The Basic Knowledge Assessment Tools (BKATs) are a series of 5 different paper-and-pencil tests used to measure basic knowledge in critical care nursing (Table 1). Basic knowledge in critical care nursing is defined as the body of knowledge used by critical care nurses to provide safe nursing care to patients hospitalized in critical care units. Research with undergraduate baccalaureate nursing students and new graduates has shown that this knowledge is beyond that required for licensure as a registered nurse and is essential before entry into critical care nursing practice. Staff nurses new to critical care typically acquire much of this knowledge during their orientation programs. The initial development of the BKAT and its content, validity, and reliability have been described.

The knowledge of critical care nurses has been monitored since the advent of critical care units, and such monitoring is a hallmark of professional nursing. Because the BKATs are widely used, with more than 6000 copies requested from nurse educators/managers working in critical care units and mailed out to them since 1984, it is important for critical care nurses—particularly educators, preceptors, and managers—to learn about a test they may want to use in their units.

The BKATs

The number of questions on the BKATs ranges from 81 to 100, depending on which BKAT is used. Content for each BKAT was determined by using a review of the literature, clinical expertise, and panels of experts. Construct validity is supported through the panels, learning theory and experimental interventions, replication studies, known group differences, and internal consistency of items. The Cronbach coefficient \( \alpha \) was used to measure internal consistency reliability for the BKATs and ranges from .81 to .90, exceeding the minimum recommended reliability for classroom tests of .70.
The BKATs have been periodically updated to maintain current relevance, and thus new versions have been created. As new versions become available, older versions are retired, although copies of older versions may still be used.

Critical Care Nurses’ Comments on the BKAT

Over the years, much correspondence about the BKATs has been received from critical care nurses in the United States and in other countries throughout the world. Table 2 lists the comments received from staff nurses and nurse educators about the BKATs.

Critical Care Nurses’ Support for BKATs

All of the BKATs that are currently available (Table 1) were developed with widespread participation of critical care nurses at all levels of nursing education throughout the United States. This participation included memberships on panels of experts, suggestions for changes in questions and/or answers, and data collection for reliability testing.

Use of the BKATs

The results of a survey in 1993 indicated that the primary use of the BKAT was in orientation programs conducted in critical care units and that scores on the version of the BKAT used at the time (BKAT-3) had resulted in changes in those programs.1

Other uses include research to test different teaching methods for orientation classes and as a means to identify content for in-service education programs for currently employed critical care nurses.1 In addition, the BKAT has been used for validation of basic knowledge of nurses with previous experience in critical care nursing, so that they could be excused from part or all of orientation classes that present content that they already know. This validation may also mean that a nurse who is new to the unit could be advanced to precepted practice with a senior staff nurse.1

The BKAT Replication Survey

Purpose of the Survey

The purpose of this study was to replicate survey results published in Critical Care Nurse in 1993.1 The purpose of that survey was the same as the purpose of this replication study, that is, to describe how the BKAT is being used and to describe how the BKAT has affected critical care orientation programs. The original publication1 of survey results included a recommendation that the survey be repeated so that findings could be compared over time. That comparison is reported here.

Methods

Instrumentation

The same 50-item questionnaire known as the BKAT Utilization Questionnaire (UTool), developed by Dennis1 was used to answer the research questions: (1) How is the BKAT being used and (2) How has critical care orientation been affected? The UTool asked the nurse subjects why they ordered a BKAT (the intended use) and how they used the BKAT (the actual use).

Sample and Sampling Technique

The population consisted of 300 nurses working in critical care units who had requested and had been mailed a copy of one or more of the BKATs during a period of 20 months. These nurses were contacted by mail 6 to 20 months after receiving the BKAT(s). Both older and more recent versions of the

<table>
<thead>
<tr>
<th>Comment</th>
<th>Date</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-02-18</td>
<td>2000-02-18</td>
<td></td>
</tr>
<tr>
<td>[I’m a staff nurse]…and want to obtain a copy of the BKAT test for adult critical care nursing.</td>
<td>May 2006</td>
<td>Texas</td>
</tr>
<tr>
<td>I have the BKAT-5S (Telemetry) and BKAT-6 (Critical Care)…are these the most current versions? Do you have any competency tools for medical-surgical nursing?</td>
<td>June 2005</td>
<td>Illinois</td>
</tr>
<tr>
<td>I would like to ask permission to use…3 of your BKAT assessment tools…the ICU, telemetry and NICU tools…for assessment purposes during nursing orientation for RNs at our facility.</td>
<td>June 2005</td>
<td>Missouri</td>
</tr>
<tr>
<td>I am a critical care nurse educator…in Castro Valley, California. I came across a copy of the BKAT-5 assessment tool for critical care. I was wondering if there are any other versions of this exam…</td>
<td>June 2005</td>
<td>California</td>
</tr>
<tr>
<td>Please advise…about purchasing the BKAT-6 for adults, peds, and neonates.</td>
<td>April 2006</td>
<td>China</td>
</tr>
<tr>
<td>I am a critical care educator [in] a community hospital in NY. Can you tell me if there is a newer version of the BKAT…and how it is being used in practice?…I have found this to be an excellent evaluation tool.</td>
<td>July 2005</td>
<td>New York</td>
</tr>
</tbody>
</table>
BKATs were used. These included all of the following versions, which were in use from 1994 to 2004 (the year in parentheses is the year of release for use):

- the BKAT for the Adult Intensive Care Unit (ICU), Version 4 (1989), Version 5 (1996), and Version 6 (2001);
- the BKAT for Progressive/Intermediate Care, Version 4-S (1996) and Version 5-S (2001); and

Fifteen questionnaires were returned undelivered. Of the other 285 questionnaires mailed, the 139 (48.8%) that were completed and returned became the sample.

Limitation The main limitation of both the original and replication surveys was that only approximately half of the potential subjects participated.

Assumptions The assumptions were the same as for the 1993 survey:

- the nurses would answer the UTool honestly, and
- the time frame selected to contact subjects after they received the BKAT would be long enough to evaluate its use.

Design An ex post facto, 1-group design was again used.

Procedure Data were collected on a 1-time-only participation basis. All subjects received a cover letter with an introduction to the survey, the promise of anonymity and confidentiality, and an explanation of benefits and the right not to participate. Informed consent was considered obtained if the nurse returned the completed UTool. Each nurse was sent a preaddressed, stamped return envelope.

Results Description of the Sample All but 9 of the 139 subjects or 93.5% said that they had used one or more of the BKATs. As in the initial survey, the clinical areas in which these nurses most frequently had responsibility were fairly evenly distributed: ICU, 22.3%; ICU-coronary care unit, 16.2%; surgical ICU, 14.5%; coronary care unit, 14.2%; other types of critical care units, 21.9%; and medical ICU, 10.9%. Other types of units included step-down/telemetry units, emergency departments for adults and children, pediatric ICUs, and postanesthesia recovery units. Unlike the original study, in this study a new clinical area of nursing agency emerged that represented 4.6% of the “other” category.

Table 3 compares the sample from the initial survey with the sample from this replication survey. It shows that the type of institutions in which the nurses in the 2 samples worked remained stable. As reflected in changes in the nursing job market in the past 10 years, more in-service educators and fewer clinical specialists were administering the BKATs. Also, not unexpected, the frequency of CCRN certification, often tied to the clinical specialist position, had decreased in the replication sample. A new finding was that a larger percentage of subjects in the replication survey had heard about the BKATs from colleagues rather than from the literature, although publications about the BKATs had continued. This change reflects networking within critical care nursing. Appropriate to the increase in use of information technology, a new category of Internet emerged as a way that nurses in...
the replication study learned about the BKATs.

Uses of the BKATs  Table 4 compares why the nurses had requested a copy of a BKAT, that is, the intended use, and the actual use of the BKATs between the 2 surveys. The percentage of yes responses in the replication survey was approximately twice as high in all categories (1.5- to 2.6-fold increase) for the intended use. The actual use was much higher or showed a 2.5- to 5.5-fold increase from the original survey for all categories except research. Thus, not only did the nurses in the follow-up survey request copies of a BKAT, but 62% to 75% used the tests for the intended purpose.

Table 4 also illustrates that the intended and actual use of the BKATs in the replication survey for the placement of nurses with previous critical care experience (opting out of part or all of the usual orientation) increased 1.9-fold and 2.5-fold respectively. Likewise, evaluation of current staff showed a 1.8-fold and 3.7-fold increase in intended and actual use.

Scores on the BKATs  Responses of the nurses in both the initial and replication surveys indicated that scores were reviewed with almost all the staff nurses taking the BKATs: 93.8% and 94.8%, respectively. Also, a question about scores on the UTool was, “Following orientation, the BKAT reflects which level of knowledge that you expect [your nurses to have].” The Figure shows that the majority of responses of the 87 subjects in the replication survey (58.6%) were similar to the majority of responses of the 25 subjects in the initial survey (52.0%) or that the BKAT reflected a higher level of knowledge than what the nurse educators expected their nurses to have after orientation.

Changes Made on the Basis of the BKATs  In the initial study, 61.1% of the nurses used the BKAT in their orientation program. In the replication survey, this number was only slightly higher at 69.8% of the nurses. These nurses were then asked if they modified their orientation on the basis of the results from the BKAT. Whereas a little over half said yes in the initial survey, two thirds of respondents in the replication survey agreed that they modified their critical care orientation on the basis of the BKATs.

Table 5 shows that more than twice as many nurses added content in the replication study as in the initial study. Content was deleted on the basis of the BKATs twice as often compared with the initial survey.
Almost 90% of the nurses in the replication study who used the BKATs in orientation added content. This finding is different from that in the initial survey, in which only 40% of the nurses added content.

**Discussion**

The findings from this survey show an increased use of the BKATs for staff nurses to opt out of part or all of the formal orientation classes. Such opting out is not only cost-effective for the institution but also recognizes the knowledge that staff nurses bring to a new clinical setting. Use of the BKAT in research has remained low and may indicate that the BKATs are primarily linked to the knowledge of staff nurses and not to how staff nurses learn best, for example, research.

**Conclusions**

On the basis of the results of this study, the following conclusions are made in relation to the use of the BKATs during the past 10 years:

- the percentage of orientation programs in critical care units that use the BKATs has increased,
- a larger percentage of staff nurses are being required to take a BKAT not associated with orientation,
- more newly hired staff nurses with previous experience are being asked to take a BKAT during orientation in order to validate basic knowledge,
- critical care nurses working in community hospitals remain the largest group of users of the BKATs,
- changes in orientation based on the BKATs have increased, especially changes related to the addition of content, and
- the reported use of BKATs in nursing research is low.

**Recommendations**

On the basis of the findings of this survey, I recommend the following:

- the level of difficulty of the BKATs should be reevaluated, and
- the results of these evaluations should be communicated to nurses who request a copy of any BKAT.

**References**


**Table 5** Changes in orientation made on the basis of the Basic Knowledge Assessment Tools

<table>
<thead>
<tr>
<th>Variable</th>
<th>Initial survey (N=54)</th>
<th>Replication survey (N=139)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>%</td>
</tr>
<tr>
<td>Modified orientation†</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>18</td>
<td>56.2</td>
</tr>
<tr>
<td>No</td>
<td>14</td>
<td>43.8</td>
</tr>
<tr>
<td>Added content‡</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>13</td>
<td>40.6</td>
</tr>
<tr>
<td>No</td>
<td>19</td>
<td>59.4</td>
</tr>
<tr>
<td>Deleted content§</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>7</td>
<td>21.9</td>
</tr>
<tr>
<td>No</td>
<td>25</td>
<td>78.1</td>
</tr>
</tbody>
</table>

*Missing 22 values for the initial survey (n = 32).
†Missing 44 values for the replication survey (n = 95).
‡Missing 93 values for the replication survey (n = 46).
§Missing 108 values for the replication survey (n = 31).
Follow-up Survey 10 Years Later: Use of the Basic Knowledge Assessment Tools (BKATs) for Critical Care Nursing and Effects on Staff Nurses
Jean C. Toth

Crit Care Nurse 2006;26 49-53
Copyright © 2006 by the American Association of Critical-Care Nurses
Published online http://ccn.aacnjournals.org/

Personal use only. For copyright permission information:
http://ccn.aacnjournals.org/cgi/external_ref?link_type=PERMISSIONDIRECT

Subscription Information
http://ccn.aacnjournals.org/subscriptions/

Information for authors
http://ccn.aacnjournals.org/misc/ifora.xhtml

Submit a manuscript
http://www.editorialmanager.com/ccn

Email alerts
http://ccn.aacnjournals.org/subscriptions/etoc.xhtml