Arrhythmia knowledge: A qualitative study

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OBJECTIVE: The objective is to identify and describe critical care nurses’ perception of arrhythmia knowledge. In addition, this study is the first step in developing levels of arrhythmia competency.

DESIGN: A qualitative research design was used. Focus group technique using a semistructured group session, with a moderator, was used to gather data. Data were analyzed by the constant comparative method.

SUBJECTS: The subjects were critical care nurses who work in acute care settings where they read electrocardiographic data and make treatment decisions.

PROCEDURES: Five focus groups were conducted over a period of 12 months. Group size ranged from four to eight participants. Participants were asked to describe their perceptions of arrhythmia knowledge and to assign a rating score related to the level of knowledge needed to identify specific arrhythmias.

RESULTS: Basic, intermediate, and advanced levels of arrhythmia knowledge were identified. This study revealed a deficit in nurses’ ability to recognize and identify specific arrhythmias including heart block, aberrant conduction, and tachyarrhythmias. Understanding of lead placement concepts varied greatly among participants.

CONCLUSIONS: The insight and perspective of critical care nurses related to the level of arrhythmia knowledge are needed for the development of competency measures and evidence-based teaching strategies. (Heart Lung® 2005;34:309–16.)

Nurses play a critical role in arrhythmia identification and management at the bedside. On the basis of the nurse’s interpretation of the electrocardiographic (ECG) monitor recording, the nurse may simply gather more data, notify the physician who makes treatment decisions based on the rhythm interpretation of the nurse, or institute pharmacologic and countershock therapies consistent with unit-specific protocols. Therefore understanding the nurse’s perception of arrhythmia knowledge, and ultimately, developing tools to evaluate this knowledge, and competence in the recognition of ECG rhythms, are of critical importance to nursing.

Little information is available about the competency of nurses in ECG interpretation or a categorization of arrhythmia knowledge essential for quality nursing practice at varying levels of career progression (ie, novice or new nurse vs expert or senior nurse). A review of the literature reveals a number of articles on how to interpret ECG recordings and decision-trees for treatment,1-4 but there is a paucity of articles with evidence to support the content being taught in critical care courses, the expectation for safe nursing practice, or the impact of nursing knowledge of rhythm strip interpretation on patient outcomes. Because of the nurse’s vital role in linking the rhythm strip with the clinical status of the patient and the nurse’s identification and recognition of arrhythmias in the initiation of appropriate nursing and medical responses, knowledge about the categorization of arrhythmias and subsequent validation of nurse’s competency are critical to safe effective practice. This article describes the use of multistaged focus group strategy to gather nurses’ perceptions as to what constitutes different levels of arrhythmia knowledge. The goal of this research was to obtain information about and to categorize cardiac arrhythmia knowledge as the first step toward developing an instrument to measure nurse competence.

METHODS

This was a qualitative study using a focus group methodology to elicit the perceptions of nurses...
about the level of knowledge needed to recognize a cardiac arrhythmia. Focus group technique uses a semistructured group session, with a moderator, with the purpose of obtaining opinions, beliefs, and attitudes about a designated construct of interest. The synergy of a focus group has the potential to uncover important perspectives related to a construct and is a useful method for validating and elucidating a construct preceding the use of more quantitative measures.

The advantages that the focus group method has over individual interviews are that it is less time consuming and not limited by the skill of the interviewer. Focus groups are small and interactive dialogues that encourage the participant to respond to questions and to share individual perspectives and insights about the concept of interest. These groups should not be approached as casual conversation or educational sessions but as structured, in-depth interviews. Focus group technique is a useful data-collection strategy to quantify critical care nurses’ perceptions about the categorization and knowledge of individual ECG arrhythmias.

DESCRIPTION OF THE STUDY

Nurses were recruited for the focus groups from three large metropolitan community hospitals in the Southeast. All nurses working in the critical care units of the selected hospitals and a group of advanced cardiac life support (ACLS) instructors were included in the sampling frame. Participation in the focus group was voluntary. The study was reviewed and approved by the institutional review board at the university and at the hospital sites for the focus group interviews. The principal investigator (PI) received training in the conduct of focus groups before initiation of this study. The PI has extensive experience in teaching and interpreting ECG patterns within acute care settings.

Participants consisted of nurses who worked with ECG-monitored patients in acute care settings where nurses read ECG data and make treatment decisions. As an incentive to participate in the focus group interview, an arrhythmia update program with continuing education credits was presented at the conclusion of each interview session. Flyers were posted in the participating hospitals’ critical care units, and participants were asked to sign up with the researcher. These slots were confirmed 1 week before and again on the day before the interview. The minimum of persons needed for an effective interview is four. For the purposes of this study a minimum of four and a maximum of eight spaces for participants were designated for each group. Purposeful sampling using the group-specific criteria below was used to create each group. The five focus groups were composed as follows:

- **Group 1 (n = 5)** consisted of ACLS instructors. This group was to represent the most advanced level of knowledge and experience with rhythm strip identification. Participants in this group were recruited on the basis of their role as an ACLS instructor.
- **Group 2 (n = 4)** consisted of nurses with less than 1 year of critical care experience. This group represented individuals with the most basic level of knowledge. Participants in this group were recruited on the basis of their limited experience in rhythm strip identification.
- **Groups 3 (n = 4), 4 (n = 8), and 5 (n = 4)** were heterogeneous groups of critical care nurses with greater than 1 year experience who currently practice in an acute care facility, at the bedside in a role requiring identification of ECG monitor recordings.

Inclusion criteria for participation in the study were the following: the individual must be a registered nurse, have completed a basic arrhythmia class, and be actively practicing in a direct-patient care clinical role. The exception to this inclusion criterion was Group 1. Individuals in Group 1 were ACLS instructors who actively participated in clinical resuscitative efforts and arrhythmia consultations. These individuals were considered to have “advanced knowledge” of arrhythmia interpretation and an expertise in arrhythmia interpretation and application in the clinical practice setting.

The focus groups were conducted on a tiered schedule to facilitate concurrent analysis and refinement of the structured interview for subsequent groups. Groups 1 and 2 were held concurrently. After analysis of these data sets, Group 3 and Group 4 were conducted. The Group 3 and Group 4 sessions revisited the rhythm strips that did not reach a level of consensus among the first two groups. Finally, Group five was conducted to validate the truthfulness and reproducibility of the prior data collection and preliminary analysis activities.

Focus Groups 1 and 2 represented divergent endpoints of the knowledge continuum, whereas focus Groups 3, 4, and 5 were participants of mixed experience and knowledge levels and therefore represented a more diverse pattern on the knowledge continuum. This methodologic decision was thought to provide a system of internal checks and
thereby enhance the credible measures of the categorization of the level of each rhythm strip.

**PROCEDURE**

At the beginning of each focus group session, participants read and signed the consent form after a verbal explanation of the purpose of the session and explanation of issues related to confidentiality. Participants were advised that there were no right or wrong answers and that the goal was to identify their opinions, beliefs, and knowledge about arrhythmia identification in clinical nursing practice. The PI of the study conducted the focus groups and integrated a number of strategies to establish trust and rapport with the participants. All sessions were conducted in a secure small conference room away from patient care activities. Each session began with informal, nonthreatening questions to facilitate group comfort in speaking and voicing individual perspectives. During this portion of the session participants described their work setting and their past education related to arrhythmia content both in their formal nursing education and in their present employment setting. In addition to facilitating a “coming to know each other” among group members this process allowed the moderator to reverify that all participants met the inclusion criteria for the study. The format of the focus groups was structured to move from general, nonthreatening topics to the more intense and specific topic of categorization of ECG rhythm strips. The five focus groups were conducted over a period of 1 year, ranged from four to eight participants, and averaged 57 minutes in length (range 43–73 minutes). All sessions were audiotaped.

The first stage of data collection was the focused group interview with Group 1 (advanced knowledge) and Group 2 (basic knowledge). This represented the most advanced and most basic perspectives, thereby introducing the opportunity for wide variation in knowledge and perception. Each participant in Group 1 and Group 2 received a set of 30 ECG strips. Each strip consisted of an ECG monitor recording and was labeled with the name of the arrhythmia. The strips were presented in random order. Selection of these 30 strips was based on the PI’s expertise in cardiac nursing and was validated by a panel of experts as the variety of arrhythmias seen in clinical practice and taught in basic arrhythmia courses. In addition, the selected rhythm strips were representative of the arrhythmias that the American Heart Association includes in its nationally recognized ACLS curriculum. The moderator distributed each of the 30 strips to the participants. Initially participants were asked to assign a rating score related to the level of knowledge needed to identify the arrhythmia. A rating of 1 indicated the arrhythmia was basic knowledge for the nurse working in a critical care setting, and a rating of 2 indicated the arrhythmia was considered advanced knowledge. If participants were unable to categorize the arrhythmia as representing a basic or advanced level of knowledge, they were directed to rate the arrhythmia as a 3. After the completion of the rating scale on each ECG recording, the moderator opened the discussion about how their knowledge was acquired and the level of knowledge needed to recognize the ECG recording. When the group identified a rhythm as basic or advanced the moderator probed the participants for their rationale to support that categorization. On completion of the session, notes were written by the moderator to record the group’s overall mood or any pertinent nonverbal behavior. The audiotape of the focus group session was transcribed verbatim.

Once the typed transcripts were obtained, they were analyzed using the constant comparative method. The constant comparative process is a procedure used in theory analysis in which newly collected data are compared in an ongoing fashion with earlier obtained data. The defined units of analysis were the items rated and interpreted by the participants and consistently stated opinion pertaining to arrhythmia knowledge. These units were formulated on the basis of the content analysis recommendations of Stewart and Shamdasani. This process of ongoing analysis and refinement of the focus group content occurred as an understanding of the topic increased with each successive group interview. If the researcher believed the session had additional nuances present that would not be reflected in the transcriptions, additional notes were written after each transcription was read. These notes served as a way of recording and organizing the researcher’s thoughts. This process was an adjunct to the constant group comparisons of data. An expert in advanced practice nursing and focus group methodology served as a peer reviewer in the constant comparative analysis process. In addition, the qualitative data were triangulated with the aggregate data of the rating scale on each recording. This triangulation provided an internal check of the truthfulness of the qualitative data.

The results of focus Groups 1 and 2 were analyzed and reviewed by the researcher representing the completion of the first stage. Next, Group 3 and Group 4 were presented with the 13 strips not cat-
ategorized by consensus in Group 1 and Group 2. Participants in Groups 3 and 4 represented the entire continuum of knowledge and experience from novice to expert, unlike the homogeneous grouping of advanced knowledge in Group 1 and basic knowledge in Group 2. The fifth group was held at a third hospital site. The participants received the original 30 rhythm strips used in the first tier of the data-collection procedure. Two items were added based on the analysis of the process and content of the transcripts of all the prior groups. The purpose of presenting all items to Group five was to determine whether data saturation was achieved and consensus reached on the categorization of each rhythm strip.

RESULTS

The analysis of the transcripts reveals insight into the perception of critical care nurses about whether ECG rhythm strips represented basic or advanced knowledge for critical care nursing practice. All participants were registered nurses with experience in critical care nursing (Table 1).

<table>
<thead>
<tr>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
<th>Group 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>n = 5</td>
<td>n = 4</td>
<td>n = 4</td>
<td>n = 8</td>
<td>n = 4</td>
</tr>
<tr>
<td>6–17 y critical care experience</td>
<td>8–12 mo critical care experience</td>
<td>1–14 y critical care experience</td>
<td>1.5–12 y critical care experience</td>
<td>1.5–13 y critical care experience</td>
</tr>
<tr>
<td>12–22 y total nursing experience</td>
<td>8 mo–6 y total nursing experience</td>
<td>1–20 y total nursing experience</td>
<td>1.5–18 y total nursing experience</td>
<td>1.5–14 y total nursing experience</td>
</tr>
</tbody>
</table>

Nurse 1: “They know it’s complete heart block, but to differentiate the two levels [junctional or ventricular] wouldn’t that be advanced? It’s kind of both. It’s basic that they should be able to recognize a complete heart block. But, what (about) the difference in treatment?”

Nurse 2: “The one that’s narrow might respond to atropine.”

Nurse 3: “And that’s why it’s advanced . . . The new ACLS protocol says that if you just try atropine (without differentiating which type of block) it may actually be more harmful if it is at the ventricular level . . . If they give atropine, there is much that they have to know.”

Nurse 2: “We’re not going to look at the levels and we’re not going to even give any atropine. If heart block get your [external] pacer and call your doctor . . . Or, you could give atropine and make them worse.”

Nurse 3: “Right, that’s why it’s an advanced concept. You’re only going to make that judgment call if you had than advanced knowledge to differentiate.”

These comments reveal that this group linked more advanced rhythms with a decision-making process and critical thinking about correct interventions. These participants indicated a need to update existing knowledge and integrate these concepts into the clinical arena. Although this group provided a perspective of what is taught and an observer perspective of the process of learning rhythm strips, they lacked the perspective of the novice applying knowledge in the clinical setting.

Group 2: Interestingly, some of the rhythms identified as advanced by Group 1 participants were identified as basic by this group. The following is a dialogue about torsade de pointe. “I think it can be a one [basic]. I’ll say a one on that because torsade isn’t that hard to recognize as a lethal ECG strip and...
it is lethal.” A continual theme in this focus group was that “it is necessary to know in practice because it can be life threatening.” Additional rhythms such as atrial rhythms with aberrant conduction and wide QRS tachycardias were categorized as basic knowledge by consensus of the group after discussion, yet the majority of participants initially had difficulty identifying these rhythms, as reflected in the following dialogues. The first discussion pertains to atrial fibrillation with aberration (Ashman’s phenomena).

Nurse 1: “I’d say a two [advanced].”
Nurse 2: “I don’t remember.”
Nurse 3: “I don’t remember . . . what it means [aberrant].”

The following dialogue is about a wide QRS tachycardia with a right BBB configuration in lead V1. All of these participants rated this strip as basic after it was identified yet could not initially identify the rhythm. The following dialogue was after the strip had been identified:

Nurse 1: “So that’s just a sinus tach with wide QRS bundle branch.”
Nurse 2: “I’d say one. You need to break everything down and go through the steps. It could be mistaken for VT.”
Nurse 2: “It could look like something different in a different lead but you would have to think about it to figure out its basic knowledge.”
Nurse 1: “It’s basic knowledge. Lead specific monitoring skills.”
Nurse 4: “Yes.”
Nurse 2: “It could be mistaken for VT.”
Nurse 1: “In this case I wouldn’t have mistaken it for VT.”
Nurse 4: “Well, in another lead it might.”

Similarly there was mixed categorization on rating right and left BBBS. The following quotes about BBB additionally support the need for refining the concept of lead-specific monitoring knowledge. When asked to rate a left BBB the responses were as follows:

Nurse 2: “A one [basic].”
Nurse 1: “A two [advanced]. Because that’s getting into twelve lead, lead specific. We usually look at lead two and MCL. We usually don’t go any further than that.”
Nurse 2: “For this, you need to look at MCL1 and MCL6 to really make sure it’s that bundle.”
Nurse 4: “Well not necessarily. I mean if it’s wide, I’d say a one [basic].”
Nurse 1: “I wouldn’t . . . You just know that the QRS is wider than .12 and MCL doesn’t look right. I am not really sure [how to tell a left from a right].”

In addition to the lack of consensus about the rhythm’s categorization, these discussions and others revealed the importance of ECG lead placement practices.

The range of responses from basic to advanced was most evident in this group. One participant stated “you need to know this but it’s closer to a 2 rating, but it is still important to know.” The repeated appearance of this theme identifies the needs for an in-between or intermediate category.

### Group 1 and Group 2 summary

These two group participants reached consensus on 17 of the 30 rhythm strips presented. There was complete agreement about the categorization of these rhythm strips as being basic or advanced for practice in patient care settings. Of the 17 consensus strips, 12 were categorized as basic knowledge. The rhythm strips categorized as basic knowledge included sinus rhythms, ventricular ectopic rhythms, and asystole. Rhythm strips such as ventricular pacemaker rhythms and accelerated junctional rhythm were categorized as advanced by participants in Group 1 and Group 2.

The remaining 13 rhythm strips became the focus of the interview with Group 3 and Group 4. Examples of the rhythms for which there was a lack of consensus either within or between Groups 1 and 2 included torsades de pointe, heart blocks, atrial fibrillation with right BBB, ventricular tachycardia, and Wolff-Parkinson-White with atrial fibrillation.

### Groups 3 and 4

These groups were presented the 13 remaining rhythm strips. There continued to be lack of consensus about whether these rhythm strips represented basic or advanced knowledge. In some cases, the participants were able to recognize that a rhythm was life-threatening but unable to correctly identify the arrhythmia. For example, specific to torsades de pointe, a participant stated “Anything that is life threatening is basic but being able to accurately identify the rhythm is advanced.” Similarly in the discussion related to heart blocks, participants agreed that recognition was basic but differentiation of the differing level of heart block was more than basic knowledge. A Group 4 participant stated “I don’t know how important it is to know exactly what it is. I mean, obviously you know that some
thing is very wrong . . . I don’t know if you would say . . . this is third degree heart block . . . I don’t know . . . [silence].

This is confirmation of the Group 2 finding of the need for a categorization between basic and advanced. Similar to the findings of Group 1, the differentiation of rhythms such as second-degree heart blocks and rapid atrial rhythms is closely linked to treatment protocols and a level of knowing beyond simple identification. Therefore these arrhythmias are emerging as more than basic knowledge for practice. Finally, the difficulty these groups experienced in correctly identifying rapid ventricular and atrial rhythms support that these are advanced concepts (Table II). A Group 3 participant stated “I think there’s a lot of experienced critical care nurses that do not know the difference between SVT and VT.” In addition, it was noted that the participants believed it was important to note that the rhythm needed to be further evaluated rather than naming the specific arrhythmia. This finding is consistent with the perceptions from focus Groups 1 and 2.

The reemergence of the concerns about lead placement and the association of the categorization of some rhythms with the variation in clinical assessment and interventions are evidence of data saturation. All four focus groups, although unable to reach consensus on the categorization of these rhythms as basic or advanced, did reach consensus on the significance of lead selection and placement and the type of clinical assessment or intervention appropriate with the presented rhythm. A Group 4 participant stated “[I was] Never [taught lead monitoring practices] . . . in the hospital everyone does something different. Old monitors, new monitors, so I just kind of picked up some things on my own.”

Table II
Arrhythmia categorization

<table>
<thead>
<tr>
<th>BASIC</th>
<th>INTERMEDIATE</th>
<th>ADVANCED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal sinus rhythm</td>
<td>Normal sinus rhythm</td>
<td>Normal sinus rhythm</td>
</tr>
<tr>
<td>Sinus tachycardia</td>
<td>Sinus tachycardia</td>
<td>Sinus tachycardia</td>
</tr>
<tr>
<td>Sinus bradycardia</td>
<td>Sinus bradycardia</td>
<td>Sinus bradycardia</td>
</tr>
<tr>
<td>Unifocal premature ventricular contraction</td>
<td>Unifocal premature ventricular contraction</td>
<td>Unifocal premature ventricular contraction</td>
</tr>
<tr>
<td>Multifocal premature ventricular contractions</td>
<td>Multifocal premature ventricular contractions</td>
<td>Multifocal premature ventricular contractions</td>
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<tr>
<td>Ventricular couplets</td>
<td>Ventricular couplets</td>
<td>Ventricular couplets</td>
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<tr>
<td>Ventricular bigeminy</td>
<td>Ventricular bigeminy</td>
<td>Ventricular bigeminy</td>
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<tr>
<td>Ventricular tachycardia</td>
<td>Ventricular tachycardia</td>
<td>Ventricular tachycardia</td>
</tr>
<tr>
<td>Ventricular fibrillation</td>
<td>Ventricular fibrillation</td>
<td>Ventricular fibrillation</td>
</tr>
<tr>
<td>Asystole</td>
<td>Asystole</td>
<td>Asystole</td>
</tr>
<tr>
<td>Idioventricular rhythm</td>
<td>Idioventricular rhythm</td>
<td>Idioventricular rhythm</td>
</tr>
<tr>
<td>Premature atrial contractions</td>
<td>Premature atrial contractions</td>
<td>Premature atrial contractions</td>
</tr>
<tr>
<td>Junctional rhythms</td>
<td>Junctional rhythms</td>
<td>Junctional rhythms</td>
</tr>
<tr>
<td>Atrial flutter with 4:1 conduction</td>
<td>Atrial flutter with 4:1 conduction</td>
<td>Atrial flutter with 4:1 conduction</td>
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<tr>
<td>Atrial fibrillation</td>
<td>Atrial fibrillation</td>
<td>Atrial fibrillation</td>
</tr>
<tr>
<td>Pacemaker rhythms</td>
<td>Pacemaker rhythms</td>
<td>Pacemaker rhythms</td>
</tr>
<tr>
<td>Atrial tachycardia</td>
<td>Atrial tachycardia</td>
<td>Atrial tachycardia</td>
</tr>
<tr>
<td>Third-degree complete heart block at the ventricular level</td>
<td>Third-degree complete heart block at the ventricular level</td>
<td>Third-degree complete heart block at the ventricular level</td>
</tr>
<tr>
<td>Torsade de pointe</td>
<td>Torsade de pointe</td>
<td>Torsade de pointe</td>
</tr>
<tr>
<td>Lead placement</td>
<td>Lead placement</td>
<td>Lead placement</td>
</tr>
<tr>
<td>Second-degree heart blocks: Type I and Type II</td>
<td>Second-degree heart blocks: Type I and Type II</td>
<td>Second-degree heart blocks: Type I and Type II</td>
</tr>
<tr>
<td>Third-degree heart block at the junctional level</td>
<td>Third-degree heart block at the junctional level</td>
<td>Third-degree heart block at the junctional level</td>
</tr>
<tr>
<td>Atrial flutter with 2:1 conduction</td>
<td>Atrial flutter with 2:1 conduction</td>
<td>Atrial flutter with 2:1 conduction</td>
</tr>
<tr>
<td>Left bundle branch block</td>
<td>Left bundle branch block</td>
<td>Left bundle branch block</td>
</tr>
<tr>
<td>Atrial tachycardia with 2:1 conduction</td>
<td>Atrial tachycardia with 2:1 conduction</td>
<td>Atrial tachycardia with 2:1 conduction</td>
</tr>
<tr>
<td>Atrial fibrillation with aberrant conduction</td>
<td>Atrial fibrillation with aberrant conduction</td>
<td>Atrial fibrillation with aberrant conduction</td>
</tr>
<tr>
<td>Wide SVT with RBB configuration</td>
<td>Wide SVT with RBB configuration</td>
<td>Wide SVT with RBB configuration</td>
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<tr>
<td>WPW with atrial fibrillation</td>
<td>WPW with atrial fibrillation</td>
<td>WPW with atrial fibrillation</td>
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</tbody>
</table>

SVT, Supraventricular tachyarrhythmia; RBB, right bundle branch; WPW, Wolff-Parkinson-White Syndrome.
Group 5

The fifth and final focus group received all 30 of the rhythm strips. An item was added specific to the area of lead selection and placement. The addition of this item was a direct outgrowth of the consistent theme of the importance of knowing about lead placement and selection, from the prior focus groups. The purpose of adding these items at this time was to obtain data about how this group would categorize knowledge about lead placement. “In our unit we are expected to have our patients on two leads [but we do not] all do it. I walk into my room and I can tell you that 80% of the time I put V1 back on.” The intent of this last round of data collections was to clarify and validate the data collected in the first four focus groups and to verify the emergent themes.

Analysis of this group’s transcripts confirmed that repetitious characteristics and patterns were occurring. Participants in Group 5 quickly confirmed the categorization of 12 basic rhythms (Table II). The identification of these rhythms as basic was a consistent finding across all of the groups in this study.

This group, similar to the previous groups, continued to experience difficulty in categorizing some rhythms and again suggested the need for an in-between category. The moderator used this opportunity to gain insight into which specific rhythms participants would categorize as “in-between” or intermediate knowledge. Participants in this group identified rhythms such as torsades de pointe, atrial fibrillation, and atrial tachycardia as being in this category (Table II). This was consistent with the theme from earlier groups about the need for an in-between category often indicating that the nurse needed to recognize that the rhythm required further evaluation but was not able to identify the specific arrhythmia, implications, or treatment protocols.

As in all of the groups, heart block continued to generate interesting dialogue. “I have never heard of it [differentiating between junctional versus ventricular level of block] . . . we don’t get heart block.”

RECOMMENDATIONS

The data from these focus groups reveal a deficit in nurses’ ability to recognize and identify specific arrhythmias. There is a significant lack of ability to recognize and differentiate heart blocks, aberrant conduction, and tachyarrhythmias. In addition, lead placement concepts are not fully understood. This knowledge is fundamental for discerning wide QRS tachycardias and many other rhythms. Nurses need to be aware of these knowledge deficits so that competency measures can be designed. Another goal of this study was to obtain insight about the differing levels of arrhythmia knowledge. The study began with the concept of basic and advanced. However, an intermediate category emerged. This theme emerged from the participants’ discussion of an “in-between” group often indicating that the nurse needed to recognize that the rhythm required further evaluation but was not able to identify the specific arrhythmia, implications, or treatment protocols. The patterns of discussion and the actual categorization of the ECG rhythm strip by these critical care nurses resulted in the construction of a three-level categorization of ECG rhythms representing basic, intermediate, and advanced knowledge (Table II). This categorization will serve as the foundation for future tool development to measure competency of critical care nurses involved in arrhythmia interpretation.

SUMMARY

The goal of this study was to identify and describe practicing critical care nurses’ perceptions pertaining to arrhythmia knowledge. In addition, this study is the first step toward developing arrhythmia competencies. Alsbach, in her seminal article on competency, states that traditional education programs originate from what some recognized content expert (typically a theoretician not an active practitioner) considers an ideal performance in a situation or role.12 Thus, competencies are based on a theoretic notion of a field or practice, and do not originate from experience, observation, and validation of what actually comprises performance of competent practitioners. This study sought the perspective of the critical care nurse at the bedside to differentiate the categories of arrhythmia recognition and what knowledge is needed for competent nursing practice. This insight into arrhythmia competency is the critical first step in the development of competency validation models and evidence-based teaching strategies.

The first author thanks Dr. Nancy Hogan and Dr. Lydia DeSantis for their expertise and encouragement.

REFERENCES