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Evaluation of an Electronic Platform for Problem Based Learning for Subspecialty Fellows

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Abstract

Introduction: Increasing demands on the time of trainees may warrant new self-directed, concise methods of problem based learning. To address these issues in urological oncology CBULP was designed to provide a concise electronic format that could be readily accessed when the fellow was rested and ready to learn. We evaluated the perceived usefulness of this program.

Methods: Subspecialists from 2 academic urology programs and an educational professional wrote 42 clinical scenarios about various renal and adrenal malignancies, and generated concise learning points. These cases were mailed to various urological oncology fellowships in the United States and Canada. An 18-question survey was delivered electronically 8 weeks later. Responses were recorded anonymously via survey software.

Results: Of 36 fellows 30 (83%) responded. Of the respondents 74% completed at least 5 cases and the majority completed more than 10. Of the respondents 93% thought that the cases had the appropriate amount of detail and covered core concepts related to renal/adrenal tumors. No respondent required more than 20 minutes to finish any case. Of the respondents 93% and 100% indicated that the cases effectively illustrated the basic principles of the disease process, and the fundamentals of evaluation and management, respectively. Overall 97% of respondents thought that CBULP could be an effective learning resource for fellows.

Conclusions: An electronic case based method of learning appears to be a useful tool for subspecialty fellows. It may be a worthwhile self-directed supplement to traditional educational resources.

Key Words: kidney; adrenal glands; education, medical, continuing; medical oncology; problem-based learning

Abbreviations and Acronyms

CBULP = Case Based Urology Learning Program

PBL = problem based learning

Work hour restrictions have transformed the traditional apprenticeship model of surgical training and intensified the struggle to provide each trainee with a balance of adequate clinical/surgical experience, protected time for teaching and conferences, and sufficient continuity of patient care.[1–4] Additionally, trainees struggle to balance the desire to master the technicalities of laparoscopic, robotic and open surgeries with the need to stay current with an exponentially growing body of literature and core clinical concepts. From 1997 to 2006 the number of studies published in the medical sciences increased at an annual rate of 6%, corresponding to a 13-year doubling time.[4] These challenges are magnified among fellows since they are often deeply invested in research and have increased clinical responsibility as well as the added role of teaching and mentoring junior trainees. A potential solution to this dilemma is a learning tool that is concise, efficacious and readily accessible when the trainee is rested and ready to learn.

Although these fundamental changes in graduate medical education have improved trainee satisfaction and decreased fatigue, they result in the loss of face-to-face interaction with patients and attending physicians, and thereby limit experiential learning.[1,3,5,6] To compensate for lost clinical time and replicate

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cases that trainees now occasionally miss in the various clinical settings numerous programs have adopted PBL into the curriculum. PBL has gained tremendous momentum in the educational domain because it has shown higher levels of learner engagement and comprehension, and better information retention on a longitudinal basis.[7−10] Great strides have been made to provide PBL resources at the medical school and resident levels but few resources are available for fellows in training.

Also, trainees today have an aversion to didactics and show a strong preference for digital media that is readily accessible from electronic platforms such as compact tablets and smart phones.[11,12] We hypothesized that CBULP, a concise, case based digital learning resource, would facilitate independent learning of core concepts among subspecialties with a special focus on urological oncology and renal/adrenal tumors.

Examples of CBULP can be accessed at http://www.goldjournal.net/content/residents and http://www.auanet.org/international/case-of-month.cfm. In the former resource items 2, 4, 8, 9, 15 and 18 are renal/adrenal cases that were included in the series distributed to the urological oncology fellows.

Materials and Methods

Program Development

CBULP was designed as a collaboration of subspecialists from 2 academic urology programs. Experts from each urology department were asked to design cases highlighting core concepts in urological oncology. These cases are presented using the Socratic method, in which learners are presented a case briefing and then prompted with questions to assess their knowledge of the disease process. Ideal responses are presented in subsequent slides. The cases, which were designed to be reviewed in 10 to 15 minutes, highlight the basic principles of the disease process and the fundamentals of evaluation and management. Select readings are attached to the end of each case to facilitate more detailed study if the trainee desires. Eight adrenal and 34 renal cases were included in the final series (see Appendix).

Survey Development and Administration

The CBULP cases were sent to all urological oncology fellowship programs in the United States and Canada. Program directors were requested to forward the compact disks with cases to their fellows. A total of 36 trainees were verified to have received the program. After a thorough literature review, and input from urology staff and a professional with a doctorate in education an 18-question survey was designed to evaluate trainee perspectives on the efficacy and usefulness of CBULP (supplementary Appendix, http://www.urologypracticejournal.com/).[7−9,13] The survey was administered via an anonymous web based application (http://www.qualtrics.com/) 8 weeks after the CBULP series was sent to the fellowship programs. Reminder emails were sent monthly for the next 2 months. Simple descriptive statistics were applied to analyze the data via Excel®.

Results

CBULP Use

A total of 36 urological oncology fellows in North America received the renal/adrenal series as a potential learning resource, of whom 30 (83%) responded to our survey 2 to 4 months later. As background information 70% of respondents stated that they regularly use review articles for current education, followed by the use of primary research articles by 50% and textbooks by 43%. Of the respondents 74% reviewed 5 or more cases and none required longer than 20 minutes to review any case. The table shows program use and fellow perspectives on settings for which the resource could be most effectively implemented.

CBULP Information Quality

When evaluating the quality of information provided in CBULP, 97% of fellows thought that the cases were clear and concise, and 93% thought that they illustrated the basic principles of the disease process. Fellows unanimously thought that the cases illustrated the fundamentals of evaluation and management. All of them thought that the renal/adrenal series adequately covered the most common and important topics in the field (fig. 1).

Table.
CBULP use

Question	No. Respondents (%)
How many CBULP cases have you reviewed:	
None	0
1−2	2 (7)
2−5	6 (20)
5−10	8 (27)
Greater than 10	14 (47)
Length and level of detail in each case was:	
Insufficient	2 (7)
Just enough	28 (93)
Too much	0
On av each case took about − mins to review:	
Less than 5	1 (3)
5−10	13 (43)
10−20	16 (53)
20−60	0
Greater than 60	0
How can you envision CBULPs being used? Check all that apply:	
Medical student education	11 (37)
Resident education	24 (80)
Fellow education	29 (97)
Quick reference material for faculty	13 (43)
Other	1 (3)
What do you think will be most effective way of using this program for future trainees? Check all that apply:	
Individual review	27 (90)
Small group setting	22 (73)
Organized conferences	8 (27)
Study for board examination	15 (50)
Day to day practice	10 (33)
Other	0