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**EVALUATION OF THE BUREAU OF HEALTH
PROFESSIONS STRATEGIC DIRECTIONS: PHASE II**

CROSS-CUTTING PERFORMANCE MONITORING SYSTEM

Task 13: Final Report

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Prepared by:

Lewin-VHI, Inc.

Prepared for:

**The Health Resources and Services Administration
The Bureau of Health Professions**



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Lewin-VHI
A Value Health Company

9302 Lee Highway Suite 500
Fairfax VA 22031



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EXECUTIVE SUMMARY

Through Title VII and VIII programs, the Bureau of Health Professions (BHP) provides both policy leadership and support for health professions workforce enhancement and educational infrastructure development. The overall purpose of this project has been to assist BHP in the development of a set of outcome-based performance measures and in the design of a performance monitoring system to measure whether program support is meeting its national health workforce objectives, and to signal where program course correction is necessary. At the core of the Bureau's performance measurement system are four cross-cutting goals with respect to workforce quality, supply, diversity and distribution of the health professions workforce.

These cross-cutting goals are:

1. Promote a Health Care Workforce with a Mix of the Competencies and Skills Needed to Deliver Cost-Effective, Quality Care
2. Support Educational Programs' Ability to Meet the Needs of Vulnerable Populations
3. Improve Cultural Diversity in the Health Professions
4. Stimulate and Monitor Relevant Systems of Health Professions Education in Response to Changing Demands of the Health Care Marketplace

Although this Phase II performance monitoring effort has a specific focus on the four cross-cutting measures, it is also part of a broader Bureau effort to measure program performance. Phase I of this effort, begun in 1993, involved an initial assessment of indicators of Bureau progress relative to its seven identified strategic directions. Those seven directions have been largely consolidated into the set of four cross-cutting goals. Since the Phase I work, the Bureau has also increased its emphasis on measurement of grantee outcomes, both to provide more comprehensive information to outside audiences and to meet the requirements of the 1993 Government Performance and Results Act (GPRA).

The focus of Phase II has been on operationalizing the use of the Bureau's cross-cutting goals in on-going monitoring of Bureau program activities. To do this the project addressed several issues including: whether the outcomes and indicators identified to monitor progress toward the goals could be reliably collected and analyzed based on current definitions; whether grantees felt the identified set of goals, outcomes and indicators reflected what they considered to be the most valuable contributions of their programs; what data sources and collection tools were currently available; and what kind of system should be developed to support GPRA-required and other performance monitoring and reporting.

These issues were addressed through a series of project milestones including: development and later refinement of the set of crosscutting goals, outcomes and indicators by the Bureau's Performance Outcomes Monitoring (POM) group; input from outside experts

representing a range of health **workforce** training perspectives during a day-long working meeting convened as part of this project; an initial survey of data sources that may be applicable to the ongoing data needs of a performance monitoring system, and the development of a monitoring system design **plan** building on the indicator work and data resources already available within the Bureau.

The analysis performed by **Lewin-VHI** to support further refinement of the goals, outcomes and indicators is provided in Appendix A of this report. Appendix B includes the results of our initial survey of data sources. The bulk of the text of this report describes the plan for a monitoring system that would provide the functions desirable for on-going program management through a cycle of measurement and monitoring, and to support compliance with the planning and reporting requirements of **GPR**A. Key functions in the proposed plan include program grantee-level measurement and monitoring, analysis and assessment of program performance relative to expectations, identification of successes and problems that merit further investigation, data to support the process of reviewing performance at the grantee, and perhaps program level, to help identify opportunities to **continually** improve performance.

It is anticipated that the system concept described in the **report** that follows would build on the extensive work the Bureau has already done in developing a database structure for the Grants Management Application System (GMAS). The GMAS system, and components including the Application Management Database, the Funding Requests/Award Management Database, Review Results Database, Workforce Management, Project Management, Preference and Priority, and Progress Management Database, contain many of the variables that would be specified for tracking in the system plan described here. Many of the same fields suggested for linking data are already included in the record specifications of the **GMAS** subsidiary databases. Other GMAS data fields are analogous to ones proposed for collection (e.g., in the Project Management Database, the variable identifying the strategic direction being supported by the grantee activity is analogous to the identification of the goal/outcome/indicator set being supported by grantee efforts proposed in this report).

The establishment of the POM internal working group and the GMAS database are indicative of the advanced state of the Bureau's "infrastructure" for performance monitoring and **GPR**A compliance. Next steps in implementation of the system should focus on further indicator specification to clarify what to measure, the timeframe for measurement, the linkage of measurement to Bureau funds and linkage to unmet needs in the market and under-served populations. Further development should also identify performance benchmarks, and grantee ability and mechanisms for collecting data not currently available to the Bureau, and further use of relevant external data sources.

CROSS-CUTTING PERFORMANCE MONITORING SYSTEM
TASK 13: FINAL REPORT

I . INTRODUCTION

This report is the product of Task 11 of Delivery Order 240-94-0200. Its purpose is to provide a preliminary plan for the design and development of a crosscutting, outcome-based performance monitoring system for the Bureau of Health Professions. Through Title VII and VIII programs, the Bureau of Health Professions **provides** both policy leadership and support for health professions workforce enhancement and educational infrastructure development. An outcome-based performance system is central to the ability of the Bureau to measure whether program support is meeting its national health **workforce** objectives, and to signal where program course correction is necessary.

The overall purpose of this project has **been** to support the Bureau in assessing and refining an initially proposed set of goals with respect to workforce quality, supply, diversity and distribution, as well as the outcomes and indicators of performance identified to measure and monitor progress toward those goals. These cross-cutting goals are:

- ◆ Promote a Health Care Workforce with a Mix of the Competencies and Skills Needed to Deliver Cost-Effective, Quality Care
- ◆ Support Educational Programs' Ability to Meet the Needs of Vulnerable Populations
- ◆ Improve Cultural Diversity in the Health Professions
- Stimulate and Monitor Relevant Systems of Health Professions Education in Response to Changing Demands of the Health Care Marketplace

An important result of on-going monitoring of grantees' efforts with respect to these goals will be a more effective targeting of scarce federal resources toward those programs and **activities** which support and have a demonstrable effect on national workforce priorities. The earlier work on this project has focused on the refinement of this list of goals, and subsidiary outcomes and indicators, and on a preliminary survey of potential data sources.

This report focuses on issues related to operationalizing the use of this set of goals, outcomes and indicators in an on-going monitoring system for Bureau program activities. This report considers how the goals, outcomes and indicators might be incorporated into a monitoring system, and how the rather broad measures of performance described by the cross-cutting indicators can be linked to the reportable outcomes of individual grantees.

A. Background

These efforts also reflect **BHP**'s response to the need to enhance its current capacity to monitor and measure program performance, and to report on outcomes and effectiveness to a much broader audience, including legislative and **budgetary** authorities. This project represents Phase 2 of a three-phase effort to develop a fully integrated computerized data system to facilitate program effectiveness, evaluation and data analysis of Title VII and VIII programs administered by **BHP**. Phase 1 focused on development of a set of outcome indicators to evaluate the effectiveness of programs in the context of **BHP**'s strategic directions.

The Bureau's development of outcome indicators and assessment of data requirements for regular monitoring also anticipates requirements of the Government Performance and Results Act (**GPRA**) of 1993. **GPRA** requires each agency to develop comprehensive strategic plans, annual performance plans that set specific performance goals for each program activity, and to report annually on the **actual** performance achieved compared to the performance **goals**.

The Bureau faces several key challenges in pursuing a system for outcomes-based monitoring of program performance. These include the typically long time intervals between the occurrence of **BHP**-funded training interventions and observable outcomes in the delivery system. This is exacerbated by the fact that **BHP** funding represents a relatively small percentage of total funding for many training programs. The Bureau's funding is often intended to have impact at the margin. As this implies, it is **difficult** to measure long-term outcomes solely attributable to Bureau funding. Although the specific requirements of **authorizing** legislation and the level of authorized spending on programs are largely beyond the control of the Bureau, **BHP** has received some criticism for the lack of clearer outcome measures for its programs.¹

The development of an explicitly outcome-oriented system that identifies measures of performance related to Bureau-funded efforts will help to better address such concerns and will provide great utility in future planning and program management?. While a completely comprehensive monitoring program could contain more detailed and extensive information than would be needed for high-level planning or reporting, the more aggregate cross-cutting system being designed for these strategic level planning and reporting purposes has focused on broader **BHP** goals and associated outcomes and indicators. Identification and monitoring of these key information elements represent a necessary **first** step in the design of a system for Bureau management-level planning, monitoring, and reporting.

During this project, much work and substantial progress has been made by **BHP** in developing and **refining** a set of cross-cutting goals, outcomes and indicators for a Comprehensive Performance Monitoring System (CPMS). Most of **Lewin-VHI**'s analysis during the project has focused on helping the Bureau to reline this list of measures for monitoring. This

¹ *Health Professions Education: Role of Title VII/VIII Programs in Improving Access to Care is Unclear, United States General Accounting Office, Report to Congress, July 1994.*

² The problems of measurement inherent in some of these efforts must still be addressed.

refinement process is required to develop a strategy for validating the outcomes and indicators developed by the Bureau. In addition, **Lewin-VHI** has **helped the** Bureau to solicit external customer input on the proposed **set** of measures, to perform an initial review of the suitability of data sources that are applicable to **these measures**, and to identify the existing data gaps. **The** summary matrices for these analyses appear in Appendices A1, A2, and B.

B. Organization of this Report

This report places **Lewin-VHI's** earlier work on the detailed analyses of indicators and data sources in the context of a potential overall design for a Comprehensive Performance Monitoring System. The report is divided into four sections. Section II presents a general design for the Comprehensive Performance Monitoring System identifying key functions of the system. Section III presents a discussion of issues related to tracking Bureau goals, outcomes and measures in the context of a Comprehensive Performance Monitoring System. Section IV provides a discussion of next steps to be addressed by **BHPr** in developing a Comprehensive Performance Monitoring System.

The report is followed by Appendices A1, A2, and B. Appendix A1 provides a summary analysis of the major issues that remain to be addressed in the indicator refinement process. Appendix A2 provides a detailed analysis of the strengths and weaknesses of the currently proposed set of goals, outcomes and indicators, with suggested strategies for addressing identified problems. Appendix B provides an initial assessment of data sources that might support on-going monitoring of Bureau-funded program performance.

II. BHPR COMPREHENSIVE PERFORMANCE MONITORING SYSTEM DESIGN PLAN

The work to identify and refine a set of goals, outcomes and indicators, that comprised the bulk of effort of this project, serves as a cornerstone in the development of a multi-purpose performance monitoring system. In this section of the report we review the "high level" reporting and planning needs that a monitoring system (using the set of cross-cutting measures) can support and discuss the critical linkage of these aggregated functions to individual program monitoring.

A. Purposes of a Comprehensive Performance Monitoring System

The **BHPr** Performance Monitoring System should provide information to answer a basic performance question:

Can the Bureau, with available funding and guiding Legislation, through planned and funded grant activities, yielding measurable changes in the health care workforce, meet national health workforce objectives for targeted populations? ✓

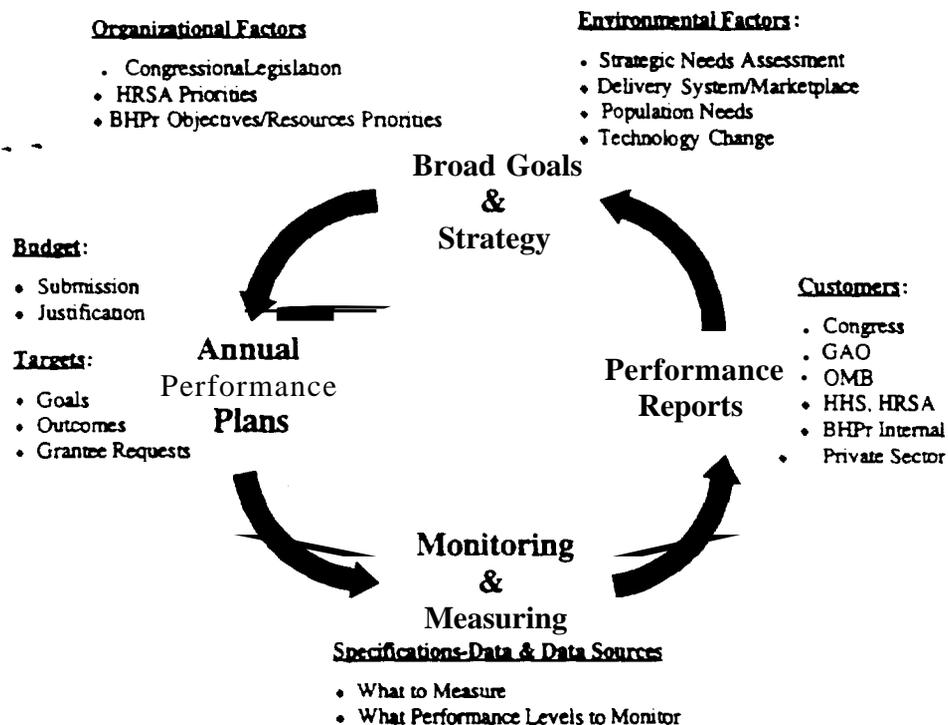
In capturing the information necessary to answer this question, the system would track essential inputs, processes, outputs and outcomes for Bureau programs. The system would provide that information for **BHPr's** regular (annual) reports to external customers (e.g., The Congress), for

annual review of Bureau strategic goals and the development of the next year's performance plans.

A comprehensive monitoring system can support the information and analytic needs of key decision makers at several levels within the Bureau. The monitoring system should support ongoing BHPPr monitoring and measuring of grant programs and progress towards goals, and the development of performance reports, strategic plans and annual performance plans. The Performance Monitoring System should be responsive to the requirements of GPRA legislation as well as to the needs of HRSA, the Bureau Director, Division Heads, Program Leadership and Grants/Budget staff.

As shown in Exhibit I, the on-going Monitoring and Measurement of program performance can be summarized and analyzed for presentation in Performance Reports to customers including members of Congress, the GAO, OMB, other offices in HHS, and to external organizations and constituents. For example, these reports would refer to the four goals that the Bureau has identified and the progress made by grantee programs in efforts to achieve targeted outcomes.

EXHIBIT 1
PROGRAM PERFORMANCE MEASUREMENT SUPPORTS ONGOING EXTERNAL
REPORTING, STRATEGIC GOAL SETTING, PLANNING AND BUDGETING



The performance experience of the past **year** can be integrated with new information about the external environment identifying **emerging** areas of patient care need- **These** needs assessments **might** be based on **demographic** shifts **or disease trends**, gaps created by the marketplace in **the** numbers and skill mix of health professionals, as well as other factors affecting access and quality of care. Some of the Bureau's cross-cutting goals require the use of such environmental intelligence in order to be made specific enough for performance measurement. For example, the "mix of competencies and skills needed" referred to in Goal 1 will need to be specifically defined, e.g., within a given market and timeframe, in order to be monitored for change.

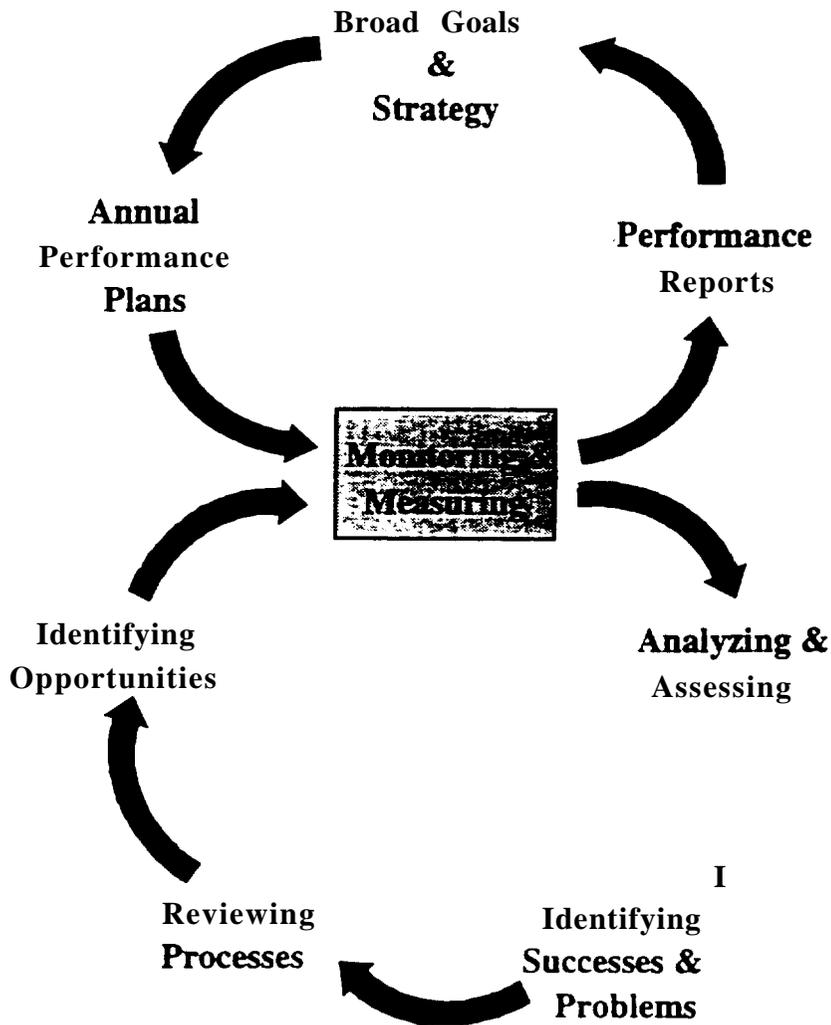
This information about workforce needs and effective program interventions (from past performance) must be integrated with other factors including Congressional legislation, **HRSA** priorities, and **BHP** objectives and priorities, in the process of setting **Broad Goals** and **Program Strategy**. **For** example, if the **Bureau has** less funding to work with, it may **need** to focus on a narrower set of goals or outcomes.

The strategic thrust determined in broad goals and strategy would then be translated into **Annual Performance Plans** integrated with budget submissions and **justifications**. The plans also provide specific program targets that can be used for **measuring** grantee program performance through the monitoring system. This will have direct implications for the specific data elements to be collected and monitored in the next cycle of grant funding.

The cycle of strategic-level performance monitoring shown in Exhibit 1 would continue over time. Adjustments can be made in the direction of programs and the focus of monitoring and measurement, as needed, based on past performance experience, changes in the environment, authorizing legislation, funding, or Bureau priorities.

As shown in Exhibit 2, the monitoring and measurement function is the key link between high-level strategic planning and reporting, and program grantee-level process and outcome measurement. The cycle of monitoring and assessment, and program management, shown in the lower circle in **Exhibit 2**, will be the focus of discussion in the next section.

EXHIBIT 2
MEASUREMENT AND MONITORING PROVIDES A CRITICAL LINK
BETWEEN STRATEGIC FUNCTIONS AND PROGRAM ACTIVITIES.



B. Functions of a Comprehensive Performance Monitoring System

The high-level functions of strategic planning and reporting required by GPRA are supported by on-going measurement and monitoring at the grant program level. A performance monitoring “system” is a vehicle that allows the user to monitor progress towards a defined set of objectives on an on-going basis. The system would answer a number of questions about progress towards the objectives and provide the information needed to enhance performance over time.

‡ **The grantee-level information in a performance monitoring database system would be explicitly linked to at least one of the cross-cutting goals, an associated outcome, and indicator.** This would be done by explicitly including these data elements as fields in the

grantee level records in the monitoring system In addition to linking grantee-level information to a particular goal, outcome and indicator. grantee records would **include** data elements such as:

- ◆ Bureau program identification codes
- ◆ Grantee institution identification code
- ◆ Year of funding/performance measurement
- ◆ Bureau funding level
- ◆ Total funding for grantee's program
- ◆ Grantee program elements (describing type of structure/administration)
- ◆ Grantee funded process elements (e.g., describing type of training intervention)
- ◆ Grantee output measures
- ◆ Grantee outcome measures

Using this type of grantee information (captured for all funded grantees within a given year) linked to performance goals and analyzed in terms of performance benchmarks, examples of questions that the system could address include:

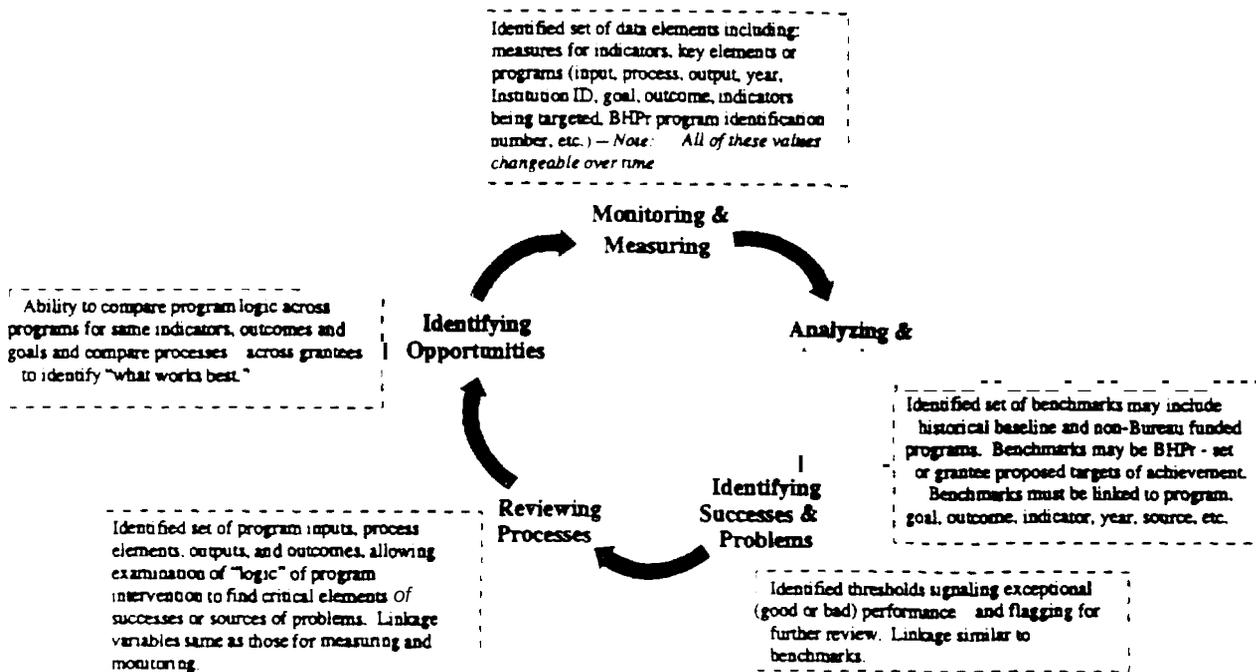
- ◆ How much is being invested by **the** Bureau and where/to whom is the funding going?
- ◆ What is being done with the Bureau funds?
- ◆ How well is it being done, relative to target levels and expectations?
- ◆ Where are there significant successes? problems?
- ◆ What key factors contribute to the successes? the problems?
- ◆ How can the successes be replicated or enhanced, and the problems fixed?

These questions would be addressed through a series of functions that the system would perform. A Comprehensive Performance Monitoring System should support the following functions:

- Monitoring and measuring
- Analyzing and assessing
- ◆ Identifying successes and problems
- ◆ Reviewing key program processes
- ◆ Identifying opportunities

Exhibit 3A provides more on the information content and capabilities represented by these functions.

EXHIBIT 3A
**LINKING GRANTEE-LEVEL RECORDS TO THE PARTICULAR BUREAU GOALS,
 OUTCOMES AND INDICATORS THEY SUPPORT, IN ANY GIVEN YEAR, WILL PROVIDE
 A FLEXIBLE BUT POWERFUL MEASURING AND MONITORING CAPABILITY.**



The Monitoring and Measuring function is the core of the CPMS, providing for the collection of detailed data describing the activities of the Bureau. This information will be collected through a set of cross-cutting performance indicators and other key data elements that describe Bureau programs. The set of data elements to be monitored would include: key measures of program identity (i.e., grantee program and institution); program inputs (i.e., sources and amounts of funding); program processes (e.g., curriculum); outputs, outcomes; the year of funded efforts being monitored; the BHPPr cross-cutting goal, outcome and indicators being supported and other key descriptors.

Once this information is collected, the Bureau's next step will be to compare its progress to baseline measures or to the progress of non-BHPPr funded programs. **Established benchmarks will** be essential for the Analyzing and Assessing function which will evaluate the performance of Bureau activities and sponsored program efforts relative to **specified targets for performance**. For the input, process, output, and outcome measures being monitored for an **expected** level of performance, the CPMS will include comparison benchmark measures, possibly including levels observed among **non-BHPPr** funded programs, or historic levels among Bureau funded programs, or new target levels that have been proposed, either by

the government or by the grantee. **These measures would also be** associated with a specific funding year, Bureau goal, outcome, and indicator.

The analysis of program performance in terms of these benchmarks could then be reviewed and interpreted in the process of Identifying particular Successes and Problems. In addition to the specification of levels of desired performance, the Bureau may want to set thresholds for exceptional performance to be further studied, either because of outstanding success, or of failure to achieve the desired performance. Exceptionally good performers may provide models for future programs. Further study of exceptionally poor performers may provide insights about important obstacles.

The Reviewing Programs function will provide the Bureau with the opportunity to further study the structure and processes of funded programs, especially those that have been very successful or unsuccessful, to better understand and explain why the successes or the problems have occurred.

In Identifying Opportunities, the Bureau can use the measures of program performance and descriptive elements explaining performance to identify ways to incrementally enhance performance, by building on successes and modifying appropriate elements of programs that have not performed to expectations. These changes can be made in the next cycle of strategic planning and specification of the set of goals, outcomes, indicators and other measures to be monitored in the following year, or program funding cycle.

The performance experience of previous years can be used to help review strategic goals and to formulate an organizational strategy for the following years. As a result, systematic adjustment of performance plans and elements to be monitored in the next program cycle may also be undertaken.

For example, the Performance Monitoring System would track the progress of selected BHP_r programs in meeting Goal 1: [to] Promote a Health Care Workforce with a Mix of the Competencies and Skills Needed to Deliver Cost-Effective, Quality Care. If the programs do not seem to be successful in meeting this objective, in the short term, the Bureau may want to consider how best to **re-allocate** funds across grantees or institute new grant making processes that could better contribute to meeting this objective. For example, **further** collection of data about the external environment (see Exhibit 1) may be needed to determine the skills most needed. On-going monitoring of programs provides input to current-year performance assessment. It **also** informs the process of setting goals and objectives for future years, based on reassessment of what programs and funded activities can be expected to achieve. Further investigation of a continued failure to achieve a broad goal-as **stated—may** indicate that, in future years, it is appropriate to restate a revise goals to be more narrowly targeted. Goal 1 might be revised, for example, to target a particular subgroup of health professionals (e.g., primary care doctors) that should be further trained in a particular disease area (e.g., **HIV/AIDS** patient care). **Narrowing** the focus of goals and objectives in that instance might enable the Bureau to demonstrate its integral role in a critical niche area when it is not feasible to perform such an influential role for the entire health professions training market.

The monitoring system would largely be supported by information that is **already generated** or could be readily **generated through current Bureau grant-making, grant oversight, and research.** A **key to harnessing the data for use in the system is the identification of a short list of variables that can serve to link grantee programs to the broader goals, outcomes and indicators that their efforts should support.** Only a sub-set of the data currently collected within the Bureau is likely to be needed for the CPMS, although some additional variables may **also** need to be collected (e.g., see **Exhibit 4**). For example, grantees and programs should indicate which of the Bureau's national workforce goals, outcomes and indicators their efforts (using Bureau funds) would support, and the level of achievement **they** expect to attain. Specific programmatic outcomes can be attributed appropriately. Linking grantee-level records with the goals, outcomes and indicators they support, in any **given** year, will create a flexible but powerful measuring and monitoring capability. Examples of the types of data elements that the system would use for each function of the CPMS are shown in **Exhibit 3A**.

The frequency with which program performance information captured by the system may need to be **assessed** and performance reports generated may vary. It is expected, however, that the broad level of monitoring described here could be reviewed on an annual basis, timed to support the Bureau's budget and budget justification submissions. The information collected from grantees for inclusion in this system might also be done on no more (frequent) than an annual basis. The CPMS could be made capable of producing performance reports similar to the format shown in **Exhibit 3B**.

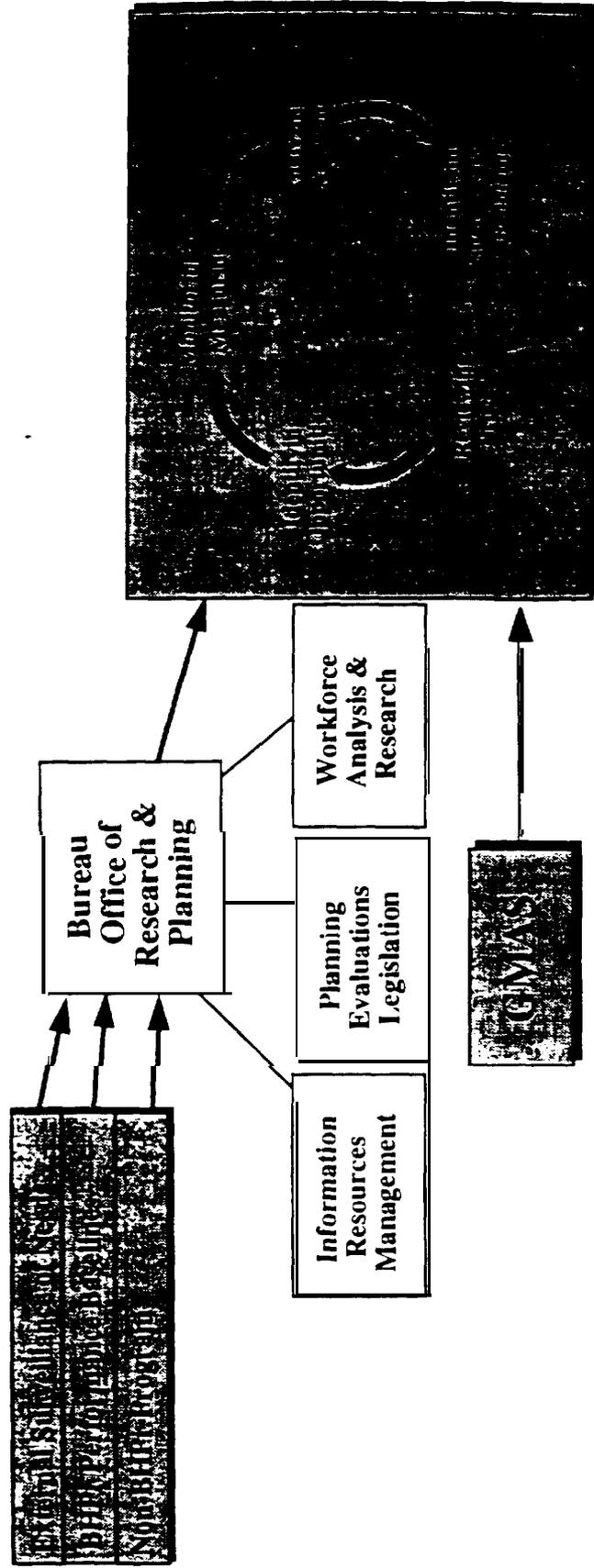
EXHIBIT 3B
SAMPLE BHPR PERFORMANCE REPORT :
LINKING GRANTEE OUTCOMES TO BHPR GOALS (CPMS OUTPUT)

Goals, Outcomes, Indicators, Programs, Grantees	Year				BHPr Target (#)	BHPr Target (%)	Met or Exceeded Target (+)	Environmental Comparison (Non-BHPr Funded) % Change Over Same Time Period
	1	2	3	% Change				
Goal 1								
Outcome 1								
Indicator 1								
Program 1								
Grantee 1								
Grantee 2								
Grantee 3								
Program 2								
Grantee 1								
Grantee 2								
Grantee 3								
Program 3								
Grantee 1								
Grantee 2								
Grantee 3								
Indicator 2								

EXHIBIT 4

ONLY A SUBSET OF DATA COLLECTED WITHIN THE BUREAU IS LIKELY TO BE NEEDED, BUT SOME ADDITIONAL VARIABLES ARE NECESSARY TO LINK GRANTEE DATA BENCHMARKS TO GOALS, OUTCOMES AND INDICATORS. SOME DATA ELEMENTS MAY ALSO NEED TO BE REPORTED MORE SYSTEMATICALLY ACROSS GRANTEES AND ACROSS PROGRAMS.

Sources of Data



In order to create a fully functioning Comprehensive Performance Monitoring System, **BHP** must address a series of design and **data-specification** questions. These are further discussed in the next section addressing next steps in system planning. In the tables below, each of the key monitoring system **functions** discussed above is further described with respect to its definition; the information this function would provide the user; some key issues to be addressed in designing the function; and **processes** involved in addressing the **issues**.

FUNCTION: Monitoring and Measuring			
Description	Information the function provides	Issues to be addressed in designing this function	Processes involved
<p>The primary function of the performance monitoring system is to collect data to <i>track</i> key elements that describe the activities being funded. This includes measures of program input (i.e., funds), process (the funded intervention), output and outcomes (i.e., the elements related to indicators). The system may also track elements that provide a basis for evaluating performance (i.e., historic baselines, other non-grantee activities, cu.). Key elements of the minimum set for monitoring would be data supporting the cross-cutting Bureau performance indicators.</p>	<p>This information provides a summary and overview of what the Bureau is doing to achieve a particular outcome or broader goal.</p> <p><i>For example, for Goal 1 it would answer the question "how many health professionals are trained to support primary care during a given year at grantee funded programs"?</i></p>	<ul style="list-style-type: none"> ◆ What data elements need to be tracked? ● What is the data collection plan or strategy (i.e., who will need to collect this data, over what period of time, and through what means)? ◆ How do you assure comparability of data across reporters (i.e., what is the standardized data collection format)? <p>Development of consistently applied definitions for indicators is crucial for obtaining comparable data across grantees. Specific suggestions for improving BHP indicators are presented in Appendices A1 and A2.</p>	<ul style="list-style-type: none"> ◆ Process for refining indicator definitions ● Process for developing standard data collection format (e.g., uniform grant application form) with data reporting requirements ● Process for tracking and monitoring data collected ● Process for determining responsibilities for collecting this data

FUNCTION: Analyzing and Assessing

Description	Information the function provides	Issues to be addressed in designing this function	Processes involved
<p>This function aggregates and compares the data collected via on-going monitoring with performance expectations. Performance indicators may be calculated compared with established benchmarks. This enables assessment of the progress made towards Bureau objectives.</p>	<p>This function enables the Bureau to address:</p> <ul style="list-style-type: none"> ◆ how much progress has been made toward set goals, ◆ how BHPr efforts compare to those of other government and non-government organizations, ◆ which efforts have been most successful and ◆ how performance has been sustained or improved over time. <p>This information will be crucial to the Bureau's ability to defend its current levels of funding by showing an ability to perform more effectively over time.</p> <p><i>For example, for Goal I it would answer the questions "how many health professionals are trained to provide and support primary care in year x as compared to year y? How does this rate of training compare to the rate of training in non-BHPr funded grantee programs"?</i></p>	<ul style="list-style-type: none"> ◆ Who will set levels of required/expected performance for Bureau? for an individual grantee? ◆ How often will progress towards performance targets be assessed? ◆ How often will the target levels be reconsidered? ◆ What program components are being assessed? ◆ What are the benchmarks or baseline data against which this data will be assessed? ◆ What statistical calculations or functions will be used in the system to compare the data? ◆ What are the protocols for "cleaning" the data or readying the data for use? ◆ How will data from multiple sources be linked for comparison? 	<ul style="list-style-type: none"> ◆ Process for establishing actual performance targets and baseline measures ◆ Process for identifying mechanisms to collect baseline or comparative data ◆ Process for designing the calculations the system will perform to compare the data

FUNCTION: Identifying Successes and Problems			
Description	Information the function provides	Issues to be addressed in designing this function	Processes involved
<p>The analysis and assessment of data will result in the ability to identify successes and problems in making progress towards the objectives.</p> <p>The "success" or "problem" will be defined in terms of the degree of deviation from established benchmarks. This flags an exception report to the monitoring system user. Flagging efficiently focuses decision-makers' attention by directing them towards exceptions in the data</p>	<p>This function will notify the user of successes and problems in the system. Notification will occur when data and information do not meet targets or thresholds set for Bureau performance. This information will be crucial to BHP staff as they review annual results, develop strategic plans, and make resource allocations. This information will highlight best and worst performance among Bureau programs.</p> <p><i>For example, for Goal 1 it could answer questions like 'for which programs that the Bureau is funding has the number of health professionals trained in providing and supporting primary care fallen below the target of training x% per year? For which programs have the targets been exceeded?'</i></p>	<ul style="list-style-type: none"> ◆ How will the system "trigger" indications of problems (i.e., what degree of deviation from targeted performance will be defined as "exceptional" and thus require further investigation)? ◆ How do you distinguish or track errors caused by lags in receiving essential data from true problems in meeting the targets? 	<ul style="list-style-type: none"> ◆ Process for establishing criteria for "exceptions" ◆ Process for educating users on how to interpret and identify system signals of successes/problems

FUNCTION: Reviewing Processes			
Description	Information the function provides	Issues to be addressed in designing this function	Processes involved
<p>Reviewing funded program processes within the performance monitoring systems is essential in order to understand, learn from, and explain the identified performance exceptions. The on-going monitoring of program inputs, processes and outputs in the monitoring and measuring phase will support the outcomes identified above.</p>	<p>This function provides information to determine why a particular success or problem exists or at least what factors have contributed to such a success or problem. This information is essential for the Bureau to identify the processes that should be replicated or encouraged and to revise those processes which do not contribute to progress towards the objectives.</p> <p><i>For example, for Goal 1, if could answer the question "why have certain grantee programs seen a decrease in the number of health professionals trained in primary care while others with similar levels of Bureau funding have doubled their number of primary care trainees"?</i></p>	<ul style="list-style-type: none"> ◆ What key input (e.g., funds), process (e.g., program governance, structure, staffing, curriculum, etc), output and outcomes distinguish the grantee programs? ◆ What can be inferred from gaps between target levels of performance and observed levels? What "diagnostic" procedure should be followed, if for example, outputs are much lower than expected? ◆ What are realistic targets for funded program performance, given program characteristics and constraints, and the level of Bureau funding? Should current target levels be changed? 	<ul style="list-style-type: none"> ◆ Process for using the essential elements of the grantee programs inputs and outputs to explain exceptions ◆ Process for calibrating Bureau performance expectations against actual performance

FUNCTION: Identifying Opportunities

Description	Information the function provides	Issues to be addressed in designing this function	Processes involved
<p>This function would identify the options for changing program design or grant-making and may suggest the need for changes in program or Bureau goals because of problems identified through monitoring.</p>	<p>This function allows the user to:</p> <ul style="list-style-type: none"> • modify program design or corresponding aspects of the performance monitoring system • focus so that data that is collected is appropriate and useful • have information to help reorient goals and plans in subsequent cycles of planning. <p>This function is essential for the Bureau to be able to make timely course corrections in its programs and processes and to encourage flexible response to community and market needs, to build most effectively from past successes and learn what works.</p> <p>Modified program design and any changes in goals and outcomes may affect the set of variables to be monitored.</p> <p><i>For example, for Goal 1, this function could answer the question "how do we improve the performance of the grantee programs in meeting the targets for training health professionals necessary to support and provide primary care"?</i></p>	<ul style="list-style-type: none"> ◆ what are the parameters for identifying an appropriate solution? ◆ How will solutions be introduced into the performance monitoring system without disrupting the cycle of activities? 	<p>Process to select appropriate solutions and implement them</p>

To identify **desired** monitoring system capabilities with respect to specific cross-cutting goals, it may be **helpful** for **BHP** staff to **work with templates** such as the one shown in **Exhibit 5**. The Bureau Performance Working **Group** discussions may provide the best forum for **identifying** the core set of desired system capabilities and the implied data requirements.

EXHIBIT 5
EXAMPLE: PERFORMANCE MONITORING SYSTEM
ESSENTIAL INFORMATION NECESSARY TO DESIGN THE CPMS FUNCTION

GOAL 1: Promote a Health Care Workforce with a Mix of the Competencies and Skills Needed to Deliver Cost-Effective Quality Care

	Increase the number of health professionals necessary to provide and support primary care	Increase in program responsiveness to forecasted imbalances in health professions supply, competency, and skill mix	Increase in the number of interdisciplinary collaborations	Increase in the number of schools/programs with cultural and ethnic curricula
Monitoring & Measuring				
Analyzing & Assessing				
Identifying Problems				
Reviewing Processes				
Identifying Opportunities				

C. **Key Resources Necessary to Maintain Functions of a CPMS**

The processes essential for maintaining **the** functions of the Comprehensive Performance Monitoring System will require data, hardware, software and human resources. Certain data elements would be input to the monitoring and measuring function on an as-generated or **as-**received basis. This could include excerpts of grantee applications and **progress** reports. Alternatively, data kept in other **BHP**r offices could be periodically and selectively down-loaded to this cross-cutting monitoring database. The analytic and reporting functions of the system would be largely automatic once designed and initially **implemented**. The Bureau would need to periodically reconsider the criteria, or thresholds and benchmark values used to assess performance, and these could be modified as needed.

1. Information Resources

Obtaining key information resources will require collecting data that is readily available and developing data collection instruments or surveys to collect data that is not currently reported systematically across grantees. Unique data elements need to be inputted to the **first** three functions of the CPMS (listed below in the table). The last two functions use data elements already in the system. The types of data elements needed in the monitoring system include the following:

Monitoring & Measuring	BHPr goal and goal-related outcome indicator measures, key program elements (i.e., inputs, processes , outputs, year, Institution ID number) goal, outcome, indicator links, BHP r grant number and other internal reference numbers, etc.
Analyzing & Assessing	Benchmarks, baselines, non-BHPr program performance
Identifying Successes and Problems	Thresholds for identifying performance "exceptions."

These data may be collected, in part, from the following sources within **BHP**r:

- ◆ Office of Health Professions Analysis and Research (e.g., external surveillance of needs, **BHP**r performance baselines, non-BHPr program performance)
- ◆ Grants Management Branch
- ◆ Grants Management Application System (GMAS)
- Other Offices concerning with performance measurement and monitoring

In addition, other external data sources identified through this project may support **BHP**r information needs for monitoring progress toward current goals, and outcomes. A complete list of the suggested data sources provided by participants of the October, 1995 meeting on **BHP**r

DATA SOURCE SUGGESTIONS FROM DHPR REPRESENTATIVES (CONT.)

Outcomes	Indicators	Programs Related to Indicators	Suggested Data Sources	Current Availability of Data	Low Data Collection Burden	Data Are Collected Yearly	Data Are Complete	Data Are Accurate
	0. Number of schools/ programs with a mission statement and/or formal policies encouraging interdisciplinary team training	<ul style="list-style-type: none"> Medicine (AHEC, APAP, AAFP) Associated, Dental and Public Health Professions (ASPH) 	<ul style="list-style-type: none"> AHEC AAMC AR - PAE ASPH annual data survey IGC project 	C N/A P M P	Y N/D N/D Y N/D	Y N/A N N/A N	Y N/A N N/A N/A	Y N/A N N/A N/A
D. Increase in the number of schools/programs with culturally appropriate curricula	1. Number of student hours in clinical training with health care service delivery organizations that serve areas that have a high concentration of minority groups	<ul style="list-style-type: none"> Associated, Dental and Public Health Professions (AADS - general dentistry) Nursing (AACN) Medicine (AHEC, APAP) Student Assistance (NAMME) 	<ul style="list-style-type: none"> AACN (# clinical hours required of NP Master's and Post-Master's Students) AHEC Clinical scheduler AADS grantee AAMC AR - PAE 	C M ²⁶ C P N/A P	 Y Y Y N/A N/A	Y ²⁷ Y Y N/A N/A N	Y Y Y N/A N/A N	Y Y Y N/A N/A N
	2. Number of student hours in didactic training which address cultural, all diverse issues in health care		<ul style="list-style-type: none"> AAMC AHEC AADS AAMC AR-PAE 	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A
	3. Number of schools/ programs that have a mission statement and/or formal policies encouraging diversity	<ul style="list-style-type: none"> Medicine (AHEC, APAP) Associated, Dental and Public Health Professions (ASPH) 	<ul style="list-style-type: none"> AHEC AAMC AR - PAE ASPH annual data survey 	C N/A P M	Y N/A N/A Y	Y N/A N/A N/A	Y N/A N/A N/A	Y N/A N/A N/A

²⁶ The data are collected as "day" not "hours."

²⁷ There has been a 83% response rate to the survey administered by AACN

proposed **performance** indicators is provided in Appendix B. Essential CPMS data elements which are not yet collected **across grantees could** be added to BHR grant applications or included in other already existing **surveys**.

2. System Resources

The **CPMS** could exist in a variety of **forms** ranging from paper files and reports to computer database systems. The most appropriate form may be as an add-on module linked to the GMAS. The "system" could be built as a relational database, with linkage variables for cross-referencing data, as indicated above. **Implementation** of a system may require new investment by **BHP** in data systems and personnel. The **types** of resources that would be needed for a computer-based performance monitoring system could include:

- ◆ Computer hardware, either for a stand-alone database system or networked hardware in a linked multi-user environment.
- ◆ System software, including database system **software**. As **part** of **the** system design specification, the Bureau may wish to restrict system access to an **appropriate** limited set of Bureau decision makers and planners.
- Trained software and hardware systems support staff to develop, maintain and update the capabilities of the system as needed. It is also possible and may be more cost-effective to contract out these system development and support services.

The database could be built and maintained on a stand-alone personal computer or be resident on a network. Access to the system would be determined by the Bureau. The basic hardware and database software required to develop such a system are likely to be already available within the Bureau or within HRSA. The Bureau will also need to allocate resources for initial development of the system, and later periodic maintenance.

III. NEXT STEPS IN DEVELOPMENT OF A COMPREHENSIVE PERFORMANCE MONITORING SYSTEM

During this phase of the Bureau's preparations for ongoing performance monitoring, a number of important issues have been addressed. The most central elements for the system include the program measures to be monitored as indicators of performance, and the overall program goals and outcomes to which they are linked. As shown in the earlier exhibits and highlighted in the foregoing discussion, these elements are at the core of the monitoring system. Specification of observable, reliable measures of program performance enables the identification of data sources and specification of benchmarks for assessing performance. Additionally, specification of performance indicators provides clarification of the program elements that can be used to analyze the reasons for variation in performance. The next steps described below, presented in order of logical dependence, therefore **begin with** completion of the work on performance measures.

A. **Final/Full Specification of Cross-Cutting Indicator Definitions**

A key element in the implementation of a monitoring system is the identification of the strategic goals, outcomes, and indicators that will be monitored for achievement of those objectives. The Bureau has made substantial progress toward specification of a set of indicators for this purpose. Next steps toward system development would begin with the completion of this effort (at least the first iteration of it with the current set of program goals, indicators and outcomes). The issues to be addressed here are largely definitional. In some cases, there are questions about the feasibility of assessing Bureau-funded program performance through some of the indicators as currently specified. The issues to be considered are detailed in the indicator analysis tables presented in Appendices A1 and A2.

B. **Specification of Performance Benchmarks and Process for Assessment**

A logical follow-up to specification of indicators for measuring and monitoring would be the identification of targeted levels for these indicators. The target levels may be performance benchmarks based on desired improvement over current levels, comparison measures for non-Bureau funded efforts, or target levels set by the Bureau or by grantees. These measures will be needed to assess how well the Bureau funded programs are doing—a critical question to be addressed in a performance monitoring system. Identification of these levels, and bases for comparison and assessment can be done in advance of data collection plans, so that these values can be included as needed in those plans.

C. **Identification of External Environmental Indicators to be Tracked**

The ability to use the CPMS as a tool for long-term strategic planning depends upon the availability of information on environmental factors (e.g., delivery system marketplace trends and needs). We therefore suggest that BHP_r perform a periodic market or community-level needs assessment. The results of this assessment can help to redirect national workforce goals at gaps in health professions supply and training that will not be addressed by the private market. Since this community needs assessment could also be essential to other HRSA agencies, the Bureau might wish to pursue this task in concert with HRSA leadership.

D. **Identification of Data Sources and Pilot-Test of New Data Collection**

After the Bureau has refined the set of measures to monitor and describe program performance, it will be possible to complete identification of currently available data sources and develop new data collection plans (as needed) to support the system. This project included an important preliminary step in support of system development, through an initial survey of currently available data sources that might support performance monitoring. The results of this effort are presented in Appendix B. The panel of outside experts, who participated in the focus group conducted during this project, provided both valuable input to indicator development and the preliminary identification of data sources. A similar group of outside experts may be helpful to involve in plans for new data collection, and for the organization of a pilot test of new collection among grantee organizations whose interests they may represent.

E. Identification of a Minimum Set of Program/Performance Linkage Variables

An important element of system coherence and long-term flexibility is the linkage of program/grantee level measures to broader Bureau goals and outcomes. Capturing a minimum set of data elements that describe program input, processes, output, and outcomes will provide greater insight to monitoring system users analyzing program logic. There is a tradeoff, however, between the comprehensiveness of this information and the size of the monitoring system and grantee reporting requirements needed to support it. The right balance of program detail versus reporting burden must be determined by Bureau staff, perhaps through discussions with both internal staff (e.g., system users) and external customers (e.g., system information suppliers).

F. Specification of Required Performance Reports to be Generated

In addition to specifying the elements to be captured in the system reports and information displays to be provided by the system must also be specified as part of the system design.

G. Specification of Hardware and Software Requirements of System

The system capabilities implied by the design specifications addressed in the preceding five steps will provide a basis for determining the hardware and software needed to develop the system and allow for some expected modification or expansion over time.

H. Development of Initial/Pilot Version of the System

Development of the CPMS might best begin through development of a pilot version of the system that can be tested by a range of prospective system users, to field test and refine the initial design. A small scale version has the advantage of being less costly and quicker to implement, (while providing the hands-on experience and needed to develop a design that will be easiest to live with in the long run).

I. Final/Full-Scale Implementation of the System

Based on BHP's beta test experience, revisions can be made as needed to the original design specification, and a finalized design can be implemented. Part of the designed features of the system should be the capacity to easily change the program elements being measured, the reports that are generated, and the capacity of the system, as needed, over time. It should be possible to link the data captured in this system to other data systems and files maintained in the Bureau.

J. Identification of On-going System Maintenance Requirements

A critical aspect of the CPMS will be assurance that the system has been kept up to date in terms of the data and analytic capabilities needed by its users. The Bureau will identify maintenance requirements and develop a plan for meeting those needs on an on-going basis.

Maintenance **will** be needed both in terms of changes in monitoring, analysis and reporting needs of users, and changes in hardware, software and data required to support those user functions.

IV. CONCLUSIONS AND NEXT STEPS

Although much progress has been made in designing a CPMS and readying the national workforce goals, outcomes and indicators for use, the Bureau must continue their efforts through the following next steps:

- ◆ First, the Bureau must assess the questions **necessary** to perform key functions of the **CPMS** for each of the cross cutting goals, outcomes and indicators. This process will include further refining the **BHP** measures.
- ◆ Second, the Bureau must decide what data elements they need to collect from grantees to support the CPMS. Many data elements may already be collected and captured in the **GMAS**. This outstanding information still required of grantees **should** be requested in the next cycle of grant review if the CPMS is to be of use in generating the strategic plan required by GPRA in 1997. The Bureau may want to coordinate this review of data elements internally with the group of staff overseeing the development of a standard grant application **form**.

In the next phase of this work it is expected that **BHP** will address the outstanding questions to make a more detailed specification possible. The Bureau may benefit from engaging the type of analytic **support** to their decision making process that **Lewin-VHI** has provided for the performance indicator working group meetings during the current phase of work. This support might include, for example, performing the research required to identify best practices and other potential performance benchmarks for care delivery and the professional training process, and research to identify further data sources that support development of baselines and performance targets for assessing program outcomes tracked within a CPMS. **BHP** work on performance monitoring to support program management and Bureau-wide planning fit in the context of a broader effort within HRSA and DHHS, in strategic planning for resource investment and compliance **with** the provisions of GPRA.

INTRODUCTION TO APPENDICES

The Measuring and Monitoring function of the Comprehensive Performance System (CPMS) is the most critical since it is the link between Bureau-wide or strategic reporting and planning, and BHP program measurement. Over the past two years, BHP has been developing national workforce performance goals, outcomes and indicators that will facilitate measuring and monitoring of BHP program performance. The information collected under the Measuring and Monitoring function will be the keystone of the CPMS. Lewin-VHI's efforts have focused on helping BHP to refine this list of indicators and ready the set of measures for implementation and use in the CPMS.

At the core of the Bureau's performance measurement system are four national workforce goals:

- ◆ Promote a Health Care Workforce with a Mix of the Competencies and Skills Needed to Deliver Cost-Effective, Quality Care
- ◆ Support Educational Programs' Ability to Meet the Needs of Vulnerable Populations
- Improve Cultural Diversity in the Health Professions
- ◆ Stimulate and Monitor Relevant Systems of Health Professions Education in Response to Changing Demands of the Health Care Marketplace

The goals are 'cross-cutting', i.e., as a set they represent the aggregate performance of the Bureau. Consequently, not every goal is relevant to every BHP program but presumably each program would support at least one of these national workforce goals. Within each of these goals, BHP developed a set of Bureau-level outcomes that capture the common activities across programs and measure the aggregate effects of grantee achievements in support of the goals. Indicators were suggested by which the success of an outcome might be measured. This set of goals, outcomes and indicators is poised to be the foundation for BHP strategic planning and reporting. The progress made in developing this set of goals, outcomes and indicators is due to the diligence of BHP leadership and the Bureau's Performance Indicators Group.

Lewin-VHI assisted the Bureau in refining the initial list of goals, outcomes and indicators by analyzing the indicators against a set of objective criteria. Each indicator was assessed for its:

- ◆ definitional clarity of data elements;
- ◆ scope of measurement;
- ◆ cross-cutting relevance to BHP programs;

- ◆ linkage between outcome and indicator, and
- specification of **reporting** time **frame**.

The results of this preliminary analysis were used to develop an agenda for a meeting with **BHP** program representatives. The Bureau, confident that these measures were appropriate at the strategic planning level, called this meeting to investigate the relevance of the measures at **the** program level before proceeding with the CPMS. Representatives of **BHP** programs including Dentistry, Physician Assistant, Nursing, Public **Health**, Family Physician, Medical, **Geriatric**, and Rural Hospital programs attended a one-day meeting at **Lewin-VHI** offices in Fairfax, VA on October 26, 1995. This meeting yielded substantial customer input on the relevance of the indicators to **BHP** programs and the feasibility of collecting data to support the indicators.

Lewin-VHI's summary of this meeting allowed **BHP** to refine the list of goals, outcomes and indicators to the set reflected in these Appendices. **Lewin-VHI** then offered continued support in the development of the indicators by assessing the **current** strengths and weaknesses of each outcome and indicator and recommending strategies for **further** developing the measures. To help the Bureau address the most salient indicator issues, **Lewin-VHI** also provided a synthesis of major themes that emerged from the more detailed indicator analysis

The current working set of goals, outcomes and indicators and **Lewin-VHI's** summary analysis of the measures is presented in **Appendix A1**. **This** table captures the overarching issues that remain to be addressed in the indicator refinement process. Appendix A1 is organized by national workforce goal. The vertical axis includes the outcomes and indicators related to each goal. The horizontal axis presents the major issues which should be examined in **further** indicator analysis: clarification of what to measure, specification of measurement timeframe, link to **BHP** funding, and link to environment. An explanation and examples of these major issues are presented in the preface to Appendix A1.

The detailed analysis of indicator issues which supports Appendix A1 is presented in Appendix **A2**. The table is organized by national workforce goal on the vertical axis. Outcome and Indicators appear under each Goal according to the order suggested by **BHP** staff. An assessment of each indicator is provided in the row in which each indicator is listed. Global issues which are relevant to a set of indicators are listed for every outcome corresponding to the indicator set. Many of these indicators still require clarification of definitional elements to ensure consistent data **collection** from programs. The Bureau has made some progress towards establishing baseline measurements and processes for collecting comparative data but the measures are not yet functional in the Analyzing and Assessing phase of the **CPMS**. The Bureau will continue to refine the goals, outcomes and indicators according to the comments represented in this table and other internal **BHP** revisions. In addition, **BHP** staff are drafting **the** next level of the CPMS which will involve the development of program-specific outcomes and indicators that will complement **the** national health workforce goals and provide more detailed information on the progress of individual grantees.

Assessing the availability and feasibility of collecting data to support these cross-cutting indicators is crucial before integrating the indicators into **the CPMS**. Following the October 26 meeting, **BHP**r representatives were **asked** to respond to a **Lewin-VHI survey** eliciting **information** on data sources relevant to the current list of goals, outcomes and indicators. Participants were asked to evaluate each potential data source on its availability, burden of collection, collection frequency, completeness and accuracy. The responses generated by the meeting participants are presented **in Appendix B**. The table in Appendix B is organized by national workforce goal on the vertical axis. Outcome and Indicators appear under each goal according to the order suggested by **BHP**r staff. The data source information will be used to inform data collection strategies and protocols to **be** developed for the **CPMS**.

APPENDIX A1
MAJOR ISSUES TO ADDRESS IN
FURTHER INDICATOR ANALYSES

**PREFACE TO "MAJOR ISSUES TO ADDRESS IN FURTHER
REFINEMENT OF INDICATOR ANALYSES" PRESENTED IN APPENDIX A1**

An indicator-specific matrix, of four overarching issues to be addressed in the indicator refinement process, is presented in Appendix A1. Presented below is a description of how these issues were identified and an explanation of the types of indicator weaknesses captured by these broader categories. Examples of indicator weaknesses have been taken from the detailed analysis of the Indicator Issues that May Require Further Discussion presented in Appendix A2.

The four overarching issues anticipate and address three key questions that may be asked in assessing the proposed indicators for performance monitoring:

- ◆ How can we assure that the data collected to monitor grantee performance are comparable across grantees (i.e., that the data can be aggregated for analysis)?
- ◆ How can it be shown that the interventions caused a measurable effect as a result of BHPf-funding?
- ◆ How can it be assured that BHPf performance monitoring has included external intelligence/environmental surveillance so that the Bureau has a context for examining how well BHPf-funded interventions are working?

TYPES OF ISSUES TO ADDRESS:

1. **What to Measure:** To address this issue, BHPf's next steps will involve making the indicator definition or description more specific so that grantees know exactly what to measure. The indicator should be clear enough so that different, independent observers of the same grantee program would produce the same measure. For example, the indicator definition or description should answer questions such as: *What activity is being measured? What input (e.g., resource) is being measured? in what units? What output is being measured? in what units (e.g., hours, dollars)?* Clarification of which grantee efforts or outputs will specifically be measured will ensure the accuracy of data comparisons.

Examples:

indicator 1: Number of graduates an&or program completers of primary care tracks by discipline

In this case, the definition of "primary care tracks" and "discipline" are not yet specific enough for reliable measurement.

Indicator 4: *Number of programs that address issues raised by workforce analysis and surveillance*

In this case, the scope of measurement is not clear, e.g. how to measure “address issues”?

Indicator 11: *Number of student hours in clinical training with health care service delivery organizations that serve areas that have a high concentration of minority groups*

In this instance, it is not clear what constitutes a “high concentration;” this term would need to be defined.

2. **Measurement Timeframe:** To address this issue, BHPPr’s next steps will involve specifying when (i.e., at what points in time) measurements should be made. The indicator should answer questions such as: *Should a baseline/pre-funding measure be collected at the start of the calendar year? academic year? fiscal year? When should follow-up/post-funding measures be collected? Are these points in time (or the units of measurement) really observable and feasible for grantees to conduct data collection?*

Examples:

Indicator 11: *Number of student hours in clinical training with health care service delivery organizations that serve areas that have a high concentration of minority groups*

In this case, data collection may be difficult due to level of detail involved in reporting “hours.”

Indicator 6: *Number of trainees in areas where there is an imbalance in competency and/or skill mix, such as ambulatory care, HIV/AIDS, health promotion and disease prevention, geriatrics, and substance abuse*

In this example, one would need to specify and relate time frames for determining the degree of responsiveness to need and for detecting imbalances on a continuing basis.

3. **Link to Funding:** To address this issue, BHPPr’s next steps will involve further clarifying or emphasizing the linkage between BHPPr-funded intervention and the outcome or indicator affected. Evidence of this causal linkage may need to be established through empirical research. Clearly defined linkages should refer specifically to funded interventions and should show that the funded efforts caused/increased the likelihood or level of the outputs.

Examples:

Indicator 3: *Number of schools/programs with a mission statement and/or formal policies supporting primary care*

In this example, the indicator measures process rather than outcome without clear evidence of policy implementation. In using this indicator, the Bureau will need to reference the empirical

research literature on use of mission statements in **performance** evaluation to **identify** strategies **in best use of this indicator**.

*Indicator 22: Number of **underrepresented minority faculty** participating in faculty recruitment and/or development programs*

In this example, it may be difficult to trace changes in this indicator to **BHP**r funding.

4. Link to Environment: To address this issue, **BHP**r's next steps will involve **making** the indicator more specific in terms of the needs/gaps/ **skills/other** health care **market/workforce** attributes being addressed through **BHP**r funding. This requires specific environmental intelligence. These indicators will need regular review and updating to stay current with external environment needs. For example, external performance benchmarks can be used to demonstrate why a problem exists, why **BHP**r has a role in addressing the problem, what **BHP**r's role is in addressing the problem, and how well **BHP**r is doing in **addressing** the identified problems.

Examples:

Indicator 4: Number of programs that address issues raised by workforce analysis and surveillance

In this case, it is not clear what benchmarks are used to determine "imbalances;" e.g., is "balance" achievable only through one "staffing" model?

Indicator 14: Number of faculty with practices serving underserved areas, low income populations, and/or high-risk populations.

In this example, one would need to define and to track/identify continuously "under-served areas, low income populations, **and/or** high risk populations."

The table that follows is organized by cross-cutting goal, outcomes, and associated indicators. We have indicated which of these broad issue areas we think apply to each of the indicators by placing an "**X**" in the appropriate cell of the table.

MAJOR ISSUES TO ADDRESS IN OTHER INDICATOR ANALYSES

Coal 1: Promote a Health Care Workforce with a Mix of the Competencies and Skills Needed to Deliver Cost-Effective, Quality Care

	What to Measure	Measurement Timeframe	Link to Funding	Link to Environment
Outcome: Increase in the number of health professionals necessary to provide and support primary care				
1. Number of graduates and/or program completers of primary care tracks by discipline	X	X		
2. Number of graduates and/or program completers of health professions programs that support primary care by discipline	X	X		
3. Number of schools/programs with a mission statement and/or formal policies supporting primary care	X	X	X	
Outcome: Increase in program responsiveness to forecasted imbalances in health professions supply, competency, and skill mix				
4. Number of programs that address issues raised by workforce analysis and surveillance	X	X	X	X
5. Number of initiatives that address state and local level research and data capacity-building	X	X	X	X
6. Number of trainees in areas where there is an imbalance in competency and/or skill mix, such as ambulatory care, HIV/AIDS, health promotion and disease prevention, geriatrics, and substance abuse	X	X	X	X
7. Number of graduates and/or program completers providing services in areas where there is an imbalance in competency and/or skill mix, such as ambulatory care, HIV/AIDS, health promotion and disease prevention, geriatrics, and substance abuse	X	X	X	X
Outcome: Increase in the number of interdisciplinary collaborations				
8. Number of clinical experiences involving interdisciplinary teams to meet community needs	X	X	X	X
9. Number of students receiving interdisciplinary team experiences	X	X	X	
10. Number of schools/ programs with a mission statement and/or formal policies encouraging interdisciplinary team training	X	X	X	
Outcome: Increase in the number of schools/programs with culturally sensitive curricula				
11. Number of student hours in clinical training with health care service delivery organizations that serve areas that have a high concentration of minority groups	X	X		
12. Number of student hours in didactic training which address culturally diverse issues in health care	X	X		
13. Number of schools/ programs that have a mission statement and/or formal policies encouraging diversity	X	X	X	

Goal 2: Support Educational Programs' Ability to Meet the Needs of Vulnerable Populations

	What to Measure	Measurement Timeframe	Link to Funding	Link to Environment
Outcome: Increase in the number of faculty and trainees in settings serving underserved areas, low-income populations, and/or high-risk populations				
14. Number of faculty with practices serving underserved areas, low-income populations, and/or high-risk populations	X	X	X	X
15. Number of student hours in clinical training with health care service delivery organizations serving underserved areas, low-income populations, and/or high-risk populations	X	X		X
16. Number of student hours in didactic training which address health care issues related to underserved areas, low-income populations, and/or high-risk populations	X	X		X
17. Number of continuing education experiences addressing issues related to underserved areas, low-income populations, and/or high-risk populations	X	X	X	X
18. Number of schools/programs that have a mission statement and/or formal policies addressing issues related to underserved areas, low-income populations, and/or high-risk populations	X	X	X	X
Outcome: Increase in the number of graduates and/or program completers practicing in underserved areas, low-income populations, and/or high-risk populations				
19. Number of graduates entering residencies that serve underserved areas, low-income populations, and/or high-risk populations	X	X	X	X
20. Number of graduates and/or program completers who enter practice in underserved areas, low-income populations, and/or high-risk populations	X	X	X	X
21. Number of graduates and/or program completers who remain in practice settings serving underserved areas, low-income populations, and/or high-risk populations	X	X	X	X

Goal 3: Improve cultural diversity in the health professions

	What to Measure	Measurement Timeframe	Link to Funding	Link to Environment
<i>Outcome: Increase in the number of minority faculty</i>				
22.	Number of underrepresented minority faculty participating in faculty recruitment and/or development programs	X	X	X
23.	Number of underrepresented minorities serving as faculty	X	X	
<i>Outcome: Increase in the number of minority/disadvantaged graduates and/or program completers</i>				
24.	Number of minority/disadvantaged students or trainees who graduate and/or complete programs each year	X		X
25.	Number of minority/ disadvantaged students or trainees enrolled each year	X		X
26.	Number of minority/ disadvantaged secondary education students enrolled in academic enhancement and skills building programs	X	X	X
27.	Number of minority/ disadvantaged post-secondary education students enrolled in academic enhancement and skills building programs	X	X	X

Goal 4: Stimulate and Monitor Relevant Systems of Health Professions Education in Response to Changing Demands of the Health Care Marketplace

	What to Measure	Measurement Timeframe	Link to Funding	Link to Environment
<i>Outcome: Increase in the number of schools/programs with active partnerships or cooperative working agreements with public and private community based organizations, such as managed care sites, rural health organizations, community health centers, etc.</i>				
28. Number of schools/ programs providing training through formal partnerships or consortia arrangements among public entities and/or private health care organizations	X	X	X	
29. Number of trainees in structured educational programs in managed care sites, rural health organizations, community health centers, etc.	X	X	X	
30. Number of schools/ programs that train health professionals to identify and meet community needs	X	X	X	X
<i>Outcome: Increase in the number of schools/programs that use systematic community-related outcome performance measures in meeting market needs</i>				
31. Number of schools/ programs that develop community-related outcome performance measures	X	X		X
<i>Outcome: Increase in continuity of care training experiences</i>				
32. Number of trainees participating in community-based continuity of care experiences	X	X	X	X

APPENDIX A2
ANALYSIS OF INDICATOR ISSUES THAT
MAY REQUIRE FURTHER DISCUSSION

INDICATOR ISSUES THAT MAY REQUIRE FURTHER DISCUSSION

Unless otherwise noted, comments in *Strengths*, *Weaknesses*, and *Recommendations* columns for particular outcomes are relevant also to the indicators grouped under those outcomes.

<i>Goal 1</i>	<i>Strengths</i>	<i>Weaknesses</i>	<i>Recommendations/Strategies</i>
Promote a Health Care Workforce with a Mix of the Competencies and Skills Needed to Deliver Cost-Effective, Quality Care	<ul style="list-style-type: none"> ◆ GAO report noted that supply and distribution of health professionals are key to improved access. This goal makes an appropriate supply of health professionals a top priority. ◆ Addresses need for cost control while maintaining quality 	<ul style="list-style-type: none"> ◆ Does not address need to improve access explicitly as the reason for promoting Supply issues; access issues may need to be further emphasized, especially given recent reports (e.g. Pew Health Professions Commission) stating need to reduce number of health professionals. 	<ul style="list-style-type: none"> ◆ Reword to make goal emphasize that the supply of Bureau funded health professional must be maintained to meet demands of underserved populations, e.g. "...needed to improve access to cost-effective, quality care."

<i>Outcome</i>	<i>Indicator</i>	<i>Strengths</i>	<i>Weaknesses</i>	<i>Recommendations/Strategies</i>
A. Increase In the number of health professionals necessary to provide and support primary care		<ul style="list-style-type: none"> ◆ Addresses need for more primary care providers 	<ul style="list-style-type: none"> ◆ Need to show why BHP has a specific role in increasing the number of primary care givers ◆ Need to clarify measurement timeframe 	<ul style="list-style-type: none"> ◆ Reword to make goal emphasize that the supply of Bureau funded health professionals must be maintained to meet demand of underserved populations, e.g. "health professionals available to provide and support primary care needs in underserved areas." ◆ Specify time frame

DATA SOURCE SUGGESTIONS FROM "HPR REPRESENTATIVES (CONT.)
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<i>Outcomes</i>	<i>Indicators</i>	<i>Programs Related to Indicators</i>	<i>Suggested Data Sources</i>	<i>Current Availability of Data</i>	<i>Low Data Collection Burden</i>	<i>Data Are Collected Yearly</i>	<i>Data Are Complete</i>	<i>Data Are Accurate</i>
	6. Number of trainees in areas where there is an imbalance in competency and/or skill mix, such as ambulatory care, HIV/AIDS, health promotion and disease prevention, geriatrics, and substance abuse	<ul style="list-style-type: none"> ◆ Associated, Dental and Public Health Professions (AADS) ◆ Medicine (AHEC, APAP) ◆ Nursing (AACN) 	◆ AACN (# of NP Programs with Health Promotion Course)	C	—	N ¹⁸	Y ²⁰	Y
			◆ AACN (#of NP Geriatric Programs Master's/Post-Master's)	C	--	Y	Y ²¹	Y
			◆ AACN (# enrolled in graduate NP programs by specialty)	C	—	Y ¹⁹	N/A	N/A
			◆ AACN (# baccalaureate nursing programs having a separate community health course/ health promotion course)	C	--	N	Y ²²	Y
			◆ AHEC	M	N	N	N	N
			◆ AADS grantee	P	Y	N	N/A	N/A
			◆ ARF	N/A	N/A	N/A	N/A	N/A
			◆ AR - PAE	P ¹⁷	N/A	N	N	N

¹⁷ The data could be difficult to define and count.

¹⁸ The data are only available for 1994-1995.

¹⁹ The data will be available Spring 1996.

²⁰ There was a 83% response for the 1994-1995 survey administered by AACN.

²¹ There has been a 83% response rate for the annual survey administered by AACN

²² There has been a 80% response rate to the survey administered by AACN

DATA SOURCE SUGGESTIONS FROM IPR REPRESENTATIVES (CONT.)

<i>Outcomes</i>	<i>Indicators</i>	<i>Programs Related to Indicators</i>	<i>Suggested Data Sources</i>	<i>Current Availability of Data</i>	<i>Law Data Collection Burden</i>	<i>Data Are Collected Yearly</i>	<i>Data Are Complete</i>	<i>Data Are Accurate</i>
	7. Number of graduates and/or program completers providing services in areas where there is an imbalance in competency and/or skill mix, such as ambulatory care, HIV/AIDS, health promotion and disease prevention, geriatrics, and substance abuse	<ul style="list-style-type: none"> • Associated. Dental and Public Health Professions (AADS -AIDS dental, ASPH) ◆ Medical (AHEC, APAP), Nursing (AACN) 	<ul style="list-style-type: none"> ◆ AACN (#of NP graduates and all BSN & MSN graduates with employment commitments) ◆ AHEC ◆ AADS grantee ◆ ARF/ AAMC ◆ AR - PAE ◆ ASPH alumni survey 	<p align="center">C²³</p> <p align="center">P P N/A P²⁴ P</p>	-	N/A	W A	N/A
C. Increase in the number of interdisciplinary collaborations	8. Number of clinical experiences involving interdisciplinary teams to meet community needs	<ul style="list-style-type: none"> ◆ Associated. Dental and Public Health Professions (AADS - geriatric training) • Medicine (AHEC, APAP, AAFP) 	<ul style="list-style-type: none"> ◆ AHEC ◆ AADS grantee ◆ AAMC ◆ AR - PAE ◆ IGC project²⁵ 	P P N/A P P	N Y N/A N/A N/A	N N N/A N N	N N/A N/A N N/A	N N/A N/A N N/A
	9. Number of students receiving interdisciplinary team experiences	<ul style="list-style-type: none"> ◆ Associated, Dental and Public Health Professions (AADS - geriatric training) ◆ Medicine (AHEC, APAP, AAFP) 	<ul style="list-style-type: none"> ◆ AHEC ◆ AADS grantee ◆ AAMC ◆ AR - PAE ◆ IGC project 	P P N/A P P	N Y N/A N/A N/A	N N N/A N N	N N/A N/A N N/A	N N/A N/A N N/A

²³ The data will be available December 1995.

²⁴ The data could be difficult to define and count.

²⁵ The IGC project which is funded by HRSA to STFM on behalf of PCOC is currently conducting evaluations and is scheduled for completion in 1998.

National Workforce Goal:

II. Support Educational Programs' Ability to Meet the Needs of Vulnerable Populations

<i>Outcomes</i>	<i>Indicators</i>	<i>Programs Related to Indicators</i>	<i>Suggested Data Sources</i>	<i>Current Availability of Data</i>	<i>Low Data Collection Burden</i>	<i>Data Are Collected Yearly</i>	<i>Data Are Complete</i>	<i>Data Are Accurate</i>
A. Increase in the number of faculty and trainees in settings serving underserved areas, low-income populations, and/or high-risk populations	14. Number of faculty with practices serving underserved areas, low-income populations, and/or high-risk populations	<ul style="list-style-type: none"> ◆ Associated, Dental and Public Health Professions (AADS) ◆ Medicine (AHEC, APAP) ◆ Nursing (AACN) 	<ul style="list-style-type: none"> ◆ AACN (NP faculty practice) ◆ AHEC ◆ AADS ◆ ARF/ AAMC ◆ AR - PAE 	C	-	N ²⁸	Y	Y
				M	Y	N	N	N
				P	Y	N	N/A	N/A
				N/A	N/A	N/A	N/A	N
	15. Number of student hours in clinical training with health care service delivery organizations serving underserved areas, low-income populations, and/or high-risk populations		<ul style="list-style-type: none"> ◆ AACN ◆ AHEC ◆ AADS ◆ AR-PAE 	N/A	N/A	N/A	N/A	N/A
N/A				N/A	N/A	N/A	N/A	
N/A				N/A	N/A	N/A	N/A	
N/A				N/A	N/A	N/A	N/A	
	16. Number of student hours in didactic training which address health care issues related to underserved areas, low-income populations, and/or high-risk populations		<ul style="list-style-type: none"> ◆ AACN ◆ AHEC ◆ AADS ◆ AR-PAE 	N/A	N/A	N/A	N/A	N/A
N/A				N/A	N/A	N/A	N/A	
N/A				N/A	N/A	N/A	N/A	
N/A				N/A	N/A	N/A	N/A	
	17. Number of continuing education experiences addressing issues related to underserved areas, low-income populations, and/or high-risk populations		<ul style="list-style-type: none"> ◆ AACN ◆ AHEC ◆ AADS ◆ AR-PAE 	N/A	N/A	N/A	N/A	N/A
N/A				N/A	N/A	N/A	N/A	
N/A				N/A	N/A	N/A	N/A	
N/A				N/A	N/A	N/A	N/A	

²⁸ The most current data are from 1993.

DATA SOURCE SUGGESTIONS FROM BHPR REPRESENTATIVES (CONT.)

<i>Outcomes</i>	<i>Indicators</i>	<i>Programs Related to Indicators</i>	<i>Suggested Data Sources</i>	<i>Current Availability of Data</i>	<i>Low Data Collection Burden</i>	<i>Data Are Collected Yearly</i>	<i>Data Are Complete</i>	<i>Data Are Accurate</i>
	18. Number of schools/ program, that have a mission statement and/or formal Policies addressing issues related to underserved areas, low-income populations, and/or high-risk populations		<ul style="list-style-type: none"> ◆ AACN ◆ AHEC ◆ AADS ◆ AR-PAP, ◆ A A M C 	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A
B. Increase in the number of graduates and/or program completers practicing in underserved areas, low-income populations, and/or high-risk populations	19. Number of graduates entering residencies that serve underserved areas, low-income populations, and/or high-risk populations	<ul style="list-style-type: none"> ◆ Associated, Dental and Public Health Professions (AADS) ◆ Medicine (AHEC, AAMC, AAFP) ◆ Student Assistance (NAMME) 	<ul style="list-style-type: none"> ◆ AHEC ◆ AADS grantee ◆ AHA ◆ AAMCJARF ◆ JAMA/NEJM/ Journal of Family Practice/ Western Journal of Medicine/ Academic Medicine/ AAFP report²⁹ 	C ³⁰ C C P P	Y Y — N/A N/A	Y N ³¹ N/A N/A N/A	Y N/A N/A N/A N/A	Y N/A N/A N/A N/A

²⁹ Most of the studies target strategies for recruiting physicians to rural and underserved areas.

³⁰ The data are currently collected for all applicable AHEC programs

³¹ Currently, the data are reported according to a three year grant cycle.

DATA SOURCE SUGGESTIONS FROM BHPR REPRESENTATIVES (CONT.)

<i>Outcomes</i>	<i>Indicators</i>	<i>Programs Related to Indicators</i>	<i>Suggested Data Sources</i>	<i>Current Availability of Data</i>	<i>Low Data Collection Burden</i>	<i>Data Are Collected Yearly</i>	<i>Data Are Complete</i>	<i>Data Are Accurate</i>
	10 Number of graduates who enter practice in underserved areas, low-income populations, and/or high-risk populations	<ul style="list-style-type: none"> ▶ Associated, Dental and Public Health Professions (AADS, ASPH) ▶ Medicine (AHEC, APAP, AAFP) ▶ Nursing (AACN) 	<ul style="list-style-type: none"> ◆ AACN (# NPs from graduate programs employed in community based sites) ◆ AACN (national sample survey) ◆ AACN (survey of certified NPs and Clinical Nurse Specialists) ◆ AHEC ◆ AADS grantee ◆ AAMC ◆ PAE Programs ◆ AR - PAE ◆ ASPH alumni survey ◆ Journals/ AAFP report 	<p align="center">C</p> <p align="center">C</p> <p align="center">C</p> <p align="center">C³²</p> <p align="center">C</p> <p align="center">N/A</p> <p align="center">C</p> <p align="center">P</p> <p align="center">P</p> <p align="center">P</p>	<p align="center">--</p> <p align="center">--</p> <p align="center">-</p> <p align="center">Y</p> <p align="center">Y</p> <p align="center">N/A</p> <p align="center">-</p> <p align="center">N/A</p> <p align="center">-</p> <p align="center">N</p> <p align="center">N/A</p>	<p align="center">N³³</p> <p align="center">N³⁴</p> <p align="center">N³⁵</p> <p align="center">Y</p> <p align="center">N³⁶</p> <p align="center">N/A</p> <p align="center">Y</p> <p align="center">N</p> <p align="center">N/A</p> <p align="center">N/A</p>	<p align="center">N/A</p> <p align="center">N/A</p> <p align="center">N/A</p> <p align="center">Y</p> <p align="center">N/A</p> <p align="center">N/A</p> <p align="center">N</p> <p align="center">N</p> <p align="center">N/A</p> <p align="center">N/A</p>	<p align="center">N/A</p> <p align="center">N/A</p> <p align="center">N/A</p> <p align="center">Y</p> <p align="center">N/A</p> <p align="center">N/A</p> <p align="center">N</p> <p align="center">N</p> <p align="center">N/A</p> <p align="center">N/A</p>
	21. Number of graduates and/or program completers who remain in practice settings serving underserved areas, low-income populations, and/or high-risk populations	<ul style="list-style-type: none"> ◆ Associated, Dental and Public Health Professions (AADS) ◆ Medicine (AHEC, APAP, AAPP) 	<ul style="list-style-type: none"> ◆ AHEC ◆ AADS ◆ AAMC/ ARF/ Annual PPC ◆ Journals/ AAFP report 	<p align="center">M</p> <p align="center">C/P³⁷</p> <p align="center">P</p> <p align="center">N/A</p>	<p align="center">N</p> <p align="center">Y</p> <p align="center">N/A</p> <p align="center">N/A</p>	<p align="center">N</p> <p align="center">N³⁸</p> <p align="center">N/A</p> <p align="center">N/A</p>	<p align="center">N</p> <p align="center">N/A</p> <p align="center">N/A</p> <p align="center">N/A</p>	<p align="center">N</p> <p align="center">N/A</p> <p align="center">N/A</p> <p align="center">N/A</p>

³² The data are currently collected for all applicable AHEC programs

³³ The data on graduates are from 1991-1993.

³⁴ The data are available from DHHS - Division of Nursing. The survey was conducted in 1992.

³⁵ The data are available from DHHS - Division of Nursing. The survey was conducted in 1992 and published in 1994.

³⁶ Currently, the data are reported according to a three year grant cycle.

³⁷ Some additional Programs could collect the data, so long as tracking is not required for an unreasonable period of time.

³⁸ Currently, the data are reported according to a three year grant cycle.

DATA SOURCE SUGGESTIONS FROM JHP REPRESENTATIVES (CONT.)

National Workforce Goal:

III. Improve diversity in the health professions.

Outcomes	Indicators	Programs Related to Indicators	Suggested Data Sources	Current Availability of Data	Low Data Collection Burden	Data Are Collected Yearly	Data Are Complete	Data Are Accurate
A. Increase in the number of minority faculty	22. Number of underrepresented minority faculty participating in faculty recruitment and/or development programs	<ul style="list-style-type: none"> ◆ Associated. Dental and Public Health Professions (AADS, ASPH) ◆ Medicine (AHEC, APAP) ◆ Student Assistance (NAMME) 	◆ AHEC	P	N	N	N	N
			◆ Employee I Institutional records	C	—	Y	Y	Y
			◆ AADS grantee	P	Y	N	Y	Y
			◆ AAMC/ ARF	N/A	N/A	N/A	N/A	N/A
			◆ AR - PAE	P	N/A	N	N	N
◆ ASPH annual faculty survey	M	Y	N/A	N/A	N/A			
	23. Number of underrepresented minorities serving as faculty	<ul style="list-style-type: none"> ◆ Associated. Dental and Public Health Professions (AADS, ASPH) ◆ Medicine (AHEC, APAP, AAMC) ◆ Student Assistance (NAMME) ◆ Nursing (AACN) 	◆ AACN (race/ ethnicity data on undergraduate & graduate nursing faculty)	C	—	Y	Y	Y
			◆ AHEC	M	Y	N	N	N
			◆ Employee-faculty /institutional records	C	—	Y	Y	Y
			◆ AADS grantee	P	Y	N	Y ³⁹	Y
			◆ AAMC Faculty Roster	C	—	Y	N	Y
			◆ AR - PAE	C	..	Y	Y	Y
			◆ ARF	P	N/A	N/A	N/A	N/A
			◆ ASPH annual faculty survey	C	..	Y	Y	Y

³⁹ The numbers could be determined by counting the faculty from existing data

DATA SOURCE SUGGESTIONS FROM BHPR REPRESENTATIVES (CONT.)

<i>Outcomes</i>	<i>Indicators</i>	<i>Programs Related to Indicators</i>	<i>Suggested Data Sources</i>	<i>Current Availability of Data</i>	<i>Low Data Collection Burden</i>	<i>Data Are Collected Yearly</i>	<i>Data Are Complete</i>	<i>Data Are Accurate</i>	
3. Increase in the number of minority/disadvantaged graduates and/or program completers	14. Number of minority/disadvantaged students or trainees who graduate and/or complete programs each year	<ul style="list-style-type: none"> ◆ Associated, Dental and Public Health Professions (AADS, ASPH) ◆ Medicine (AHEC, APAP, AAMC) ◆ Nursing (AACN) ◆ Student Assistance (NAMME) 	◆ AACN (race/ethnicity data on graduates from undergraduate & graduate schools)	C	-	Y	Y	Y	
			◆ AHEC	C	..	Y	Y	Y	
			◆ NAMME program records	C	-	N ⁴¹	Y	Y	Y
			◆ AADS grantee	C ⁴⁰	-	Y	Y	Y	Y
			◆ AAMC graduate & GME data	C	-	Y	Y	Y	Y
			◆ AR - PAE	C	-	Y	Y	Y	Y
	15. Number of minority/disadvantaged students or trainees enrolled each year	<ul style="list-style-type: none"> ◆ Associated, Dental and Public Health Professions (AADS, ASPH) ◆ Medicine (AHEC, APAP, AAMC) ◆ Nursing (AACN) ◆ Student Assistance (NAMME) 	◆ AACN (race/ethnicity data on enrollees)	C	..	Y	Y	Y	
			◆ AHEC	C	..	Y	Y	Y	
			◆ NAMME program /admissions records	C/P	Y	N ⁴²	Y	Y	Y
			◆ AADS grantee	C	-	Y	Y	Y	Y
			◆ AAMC enrollment & GME data	C	..	Y	Y	Y	Y
			◆ AR - PAE	C	..	Y	Y	Y	Y
	26. Number of minority/disadvantaged secondary education students enrolled in academic enhancement and skills building programs	<ul style="list-style-type: none"> ◆ Associated, Dental and Public Health Professions (AADS) ◆ Medicine (AHEC, APAP) ◆ Student Assistance (NAMME) 	◆ AHEC - Office of Minority Affairs	P	N	N	N	N	
			◆ NAMME program data	C	-	Y	Y	Y	
			◆ AADS grantee	UP	Y	N	NIA	NIA	N/A
			◆ AAMC	N/A	NIA	NIA	NIA	NIA	N/A

⁴⁰ The data are not available at the program or hospital level.

⁴¹ Currently, the data are reported according to a three year grant cycle

⁴² Currently, the data are reported according to a three year grant cycle.

DATA SOURCE SUGGESTIONS FROM JHPR REPRESENTATIVES (CONT.)

<i>Outcomes</i>	<i>Indicators</i>	<i>Programs Related to Indicators</i>	<i>Suggested Data Sources</i>	<i>Current Availability of Data</i>	<i>Low Data Collection Burden</i>	<i>Data Are Collected Yearly</i>	<i>Data Are Complete</i>	<i>Data Are Accurate</i>
	27. Number of minority/disadvantaged post-secondary education students enrolled in academic enhancement and skills building programs	<ul style="list-style-type: none"> ◆ Associated. Dental and Public Health Professions (AADS) • Medicine (AHEC, APAP) ◆ Student Assistance (NAMME) 	<ul style="list-style-type: none"> ◆ AHEC - Office of Minority Affairs ◆ NAMME program data ◆ AADS grantee ◆ AAMC 	<p>P</p> <p>C</p> <p>U P</p> <p>P</p>	<p>N</p> <p>—</p> <p>Y</p> <p>N/A</p>	<p>N</p> <p>Y</p> <p>N⁴³</p> <p>N/A</p>	<p>N</p> <p>Y</p> <p>N/A</p> <p>N/A</p>	<p>N</p> <p>Y</p> <p>N/A</p> <p>N/A</p>

⁴³ For those programs applying for a grant, the data are reported every three years.

DATA SOURCE SUGGESTIONS FROM BHP REPRESENTATIVES (CONT.)

National Workforce Goal:

IV. Stimulate and Monitor Relevant Systems of Health Professions Education in Response to Changing Demands of the Health Care Marketplace

Outcomes	Indicators	Programs Related to Indicators	Suggested Data Sources	Current Availability of Data	Low Data Collection Burden	Data Are Collected Yearly	Data Are Complete	Data Are Accurate
A. Increase in the number of schools/ programs with active partnerships or cooperative working agreements with public and private community based organizations, such as managed care sites, rural health organizations, community health centers, et cetera.	28. Number of schools/ programs providing training through formal partnerships or consortia arrangements among public entities and/or private health care organizations	<ul style="list-style-type: none"> Associated, Dental and Public Health Professions (AADS, ASPH) Medicine (AHEC, APAP) Nursing (AACN) 	<ul style="list-style-type: none"> AACN (NP programs master's & post-masters using community-based sites for clinical experiences) AHEC AADS grantee AAMC AR - PAB ASPH annual data survey 	C	--	N ⁴⁴	N/A	N/A
	29. Number of trainees in structured educational programs in managed care sites, rural health organizations, community health centers, et cetera	<ul style="list-style-type: none"> Associated, Dental and Public Health Professions (AADS) Medicine (AHEC, APAP) 	<ul style="list-style-type: none"> AHEC AADS grantee AAMC AR - PAB 	C P P P	Y Y N/A N/A	Y N N/A N	Y N/A N/A N	Y N/A N/A N
	30. Number of schools/ programs that train health professionals to identify and meet community needs	<ul style="list-style-type: none"> Associated, Dental and Public Health Professions (AADS, ASPH) Medicine (AHEC, APAP) 	<ul style="list-style-type: none"> AHEC AADS grantee AAMC AR - PAB ASPH alumni survey 	C P N/A P P	Y Y N/A N/A N	Y N N/A N N/A	Y N/A N/A N N/A	Y N/A N/A N N/A

⁴⁴ The data are only available for 1991-1993.

⁴⁵ For those programs applying for a grant, the data are reported every three years.

DATA SOURCE SUGGESTIONS FROM JHPR REPRESENTATIVES (CONT.)

<i>Outcomes</i>	<i>Indicators</i>	<i>Programs Related to Indicators</i>	<i>Suggested Data Sources</i>	<i>Current Availability of Data</i>	<i>Low Data Collection Burden</i>	<i>Data Are Collected Yearly</i>	<i>Data Are Complete</i>	<i>Data Are Accurate</i>
B. Increase in the number of schools/programs that use systematic community-related outcome performance measures in meeting market needs	31. Number of schools/programs that develop community-related outcome performance measures	<ul style="list-style-type: none"> ◆ Associated. Dental and Public Health Professions (AADS, ASPH) ◆ Medicine (APAP) 	<ul style="list-style-type: none"> ◆ AADS grantee ◆ AAMC ◆ AR - PAE ◆ ASPH annual data survey 	P N/A P M	Y N/A N/A Y	N N/A N N/A	N/A N/A N N/A	N/A N/A N N/A
C. Increase in continuity of care training experiences	32. Number of trainees participating in community-based continuity of care experiences	<ul style="list-style-type: none"> ◆ Associated. Dental and Public Health Professions (AADS) ◆ Medicine (APAP, AAFP) 	<ul style="list-style-type: none"> ◆ AADS grantee ◆ AAMC/ ARP ◆ AR - PAE ◆ IGC project 	P N/A P P	Y N/A N/A N/A	N N/A N N	N/A N/A N N/A	N/A N/A N N/A

**ACRONYMS/ABBREVIATIONS USED THROUGHOUT
DATA SOURCE SUGGESTIONS FOR THE BHPR INDICATORS**

AACN	American Association of Colleges of Nursing
AADS	American Association of Dental Schools
AAFP	American Academy of Family Physicians
AAMC	Association of American Medical Colleges
AHA	American Hospital Association
AHEC	Area Health Education Center Programs
APAP	Association of Physician Assistant Programs
APPC	Annual Physician Practice Census
AR-PAE	Annual Report on Physician Assistant Education
ARF	Area Resource File
ASPH	Association of Schools of Public Health
BSN	Bachelor of Science in Nursing
DDCSS	Drug Dependency Clinic Support System
FP Residents	Family Practice Residents
GAO/HEHS	General Accounting Office/ Health, Education, and Human Services Division
GME	Graduate Medical Education
HCOP MIS	Health Careers Opportunity Program Management Information systems
HRP	Health Related Professions
HRSA	Health Resources and Services Administration
IGC project	Interdisciplinary Generalist Curriculum
IOM report	Institute of Medicine
JAMA	Journal of the American Medical Association
MSN	Masters of Science in Nursing
NAMME	National Association of Medical Minority Educators
NEJM	New England Journal of Medicine
NP	Nurse Practitioners
PCOC	Primary Care Organizations Consortium
STFM	Society of Teachers of Family Medicine

INDICATOR ISSUES THAT MAY REQUIRE FURTHER DISCUSSION (CONT.)

Outcome	Indicator	Strengths	Weaknesses	Recommendations/Strategies
	1. Number of graduates and/or program completers of <u>primary care</u> tracks by discipline	<ul style="list-style-type: none"> ◆ Specifies discipline to facilitate tracking 	<ul style="list-style-type: none"> ◆ Definition of “primary care tracks” and “discipline” not clear 	<ul style="list-style-type: none"> ◆ Provide a list of primary care tracks to facilitate standardization of reporting ◆ Provide cross-cutting definition of primary care and rationale for why more is needed; i.e., the market will not take care of primary care needs
	2. Number of graduates and/or program completers of health professions programs that <u>support primary care</u> by discipline	<ul style="list-style-type: none"> ◆ Measures impact of graduates on meeting primary care needs 	<ul style="list-style-type: none"> ◆ Scope of measurement not clear. e.g. how to measure “support”? 	<ul style="list-style-type: none"> ◆ Define “support” and establish a minimum standard. (Should some disciplines inherently offer more “support” than others? What effect does this have on the meaning of this bean count?)
	3. Number of schools/ programs with a <u>mission statement and/or formal policies</u> supporting primary care	<ul style="list-style-type: none"> ◆ Many programs have mission statements; the indicator potentially could be used in Phase III to monitor comparative, non-BHPr funded programs 	<ul style="list-style-type: none"> ◆ Scope of measurement not clear because the content of a mission statement may vary, e.g. how to measure “supporting primary care?” ◆ The indicator measures process rather than outcome; does not show evidence of policy implementation. 	<ul style="list-style-type: none"> ◆ Reference literature on use of mission statements in performance evaluation to identify strategies in best use of this indicator (some participants said evidence exists) ◆ Rework to make indicator outcome-oriented ◆ Continue to evaluate the linkage between mission statement content and later development of primary care providers

INDICATOR ISSUES THAT MAY REQUIRE FURTHER DISCUSSION (CONT.)

Outcome	Indicator	Strengths	Weaknesses	Recommendations/Strategies
<p>B. Increase In program responsiveness to forecasted imbalances in health professions supply, competency, and skill mix</p>		<ul style="list-style-type: none"> ◆ Focus on “imbalances” emphasizes BHP’s attention to meeting health access needs 	<ul style="list-style-type: none"> ◆ The outcome and its related indicators measure process rather than outcome ◆ Not clear what benchmarks are used to determine “imbalances” – is “balance” achievable only through one “staffing” model? ◆ Data reporting, tracking, and comparisons may be difficult, as issues may be numerous and change over time, and different grantees may be asked to respond to different forecasts ◆ Questionable reliability of forecasts needs to be addressed ◆ Need to specify and relate time frames for determining the degree of responsiveness to need and for detecting imbalances on a continuing basis ◆ Not clear what evidence exists that Bureau funding results in increased responsiveness as a direct output ◆ Need to clarify measurement timeframe 	<ul style="list-style-type: none"> ▶ Need to make very clear how “imbalance” is defined and measured, and what constitutes “responsiveness” ◆ Specify that imbalances are relative to national benchmarks, e.g. HP2000. ◆ Specify which forecasts/results the grantees will be asked to respond to ◆ Clarify who is doing the surveillance in order to ensure objectivity of data surveillance (e.g. convene a working group to conduct surveillance and establish regular, periodic information dissemination to grantees) ◆ Specify measurement timeframe³
	<p>4. Number of programs that <u>address issues raised</u> by workforce analysis and surveillance</p>	<ul style="list-style-type: none"> ◆ Makes programs accountable for identified problems 	<ul style="list-style-type: none"> • Scope of measurement not clear, e.g. how to measure “address issues”? ◆ What are threshold criteria for “raising an issue;” seems like this is equivalent to signaling a problem 	<ul style="list-style-type: none"> ◆ Establish parameters for the measurement of “address issues”, c.g. if the “imbalance” is measured in terms of a percentage, the indicator could be the number of grantees that reduce the margin of imbalance by X%. ◆ Focus on a narrow set of care “issues” and model of good care balance within narrower context, e.g. AIDS care for South American immigrants in urban areas

INDICATOR ISSUES THAT MAY REQUIRE FURTHER DISCUSSION (CONT.)

<i>Goal 2</i>	<i>Strengths</i>	<i>Weaknesses</i>	<i>Recommendations/Strategies</i>
Support Educational Programs' Ability to Meet the Needs of Vulnerable Populations	<ul style="list-style-type: none"> Shows BHP's commitment to health care infrastructure that provides care to the underserved 	<ul style="list-style-type: none"> May be difficult to trace changes in this goal to BHP funding, e.g. multiple sources of funding support this goal 	<ul style="list-style-type: none"> Further elaboration on BHP's special role in entrancing program "ability"

<i>Outcome</i>	<i>Indicator</i>	<i>Strengths</i>	<i>Weaknesses</i>	<i>Recommendations/Strategies</i>
A. Increase in the number of faculty and trainees in settings serving underserved areas, low-income populations, and/or high-risk populations		<ul style="list-style-type: none"> Emphasizes training of health professionals to improve access to care; shows that while some reports criticize the rising number of health professionals, growth is still needed in underserved areas 	<ul style="list-style-type: none"> Need to define and to track/identify continuously "underserved areas, low-income populations, and/or high risk populations" Link to goal is unclear, e.g. how will being trained in the "right" setting show how grantees are able to meet needs Measurement timeframe not clear 	<ul style="list-style-type: none"> Define areas and populations explicitly and specify process for updating Reword to make outcome focus on how BHP enhances grantees' "ability to meet the needs of vulnerable populations", e.g. add "...in order to develop competencies and skill mixes and foster a sustained career service interest that will facilitate access for vulnerable populations in these areas" Specify measurement timeframe
	t4. Number of faculty with practices serving underserved areas, low-income populations, and/or high-risk populations	<ul style="list-style-type: none"> Strong link to outcome 	<ul style="list-style-type: none"> Indicator is process rather than outcome oriented, e.g. need to strengthen link between having faculty practices that serve the underserved and influence on training of other health professionals 	<ul style="list-style-type: none"> Reword to set parameters on how to define faculty for measurement (e.g. number of primary care faculty vs. whole faculty?) Rewording suggestion: Percentage of faculty instead of number Rewording suggestion: Percentage of faculty FTEs spent delivering services via practice... Cite/conduct research to show effectiveness of this indicator

INDICATOR ISSUES THAT MAY REQUIRE FURTHER DISCUSSION (CONT.)

<i>Outcome</i>	<i>Indicator</i>	<i>Strengths</i>	<i>Weaknesses</i>	<i>Recommendations/Strategies</i>
	15. Number of student hours in clinical training with <u>health care service delivery organizations serving underserved areas, low-income populations, and/or high-risk populations</u>	▶ Measures student participation directly	▶ Unit of measurement (hours) may be difficult for grantees to collect	Identify organizations ▶ How to compare by hours? Some issues may not require as many hours of instruction; define to be percentage of all clinical training or percentage of all training
	16. Number of student hours in <u>didactic training</u> which address health care issues related to <u>underserved areas, low-income populations, and/or high-risk populations</u>	◆ Measures student participation directly	◆ Unit of measurement (hours) may be difficult for grantees to collect	▶ Identify organizations ▶ How to compare by hours? Small programs may be at a disadvantage because some issues may not require as many hours of instruction ◆ Rewording suggestion: Percent of hours of classroom training
	17. Number of <u>continuing education experiences</u> addressing issues related to <u>underserved areas, low-income populations, and/or high-risk populations</u>	◆ Demonstrates BHP's attention to continuing development of health professionals	◆ Indicator is process rather than outcome oriented ◆ May be difficult to attribute these experiences to the influence of BHP ◆ It can be argued that issues related to non-target populations also address these specific populations May be difficult to determine that the needs of target populations are explicitly being addressed.	◆ Reword indicator to make it more outcome oriented, e.g. measure how many students take advantage of these opportunities ◆ Make clear in rewording that experiences result from grant funding by BHP and that the needs of the target populations are specifically addressed
	18. Number of schools/programs that have a <u>mission statement and/or formal policies</u> addressing issues related to <u>underserved areas, low-income populations, and/or high-risk populations</u>	◆ Many programs have mission statements; the indicator potentially could be used in Phase III to monitor comparative, non-BHP funded programs	◆ Does not show evidence of policy implementation ◆ Scope of measurement not clear because content of mission statement may vary, e.g. how to measure "addressing issues related to"? This may involve a wide range of grantee foci, so it may be difficult to determine that the needs of target populations are explicitly being addressed	◆ Reference literature on use of mission statements in performance evaluation to identify strategies in best use of this indicator ◆ Reword to make indicator show evidence of policy implementation, and "issues" more directly targeted to health risks, behavior, and other characteristics relevant to care for these populations

INDICATOR ISSUES THAT MAY REQUIRE FURTHER DISCUSSION (CONT.)

<i>Outcome</i>	<i>Indicator</i>	<i>Strengths</i>	<i>Weaknesses</i>	<i>Recommendations/Strategies</i>
B. Increase in the number of graduates and/or program completers practicing in underserved areas, low-income populations, and/or high-risk populations		<ul style="list-style-type: none"> ◆ Measures number of students who remain in these areas to practice ◆ Strong link to goal 	<ul style="list-style-type: none"> ◆ May be difficult to track ◆ Not clear what constitutes “underserved areas, low-income populations, and/or high risk populations” ◆ Need to define and to track/identify continuously “underserved areas, low income populations, and/or high-risk populations.” 	<ul style="list-style-type: none"> ◆ Include a feasible time frame for tracking, e.g. 1 year, 3 years, 5 years after graduation ◆ Define areas and population explicitly and specify process for updating
	19. Number of graduates entering residencies that serve <u>underserved areas, low-income populations, and/or high-risk populations</u>	<ul style="list-style-type: none"> ◆ Measures service to vulnerable populations directly 	<ul style="list-style-type: none"> ◆ Measures process rather than outcome 	<ul style="list-style-type: none"> ◆ The indicator could be more outcome oriented if reworded to “enter and complete residencies,” or if “residency” was changed to provide non-medical variants in the wording
	20. Number of graduates and/or program completers who enter practice in <u>underserved areas, low-income populations, and/or high-risk populations</u>	<ul style="list-style-type: none"> ◆ Good follow-up to #19 ◆ Addresses access issue 	<ul style="list-style-type: none"> ◆ May be difficult to attribute changes in indicator to BHP funding; many reasons why graduates may choose to enter practice in these areas ◆ Tracking may be difficult 	<ul style="list-style-type: none"> ◆ include a feasible time frame for tracking, e.g. “enter practice within 1-3 years”
	21. Number of graduates and/or program completers who remain in practice settings serving <u>underserved areas, low-income populations, and/or high-risk populations</u>	<ul style="list-style-type: none"> ◆ Good follow-up to #20 ◆ Addresses access issue 	<ul style="list-style-type: none"> ◆ May be difficult to attribute changes in this indicator to BHP funding ◆ Tracking may be difficult 	<ul style="list-style-type: none"> ◆ Set limits on the time that will be tracked and monitor regularly, e.g., “remaining three years after graduation,” “five years after,” “10 years after.” ◆ Supplement monitoring with periodic, discrete evaluation studies

INDICATOR ISSUES THAT MAY REQUIRE FURTHER DISCUSSION (CONT.)

<i>Goal 3</i>	<i>Strengths</i>	<i>Weaknesses</i>	<i>Recommendations/Strategies</i>
Improve cultural diversity in the health professions	<ul style="list-style-type: none"> Promotes better access to care for underserved areas because professionals will be more sensitive to the needs of these vulnerable populations 	<ul style="list-style-type: none"> Goal does not explicitly address outcome of improving access. GAO report was very critical of BHP's inability to show that increased diversity led to actual improvement in access to care; this measure does not address that criticism. 	<ul style="list-style-type: none"> Specify grantees in order to facilitate data collection Link to access improvement via increased cultural competence to delivering culturally appropriate care

<i>Outcome</i>	<i>Indicator</i>	<i>Strengths</i>	<i>Weaknesses</i>	<i>Recommendations/Strategies</i>
A. Increase in the number of minority faculty		<ul style="list-style-type: none"> Addresses need for faculty that represents and may have a better understanding of the vulnerable populations that the BHP serves. 	<ul style="list-style-type: none"> Need to show effect of increase on access improvements Not clear how one will define "minority" 	<ul style="list-style-type: none"> Define "minority" and do evaluation study to measure effectiveness of intervention
	22. Number of <u>underrepresented minority</u> faculty participating in faculty recruitment and/or development programs	<ul style="list-style-type: none"> Strong link to outcome 	<ul style="list-style-type: none"> May be difficult to (race changes in this indicator to BHP funding Not clear what "underrepresented minority" means Scope of measurement not clear, e.g. how to measure "participating"? 	<ul style="list-style-type: none"> Reword to make the indicator outcome-oriented, e.g. "Percent of underrepresented faculty who direct or play a lead role in faculty development" Define "underrepresented"
	23. Number of <u>underrepresented minorities</u> serving as faculty	<ul style="list-style-type: none"> Strong link to outcome 	<ul style="list-style-type: none"> Scope of measurement not clear, e.g. not clear what "underrepresented minority" means, include total faculty or new (within three years of service)? 	<ul style="list-style-type: none"> Define "underrepresented," i.e., previously underrepresented on their faculty? Based on local population distribution? Relative to national population? Relative to patient population? Specify parameters for counting faculty, e.g. FTEs
B. Increase in the number of minority/disadvantaged graduates and/or program completers		<ul style="list-style-type: none"> Demonstrates BHP's attention to diversifying health professions supply 	<ul style="list-style-type: none"> Need to show effect of increase on access improvements Not clear what constitutes "minority/disadvantaged" This is a process measure if ultimate concern is access to care for patients with backgrounds similar to graduates and completers 	<ul style="list-style-type: none"> Link this to improving access to underserved areas Define "minority/disadvantaged" so that term adjusts to changing American demographics

INDICATOR ISSUES THAT MAY REQUIRE FURTHER DISCUSSION (CONT.)

<i>Outcome</i>	<i>Indicator</i>	<i>Strengths</i>	<i>Weaknesses</i>	<i>Recommendations/Strategies</i>
	24. Number of minority/disadvantaged students or trainees who graduate and/or complete programs each year	<ul style="list-style-type: none"> ◆ Shows whether BHP's support of students and trainees produces actual graduates who are trained to serve ◆ Can be compared to #25 to see what use of BHP dollars is 	<ul style="list-style-type: none"> ▶ Does not tell whether graduates stay in the field, or where they serve 	<ul style="list-style-type: none"> ▶ Add an indicator that measures the percentage who go on to practice in underserved areas ▶ Reword to make the indicator more outcome-oriented, e.g. "number of minority/disadvantaged graduates and/or program completers"
	25. Number of minority/disadvantaged students or trainees enrolled each year	<ul style="list-style-type: none"> ◆ Good baseline measure 	<ul style="list-style-type: none"> ◆ Indicator is process rather than outcome focused, e.g. does not tell whether enrollees continue; whether enrollees graduate; or whether graduates stay in the field 	<ul style="list-style-type: none"> ◆ Reword indicator to make it more outcome oriented, e.g. measure impact on access ◆ Add an indicator that measures the percentage who go on to practice in underserved areas
	26. Number of minority/disadvantaged secondary education students enrolled in academic enhancement and skills building programs	<ul style="list-style-type: none"> ◆ Specifies type of students to count 	<ul style="list-style-type: none"> ◆ Indicator is process rather than outcome focused, e.g. not clear how academic enhancement and skills building programs lead to increased diversity and number of graduates ◆ Need to have readily available research to demonstrate effectiveness of this early intervention ◆ Skill-building programs may lead to something totally unrelated to health care for vulnerable populations ◆ Measurement timeframe. not clear 	<ul style="list-style-type: none"> ◆ Provide evidence on how these skills enhance development of professionals with appropriate skill mix for delivering care to underserved areas ◆ Reword to make the indicator more outcome-oriented and specifically health care related ◆ Specify timeframe

INDICATOR ISSUES THAT MAY REQUIRE FURTHER DISCUSSION (CONT.)

<i>Outcome</i>	<i>Indicator</i>	<i>Strengths</i>	<i>Weaknesses</i>	<i>Recommendations/Strategies</i>
	27 Number of minority/ disadvantaged post-secondary education students enrolled in academic enhancement and skills building programs	<ul style="list-style-type: none"> ◆ Specifics type of students to count 	<ul style="list-style-type: none"> ◆ Indicator is process rather than outcome focused, e.g. does not tell whether enrollees continue; whether enrollees graduate; or whether graduates stay in the field ◆ Need to have readily available research to demonstrate effectiveness of this early intervention ◆ Skill-building programs may lead to something totally unrelated to health care for vulnerable populations ◆ Measurement timeframe not clear 	<ul style="list-style-type: none"> ◆ Provide evidence on how these skills enhance development of professionals with appropriate skill mix for delivering care to underserved areas ◆ Rework to make the indicator more outcome-oriented and specifically health care related ◆ Specify timeframe

INDICATOR ISSUES THAT MAY REQUIRE FURTHER DISCUSSION (CONT.)

Goal 4	<i>Strengths</i>	<i>Weaknesses</i>	<i>Recommendations/Strategies</i>
<p>Stimulate and Monitor Relevant Systems of Health Professions Education in Response to Changing Demands of the Health Care Marketplace</p>	<ul style="list-style-type: none"> ◆ Demonstrates BHP's function of supporting health professions infrastructure 	<ul style="list-style-type: none"> ◆ Scope of measurement not clear, how to measure "response", "relevant?" ◆ As stated, it sounds like part of BHP's mission is to find employment opportunities for health professionals, rather than using them to meet unmet needs of patients in the marketplace ◆ Who determines what the "changing demands of the health care marketplace" are? - i.e. health market never static, how are the changes that are worth responding to noted? Focus group participants felt that many healthcare marketplaces exist, so which market should BHP be responsive to? What does "monitor" mean? 	<ul style="list-style-type: none"> ◆ Define "relevant" ◆ Suggested rewording: "Stimulate and monitor relevant systems of health professions education in response to changing demands of the health care marketplace that create gaps in the number, training, and skills needed to provide care to vulnerable populations as a result of...changes"

<i>Outcome</i>	<i>Indicator</i>	<i>Strengths</i>	<i>Weaknesses</i>	<i>Recommendations/Strategies</i>
<p>A. Increase in the number of schools/programs with active partnerships or cooperative working agreements with public and private community based organizations, such as managed care sites, rural health organizations, community health centers, etc.</p>		<ul style="list-style-type: none"> ◆ Links public and private health efforts in order to support full health infrastructure 	<ul style="list-style-type: none"> ◆ Not clear what "active partnerships" or "cooperative working agreements" are ◆ How would changes in this outcome be traced to BHP funding? ◆ Need to set some criteria for this to ensure that partnerships and agreements are unambiguously clear and observable when funded ◆ Measurement timeframe not clear 	<ul style="list-style-type: none"> ◆ Further explain why training in these arrangements will lead to better access/meet needs of changing market, cite research if available ◆ Define "active partnerships" & "cooperative working agreements" ◆ Specify the focus of BHP funded training in these loci ◆ Specify timeframe
	<p>28. Number of schools/ programs providing training through formal partnerships or consortia arrangements among public entities and/or private health care organizations</p>	<ul style="list-style-type: none"> ◆ Links public and private health efforts in order to support full health infrastructure 	<ul style="list-style-type: none"> ◆ Indicator is process rather than outcome oriented, e.g. does not get at direct effect of how students in these programs go on to serve in underserved areas ◆ What is the focus of this training? 	<ul style="list-style-type: none"> ◆ Reword to make the indicator more outcome-oriented, e.g. "Number of students/graduates using community based sites arranged through formal consortia etc. for clinical training experience"

INDICATOR ISSUES THAT MAY REQUIRE FURTHER DISCUSSION (CONT.)

Outcome	Indicator	Issues	Recommendations/Strategies
29. Number of trainees in educational programs in managed care sites, rural health organizations, community health centers, etc	<ul style="list-style-type: none"> • Demonstrates BHPR attention to training professionals so that they are prepared for market needs 	<ul style="list-style-type: none"> • Indicator is process rather than outcome oriented, e.g. does not get at direct effect of how trainees in these programs go on to work in underserved areas • Not clear what constitutes "structured educational programs?", managed care "sites"? Increasing managed care is a set of reimbursement and referral agreements 	<ul style="list-style-type: none"> • Define "structured educational programs," "managed care sites," e.g., only staff model HMOs? • Re word to make the indicator more outcome-oriented; e.g., number of graduates • Include a feasible time frame for tracking
30. Number of schools/ programs that train health professionals to identify and meet community needs	<ul style="list-style-type: none"> • Demonstrates BHPR's attention to community needs 	<ul style="list-style-type: none"> • Not clear what these community needs are; data tracking may be difficult • BHPR funding role? • Too much to ask that individual graduates "meet community needs?" 	<ul style="list-style-type: none"> • Give examples or what is meant, or provide further elaboration on how to "identify and meet community needs" • Rewording suggestion: "...to identify and develop strategies to meet community needs"
B. Increase in the number of schools/programs that use systematic community-related outcome performance measures in meeting market needs	<ul style="list-style-type: none"> • Emphasizes use of performance measurement system to improve effectiveness 	<ul style="list-style-type: none"> • May be difficult to trace changes in this outcome to BHPR funding • Scope of measurement not clear, e.g. how to measure "use systematic community-related outcome performance measures"? what constitutes "market needs"? • Measurement timeframe not clear 	<ul style="list-style-type: none"> • Make this a grant requirement • Define "systematic community related" • Specify what "market needs" should be met and provide examples • Provide time frame and focus for data collection
31. Number of schools/ programs that develop community-related outcome performance measures	<ul style="list-style-type: none"> • Strong link to outcome 	<ul style="list-style-type: none"> • Difficult to determine if the outcome measures are used after development • Do they develop these as an academic exercise? • What is a community-related outcome for a school? What would such a measure be? 	<ul style="list-style-type: none"> • Number of grantees that have evaluation plans which include these measures in order to show evidence of implementation • Give examples

INDICATOR ISSUES THAT MAY REQUIRE FURTHER DISCUSSION (CONT.)

<i>Outcome</i>	<i>Indicator</i>	<i>Strengths</i>	<i>Weaknesses</i>	<i>Recommendations/Strategies</i>
C. Increase in continuity of care training experiences		<ul style="list-style-type: none"> ◆ Continuity of care is important component of health care access 	<ul style="list-style-type: none"> ◆ Scope of measurement not clear; extent of training experience that should be counted needs specification ◆ Not clear what impact continuity of care training experiences has on access ◆ It may be argued that the market is already doing this for those already insured (e.g. Medicaid and private insurance) ◆ Measurement timeframe not clear 	<ul style="list-style-type: none"> ◆ Link better access to care in field to professionals who had this type of training ◆ Provide time frame and focus for data collection
	32. Number of trainees participating in <u>community-based continuity of care experiences</u>	<ul style="list-style-type: none"> ◆ Focused on community needs of the market place 	<ul style="list-style-type: none"> ◆ Indicator is process rather than outcome oriented, e.g. not clear how many finish. what effect this has on care delivery ◆ Not clear what constitutes "community based continuity of care experiences" 	<ul style="list-style-type: none"> ◆ Define "community based continuity of care experiences, " e.g., does it refer to continuity of care strategies in CHC's? HMOs? Private practices? ◆ Cite research findings indicating the importance of these experiences in broader goal achievement.

APPENDIX B
DATA SOURCE SUGGESTIONS FROM BHP_R REPRESENTATIVES

National Workforce Goal:

I. Promote a Health Care Workforce with a Mix of the Competencies and Skills Needed to Deliver Cost-Effective, Quality Care

Outcomes	Indicators	Programs Related to Indicators ⁴	Suggested Data Sources	Current Availability of Data ⁵	Low Data Collection Burden ⁶	Data Are Collected Yearly	Data Are Complete	Data Are Accurate
A. Increase in the number of health professionals necessary to provide and support primary care	1. Number of graduates and/or program completers of primary care tracks by discipline	<ul style="list-style-type: none"> Associated, Dental and Public Health Professions (AADS)⁷ Medicine (AHEC, APAP, AAMC, AAFP) Nursing (AACN) 	<ul style="list-style-type: none"> AACN (Graduates from Master's/Post-Master's Nurse Practitioner Programs) AHEC database Dental schools/hospital dental programs AAMC; GME Tracking Census AR - PAB Annual reports in Family Medicine⁸ BHPPr-funded programs 	C	--	Y	Y ¹³	Y
	2. Number of graduates and/or program completers of health professions programs that support primary care by discipline			N/A	N/A	N/A	N/A	N/A

Note: Blank responses are represented as N/A (Not Available). Where answers are not applicable, dashes (--) are given.

- A number of indicators were added by BHPPr after the participants were surveyed on data sources. For these indicators, we have proposed some potential data sources based on the responses received for similar indicators. The "added" indicators are the following: 2, 12, 15, 16, 17, 18.
- In the parentheses are examples of BHPPr-funded programs represented by participants of the October 26 BHPPr Meeting on Proposed Performance Indicators.
- Participants were asked to enter a "C" if the suggested data source currently exists, a "M" if modification of the currently existing source would be required, or a "P" if the source could potentially serve as a vehicle for data collection.
- If a data source was not currently available, participants were asked to respond Y or N to the question "Would this data be easy to provide?" In some cases, participants also expressed the level of burden involved with providing data from current sources.
- This indicator is applicable to the general dentistry residency.
- Other potential sources include: HRSA; GAO/HEHS; Annals of Internal Medicine; Academic Medicine; JAMA.
- The data are currently only available for AHEC residents & HRP.
- Some dental programs currently collect data; others could potentially collect it.
- The data are not available at the program or hospital level.
- Currently, the data are reported according to a three year grant cycle.
- There has been a 75% response rate to the annual survey administered by AACN.

DATA SOURCE SUGGESTIONS FROM BHPR REPRESENTATIVES (CONT.)

<i>Outcomes</i>	<i>Indicators</i>	<i>Programs Related to Indicators</i>	<i>Suggested Data Sources</i>	<i>Current Availability of Data</i>	<i>Low Data Collection Burden</i>	<i>Data Are Collected Yearly</i>	<i>Data Are Complete</i>	<i>Data Are Accurate</i>
	3. Number of schools/ programs with a mission statement and/or formal policies supporting primary care	<ul style="list-style-type: none"> ◆ Medicine (AHEC, APAP, AAFP) ◆ Associated, Dental and Public Health Professions (ASPH) 	<ul style="list-style-type: none"> ◆ AHEC mission statement ◆ AAMC ◆ A R PAE ◆ ASPH data survey ◆ GAO/HEHS/HRSA/ Family Medicin Annals of Internal Medicine/ Academic Medicine/ JAMA¹⁴ 	<p align="center">C</p> <p align="center">N/A</p> <p align="center">C</p> <p align="center">M</p> <p align="center">C</p>	<p align="center">Y</p> <p align="center">N/A</p> <p align="center">--</p> <p align="center">Y</p>	<p align="center">Y</p> <p align="center">N/A</p> <p align="center">Y</p> <p align="center">N/A</p> <p align="center">N</p>	<p align="center">Y</p> <p align="center">N/A</p> <p align="center">Y</p> <p align="center">N/A</p> <p align="center">Y</p>	<p align="center">Y</p> <p align="center">N/A</p> <p align="center">Y</p> <p align="center">N/A</p> <p align="center">Y</p>
B. Increase In program responsiveness to forecasted imbalances in health professions supply, competency, and skill mix	4. Number of programs that address issues raised by workforce analysis and surveillance	<ul style="list-style-type: none"> ◆ Medicine (AHEC, APAP) ◆ Associated, Dental and Public Health Professions (ASPH) 	<ul style="list-style-type: none"> ◆ AHEC ◆ AAMC ◆ AR - PAE ◆ IOM report ◆ ASPH data survey ◆ HRSA 	<p align="center">C</p> <p align="center">N/A</p> <p align="center">P¹⁵</p> <p align="center">C</p> <p align="center">P</p> <p align="center">P</p>	<p align="center">Y</p> <p align="center">N/A</p> <p align="center">N/A</p> <p align="center">Y</p> <p align="center">Y¹⁶</p>	<p align="center">Y</p> <p align="center">N/A</p> <p align="center">N</p> <p align="center">N/A</p> <p align="center">N/A</p> <p align="center">N/A</p>	<p align="center">Y</p> <p align="center">N/A</p> <p align="center">N</p> <p align="center">Y</p> <p align="center">N/A</p> <p align="center">N/A</p>	<p align="center">Y</p> <p align="center">N/A</p> <p align="center">N</p> <p align="center">Y</p> <p align="center">N/A</p> <p align="center">N/A</p>
	5. Number of initiatives that address state and local level research data capacity-building		<ul style="list-style-type: none"> ◆ Division of Disadvantaged Assistance Programs (e.g., HCOP MIS) ◆ Division of Student Assistance Programs ◆ IMPACT 	<p align="center">N/A</p> <p align="center">N/A</p> <p align="center">N/A</p>	<p align="center">N/A</p> <p align="center">N/A</p> <p align="center">N/A</p>	<p align="center">N/A</p> <p align="center">N/A</p> <p align="center">N/A</p>	<p align="center">N/A</p> <p align="center">N/A</p> <p align="center">N/A</p>	<p align="center">N/A</p> <p align="center">N/A</p> <p align="center">N/A</p>

¹⁴ **Most** of these sources are **studies** concerning **the specific characteristics** of medical schools and **students** that influence primary care careers.

¹⁵ The **data** could be **difficult** to **define** and **count**.

¹⁶ HRSA has designated a work group to discuss **the present and future** composition of the public health workforce.

INDICATOR ISSUES THAT MAY REQUIRE FURTHER DISCUSSION (CONT.)

Outcome	Strengths	Weaknesses	Recommendations/Strategies
<p>5. Number of initiatives that address state and local level research and data capacity building</p>	<ul style="list-style-type: none"> Addresses need to consider data burden on grantees 	<ul style="list-style-type: none"> What qualifies to be counted as an "initiative"? Started? Completed? Does it require a data needs assessment and data strategy? Does capacity have to actually be built as part of initiative or is it enough to just support "address" it? Scope of measurement not clear; how to measure "address" and "research and data capacity-building"? 	<ul style="list-style-type: none"> A clearer link needs to be made between the research and database that is built at state and local levels, the "forecast imbalances," and grantee responsiveness to them
<p>6. Number of trainees in areas where there is an imbalance in competency and/or skill mix, such as ambulatory care, HIV/AIDS, health promotion and disease prevention, geriatrics, and substance abuse</p>	<ul style="list-style-type: none"> Shows BHPPr's attention to training professionals to be sensitive to the needs of vulnerable populations in underserved areas 	<ul style="list-style-type: none"> "Areas" of imbalance not clearly specified, i.e., does it mean geographic? Professional specialty? 	<ul style="list-style-type: none"> Identify a "set" of areas, competencies and skill mixes that should be measured Reword to make the indicator outcome-oriented, e.g. "number of graduates with knowledge and skills in content areas"
<p>7. Number of graduates and/or program completers providing services in areas where there is an imbalance in competency and/or skill mix, such as ambulatory care, HIV/AIDS, health promotion and disease prevention, geriatrics, and substance abuse</p>	<ul style="list-style-type: none"> Good follow-up to indicator 6. Shows BHPPr is sensitive to the need not only to train professionals in underserved areas but also to keep physicians in these areas to improve long term access 	<ul style="list-style-type: none"> "Areas" of imbalance not clearly specified, i.e., does it mean geographic? Professional specialty? 	<ul style="list-style-type: none"> Identify a "set" of areas that should be measured Reword to make the indicator outcome-oriented, e.g. "number of graduates with knowledge and skills in content areas"

INDICATOR ISSUES THAT MAY REQUIRE FURTHER DISCUSSION (CONT.)

Outcome	Indicator	Strengths	Weaknesses	Recommendations/Strategies
<p>C. Increase in the number of interdisciplinary collaborations</p>		<ul style="list-style-type: none"> ▶ Good measure of BHP's effort to address various skill mix needs in underserved areas ▶ Measure might be used as a measure in Phase III to compare to performance of non-BHP funded programs ▶ Demonstrates BHP's willingness to use state of the art innovations 	<ul style="list-style-type: none"> ▶ Scope of measurement not clear, e.g. how to measure "interdisciplinary collaboration?" Activity? Focus? Specify participants, time frames, clinical/organizational appropriateness; when is interdisciplinary collaboration better? ◆ May be difficult to trace changes in this measure to BHP funding; e.g. private forces moving towards "patient focused care" may involve interdisciplinary activities ◆ Not clear that interdisciplinary collaborations will lead to improved access/actual care delivery ◆ Not clear who establishes the collaborative partnerships, and what effect this has on parameters for measurement ◆ Data tracking and comparison may be difficult; the number of "collaborations" appropriate for each grantee may vary. This indicator may not accurately assess the impact of collaborations through a "bean count" ◆ Measures process rather than outcome 	<ul style="list-style-type: none"> ▶ Elaboration on the linkage of this outcome to the overall goal would be helpful ▶ Specify/define parameters of what BHP counts as "interdisciplinary collaborations", e.g. specify care context; skill mix and competencies that will be combined; clarify whether it will be measured in graduate practices, etc. ◆ Present evidence (e.g. reports from private industry—Henry Ford) that such collaborations improve cost-effectiveness, quality care, or both ◆ Measure the percentage change in number of collaborations between grantees to facilitate data comparability ◆ Work with grantees who have collected data on multidisciplinary collaborations and are engaged in it to develop narrower definitions for what constitutes interdisciplinary collaboration

INDICATOR ISSUES THAT MAY REQUIRE FURTHER DISCUSSION (CONT.)

<i>Outcome</i>	<i>Indicator</i>	<i>Strengths</i>	<i>Weaknesses</i>	<i>Recommendations/Strategies</i>
	8 Number of <u>clinical experiences</u> involving <u>interdisciplinary teams</u> to meet <u>community needs</u>	<ul style="list-style-type: none"> ◆ Demonstrates BHP's attention to community needs 	<ul style="list-style-type: none"> ◆ Scope of measurement not clear, e.g. how to measure "involving"? How do these experiences differ from "structured" clinical training described in other indicators ◆ Not clear who defines community needs 	<ul style="list-style-type: none"> ◆ Specify what level of involvement should be counted ◆ Specify examples of the kind of experiences that are most effective as training; in meeting needs, specify what counts as a distinct "experience;" where it occurs?; How long? ◆ Reword indicator to measure clinical <i>training</i> experiences ◆ Clarify if number includes either or both experiences available or taken by individuals ◆ Convene a working group to monitor and set parameters on the <u>community needs</u>
	9 Number of students receiving <u>interdisciplinary team experiences</u>	<ul style="list-style-type: none"> ◆ Indicator is outcome focused 	<ul style="list-style-type: none"> ◆ Scope of measurement not clear, e.g. how to measure "receiving interdisciplinary learn experience"? 	<ul style="list-style-type: none"> ◆ Clarify if number includes either or both experiences available or taken by individuals ◆ Specify parameters for measuring these experiences, e.g. define setting (such as clinical education) ◆ Specify examples of the kind of experiences that are most effective as training; in meeting needs, specify what counts as a distinct "experience;" where it occurs?; How long? ◆ Specify what level of "receiving" should be counted

Goal 4: **Simulate and Monitor Relevant Systems of Health Professionals Education in Response to Changing Demands of the Health Care Marketplace**

	What to Measure	Measurement Timeframe	Link to Funding	Link to Environment
Outcome: Increase in the number of schools/programs with active partnerships or cooperative working agreements with public and private community based organizations such as managed care sites rural health organizations, community health centers, etc.				
28. Number of schools/ programs providing training through formal partnerships or consortia arrangements among public entities and/or private health care organizations	X	X	X	
29. Number of trainees in structured educational programs in managed care sites, rural health organizations, community health centers, etc.	X	X	X	
30. Number of schools/ programs that train health professionals to identify and meet community needs	X	X	X	X
Outcome: Increase in the number of schools/programs that use systematic community-related outcome performance measures in meeting market needs				
31. Number of schools/ programs that develop community-related outcome performance measures	X	X		X
Outcome: Increase in continuity of care training experiences				
32. Number of trainees participating in community-based continuity of care experiences	X	X	X	X

INDICATOR ISSUES THAT MAY REQUIRE FURTHER DISCUSSION (CONT.)

<i>Outcome</i>	<i>Indicator</i>	<i>Strengths</i>	<i>Weaknesses</i>	<i>Recommendations/Strategies</i>
	12. Number of student hours in <u>didactic training</u> which address <u>culturally diverse issues</u> in health care	<ul style="list-style-type: none"> ◆ Measures student participation directly 	<ul style="list-style-type: none"> ◆ Scope of measurement not clear, how to measure “address culturally diverse issues”? what constitutes “didactic training”? ◆ Unit of measurement (hours) may be difficult for grantees to collect 	<ul style="list-style-type: none"> ◆ Suggest collecting percentage of required lecture time
	13. Number of schools/ programs that have a <u>mission statement</u> and/or <u>formal policies</u> encouraging <u>diversity</u>	<ul style="list-style-type: none"> ◆ Many programs have mission statements; the indicator is cross-cutting and potentially could be used in Phase III to monitor comparative, non-BHP funded programs 	<ul style="list-style-type: none"> ◆ Does not show evidence of policy implementation ◆ Scope of measurement not clear because content of mission statement may vary, e.g. how to measure “encouraging”? ◆ Need to define “diversity” 	<ul style="list-style-type: none"> ◆ Reference <u>literature</u> on use of mission statements in performance evaluation to identify strategies in best use of this indicator ◆ Specify minority/disadvantaged groups included in definition of “diversity” ◆ Replace “diversity” with: “sensitivity to cultural diversity in professional training”