

ORIGINAL ARTICLE

Appraisal of weekly conducted clinical pathologic case conference (CPC)

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Abstract

Background: The weekly held clinical pathologic case conference popularly known as CPC provides an effective and regular educational media of collaborative learning for inter-disciplinary exchange of knowledge among the faculty members of an institution. CPC has been routinely practiced for the last two decades in School of medical Sciences (SMS) at Universiti Sains Malaysia (USM). An hour session primarily involves a case presentation hiding the diagnosis followed by discussion on differential diagnosis and floor interaction on interesting clinical cases. It also gives an opportunity to new teaching staff in the institution to experience an in-house practice of presenting the clinical cases; which can readily be reproduced as a case report for publication. An effort to follow the original format of CPC is comprehended as an essential outcome of this study to keep up the sanctity of CPC as a case method of learning medicine in future.

Methodology: A questionnaire-based survey was recently conducted to evaluate the weekly held CPC in SMS. It was a cross sectional survey in which a questionnaire comprising of 23 items was administered to a targeted population of faculty members of School of Medical Sciences. The items in questionnaire were grouped into 5 clusters. All respondents were adequately briefed through a letter addressing the objectives and importance of survey and its appraisal aiming to revamp the CPC guided by the out-come of study. Questionnaires were administered to 240 academic staff, covering > 80% of the target population of 294 faculty members. 159 (66.2%) members of sample population completed the questionnaires. Total non-responses were 81 (33.7%) and item non-responses were 320 (8.7%)

Result: All the items in questionnaire were found significant ($p < 0.016$) except those two items related to, observing a difference in preparing for a case presentation versus a formal CPC presentation and its promotion ($p < 0.556$ and 0.197 respectively). It was also established that the major respondents were unaware of the original format of CPC ($p < 0.003$) in which a presenter select and prepares a case, which is discussed with participating faculty members for its differential diagnoses. 51.6% faculty members did not follow the formal CPC format ($p < 0.016$) in their presentations. A lack of awareness about the format of CPC was shown by (61.0%) faculty members ($p < 0.003$).

Conclusion: It was concluded that emphasis to discuss the differential diagnosis by a competent discussant was lacking, as presenters did not follow the formal CPC format. It was critically observed that a number of presentations made in this weekly program deviate from the original format adapted by SMS in USM. However, the out-come appraisal of this survey was the pledge shown by the majority faculty members to adapt the guidelines as a reverence to the formal CPC format.

Keywords: Clinical Pathologic Case Conference, Postgraduate Medical Education, Continuing Teaching and Learning Methods.

Introduction

Clinical pathological conference popularly known as CPC is a viable and effective case method of teaching medicine. It has been in practice for more than 100 years (1). As a case method of learning medicine based on problem solving approach, CPC provides an opportunity to all participants to interact in discussion phase and refine their thought provoking cognitive process in a collaborative learning environment.

A well-chosen CPC remains a powerful and dynamic teaching tool that offers clinical-pathologic co-relation as well as competence. However critical to CPC learning is a well prepared case presentation followed by discussion which is based on clinical work up of all relevant features, each of which prompts to a differential diagnosis. The old saying, "If you do not think of it, you will never diagnose it" applies to the good clinical skills practice demonstrated in CPC. The guidelines to prepare and present a clinical pathological conference (CPC) involves a number of steps from selecting a case to preparing and presenting the case, discussing the case and finally presenting the ultimate diagnosis followed by case summary (2).

Learning from self-mistakes as highlighted in those cases presented and the resulting experience shared by the participants are the added achievements to a good clinical practice ultimately gained from CPC presentations. Critical to its effectiveness is the skilled presentation and discussion with good deal of audience participation and their thought provocation on a regular basis. A recently held evaluation of the CPC in School of Medical Sciences at USM revealed alarmingly decreasing attendance and enthusiasm of the faculty members in this continuing medical education program. Another concern shown in this evaluation was participant's consistently lacking interest to interact during the phase of proposing the differential diagnoses (3). To establish factors

responsible for consistent loss of interest in CPC shown by the faculty members prompted the author (Coordinator for CPC program in SMS) to explore the faculty awareness of original format and effectiveness of CPC as continuing medical education practiced for than two decades in SMS. CPC is run on a weekly basis as one formal CPC on first weekend of the month followed by two case presentations on each of the two subsequent weekends. Last weekend of the month is reserved for research presentation. Awards are given to best CPC presentation in each format on yearly basis.

Methodology

The study was conducted as a cross sectional survey to investigate the opinions of the faculty members with well defined items in a questionnaire comprising of five problem domain clusters as; 1) Knowing the original format of CPC verses the one practiced in SMS. 2) Use of the CPC as a method in continuing medical education. 3) Administration, schedule and the allocation of slots in the CPC. 4) Issues about meaningful versus camouflaged title, a pre-hand summary and the assessment methods used to evaluate CPC format. 5) Need for an exclusive CPC website with its utility for the faculty member in SMS.

Targeted population was the faculty members (294) in SMS and media of data collection was an on-line link - <http://www.medic.usm.my/UCCASSv1.8.1/survey.php?sid=44>, besides directly administered questionnaires via respective stenographers and secretaries of each department. An instrument designed as a self-administered questionnaire comprising of 23 items of unambiguous closed-ended question with yes/no response option (see appendix) was randomly administered among faculty members. Those who did not receive instrument were staff from biostatistics, sports medicine and unit of

women health (12 members), staff on sabbatical, subspecialty courses or on visiting lecturer assignments (19 members) or on leave (23 members). Directly administered questionnaire remained major media, a very small number of the respondents utilized the on-line link. SPSS version 13.0, for frequency analysis as percentages and Chi-square test for *p*-value was carried out to draw conclusion for any given item or cluster. Likely internal threat to validity was avoided by anonymity ensured however, closed-ended question were shown to have prevented respondent from making the right choices. All respondents were addressed through a cover letter and briefed about the purpose and importance of survey and its appraisal to help revamp the CPC forum. If interest is shown to experience a truly formal CPC presentation by majority faculty members in response to item 6 of cluster 1 in this survey, a model CPC for demonstration was planned soon.

Result

All the items (1-6) in cluster 1 were found

significant (*p*-value between 0.00-0.016) except item number 5 (*p*-value 0.565). All the items (7-9) in cluster 2 were significant with *p*-value between 0.000-0.014 (see table 2).

Items (10-16) in cluster 3 were all significant (see table 3) except item number 11 (*p*-value 0.197). This item indicated that majority members were happy with present CPC verses case presentations format and apparently not willing to suggest a change. However, a good number (25.8%) respondent chose to remain indifferent rather than committed yes or no has produced an insignificant result for this item. This reflects some reservation over the issue.

All the items in cluster 4 (items 17-19, see table 4) and cluster 5 (items 20-23, see table 5) were found significant with *p*-value 0.000, primarily supporting the idea of releasing the abstract of the CPC without revealing the diagnosis, few days prior to presentation and exclusive website for archiving the presentations (see table-6).

Table 1: Cluster No: 1 (Items 1-6) - Knowing about the format of the clinical pathological conference (CPC).

NO	ITEM	YES, n (%)	NO, n (%)	<i>p</i> -value*
1	Know well about the original format of the CPC presentation	60 (37.7)	97 (61.0)	0.003
2	SMS does practice the original format in their CPC	54 (34.0)	82 (51.6)	0.016
3	Happy about the CPC format adapted by SMS	96 (60.4)	52 (32.7)	< 0.001
4	Want CPC to be run more like an original format	67 (42.1)	32 (20.1)	< 0.001
5	Observe the differences while preparing for a case presentation in CPC verses a full CPC presentation	74 (46.5)	67 (42.1)	0.556
6	Willing to share a model CPC presentation as demo	138 (86.8)	13 (8.2)	< 0.001

*Pearson Chi-square test, *p* < 0.05 was considered as significant at 95% confident interval.

Table 2: Cluster No: 2 (Items 7-9) - Usefulness of the clinical pathological conference (CPC) as continuing medical education

NO	ITEM	YES, n (%)	NO, n (%)	p-value*
7	Have an urge to attend the weekly CPC in PPS	96 (60.4)	59(37.1)	0.003
8	Attend the weekly CPC more often if not regular	90 (56.6)	60 (37.7)	0.014
9	Weekly CPC in PPSP an useful forum for CME	137 (86.2)	12 (7.5)	< 0.001

*Pearson Chi-square test, $p < 0.05$ was considered as significant at 95% confident interval.

Table 3: Cluster No: 3 (Items 10-16) - Organization of the clinical pathological conference (CPC) in SMS, USM

NO	ITEM	YES, n (%)	NO, n (%)	p-value*
10	Happy about two case presentation vs. one full CPC	115 (74.2)	40(25.2)	< 0.001
11	Willing to change one full CPC into two full CPC	52 (32.7)	66 (41.5)	0.197
12	Major disciplines to share the load of all full CPC	96 (80.4)	51(32.1)	< 0.001
13	Minor disciplines to enjoy the case presentation Only	89 (56.0)	56 (32.1)	0.006
14	Full CPC slots better be reserved for major disciplines In SMS	107 (67.3)	42 (26.4)	< 0.001
15	Willing to add to those 8 disciplines for a full CPC	36 (22.6)	91 (57.2)	< 0.001
16	Willing to delete from those 8 disciplines for full CPC	15 (9.4)	119 (74.8)	< 0.001

* Pearson Chi-square test, $p < 0.05$ was considered as significant at 95% confident interval.

Table 4: Cluster No: 4 (Items 17-19) - Congruence about the title, abstract and methods of assessment for rewards in clinicopathological conference

* Pearson Chi-square test, $p < 0.05$ was considered as significant at 95% confident interval.

NO	ITEM	YES, n (%)	NO, n (%)	p-value*
17	Like the camouflaged type of an incongruous titl	107 (67.3)	43 (27.0)	< 0.001
18	Like to have some clue about the CPC prior to its presentation without knowing the actual diagnosis	114 (71.7)	35 (22.0)	< 0.001
19	Agree to method of assessment of CPC for reward	109 (68.6)	32 (20.1)	< 0.001

Table 5: Cluster No: 5 (Items 20-23) - Need to create a website for the clinicopathological conference.

NO	ITEM	YES, n (%)	NO, n (%)	p-value*
20	Would like to have exclusive CPC website in PPSP	121 (76.1)	29 (18.2)	< 0.001
21	Website as a forum for audience to give feedback	117 (73.6)	8 (5.0)	< 0.001
22	Website as a forum to archive the weekly CPC event	124 (78.0)	6 (3.8)	< 0.001
23	Website as a forum to know the guidelines and learn about the methods of a CPC presentation in SMS	112 (70.4)	15 (9.4)	< 0.001

* Pearson Chi-square test, $p < 0.05$ was considered as significant at 95% confident interval.

Discussion

Out of 240 questionnaires administered, 159 (66.2%) responded from all over disciplines inclusive of clinical and the basic sciences. Total non-responses were 81 (33.7%) versus item non-responses 320 (8.7%). Reasons for total non-responses were, inaccessible staff away on leave, attachment/sabbatical or a usual indifferent attitude towards survey in general or lack of motivation for CPC. Reasons for item non-responses were, missed-out option of "not sure" versus yes or no given as choices to respond in questionnaire, besides, some junior respondents who never presented CPC were unable to accomplish relevant questions. Another reason was that a good number of respondents were not even aware of the formal format of the CPC to be able to respond to those relevant questions.

All the items in questionnaire were found significant (p -value between 0.000 to 0.016) except those two items related to observing a difference in preparing for a case presentation versus a formal CPC presentation and its promotion as shown by p -values of 0.556 and 0.197 respectively. The result of this item, which observed the faculty members' option to maintain a difference between a case presentations and a formal CPC presentation, was insignificant due to closely marked yes (46.5%) versus no (42.1%) as with those in favor

had a slight edge over those not in favor (see table 1).

It was also established that the majority respondents were unaware of the original format of CPC (p -value 0.003), that demands a team work in which a presenter plays the role of an anchor person and prepares a case that has the provision to discuss differential diagnoses. Majority respondents had the feeling that presenters in SMS do not adhere to an original format. On the contrary many were still found happy with the format of CPC presentations in SMS, which indicates ignorance of knowing what a real CPC would be if adapted from a formal format. This finding supports the concerns of organizers that there is no regret for those CPC, which are presented like a formal lecture while denying the essentials of interaction and audiences' interest in such presentations (4). Result of the item pertaining to those who really observed the difference while preparing for a case presentations versus a formal CPC presentations is insignificant with closely marked yes (46.5%) versus no (42.1%) however, with a slight edge for those who really observed the difference (see table 1).

In SMS the CPC program is run as twice a month case presentation versus once a month formal clinical pathological conference as close to the original format as possible. In case presentation, a presenter may come up with the diagnosis right away

from the first picture or slide shown by the presenter. Presenter as the only speaker therefore may begin with an introduction, case report and discussion format pattern, more of a case-report write up of a journal (5). Compared to this a formal CPC presentation should have at least two speakers, one “presenter” giving the details of case presentation while avoiding to reveal the diagnostic investigation and a “discussant” elaborating the differential diagnosis in collaboration with audience participation. Encouraging finding of this cluster has however, established that the majority faculty members wish to adapt CPC presentations close to a formal format and their desire to share the demonstration of a model CPC presentation (see table 1).

In an ideal situation of CPC, the presenter and discussant are two different persons who do not meet each other or exchange their views until the day of presentation of CPC. The purpose of this kind of CPC is to solve an unknown case by a discussant based on certain clinical features and diagnostic results (without interpretation) coming from a presenter. No communication between presenter and discussant occurs before the CPC. However, presenter will forward the initially evaluated patient report to discussant who will prepare a discussion, highlighting logical list of differential diagnosis to advance a tentative diagnosis with an audiences’ interaction. Final outcome and subsequent hospital course of management that contribute to an ultimate diagnosis will come from the presenter at the end. Though it is stressful for the discussant to discuss seemingly inconsequential information but is always exciting and challenging. Adequate preparation for the discussion makes the presentation enjoyable for all. The spectrum of potential CPC presentation is broad. It is not hard to get cases suitable for CPC from one’s own routine clinical practice, key to which is a good observant approach. Cases that have unusual presentation of common diagnosis or typical presentation of unusual

diagnosis make a good case for CPC presentation. The best case for CPC should have basic elements of relevance, solvability, discuss-ability and key teaching point (6).

In the format of CPC adapted by SMS, presenter and discussant are usually the same person or persons from the same department. Discussant here has prior information of ultimate diagnosis and outcome of a case presented. This modified version is essential and practical to run the show on weekly basis since in School of Medical Sciences most of the disciplines consist of not more than one unit. This cannot guarantee the presenter to hide the details of patient from the discussant who also belong to the same department and may have been involved in patients’ management. To practice the CPC with a formal format we require two similar disciplines, for example ENT departments of two different institutions to keep presenter and discussant entirely unknown to each other at least with regards to that case presentation. The observed out-come of the appraisal in this survey is the pledge shown by the faculty members to adapt the guidelines as a reverence to the formal format of CPC. It was concluded that emphasis to discuss the differential diagnosis by a competent discussant was lacking, as presenters did not follow the formal CPC format (51.6% vs. 34.0% with p 0.016). This was mainly due to lack of awareness of CPC format by the majority faculty members (61.0% with p 0.003). The outcome is comprehended as an essential point to keep up the sanctity of CPC as a case method of learning medicine in future.

Strong desire to attend the CPC is felt by a substantial number of faculty members with their claim to attend the CPC as often as possible. Weekly CPC is strongly considered as an effective method of continuing medical education in this study. Majority members were happy with present CPC verses case presentations slots and

apparently not willing to change the present set-up. However, a good number (25.8%) of respondents who have chosen to refrain from committing yes or no resulted in an insignificant outcome for this item (see table 3). This reflects faculties' reservation over the issue. Anyway, majority want to see the major disciplines taking the responsibilities of presenting CPC leaving the case presentation slots for other minor disciplines. Few respondents have suggested addition and deletion of disciplines to CPC presentations and the disciplines recommended for inclusion are Emergency Medicine, Psychiatry and Neurosurgery, which are already included in the list of departments announced for CPC slots on yearly basis.

Good number of respondents is in favor of a camouflaged type of incongruent titles but would like to see a summarized abstract to ascertain some idea about the subject to be discussed days prior to actual presentation. They also quite agreed with method of assessment used for rewarding best CPC presentations. Major group of respondents have consented for an exclusive website primarily for archive purposes. They also wish to utilize the forum as black board for feedback and interaction of the faculty members besides, looking at it as a media for guidance to prepare for a CPC, and learning from those model CPC and the instructions displayed on website. A model CPC as committed in one of the item (see item 6 in appendix) adopted by majority respondents in survey was presented thereafter as demonstration for future practice guidelines (4). However, a truly formal CPC is beyond the scope of routine practice due to time and labor intensive efforts required to prepare for such presentations.

Conclusion

It is concluded that CPC is an effective forum for continuing medical education. Majority

respondents though unaware of an original CPC format are willing to adapt the original format. Most of the faculty members desired to attend CPC as often as possible. The observed out-come of the appraisal in this survey is the pledge shown by the faculty members to adapt the guidelines as a reverence to the formal format of CPC. Majority members are happy with present CPC verses case presentations format however, want to see the major disciplines given the responsibilities of formal CPC presentations. Surprisingly a good number of respondents are in favor of abstract or ambiguous titles provided they are supported with a summary. Most of the respondents are in favor of initiating an exclusive CPC website in School of Medical Sciences as a forum for archive, feedback and guidance.

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Accepted: June 2011

Published: December 2011

Appendix:

A 23 items self-responding instrument was designed and utilized in a questionnaire-based survey in this study.

NO	QUESTIONS	YES	NO
1	Are you fully aware of a formal format of clinico-pathological case conference known as CPC?		
2	Do we follow the formal CPC format in School of Medical Sciences weekly program?		
3	Are you happy with the present CPC format practiced in School of Medical Sciences?		
4	If no, do you want to adapt a change closer to a formal CPC format globally practiced?		
5	Do you observe the difference while preparing for a formal CPC vs. a case presentation in CPC?		
6	Are you interested to experience the format of a model CPC presentation as a demonstration?		
7	Do you have an urge to attend the weekly CPC held in School of Medical Sciences?		
8	Do you attend this weekly CPC program more often if not regularly in School of Medical Sciences?		
9	Do you find the CPC program as a useful forum for continuing medical education?		
10	Are you happy with 2 "case presentation CPC" verses 1 close to a "formal CPC" every month?		
11	If not, do you wish to change the program to 2 formal CPC and 1 case presentation in CPC monthly?		
12	Are you in favor of major disciplines taking the slots of all "formal CPC" presentations?		
13	Do you recommend all minor disciplines to have "case presentation" slots only in their weekly CPC?		
14	Do we need to reserve full CPC slots for disciplines like, Internal Medicine, Family Medicine, General Surgery, Obstetric & Gynecology. Pediatric, Orthopedic, Otolaryngology-Head and Neck Surgery?		
15	Do you want to add more disciplines to this list, if yes, name them here?		
16	Do you want to delete any discipline from the above list, if yes, name them here?		
17	Do you like the incongruous (camouflaged) title of CPC appearing on the posters?		
18	Would you like to perceive about the subject to be discussed in a scheduled CPC as an "abstract hiding the diagnosis" circulated through intranet, days prior to its presentation?		
19	Are you happy with present mechanism of assessment of CPC in two categories judged for awards?		
20	Do you feel the need for an exclusive website for the CPC program in School of Medical Sciences? If yes proceed to respond to following items!		
21	The purpose of this website will be to serve as a black board for faculty members interaction/feedback		
22	The purpose of this website will be to archive the CPC presentations as an asset of this medical School		
23	The purpose of the website will be to learn about the method of presenting a CPC close to formal CPC		