

**UAB
Pediatric Pulmonary Center**

**Assessment of Regional Continuing
Education Needs**

A Report of the Survey Findings

**Prepared by
Marianne Murdock, PhD, RD-e
January 2002**

**UAB Pediatric Pulmonary Center
Assessment of Regional Continuing Education Needs**

A Report of the Survey Findings

Contents

| | Page |
|-----------------------------------------------------------------------------------------------|------|
| Executive Summary..... | i |
| Introduction | 1 |
| Description of Respondents and Agencies | 2 |
| Needs for Continuing Education and Expressed Interest in Continuing Education Topics | 9 |
| Respondents' Perceptions of Barriers to Pursuing Continuing Education..... | 23 |
| Ability to Utilize and Preferences for Various Continuing Education Delivery Modes..... | 25 |
| Psychometric Properties of the Measuring Instrument..... | 35 |
| Limitations, Recommendations, and Conclusions | 37 |
| Appendix A | |
| Copy of cover letter and questionnaire sent to respondents | |
| Appendix B | |
| Missing data by variable | |

Executive Summary

In late summer of 2001, a questionnaire was sent to 640 persons identified as potential respondents to a survey designed to assess the perceived continuing education needs for professional staff in agencies that provided care to pediatric pulmonary patients. Of the 640, 135 (21%) persons employed by agencies in Alabama, Georgia, Florida, Mississippi, Tennessee, Louisiana, and Maryland responded. These respondents represented 82 public and 32 private agencies, with 79.5% of the respondents' employing agencies providing care and services to children with chronic respiratory conditions. Nurses (32.3%) were the largest professional group responding to the survey followed by physicians (21.1%).

Nurses were identified as the professional group most likely to need continuing education, followed by social workers and physicians. Professionals generally recognized their own peers as being most likely to need continuing education.

There was strong interest in continuing education topics related to asthma and pediatric sleep disorder management. Physicians were particularly interested in continuing education regarding clinical topics. There was also strong interest in continuing education regarding patient and family counseling and delivery of culturally competent health care.

Respondents clearly preferred small (less than 100 attendees) on-site conferences. Cost and time away from work/lack of coverage were

identified as the two greatest barriers to continuing education, although there was variation in the ranking of the barriers by professional disciplines and respondents in different states.

The most accessible continuing education delivery methods were videocassettes, lectures, reading journals, and attending workshops. These delivery methods were equally available in public and private agencies, although availability of interactive satellite TV varied by state. The most preferred continuing education delivery methods were workshops, interactive satellite TV, and CD-ROM. No differences in preferences by state were found. Respondents from public agencies preferred hands-on workshops; those from private agencies preferred peer discussion workshops.

One section of the questionnaire was assessed for construct valid with the results indicating that the instrument in the section regarding interest in clinical continuing education topics was valid. Limitations of the results were identified and recommendations were made regarding development of continuing education program development and subsequent use of the questionnaire.

Introduction

In summer of 2001, the staff of the UAB Pediatric Pulmonary Center sent a cover letter and questionnaire to health care providers around the Southeast, requesting feedback regarding continuing education programs. Of the 640 persons to whom the questionnaire was mailed, 135 (21%) returned completed, useable questionnaires. Those questionnaires yielded the data, which were analyzed to determine the results.

This report consists of several sections including a description of respondents and their employing agencies; a description of expressed needs for and interest in continuing education topics; respondent identified barriers to pursuing continuing education; ability to utilize and preferences for various continuing education delivery modes; psychometric properties of the measuring instrument; and limitations, recommendations, and conclusions. A copy of the cover letter and the questionnaire sent to respondents is included in Appendix A. Questionnaire items are designated as Item #1, #2, #3 etc., in the text and tables. The amount of missing data was relatively large in this response set. That is not uncommon for a paper-and-pencil measuring instrument completed without benefit of immediate feedback from the sender. The amount of missing data for each questionnaire item is listed in Appendix B to provide context for interpretation of the findings.

Description of Respondents and Agencies

A total of 135 persons responded to the questionnaire, representing 21% of the target population of 640 persons to whom the survey was mailed. The respondents were described in terms of their professional disciplines. The agencies that employed the respondents were described in terms of type, location and scope of service or practice.

The professional disciplines represented by the respondents included medicine, nursing, nutrition, social work, and respiratory care. Nursing was well represented with 32.3% of all respondents indicating nursing as their professional discipline. Physicians were the next largest group of respondents. The results are shown in Table 1.

Table 1. Number and percent of professional disciplines represented by the respondents (Item #1)

| Professional Discipline | N | %* |
|-------------------------|----|-------|
| Program Administrator | 17 | 12.8 |
| Medicine | 28 | 21.1 |
| Nursing | 43 | 32.3 |
| Nutrition | 16 | 12.0 |
| Social Work | 4 | 3.0 |
| Respiratory Care | 15 | 11.3 |
| Other | 10 | 7.5 |
| Not specified | 2 | ----- |

*Missing data excluded from percentage calculations

Respondents were asked to indicate all the professionals in the agency who provided care to patients. This was a multiple response question with respondents being asked to check all the categories that applied to their particular institution. The number of professionals involved in care delivery across all agencies is shown in Table 2.

Percentages were not calculated because the item was a multiple response one. Nurses were mentioned most frequently as care givers, followed by physicians, social workers, and nutritionists.

Table 2. Number of professionals providing direct patient care in all agencies (Item #5)

| Care-providing Professionals | n |
|------------------------------|-----|
| Program Administrator | 20 |
| Medicine | 89 |
| Nursing | 101 |
| Nutrition | 75 |
| Social Work | 84 |
| Respiratory Care | 64 |
| Pharmacy | 47 |
| Speech/Hearing/Language | 64 |
| Physical Therapy | 52 |
| Occupational Therapy | 47 |
| Other | 27 |

The number of professionals in the categories in Tables 1 and 2 do not correspond one-to-one as the data shown in Table 1 reflect the professional discipline of the respondent and the data in Table 2 reflect the care-giving professionals in the agency represented by the respondents' questionnaire. For example, 17 program administrators completed the questionnaire and 20 program administrators were described as being care providers. A similar pattern was noted for physicians, with 28 responding physicians and 89 physicians being described by respondents as care providers.

Respondents were given several choices to use in describing the agencies for which they worked. Respondents were asked to indicate all the categories that described their employing agency. There was total of

174 responses, with public hospitals being the most common. Second most common was other types of agencies, including outreach clinics, military hospital, public university, community health center, research academic center, school of nursing, primary care 330 grant site, minority CBO serving farm worker populations, non-profit 501 C 3 corporation, state office, university maternal child program, AHEC, regional burn center, state Medicaid agency, private single specialty group practice, Alabama DHR, CF Center, school health centers, and dental health services. The distribution of types of agencies is shown in Table 3.

Table 3. Number of respondents indicating a description of their employing agency (Item #2)

| Agency | n* |
|-----------------------------|-----|
| Hospital – public | 48 |
| Hospital – private | 25 |
| Other health care – public | 12 |
| Other health care – private | 10 |
| Title 5 MCH | 10 |
| Title 5 CSHCN | 11 |
| HRSA | 11 |
| Other public health | 11 |
| Other | 35 |
| Not specified | 1 |
| Total | 174 |

*reflects multiple responses to the item

The types of agencies were collapsed into two categories – public and private. Public hospitals, other public health care, Title 5 MCH, Title 5 CSHCN, HRSA, and other public health were classified as public agencies. Private hospitals and other private health care were classified as private agencies. Respondents were asked to check all the categories that were descriptive of their agency. Categorizing the agencies as either public or private is likely to be more useful in subsequent analysis than using the more numerous specific category descriptions in the questionnaire. There were 82 (71.9%) public agencies and 32 (28.1%) private agencies using the re-categorization described above. Twenty-one of the agencies were not included in this categorization because of missing data or a choice of “other” in the initial response to Item #2 of the questionnaire. The missing data represented 15.6% of the 135 total responses.

There were more respondents from Georgia than any other state. There were five respondents from Florida and only one respondent from Maryland. Ten respondents did not specify a state. The respondent from Maryland was excluded from subsequent analysis of the data by state. States represented by the respondents' survey responses are shown in Table 3.

Table 3. Number and percentage of respondents by state (Item #1)

| State | n | %* |
|---------------|----|-------|
| AL | 26 | 20.8 |
| FL | 5 | 4.0 |
| GA | 34 | 27.2 |
| LA | 21 | 16.8 |
| MD | 1 | 0.8 |
| MS | 13 | 10.4 |
| TN | 25 | 20.0 |
| Not specified | 10 | ----- |

*Missing data excluded from percentage calculations

Respondents were asked to indicate if their employing agencies provided services for children with chronic respiratory conditions. Of the 132 respondents providing data for this item, 105 (79.5%) indicated that their employing agencies provided services for children with chronic respiratory conditions; 27 (20.5%) indicated they did not. Of the 105 agencies/practices that provided services for children with chronic respiratory conditions, 101 (96.2%) treated children with asthma, 72 (68.5%) treated BPD, 74 (70.4%) treated CF, 56 (53.3%) treated ventilator dependent patients, 61 (58.0%) treated patients with tracheostomy, 54 (51.4%) treated patients using CPAP/BiPAP, 56 (53.3%) treated patients

with sleep disorders, 27 (25.7%) treated patients with other pulmonary conditions, and 8 (7.6%) treated patients with other conditions.

The clinical populations served by public and private agencies were compared. The number of respondents reporting that their employing agency provided service to specific clinical populations was categorized by public and private agencies. The results, shown in Table 4, indicate that the two clinical populations most frequently served by the agencies were asthmatics and those with cystic fibrosis.

Table 4. Number and percentage of respondents reporting service to a specific clinical population (Item #2 with Item #4)

| Clinical Population | Public n=82 | Public % | Private n=32 | Private % |
|----------------------------------|----------------|-------------|-----------------|--------------|
| Asthma | 65 | 79.3 | 26 | 81.3 |
| Bronchopulmonary Dysplasia (BPD) | 47 | 57.3 | 19 | 59.3 |
| Cystic Fibrosis (CF) | 49 | 59.8 | 20 | 62.5 |
| Ventilator Dependent | 37 | 45.1 | 15 | 46.9 |
| Tracheostomy | 40 | 48.8 | 16 | 50.0 |
| CPAP/BiPAP | 35 | 42.7 | 15 | 46.9 |
| Sleep Disorders | 33 | 40.2 | 18 | 56.3 |
| Other Pulmonary | 15 | 18.3 | 9 | 28.1 |
| Other | 6 | 7.3 | 1 | 3.1 |

Description of clinical population was a multiple response item, with respondents being asked to mark all the categories that applied to their agency. When the multiple responses were considered collectively, it was possible to determine the proportion that each clinical population contributed to the whole. Those results are shown in Table 5.

Table 5. Percentage of services provided to different clinical populations (Item #4)

| Clinical Population | % |
|----------------------|------|
| Asthma | 19.8 |
| BPD | 14.1 |
| CF | 14.5 |
| Ventilator Dependent | 11.0 |
| Tracheostomy | 12.0 |
| CPAP/BiPAP | 10.6 |
| Sleep Disorders | 11.0 |
| Other Pulmonary | 5.3 |
| Other | 1.6 |

Asthma, CF, and BDP patients were served most often by the respondents' agencies, reflecting the same pattern as noted in Table 4.

Respondents were asked to indicate if their agency provided, sponsored, or participated in any special initiatives for pediatric asthma – 67 (51.5%) indicated a “no” response and 63 (48.5%) indicated “yes”. Many of the respondents indicated that their agencies sponsored summertime asthma camps and professional education conferences for care providers. Five respondents did not complete this item (Item #13).

**Need for Continuing Education
and
Expressed Interest in Continuing Education Topics**

Respondents were asked to indicate who in the agency/practice was most likely to need continuing education. The results are shown in Table 6.

Table 6. Number of responses to the question – Who in your agency/practice is most likely to need continuing education? (Item #8)

| Professional Discipline | % |
|-------------------------|------|
| Program Administrator | 13.6 |
| Medicine | 45.3 |
| Nursing | 75.2 |
| Nutrition | 39.5 |
| Social Work | 45.3 |
| Others | 16.0 |
| Pharmacy | 11.2 |
| Respiratory Care | 22.2 |
| Speech/Language | 40.8 |
| Physical Therapy | 23.8 |
| Occupational Therapy | 24.8 |

Nurses were the professional group cited most often by respondents as needing continuing education. Nurses were the largest group of survey respondents by professional discipline. This finding raised a question – Did respondents think that persons in their own discipline or those in other disciplines would more likely need continuing education? To answer that question, professional discipline of the respondents was compared with the respondents' answers to Item #8, where those most in need of continuing education were to be identified.

The result of this comparison indicates that 53.3% of program administrators thought that program administrators in their agency (presumably meaning themselves) were most likely to need continuing education. Additionally, the responding program administrators thought that 3.8% of physicians were most likely to need continuing education, 11.9% of nurses, 16.7% of nutritionists, and 6.7% of respiratory care therapists were most likely to need continuing education. In general members of a specific discipline indicated that their professional peers were most likely to be the ones in need of continuing education. The exception to this pattern was for nurses. The majority of program administrators, physicians, nurses, nutritionists, social workers, and respiratory care therapists thought that nurses were most likely to be in need of continuing education. This finding likely reflects the various skill levels of persons in health care agencies who have the title of nurse; i.e., NPs, RNs, LPNs, and nurse's aides. In general, respondents thought that persons in their discipline were most likely in need of continuing education. Exceptions to this pattern were noted for nurses and social workers. The results of this comparison are shown in Table 7.

Table 7. Percent of respondents by professional discipline indicating those most likely to need continuing education (Item #8 with Item #1)

| Who needs continuing education? (Item #8) | Professional Discipline of Respondents | | | | | | |
|-------------------------------------------|----------------------------------------|------|------|------|------|------|-------|
| | PA* | MD | RN | RD | SW | RC | Other |
| PA* | 53.3 | 3.8 | 11.9 | 16.7 | 0 | 6.7 | 0 |
| Medicine (MD) | 29.4 | 74.1 | 40.5 | 66.7 | 0 | 26.7 | 9.0 |
| Nursing (RN) | 70.6 | 70.4 | 88.1 | 76.9 | 50.0 | 73.3 | 44.4 |
| Nutrition (RD) | 37.5 | 37.0 | 45.2 | 71.4 | 25.0 | 20.0 | 22.2 |
| Social Work (SW) | 50.0 | 44.4 | 50.0 | 46.2 | 25.0 | 40.0 | 44.4 |
| Other | 6.7 | 23.1 | 14.3 | 33.3 | 0 | 20.0 | 0 |
| Pharmacy | 13.3 | 3.8 | 28.6 | 14.3 | 25.0 | 13.3 | 22.2 |
| Respiratory Care | 13.3 | 22.2 | 19.1 | 41.7 | 0 | 40.0 | 0 |
| Speech/Hearing/Language | 18.8 | 48.0 | 31.0 | 50.0 | 0 | 93.3 | 33.3 |
| Physical Therapy | 18.8 | 30.8 | 14.3 | 50.0 | 0 | 33.3 | 22.2 |
| Occupational Therapy | 20.0 | 26.9 | 16.7 | 50.0 | 0 | 40.0 | 22.2 |

* PA = Program Administrator

Respondents were presented with two different lists of potential continuing education topics. The topics listed in Item #6 were clinically focused. Respondents whose agencies were not engaged in direct patient care were asked to skip Item #6. This decreased the number of respondents from 135 as shown in Table 8. The second list of continuing education topics, presented in Item #7, was a mixture of clinical and management topics. All respondents were asked to evaluate their interest in these potential topics for continuing education.

Respondents' average interest in the continuing education topics for specific clinical areas listed in Item #6 of the questionnaire are shown in Table 8. The respondents indicated most interest in topics related to diagnosis, management, and treatment of asthma. The highest average interest rating was indicated for the topic strategies for managing and

treating complex, severe, or non-compliant asthmatics. The least interest was expressed for topics related to technology dependence.

Table 8. Mean, standard deviation and number of respondents for clinical continuing educations topics listed in Item #6

| Continuing Education Illness Specific Content Areas | Mean±SD* | n |
|------------------------------------------------------------|-----------|-----|
| Diagnosis and management of pediatric asthma | 3.08±1.28 | 115 |
| Nutrition for the pediatric asthma patient | 3.05±1.23 | 114 |
| Asthma medications/equipment | 3.08±1.26 | 115 |
| What to teach pediatric patients/families about asthma | 3.20±1.21 | 115 |
| How to teach pediatric patients/families about asthma | 3.17±1.28 | 115 |
| Strategies for complex, severe, or non-compliant asthmatic | 3.24±1.21 | 115 |
| Medical management of BPD | 2.61±1.34 | 115 |
| Nutrition/growth issues for BPD patients | 2.77±1.34 | 115 |
| Psychosocial care of BPD patients/families | 2.59±1.37 | 115 |
| Interdisciplinary team management of CF | 2.70±1.40 | 115 |
| Care of the child with a chronic tracheostomy (TD1) | 2.38±1.35 | 114 |
| Chronic/home ventilation (TD2) | 2.25±1.39 | 115 |
| Non-invasive ventilation i.e. CPAP/BiPAP (TD3) | 2.39±1.38 | 114 |
| Diagnosis and management of pediatric sleep disorders | 2.53±1.44 | 114 |
| Evaluation of the sleepy child | 2.57±1.37 | 115 |
| Sleep hygiene | 2.51±1.37 | 115 |
| Pediatric Obstructive Sleep Apnea | 2.70±1.35 | 115 |

*1= not interested, 2 = somewhat interested, 3 = interested, 4 = very interested

Responses to the clinical topic items were collapsed to reflect the responses “interested” and “very interested” and were compared by state. The percentage of “interested” and “very interested” responses are shown by state Table 9. Percentages greater than 75% are underlined in the table. The 75% mark was chosen arbitrarily to reflect strong interest in a particular topic. These results reflect the pattern noted previously - the

greatest interest was expressed in topics relating to asthma treatment and management. There was high interest among respondents from Mississippi regarding pediatric sleep management issues.

Table 9. Percentage of respondents choosing “interested” and “very interested” in clinical content areas by state (Item #6 with Item #1 state)*

| Continuing Education Illness Specific Topics | AL | FL | GA | LA | MS | TN |
|------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| n† | 20 | 5 | 31 | 17 | 12 | 20 |
| Diagnosis and management of pediatric asthma | <u>90.0</u> | <u>80.0</u> | <u>83.9</u> | <u>82.4</u> | <u>83.4</u> | 65.0 |
| Nutrition for the pediatric asthma patient | 73.6 | <u>80.0</u> | <u>77.4</u> | <u>88.2</u> | 66.7 | 70.0 |
| Asthma medications/equipment | <u>75.0</u> | <u>80.0</u> | <u>87.1</u> | <u>76.4</u> | <u>91.7</u> | 70.0 |
| What to teach pediatric patients/families about asthma | <u>85.0</u> | <u>80.0</u> | <u>87.1</u> | <u>88.2</u> | <u>91.6</u> | <u>75.0</u> |
| How to teach pediatric patients/families about asthma | <u>85.0</u> | <u>80.0</u> | <u>87.1</u> | <u>88.2</u> | <u>91.7</u> | 70.0 |
| Strategies for complex, severe, or non-compliant asthmatic | <u>85.0</u> | <u>80.0</u> | <u>90.3</u> | <u>82.3</u> | <u>91.7</u> | <u>80.0</u> |
| Medical management of BPD | 65.0 | <u>80.0</u> | 61.3 | 70.6 | 66.7 | <u>75.0</u> |
| Nutrition/growth issues for BPD patients | 70.0 | <u>80.0</u> | 67.7 | 70.6 | 66.7 | 60.0 |
| Psychosocial care of BPD patients/families | 65.0 | 60.0 | 64.5 | 70.6 | 66.7 | 40.0 |
| Interdisciplinary team management of CF | 70.0 | <u>80.0</u> | 51.7 | <u>76.5</u> | 58.4 | 65.0 |
| Care of the child with a chronic tracheostomy (TD1) | 50.0 | 50.0 | 48.4 | 58.8 | 50.0 | 55.0 |
| Chronic/home ventilation (TD2) | 50.0 | 60.0 | 45.2 | 52.9 | 41.7 | 55.0 |
| Non-invasive ventilation i.e. CPAP/BiPAP (TD3) | 50.0 | 50.0 | 58.0 | 58.8 | 50.0 | <u>75.0</u> |
| Diagnosis and management of pediatric sleep disorders | 60.0 | 60.0 | 51.6 | <u>75.1</u> | <u>83.3</u> | 45.0 |
| Evaluation of the sleepy child | 55.0 | <u>80.0</u> | 51.6 | 70.6 | <u>83.3</u> | 55.0 |
| Sleep hygiene | 45.0 | <u>80.0</u> | 51.6 | 64.7 | <u>83.3</u> | 55.0 |

| Continuing Education Illness Specific Topics | AL | FL | GA | LA | MS | TN |
|-------------------------------------------------|------|-------------|------|------|-------------|------|
| Pediatric Obstructive Sleep Apnea | 55.0 | <u>80.0</u> | 64.6 | 70.6 | <u>75.0</u> | 55.0 |

*results $\geq 75\%$ underlined

†Average number by state responding to the items

Respondents' expressed interests in the clinical topics were compared by professional discipline. Patterns were noted by examining percentages of responses greater than or equal to 75%. Physicians expressed the most interest in the clinical topics followed by respiratory care practitioners and nurses. Results are shown in Table 10.

Table 10. Percentage of respondents choosing "interested" and "very interested" in clinical content areas by professional discipline (Item #6 with Item #1)

| Continuing Education Illness Specific Topics | Professional Discipline* | | | | | | Other |
|-------------------------------------------------------------------|--------------------------|--------------|-------------|-------------|--------------|--------------|-------|
| | PA | MD | RN | RD | SW | RC | |
| n† | 14 | 25 | 37 | 13 | 4 | 13 | 7 |
| Diagnosis and management of pediatric asthma | 57.1 | <u>96.0</u> | <u>78.3</u> | 69.2 | <u>100.0</u> | <u>100.0</u> | 42.9 |
| Nutrition for the pediatric asthma patient | 64.3 | <u>79.2</u> | 70.2 | <u>92.3</u> | <u>100.0</u> | <u>92.3</u> | 42.9 |
| Asthma medications/equipment | 64.3 | <u>100.0</u> | <u>75.6</u> | 61.5 | <u>100.0</u> | <u>92.3</u> | 57.1 |
| What to teach pediatric patients/families about asthma | 71.4 | <u>92.0</u> | <u>86.5</u> | 61.5 | <u>100.0</u> | <u>100.0</u> | 57.1 |
| How to teach pediatric patients/families about asthma | 64.3 | <u>92.0</u> | <u>86.5</u> | 61.5 | <u>75.0</u> | <u>100.0</u> | 57.1 |
| Strategies for complex, severe, or non- compliant asthmatic | <u>78.6</u> | <u>96.0</u> | <u>86.5</u> | 69.2 | 50.0 | <u>100.0</u> | 57.1 |
| Medical management of BPD | 50.0 | <u>80.0</u> | 62.2 | <u>76.9</u> | 25.0 | 69.2 | 42.9 |

| Continuing Education Illness Specific Topics | Professional Discipline* | | | | | | |
|----------------------------------------------------------------|--------------------------|-------------|------|-------------|------|-------------|-------|
| | PA | MD | RN | RD | SW | RC | Other |
| Nutrition/growth issues for BPD patients | 57.2 | 76.0 | 67.6 | <u>92.3</u> | 50.0 | 69.2 | 42.9 |
| Psychosocial care of BPD patients/families | 57.2 | 72.0 | 56.7 | 69.3 | 50.0 | 61.6 | 73.0 |
| Interdisciplinary team management of CF | 57.2 | 72.0 | 51.3 | 69.2 | 50.0 | <u>92.4</u> | 28.6 |
| Care of the child with a chronic tracheostomy (TD1) | 50.0 | 60.0 | 45.9 | 61.6 | 25.0 | 66.7 | 14.3 |
| Chronic/home ventilation (TD2) | 64.2 | 60.0 | 37.8 | 53.9 | 25.0 | 61.6 | 14.3 |
| Non-invasive ventilation i.e. CPAP/BiPAP (TD3) | 64.3 | 64.0 | 48.6 | 53.9 | 50.0 | 66.7 | 14.3 |
| Diagnosis and management of pediatric sleep disorders | 28.5 | 56.0 | 59.4 | 50.0 | 25.0 | <u>77.0</u> | 42.9 |
| Evaluation of the sleepy child | 28.5 | <u>84.0</u> | 59.4 | 53.9 | 25.0 | <u>77.0</u> | 42.9 |
| Sleep hygiene | 21.4 | <u>84.0</u> | 54.0 | 46.2 | 25.0 | 69.3 | 42.9 |
| Pediatric Obstructive Sleep Apnea | 35.7 | <u>84.0</u> | 67.5 | 53.9 | 25.0 | <u>84.7</u> | 28.6 |

* PA = Program Administrator, MD = Medicine, RN = Nursing, RD = Nutrition, SW = Social Work, RC = Respiratory Care

† Average number of respondents by professional discipline selecting the items

Interest in specific clinical topics was examined relative to the specific clinical populations served by the agencies represented by the respondents. The responses were combined to reflect “interested” and “very interested” responses to the proposed continuing education topics listed in Item #6. In agencies that provided treatment for asthma, there was interest in continuing education programs regarding asthma. The same pattern was not as strong for agencies providing services to BPD,

CF, ventilator dependent, or tracheostomy patients. In agencies that served patients with sleep disorders, there was strong interest in continuing education in that area. Results are shown in Table 11.

Table 11. Percentage of “interested” and “very interested” responses to clinical continuing education topics by clinical populations served (Item #6)

| Topics | % |
|------------------------------------------------------------|------|
| <u>Serve Asthma patients (n = 101)</u> | |
| Diagnosis and management of pediatric asthma | 87.1 |
| Nutrition for the pediatric asthma patient | 83.0 |
| Asthma medications/equipment | 85.1 |
| What to teach pediatric patients/families about asthma | 91.1 |
| How to teach pediatric patients/families about asthma | 89.1 |
| Strategies for complex, severe, or non-compliant asthmatic | 91.1 |
| <u>Serve BPD patients (n = 72)</u> | |
| Medical management of BPD | 79.2 |
| Nutrition/growth issues for BPD patients | 86.1 |
| Psychosocial care of BPD patients/families | 75.0 |
| <u>Serve CF patients (n = 74)</u> | |
| Interdisciplinary team management of CF | 79.7 |
| <u>Serve ventilator dependent patients (n=56)</u> | |
| Care of the child with a chronic tracheostomy (TD1) | 72.7 |
| Chronic/home ventilation (TD2) | 69.6 |
| Non-invasive ventilation i.e. CPAP/BiPAP (TD3) | 69.1 |
| <u>Serve Tracheostomy patients (n=61)</u> | |
| Care of the child with a chronic tracheostomy (TD1) | 71.7 |
| Chronic/home ventilation (TD2) | 67.1 |
| Non-invasive ventilation i.e. CPAP/BiPAP (TD3) | 71.7 |
| <u>Serve CPAP/BiPAP patients (n=54)</u> | |
| Care of the child with a chronic tracheostomy (TD1) | 73.5 |
| Chronic/home ventilation (TD2) | 68.5 |
| Non-invasive ventilation i.e. CPAP/BiPAP (TD3) | 75.4 |

| Topics | % |
|-------------------------------------------------------|------|
| <u>Serve patients with sleep disorders (n=56)</u> | |
| Diagnosis and management of pediatric sleep disorders | 82.1 |
| Evaluation of the sleepy child | 82.1 |
| Sleep hygiene | 76.7 |
| Pediatric Obstructive Sleep Apnea | 85.7 |

A second set of potential continuing education topics – focused on both clinical and management issues – was presented to the respondents as Item #7 of the questionnaire. All respondents were asked to indicate their interest in these topics regardless of the scope of service provided by their agency. Respondents from agencies that did not treat pediatric pulmonary patients were asked to skip Item #6 and to complete Item #7 regardless of the scope of practice. The responses were compared statistically to determine if there were significant differences in interest ratings of continuing education topics between agencies that did and did not serve pediatric populations. The Chi-square (χ^2) test was used to evaluate these differences with the value of α being set at 0.05. The results are shown in Table 12.

The most interest was expressed in continuing education topics related to patient and family counseling. There was no difference in the level of interest between agencies that provided and not provide services to pediatric pulmonary patients. The least amount of interest was expressed in continuing education topics providing “hands on” training for equipment and starting an interdisciplinary team.

Table 12. Average interest in continuing education topics and differences in interest between agencies that did and did not provide clinical services. (Item #7 with Item #3))

| Topics | Mean±SD* | n | Differences? |
|-------------------------------------------------------------|-----------|-----|---------------|
| Evaluation of the child with chronic respiratory complaints | 2.89±1.24 | 132 | PPSP† |
| Respiratory assessment of pediatric patients | 2.97±1.17 | 132 | PPSP |
| SIDS/Acute Life Threatening Events | 2.84±1.14 | 132 | PPSP |
| Pediatric respiratory emergencies | 2.90±1.27 | 133 | PPSP |
| Commonly used medications | 2.92±1.20 | 133 | PPSP |
| Culturally-competent health care delivery | 2.91±1.13 | 134 | PPSP |
| Family-centered care | 2.80±1.19 | 132 | PPSP |
| Interdisciplinary care | 2.82±1.17 | 133 | No difference |
| Systems of care | 2.64±1.17 | 132 | No difference |
| Discharge planning | 2.68±1.21 | 133 | No difference |
| Starting an interdisciplinary team | 2.46±1.26 | 132 | PPSP |
| Team-building | 2.77±1.17 | 133 | PPSP |
| Patient/family counseling | 3.12±1.11 | 134 | No difference |
| Smoking cessation | 2.72±1.30 | 131 | PPSP |
| Educating other professionals | 2.63±1.23 | 132 | No difference |
| “Hands on” training for equipment | 2.48±1.36 | 132 | PPSP |

*1 = not interested, 2 = somewhat interested, 3 = interested, 4 = very interested

†PPSP = Pediatric Pulmonary Service Provider significantly ($p < 0.05$) more interested in content than those not providing services to pediatric pulmonary patients

Interest in the continuing education topics in Item #7 was assessed by state. The results, shown in Table 13, should be interpreted in light of the small numbers of observations associated with each state. The response categories “interested” and “very interested” were added. Percentages greater than or equal to 75% are underlined in the Table 13. Respondents in Alabama were interested the most topics, followed by GA, LA, and MS respondents. The clinical topics at the beginning of the list

were rated as more interesting than the topics at the end of the list, which were more management oriented. The exception was patient and family counseling, which was the most highly rated of all the topics listed in Item #7.

Table 13. Percentage of “interested” and “very interested” in continuing education topics in Item #7 by state

| Topics | AL | FL | GA | LA | MS | TN |
|-------------------------------------------------------------|-------------|--------------|-------------|-------------|-------------|-------------|
| n* | 23 | 4 | 33 | 19 | 12 | 21 |
| Evaluation of the child with chronic respiratory complaints | <u>87.0</u> | <u>100.0</u> | <u>78.8</u> | 68.4 | <u>84.7</u> | 66.7 |
| Respiratory assessment of pediatric patients | <u>83.4</u> | <u>100.0</u> | <u>81.9</u> | <u>75.0</u> | <u>92.4</u> | 71.5 |
| SIDS/Acute Life Threatening Events | <u>75.0</u> | <u>100.0</u> | <u>75.0</u> | 71.5 | <u>84.7</u> | 61.9 |
| Pediatric respiratory emergencies | <u>95.7</u> | <u>100.0</u> | 71.9 | <u>80.0</u> | <u>83.3</u> | 66.7 |
| Commonly used medications | <u>88.0</u> | <u>75.0</u> | <u>84.4</u> | <u>80.0</u> | <u>75.0</u> | 61.9 |
| Culturally-competent health care delivery | 68.0 | <u>75.0</u> | <u>85.3</u> | 73.6 | <u>84.6</u> | 66.6 |
| Family-centered care | <u>78.3</u> | <u>100.0</u> | 72.7 | <u>75.0</u> | <u>75.0</u> | 61.9 |
| Interdisciplinary care | <u>78.2</u> | <u>100.0</u> | <u>76.5</u> | <u>78.9</u> | 69.6 | 68.2 |
| Systems of care | 65.2 | <u>100.0</u> | 64.7 | 73.7 | 53.9 | 57.2 |
| Discharge planning | 69.5 | <u>100.0</u> | <u>76.5</u> | 68.4 | 66.6 | 54.5 |
| Starting an interdisciplinary team | 69.1 | 50.0 | 65.7 | 47.3 | 50.0 | 38.1 |
| Team-building | <u>80.8</u> | <u>75.0</u> | 66.7 | 73.7 | 50.0 | 52.4 |
| Patient/family counseling | <u>79.2</u> | <u>75.0</u> | <u>84.9</u> | <u>90.0</u> | <u>77.0</u> | 73.9 |
| Smoking cessation | 73.9 | <u>75.0</u> | 71.0 | <u>85.0</u> | 72.8 | 60.0 |
| Educating other professionals | <u>81.9</u> | 50.0 | 62.6 | 70.0 | <u>77.0</u> | 52.3 |
| “Hands on” training for equipment | 71.4 | 50.0 | 56.3 | 57.9 | 66.6 | <u>75.0</u> |

* average number of respondents to each item

Interest in the continuing education topics of Item #7 was analyzed by professional discipline of the respondent. The percentage of “interested” and “very interested” responses to the continuing education topics listed in Item #7 is shown in Table 14. Percentages greater than or equal to 75% are underlined in the table. Respiratory care therapists

expressed the most interest in the continuing education topics. Nurses and social workers expressed interest in both clinical and management topics. Physicians expressed interest in clinical topics. Respondents in all professions expressed interest in the continuing education topic of patient and family counseling. There was also strong interest in culturally competent health care delivery as a continuing education topic by most professional disciplines.

Table 14. Percentage of respondents “interested” and “very interested” in continuing education topics of Item#7 by professional discipline

| Topic area | Professional Discipline* | | | | | | |
|-------------------------------------------------------------|--------------------------|-------------|-------------|-------------|--------------|--------------|-------------|
| | PA | MD | RN | RD | SW | RC | Other |
| n† | 14 | 28 | 39 | 13 | 4 | 15 | 7 |
| Evaluation of the child with chronic respiratory complaints | 57.1 | <u>85.7</u> | <u>84.6</u> | 61.6 | <u>75.0</u> | <u>86.7</u> | 57.2 |
| Respiratory assessment of pediatric patients | 64.3 | <u>85.7</u> | <u>90.0</u> | 71.5 | <u>100.0</u> | 73.3 | 71.5 |
| SIDS/Acute Life Threatening Events | 64.3 | <u>78.5</u> | <u>77.5</u> | 53.9 | <u>100.0</u> | 73.3 | <u>75.0</u> |
| Pediatric respiratory emergencies | 71.4 | <u>81.4</u> | <u>85.0</u> | 58.3 | 50.0 | <u>86.7</u> | <u>85.7</u> |
| Commonly used medications | 64.3 | 74.0 | <u>85.4</u> | <u>77.0</u> | <u>75.0</u> | <u>93.3</u> | 71.5 |
| Culturally-competent health care delivery | <u>86.7</u> | <u>78.6</u> | <u>82.0</u> | 60.0 | <u>100.0</u> | 66.7 | <u>75.0</u> |
| Family-centered care | <u>75.1</u> | 66.6 | <u>84.2</u> | 58.3 | <u>75.0</u> | 74.3 | <u>75.0</u> |
| Interdisciplinary care | <u>75.1</u> | 67.9 | <u>78.9</u> | 73.4 | 66.7 | <u>100.0</u> | 42.9 |
| Systems of care | 62.5 | 53.6 | 68.4 | 64.3 | 66.6 | <u>92.9</u> | 50.0 |
| Discharge planning | <u>81.3</u> | 40.7 | 68.4 | 73.3 | 66.6 | <u>93.4</u> | 62.5 |
| Starting an interdisciplinary team | 46.7 | 38.5 | 57.9 | 64.3 | 50.0 | <u>80.0</u> | 57.2 |
| Team-building | 60.0 | 44.4 | <u>75.0</u> | 73.3 | <u>75.0</u> | <u>100.0</u> | 50.0 |
| Patient/family counseling | <u>75.0</u> | <u>75.0</u> | <u>82.5</u> | <u>78.6</u> | <u>100.0</u> | <u>100.0</u> | <u>77.7</u> |
| Smoking cessation | 46.2 | <u>77.7</u> | 69.4 | 50.0 | 100.0 | 100.0 | <u>77.7</u> |
| Educating other professionals | 60.0 | 55.5 | 72.9 | 61.6 | <u>75.0</u> | <u>93.3</u> | 66.7 |
| “Hands on” training for equipment | 46.2 | 62.9 | 60.5 | 45.5 | 66.7 | <u>93.3</u> | 57.1 |

* PA = Program Administrator, MD = Medicine, RN = Nursing, RD = Nutrition, SW = Social Work, RC = Respiratory Care

† Average number of respondents by professional discipline selecting the items

Respondents were asked to rank their preference – first, second, and third - for location of conferences. The options presented to the respondents were on-site conferences, in-state conferences and out of state conferences. The order of preference was very evident from the results, shown in Table 15. Respondents' first preference for conference location was on-site, second was in-state, and third was out of state conferences. The preferences for conference size were 12 (10.1%) for large conferences (>100 attendees) and 107 (89.9%) for small conferences (<100 attendees).

Table 15. Percentage of respondents' preferences for locations of conferences (Item #10)

| Preference | On-site conference (%) | In-state conference (%) | Out of state conference (%) |
|-----------------|------------------------|-------------------------|-----------------------------|
| First | 73.6 | 21.2 | 9.4 |
| Second | 13.2 | 75.6 | 11.0 |
| Third | 13.2 | 3.1 | 79.5 |
| No response (n) | 6 | 8 | 8 |

Conference location preference was examined by professional discipline of the respondents. Each location alternative was considered separately. As a result the data in Table 16 should be interpreted by examining the columns of the table. Among Program Administrators who expressed a preference, 9 (53.0% of 17) most preferred an on-site conference. Physicians equally preferred on-site and in-state

conferences, although 74% of physicians indicating a preference rated out of state conferences as least preferable of the three options presented. These results reflect the general pattern of preference for on-site conferences first, in-state conferences second, and out of state conferences third.

Respondents in all professional disciplines indicated a preference for small conferences with 100 attendees or less.

Table 16. Number and percentage of conference location by professional discipline (Item #1 with Item #10)

| Professional Discipline* | n | On-Site Conference Most preferred | | In-state Conference 2 nd most preferred | | Out of state Conference Least preferred | |
|--------------------------|----|-----------------------------------|------|----------------------------------------------------|------|-----------------------------------------|------|
| | | n | (%) | n | (%) | n | (%) |
| PA | 17 | 9 | 53.0 | 8 | 47.1 | 13 | 76.4 |
| MD | 27 | 22 | 81.5 | 22 | 81.5 | 20 | 74.0 |
| RN | 42 | 30 | 71.4 | 33 | 78.5 | 32 | 76.2 |
| RD | 16 | 13 | 81.3 | 15 | 93.8 | 13 | 81.3 |
| SW | 4 | 3 | 75.0 | 2 | 50.0 | 2 | 50.0 |
| RC | 15 | 10 | 66.7 | 8 | 53.3 | 13 | 86.7 |
| Other | 10 | 7 | 70.0 | 7 | 70.0 | 7 | 70.0 |

* PA = Program Administrator, MD = Medicine, RN = Nursing, RD = Nutrition, SW = Social Work, RC = Respiratory Care

Respondents' Perceptions of Barriers to Pursuing Continuing Education

Respondents were asked to rank order the barriers listed in the questionnaire from greatest to lowest barrier. The results, shown in Table 17, indicate that cost and time away from work/lack of coverage were cited most often as the greatest barriers to pursuing continuing education. Travel distance and agency imposed travel restrictions were cited by 19.1% of the respondents.

Table 17. Percentage of respondents ranking barrier as "greatest barrier" (Item #12)

| Barrier | % |
|--------------------------------------|------|
| Cost | 39.1 |
| Time away from work/lack of coverage | 33.1 |
| CEU/CME not offered | 12.0 |
| Travel distance | 9.9 |
| Travel restrictions | 9.2 |
| Time away from home | 9.1 |
| Others | 3.1 |

Cost was the greatest barrier in all states but was cited as a barrier less frequently by GA respondents than those in other states. Time away from work/lack of coverage was also cited as barrier in all states. This was cited more frequently in GA than in other states. Other barriers identified by the respondents included availability of budget dollars, availability of "good" CMEs, inertia, and total out of state travel freeze.

Cost was identified as the greatest barrier by 46.9% of respondents employed by public agencies and by 25% of respondents employed by private agencies. Time away from work/lack of coverage was cited as the

greatest barrier by 29.6% of respondents employed by public agencies and 43.8% employed by private organizations.

Program administrators cited cost at the greatest barrier to pursuing continuing education (53.0%) and time away from work/lack of coverage at the second greatest barrier (29.4%). Physicians cited time away from work/lack of coverage as a greater barrier than cost. Nurses rated the two largest barriers exactly opposite, with cost being a greater barrier to pursuing continuing education than time away from work/lack of coverage. The results are shown in Table 18.

Table 18. Percentage of professionals ranking cost and time away from work as barriers to pursuing continuing education (Item #1 with Item #12)

| Professional Discipline* | Cost (%) | Time away from work/Lack of coverage (%) |
|--------------------------|----------|------------------------------------------|
| PA | 53.0 | 29.4 |
| MD | 22.0 | 48.1 |
| RN | 47.6 | 28.5 |
| RD | 25.0 | 31.3 |
| SW | 0 | 50.0 |
| RC | 53.3 | 26.7 |
| Other | 40.0 | 20.0 |

* PA = Program Administrator, MD = Medicine, RN = Nursing, RD = Nutrition, SW = Social Work, RC = Respiratory Care

**Ability To Utilize and Preferences
For Various Continuing Education Delivery Methods**

Respondents were given a list of continuing education delivery methods and asked to indicate the ability of their agency to utilize each delivery mode. In Item #9a of the questionnaire, respondents were asked to circle “yes” or “no” indicating the ability of their agency to utilize each delivery method. In Item #9b, respondents were asked to indicate their first, second, and third preferences for the delivery modalities. The intent was that respondents would indicate a response for all choices of Item #9a and then rank order only three choices for Item #9b. This instruction was apparently misunderstood by 48 of the 135 respondents, resulting in bad or no data for 35.5% of the respondents. That misinterpretation of the instructions caused the number of respondents to decrease dramatically for some of the items related to preference for delivery methods. The result was very small numbers for some categories.

Respondents were asked to indicate the capability or ability of their employing agency to deliver or provide continuing education programs using various methods. Results, shown in Table 19, indicated that respondents were least able to access satellite TV systems for continuing education and to take coursework for credit as a means of continuing education. The percentage of affirmative responses regarding ability to use specific technologies for continuing education is given in Table 19.

Responses in the “other” category included CDs for audio presentations, visiting lectureships, and the comment “if on-line or similar mode”.

There were no other specifications offered in response to the choice of “other”. Percentages were based on the number of respondents for each item.

Table 19. Number and percentage of respondents indicating ability to use continuing education delivery methods (Item #9a)

| Delivery Method | “Yes” response indicating ability to do (%) | n* |
|-----------------------------------|---------------------------------------------------------|-----|
| Distance-satellite/interactive TV | 58.1 | 124 |
| Distance-Internet, web-based | 78.0 | 123 |
| CD-ROM | 83.7 | 123 |
| Video cassettes | 88.3 | 128 |
| Audio cassettes | 87.4 | 127 |
| Audio-teleconferencing | 82.0 | 128 |
| Workshop – peer discussion | 87.2 | 125 |
| Workshop – hands-on experience | 85.8 | 127 |
| Lecture | 88.2 | 127 |
| Self-study/Independent study | 87.3 | 126 |
| Reading journals | 88.0 | 125 |
| Coursework | 70.1 | 117 |
| Other | 9.6 | 65 |

*number responding “yes” or “no” to item

Preferences for the different methods were compared by considering ability of the respondents’ agency to use each method. That comparison was made by analyzing data from Item #9a and Item #9b. The results, comparing delivery methods ability/capability (assessed as ability to utilize delivery method with an affirmative response indicating that the delivery method was available at a particular location) with

preference for specific modalities (based on preference ratings – first, second, third) (Item #9a with Item #9b) are shown in Table 20. Based on frequency of response, the two delivery modalities most preferred were hands-on workshop and distance-satellite, interactive TV. The second most preferred methods were workshops with peer discussion, videocassettes, and hands-on workshop. Lecture and CD-ROM were the delivery modalities ranked as the respondents' third preference. Several of the suggested delivery methods received no or few votes as being preferred by the respondents. These included audiocassettes, audio teleconferencing, self-study/independent study, and coursework for credit.

Table 20. Number and percentage of respondents indicating ability to use and preference for continuing education delivery methods (Item #9a with Item #9b)

| Delivery Method | Total | First | | Second | | Third | |
|-----------------------------------|-------|------------|----|------------|----|------------|----|
| | N | preference | n | preference | n | preference | n |
| Distance-satellite/interactive TV | 22 | 54.5 | 12 | 13.6 | 3 | 31.8 | 7 |
| Distance-Internet,web-based | 16 | 18.8 | 3 | 62.5 | 10 | 18.8 | 3 |
| CD-ROM | 24 | 33.3 | 8 | 33.3 | 8 | 33.3 | 8 |
| Video cassettes | 26 | 30.8 | 8 | 42.3 | 11 | 26.9 | 7 |
| Audio cassettes | 8 | 0 | 0 | 12.5 | 1 | 87.5 | 7 |
| Audio-teleconferencing | 9 | 0 | 0 | 33.3 | 3 | 66.7 | 6 |
| Workshop – peer discussion | 31 | 35.5 | 11 | 41.9 | 13 | 22.5 | 7 |
| Workshop – hands-on experience | 32 | 46.9 | 15 | 34.3 | 11 | 18.8 | 6 |
| Lecture | 29 | 34.5 | 10 | 24.1 | 7 | 41.3 | 12 |

| Delivery Method | Total | First preference | | Second preference | | Third preference | |
|------------------------------|-------|------------------|---|-------------------|---|------------------|---|
| | N | % | n | % | n | % | n |
| Self-study/Independent study | 12 | 0 | 0 | 50.0 | 6 | 50.0 | 6 |
| Reading journals | 5 | 60.0 | 3 | 0 | 0 | 40.0 | 2 |
| Coursework | 2 | 0 | 0 | 0 | 0 | 100 | 2 |

When ability to access specific delivery modalities was not considered, the preferences for continuing education delivery method remained quite similar. Preferences for delivery modalities without consideration of ability to use the method are shown in the Table 21.

The most preferred delivery methods were hands-on workshops, distance satellite TV, and lecture. The second most preferred delivery modalities were peer discussion workshops and video cassettes. The third most preferred delivery modalities were lecture, distance satellite TV, and CD-ROM. Several delivery modalities were generally not preferred by the respondents, including, audio cassettes, audio teleconferencing, self-study, reading journals, and college coursework for credit.

Table 21. Number and percentage of respondents ranking preferences for continuing education delivery methods (Item #9b)

| Delivery Method | Total | First Preference | | Second Preference | | Third Preference | |
|-----------------------------------|-------|------------------|----|-------------------|----|------------------|----|
| | n* | % | n | % | n | % | n |
| Distance-satellite/interactive TV | 29 | 48.2 | 14 | 17.2 | 5 | 34.5 | 10 |
| Distance-Internet,web-based | 18 | 22.2 | 4 | 61.1 | 11 | 16.7 | 3 |
| CD-ROM | 27 | 37.0 | 9 | 29.6 | 8 | 37.0 | 10 |
| Video cassettes | 31 | 29.0 | 9 | 45.2 | 14 | 25.8 | 8 |
| Audio cassettes | 9 | 11.1 | 1 | 11.1 | 1 | 77.7 | 7 |
| Audio-teleconferencing | 11 | 0 | 0 | 45.5 | 5 | 54.5 | 6 |
| Workshop – peer discussion | 33 | 33.3 | 11 | 45.5 | 15 | 21.2 | 7 |
| Workshop – hands-on experience | 37 | 48.6 | 18 | 29.7 | 11 | 21.7 | 8 |
| Lecture | 35 | 37.1 | 13 | 22.9 | 8 | 40.0 | 14 |
| Self-study/Independent study | 13 | 7.6 | 1 | 46.2 | 6 | 46.2 | 6 |
| Reading journals | 6 | 50.0 | 3 | 0 | 0 | 50.0 | 3 |
| Coursework | 2 | 0 | 0 | 0 | 0 | 100 | 2 |
| Other | 1 | 100 | 1 | 0 | 0 | 0 | 0 |

* number of respondents indicating a preference for a particular delivery modality

The ability to access the various delivery modalities was examined by state. The percentage of affirmative responses was tabulated by state and is presented in Table 22. Ability to access distance – satellite/interactive TV was highest in Louisiana and lowest in Mississippi. Both types of workshops – preferred by most respondents – was generally available in all states. Ability to use various delivery modes for continuing education was lowest in Florida, reflecting the low number of respondents from Florida.

Table 22. Percentage of respondents indicating ability to utilize continuing education delivery method by state (Item #9b)

| Delivery Method | AL | FL | GA | LA | MS | TN |
|-----------------------------------|----|----|----|----|----|----|
| Distance-satellite/interactive TV | 64 | 25 | 60 | 75 | 23 | 43 |
| Distance-Internet,web-based | 76 | 60 | 82 | 79 | 70 | 78 |
| CD-ROM | 83 | 50 | 88 | 84 | 85 | 83 |
| Video cassettes | 90 | 60 | 88 | 86 | 92 | 88 |
| Audio cassettes | 91 | 60 | 91 | 85 | 85 | 87 |
| Audio-teleconferencing | 88 | 60 | 76 | 84 | 92 | 87 |
| Workshop –peer discussion | 86 | 50 | 88 | 89 | 92 | 83 |
| Workshop – hands-on experience | 83 | 50 | 88 | 86 | 92 | 93 |
| Lecture | 87 | 60 | 91 | 90 | 92 | 87 |
| Self-study/Independent study | 91 | 60 | 91 | 95 | 92 | 75 |
| Reading journals | 91 | 40 | 94 | 95 | 92 | 78 |
| Coursework | 80 | 25 | 70 | 78 | 75 | 57 |
| Other | 40 | 30 | 0 | 25 | 38 | 8 |

Preference for delivery method by state was also examined. These results were compromised by low numbers of observations due to the respondents' apparent misunderstanding of the instructions in this section of the questionnaire. The numbers, shown in Table 23, are quite small, and the results should be considered in that context. Despite the small numbers of responses the preference pattern for workshops remains evident especially among residents in GA and LA.

Table 23. Number of respondents indicating first, second and third preferences for continuing education delivery methods by state (Item#9B with Item #1 State)

| Delivery Method | AL (n) | | | FL (n) | | | GA (n) | | |
|-----------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 1 st | 2 nd | 3 rd | 1 st | 2 nd | 3 rd | 1 st | 2 nd | 3 rd |
| Distance-satellite/interactive TV | 1 | 1 | 2 | 0 | 0 | 0 | 5 | 1 | 2 |
| Distance-Internet,web-based | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 4 | 1 |
| CD-ROM | 2 | 2 | 0 | 0 | 0 | 1 | 2 | 4 | 5 |
| Video cassettes | 1 | 1 | 2 | 1 | 0 | 0 | 5 | 5 | 0 |
| Audio cassettes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Audio-teleconferencing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| Workshop – peer discussion | 1 | 4 | 2 | 0 | 0 | 0 | 5 | 5 | 3 |
| Workshop – hands-on experience | 3 | 1 | 0 | 0 | 0 | 0 | 5 | 3 | 2 |
| Lecture | 2 | 1 | 4 | 0 | 0 | 0 | 4 | 3 | 3 |
| Self-study/Independent study | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 |
| Reading Journals | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Coursework | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Delivery Method | LA (n) | | | MS (n) | | | TN (n) | | |
|-----------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 1 st | 2 nd | 3 rd | 1 st | 2 nd | 3 rd | 1 st | 2 nd | 3 rd |
| Distance-satellite/interactive TV | 4 | 2 | 3 | 0 | 0 | 0 | 2 | 1 | 3 |
| Distance-Internet,web-based | 1 | 3 | 0 | 1 | 0 | 1 | 1 | 2 | 1 |
| CD-ROM | 2 | 0 | 1 | 0 | 0 | 1 | 3 | 2 | 2 |
| Video cassettes | 0 | 4 | 1 | 0 | 1 | 1 | 2 | 2 | 4 |
| Audio cassettes | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| Audio-teleconferencing | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 3 | 0 |
| Workshop – peer discussion | 0 | 2 | 0 | 2 | 1 | 0 | 3 | 2 | 1 |
| Workshop – hands-on experience | 4 | 0 | 1 | 2 | 4 | 0 | 4 | 3 | 4 |
| Lecture | 1 | 1 | 3 | 2 | 1 | 0 | 3 | 2 | 2 |
| Self-study/Independent study | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 2 | 0 |
| Reading journals | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |

| | LA (n) | | | MS (n) | | | TN (n) | | |
|------------|--------|---|---|--------|---|---|--------|---|---|
| Coursework | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

The ability to use continuing education delivery methods varied by type of agency. The ability of respondents' employing agencies to use the delivery methods specified in the questionnaire was considered in public and private agencies. The results are shown in Table 23. There were 114 agencies that could be categorized as either public or private based on the respondents' identification. The percentage of availability of continuing education delivery methods was based on the total number of public (82) and private (32) agencies. This allowed a comparison of agencies on the basis of ability to use various delivery methods for continuing education. The results in Table 23 indicate that the two types of agencies are generally comparable in their ability to utilize delivery methods for continuing education. This was especially true for the most preferred methods of delivering continuing education including workshops, CD-ROM, and satellite TV.

Table 23. Number and percentage of respondents indicating ability to utilize continuing education methods by public and private agency (Item #9a with Item #2)

| Delivery Method | Total n* | Public | | Private | |
|-----------------------------------|-------------|--------|------|---------|------|
| | | n | %† | n | %‡ |
| Distance-satellite/interactive TV | 61 | 45 | 54.9 | 16 | 50.0 |
| Distance-Internet,web-based | 81 | 58 | 70.7 | 23 | 71.9 |
| CD-ROM | 88 | 64 | 78.0 | 24 | 75.0 |
| Video cassettes | 97 | 68 | 82.9 | 29 | 90.6 |
| Audio cassettes | 97 | 68 | 82.9 | 29 | 90.6 |
| Audio-teleconferencing | 88 | 63 | 76.8 | 25 | 78.1 |
| Workshop – peer discussion | 95 | 68 | 82.9 | 27 | 84.3 |
| Workshop – hands-on experience | 95 | 67 | 81.7 | 28 | 87.5 |
| Lecture | 96 | 68 | 82.9 | 28 | 87.5 |
| Self-study/Independent study | 93 | 65 | 79.2 | 28 | 87.5 |
| Reading journals | 93 | 65 | 79.2 | 28 | 87.5 |
| Coursework | 73 | 53 | 64.6 | 20 | 65.2 |
| Other | 10 | 7 | 8.5 | 3 | 9.4 |

* total n of respondents per delivery method

† based in n = 82 total number of public agencies

‡ based on n = 32 total number of public agencies

Respondents' preferences for delivery methods were compared in public and private agencies. Workshops were strong first preferences of respondents representing both public and private agencies. Two other methods, clearly second in preference to workshops and lectures, were also mentioned by respondents. These included videocassettes, and CD-ROM. The results are given in Table 24.

Table 24. Number of respondents indicating first, second, and third preference for continuing education delivery methods in public and private agencies (Item #9B with Item #2)

| Delivery Modality | Public Preferences | | | | Private Preferences | | | |
|-----------------------------------|--------------------|-----------------|-----------------|-----------------|---------------------|-----------------|-----------------|-----------------|
| | Total n | 1 st | 2 nd | 3 rd | Total n | 1 st | 2 nd | 3 rd |
| Distance-satellite/interactive TV | 15 | 9 | 4 | 2 | 9 | 3 | 1 | 5 |
| Distance-Internet,web-based | 9 | 1 | 7 | 1 | 7 | 3 | 2 | 2 |
| CD-ROM | 14 | 5 | 3 | 6 | 8 | 3 | 3 | 2 |
| Video cassettes | 21 | 6 | 9 | 6 | 7 | 1 | 4 | 2 |
| Audio cassettes | 6 | 1 | 0 | 5 | 2 | 0 | 1 | 1 |
| Audio-conferencing | 6 | 0 | 4 | 2 | 3 | 0 | 0 | 3 |
| Workshop – peer discussion | 22 | 6 | 12 | 4 | 9 | 5 | 2 | 2 |
| Workshop – hands-on experience | 25 | 15 | 5 | 5 | 10 | 2 | 5 | 3 |
| Lecture | 25 | 8 | 6 | 11 | 8 | 3 | 2 | 3 |
| Self-study/Independent study | 8 | 1 | 2 | 5 | 3 | 0 | 3 | 0 |
| Reading journals | 3 | 0 | 0 | 3 | 2 | 2 | 0 | 0 |
| Coursework | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Other | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |

Psychometric Properties of the Measuring Instrument

In any study the data are only as sound as the measuring instrument. Many instruments used in surveys such as the one conducted in this case suffer from a lack of reliability and validity. Reliability is the ability of the instrument to assess the variables consistently. Validity, the more important of the two properties of measuring instruments, is the ability of the instrument to measure what it is intended to measure. In the absence of reliability and validity of the measuring instrument, the resulting data are of minimal usefulness.

The validity of a portion of the instrument used in this survey was assessed to determine if it was reliable and valid; i.e., that it was measuring consistently what it was intended to measure. The components of Item #6 of the questionnaire were subjected to factor analysis – a data reduction technique used to evaluate the construct validity of the instrument. Construct validity is a type of validity that is used to determine if the instrument measures the intended constructs. Presumably the instrument designers intended there to be six distinctive constructs or clusters of variables in Item #6, representing different entities including asthma, BPD, CF, technology dependence, and sleep disorders. If the instrument is construct valid, distinct clusters of data reflecting the designers' intent should be discernable in the respondents' answers to these components of Item #6.

The data were subjected to factor analysis with the result being that there were three distinct clusters of data, accounting for 80% of the variance in responses to Item #6. The first cluster consisted of all asthma items – indicating that the respondents responded to those items as if they represented a single construct, presumably asthma diagnosis, treatment and management. The second cluster consisted of the items related to BPD, CF, and technology dependence. The third cluster consisted of all the sleep disorder items. This is a very impressive result indicating that this portion of the measuring instrument may be judged to have construct validity. Since validity implies reliability, that portion of the instrument is also reasonably considered as reliable. This finding does not apply to the entire instrument but does suggest that the measuring instrument was well designed in that section.

Limitations, Recommendations, and Conclusions

Limitations

There are several important limitations to consider when interpreting these results and drawing conclusions from them. There are generally two types of limitations affecting this survey – methodological and statistical. The methodological limitations are enumerated. Statistical limitations were described in the results section.

1. The respondents do not represent the target population. A total of 640 surveys were distributed by mail, with 135 (21%) being returned containing useable results. This return rate is average by most standards. The self-selected respondents who completed the survey likely represent the most action-oriented members of the population. The other possibility is that some of the respondents used this questionnaire as an opportunity to vent based on previous bad or good experiences with continuing education. Whatever their motivation for returning the survey, these respondents do not represent the population and the results must be considered in that context.

Generalizing beyond these findings is strongly discouraged.

However, these findings may be used for describing patterns and trends. The findings might serve as the basis for other more intensive data collection activities including focus groups and telephone and email surveys. Important professional members of the health care team were not represented in the results including pharmacists, speech/language/

hearing therapists, physical therapists, and occupational therapists.

2. Some of the questionnaire items were stated in such a way to require respondents to guess at or extrapolate to the opinions and interests of their peers and colleagues. Specific examples are cited and described. In Items #6 and #7 the respondent was asked to rate the interest level of health professionals in his/her agency regarding the continuing education topics. On what basis did the respondent evaluate and then represent the interest of others in continuing education topics? The individual respondent most likely reflected his/her own opinion in responding to these items, and the results should be considered in that context.

In Item #8 the respondent was asked to indicate which professionals in his/her agency were most likely to need continuing education. Again, the individual respondent is likely using him/herself as the basis for the response. The respondents appear to have been adept at answering this question since the majority of the responses reflect the respondent's own peer group. Responses indicating the need for continuing education outside one's own peer group may reflect individual perceptions that do not represent true need for continuing education among the various professional groups.

3. The problems associated with Item #9b were described in the results section. The 87 (64.4%) of the respondents who read the directions and responded to the item appropriately represent a further self-selection of

the respondents. The amount of missing data for this item (35.6%) makes it difficult to draw conclusions about the preferred delivery methods for continuing education. Patterns and trends may be noted from the resulting data.

Recommendations

These suggestions are made for subsequent uses of this questionnaire.

1. Item #1 - Program Administrator is not a professional discipline. Someone who is a physician might also be a program administrator. A separate question might be posed to each respondent – Are you the administrator of the program? – to follow assessment of professional discipline.
2. Item #2 – This item seems to have two intents – to describe the type of agency and to delineate the funding source. If both are important then two questions should be asked. Some examples of other health care provider public and private would have been helpful. Some respondents indicated private physician practices were “other” rather than other care provider – private.
3. Item #9. Re-write Item 9 to have the respondent check the delivery methods that are available in his/her agency. Then instruct the respondent to rate EACH delivery method on a scale of one to four or five. Some measurement options include helpful, useful, and valuable. For example, each delivery method could be evaluated using the instruction – Using the scale evaluate each delivery method for how

effective/useful/valuable it is for delivering continuing education programs. 1 = Not at all effective/useful/valuable, 2 = slightly effective/useful/valuable, 3 = somewhat effective/useful/valuable, 4 = effective/useful/valuable, 5 = very effective/useful/valuable. The delivery methods could then be judged relative to one another based on the average score for each method. This would create a ranking from a rating provided by the respondent.

Conclusions

Responses to the Assessment of Regional Continuing Education Needs questionnaire given by 135 individuals who worked in public (71.9%) or private (28.1%) agencies in Alabama, Georgia, Louisiana, Mississippi, Tennessee, Florida, and Maryland that provided services to children with chronic respiratory conditions (79.5%) were tabulated and analyzed. The results reflect the responses of a group of self-selected persons who completed and returned the questionnaire. Several important professional members of the health care team did not respond to the survey including pharmacists, speech therapists, physical therapists, and occupational therapists. Nurses and physicians were the two professional groups that responded in greatest numbers to the survey.

The results indicated that nurses were identified as the professional group most in need of continuing education, followed by social workers and physicians. Respondents generally identified their

own professional peers as the group that was most likely to need continuing education. Interest in clinical continuing education topics was highest for asthma related topics, particularly strategies for managing complex, severe, or non-compliant asthmatics and how to teach families about asthma. Of all the professional disciplines represented by the survey respondents, physicians indicated greatest interest in the clinical continuing education topics. Strong interest in continuing education regarding asthma was found in agencies that treated children with asthma. There was also strong interest in continuing education regarding sleep disorders expressed by respondents who reported that their agencies treated children for sleep disorders.

Respondents were presented with a second list of continuing education topics. Interest was quite high for continuing education regarding patient and family counseling with at least 75% of all professional disciplines expressing a strong interest in this topic. There was also strong interest in continuing education topics regarding culturally competent health care delivery.

Regarding location of conferences, respondents had a strong preference for conferences on-site. In-state conferences and out of state conferences were preferred second and third, respectively, to on-site conferences. Ninety percent of all respondents indicated a preference for small conferences of less than 100 attendees.

The two greatest barriers to pursuing continuing education identified by the respondents were cost (the greatest barrier) and time away from work/lack of coverage. These barriers were viewed differently by professional disciplines and by state where the respondents worked. Physicians rated time away from work/lack of coverage as more of a barrier than nurses, who indicated that cost was the greatest barrier. Respondents from Georgia differed from respondents in other states in their view that time away from work/lack of coverage was a greater barrier than cost.

Respondents indicated that the most accessible delivery methods for continuing education in their agencies were videocassettes, lectures, reading journals, and workshops. These delivery methods were equally accessible in both public and private agencies, according to respondents. The most preferred delivery methods were workshops with hands-on experience, workshops with peer discussion, distance-satellite TV/interactive, and CD-ROM. There was no difference among states in preferences for delivery methods, although accessibility to satellite TV/interactive was limited in some states. The delivery methods most preferred by respondents – hands-on workshops and peer discussion workshops – were viewed differently in public and private agencies. Those in public agencies preferred hands-on workshops; those in private agencies preferred peer discussion workshops. Data regarding preferences for delivery methods were limited by the respondents’

apparent misunderstanding of the questionnaire instructions for indicating delivery method preference.

These results should be interpreted cautiously because they represent the segment of the target population that took the initiative to complete and return to questionnaire. However, the strength of the responses suggests that continuing education offerings regarding asthma and sleep disorders management delivered via small, on-site workshops or by interactive satellite TV would be well-accepted by these respondents. The cost should be sufficiently low to attract attendees, but not so low as to make the venture unprofitable. Based on the respondents' answers to Item #13 there is competition in the marketplace with 48% of the respondents indicating that they have in place some type of special initiative for pediatric asthma.

Respondents also indicated interest in using CD-ROM for continuing education. This is a means of providing continuing education that does not require the learner to be away from work. The individual can work at his or her own pace through a CD-ROM. Internet learning activities were also indicated as a strong second preference for continuing education delivery methods. Internet courses focused on asthma and sleep disorder management could be developed for the Center's website. These would allow the individual learner to self-pace through the content and would minimize the time missed from work. CD-ROM and Internet based courses also provide the opportunity to

tailor the content to a particular professional group. Physicians were the professional group with the strongest interest in most of the clinical topics. Programs and offerings should be developed with physicians as the target audience.

The strong interest expressed by the respondents in patient and family counseling continuing education represents a substantial opportunity for the Center to provide workshops, develop CD-ROM materials, and construct Internet courses. This topic would seem particularly suited for the small, on-site, hands-on workshops that were preferred by most respondents. The interest in culturally competent health care delivery would also seem well suited for this type of instructional design and course packaging.

The market for continuing education to agencies providing care to pediatric pulmonary patients appears to be strong, based on these respondents' expressed interests and preferences. Clinical programs focused on asthma and sleep disorder management would likely be well received by the market – agencies providing care to pediatric pulmonary patients – and could generate revenue and additional prestige for the Center.

Appendix A

UAB Pediatric Pulmonary Center
Assessment of Regional Continuing Education Needs

Copy of the Cover Letter and Questionnaire

Appendix B

Missing Data by Questionnaire Item # and Specific Variable
(see notes at the end of the table)

| Item # | Variable | n | % | |
|-------------------------|----------------------|----------|------|------|
| 1 | Discipline | 2 | 1.5 | |
| | Zip code | 92 | 68.1 | |
| 2 | Work setting | 1 | 0.7 | |
| 3 | Services provided | 3 | 2.2 | |
| 4 | Asthma | 20 | 14.8 | |
| | BPD | 21 | 15.6 | |
| | CF | 21 | 15.6 | |
| | Ventilator dependent | 22 | 16.3 | |
| | Tracheostomy | 22 | 16.3 | |
| | CPAP/BiPAP | 22 | 16.3 | |
| | Sleep disorders | 22 | 16.3 | |
| | Other pulmonary | 22 | 16.3 | |
| | Other | 25 | 18.5 | |
| | 5 | PA | 22 | 16.3 |
| | | Medicine | 20 | 14.8 |
| Nursing | | 20 | 14.8 | |
| Nutrition | | 22 | 16.3 | |
| Social work | | 22 | 16.3 | |
| Other | | 22 | 16.3 | |
| Pharmacy | | 22 | 16.3 | |
| Respiratory care | | 22 | 16.3 | |
| Speech/Language/Hearing | | 22 | 16.3 | |
| Physical therapy | | 23 | 17.1 | |
| Occupational therapy | | 23 | 17.1 | |
| 6* | Asthma1 | 30 | 22.2 | |
| | Asthma2 | 31 | 23.0 | |
| | Asthma3 | 30 | 22.2 | |
| | Asthma4 | 29 | 21.5 | |
| | Asthma5 | 31 | 23.0 | |
| | Asthma6 | 29 | 21.5 | |
| | BPD1 | 35 | 25.9 | |
| | BPD2 | 34 | 25.2 | |
| | BPD3 | 36 | 26.7 | |
| | CF | 34 | 25.2 | |
| | TD1 | 37 | 27.5 | |
| | TD2 | 37 | 27.5 | |
| | TD3 | 38 | 28.2 | |
| | SD1 | 39 | 28.9 | |
| SD2 | 35 | 28.9 | | |

| Item # | Variable | n | % |
|--------|-------------------------------------------|-----|------|
| | SD3 | 35 | 25.9 |
| | SD4 | 33 | 24.4 |
| 7† | Evaluation | 13 | 9.6 |
| | Respiratory assessment | 11 | 8.1 |
| | SIDS | 11 | 8.1 |
| | Pediatric respiratory emergencies | 14 | 10.4 |
| | Commons medications | 12 | 8.9 |
| | Culturally competent health care delivery | 9 | 6.6 |
| | Family centered care | 13 | 9.6 |
| | Interdisciplinary care | 11 | 8.1 |
| | Systems of care | 12 | 8.9 |
| | Discharge planning | 11 | 8.1 |
| | Starting interdisciplinary teams | 14 | 10.4 |
| | Team building | 9 | 6.7 |
| | Patient and family education | 7 | 5.1 |
| | Smoking cessation | 17 | 12.6 |
| | Educating other professionals | 13 | 9.6 |
| | Hands-on equipment training | 19 | 14.1 |
| 8 | PA | 10 | 7.4 |
| | Medicine | 7 | 5.2 |
| | Nursing | 6 | 4.4 |
| | Nutrition | 6 | 4.4 |
| | Social work | 7 | 5.2 |
| | Other | 10 | 7.4 |
| | Pharmacy | 10 | 7.4 |
| | Respiratory care | 9 | 6.7 |
| | Speech/Language/Hearing | 10 | 7.4 |
| | Physical Therapy | 9 | 6.7 |
| | Occupational Therapy | 10 | 7.4 |
| 9a | Distance-satellite/interactive TV | 11 | 8.1 |
| | Distance-Internet,web-based | 12 | 8.9 |
| | CD-ROM | 12 | 8.9 |
| | Video cassettes | 7 | 5.2 |
| | Audio cassettes | 8 | 5.9 |
| | Audio-teleconferencing | 7 | 5.2 |
| | Workshop – peer discussion | 10 | 7.4 |
| | Workshop – hands-on experience | 8 | 5.9 |
| | Lecture | 8 | 5.9 |
| | Self-study/Independent study | 9 | 6.7 |
| | Reading journals | 10 | 7.4 |
| | Coursework | 18 | 43.3 |
| | Other | 70 | 51.9 |
| 9b‡ | Distance-satellite/interactive TV | 106 | 78.5 |
| | Distance-Internet,web-based | 117 | 86.7 |

| Item # | Variable | n | % |
|--------|--------------------------------|-----|------|
| | CD-ROM | 108 | 80.0 |
| | Video cassettes | 104 | 77.1 |
| | Audio cassettes | 126 | 93.4 |
| | Audio-teleconferencing | 124 | 91.9 |
| | Workshop – peer discussion | 102 | 75.6 |
| | Workshop – hands-on experience | 98 | 72.6 |
| | Lecture | 100 | 74.1 |
| | Self-study/Independent study | 122 | 90.4 |
| | Reading journals | 129 | 95.6 |
| | Coursework | 133 | 98.5 |
| | Other | 134 | 99.3 |
| 10 | On-site | 6 | 4.5 |
| | In-state | 8 | 5.9 |
| | Out of state | 8 | 5.9 |
| 11 | Size of conference | 16 | 11.8 |
| 12 | Cost | 8 | 5.9 |
| | Travel distance | 11 | 8.1 |
| | Agency travel restrictions | 18 | 13.3 |
| | Time away from work | 9 | 6.7 |
| | Time away from home | 11 | 8.1 |
| | CEU/CMEs not offered | 17 | 12.6 |
| | Other | 131 | 9.7 |
| 13 | Special asthma initiatives | 5 | 3.7 |

* respondents were instructed to skip Item #6 if they worked for an agency that did not provide clinical services to children with chronic respiratory conditions

† all respondents were asked to indicate their interest in the topics listed in Item #7

‡ Respondents apparently misunderstood the instructions for completing Item #9b – this is documented in the text of the report