

**West Central Indiana – Area Health Education Center  
Health Professions Workforce  
Needs Assessment Report**

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## Executive Summary

### Background

The Indiana University Bowen Research Center, Center for Health Workforce Studies, conducted an assessment of the health professions workforce issues in the West Central Indiana – Area Health Education Center (WCI-AHEC) region. The first task was to obtain and analyze existing current data about the health workforce. The second task gathered data from participants in a Workforce Summit organized by Indiana State University in Terre Haute on May 12, 2009. The third task was to conduct twenty-five key informant interviews representing the eleven county area of the WCI-AHEC region.

### Methods

Existing data from the Indiana Professional Licensing Agency (PLA), the Area Resource File (ARF), and the Indiana Department of Workforce Development (DWD) were used to assess shortages of specific types of health professionals. For professions for which no known recommended ratio was identified, ratios were calculated and compared between the state and the WCI-AHEC region. The DWD also provided projected workforce numbers for the year 2016, for which projected ratios were calculated. Additionally, the Indiana Hospital Association provided hospital vacancy data to identify unfilled health workforce positions.

The purpose of the Workforce Summit was to obtain perceptions from key individuals relative to the health professions workforce needs in the WCI-AHEC region of the state. Participants, representing a wide range of stakeholders, completed a short survey to indicate their perceptions of health workforce shortages within their communities. Attending individuals were also organized into focus groups to answer three questions: 1) What would be good *measures* of success? 2) What are the *barriers* to recruit and retain individuals in this region? and, 3) What *initiatives are* needed to address the health workforce shortages?

Finally, twenty-five key informant interviews of employers, business leaders, community leaders, and educators were conducted throughout the WCI-AHEC region to determine their perceptions of health professional shortages and factors related to filling those positions.

### Results

Existing data were available for 36 types of health professionals. Comparing the supply of professionals in the WCI-AHEC region to state or recommended ratios, there appeared to be shortages of most health care and allied health professionals in the WCI-AHEC region, including primary care and general care physicians, nurses, oral health professionals, pharmacists, social workers, dietitians, and many types of technicians. Adequate numbers of only a few types of health professionals appeared to exist namely, occupational therapists, radiologic technicians, athletic trainers, and massage therapists. Projected ratios showed that over three-fourths (77.8%) of the analyzed health professions in the WCI-AHEC region in the year 2016 will exist at ratios *lower* than those in the state.

Findings from the Workforce Summit showed that patient care providers (nurses and primary care doctors) were perceived to be the major professional *shortages* in the region. The most common *barriers* identified were: lack of early contact with potential future health professionals, lack of connecting classroom experience with workplace experience, faculty shortages in training programs,

unattractive rural area reputation/image, limited clinical ladders and succession planning, lack of incentives, and legislative and socio-cultural barriers. The highest ranked *initiatives* that the participants recommended were to: increase efforts to reach the future workforce early on, connect classroom experience to workplace experience so that student expectations were more realistic, increase the number of educators, establish a systematic tracking system, establish an interdisciplinary approach to health education, expand tuition reimbursement programs to support training, increase incentives for continuing education, expand infrastructure for technology, set up “satellite” clinics, increase culturally diverse recruiting, establish re-training programs, and increase partnerships between employers and school systems. Lastly, the most commonly cited *measures of success* were: decrease in health professional vacancy rates; increase in enrollment, recruitment, and retention of health professionals; and establishment of a better system to track graduation rates, alumni, and new placements.

Key informant interviews findings showed that all health professions shown on the list were identified as having a shortage in supply at least once. Doctors led the list and were followed by occupational therapists, physical therapists, and mental health professionals. Shortages were also identified in educational institutions for health professions and in health services for the underserved population. The locations identified for new health professionals ranged from the traditional (such as existing practices and hospitals) to public schools and voluntary fire departments. It was apparent from the interviews that recruitment needed to start long before the professional graduated from an educational program. Several factors contributed to successful recruitment of health professionals including serving as a site for clinical rotations, internships, or residencies and modern technology and facilities. Local educational institutions were highly valued. However, more local programs were needed to meet the demand and faculty shortages that limited the number of students that could be admitted to existing programs. Collaborative efforts, including leadership, were widely recognized as needed.

## **Conclusions**

Shortages exist in almost all of the health professions areas in West Central Indiana. Variability among the different sources of data makes it impossible to produce reliable estimates of the size of the shortages. When information was available from the Summit or the interviews, it usually supported the findings of the secondary data. While the secondary data addressed the shortage issue from a wide area, interviewees addressed the issue from a more local point of view. Their responses suggested that there may be distribution issues in addition to the shortages. A recurring theme from the interviews and the Summit focus groups was the need to increase access to educational programs in local areas. This included increasing size of existing programs and making new programs available.

## Chapter 1: Introduction

The Rural Health Innovation Collaborative (RHIC) is a collaborative effort among:

- Indiana State University,
- Indiana University School of Medicine, Terre Haute Center,
- Union Hospital, Lugar Center for Rural Health,
- Ivy Tech Community College Wabash Valley,
- Terre Haute Economic Development Corporation, and,
- The City of Terre Haute.

It was formally established in 2008 with the purpose of addressing health care workforce shortages; increasing rural health care services, training, and research; and promoting neighborhood revitalization and economic development. To assist the RHIC in focusing their effort, the Indiana University Bowen Research Center, Center for Health Workforce Studies, conducted a current assessment of health care workforce shortages in the WCI-AHEC region of the state. The eleven counties included in this region were: Clay, Fountain, Greene, Montgomery, Owen, Parke, Putnam, Sullivan, Vermillion, Vigo, and Warren. By obtaining information and data from various sources, this assessment will provide an understanding of the current and future health workforce needs in the WCI-AHEC region of the state.

One of the assessment tasks was to identify and obtain existing current data about the health professions workforce in the WCI-AHEC region of the state for comparison to the state as a whole. Data about the health professions workforce at the county and county group level were obtained from *three* primary data sources: the Indiana Professional Licensing Agency (PLA) through the Indiana State Department of Health; the Area Resource File (ARF) provided by the Health Resources and Services Administration; and the Indiana Department of Workforce Development (DWD). The health professions included in this report were physicians, nurses, dentists, mental health professionals, and other health care professionals, as well as a wide range of allied health professionals who are involved in improving the health status of individuals. The Indiana University Bowen Research Center team determined the health profession shortage ratios for those professions for which demand ratios were known, as well as existing ratios for geographic comparison of those professions for which demand ratios were not known. Additionally, numbers of hospital position vacancies were provided by the Indiana Hospital Association for those facilities in the WCI-AHEC region. Finally, projected health workforce ratios for the WCI-AHEC region and for the state were calculated for the year 2016, using DWD and U.S. Census projections. The results of these analyses are shown in Chapter 2 of this report.

Another task of the needs assessment involved Indiana University Bowen Research Center's participation in a Health Workforce Summit organized by Indiana State University (ISU) and WCI-AHEC in Terre Haute on May 12, 2009. Indiana State University invited RHIC partners and other community leaders, as well as representatives from college and university training programs to the Summit. The purpose of the Summit was to introduce the newly combined College of Nursing, Health and Human Services (CNHHS) at ISU and to share information about the role of RHIC in strategically expanding the health professions workforce in this region to meet the perceived needs of health professionals in the

WCI-AHEC region of the state. A summary of the perceptions and recommendations of these key individuals is presented in Chapter 3 of this report.

Lastly, twenty-five key informant interviews were conducted representing the eleven county area of the WCI-AHEC region. The key informants included community representatives (10), educators of health professionals (6), and employers of health professionals (9). Ten key informants were from Vigo County and the rest (15) were from the other counties which were more rural. All counties in the area were represented. A description of this component and the results are presented in Chapter 4 of this report.

Chapter 5 includes the Conclusions and Recommendations. It is expected that the information provided in this health professions workforce needs assessment report will be used by various stakeholders to better plan strategies to train, recruit, and retain needed health professionals in the WCI-AHEC region of the state.

## Chapter 2: Findings from Secondary Data

### Background

Several existing secondary sources for current and projected health workforce data were obtained and analyzed to determine the current and potential future shortages of health care professionals in the West Central region of Indiana.

### Methods

This assessment task included identifying and obtaining existing current data about the health workforce in the state of Indiana, in the WCI-AHEC region, and, when possible, in Clark and Edgar Counties of Illinois, which are adjacent to the counties of the WCI-AHEC region. Data about the health professions workforce at the county and county group level are known to exist from a number of sources. Three of these data sources were available to the Indiana University Bowen Research Center:

- Indiana Professional Licensing Agency (PLA),
- Area Resource File (ARF), and
- Indiana Department of Workforce Development (DWD).

PLA datasets included physicians (2007), registered nurses (2007), oral health professionals (2004), and mental health professionals (2006); ARF data (2007) were provided for the most common health professions by county in Indiana and Illinois, although some enumerations were based on the 2000 census; and DWD data (2006) were provided for health professionals reported by employers.

To assess health professions shortages, estimates of the number of health professionals currently active in the region were calculated using the number of health professionals per 100,000 population for that area, resulting in a ratio. By subtracting the calculated ratios from the “recommended” ratio for each health profession, where available, a *shortage* or an *excess* was determined as a new ratio. The recommended ratios have been shown in the tables of results. This new ratio was then multiplied by the population in the geographic area to determine the number of health professionals short in that area.

For professions for which no known recommended ratios exist, tables were developed comparing the existing current ratios of each type of professional per 100,000 residents in the state to the ratio in the WCI-AHEC region to allow estimates of shortages in the WCI-AHEC region.

In addition to current shortages and current existing ratios, data for vacant hospital positions were provided by the Indiana Hospital Association. These data were reported by the member hospitals in the WCI-AHEC region for the fourth quarter of 2008. Finally, projected ratios for the year 2016 were calculated using DWD projected numbers and the U.S. Census Bureau’s projected 2015 population.

### Results

Data availability for each profession varied by source and by geographic area. Tables with all available data are shown below.

#### ***Physicians and Physician Assistants***

As presented in Table 2.1, neither the WCI-AHEC region nor the area of WCI-AHEC plus Clark and Edgar counties met the recommended ratio of any physician specialty. General internists exhibited the

largest shortage, with an identified need ranging from 80 to 134 professionals, depending on the data source. General surgeons, family practitioners, obstetricians/gynecologists, psychiatrists, and general pediatricians showed the next largest shortages, respectively. The smallest shortage existed for emergency medicine physicians, ranging from a need of 5 to 22 professionals.

TABLE 2.1 PHYSICIANS								
PHYSICIANS	AREA	RECOMMENDED RATIO PER 100,000	SHORTAGE NUMBER*			SHORTAGE RATIO per 100,000*		
			PLA (07)	ARF (06)	DWD (06)	PLA (07)	ARF (06)	DWD (06)
Family Medicine	WCI	39.0	42	7	13	5.0	2.2	3.9
	WCI + IL Counties	39.0	n/a	15	n/a	n/a	4.1	n/a
	Indiana	39.0	718	252	-641	11.3	4.0	-10.2
General Internal Medicine	WCI	39.9	134	84	80	39.0	24.4	23.5
	WCI + IL Counties	39.9	n/a	95	n/a	n/a	25.1	n/a
	Indiana	39.9	1812	1126	1485	28.6	17.9	23.6
Ob/Gyn	WCI	14.5	39	29	n/a	11.3	8.9	n/a
	WCI + IL Counties	14.5	n/a	36	n/a	n/a	9.5	n/a
	Indiana	14.5	509	280	438	8.0	4.4	6.9
General Pediatrics	WCI	17.3	49	41	n/a	14.4	12.0	n/a
	WCI + IL Counties	17.3	n/a	46	n/a	n/a	12.3	n/a
	Indiana	17.3	629	299	620	9.9	4.7	9.8
General Surgery**	WCI	14.5	35	29	6	9.8	8.4	1.7
	WCI + IL Counties	14.5	n/a	33	n/a	n/a	8.7	n/a
	Indiana	14.5	655	326	-403	9.8	5.2	-6.4
Emergency Medicine	WCI	9.4	5	22	n/a	1.5	6.5	n/a
	WCI + IL Counties	9.4	n/a	25	n/a	n/a	6.5	n/a
	Indiana	9.4	-51	54	n/a	-0.8	0.9	n/a
Psychiatry	WCI	13.9	37	35	n/a	10.7	10.1	n/a
	WCI + IL Counties	13.9	n/a	39	n/a	n/a	10.2	n/a
	Indiana	13.9	567	431	379	8.9	6.8	6.0

\*Negative values indicate the ratio is higher than the recommended or national ratio

\*\*DWD data include ALL surgeons

Table 2.2 shows the comparison of existing ratios of physician assistants. The WCI-AHEC region had a consistently *lower* ratio than the state of Indiana as a whole, indicating a shortage in the WCI-AHEC region. The area of the WCI-AHEC plus Clark and Edgar Counties showed a slightly *higher* ratio than WCI-AHEC region alone, but it, too, had a smaller ratio than the state as a whole.

<b>Table 2.2 RATIOS OF PHYSICIAN ASSISTANTS PER 100,000</b>			
<b>Physician Assistants</b>	<b>PLA (08)</b>	<b>ARF (07)</b>	<b>DWD (06)</b>
WCI	8.3	6.4	5.8
WCI + IL Counties	n/a	6.6	n/a
Indiana	13.0	11.1	11.0

### ***Nursing Professionals***

Table 2.3 shows that the WCI-AHEC region was shown to have a shortage of registered nurses by the DWD and PLA datasets, ranging from a need of 702 to 827 professionals. Data were not available for the WCI-AHEC plus Clark and Edgar counties area.

<b>Table 2.3 REGISTERED NURSES</b>					
<b>AREA</b>	<b>RECOMMENDED RATIO PER 100,000</b>	<b>SHORTAGE NUMBER*</b>		<b>SHORTAGE RATIO per 100,000*</b>	
		<b>PLA (07)</b>	<b>DWD (06)</b>	<b>PLA (07)</b>	<b>DWD (06)</b>
WCI	735.7	827	702	241.7	205.0
WCI + IL Counties	735.7	n/a	n/a	n/a	n/a
Indiana	735.7	1475	-8057	23.3	-123.9

\*Negative values indicate the ratio is higher than the recommended or national ratio

Table 2.4 displays the existing ratios of advanced practice nurses in the three geographic areas of interest. Both the PLA and ARF datasets showed that the WCI-AHEC region had a *smaller* existing ratio of midwives and nurse practitioners, than the state as a whole. The area of WCI-AHEC plus Clark and Edgar Counties had a ratio even *smaller* than the WCI-AHEC region alone.

<b>Table 2.4 RATIOS OF ADVANCED PRACTICE NURSES PER 100,000</b>		
<b>Nurse Midwives</b>	<b>PLA (07)</b>	<b>ARF (03)</b>
WCI	0.6	1.2
WCI + IL Counties	n/a	0.5
Indiana	1.1	1.4
<b>Nurse Practitioners</b>	<b>PLA (07)</b>	<b>ARF (01)</b>
WCI	19.6	11.1
WCI + IL Counties	n/a	10.0
Indiana	25.5	17.3

Existing ratios of licensed practical nurses and licensed vocational nurses were shown to be *smaller* in the WCI-AHEC region than in the state of Indiana, as presented in Table 2.5. Data for the area of WCI-AHEC plus Clark and Edgar Counties were not available.

Table 2.5 RATIOS OF LPNs/LVNs PER 100,000	
LPNs/LVNs	DWD (06)
WCI	280.8
WCI + IL Counties	n/a
Indiana	298.9

### Oral Health Professionals

Data sources for general dentistry conflicted regarding shortages in the WCI-AHEC region, as shown in Table 2.6. PLA and DWD data exhibited a need in the region of 17 to 126 general dentists. ARF data, however, showed an excess of 28 dentists. The area of WCI-AHEC plus Clark and Edgar counties was shown in ARF to have a shortage of 125 general dentists.

Table 2.6 GENERAL DENTISTS*							
AREA	RECOMMENDED RATIO PER 100,000	SHORTAGE NUMBER			SHORTAGE RATIO per 100,000**		
		PLA (04)	ARF (07)	DWD (06)	PLA (04)	ARF (07)	DWD (06)
WCI	60.0	126	-28	17	36.7	-8.1	5.1
WCI + IL Counties	60.0	n/a	125	n/a	n/a	33.0	n/a
Indiana	60.0	2175	1449	1524	35.0	22.8	24.2

\*ARF data included general and pediatric dentists

\*\*Negative values indicate the ratio is higher than the recommended or national ratio

Data for specialty dentists were available from the PLA and ARF datasets, as shown in Table 2.7. Both sources indicated *similar* ratios, with the WCI-AHEC region exhibiting *smaller* ratios of existing specialty dentists, than the state as a whole. The area of WCI-AHEC plus Clark and Edgar counties showed the *smallest* ratio of the three geographic areas.

Table 2.7 RATIOS OF SPECIALTY DENTISTS PER 100,000		
Specialty Dentists	PLA (04)	ARF (07)
WCI	3.2	3.2
WCI + IL Counties	n/a	2.9
Indiana	7.7	6.1

Table 2.8 presents existing ratios of dental hygienists to be *smaller* in the WCI-AHEC region than in Indiana as a whole. Both the PLA and DWD datasets showed the ratio in the WCI-AHEC region to be approximately three-fifths that of the state. Data for the area of WCI-AHEC plus Clark and Edgar Counties were not available.

<b>Table 2.8 RATIOS OF DENTAL HYGIENISTS PER 100,000</b>		
<b>Dental Hygienists</b>	<b>PLA (04)</b>	<b>DWD (06)</b>
WCI	21.1	41.1
WCI + IL Counties	n/a	n/a
Indiana	35.5	62.6

**Mental Health Professionals**

Existing numbers of licensed mental health counselors were shown to be *lower* in the WCI-AHEC region than in the state, as shown in Table 2.9. The region was shown to have roughly one-half the ratio as the state. Data were not available for the area of WCI-AHEC plus Clark and Edgar Counties.

<b>Table 2.9 RATIOS OF MENTAL HEALTH COUNSELORS PER 100,000</b>	
<b>Mental Health Counselors</b>	<b>PLA (06)</b>
WCI	9.4
WCI + IL Counties	n/a
Indiana	19.3

DWD data showed that the ratio of psychiatric technicians in the WCI-AHEC region was roughly one-fourth that of the state, as presented in Table 2.10. Data for this profession were not available from the PLA or ARF datasets.

<b>Table 2.10 RATIOS OF PSYCHIATRIC TECHNICIANS PER 100,000</b>	
<b>Psychiatric Technicians</b>	<b>DWD (06)</b>
WCI	9.2
WCI + IL Counties	n/a
Indiana	38.5

Table 2.11 showed that the ratio of existing licensed social workers in the WCI-AHEC region was roughly one-half that of the state. Data for the area of WCI-AHEC plus Clark and Edgar Counties were unavailable.

<b>Table 2.11 RATIOS OF SOCIAL WORKERS PER 100,000*</b>	
<b>Social Workers</b>	<b>PLA (06)</b>
WCI	14.3
WCI + IL Counties	n/a
Indiana	31.4

\*Master’s level social workers

**Pharmacists**

Table 2.12 showed the data available for pharmacists from the PLA and DWD datasets. Both sources showed a *smaller* existing ratio of pharmacists in the WCI-AHEC region than in Indiana as a whole. Data for the area of WCI-AHEC plus Clark and Edgar Counties were unavailable.

<b>Table 2.12 RATIOS OF PHARMACISTS PER 100,000</b>		
<b>Pharmacists</b>	<b>PLA (08)</b>	<b>DWD (06)</b>
WCI	91.2	50.4
WCI + IL Counties	n/a	n/a
Indiana	149.6	88.9

**Occupational, Physical, and Respiratory Therapy Professionals**

DWD data showed that the WCI-AHEC region had a *larger* existing ratio of occupational therapists than the state as a whole, as presented in Table 2.13. Data for WCI-AHEC plus Clark and Edgar Counties were unavailable.

<b>Table 2.13 RATIOS OF OCCUPATIONAL THERAPISTS PER 100,000</b>	
<b>Occupational Therapists</b>	<b>DWD (06)</b>
WCI	45.9
WCI + IL Counties	n/a
Indiana	39.9

The WCI-AHEC region showed a *lower* ratio of both physical therapists and physical therapy assistants than the state of Indiana, as presented in Table 2.14. PLA and ARF data were unavailable for these professions.

<b>Table 2.14 RATIOS OF PHYSICAL THERAPY PROFESSIONALS PER 100,000</b>	
<b>Physical Therapists</b>	<b>DWD (06)</b>
WCI	52.9
WCI + IL Counties	n/a
Indiana	60.9
<b>Physical Therapy Assistants</b>	<b>DWD (06)</b>
WCI	15.8
WCI + IL Counties	n/a
Indiana	22.6

Table 2.15 shows that the WCI-AHEC region had about three-fifths the ratio of respiratory therapists than the state as a whole. Data for the area of WCI-AHEC plus Clark and Edgar counties were not available.

<b>Table 2.15 RATIOS OF RESPIRATORY THERAPISTS PER 100,000</b>	
<b>Respiratory Therapists</b>	<b>DWD (06)</b>
WCI	29.8
WCI + IL Counties	n/a
Indiana	44.4

***Technicians and Technologists***

According to the DWD dataset, the WCI-AHEC region showed a *smaller* existing ratio of cardiovascular technologists and technicians than Indiana as a whole, as presented in Table 2.16. For the area of WCI-AHEC plus Clark and Edgar Counties, data were not available.

<b>Table 2.16 RATIOS OF CARDIOVASCULAR TECHNOLOGISTS &amp; TECHNICIANS PER 100,000</b>	
<b>Cardiovascular Technicians &amp; Technologists</b>	<b>DWD (06)</b>
WCI	10.3
WCI + IL Counties	n/a
Indiana	15.4

DWD data showed that the WCI-AHEC region had a *smaller* existing ratio of medical and clinical lab technologists and technicians than the entire state of Indiana, as presented in Table 2.17. ARF and PLA datasets were not available.

<b>Table 2.17 RATIOS OF MEDICAL &amp; CLINICAL LAB TECHNOLOGISTS &amp; TECHNICIANS PER 100,000</b>	
<b>Lab Technicians &amp; Technologists</b>	<b>DWD (06)</b>
WCI	73.7
WCI + IL Counties	n/a
Indiana	109.4

Table 2.18 showed that existing ratios of medical records and health information technicians were *smaller* in the WCI-AHEC region than in the state as a whole. WCI-AHEC plus Clark and Edgar Counties data were not available.

<b>Table 2.18 RATIOS OF MEDICAL RECORDS &amp; HEALTH INFORMATION TECHNICIANS PER 100,000</b>	
<b>Medical Records &amp; Health Information Technicians</b>	<b>DWD (06)</b>
WCI	51.1
WCI + IL Counties	n/a
Indiana	63.8

Ratios of existing radiologic technologists and technicians were slightly *larger* in the WCI-AHEC region than in the state as a whole, as presented in Table 2.19. Data for WCI-AHEC plus Clark and Edgar Counties were unavailable.

<b>Table 2.19 RATIOS OF RADIOLOGIC TECHNOLOGISTS &amp; TECHNICIANS PER 100,000</b>	
<b>Radiologic Technicians &amp; Technologists</b>	<b>DWD (06)</b>
WCI	78.4
WCI + IL Counties	n/a
Indiana	77.1

Table 2.20 showed that the existing ratio of surgical technologists in the WCI-AHEC region was approximately three-fourths that of the entire state. Data for the area of WCI-AHEC plus Clark and Edgar Counties were unavailable.

<b>Table 2.20 RATIOS OF SURGICAL TECHNOLOGISTS PER 100,000</b>	
<b>Surgical Technologists</b>	<b>DWD (06)</b>
WCI	26.0
WCI + IL Counties	n/a
Indiana	36.4

***Other Health Professionals***

DWD data showed a *larger* existing ratio of athletic trainers in the WCI-AHEC region than in Indiana as a whole, as presented in Table 2.21. Data for the area of WCI-AHEC plus Clark and Edgar Counties were unavailable.

<b>Table 2.21 RATIOS OF ATHLETIC TRAINERS PER 100,000</b>	
<b>Athletic Trainers</b>	<b>DWD (06)</b>
WCI	8.6
WCI + IL Counties	n/a
Indiana	6.8

The ratio of dieticians and nutritionists in the WCI-AHEC region was approximately one-half that of the state, as presented in Table 2.22. Data for the area of WCI-AHEC plus Clark and Edgar Counties were unavailable.

<b>Table 2.22 RATIOS OF DIETICIANS &amp; NUTRITIONISTS PER 100,000</b>	
<b>Dieticians &amp; Nutritionists</b>	<b>DWD (06)</b>
WCI	11.4
WCI + IL Counties	n/a
Indiana	20.2

Table 2.23 shows the ARF and DWD data available for chiropractors. Both datasets showed a *smaller* existing ratio of chiropractors in the WCI-AHEC region compared to the state as a whole. The area of WCI-AHEC plus Clark and Edgar counties showed a slightly *larger* ratio than the WCI-AHEC region alone and a slightly *smaller* ratio than the entire state. PLA data were unavailable.

<b>Table 2.23 RATIOS OF CHIROPRACTORS PER 100,000</b>		
<b>Chiropractors</b>	<b>ARF (01)</b>	<b>DWD (06)</b>
WCI	10.8	11.6
WCI + IL Counties	11.9	n/a
Indiana	12.6	14.8

DWD data showed a slightly *smaller* existing ratio of emergency medical technicians and paramedics in the WCI-AHEC region than in Indiana as a whole, as presented in Table 2.24. For the area of WCI-AHEC plus Clark and Edgar Counties, data were unavailable.

<b>Table 2.24 RATIOS OF EMERGENCY MEDICAL TECHNICIANS &amp; PARAMEDICS PER 100,000</b>	
<b>EMTs &amp; Paramedics</b>	<b>DWD (06)</b>
WCI	77.8
WCI + IL Counties	n/a
Indiana	79.7

According to the DWD dataset, the existing ratio of massage therapists in the WCI-AHEC region was *double* that of the state as a whole, as presented in Table 2.25. For the area of WCI-AHEC plus Clark and Edgar Counties, data were unavailable.

<b>Table 2.25 RATIOS OF MASSAGE THERAPISTS PER 100,000</b>	
<b>Massage Therapists</b>	<b>DWD (06)</b>
WCI	70.9
WCI + IL Counties	n/a
Indiana	31.7

The existing ratio of medical transcriptionists was *smaller* in the WCI-AHEC region than in Indiana as a whole, as presented in Table 2.26. Data were unavailable from the ARF and PLA datasets.

<b>Table 2.26 RATIOS OF MEDICAL TRANSCRIPTIONISTS PER 100,000</b>	
<b>Medical Transcriptionists</b>	<b>DWD (06)</b>
WCI	37.1
WCI + IL Counties	n/a
Indiana	44.8

DWD data showed a *smaller* existing ratio of diagnostic medical sonographers in the WCI-AHEC region than in the entire state, as shown in Table 2.27. ARF and PLA datasets for this profession were unavailable.

<b>Table 2.27 RATIOS OF DIAGNOSTIC MEDICAL SONOGRAPHERS PER 100,000</b>	
<b>Sonographers</b>	<b>DWD (06)</b>
WCI	13.2
WCI + IL Counties	n/a
Indiana	16.3

Table 2.28 shows that the existing ratio of speech language pathologists in the WCI-AHEC region was approximately two-thirds that of the state as a whole.

<b>Table 2.28 RATIOS OF SPEECH LANGUAGE PATHOLOGISTS PER 100,000</b>	
<b>Speech Language Pathologists</b>	<b>DWD (06)</b>
WCI	21.6
WCI + IL Counties	n/a
Indiana	30.2

***Current Health Professions Vacancies***

In Table 2.29, Indiana Hospital Association data showed six professions for which vacancies existed in the WCI-AHEC region. The professionals highest in-demand were registered nurses, for which 50 vacancies existed; physical therapists, for which five vacancies existed; imaging professionals and pharmacists, for which three vacancies existed for each; and laboratory professionals and respiratory therapists, for which one vacancy existed for each.

<b>Table 2.29 VACANT HOSPITAL POSITIONS IN WCI*</b>	
<b>Profession</b>	<b>Vacancies</b>
Imaging	3
Lab	1
Pharmacists	3
Physical Therapists	5
Registered Nurses	50
Respiratory Therapists	1

\*Data provided by the Indiana Hospital Association as of the 4<sup>th</sup> quarter of 2008.

***Health Care Workforce Projections (2016)***

DWD provided occupational projections for the year 2016, as presented in Table 2.30. Projected ratios of health care professionals showed that the WCI-AHEC region had *lower* ratios than the state in 21 of the 27 professions listed. Six professions for which the WCI-AHEC region had *higher* projected

ratios than the state were: athletic trainers, emergency medical technicians and paramedics, general internists, massage therapists, occupational therapists, and radiologic technologists and technicians.

<b>Table 2.30 HEALTH CARE WORKFORCE PROJECTED RATIOS PER 100,000, 2016*</b>		
<b>Profession**</b>	<b>WCI Ratio</b>	<b>Indiana Ratio</b>
Athletic Trainers	10.0	8.0
Cardiovascular Technologists & Technicians	12.9	18.8
Chiropractors	13.2	15.9
Dental Hygienists	54.0	75.9
Dentists, General	16.4	36.3
Diagnostic Medical Sonographers	16.3	18.7
Dietitians & Nutritionists	12.1	21.7
Emergency Medical Technicians & Paramedics	96.5	89.5
Family Medicine & General Practitioners	40.3	52.2
Internists, General	18.9	17.2
Licensed Practical & Licensed Vocational Nurses	320.2	327.0
Massage Therapists	72.9	34.2
Medical & Clinical Laboratory Technologists & Technicians	82.8	121.6
Medical Records & Health Information Technicians	61.1	72.1
Medical Transcriptionists	40.9	50.4
Occupational Therapists	59.2	48.1
Pharmacists	60.4	102.3
Physical Therapist Assistants	21.4	28.5
Physical Therapists	69.1	74.0
Physician Assistants	7.5	13.4
Psychiatric Technicians	8.6	35.1
Radiologic Technologists & Technicians	93.6	85.5
Registered Nurses	677.5	1040.9
Respiratory Therapists	37.5	53.3
Speech-Language Pathologists	23.1	32.2
Surgeons	14.6	21.9
Surgical Technologists	32.9	44.2

\*Projection numbers provided by DWD, and U.S. Census projected 2015 population used for ratios

\*\*Advanced practice nurses were not included in the DWD dataset

### **Benefits/Limitations of data**

The datasets utilized in this analysis have their own strengths and limitations. The PLA data are collected at least once every two years in re-licensure surveys for certain professions—such as physicians, nurses, and pharmacists—resulting in relatively current counts. Through these surveys, demographic and practice characteristics are collected, and counts are available by county. In addition,

all individuals in these specific professions must be licensed, so all professionals in these occupations in the state have the potential to be surveyed. One limitation to these data is that not all professionals choose to answer the voluntary questionnaire, resulting in a response bias. The estimates shown here, however, have been adjusted for the response rates. Also, many licensed professions do not include questionnaires in their re-licensure process.

For DWD, one of the benefits was that the data were from 2006, which was relatively recent. In addition, workforce counts are reported by employers. This is particularly useful when individuals of a specific profession are not surveyed in the licensing process. The limitation to this dataset is that self-employed professionals may not be represented in the data. In addition, individuals employed at multiple agencies may be counted twice, resulting in an overestimation of professionals. Also, demographics are not included. Finally, data are not available at the county level, and professions with fewer than 20 employees at the AHEC level were omitted from the dataset. This may result in an underestimation of professionals of a particular occupation.

The ARF dataset includes data on a wide variety of health professions, both licensed and non-licensed. The data are also available at the county level and include Illinois data, allowing Clark and Edgar Counties in Illinois to be included in the ratios for some professions. A limitation is that the data come from a variety of sources, so collection methods, quality, and availability may vary by profession. Additionally, many data are relatively old and are only collected every ten years with the U.S. Census. Finally, demographics for most of the professions are unavailable.

## **Recommendations**

Shortages should be identified based on a variety of data, including the number and types of health professionals in the area, the number of unfilled positions, and the characteristics and needs of the population in the area. These shortage numbers should then be compared to the number of health professionals completing training in the region to identify the need for expansion or modification of the training programs. Lastly, quality, completeness, and timeliness of the data need to be improved. Nonetheless, the following health professions seem to have the *greatest* shortages and may be targets for expansion of training programs, as well as increased efforts to recruit and retain these professionals in the WCI-AHEC region. They are (in alphabetical order):

- Dentists and Dental Hygienists
- Family Medicine Physicians
- Medical and Clinical Technologists and Technicians
- Medical Records Technicians and Health Information Technicians
- Pharmacists
- Psychiatric Technicians
- Registered Nurses
- Respiratory Therapists
- Social Workers (Master's Trained)
- Surgical Technicians

**Conclusion**

Comparing the supply of professionals in the WCI-AHEC region to the state or to recommended ratios, there appears to be a shortage of most health care and allied health professionals in the WCI-AHEC region, including primary care and general care physicians, nurses, oral health professionals, pharmacists, social workers, dietitians, and many types of technicians. Adequate numbers of only a few types of health professionals appear to exist: occupational therapists, radiologic technicians, athletic trainers, and massage therapists.

Currently, data exist about the health professions workforce. A great need remains, however, for improvements in the types and amounts of data collection to allow conclusions to be drawn with confidence, as some of the current data are inconsistent, missing, or not current. Addressing the issue of health workforce shortages can be a challenging task given that there is no single source for accurate and reliable information on which to base future recruitment and training strategies, but utilizing data from a variety of sources may help to create a more accurate picture of the current health workforce demands.

## Chapter 3: Workforce Summit Summary

### Background

Indiana University Bowen Research Center participated in a Workforce Summit organized by Indiana State University and the WCI-AHEC region in Terre Haute on May 12, 2009. Invited participants included key stakeholders from the 11-county WCI-AHEC region, Indiana State Department of Health and the Rural Health Innovation Collaborative (RHIC) Founding Partners:

- Indiana State University,
- City of Terre Haute,
- IU School of Medicine, Terre Haute Center for Medical Education (THCME),
- Ivy Tech Community College Wabash Valley,
- Terre Haute Economic Development Corporation, and
- Union Hospital Health Group, Lugar Center for Rural Health.

The purpose of the Summit was to obtain perceptions from key individuals relative to the health professions workforce needs in the WCI-AHEC region of the state. The participants were asked to give their observations and perceptions about the need for specific types of health professionals to ensure that all sub-populations in the WCI-AHEC region of the state would be able to access the health care that they required. The questionnaire used to obtain participants' perceptions is included in Appendix A.

### Methods

Key individuals representing a wide range of stakeholders, including education and training programs, employers, and community leaders, were invited to participate in the Summit to discuss the health workforce in their communities. A survey was conducted at the beginning of the Workforce Summit asking participants to identify specific health professions where shortages existed in this region. The survey was conducted before the discussions and presentations given at the Summit, so the information provided to the participants later would not have influenced their perceptions. This was done to ascertain the attitudes of employers, educators, business leaders, and community leaders, since it is likely that the attitudes and perceptions of those attending the summit were somewhat representative of the larger group of professionals and thought leaders.

The first part of the Summit included an overview of the University's CNHHS and the RHIC and plans for their futures, presented by the President of Indiana State University and the Dean of the College of Nursing, Health, and Human Services. In addition, all attendees were asked to participate in a brief survey to share their opinions on shortages of the specific types of health professions within their area. At the end of the first session, a power point presentation was made by the Associate Director of the Indiana University Bowen Research Center, describing how workforce shortages could be determined and showed the shortages of specific types of health professionals in the WCI-AHEC region.

The second part of the Summit involved organizing key individuals into focus groups and asking them to share their experiences and opinions about the shortages of specific types of health professionals in their communities within the WCI-AHEC region of the state. Each participant was assigned to a room and a table within that room. Each group was asked to comment on three questions:

- 1) What would be good *measures* of success?

- 2) What are the *barriers* to recruit and retain individuals in this region?
- 3) What *initiatives* are needed to address the health workforce shortages?

Each room had a flip-chart to summarize the responses to the three questions. The group interactions were facilitated by the staff from the Indiana University Bowen Research Center. There were brief “report outs” after each question. The *initiatives* were then compiled into a list which the participants prioritized according to the initiative that was most needed in the WCI-AHEC region. Valuable suggestions were made to address these shortages.

## **Results**

The results have been categorized into a quantitative and a qualitative summary. The *quantitative* summary has responses to the survey completed by individuals just prior to the presentations given during the first part of the Summit. The *qualitative* summary includes responses to the three questions asked during the focus group sessions.

### **[A] Quantitative Summary**

A survey instrument was administered to the participants at the beginning of the Summit that listed various health professional types and asked respondents to indicate if they perceived there was a shortage or not for each profession. Based on the analysis of the 82 respondents, health profession disciplines were rank ordered by health professions, perceived by the Summit participants to have the highest shortage in the WCI-AHEC region of the state, as shown in Table 3.1.

<b>Table 3.1: Health Professions Shortages</b>			
<b>Rank</b>	<b>Health Professions</b>	<b>Shortages ("Yes" response)</b>	
		<b>Number</b>	<b>Percent</b>
1	Baccalaureate degree (four-year) registered nurses	67	81.7
2	Nurses in general	66	81.5
3	Primary care (i.e. family doctor)	64	78.0
4	Nurse practitioners	58	70.7
5	Clinical nurse specialist	56	69.1
6	Mental health (therapists, counselors)	54	65.9
7	Occupational therapists	54	65.9
8	Physical therapists	54	65.9
9	Pharmacists	53	64.6
10	Social workers	52	63.4
11	Doctors in general	51	62.2
12	Health educators	51	62.2
13	Speech pathologists	51	62.2
14	Physician assistants	50	61.0
15	Licensed practical nurses	49	59.8
16	Public health specialists	47	58.0
17	Associate degree (two-year) registered nurses	46	56.8
18	Psychologists	46	56.1
19	Specialist(i.e. cardiologist)	40	48.8
20	Radiology technicians	40	48.8
21	Emergency medical technicians	37	45.1
22	Environmental health scientists	36	43.9
23	Nurse midwives	34	41.5
24	Dentists	31	37.8
25	Podiatrists	29	35.4
26	Safety/risk managers	28	34.1
27	Athletic trainers	26	31.7
28	Recreation therapists	26	31.7
29	Dental hygienists	25	30.5
30	Exercise scientists	21	25.6
31	Physical education teachers	20	24.4
32	Recreation managers	16	19.5

## **[B] Qualitative Summary**

The responses of the focus group participants were organized by topic under each of the three questions discussed, and consistent messages reported. Under the last question, the recommended interventions were ranked in order of priority as assessed by the participants.

### ***I] Measures of Success***

- Decreased health professional vacancy rates
- Increased enrollment, recruitment, and retention of health professionals
- Better system to track graduation rates, alumni, and new placements
- Improved health outcomes
- Improved access to care (i.e., wait time for appointments, transportation)
- Needs assessments for specific populations and new/existing programs in the area

### ***II] Barriers to Recruit and Retain Health Professionals***

- Education
  - Not enough early contact with potential future health professionals
  - Not enough early K-12 recruitment and support into health programs
- Training
  - Lack of connecting classroom experience with workplace experience
  - Lack of infrastructure support for training programs
  - Insufficient capacity to provide learners with clinical experiences at clinical sites
  - Faculty shortages in training programs
- Recruitment
  - Unattractive rural area reputation/image
  - Low salary: impact on credentials/training in workforce
  - Inability to place spouse/partner in positions
- Career opportunities
  - Limited clinical ladders and succession planning (retention)
  - Inadequate visibility/information regarding each specialty
  - High competition from employers in other regions
- Legislative barriers
  - Legislation barriers (i.e., limited prescriptive privileges for non-physician providers)
- Socio-Cultural barriers
  - Lack of economic development in rural communities
  - Lack of community pride
  - Insufficient number of minority providers
  - Educators not culturally sensitive
  - Aging workforce with health care issues of their own
  - Providers must work with low income and geriatric populations
- Lack of Incentives
  - Few, if any, work study programs
  - Lack of sufficient student loan forgiveness programs

- Lack of financial aid, scholarship opportunities, etc.
- Lack of stipends
- Lack of mileage reimbursement
- Lack of tuition waivers
- Lack of Access to Providers
  - Loss of employment insurance
  - Lack of transportation

### ***III] Initiatives Needed to Address the Workforce Shortages Ranked by Category***

#### **Education**

- K-12 initiatives
  - Increase efforts to reach the future workforce earlier
  - Connect classroom experience to workplace experience so that student expectations are more realistic
  - Improve career guidance in elementary/high schools
  - Increase vocational counseling
  - Establish mentoring programs
  - Increase dissemination about health professions and programs
  - Improve efforts to educate and train individuals in this area so that they continue to stay here to work
- Increase number of educators
- Improve professional preparation
  - Establish job ladders/bridge programs
  - Initiate/expand dual degree programs
- Establish a systematic tracking system
  - Track alumni from high school to college and into the workforce
  - Follow graduation/college rates

#### **Training**

- Use critical access hospitals as practice/training sites
- Establish an interdisciplinary approach to health education
- Provide more “hands on” training

#### **Incentive Programs**

- Expand tuition reimbursement programs to support training by
  - Extending training covered by tuition reimbursement programs
  - Expanding loan forgiveness programs
- Increase incentives for continuing education, such as:
  - Tuition reimbursements
  - Tax breaks
  - Certifications paid
  - Support legislation for tuition waiver in underserved areas
  - Paid internship

## **Innovation**

- Build new training programs targeting needed health professions
- Create awareness of health professional programs (e.g., using television and public service advertisements)
- Expand infrastructure for technology
- Set up “satellite” clinics
- Expand telemedicine and other innovative technology
- Increase the number of information technology professionals

## **Community Coalition**

- Engage community in discussion (e.g., needs assessments)
- Increase culturally diverse recruiting to ensure that providers’ culture match better with the patients they are serving
- Increase funding from employers for re-training their employees
- Establish re-training programs for laid off workers and older citizens
- Identify more funding opportunities for preventive services

## **Partnership**

- Increase partnerships between employers and school systems
- Provide different/more robust experiential learning for students in different areas of a field
- Expand referral options within a geographic area creating a network within a region
- Increase partnerships with high school/junior high school to expose youth early to professional health careers (e.g., “immersive” learning)
- Increase engagement of community assets through rural hospitals

## **Conclusion**

Patient care providers (nurses and primary care doctors) were perceived to be the major professional *shortages* in the region.

The most common *barriers* identified were lack of early contact with potential future health professionals, lack of connecting classroom experience with workplace experience, faculty shortages in training programs, unattractive rural area reputation/image, limited clinical ladders and succession planning, lack of incentives, and legislative and socio-cultural barriers.

The highest ranked *initiatives* recommended by participants were to: increase efforts to reach the future workforce early on, connect classroom experience to workplace experience so that student expectations were more realistic, increase the number of educators, establish a systematic tracking system, establish an interdisciplinary approach to health education, expand tuition reimbursement programs to support training, increase incentives for continuing education, expand infrastructure for technology, set up “satellite” clinics, increase culturally diverse recruiting, establish re-training programs, and increase partnerships between employers and school systems.

Lastly, the most commonly cited *measures of success* were: decrease in health professional vacancy rates, increase in enrollment, recruitment and retention of health professionals, and establishment of a better system to track graduation rates, alumni, and new placements.

## Chapter 4: Key Informant Interview Results

### Background

Key informant interviews were conducted with twenty five individuals representing the eleven county area of the WCI-AHEC region of the state. Those targeted represented community leaders (10), educators of health professionals (6), and employers of health professionals (9). Ten were from Vigo County and the rest (15) were from the other counties which were more rural. All counties in the area were represented among those interviewed.

### Methods

Individuals to serve as key informants were selected from three categories: health professions employers, educators, and community leaders. These individuals were identified by Louise Anderson, Interim Director of the WCI-AHEC, with the assistance of the leadership at Indiana State University and the WCI-AHEC region of the state. The names of those participating in the key informant interviews are shown on the acknowledgement page at the beginning of the report.

An interview guide with a list of questions was developed by project staff at Indiana University Bowen Research Center with input from the leadership at Indiana State University and the WCI-AHEC region of the state.

The questions asked about shortages of persons in different areas of the health professions, where new professionals should be located, recruitment and retention recommendations, health professions educational programs, and how to work more effectively in a collaborative manner to decrease the shortages. The interview guide and other materials were submitted to the IUPUI Review Board and approved. The list of the questions used for the key informant interviews is included in Appendix B.

Letters describing the study and request to schedule interview appointments were sent to the potential key informants. Appointments were made by phone with 23 of the 25 individuals on that list. The interviews were distributed to three interviewers who conducted the interviews, in person, at the key informant's place of work.

The interviewers audio taped the interviews as well as took notes. Each interview lasted approximately 30 to 60 minutes. The tapes were transcribed and aggregated for analysis. The analysis was guided by the questions that were asked. One additional category that emerged from the data was the *shortage of services*. Themes were identified within categories, and the data were examined for differences among the three groups.

### Results

#### ***Health profession shortages***

Table 4.1 displays the frequency of responses of those interviewed when asked which health professionals they perceived were shortages in their area.

Table 4.1: Health Professions Shortages	
Profession	Shortage
Doctors	17
Occupational Therapists	10
Mental Health Professionals	8
Physical Therapists	8
Nurse Practitioners or Clinical Specialists	5
Nurses (BSN, ASN, LPN)	5
Social Workers	4
Speech Pathologists	4
Dental Hygienists	4
Pharmacists	4
Dentists	2
Physician Assistants	1
Others*	9

\*Other includes: laboratory techs, radiology techs, physical therapy assistants, surgery techs, respiratory therapy, signers for those who cannot hear, CNAs, QMAs, & informatics in the future.

- **Doctors were mentioned most often.** Of the sixteen comments on doctor shortages, ten were either from rural areas or suggested specifically that shortages were primarily in rural areas. Primary care was noted by five individuals as the ‘needed’ practice area. Shortages in specialty areas were identified as Psychiatry, Orthopedics, Neurosurgery, Anesthesiology, Pediatrics, and Obstetrics.
  - *“I have 45 patients I can see a day and it never stops. We always have more patients than we can see.”*
- **Occupational Therapists** were identified as a shortage area almost equally across rural areas and Terre Haute. Shortages occurred in various settings including hospitals, nursing homes, and schools.
  - *“We went without one for three years and have just filled the position.”*
- **Mental Health Professionals** came from several disciplines. Positions for psychiatrists (especially child psychiatrists), psychologists, psychiatric nurses, and marriage and family therapists were identified as especially difficult to fill. The shortages occurred throughout the geographic area.
  - *“Another area with a little more of a challenge is the area of Psychology - took about 2 years. There’s not a program close by. That drives a lot of the recruitment. We do internships as much as possible, but it’s hard without local program as a feeder base.”*
- **Physical Therapists** were mentioned as the most difficult positions to fill. It was suggested that changes in the educational criteria required for the position were partially responsible for the shortage.
- **Nurse Practitioners and Clinical Specialists** were seen as important in helping to meet the need for primary care and in decreasing the doctor’s workload.
- **Nurses** at all levels were needed, including faculty, for nursing education programs.

- *“We have great difficulty attracting experienced Registered Nurses. We continue to have a RN shortage.”*
- *“Few nurses are interested in teaching. They can make more money working in a hospital.”*
- **Social Workers** were described as “always a shortage.” Lack of funding for these positions contributed to the situation. Some employers commented that they could hire BSWs, but could not find MSWs.
- **Speech Pathologists**
  - *“We have a hard time finding them. The shortage is huge. It is beyond the county . . . I would say the whole state is short of speech pathologists. Particularly the schools, because the speech pathologist can do so much better financially going into a hospital setting, nursing home setting, and working in a clinic than they can in the schools.”*

#### **Not a shortage of health professionals**

- *“No, I don’t and the reason that it is not necessarily Fountain County. We are so close here to Warren County and the health care that we receive from St. Vincent Williamsport has improved so much probably over the last ten years or so. And this is with the satellites over in Veedersburg and the clinic north before you get to Williamsport. I think that there is relatively good healthcare for people in Fountain and Warren Counties. We do a lot of things together. I am on a community round table the hospital has nurtured and encouraged.”*

#### **Shortage of Educational Programs**

- *“I think the biggest shortage is the shortage of the schools. I think that overall we have done a great job in getting interest in those areas; it is just that we can’t get people into those schools. It is the shortage of the schools is where I see the problem right now, where the pipeline is breaking down.”*

#### **Underserved Populations**

Although no question about shortages in health care professionals for underserved and unserved populations was asked, concern was expressed about health services for these groups of people.

- *“I know it is difficult for new residents in the county to find a doctor, particularly a doctor that will take Medicaid.”*
- *“. . . real need is for underserved and unserved populations...get them out of the emergency room and into a medical home somewhere. We have a lot of people who don’t have a medical home.”*
- *“I only know of a couple of physicians who take Medicaid patients; however, I have heard that since St. Clair Hospital...the Sisters of St. Francis have purchased the Athens group of physicians here in Montgomery County, each physician will be given a certain number of patients for a panel. But I don’t believe the numbers are large...maybe 12 patients (that could be 3 families)...I don’t have statistics on that. But we do know there are a number of people who are not being served in Montgomery County.”*

- *“Not just a shortage of providers, but a shortage of services. What we really need is a FQHC. Vermillion got a new one last round. Promote as a doctor’s service that doesn’t turn anyone away. Brown and Owen Counties need to be satellite sites.”*
- *“We’ve had a lot of discussion here in our community about serving the underserved and I’m not sure our students really understand what that means.”*
- *“. . . . for them to hear the realities of personalities involved and how it’s going to affect peoples’ lives and the levels of compassion involved. I would like for them to see more of that and to maybe see the real life examples of how that affects people. It’s easy to make it academic that x% don’t have health care and maybe think it’s just the really poor...but there are so many different stories that I don’t think they understand.”*

### **Locations for New Professionals**

This question generated a wide range of responses varying from the very traditional to new settings that have not yet been tried. The diverse views were sometimes at odds with each other. However, the solution that is appropriate for one community may not be right for the next.

- Hospitals or hospital based practices were mentioned several times as the location for new professionals.
  - *“If not in the hospital then nearby, perhaps in a new building. “*
  - *“Close to the hospital. It makes sense to be close to it. I probably realize that because of being involved with the clinic. It’s easy if someone needs an x-ray or something, it’s just across the driveway.”*
  - *“Private practice settings were suggested, especially family practice. Or connecting with existing practices.”*
- Agencies or clinics in the community were suggested as more appropriate sites than private family practice.
  - *“I am not talking about private practice. I am talking about agencies that have a dire need for these professionals.”*
- Create a new health campus that would provide integrated care.
  - *“There’s no need to have silos of care. Build a facility on property we own. Even if practices are owned by different corporations, bring them all together.”*
- Senior Centers were suggested, as they are places people gather for recreation and other activities.
- Schools are another place that people gather for reasons other than health care. They are usually easily accessible and a well known place in the community.
  - *“And the schools are so financially strapped at this point. But it would be nice if there could be, I don’t want to say a medical wing, but if there could be some kind of thing they could see the nurse, see the NP, see the PA , see the MD in their school or near the school. Maybe they could see the dentist there. And the schools are built where it’s easy to transport people in that county and that makes sense. Maybe if it’s not in the school, it is in a building on the school campus or next to the school campus. And so many of these little communities have had their schools shut down due to consolidation that there’s a lot of empty buildings or empty lots.”*

- Volunteer Fire Departments in rural areas were also suggested as a possible location for new professionals. They are a well known place and may have room in their buildings for health services.
- A Circuit Rider or itinerant physician concept was suggested and may be appropriate when sites do not have a sufficient number of patients for a full time person, or for specialty services. One example would be occupational therapists or physical therapists that contract for services at multiple schools or hospitals to construct a full time job. The specialist who goes to various sites during the month would be another example of this model.

### **Recruitment of new professionals**

Recruitment was described in 3 areas: health professionals, educators, and students. As the techniques varied across the groups, each has been presented separately.

- **Health Professionals**

- Recruit nationally for physicians and other highly educated persons
- Use placement services, especially for MDs and NPs
- Schools and programs that offer the terminal degrees
- Lugar Center for Rural Health Services
  - *“Lugar Center..... They have been very helpful with internships and things. It’s very tough, I think, to recruit far away. With the students they have there that are fairly local. We have students from Clinton down here, they know the community. It is good teaching and all that.”*
- Recruit among students who participate in internships, residencies, or clinical placements in the site.
  - *“We have a dinner twice a year for nursing and other health professionals who are graduating (May and December graduations). We invite those 5 schools to a very nice dinner, just as congratulations. We really get a lot of turnout. A nice dinner! Take pizza to the schools, have presentations, participate in planning goals and curriculum. We’re very visible. Many come here for their clinical training. We feel somewhat committed to their success. They learn how to navigate the hospital. The hospital has a small hospital feel to it.”*
  - *“We look at local residency programs in the state of Indiana. I have a list of them; there are probably eight different residency programs in the state.”*
- Recruit locally - as close to home as possible. Start when students express an interest in medical school. Provide scholarships, mentor, track student progress.
  - Website
  - Word of mouth
  - *“In a community like this, word of mouth more than anything else.”*
  - Newspaper ads
- Local educational institutions
  - Higher education
    - Check to see who is graduating and send information to them
    - Place general information at the site

- High schools
    - Career fairs, health fairs; Physical education classrooms
    - Power point presentation about classes and hands on experiences
  - Middle Schools
    - 21<sup>st</sup> Century Scholars Program as a source of students
    - *“What about teaming somebody up with the 21<sup>st</sup> Century Scholars program so that they can take in a health career day in each of the middle schools, start them there and maybe start a tracking program for those that are interested so there is a way to keep them motivated and get them through high school and maintain their promise to the 21<sup>st</sup> Century program and also educate them about these health care programs.”*
    - Tracking program to maintain interest
- **Educators**
  - Placement services
  - Professional organization
  - Professional journals
  - Active pursuit
- **Students**
  - Develop self-awareness and get a variety of experiences that make them more aware of the world around them
  - Persistence and quality communications
  - Tell them what to expect
  - Develop local youth
  - Must be dedicated to the profession
  - Engage middle and high school students in observations and hands on experiences in health care
  - High schools not preparing students for college, thus students need remedial work
- **Student Retention**
  - *“Get students into a program that they really want, or if they are in a program that is not quite right, try to keep them in the health field. Catch them before they get discouraged and drop out. Keep them motivated so they don’t get discouraged. Students need an internal reason (of service to others) to go into the career rather than parent influence or something like that.”*

### **Successful Recruitment and Retention**

The various factors identified in the interviews regarding successful recruitment are organized into 3 areas: organization, personal, and community.

*“The issues we have with physicians are the same issues with professors, engineers, and other highly trained people. We need to work together. Have the community help with recruitment.”*

*“You never give too much to your employees. Employees are our best representatives to the community.”*

- **Organization**

- Positive approach in recruiting
- Human Resources
  - *“It’s being accessible to the people, being honest and open.”*
- Engage co-workers in the recruitment process
- Professional support staff
- Modern facilities and technology
- Practice setting; positive work environment
- Pay and Benefits
- Mentoring
- Regional support group
- Serves as clinical site for students
  - *“Exposure to the site leads to easier transition from student to professional.”*
  - *“We have an agreement where our staff does clinical supervision. They know our system and medical administration. It’s a better experience because an employee supervised them. They can teach what will be expected of an employee.”*
- Loan repayment
  - *“The ones who came for loan repayment have been retained. They get established in the community. Most live in Terre Haute and like where they work in the rural community. Once they have children, they get tied into the community.”*
  - *“. . . Has worked well. Payment based on time served in the organization. Tend to stay after loans are repaid.”*
- Site meets visa requirements
  - *“The most important thing has been related to the designation as an underserved area. Visa - requires such service.”*

- **Personal**

- Clarify applicant’s expectations
- Midwest or rural connection
  - *“They really have to have some type of rural background, so whether they were born and raised in the rural area or their spouse or significant other was raised in a rural background.”*
- Local residents
- Educated in local institutions
- Relationships developed between potential employers and students

- **Community**

*“Communities have to be able to sell themselves...show them what’s available, what it’s like in the community...not just hire them. Wine and dine or whatever, but you have to show them that you have something to offer to them and family...slower pace or whatever...history of the community. Some of the*

community people need to be involved...not just the hospital administrator...but bring in others to talk to them about the needs and why we want them."

- Good quality of life
- Close to large cities
- "Sell the community"
- Positive approach, a good place to live
- Involve community in recruitment
- Higher education institutions
- Good schools
- Safety - low crime
- Housing

### **Barriers to Recruitment and Retention**

This section includes the negative counterpart of the successful recruitment factors shown above.

- **Organization**

- Inadequate resources
- Old technology
- Scheduling
  - *"... The ability of the larger hospitals in the Indianapolis area because of the 12 hour shifts, the signing on bonuses, the ease of access to drive from any of these areas. When you're able to work 3 days a week and have a full time job and have 4 days off, it's very easy to live in Clay, Sullivan or Vigo County and drive to Indianapolis for higher wages and then have 4 days on your own. I don't know if there are any local practices that would offer that same opportunity. The hospitals might, but I don't think any of the others do."*
- Pay/Benefits

- **Personal**

*"If they're from the East Coast or the West Coast they always seem to want to gravitate back. The only time that's different is if they meet a life partner here locally. That affects their interest in remaining."*

- Spousal employment
- Husband's loss of employment especially affects nurses
- Spouse may seek career change and the opportunity for the new career is not available in the community

- **Community**

- Lack of diversity
- Stagnant economy
- Cultural aspects; cultural activities for children
  - *"The reasons we get are primarily around the void of cultural kinds of activities."*
- Lack of recreation activities; for example, no YMCA
- Terre Haute is too small; rural nature of the community
- Professional isolation
  - Few professional positions in rural areas

## **Educational Programs**

- **Value of local educational institutions**
  - *“Educational institutions in Terre Haute (are) a major factor. Local folks who are students at Ivy Tech and ISU want to stay here. It’s great to have them in our own backyard. They can find nursing jobs here.”*
  - *“As far as nursing, we have IU, ISU, Vincennes, Ivy Tech, Lincoln. We have a number of institutions that provide education for these individuals that are local and get them out into settings that are familiar to them. And a lot of these kids tend to stay local. We really don’t have any complaints. We are satisfied with training and education, pretty pleased with them.”*
  - *“Ivy Tech has done that [clinical training]. They have been pretty good with everything, medical record, radiology, nursing. They’re good about keeping contact with us, and asking ‘how are they doing.’ They’ve done a good job of keeping those communications open. If there are problems- they want to know and how to correct it and what they can do.”*
  - *“We would love to see ISU add a master’s in social work to their bachelor’s program. That would be our first choice and then secondly either IU or some other school have an off-site provision for classes here.”*
  - *“Union hospital’s Rural Health Residency program is successful in getting doctors into rural areas.”*
  - *“Local folks who are students at Ivy Tech and ISU want to stay here. It’s great to have them in our own backyard. “*
- **Positive attitude towards educational programs**
  - *“I think the rural health program, the rural rotation that the physicians go through, is excellent, now I don’t know if they do the same thing with nursing. ISU has a very good nursing program. I think Ivy Tech has good other medical field related programs. “*
  - *“Ivy Tech is very good. Students have a strong ability to become fully functional a little faster. They have the theory background, but they have the manipulative skills and clinical experiences more than some of the others.”*
- **Program Issues**
  - *“I know there are more simulations now because there are not enough clinical experiences. I guess those are things students are looking for in a school. I think students are looking for training they can have on-line or in one place without having to go to a couple of places. I think you lose the character of the ‘people part’ of health occupations with on-line or simulations.”*
- **Lugar Center for Rural Health Services**
  - *“I do think that things that are beginning with the rural health initiative. Everything fits well. If we can keep it moving forward, it has a lot of potential. Everybody’s on board and it is really unique. Hope it moves forward quickly.”*

- **Faculty Issues**
  - *“Nursing programs don’t have enough faculty. Lists of waiting students more than faculty. There’s a lack of money to pay for faculty. Hospitals pay more than faculty positions. We as a state have not figured out how to get enough money into the system to have a sufficient faculty.”*
  - *“We enroll students based on faculty. So, if we are short on faculty fewer students can be enrolled.”*
- **Concerns about clinical education and students**
  - *“. . .Regarding med school...my pet peeve is they don’t see enough patients. It’s more fun when they see 30 patients instead of 16. A student gets bored. They see 5 diabetics and 3 hypertensives. Hands on, more acute care, large volumes - less lectures, maybe... but you have to go home and read your books.”*
  - *“Students are changing. They have a lack of ability to focus. They have difficulty in pre-nursing courses, poor verbal and math skills.”*
  - *“It frustrates me when we see groups come out now. They expect to be force fed, not I’ll go find out. I don’t know how you teach that motivation and that search for knowledge.”*
  - *“We see differences in the level of clinical education that people get. We see a lack of commitment, a lack of engagement out of a lot of nursing instructors and we see it in the nurses we hire. We see that their clinical education is not what it used to be. We have to do a lot of that on our end. It used to be that they were getting a lot of clinical in school. And it ends up that we have to do that now. Basic things, that they used to come out of school knowing. For example, one student had seen a video on something and saw no need to see it done in the hospital. Or, had inserted one tube and did not need to do it again. So it’s a lack of commitment. Instructors don’t come and make the assignments anymore. There’s just a lackadaisical attitude in some of the schools and in their commitment to insure that the clinical education is there. Students don’t see the need for repetition. There’s an issue. It has changed what we have to do. It puts a burden on us. It elongates the orientation period.”*
- **Collaboration**
  - *“Something we have struggled on: to get everybody to understand that we’re all in this together. I still see it in some areas. A department head may see only what’s on her desk and not how it affects other areas.”*
  - *“. . .We put in a program about six years ago. A health careers program, what this program is, is a collaborative relationship between the bi-county school systems and the hospital. We have a class that is accredited by the state department of education. They (the students) are either juniors or seniors, with a majority of them being seniors, that are looking at pursuing some type of post secondary education in a health career.”*
  - *“Maybe this concept of regional type meetings is that they be cross professional. That the health care professionals meet. It might be more useful in a rural community than in an urban community where there is more stratification.”*

- *“We try to get our message out to everybody and be willing to collaborate and listen to other people. We have 41 agencies now and we looking in to having them combine together. Have to listen and be open minded, come out of your silos, work together for the long haul, no tunnel vision, working just within your own area. Takes strong leadership, from the top, school presidents, mayor, and leaders like that to make it work. Need their support to make it work. Won’t work without it.”*
- **Leadership**
  - *“Have to listen and be open-minded, come out of your silos, work together for the long haul, no tunnel vision, working just within your own area. Takes strong leadership.”*
  - *“We have a couple of individuals that are good leaders. They understand why we need to do it and are persistent at it. “*
  - *“It comes from the top. Help people to see the big picture. Put together a framework and how it would benefit. Sometimes people get so tied up in what’s in it for me. Open mind. Communication”*
  - Convener
  - *“We’re all so busy, multitasking, working overloads. In the past Union Hospital brought together all the schools.”*
  - Commitment from the top to the bottom.
  - Mayor, CEOs, higher education presidents
  - Championship and leadership from every level
  - Time may be right
    - *“Lugar Center has helped create an environment that might lead to success at this time”*
  - Look for new ways to work together and new partners
  - Communication
  - Challenges
    - *“Everyone has their own little fiefdom.”*
    - *“But it’s not an easy thing to bring down these barriers. Have to be a little innovative. “*
    - *”We had to let go of traditional territory. Barriers go up and you have to pull them back.”*

## **Conclusion**

All health care professions on the list were identified as being a shortage area at least once. In addition, nine allied health areas were identified as having a shortage. Doctors were top on the list and were followed by occupational therapists, physical therapists, and mental health professionals. Shortages also were identified in educational institutions for health professions and in health services for the underserved population.

The locations identified for new health professionals reflected a wide range of views as to how health care should be provided. The locations ranged from the traditional, such as existing practices and hospitals, to public schools and voluntary fire departments.

Recruitment was believed to be an active process and involve multiple persons. It was apparent from the interviews that recruitment needed to start long before the professional graduated from an educational program. In one rural community, high school students were identified who were interested in medical school and encouraged and supported as they made their way through the educational system. The result had been doctors who came back to their home community.

Many factors contributed to successful recruitment of health professionals. It started with serving as a site for clinical rotations, internships, or residencies. Modern technology and facilities were important. The ability of the community to meet the expectations of the persons being recruited and their families was crucial. Local persons or those with Midwest or rural experience were cited as more likely to take positions in rural areas and to remain there.

The local educational institutions were valued highly as they were perceived as providing a major portion of the health professionals that were needed in the area. However, more local programs were needed to meet the demand and faculty shortages that limited the number of students that could be admitted to existing programs. Some concern was expressed about the changing nature of students and their commitment to their chosen profession and motivation to learn.

Collaborative efforts were widely recognized as needed and were ongoing in the area. Some of those have succeeded and others continued as “works in progress.” A major factor identified was leadership. While leadership at the very top level was essential, it was also important to have leadership at every level. A convener, an individual or a group, was needed to get things started and hold them together. Challenges were presented by the amount of time the process took and the tendency of people to try to protect “their territory.”

## Chapter 5: Conclusions and Recommendations

### Introduction

This chapter integrates the information from the sources that were available and reported earlier. In addition, inconsistencies among the data sets are identified and tentative explanations offered. To facilitate presentation and understanding, the health professions have been grouped into categories that reflect their disciplines. When no standard ratios were available to use in calculating the shortages, shortages were calculated by subtracting the ratios of providers in the WCI-AHEC region from those in the state. Caution should be used in interpreting these rates as it is likely that the rates for the state do not reflect an ideal ratio of providers to population.

Ranges of numbers of needed professionals are presented for the secondary data, as the values varied across the sources. This variation may be due to a number of factors, including data collection methodology, sampling errors, definitions and terms, and completeness. The summary list of health professionals needed shown in this section reflects the professions for which secondary data were available, the responses at the Health Summit, and the key informant interviews. A blank cell occurs when no data were available from a particular source.

### Medicine

Table 5.1 shows that doctors, in general, led the list of shortages identified by the respondents in the interviews (68%), and eleventh among participants at the Summit (62%). The secondary data do not address doctors, in general, but provide information about different specialties. The secondary data support the shortages identified at the Summit and through the interviews. The complete lack of services for pregnant women in one county was a concern of one interviewee.

<b>Table 5.1 SHORTAGES OF PHYSICIANS IN WEST CENTRAL INDIANA</b>			
<b>Physicians</b>	<b>Number Needed to Meet Demand</b>	<b>Percent from Summit</b>	<b>Percent from Interviews</b>
Doctors in general		62%	68%
<i>Primary Care</i>		78%	
Family Medicine	13-42		
General Pediatrics	41-49		
General Internal Medicine	80-134		
Ob/Gyn	29-39		
General Surgery	6-35		
Podiatrists		35%	
Specialists (i.e. Cardiologists)		49%	

### Emergency Medicine

Although Emergency Medicine was identified as a shortage area at the Summit, no support for it was noted in the interviews, as shown in Table 5.2. And, a relatively low shortage is suggested by the secondary data.

<b>Table 5.2 SHORTAGES IN EMERGENCY MEDICINE IN WEST CENTRAL INDIANA</b>			
<b>Profession</b>	<b>Number Needed to Meet Demand</b>	<b>Percent Identifying as Shortage</b>	
		<b>Summit</b>	<b>Interviews</b>
Emergency Medical Doctor	5-22		
Emergency Medical Technician	7*	45%	

*\*Number needed to meet the rates of providers in Indiana*

### **Nursing**

Nursing in general was found to be a high shortage area, as can be seen from the shortage numbers, especially for RNs and LPNs in Table 5.3. During the interviews the term “nurses” was used frequently without specification of the type of nurse or training. The interviews generated considerable discussion of the nursing shortage. Issues related to the shortages varied within the WCI-AHEC region. In the less rural areas, mainly Vigo County, turnover was the primary issue, as opportunities in Indianapolis were available to these nurses and they were offered higher wages and better work hours. However, in more rural areas, the nurses tended to stay with their employers for many years. The challenge in these areas was finding nurses with bachelor’s degrees or master’s degrees. To address this, some employers provided financial assistance and other incentives to their nursing staff to encourage nursing employees to achieve a higher level of education. Master’s prepared nurses in psychiatry were mentioned as a special need, as were faculty for nursing programs.

<b>Table 5.3 SHORTAGES BY NURSING TYPE IN WEST CENTRAL INDIANA</b>			
<b>Profession</b>	<b>Number Needed to Meet Demand</b>	<b>Percent Identifying as a Shortage</b>	
		<b>Summit</b>	<b>Interviews</b>
Nurses in general		82%	20%
RN	702-827		
BSN		82%	
ASN		57%	
NP / CNS	20-21*	71% / 69%	20%
Midwife	1-2*	42%	
LPN	62*	60%	20%

*\*Number needed to meet the rates of providers in Indiana*

### **Additional Health Care Providers**

Table 5.4 shows that physician assistants were ranked fairly high as a shortage area by Summit participants as compared to the shortage numbers from the secondary data. There was also some agreement that pharmacists were a shortage area. However, comments were made during several interviews in the more rural areas that suggested that there was no shortage of pharmacists in these areas.

<b>Table 5.4 SHORTAGES OF OTHER HEALTH RELATED PROVIDERS IN WEST CENTRAL INDIANA</b>			
<b>Profession</b>	<b>Number Needed to Meet Demand</b>	<b>Percent Identifying as a Shortage</b>	
		<b>Summit</b>	<b>Interviews</b>
Physician Assistant	16-18*	61%	4%
Chiropractor	6-11*		
Pharmacists	132-200*	65%	16%

*\*Number needed to meet the rates of providers in Indiana*

### **Dentistry**

The shortage numbers for general dentists conflicted, as they ranged from a surfeit of dentists to a shortage as presented in Table 5.5. Some support for a shortage in the area came from the Summit, but less came from the key informant interviews. More information is needed before considering action in this health profession area.

<b>Table 5.5 SHORTAGES IN ORAL HEALTH PROFESSIONALS IN WEST CENTRAL INDIANA</b>			
<b>Profession</b>	<b>Number Needed to Meet Demand</b>	<b>Percent Identifying as a Shortage</b>	
		<b>Summit</b>	<b>Interviews</b>
Dentists		38%	8%
General	-28-126		
Specialty	10-15*		
Hygienists	49-74*	31%	16%

*\*Number needed to meet the rates of providers in Indiana*

### **Mental Health**

Data suggested that a shortage in the number of mental health professionals existed in the WCI-AHEC region, as shown in Table 5.6. Additionally, relatively strong support came from the Summit participants and the interviews that this was an important shortage area. In addition, positions for psychologists were described during the interviews as being especially difficult to fill.

<b>Table 5.6 SHORTAGES IN MENTAL HEALTH PROVIDERS IN WEST CENTRAL INDIANA</b>			
<b>Profession</b>	<b>Number Needed to Meet Demand</b>	<b>Percent Identifying as a Shortage</b>	
		<b>Summit</b>	<b>Interviews</b>
Psychiatrists	35-37		
Psychologists		56%	
Mental Health Counselors	34*	66%	32%
Psychiatric Technicians	100*		

*\*Number needed to meet the rates of providers in Indiana*

**Social Work**

As shown in Table 5.7, the secondary data, the Summit, and the interviews all suggested a need for more social workers existed. There were frequent comments during the interviews about the importance of this group of employees. Difficulty in hiring master’s prepared social workers occurred most frequently in the rural areas. It was felt that there were a sufficient number of social workers with bachelor’s degrees.

<b>Table 5.7 SHORTAGES OF SOCIAL WORKERS IN WEST CENTRAL INDIANA</b>			
<b>Profession</b>	<b>Number Needed to Meet Demand</b>	<b>Percent Identifying as a Shortage</b>	
		<b>Summit</b>	<b>Interviews</b>
Social Workers	59*	63%	16%

*\*Number needed to meet the rates of providers in Indiana*

**Therapists and Other Supportive Disciplines**

Shortage numbers in these supportive areas varied as presented in Table 5.8. Physical Therapist positions were described as particularly difficult to fill. This was partly attributed to the addition of the requirement for a doctoral degree for Physical Therapists. The existing data for Occupational Therapists suggested that there was not a shortage, yet 66% of Summit participants and 40% of interviewees identified this as a shortage area. For Speech Language Pathologist positions, an interviewee described these positions as difficult for schools to fill because hospitals could pay at a higher rate.

<b>Table 5.8 SHORTAGES OF THERAPISTS AND OTHER SUPPORTIVE DISCIPLINES IN WEST CENTRAL INDIANA</b>			
<b>Profession</b>	<b>Number Needed to Meet Demand</b>	<b>Percent Identifying as a Shortage</b>	
		<b>Summit</b>	<b>Interviews</b>
Physical Therapists	27*	66%	32%
Physical Therapy Assistants	23*		
Occupational Therapists	0	66%	40%
Speech Language Pathologists	29*	62%	16%
Respiratory Therapists	50*		
Massage Therapists	0		
Dieticians & Nutritionists	30*		
Recreation Therapists		32%	

*\*Number needed to meet the rates of providers in Indiana*

**Technical Health Professions**

As a group, most technical health professions had relatively low shortage numbers as shown in Table 5.9. They were not mentioned as an area of concern in the interviews. Comments were made about the role of Ivy Tech and other local programs producing an adequate number of workers to fill these positions.

Table 5.9 SHORTAGES OF TECHNICAL HEALTH PROFESSIONALS IN WEST CENTRAL INDIANA			
Profession	Number Needed to Meet Demand	Percent Identifying as a Shortage	
		Summit	Interviews
Radiology Technicians	0*	49%	
Cardiovascular Technicians	17*		
Laboratory Technicians	122*		
Surgical Technologists	36*		
Medical Transcriptionists	26*		
Sonographers	11*		

\*Number needed to meet the rates of providers in Indiana

### Other Health Related Professions

Table 5.10 shows that shortages in these other health professional areas were identified only by Summit participants. They were not mentioned in the interviews, and no secondary shortage data were available.

Table 5.10 SHORTAGES OF EXERCISE AND RECREATION PROFESSIONALS IN WEST CENTRAL INDIANA	
Profession	Percent Identifying as a Shortage
	Summit
Exercise Scientists	26%
Physical Education Teachers	24%
Athletic Trainers	32%
Recreation Managers	20%
Health Educators	62%
Environmental Health Scientists	44%
Safety/Risk Managers	34%

### Conclusions

Shortages existed in almost all the health professions areas in the WCI-AHEC region. Variability among the different data sources made it extremely difficult to produce reliable estimates of the size of the shortages. When information was available from the Summit or the interviews, it usually supported the findings of the secondary data. While the secondary data addressed the shortage issue from a wide geographical area, interviewees addressed the issue from a more local point of view. Their responses suggested that there may be distribution issues in addition to the shortages. A recurring theme from the key informant interviews and the Summit focus groups was the need to increase access to educational

programs in local areas. This included increasing the size of existing programs and making new programs available.

## **Recommendations**

### ***Shortages***

Summarizing the findings of all of the data and information, there was agreement that shortages existed for the following health professions (in no particular order):

#### Physicians:

- Emergency Medicine Physicians
- Family Medicine Physicians
- General Internists
- General Pediatricians
- General Surgeons
- Obstetricians/Gynecologists
- Psychiatrists

#### Nurses:

- Nurse Practitioners
- Nurse Midwives
- Registered Nurses
- Licensed Practical and Licensed Vocational Nurses

#### Technicians/Technologists:

- Cardiovascular Technicians and Technologists
- Diagnostic Medical Sonographers
- Emergency Medical Technicians and Paramedics
- Medical and Clinical Technicians and Technologists
- Medical Records and Health Information Technicians
- Psychiatric Technicians
- Surgical Technologists

#### Therapists:

- Physical Therapists
- Physical Therapy Assistants
- Respiratory Therapists

#### Others:

- Chiropractors
- Dental Hygienists
- Specialty Dentists
- Dietitians and Nutritionists
- Medical Transcriptionists
- Mental Health Counselors
- Pharmacists
- Physician Assistants

Social Workers (Master's Trained)  
Speech-Language Pathologists

### **Data Improvement**

Based on the secondary data findings, shortage numbers need to be adjusted based on the number and types of other health professionals in the area, the number of unfilled positions, and the characteristics of the population in the area. The adjusted shortage numbers then need to be compared to the number of health professionals completing training in the region to identify the need for expansion or modification of the training programs. Lastly, quality, completeness, and timeliness of the data need to be improved.

### **Interventions and Programs**

A few recommendations from the key informant interviews have been listed below.

- Determine the potential of existing training programs to meet demands for health professionals in the WCI-AHEC region of the state
  - Share with employers and high schools in the area
  - Advocate for expanding the programs if they are at capacity
  - Consider off-site programs in the WCI-AHEC region to meet the critical shortage areas (family practice physicians, BSN and MSN prepared nurses, physical therapists, occupational therapist, psychologists, social workers)
- Develop a network of specialty physicians to help recruit those needed to meet the area's needs
- Look at the "Grand Junction" report for ideas that might be applicable in the WCI-AHEC region
  - Especially the complementary institutions concept
- Take steps to ensure that the underserved populations have access to care
  - Establish satellite offices served by Advanced Nurse Practitioners
  - Seek state legislation to require health care insurers to accept and reimburse for services provided by nurse practitioners
  - Explore possible integrated care models
    - Determine if there are models of this kind of care in Indiana
  - Increase the number of rural health centers and community health centers

### **Recruitment**

- Increase pre-recruitment activities in the middle schools and high schools to foster the interest of students in health careers
  - Bi-county model (in Warren and Fountain counties) might serve as a model
  - Include a focus on 21<sup>st</sup> Century scholars
  - Develop a process to track and maintain contact with interested students
- Develop a process to bring together city and county elected officials, business leaders, and the health professions leaders to develop a package that represents the geographic area
  - Check out existing programs such as Nebraska's Home Town Effectiveness Program and the Norfolk Area Recruitment program (also Nebraska)
  - Implement the process
  - Provide consultation and staff to help facilitate the process and keep it moving

## **APPENDIX**

## Appendix A: Survey used at Health Summit

### Quick Survey – what do you think?

There are no “right” or “wrong” answers... We just want your opinion about whether you think there is a shortage of the specific types of health related professionals in this region, based on what you’ve heard, seen or experienced. Please mark the box corresponding to your opinion, even if it is just your “gut” opinion. Of course you can leave any blank if you really don’t have an opinion. However, it is very important to us to understand your perceptions, even if it is only an inkling!!

Yes      No

- ( )      ( ) Athletic Trainers
- ( )      ( ) Dentists
- ( )      ( ) Dental Hygienists
- ( )      ( ) Doctors in general
- ( )      ( ) Primary care (i.e. family doctor)
- ( )      ( ) Specialist (i.e. cardiologist)
- ( )      ( ) Emergency Medical Technicians
- ( )      ( ) Environmental Health Scientists
- ( )      ( ) Exercise scientists
- ( )      ( ) Health educators
- ( )      ( ) Mental health (therapists, counselors)
- ( )      ( ) Nurses in general
- ( )      ( ) Licensed practical nurses
- ( )      ( ) Associate degree (two-year) registered nurses
- ( )      ( ) Baccalaureate degree (four-year) registered nurses
- ( )      ( ) Clinical nurse specialist
- ( )      ( ) Nurse midwives
- ( )      ( ) Nurse practitioners
- ( )      ( ) Occupational therapists
- ( )      ( ) Pharmacists
- ( )      ( ) Physical education teachers
- ( )      ( ) Physical therapists
- ( )      ( ) Physician Assistants
- ( )      ( ) Podiatrists
- ( )      ( ) Psychologists
- ( )      ( ) Public Health Specialists
- ( )      ( ) Radiology technicians
- ( )      ( ) Recreation managers
- ( )      ( ) Recreation therapists
- ( )      ( ) Safety/risk managers
- ( )      ( ) Social Workers
- ( )      ( ) Speech pathologists
- ( )      ( ) Other: \_\_\_\_\_

Thank you! Please hand this in...

## **Appendix B: Key Informant Interview Guidelines**

- 1) Do you think there is a shortage of doctors in (*name community*)? What experiences have you or others had that indicate there may or may not be a shortage?
- 2) In what other health professions do you think there are shortages?
- 3) Here is a list of other health professionals. Tell me if you think there is a need for more of these in your community, and let me know why you think so
  - a. Dentists
  - b. Dental Hygienists
  - c. Nurses (BSN, ASN, LPN)
  - d. Nurse Practitioners or Clinical Specialists
  - e. Occupational Therapists
  - f. Pharmacists
  - g. Physician Assistants
  - h. Physical Therapists
  - i. Mental Health professionals such as therapists, counselors
  - j. Social Workers
  - k. Speech Pathologists
  - l. Any others?
- 4) Where would you locate these professionals in the community?
- 5) In general, what are your experiences with recruiting health professionals?
- 6) If you were recruiting the health professionals we talked about earlier, where would you recruit them?
- 7) What are the barriers to the recruitment and retention of health professionals in your community?
- 8) What factors contribute to successful recruitment?
- 9) Let's think for a minute about the educational programs that prepare individuals for careers in the health profession -- doctors, nurse, dentists, physical therapists, etc. What do you think makes the programs work well or not work well during this process?
- 10) As a (*respondent category*), what advice do you have for us as we work collaboratively to improve recruitment and retention and contribute to improving access to care?
- 11) Are there any other comments you would like to make?