

## ORIGINAL ARTICLE

# How Effective Is the Community Medicine Posting to Cultivate Teamwork, Leadership and Professionalism Among Medical Students in Universiti Putra Malaysia?: Enhancing Best Practice of Future Doctors

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## ABSTRACT

**Introduction:** This study aimed to assess the effectiveness of the Community Medicine Posting to instilling and cultivating teamwork, leadership and professionalism among the medical students in Universiti Putra Malaysia. **Methods:** Self-administered questionnaire consisted of sociodemographic characteristics, professionalism, teamwork and leadership sections was distributed to the year four medical students before and after the Community Medicine Posting. The posting lasted for 6 weeks and served as an intervention for the purpose of this study. **Results:** A total of 107 of medical students were involved with mean age of  $22.64 \pm 0.63$  years old. The mean score for professionalism and leadership were significantly ( $p < 0.001$ ) increased following the posting, with leadership had the highest mean difference of 10.12. **Conclusion:** The study confirmed the effectiveness of the Community Medicine Posting to cultivate leadership and professionalism skills among the medical students, and surprisingly not effective towards teamwork. Professionalism and leadership are two essential skills towards medical best practices

**Keywords:** Community Medicine Posting, Teamwork, Leadership, Professionalism, Universiti Putra Malaysia

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## INTRODUCTION

Having good teamwork, leadership skills and professionalism are three important characteristics in becoming a good and competent medical practitioner. These elements should be incorporated since the medical program as part of medical training to ensure good practices among the new graduated doctors. Recently, concerns related to professional values and competencies among medical personnel including doctors were raised repeatedly, reflecting the needs for integrate these components in the medical degree curriculum.

Teamwork is defined as the capability of a group of people to work together, interact effectively and professionally, expect and meet other member's request and stimulate confidence creating a synchronise collective action between team members (1). It is not

an aftermath of placing people together, but very much depends on the willingness of a group of people to cooperate for a common goal (2). To have a great team performance, teamwork is essential (1). The effectiveness and success of a team are placed in jeopardy if one of the team members decides to work independently (3). Teamwork is a crucial component in the health care practice because the whole system is a team process. No one individual is expected to care for a patient on his own as the practice of medicine is complex (4). An individual may have the information, however, patient safety is heightened only if the information is shared and work upon together (2).

There are several instruments used to assess teamwork skills such as Rochester Communication Rating Scale, Team Skills Scale, leadership and group development assessment, Acute Life-threatening Events, Recognition and Treatment (ALERT) questionnaire, the Team Development Wheel; and the Team Dimensions Rating form (5). MacMillan et al. (6) had developed three types of questionnaire to assess each team member's task-work awareness, workload awareness and teamwork awareness as these three are interrelated facets of team

performance which leads to mutual awareness.

Meanwhile, leadership is a management function which involves the ability to manage an organization, making decision for the team and to create problem solving effectively. It was described by Hogan, Curphy and Hogan (7) as the capability to develop and retain an effective team. Leadership can be seen as a series of managerial attitudes, behaviours, characteristics and skills based on an individual or organisation values, leadership, interests and reliability of employees in different situations (8). The aims of an effective leadership are establishing goals and expectation, resource strategically and ensure an orderly and supportive environment (9). A great leader can influence an individual to a chosen direction which leads to the actions of groups and organisations (10). From the medical management perspective, a leader in a team is not only require to have the skill to treat the patients but also to be able to make appropriate and quick decision for the best action and management of the patients. A physician needs to have an excellent leadership skill despite an excellent clinical skill to lead effectively (10).

Professionalism is another crucially important characteristic of becoming a good medical practitioner. It is also one the characteristics of being a good leader in the medical profession. The word thrust has been included as part of formal definitions of professionalism in many literatures (11). Professionalism has been characterised as lists of traits and behaviours; a role played in society; a social construction and as means and effect of social control (12). Martimianakis, Maniate and Hodges (12) suggested that professionalism is something that is socially constructed in interaction rather than in a stable isolated, taught and assessed environment. The ideology of professionalism has changed so much over the years along with society and the advancement in medicine, which involves the interaction and communication with the patients and the family members, staffs and community as a whole. As a medical personnel and doctor specifically, every action taken counts and has to be professionally conducted.

Technically, teamwork, leadership and professionalism are three components which are interrelated in medical field. Books and lectures alone were not enough for students to develop a true understanding of these elements. It should be nurtured in university's curriculum as it is an interpersonal and complex activity (13). The assessment should occur throughout medical school, post-graduate training and beyond, as they are a process that they learn throughout the medical education and career path. The role of medical education at the undergraduate level has been considered of utmost importance as it sows the seeds on which the foundations of a budding doctor are built (14).

Community medicine posting has been one of the

main pillars of the medical curriculum that focus on the management of health problems of the community rather than on individual basis. During this posting, students are expected to acquire adequate knowledge on the epidemiology of diseases and the risk factors, concept of health, health promotion, wellness diagnosis and community health program and also health service management and programs according to the different speciality in public health.

Under the medical program curriculum in Universiti Putra Malaysia (UPM), community medicine posting is being conducted for a duration 6 weeks among the year 4 students. The overall goal of the posting is to strengthen the students' understanding on the roles of doctors and other medical staffs especially related to health services and facilities available at the district level. One of the components of the posting is to conduct a community survey and plan for an intervention program for the community based on the community diagnosis. This task requires effective teamwork, leadership skills and also professionalism to ensure the program runs as plan. Hence, the main objective of this study is to assess the effectiveness of the posting in cultivating teamwork, leadership and professionalism among the students as an effort to produce good practice medical practitioners and not only having competency in clinical skills.

## **MATERIALS AND METHODS**

A pre and post-test among all 107 of the year four medical students in Universiti Putra Malaysia (UPM). The Community Medicine Posting (CMP) treated as the intervention, aiming to measure its effectiveness to cultivate professionalism, leadership and teamwork skills among the medical students. The posting lasted for 6 weeks and serves as one of the major postings under the medical degree program, with the aim to expose the medical students towards rural health care services. Throughout the 6 weeks, students will be placed at 2 districts located in the state of Negeri Sembilan. Apart from actively involved in the various activities conducted at the District Health Office, students are also requested to conduct a community survey and a health intervention day based on the community survey diagnosis.

Self-administered questionnaire consisted of four sections (socio-demographic characteristics, leadership, teamwork and professionalism) was distributed before the start of the posting and also upon completion of the posting. Teamwork was measured using the Teamwork Effectiveness Self-Assessment Questionnaire by Sterling and Selesnick, which consist of 11 items, measured using a 5-point likert scale. Meanwhile, the leadership and professionalism were measured using the Leadership Qualities Questionnaire - Student Evaluation by Shepherd College and Professionalism Mini-Evaluation Exercise (P-Mex). Both consist of 21 statements which

were also measured using a 5-point likert scales. Various tools have been used to measure professionalism, which are mainly using questionnaire such as the Professionalism Mini-Evaluation Exercise (P-MEX). P-MEX has been considered as one of the favorable tools to evaluate professionalism (15, 16). This study used P-MEX to measure professionalism using P-MEX, as compared to other measures, it has the evidence of adequate validity, reliability and generalizability of the assessment of professionalism (17), especially among medical students. Permission was obtained prior to the use of the stated questionnaire. Ethic Committee for Research Involving Human Subject of Universiti Putra Malaysia provided the ethics approval.

All data analysis was done using IBM SPSS version 20. Descriptive statistics was presented for all study variables. Numerical variables were presented in mean (standard deviation) or median (interquartile range) after checking for their normality. Categorical variables were presented in frequency (percentage). Paired sample t-test was conducted for each item to compare post-posting and pre-posting item score. To examine effectiveness of the posting on teamwork, leadership and professionalism at pre-posting and post-posting, repeated measures analysis of covariance (ANCOVA) was used. Repeated measures ANCOVA was conducted separately for each measurement; teamwork, leadership and professionalism while controlling for age and gender as potential confounders. P-value of within-subject effect was examined to check for significance of pre-posting and post-posting mean difference for each measurement. Pairwise comparison was used to determine the mean difference after controlling for potential confounders. Assumption for repeated measures ANCOVA; normality of residuals, equal variance and linearity were checked. Interaction term was also examined. All statistical significance level were set at 0.05.

## RESULTS

### Characteristics of the respondents

Table I is showing the characteristics of the respondents

**Table 1** Demographic characteristics of participants (n = 107)

| Demographics characteristic | n (%)         |
|-----------------------------|---------------|
| Age                         | 22.64 (0.63)* |
| Gender                      |               |
| Male                        | 29 (27.1%)    |
| Female                      | 78 (72.9)     |
| Ethnicity                   |               |
| Malay                       | 87 (81.3)     |
| Chinese                     | 12 (11.2)     |
| Indian                      | 7 (6.5)       |
| Bumiputra Sarawak           | 1 (0.9)       |
| Religion                    |               |
| Islam                       | 88 (82.2)     |
| Hindu                       | 8 (7.5)       |
| Christian                   | 1 (0.9)       |
| Buddhism                    | 10 (9.3)      |

\*Mean (Standard deviation); Age was normally distributed as assessed by histogram and box-and-whisker plot.

according to the demographic factors. The mean age of the respondents was  $22.64 \pm 0.63$  years old. Majority of them were female (72.7%), Malay ethnic (81.3%) and also Islam by religion (82.2%).

### Mean difference of teamwork, professionalism and leadership pre and post community medicine posting

Table II is showing the result of paired sample t-test for each items, comparing post-posting to pre-posting level at univariate level. Meanwhile, table III shows the effect of the intervention which is the Community Medicine Posting on teamwork, leadership and professionalism based on the mean difference. The analysis showed significant increase of the mean score for professionalism and leadership at the end of the posting, with leadership has the highest mean difference (10.12).

## DISCUSSION

The initial concept of Community Medicine was to incorporate Family Medicine into the preventive and social medicine in the delivery of primary health care (18). However, Kumar (19) proposed that Community Medicine should has both Family Medicine and Public Health, with Family Medicine focusses on providing continuous and comprehensive care for the individual and the family, and public or community health emphasizing on disease epidemiology and prevention and also health management and promotion. However, they differ in terms of the delivery of the prevention with family medicine is focussing on individual patients and community health on the community as a whole. Community health has been used interchangeably with Preventive and Social Medicine (PSM) and Public Health that share common ground in the field prevention of disease and promotion of health.

The findings from this study revealed that CMP improve leadership among the medical students greatly. Other similar studies reported that community involvement among medical students significantly associated with positive outcomes, especially leadership quality (20-22). Medical students who joined community service were reported to be improved in organizational skills and higher level of ad flexibility in dealing with various issues, especially when placed in unexpected situation (20, 23). Other than that, community posting also reported to improve leadership qualities in term of goal-setting skills, decision making skills, problem-solving skills and ability to motivate or inspire others (20) The improvement of leadership qualities mainly influenced by experience in community posting, with some involve as role model and while others threading love and service together for a style of servant leadership (21).

Medical professionals have been widely recognized as the key role in adapting and performing the various healthcare systems' structure and the resources available (24). Clinical leadership is an important element in the

**Table II:** Result of paired sample t-test for pre- and post-posting for each items response (n = 107)

| Item description   | Mean score (SD) |              | Mean change <sup>a</sup> | Item description  | Mean score (SD) |              | Mean change <sup>a</sup> |
|--|-----------------|--------------|--------------------------|---|-----------------|--------------|--------------------------|
|  | Pre-posting     | Post-posting |                          |   | Pre-posting     | Post-posting |                          |
| <b>Teamwork</b>  |                 |              |                          | Maintained appropriate appearance                                   | 4.01 (0.51)     | 4.24 (0.49)  | 0.23**                   |
| Team members put the interests and priorities of the organization or unit ahead of the interests and priorities of their respective jobs or functions. | 4.06 (0.76)     | 4.14 (0.86)  | 0.08                     | Was on time   | 3.92 (0.55)     | 4.23 (0.52)  | 0.31**                   |
| Team members obtain and use all the needed information and assistance from others when solving problems or making decisions.                           | 4.11 (0.74)     | 4.28 (0.84)  | 0.17                     | Completed tasks in a reliable fashion                               | 3.94 (0.47)     | 4.19 (0.46)  | 0.25**                   |
| The team is organized and structured suitably for the tasks it has to perform.   | 4.06 (0.76)     | 4.26 (0.79)  | 0.21                     | Addressed own gaps in knowledge and skills                          | 3.94 (0.47)     | 4.16 (0.46)  | 0.22*                    |
| Team problem solving processes and methods are appropriate and effective.  | 4.05 (0.79)     | 4.17 (0.87)  | 0.12                     | Was available to colleagues   | 3.97 (0.44)     | 4.30 (0.46)  | 0.33**                   |
| Team decision making processes and methods are appropriate and effective   | 4.03 (0.82)     | 4.17 (0.85)  | 0.14                     | Demonstrated respect for colleagues                                 | 4.03 (0.44)     | 4.32 (0.49)  | 0.29**                   |
| Team members participate meaningfully in higher-level decisions affecting their jobs or functions.   | 3.99 (0.84)     | 4.14 (0.86)  | 0.15                     | Avoided derogatory language   | 3.94 (0.44)     | 4.20 (0.59)  | 0.26**                   |
| Team members receive the guidance and resources they need from the team manager to do their jobs.  | 4.10 (0.74)     | 4.19 (0.89)  | 0.08                     | Maintained patient confidentiality                                  | 4.02 (0.46)     | 4.32 (0.49)  | 0.30**                   |
| Team members express their opinions honestly and openly to each other.   | 4.01 (0.83)     | 3.94 (1.06)  | -0.07                    | Used health resources appropriately                                 | 4.00 (0.50)     | 4.24 (0.47)  | 0.24**                   |
| Team members make good use of the time they spend together.  | 4.09 (0.72)     | 4.14 (0.96)  | 0.05                     | <b>Leadership</b>   |                 |              |                          |
| Every team member knows what the other team members expect from him or her.  | 3.95 (0.85)     | 3.95 (0.99)  | 0.00                     | To accept responsibility for my actions while working               | 3.85 (0.80)     | 4.42 (0.63)  | 0.57**                   |
| Conflict between or among team members is handled promptly and effectively.  | 3.99 (0.87)     | 3.94 (1.05)  | -0.05                    | To use proper time management techniques                            | 3.77 (0.80)     | 4.36 (0.63)  | 0.59**                   |
| <b>Professionalism</b>   |                 |              |                          | To effectively plan and present programs (special project & others) | 3.80 (0.84)     | 4.42 (0.62)  | 0.62**                   |
| Listened actively to patient   | 4.01 (0.58)     | 4.19 (0.42)  | 0.18*                    | To be well organized  | 3.85 (0.80)     | 4.40 (0.66)  | 0.55**                   |
| Showed interest in patient as a person   | 3.95 (0.64)     | 4.21 (0.53)  | 0.25*                    | To perform tasks competently and effectively                        | 3.86 (0.78)     | 4.40 (0.67)  | 0.54**                   |
| Recognized and met patient needs   | 3.93 (0.64)     | 4.16 (0.46)  | 0.23**                   | To displayed an awareness of people's feelings and behaviors        | 3.86 (0.75)     | 4.26 (0.68)  | 0.40**                   |
| Extended his/herself to meet patient needs   | 3.89 (0.66)     | 4.04 (0.61)  | 0.15                     | To work with agency personnel                                       | 3.70 (0.70)     | 4.06 (0.70)  | 0.36**                   |
| Ensured continuity of patient care   | 3.74 (0.78)     | 4.02 (0.66)  | 0.28*                    | To accept and utilize suggestions to improve performance            | 3.80 (0.73)     | 4.33 (0.66)  | 0.52**                   |
| Advocated on behalf of a patient   | 3.92 (0.57)     | 4.01 (0.64)  | 0.09                     | To display integrity in all areas of human relationships            | 3.81 (0.74)     | 4.28 (0.66)  | 0.47**                   |
| Demonstrated awareness of limitations  | 3.85 (0.53)     | 4.11 (0.50)  | 0.26**                   | To demonstrate good communication skills                            | 3.80 (0.78)     | 4.31 (0.69)  | 0.51**                   |
| Admitted errors/omissions  | 3.86 (0.61)     | 4.04 (0.60)  | 0.18*                    | To demonstrate good interpersonal skills                            | 3.88 (0.78)     | 4.33 (0.64)  | 0.45**                   |
| Solicited feedback   | 3.81 (0.63)     | 4.03 (0.54)  | 0.22*                    | To demonstrate positive leadership qualities                        | 3.85 (0.80)     | 4.28 (0.67)  | 0.43**                   |
| Accepted feedback  | 3.88 (0.59)     | 4.11 (0.52)  | 0.23**                   | To work within agency philosophies and goals                        | 3.79 (0.81)     | 4.22 (0.65)  | 0.43**                   |
| Maintained appropriate boundaries  | 3.91 (0.56)     | 4.25 (0.46)  | 0.34**                   | To demonstrate flexibility by adapting to different situations      | 3.86 (0.77)     | 4.38 (0.62)  | 0.52**                   |
| Maintained composure in a difficult situation  | 3.88 (0.54)     | 4.16 (0.55)  | 0.28**                   | To develop practical and realistic programs                         | 3.80 (0.72)     | 4.38 (0.64)  | 0.58**                   |
|  |                 |              |                          | To solve problems practically and realistically                     | 3.84 (0.73)     | 4.35 (0.63)  | 0.51**                   |
|  |                 |              |                          | To analyze problems and arrive at appropriate solutions             | 3.76 (0.74)     | 4.34 (0.66)  | 0.58**                   |
|  |                 |              |                          | To maintain an appropriate appearance and behavior                  | 3.91 (0.72)     | 4.43 (0.65)  | 0.52**                   |
|  |                 |              |                          | To be enthusiastic and motivated in performing duties               | 3.79 (0.74)     | 4.29 (0.64)  | 0.50**                   |
|  |                 |              |                          | To perform the duties of my internship                              | 3.88 (0.76)     | 4.36 (0.61)  | 0.48**                   |

\*P<0.05; \*\*P<0.001; <sup>a</sup>Paired sample t-test  
 Note: Mean change = Post-posting item score – pre-posting item score; Pair.

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 Note: Mean change = Post-posting item score – pre-posting item score; Pair.

**Table III:** The mean difference of teamwork, professionalism and leadership skill score before and after Community Medicine Posting among medical students in UPM (n = 107)

| Variable        |              | Adjusted Mean (95% CI) | Mean difference | p-value |
|-----------------|--------------|------------------------|-----------------|---------|
| Teamwork        | Pre-posting  | 43.98 (42.43, 45.53)   | 1.11            | 0.089   |
|                 | Post-posting | 45.88 (44.04, 47.72)   |                 |         |
| Professionalism | Pre-posting  | 81.58 (79.70, 83.46)   | 1.23            | <0.001  |
|                 | Post-posting | 87.62 (86.13, 89.11)   |                 |         |
| Leadership      | Pre-posting  | 76.05 (73.38, 78.72)   | 10.69           | <0.001  |
|                 | Post-posting | 86.75 (84.67, 88.82)   |                 |         |

Note: All analysis were adjusted for sex and age as potential confounders; 95% CI = 95% confidence interval.

health system performance and clinical governance to drive improvement efforts and initiatives (25). Leadership involves effective communication skills, which is more than just exchanging information, but understanding the emotion and intentions behind the information. The kind of leadership and management skills that should be acquired during the medical training covers a wide range of contexts including the knowledge and skills to influence public policy (26) based on the community needs and evidences. As a medical professional, physician bear the role of a leader in every decision making process, that requires the skills to lead, to work in a team and also to portray the act of professionalism. This study revealed community posting improved medical students' professionalism. The finding was also reported by other studies. Environment plays a vital role in influencing the development of professionalism (27). Students reported that professionalism was viewed based on work experience and any influential role model (28). Research has shown that engaging in community project with professional individuals improves professionalism (29). During the community posting in the current study, students involve with professional individuals in various programmes at the district health office, hospital, health clinics, community clinics and also other relevant organization. One may speculate that, all this engagement improve the students' professionalism through the role models or work experiences. Being physicians and medical educators, they are expected to have professional attitude and behaviour (30). The scopes of duty and responsibility hold by the medical professionals require them to behave in a manner that promotes patient and societal trust, which can be achieved and sustained through the consistent practice of professionalism (11). The nature of work in medicine certainly needs the element of professionalism practiced by all members of the team. Professional behaviour could possibly deliver better health care (31) to the community and improve the health care outcomes (32). By being professional, a physician able to gain trust and respect from the public, which is very important because physicians cannot operate effectively as healers without the confidence and faith of the patient and society (33). The planning to the community survey, planning for a health intervention and also implementing the health intervention day is one of the biggest agenda of the community posting in this study which requires great

teamwork, leadership features and also professionalism to ensure good communication with the target community and effectiveness and successfulness of the intervention to improve the outcome of concern such as knowledge and awareness on particular health issues. During the Community Medicine Posting, the professionalism and leadership skills were probably cultivated via field observations of the roles played by the District Health Officers in managing the health personnel, making decisions, allocation and distribution of human resources and work tasks. Additionally, coaching from the lecturers in charged especially in the planning and implementation of the health intervention has definitely contributed to their learning process and improvement of the leadership and professionalism scores.

This study showed teamwork was not significantly improved after the community posting. The mean change for the teamwork individual items were also showing non-significant changes. A qualitative study conducted in Singapore among medical students revealed that community service improve team dynamics. The community services also developed a highly effective group which promoted teamwork among the members (20). Attention should be given to the current community posting module in order to improve the medical students' teamwork. However, further research in this field is highly recommended.

## CONCLUSION

In conclusion, being professional and a good leader is very crucial in the medical profession. It must be instilled and nurtured among medical students to ensure a good quality and competent medical practitioners being produced. This study shows that the community medicine posting is a branch of medicine that capable of improving the professionalism and leadership among the medical students in UPM. The fact that the posting is being conducted in year four of the programme, it can benefits the students massively before completing the medical programme and practice as a certified medical practitioner.

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## REFERENCES

1. Salas E, Cannon-Bowers J. Teamwork and team training. In: Smelser NJ, Baltes B, editors. International Encyclopedia of the Social and Behavioral Sciences. Oxford. 2001; 1587-15492.
2. Groff H, Salas E, Sims DE, Klein C, Burke CS,

- Augello T, Mann S, Berry W. Teamwork in health Care. In: Risk Management Foundation, Harvard Medical Institutions, Forum: 2003; 3-18.
3. Sundar E, Sundar S, Pawlowski J, Blum R, Feinstein D, Pratt S. Crew resource management and team training. *Anesthesiology Clinics*. 2007;25:283-300.
  4. Lerner S, Magrane D, Friedman E: Teaching teamwork in medical education. *Mount Sinai Journal of Medicine: A Journal of Translational and Personalized Medicine*. 2009;76(4):318-329.
  5. Chakraborti C, Boonyasai RT, Wright SM, Kern DE. A systematic review of teamwork training interventions in medical student and resident education. *Journal of General Internal Medicine*. 2008; 23:846-853.
  6. MacMillan J, Paley M, Entin E B, Entin EE. Questionnaires for distributed assessment of team mutual awareness. In Stanton NA, Hedge A, Brookhuis K, Salas E, Hendrick H, editors. *Handbook of human factors and ergonomics methods*. London: Taylor and Francis. 2004.
  7. Hogan R, Curphy GJ, Hogan J. What we know about leadership: Effectiveness and personality. *American Psychologist*. 1994;49:493.
  8. Mosadeghrad A. *Principles of health care administration*. Dibagran Tehran. 2003.
  9. Robinson VMJ, Lloyd CA, Rowe KJ. The impact of leadership on student outcomes: An analysis of the differential effects of leadership types. *Education Administration Quarterly*. 2008;44(5):635-674.
  10. Goldstein AO, Calleson D, Bearman R, Steiner BD, Frasier PY, Slatt L. Teaching advanced leadership skills in community service (ALSCS) to medical students. *Academic Medicine*. 2009;84(6):754-764.
  11. Brennan MD. The role of professionalism in clinical practice, medical education, biomedical research and health care administration. *Journal of Translational Internal Medicine*. 2016;4:64.
  12. Martimianakis MA, Maniate JM, Hodges BD: Sociological interpretations of professionalism. *Medical Education*. 2009;43(9):829-837.
  13. Monrouxe LV, Rees CE, Hu W. Differences in medical students' explicit discourses of professionalism: Acting, representing, becoming. *Medical Education*. 2011;45(6):585-602.
  14. Pandav C, Nongkynrih B, Kusuma Y, Rai S, Misra P, Anand K, Goswami K, Gupta S, Kant S, Singh B. Linking undergraduate medical education to primary health care. In: *Symposium on Primary Health Care-New Initiatives*. New Delhi, India: Nutrition Foundation of India; 2006.
  15. Hodges BD, Ginsburg S, Cruess R, Cruess S, Delpont R, Hafferty F, Ho M-J, Holmboe E, Holtman M, Ohbu S et al. Assessment of professionalism: Recommendations from the Ottawa 2010 Conference. *Medical Teacher*. 2011;33(5):354-363.
  16. Wilkinson TJ, Wade WB, Knock LD. A blueprint to assess professionalism: Results of a systematic review. *Academic Medicine*. 2009;84(5):551-558.
  17. Tsugawa Y, Ohbu S, Cruess R, Cruess S, Okubo T, Takahashi O, Tokuda Y, Heist BS, Bito S, Itoh T et al: Introducing the professionalism mini-evaluation exercise (P-MEX) in Japan: Results from a multicenter, cross-sectional study. *Academic Medicine*. 2011; 86(8):1026-1031.
  18. Kark JD, Abramson JH. Sidney Kark's contributions to epidemiology and community medicine. *International Journal of Epidemiology*. 2003;32(5):882-884.
  19. Kumar R. Academic community medicine in 21st century: Challenges and opportunities. *Indian Journal of Community Medicine*. 2009;34(1):1.
  20. Loh AZ, Tan JS, Lee JJ, Koh GC. Voluntary community service in medical school: A qualitative study on obstacles faced by student leaders and potential solutions. *Global Health Action*. 2015;8(1):27562.
  21. Goldstein AO, Calleson D, Bearman R, Steiner BD, Frasier PY, Slatt L. Teaching advanced leadership skills in community service (ALSCS) to medical students. *Academic Medicine*. 2009;84(6):754-764.
  22. Abedini NC, Gruppen LD, Kolars JC, Kumagai AK. Understanding the effects of short-term international service-learning trips on medical students. *Academic Medicine*. 2012;87(6):820-8.
  23. Brazeau CM, Schroeder R, Rovi S, Boyd L. Relationship between medical student service and empathy. *Academic Medicine*. 2011 O;86(10):S42-S45.
  24. Waring J, Currie G. Managing expert knowledge. Organizational challenges and managerial futures for the uk medical profession. *Organization Studies*. 2009; 30(7):755-778.
  25. Daly J, Jackson D, Mannix J, Davidson P, Hutchinson M. The importance of clinical leadership in the hospital setting. *Journal of Healthcare Leadership*. 2014;6:75-83
  26. Collins-Nakai R. Leadership in medicine. *McGill Journal of Medicine*. 2006; 9(1):68-73
  27. Cruess SR, Johnston S, Cruess RL. "Profession": A working definition for medical educators. *Teaching and Learning in Medicine*. 2004;16(1):74-6.
  28. Schafheutle EI, Hassell K, Ashcroft DM, Hall J, Harrison S. How do pharmacy students learn professionalism?. *International Journal of Pharmacy Practice*. 2012;20(2):118-128.
  29. Flaherty AG. The relationship between student engagement and professionalism in pharmacy students (Doctoral dissertation, University of Kansas).
  30. Kirk LM. Professionalism in medicine: definitions and considerations for teaching. *Baylor University Medical Center Proceedings*. 2007; 20(1):13.
  31. Wynia MK, Papadakis MA, Sullivan WM, Hafferty FW. More than a list of values and desired

- behaviors: A foundational understanding of medical professionalism. *Academic Medicine*. 2014;9(5):712-714.
32. Van Mook WN, de Grave WS, van Luijk SJ, O'Sullivan H, Wass V, Schuwirth LW, van der Vleuten CPM. Training and learning professionalism in the medical school curriculum: Current considerations. *European Journal of Internal Medicine*. 2009;20(4):e96-e100.
33. Cruess RL, Cruess SR, Johnston SE. Professionalism: An ideal to be sustained. *Lancet*. 2000; 356.