discouragement.^[3] On the contrary, Topping stresses that active learning as PAL reduces anxiety and increases opportunities for verbalization and questioning and also for mistakes making in a supporting environment.^[1]

As far as important topics to be studied by medical students, the relevance of health promotion (HP) within prevention strategies is undisputed.^[16] Its critical role in avoiding and/or reducing clinical conditions with a high burden, such as cardiovascular diseases, for example, is a milestone in medical science. On the other hand, clinical risk, the risk of injury or illness associated with care provided, has been proven to be one of the three major emerging causes of death^[17] and thus can be considered one of the critical aspects of clinical governance.^[18] According to this, clinical risk management (CRM), defined by Scally and Donaldson as the system through which national health system (NHS) organizations are accountable for continuous improvement of their services' quality and safeguard high healthcare standards by promoting clinical excellence,^[19] cannot be overlooked within medical students education. At Udine University, normal classes for medical students have been given mainly as lectures by professors, but HP and CRM topics were seldom discussed with students. This gap could be partially due to lack of time, along with

lack of attention toward prevention against high focus on clinical skills. Because students are not well prepared to communicate and discuss with patients about health issues,^[20] reinforcing HP and CRM teaching might address this problem.

The aim of this article is to evaluate the impact of the introduction of a HP and CRM PAL intervention in medical students' curriculum on tutees' knowledge level at the University of Udine, Italy.

Methods

The PAL intervention took place between January and May 2017, and was included in the Medicine and Public Health mandatory internship, attended by 5th year medical students of the University of Udine. Ten near-peer tutors (near as they were just 1 or 2 years older than tutees) were selected by public health professors among hygiene and public health residents according to their working experience (CRM tutors) and to specific training (HP tutors). In particular, HP tutors had previously been trained through an online and residential course on HP provided by "Luoghi di Prevenzione" of Reggio Emilia, the Centre for HP of Emilia Romagna Region, in the frame of a CCM (Centro nazionale per la prevenzione e il Controllo delle Malattie; Italian National Center for Disease Prevention and Control) project supported by the Italian Ministry of Health. Within this course, HP tutors acquired specific knowledge and skills, including competencies on patient's health counseling following trans-theoretical change model. CRM tutors were identified among residents working within the CRM hospital group, which is accountable for the hospital patient safety program management, incident reporting system, clinical risk assessment, audit activities, and reactive and proactive risk analyses all aimed at reducing clinical risk and harm to hospital patients. The goal of the CRM group is to pursue a "no blame" and "learning from error" culture within the healthcare organization and to promote the International Patient Safety Goals (IPSGs) proposed by the Joint Commission International^[21] among healthcare professionals.

HP and CRM tutors planned the PAL intervention autonomously and public health professors revised contents and materials and gave support when needed. The PAL intervention also involved two public health nurses who daily deal with regional HP programs. A total of 62 students attending their 5th year of medical school were included as tutees in this PAL intervention. The choice of the 5th year was driven by the fact that from the end of their 3rd year on, students have the possibility to directly deal with patients during hospital ward internships and at their 5th year, students have already been taught most medical subjects; last but not the least,

this was the year of attendance when the medicine and public health internship is provided.

Peer-assisted learning intervention implementation

During 2017, the PAL intervention consisted of two parts: Part 1 was a 20 h residential internship (8 h for HP and 12 h for CRM); Part 2 was an HP intervention plan simulation group assignment.

Peer-assisted learning intervention – Part 1

For the first part of the PAL intervention, the tutees were divided into groups consisting of an average of 13–14 participants each. Each group participated in seminars and residential activities held by tutors within this new curriculum. The topics addressed were lifestyles, project management, motivational approach, trans-theoretical change model, health-promoting hospital network, nudging, fun theory, and health literacy (HP topics); incident reporting, root cause analysis (RCA), IPSGs, quality of healthcare, quality accreditation systems, infectious risk and hospital Internal Emergency Plan for the Massive Inflow of Injuries (CRM topics). Educational techniques used included lectures, role playing, open discussion, video viewing, specific skills development, self-assessment on lifestyles, and other practical activities, such as near misses/adverse events analysis by using RCA-specific tool.

Peer-assisted learning intervention – Part 2

For the second part of the PAL intervention, the tutees were further subdivided into smaller subgroups (five people each) for a HP intervention plan group assignment. Each subgroup conducted a literature review, and then designed a real-life HP intervention. Topics selected for this group assignment according to the greatest health population needs covered five HP main topics, as follows: alcohol abuse, smoking habits, physical inactivity, unhealthy eating habits, and sexually transmitted diseases. Educational techniques used included literature search and review, planning simulation, and feedback. This activity allowed tutees simulate the first phase of a HP project management and conducting background evidence-based analysis and project planning, including identification of objective, actions, and indicators. Tutees' assignment groups had 1 month to deliver their projects, which were afterward evaluated by tutors; a maximum of ten points was attributed to projects, and this contributed to the medicine and public health final exam mark. After the project evaluation, tutors sent to each group a tailored feedback on the assignment, highlighting the strengths and limits for scientific literature and HP project management approach improvement purpose.

Peer-assisted learning intervention evaluation

The effectiveness of the whole PAL intervention as far as HP and CRM knowledge acquiring was evaluated by giving tutees the same multiple-choice knowledge questionnaire before (pre-questionnaire) and after the intervention (post-questionnaire). Questions covered HP and CRM topics addressed by the PAL intervention; the number of specific questions was weighted according to the number of hours dedicated to the two areas: eight for CRM and 12 for HP. Five options were available for each question with a single correct answer. Internal review of questionnaires among tutors was conducted to evaluate its accuracy, and supervision was given by professors. Specific topics addressed by questions are reported in Table 1. A translated version of the complete knowledge questionnaire with all questions and multiple-choice answers is available as a Supplementary Material. Pre-questionnaires were given as hard copies to all tutees at the beginning of the term before both lessons and internships have started; post-questionnaires were given as hard copies to each tutees group at the last day of PAL intervention.

A satisfaction questionnaire was also given to tutees for PAL intervention improvement purposes. Tutees were asked to quantitatively evaluate PAL using a 5-point Likert-scale (1 = insufficient, 2 = sufficient, 3 = fair, 4 = good, and 5 = excellent); topics debated during PAL

Table 1: Topic tested within peer-assisted learning knowledge evaluation questionnaires

Area	Topic tested	
HP	Cardiovascular risk assessment definition	
	Life skills definition and identification	
	Motivational interviewing definition	
	Trans-theoretical model of change stages identification and timing	
	Nudging definition	
	Output indicator definition	
	Fundamental steps of health promotion intervention planning	
	Gantt diagram definition	
	CRM	Sentinel event characteristics identification
		RCA definition
Tracer methodology description		
Health quality dimensions identification		
"High-alert" medications definition		
IPSG identification		
Correct use of abbreviations and symbols in clinical records		
Medical record compiling rules		
Notifiable diseases identification		
Healthcare-associated infection recognition		
Hand hygiene procedure: Five moments' recognition		
Internal emergency plan for the massive inflow of injuries (PEIMAF) in the academic hospital of Udine description		

Topics tested by questions of the pre- and post-questionnaires. IPSGs=International Patient Safety Goals, HP=Health promotion, CRM=Clinical risk management, RCA=Root cause analysis, PEIMAF=Internal Emergency Plan for the Massive Inflow of Injured

were evaluated according to the following five criteria: competence and respect on the agreed contents, clarity, audience engagement, timeliness, and quality of teaching materials. A translated version of the satisfaction questionnaire is also available as a Supplementary Material. Tutors' evaluation (with maximum 10 points) of group assignments was also considered as an effectiveness indicator.

The study was conducted in agreement with the Helsinki Declaration and its revision. All data were collected anonymously within the routine academic quality improvement process according to EU-GDPR, thus data were stored and analyzed without any possibility to identify compilers. The study did not need consent or ethical approval by our institutional review board as no sensitive nor clinical data were managed and questionnaires were completely anonymous. The new syllabus was approved by public health professors and it was part of the standard curriculum improvement process within Udine University. Students were given full explanation about the aims and contents of questionnaires; their participation was voluntary and without any compensation.

Statistical analysis

Data about pre- and post-questionnaires were collected in hard copies and then transferred to a database; tutees who replied just to one of the two questionnaires or that did not answer to all questions were excluded. We calculated the relative frequency of each Likert-scale value and delta values between pre- and post-intervention questionnaires as differences in percentage of correct answers. We performed descriptive statistics on the subsequent variables: correct answers for each question in pre- and post-questionnaires (number and percentage), satisfaction Likert-scale values (Part 1); and group assignment marks (Part 2). Frequency distributions were used for categorical variables; for numerical variables, we considered mean, median, interquartile range (IQR; calculated according to Clark-Carter^[22]), standard deviation, and minimum and maximum values, as appropriate. We performed McNemar test for evaluating statistical differences in correct answers before and after the intervention. We considered paired *t*-test or Wilcoxon signed rank test, according to distribution's normality, to evaluate the difference for every question in pre- and post-questionnaires. We visually inspected data and provided skewness and kurtosis of the histogram for each variable considered (available as Supplementary Materials) and in consideration of these results and low sample size, we opted for nonparametric tests. Wilcoxon Mann-Whitney test or two independent sample *t*-test were used, according to normality distribution, to evaluate differences in Likert-scale values for PAL intervention satisfaction by area. The significance level

was set at 0.05. All statistical analyses were performed using SAS® software, version 9.4 (SAS institute, Inc., Cary, NC, USA) and R. software, version 3.4.2 (R Foundation for Statistical Computing, Vienna, Austria)^[23].

Results

A total of 38 pre- and 55 post-questionnaires were collected. The number of students completing both pre- and post-questionnaires was 22/62 (35.48%). The number of correct answers and their improvement between pre- to post-questionnaires for each question, in general and by area, are reported in Tables 2 and 3.

Among post-intervention questionnaires, we observed a higher number of correct answers in almost all questions: 19 (95.00%); statistically significant improvement ($P < 0.05$) was found for 13 (68.40%) answers. The significant improvement was equally distributed among HP and CRM questions. When compared to pre-intervention results, the only question in the post-questionnaire with a lower correct answers rate was the one asking for healthcare quality dimensions. Wilcoxon signed rank test showed a statistically significant improvement between pre- and post-intervention results ($P < 0.0001$) both globally and by area, as shown in Table 3. Considering delta values, we did not find any difference by area. Satisfaction about the PAL intervention, as resulting from Likert-scale values analysis, showed greater liking for CRM compared to HP area; this difference between HP and CRM liking was confirmed to be statistically significant by Wilcoxon Mann-Whitney test (P value = 0.004) as shown in Figure 1. Median mark \pm IQR of group assignment was 7.50 ± 1.50 .

Discussion

Tutees' pre-intervention knowledge on CRM was higher than that for HP, suggesting that maybe the safety culture within our hospital and healthcare in general positively contaminated also medical students. On the other hand, HP answers registered before PAL intervention rise some concern, as very few students are confident with fundamental topics for primary prevention. Even if some specific concepts or tools may be hard also for experienced clinicians (e.g. output indicator or Gantt chart definitions), the same cannot be affirmed as far as life skills or nudging are concerned.

The proportion of correct answers in the post-intervention questionnaires was higher than in pre-questionnaires for both CRM and HP areas, suggesting this PAL experience to be effective for most medical students. In particular, five out of eight questions on HP topics and eight out of 12 questions on CRM topics improved significantly

Table 2: Knowledge improvement after peer-assisted learning intervention

Area	Question number	Correct, n (%)		P
		Pre-intervention questionnaire	Post-intervention questionnaire	
HP	1	3 (13.64)	21 (95.45)	0.0001
	2	7 (31.82)	9 (40.91)	0.5271
	3	6 (27.27)	10 (45.45)	0.2482
	4	10 (45.45)	17 (77.27)	0.0348
	5	5 (22.73)	18 (81.82)	0.0008
	6	5 (22.73)	6 (27.27)	0.6547
	7	13 (59.09)	22 (100)	0.0038
	8	2 (9.09)	12 (54.55)	0.0016
CRM	9	8 (36.36)	20 (90.91)	0.0013
	10	9 (40.91)	22 (100)	0.0004
	11	10 (45.45)	18 (81.82)	0.0209
	12	17 (77.27)	13 (59.09)	0.2059
	13	17 (77.27)	21 (95.45)	0.1025
	14	13 (59.09)	17 (77.27)	0.2059
	15	2 (9.09)	5 (22.73)	0.2568
	16	2 (9.09)	19 (86.36)	<0.0001
	17	3 (13.64)	14 (63.64)	0.0023
	18	15 (68.18)	21 (95.45)	0.0339
	19	13 (59.09)	20 (90.91)	0.0196
	20	7 (31.82)	20 (90.91)	0.0008

Correct answers for each question of the pre- and post-intervention questionnaires with P values of McNemar test. HP=Health promotion, CRM=Clinical risk management

Table 3: Effectiveness in knowledge acquiring of peer-assisted learning intervention

Area	Number of correct answers, median±IQR (%)		P
	Pre	Post	
HP	29±25	65±25	<0.0001
CRM	42±17	75±17	<0.0001
Total	38±15	75±15	<0.0001

Percentage of total correct answers (median±IQR) with Wilcoxon signed rank test P value in general and by area of the pre- and post-intervention questionnaires. IQR=Interquartile range, HP=Health promotion, CRM=Clinical risk management

showing PAL interventions' effectiveness in improving tutees' knowledge on these specific topics. Considering these improvements achieved on both HP- and CRM-specific areas, this intervention based on PAL has been implemented within our university thereafter. Our findings confirm that PAL could be a useful technique in medical education programs, as already reported in literature,^[13] also for HP and CRM topics, which to our knowledge are still seldom included in medical school curricula. Our experience seem to confirm PAL efficacy linked to cognitive and social congruence theory:^[24,25] the safe and comfortable learning environment, with a reduced level of anxiety, could play a fundamental role in knowledge transfer, as already reported,^[26-28] and it is probably one of the reasons why students may prefer being taught by peer tutors.^[29] Tutor benefits, such as leadership qualities, assessment and feedback techniques, and ability to admit uncertainty^[14,25,30] have been informally reported by hygiene and public health residents involved in this PAL intervention, although

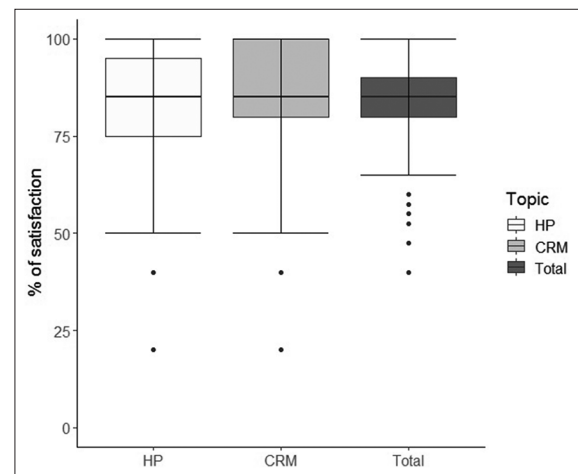


Figure 1: Box plot with percentage values from satisfaction questionnaires globally and by area

not measured in a structured way. Nevertheless, PAL implementation may help in instilling teaching as a long-life culture, which has been widely recognized as a necessary skill for health professionals.^[14,31,32]

Tutees' satisfaction resulted to be high, and the most appreciated area was CRM. The lower appreciation toward HP is an interesting observation that could be associated with the fact that, even if more than 30 years have passed since the Ottawa Charter, HP is still seen as something distant from the majority of medical community. Tutees may think HP to be less useful than other topics, which may appear more intriguing, but this

may also be the effect of a teaching technique based on a reactive approach. Nevertheless, the good satisfaction associated with CRM area supports the idea that new medical doctors' generation could be more sensible than previous generations about patient safety and infection prevention topics, and that we are witnessing a progressive change that have started since "To err is human" was published in 1999.^[33]

Study limitations and novelty

A limit of this study is the impossibility to generalize results obtained to the global medical students' population, due to the low number of respondents included or possible underlying differences concerning academic performance and personal motivations toward studying not collected in this PAL intervention evaluation for privacy reasons. Even if peer education has been widely and mostly informally implemented in medical education, to our knowledge, this is the first study of this kind on HP and CRM topics in Italy. Medical community education on HP and CRM topics should be boosted, and we think that including new health professionals' generation in this process will ensure better implementation of risk assessment and management as well as HP in future. The proposed use of PAL as structured learning methodology along with its evaluation process should be further applied within medical students' education.

Further research about methods for increasing medical students' and professionals' awareness about HP and CRM topics is needed, and we suggest PAL as a useful tool to be used, along with nonclassical educational technique adoption such as role playing, open discussion, simulation, video viewing, specific skills development, practical activity, and self-assessment on lifestyles.

Conclusions

This intervention that aimed at teaching HP and CRM to medical students based on PAL method has proved to be both effective and appreciated. This kind of learning method could be widely used in medical students' academic programs, and experiences currently going on in academic hospitals should be enhanced in order to fully benefit of its advantages.

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Conflicts of interest

There are no conflicts of interest.

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Supplementary Material

Supplementary Material: A translated version of the complete knowledge questionnaire with all questions and multiple-choice answers

Supplemental Digital Content

Medicine and Public Health internship – year 2017

Knowledge questionnaire

This questionnaire is aimed to assess specific knowledge of 5th-year medical students before and after the internship in medicine and public health. There are twenty multiple-choice questions with a single possible answer each.

1. To what stage does the following statement refer? "I don't think smoking cigarettes is a big problem".
 - a. Action
 - b. Contemplation
 - c. Maintenance
 - d. Precontemplation
 - e. Relapse.
2. The cardiovascular assessment risk chart doesn't take into account:
 - a. Diabetes
 - b. Age
 - c. HDL-cholesterol
 - d. Weight.
 - e. Gender.
3. The life skills:
 - a. Include: self-awareness, problem -solving, decision -making, effective communication, stress and emotion management, sympathy
 - b. Also include empowerment
 - c. Are skills that are useful to achieve personal life goals
 - d. Are personal and relational crossover skills that are related to the way of positively addressing different situations in different contexts
 - e. All the above answers are correct.
4. Identify the correct statement regarding motivational counseling among the following:
 - a. Motivational counseling is a tool based on motivational interview; it is used by professionals to increase personal motivation toward change
 - b. Motivational counseling is an effective tool only for patients in the contemplation stage because this is the stage in which people are ready to change
 - c. During motivational counseling, the counselor assigns specific targets to reach to the patient, based on his/ her clinical condition
 - d. During motivational counseling, change is considered as a dynamic balance in the pre-contemplation stage.
 - e. All of the above.
5. Which of the following health promotion actions can be considered as nudging?
 - a. Urging public administration to build more cycle lanes.
 - b. Creating groups of citizens to implement health promotion interventions rather than involving professionals
 - c. Offering a mobile phone rate with increased monthly data according to kilometers cycled
 - d. Forbidding high-calories food within school canteens
 - e. Taking advantage of citizen access to health services to distribute information leaflets.
6. During a campaign aimed at the early detection of skin lesions throughout an app available to citizens, the indicator "number of people who are called back for a consultation" represents an indicator of:
 - a. Compliance

- b. Outcome
 - c. Process
 - d. Structure
 - e. Intermediate.
7. Which of the following is NOT a fundamental element while planning a health promotion intervention?
- a. Actions
 - b. NHS endorsement
 - c. Indicators (monitoring measures)
 - d. Specific objectives
 - e. General objective.
8. While planning a project, what is Gantt chart useful for?
- a. Schedule actions
 - b. Enhance information sharing
 - c. Provide a quick glance at possible trade-offs in terms of cost-effectiveness
 - d. Manage the data flow
 - e. Schedule project meetings more easily.
9. "Sentinel event" means:
- a. A therapeutic error that caused an adverse event to the patient
 - b. An error that causes damage to the patient and/or increased costs for the NHS, that was caused solely by the physician
 - c. A particularly serious adverse event that causes damage to the patient or death
 - d. A rare event that allows the recognition of unit, or staff deficiencies
 - e. A moderately serious event, towards which preventive measures can be taken.
10. Related to patient care quality and safety improvement, RCA is:
- a. Radiation contamination alarm: a hospital alarm for chemical, biological, or radiant contamination
 - b. Recall coming at: a system for recalling health workers from home in case of emergency
 - c. Authority clinical review: The health-care organization organizes an audit following an alert arisen from clinical records evaluation
 - d. Associated clinical risk: The specific clinical risk index associated with a particular unit
 - e. Root cause analysis: A structured analysis conducted with standardized methods to evaluate the root causes of an adverse event.
11. The tracer methodology is:
- a. Inspired by the "Lean Thinking" principle
 - b. A tool defined by JACIE accreditation to analyze patient's clinical pathways
 - c. An effective tool to assess the quality of care and services provided by a health-care organization from the patient's point of view
 - d. A tool to assess high-risk drugs safety, in order to meet international standards (e.g. IPGs)
 - e. A cutting-edge tool to identify critical issues and responsibilities to be reported to the public authority.
12. Which of the following is NOT a quality dimension:
- a. Effectiveness of care coordination
 - b. Efficiency and cost reduction
 - c. The number of beds in a particular unit
 - d. The population and the community health status
 - e. Patient safety.
13. High-risk drugs:
- a. Do not require special attention, since as they are dangerous only if managed outside the hospital
 - b. Can be handled only by physicians with specialized in intensive care
 - c. Include concentrated electrolytes and specific drugs listed by the institute for safe medication practice
 - d. Must be requested to the authorized storing units and returned to them as soon as possible
 - e. Must be kept in the emergency kit and monthly checked with all the other devices.

14. The International Patient Safety Goals (IPSG) include the following:
 - a. Correct patient identification + anesthesia informed consent + patient surgical safety
 - b. Correct patient identification + patient surgical safety + structural safety
 - c. Prevention of excessive workload/burn-out + patient surgical safety + correct patient identification
 - d. Patient fall prevention + effective communication among professionals + correct patient identification
 - e. Healthcare worker safety+correct patient identification+patient fall prevention.

15. The use of abbreviations/acronyms/symbols within medical records:
 - a. Must be agreed each time among the professionals caring for a patient
 - b. Is allowed if the abbreviations/acronyms/symbols are internationally known
 - c. Is allowed only in particular cases that must be preauthorized by the hospital leadership
 - d. Is not authorized in any way being a possible error cause
 - e. It can be useful in case of urgency/emergency when the health-care worker has very limited time.

16. The medical record:
 - a. Must include a document with integrated medical and nursing notes
 - b. Must always include a nutritional evaluation performed by a dietitian/nutritionist for the prescription of a correct diet
 - c. Must include an initial medical and nursing patient assessment
 - d. Must always include the incident reporting form
 - e. Cannot include notes or forms used by other professionals (e.g. physiotherapists, and psychologists).

17. For which of the following, it is not mandatory for the physician of the local health unit to report disease cases within 12/48 h, if there is not an epidemic outbreak?
 - a. Tetanus
 - b. Influenza with virus isolation
 - c. Chickenpox
 - d. Mononucleosis
 - e. Tuberculosis.

18. Which are the most common health-care-related infections?
 - a. Urinary infections, surgical -site infections, respiratory infections, sexual infections
 - b. Intestinal infections, surgical site infections, respiratory infections, systemic infections
 - c. Urinary infections, surgical site infections, respiratory infections, systemic infections
 - d. Urinary infections, surgical site infections, encephalitis, systemic infections
 - e. Urinary infections, myocarditis, respiratory infections, systemic infections.

19. Which of the following lists all the key moments for hand hygiene, according to the World Health Organization (WHO)?
 - a. Before touching a patient, before clean/aseptic procedures, after body fluid exposure/risk, after touching a patient, after every hour of work
 - b. Before touching a patient, before clean/aseptic procedures, after body fluid exposure/risk, after touching a patient, and after touching patient surroundings
 - c. Before touching a patient, after body fluid exposure/risk, after touching a patient, and after touching patient surroundings
 - d. Before touching a patient, before clean/aseptic procedures, after body fluid exposure/risk, and after contact touching a patient, before writing on medical record
 - e. Before an aseptic maneuver, after body fluid exposure/risk, after touching a patient, and after touching patient surroundings.

20. In our hospital, what is the threshold set to begin the Internal Emergency Plan for the Massive Inflow of Injured (PEIMAF)?
 - a. Simultaneous arrival of serious cases (red and/or yellow) ≥ 6
 - b. Simultaneous arrival of serious cases (red) ≥ 6
 - c. Simultaneous arrival of serious cases (red) ≥ 7
 - d. Simultaneous arrival of serious cases (red and/or yellow) ≥ 8
 - e. Simultaneous arrival of serious cases (red) ≥ 8 .

Thank you.

Satisfaction questionnaire for the Medicine and Public Health internship Year 2017

We kindly ask you a feedback regarding how the following topics have been covered during the internship. Please assign a score (ranging from 1 to 5, 1 = insufficient/inadequate; 2 = sufficient; 3 = fair; 4 = good, 5 = excellent). Your answers to the open-ended questions below are also crucial, as we will use your feedback to improve next year's internship.

Topic	Competence and respect on agreed contents	Clarity	Audience engagement	Timeliness	Quality of teaching materials
Lifestyle self-assessment	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Trans theoretical model	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
HP tools	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Epidemiological data in HP	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Project management and nudging	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
CRM and RCA	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
IPSGs, quality and accreditation systems in healthcare	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Medical records and tracer methodology	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Infection prevention	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Internal emergency plan for the massive inflow of injuries (PEIMAF)	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5