Pediatric Electrocardiogram Curriculum for First Year Pediatric Residents

Waseem Ostwani, MD, Bob Miller, MD and Darshana Shah, Ph.D.

Marshall University Joan C. Edwards School of Medicine, Huntington, WV

Abstract

No prior studies have looked at developing pediatric ECG curriculum for the pediatric residents. The current study describes development and implementation of pilot pediatric ECG curriculum. Results demonstrated improved confidence level in ECG interpretation of pediatric residents confirmed by a pre- and post-tests. This study provides baseline data to initiate a structured ECG curriculum for first year pediatric residents.

Introduction

The electrocardiogram (ECG) is a readily available, relatively inexpensive, noninvasive test and is frequently used to screen for cardiac abnormalities. Careful ECG interpretation by the ordering physician influences the course of patients' management.

Studies have shown that pediatric residents' interpretation skills are lower than expected. [1] More education of pediatric residents in this area has been recommended. [1-3]. No prior studies have looked at developing an ECG curriculum for the pediatric residents.

The purpose of this study was to design, develop and implement a pilot pediatric ECG curriculum for First Year Pediatric Residents.

Program

To assess the need for such an ECG curriculum, a focus group interview with first year pediatric residents was conducted. Semi-structured interviews were conducted with a fairly open framework which allowed for more general questions on the importance of learning pediatric ECG as an intern, their comfort level on interpreting the ECG and the number of ECGs ordered during the first 6 months by the first year pediatric residents was recorded. The information obtained was used to focus efforts on developing the pilot ECG curriculum

Pilot ECG curriculum

Four focused one hour teaching sessions in a group format were planned over a four-month period which included five first year pediatric residents. Sessions were evaluated with an open ended question regarding the best way of learning pediatric ECG interpretation; this was followed by group discussion led by the chief resident.

Pilot ECG curriculum (Cont'd)

The principles of reading a normal pediatric ECG were discussed during the first session. Seventy different pediatric ECG interpretations were completed and discussed in the other three sessions. The discussion was done in a manner that encouraged interaction between the residents. Each resident had an equal opportunity to contribute.

Formative and Summative Evaluation

Both verbal and written feedback at the mid-curriculum evaluation suggested continuing the curriculum in the same fashion, with an emphasis on the value of small group discussions for residents at the same level.

The pilot program was evaluated by pre and post questionnaires on ten distinct and clearly different pediatric ECGs. Out of ten ECG, four were basic ECGs which required the novice skills of interpretation; four ECGs required higher level of interpretation and two difficult ECGs. Test takers were asked to define the rhythm, the axis, and the impression for each of the ten ECGs.

Results

First year residents on average ranked the importance of learning pediatric ECG at 9.6 on a 10-point scale.

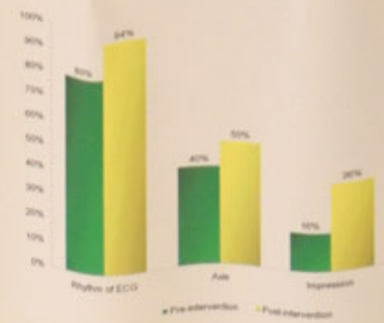
During the first 6 months of the year; our first year pediatric residents have ordered between 1-5 ECGs each; while they did not feel comfortable interpreting it with a mean of 3.6 on a 10-point scale.

Feedback during the post teaching session indicated that the residents felt more comfortable reading pediatric ECGs with an improvement to a mean of 7 on a 10-point scale.

In verbal feedback, residents also expressed that overall the course is valuable with comments like: "*It is very good and well focused on the most common cases in pediatrics, reviewing relative large numbers of ECGs was very helpful to apply theoretical principles in reading clinical ECGs in practice*".

The correct answers for the questions provided (Rhythm, Axis, and impression) were improved in the post-intervention test (figure 1)

Figure 1

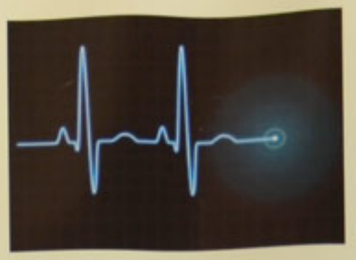


Conclusions

We recommend having a pediatric ECG curriculum for the first year pediatric residents which is started early in the academic year, focused group learning sessions, which if possible, would include relevant cases, including ECGs as part of morning report. The cases should be modified to matching each residency programs resources and needs.

References

1. Snyder CS, Bricker JT, Fenrich AL, et al. Can pediatric residents interpret electrocardiograms? Pediatr Cardiol. 2005 Jul-Aug;26(4):396-9.
2. Horton LA, Mosee S, Brenner J. Use of the electrocardiogram in a pediatric emergency department. Arch Pediatr Adolesc Med. 1994 Feb;148(2):184-8.
3. Snyder C, Fenrich A, Friedman R, et al. The emergency department versus the computer: which is the better electrocardiographer? Pediatr Cardiol. 2003 24:364–368.



Limited Resources Bring Innovation And Creativity: Academy Concept Used To Build Learners Community

Darshana Shah, Ph.D., Dan Cowell MD, JoAnn Raines MA., Karen Bledsoe MS.
Joan C. Edwards School of Medicine at Marshall University; Huntington, WV

GOAL

Primary goal of the Academy of Medical Educators at JCESOM is to build a learners community that embraces teachers who are committed to excel in teaching and to provide a platform to pursue their passion for teaching excellence. The Academy is charged with offering teaching improvement workshops, providing instructional knowledge and skills, and creating a supportive network of faculty members who share a passion for teaching.

METHOD

Application to the Academy can be either self nominated or nominated by any member of the faculty. Need based curriculum is designed for the academy candidates.

The candidates select a content area unique to their career path and spends the program year (one – two hours per week) developing knowledge and skills in the content area of choice. Candidates participate in core seminar and internal or external faculty development workshops. At the end of the year, the candidates present their scholarly projects at the MUSOM educational day/retreat. Upon completion of the program, the faculty candidates are presented with the "Master Educator" award. Upon completion of the year in the academy, these master educators will be leaders for the next group.

Examples of the 2004-2005 programs include:

- *Becoming an Effective Course/Clerkship Director*
- *Fundamentals of Relating Course Objectives to Institution Objectives*
- *Teaching Teaching*
- *Abstract Writing for a Medical Education Meeting*
- *The Scholarship of Teaching*
- *Creating Your Style: Teaching Perspective/Learning Perspective*
- *Enhancing Teaching Skills in a Clinical Environment*
- *How to Conduct Medical Education Research*
- *Clinical Skill Teaching: One Minute Preceptor Workshop*

RESULTS

Without monetary reward or compensation of time, senior as well as junior faculty members are applying for the academy to enhance their teaching abilities. Self fulfillment of their teaching goals makes a difference in the academic environment of not only their department but the entire school which ultimately impacts our students' success; Following, are the examples of scholarly project completed by the Academy members.

- *So, You want To be A Surgeon: Helpful Hints and Assistance*
- *Development of W[redacted]- based 3D structural Models To Teach Biochemistry*
- *Delivering Bad News*
- *Evaluating Learning Styles To Improve Your Teaching*
- *EKG Curriculum: A Four- Year Approach*

Fig-1 represents scholarly project presentation at the educational retreat

Recognition of Master Educators by Dean McKown

CONCLUSION

The Pareto principle (the 80-20 rule, the law of the vital few) is applied to build the Learner's community at JCESOM. There is a promotion of an academic "team" environment that enables self-fulfillment in lieu of monetary reward or release time. A prestige element for Master Educators is also enjoyed by those who complete the Ac[redacted]emy.

Getting off the Ground: Junior Faculty Mentoring Program

Darshana Shah, PhD.
Assistant Dean
Professional Development
Marshall University
Joan C. Edwards School of Medicine
Huntington WV 25701
U.S.A.

GOAL

To design, develop and implement a junior faculty mentoring program at Marshall University Joan C. Edwards School of Medicine. The program will foster and guide career growth, nourish skills and give junior faculty the additional support they need to launch their careers.

METHOD

The mentoring program will be implemented in five phases:

1. Organizational readiness
2. Participant recruitment
3. Mentor matching
4. Program implementation
5. Evaluation

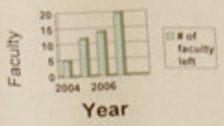
Phase I: Measuring organizational readiness

The following steps were taken to measure organization readiness:

- Meeting with the dean
- Determination of turnover rate of junior faculty: Reviewed last 5 years of faculty hired at instructor and assistant level vs. faculty departures
- Focus interviews with chairs: Sought the support of the chairs, which is crucial to get the program off the ground
- Needs assessment survey of junior faculty: The survey was constructed around following satisfaction themes: work environment, availability of resources, chair's guidance, and communication with senior colleagues. Part of the survey also included SWOT analysis and questions on new career-building possibilities. The survey was sent to faculty who were at instructor, assistant professor and associate professor level. Results will be evaluated based on Likert scale ratings and qualitative feedback.

RESULTS

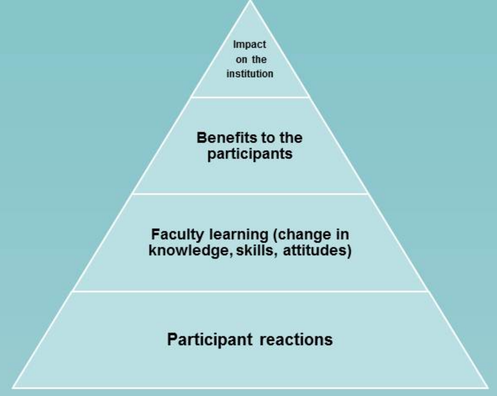
Measuring turnover rate of junior faculty



Needs assessment survey of junior faculty

CONCLUSION

Results of phase one indicate that there was a loss of 20% of faculty at the junior level within 5 years. Meeting with the dean and interviewing the chairs supports the proposal of initiating the junior faculty mentoring program at Marshall University Joan C. Edwards School of Medicine. Results of the needs assessment will be evaluated to customize the mentoring program for JCESOM junior faculty.



A Qualitative Application of Kirkpatrick's Model for Evaluating Academy of Medical Educators

Darshana Shah PhD* Elizabeth Armstrong PhD, Linda Spatig PhD and David Irby PhD
Marshall University , Joan C. Edwards School of Medicine*
Harvard Medical school
Marshall University College of Education
UCSF School of Medicine

Introduction

The Academy of Medical Educators at the Marshall University Joan C. Edwards School of Medicine was created five years ago to provided a faculty learning community that enhances values articulated and acted upon in education. A study was conducted with the Kirkpatrick model to evaluate the effectiveness of the Academy.

Statement of Problem or Question

How can the impact of a faculty learning community focused on excellence in teaching be measured?

Objectives of Program/Intervention

To evaluate the effectiveness of the Academy of Medical educators

Description of Program/Intervention

One year after their Academy experience, participants were asked to write self-reflections about the experience and its impact. These self-reflections were analyzed for various themes. Upon completion of the Academy requirements, the members were evaluated for their performance as a teacher, and their scholarly activity was monitored. The impact of the Academy's creation at the institution level was considered as well.

Key Lessons Learned

The Kirkpatrick model provides data to show how the Academy of Medical Educators has attained its goal of improving teaching effectiveness at one school of medicine. It indicates members of the Academy join a cross-departmental community of dedicated educators working together to strengthen their own teaching and to promote excellence in teaching throughout the school.

Findings to Date

Participant reactions: Twenty-two of 24 (91%) respondents said the experience was educational and very stimulating. All the participants (100%) enjoyed the varied format of presentations and the speakers for the Academy. A majority of the participants enjoyed the Academy learning experience and would recommend to other faculty.

Faculty learning (change in knowledge, skills, attitudes): Twenty-one of 24 (87 %) Academy respondents reported increased knowledge about various teaching methods. Seventeen of 24 (70%) enjoyed opportunities to share ideas with other medical educators at local and national levels. Thirteen of 24 (54%) reported a stronger commitment to the field of medical education by taking more educational responsibility.

Benefits to the participants: Eight out of 24 (30%) have received outstanding teacher awards at least once. Seven out of 24 (29%) presented their educational scholarly work at national or international meetings.

Impact on the institution: The creation of the Academy has formalized the value the School of Medicine places on excellence in teaching. Through presentations and a published abstract book, it has provide a forum in which faculty can share their educational research. By creating the designation of Master Educator, the Academy provides meaningful recognition to faculty members who enhance their teaching skills. It also provides ongoing contributions as Academy members offer monthly faculty development seminars related to teaching and learning.

Questions

Future research is needed to determine whether surveying non-participants can be used to better quantify the impact of Academy participation.

References

Kirkpatrick DL. Evaluating Training Programs. The Four Levels. San Francisco CA: Berrett-Koehler 1994.

Reid Bates. A critical analysis of evaluation practice: the Kirkpatrick model and the principle of beneficence 2004,