



Development of a Workforce Diversity Index to Track African Americans' Participation in Emergency Management Positions and Emergency Management Training Programs

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Executive Summary

Background

The COVID-19 pandemic unveiled several disparities and highlighted inequities that contributed to those disparities so that we now better understand the root causes for the burden of disease among Blacks and other racial and ethnic minorities. One culturally competent approach to these public health issues is to increase racial/ethnic diversity in the emergency management (EM) workforce. Having more EM personnel in underrepresented groups could increase the extent to which we apply cultural competency best practices to reduce these health disparities. Yet, there are presumably not enough Blacks in emergency management and preparedness positions to serve those experiencing the disproportionality of this mortality and morbidity in Black communities. This is a timely moment to make some progress on this pressing workforce need while the federal government is listening. Moreover, the President has issued an Executive Order, *Advancing Health Equity through Racial and Ethnic Diversity*,¹ that calls for increased diversity in the federal agency workforce and improved services to underrepresented groups.

An exhaustive preliminary literature search showed that there are no systematic mechanisms for identifying the number of EM professionals or prospective EM professionals (e.g., students in the pipeline) by race/ethnicity, their location, or extent of their training. Such information could be invaluable to the Federal Emergency Management Agency (FEMA) and other agencies that need to rapidly mobilize professionals in a particular region or deploy professionals from other regions to assist in a hard-hit densely populated African American location. In addition, the increasing numbers of racial/ethnic minorities require a more racially/ethnically diverse workforce with the sociocultural knowledge and leadership competencies called for in FEMA's *Next Generation Competencies*.² FEMA

¹ [White House Initiative on Advancing Educational Equity, Excellence, and Economic Opportunity through Historically Black Colleges and Universities](https://sites.ed.gov/whhbcu/one-hundred-and-five-historically-black-colleges-and-universities/), U.S. Department of Education. (2021). Retrieved 22 October 2021, (https://sites.ed.gov/whhbcu/one-hundred-and-five-historically-black-colleges-and-universities/).

² Feldmann-Jensen S, Jensen SJ, Smith SM, Vigneaux G. The next generation core competencies for emergency management. *J Emerg Manag*. 2019 Jan/Feb; 17(1): 17-25. DOI: 10.5055/jem.2019.0393. PMID: 30933301.

will also need a mechanism to systematically track progress on any diversity, equity, and inclusion goals related to its strategic plans for workforce diversity.

Purpose

This project was designed to address a specific community need—that is, the presumed lack of emergency management professionals who are Black/African American and who can provide the requisite leadership and support in predominantly or heavily populated, African American communities. The primary purpose of this effort was two-fold:

1. To develop and pilot a prototype of a FEMA *Workforce Diversity Index* that can be used to assess and monitor the extent to which African Americans are reflected in the workforce counts for employees in positions classified as emergency management personnel; and
2. To estimate the graduate student-level pipeline for the profession.

HBCUs were the focus of this effort as they have traditionally had the mission of providing higher education for Blacks/African Americans; and are uniquely positioned as they produce one-fifth of the nation's Black STEM workforce and are located in geographic areas at increased risk for exposure to the adverse impacts of disasters and other emergencies.

Research Questions and Expected Outcome

The primary research questions were:

- What constitutes an EM workforce professional (in terms of job titles, occupations, and disciplinary training)?
- What constitutes a recent EM graduate (in terms of disciplinary backgrounds, academic-type programs, etc.)?
- What data are needed to estimate the need for a diverse EM workforce?
- Where would one get these data (i.e., number of current EM workers by race/ethnicity)?
- What other parameters need to be considered in developing an EM diversity workforce index?

The expected outcome was to develop a prototype for a FEMA Workforce Diversity Index for use in estimating the numbers of African Americans in the emergency management workforce and graduate training pipeline. The full report describes progress on development of two indexes, not just one, based on the research activities; and includes recommendations for moving forward.

Methods

The research team met with FEMA staff, representatives of relevant FEMA Higher Education Program Special Interest Groups (SIGs), and interdisciplinary advisers and members of the HBCU Emergency

Management Workforce Consortium. data were collected from various sources, including: *a literature scan; interviews* with developers of existing indexes and tools; *data source identification*—literature scan and interviews to identify data sources for numbers of EM employees and trainees; *a focus group with HBCU EM personnel* to gather input on the proposed indexes and plans for data collection; *feedback from the field* through a *presentation* at FEMA’s 2022 Higher Education Symposium; and *a pilot of the process for searching existing data sources*.

Key Results

We developed two draft prototypes instead of a single workforce diversity index for the current EM employees. The second index was proposed to estimate the EM pipeline needs (e.g., students in or recent graduates of higher education training programs). The formulae for the two indexes follow (details are provided in the full report). The professional and pipeline pools for each formula will be based on numbers in the geographic areas where HBCUs are located; and will be calculated on a regional basis, based on FEMA regions in which HBCUs operate.

WORKFORCE DIVERSITY INDEX: PROPOSED FORMULA

- a. Estimate the percentage of Blacks among current EM workforce professionals (the number of Black EM professionals divided by the total number of EM professionals in the region).
- b. Estimate the percentage of the working-age population that is Black (the number of Blacks who are working-age divided by the total number of working-age population in the region).
- c. Then calculate the ratio for percentage “a” above relative to (divided by) percentage “b” above.

If “a” and “b” are the same, then “a” divided by “b” = 1.0; and the Workforce Diversity Index (WDI) would be equal to 1 (suggesting equity is achieved). The lower the ratio—that is, the closer to 0 and further away from 1 (e.g., .50, .33)—the wider the diversity gap. A WDI of 0.5 (50%) means that the representation of Black EM individuals among the total EM population is only half of their representation in the benchmark population. The WDI estimate could then be used to allocate the resources needed to increase the percentage of Blacks in the EM workforce in the region to a more equitable percentage.

PIPELINE DIVERSITY INDEX: PROPOSED FORMULA

The Pipeline Index was proposed to estimate whether the percentage of recent Black graduates among the total population of recent graduates of EM disciplines/academic programs is equitable compared to the percentage of Blacks in the college-age population in a region (20-to-35-year-olds, as age may vary by profession and level of education). We developed the formula to calculate the Pipeline Diversity Index within a specific region as a ratio based on the following procedures:

- a. Estimate the percentage of Blacks among recent EM graduates (one year or less) as the number of Black EM graduates divided by the total number of EM graduates in the region.
- b. Estimate the percentage of the college-age population that is Black as the number of Blacks who are college-age divided by the total number of college-age population in the region.

c. Then calculate the ratio for percentage “a” above relative to (divided by) percentage “b” above.

The interpretation of the index is similar to that for the workforce index. The PDI estimate could then be used along with the Workforce Diversity Index to estimate pipeline needs and workforce gaps; and to allocate the resources needed to increase the percentage of Blacks in the EM training pipeline in the region to a more equitable percentage.

FEEDBACK FROM THE FOCUS GROUP AND FIELD

1. The proposed formulae for the Workforce Index and Pipeline Index were received favorably.
2. Several model indexes are available as models for refining the formulae for the two indexes discussed.
3. Developers of current tools as well as focus group participants perceive that the field will find utility in each index.
4. Focus group participants indicated that the Pipeline Index would be feasible to implement and acceptable on their campus; however, several barriers to implementation and sustainability were also expressed.
5. It will be difficult to narrow down the occupational and disciplinary fields most relevant to EM to include in the estimating stages.

Recommendations and Next Steps

The following **recommendations** are made to facilitate discussions on how to move this effort forward to advance equity in the EM workforce using one or both of the proposed indexes:

1. Continue development of the prototype index tools.
2. Seek funding to support pilot test of processes to populate the database (e.g., collecting data from HBCUs and existing population-based data) to establish baselines for indexes.
3. Disseminate pilot test to HBCUs and field to address any challenges encountered.
4. Refine prototypes and seek funding to scale-up implementation of the tool.
5. On HBCU campuses, implement internal needs and assets assessments to determine feasibility, assessment, and sustainability of a diversity equity initiative.
6. Focus some resources on workforce development for women.
7. Work with federal and state emergency management agencies and associations to better integrate HBCUs into their plans and operations, with incentives for successful integration and disincentives (withholding federal funds) when not demonstrated.
8. Leverage the resources of pipeline programs funded by non-FEMA or non-EM funding streams to share training, technical assistance, internship opportunities, and other supports that engage students/recent graduates to demonstrate EM is a viable career choice.

9. Work with Federally Qualified Health Centers (FQHCs), business sector, and individual HBCUs or HBCU EW consortium to identify placement opportunities to train students in and new positions for recent graduates to continue strengthening their EM competencies.
10. Provide HBCUs with funds to support new dedicated EM hires to support other positions that are being overwhelmed by EM responsibilities (e.g., decouple Chief of Police/Fire Chief from EM duties, have dedicated personnel who can deal with the EM activities).

Suggested **immediate next steps** specific to the indexes would be to:

1. Convene EM experts and professionals from the field and academic training programs in a Delphi-technique approach to refine the parameters for each index.
2. Narrow the disciplines and EM professions for which such an index would need data.
3. Narrow the list of geographic regions in which to pilot a process to collect data to populate the workforce and pipeline indexes.
4. Disseminate these findings and solicit feedback to further refine the indexes.
5. Begin population of the data parameters and assess the formulae.

Overview and Purpose

When a disaster strikes, emergency managers (EM) are often the first organized groups on the scene. Sometimes, however, it is during this period that victims of a disaster find themselves further marginalized, whether inadvertently or deliberately by those sent in to help. Thus, the need for a culturally competent emergency management workforce cannot be overstated. Anecdotal evidence points to the fact that African Americans are underrepresented in the EM field. The lack of data makes it difficult to quantify the extent of this inequity. Furthermore, there is insufficient data to assess whether or not the educational pipeline will offer greater representation of African Americans in the future EM workforce.

This project was designed to address a specific community need—that is, the lack of emergency management professionals who are Black/African American and who can provide the requisite leadership and support in predominantly or heavily populated, African American communities. The impact of this approach is aimed at ensuring culturally appropriate emergency preparedness and disaster management response to this priority population. There is a great need for EM professionals and graduate students in the EM pipeline, who share the heritage and cultural values of African American communities. These communities are often located in areas of frequent emergency incidents and disaster proneness, and these EM professionals and students could serve as role models and cultural champions to motivate community members to prepare for and respond to emergencies. Furthermore, this cohort of professionals could deliver culturally appropriate recovery services.

Our exhaustive preliminary research showed, however, that there were no systematic mechanisms for identifying the number of EM professionals or prospective EM professionals (e.g., students in the pipeline) by race/ethnicity, their location, or extent of their training. Such information could be invaluable to the Federal Emergency Management Agency (FEMA) and other agencies that need to rapidly mobilize professionals in a particular region or deploy professionals from other regions to assist in a hard-hit densely populated African American location. In addition, the increasing numbers of racial/ethnic minorities require a more racially/ethnically diverse workforce with the sociocultural knowledge and leadership competencies called for in FEMA's *Next Generation Competencies*.³ FEMA will also need a mechanism to systematically track progress on any diversity, equity, and inclusion goals related to its strategic plans for workforce diversity. Therefore, the primary purpose of this effort was two-fold:

1. To develop and pilot a prototype of a FEMA *Workforce Diversity Index* that can be used to assess and monitor the extent to which African Americans are reflected in the workforce counts for employees in positions classified as emergency management personnel; and
2. To estimate the graduate student-level pipeline for the profession.

The expected outcome was to develop a prototype for a FEMA Workforce Diversity Index for use in estimating the numbers of African Americans in the emergency management workforce and graduate training pipeline. Recommendations were also to be included for using the tool to collect data every two years to monitor FEMA's progress on diversity, equity, and inclusion goals. This report describes progress on development of two indexes, not just one, based on our research activities; and includes recommendations for moving forward with these tools to estimate both current workforce diversity and pipeline diversity (graduate training) in the EM profession.

Background

The COVID-19 pandemic unveiled several disparities and highlighted inequities that contributed to those disparities so that we now better understand the root causes for the burden of disease among Blacks and other racial and ethnic minorities. One culturally competent approach to these public health issues is to increase racial/ethnic diversity in the emergency management (EM) workforce. Having more EM personnel in underrepresented groups could increase the extent to which we apply cultural competency best practices to reduce these health disparities. Yet, there are presumably not enough Blacks in emergency management and preparedness positions to serve those experiencing the disproportionality of this mortality and morbidity in Black communities. This is a timely moment to make some progress on this pressing workforce need while the federal government is listening. Moreover, the President has issued an Executive Order, *Advancing Health Equity through Racial and*

³ Feldmann-Jensen S, Jensen SJ, Smith SM, Vigneaux G. The next generation core competencies for emergency management. *J Emerg Manag*. 2019 Jan/Feb; 17(1): 17-25. DOI: 10.5055/jem.2019.0393. PMID: 30933301.

Ethnic Diversity,⁴ that calls for increased diversity in the federal agency workforce and improved services to underrepresented groups.

This effort was directed at African Americans as the focus population for the reasons delineated earlier; and at Historically Black Colleges and Universities (HBCUs) for additional reasons. HBCUs are higher education institutions (HEIs) that were developed to allow African American students to gain higher education. HBCUs also have the mission of providing higher education for those of low socioeconomic status from all races/ethnicities. The Thurgood Marshall College Fund⁵ reports that although HBCUs make up about three percent of the nation's colleges and universities, these institutions are responsible for the impressive 20 percent of all African American college graduates who receive a higher education degree. Also, many HBCUs are located in geographic areas where disasters and other emergencies are prevalent; however, they lack operate in resource-limited contexts that pose challenges to their effective emergency preparedness and responses. Some HBCUs are in urban areas with increased exposure to civic unrest that requires emergency preparedness and response; several are in predominantly Black/African American communities; and in southern regions, others are located in rural areas with limited EM resources and other capacity. Thus, HBCUs, as institutions located in such areas and that train a large percentage of Blacks/African Americans, could potentially accelerate a culturally responsive approach to populating the proposed index. HBCUs could also serve as sites to pilot the index for its utility in tracking diversity in the EM workforce pipeline in FEMA regions where HBCUs are located. However, a better understanding is needed of the extent to which resources would be needed to facilitate their active participation in such an effort.⁶

This project was conducted between September 30, 2021, and June 30, 2022. Specific objectives of this project were to: 1) Identify at least three examples of existing workforce diversity indexes that could be used to guide development of an EM-specific workforce diversity index; 2) identify candidate sources of data that could be used to populate the index; 3) draft the index prototype and assess the feasibility of collecting data for it and using the index to inform training needs and use in tracking diversity in the EM workforce; and 3) refine the index and present it to FEMA for consideration as a future tool.

Methods

As a result of our interviews with the authors and other stakeholders (FEMA SIGs, HBCU EM Network members), we developed two draft prototypes. At the suggestion of our informants, instead of just a

⁴ [White House Initiative on Advancing Educational Equity, Excellence, and Economic Opportunity through Historically Black Colleges and Universities](https://sites.ed.gov/whhbcu/one-hundred-and-five-historically-black-colleges-and-universities/). U.S. Department of Education. (2021). Retrieved 22 October 2021, (https://sites.ed.gov/whhbcu/one-hundred-and-five-historically-black-colleges-and-universities/).

⁵ [About HBCUs | Thurgood Marshall College Fund](https://www.tmc.org/about-us/member-schools/about-hbcus/). Thurgood Marshall College Fund. (2021). Retrieved 29 November 2021, (https://www.tmc.org/about-us/member-schools/about-hbcus/).

⁶ Downer, G., & Randolph Cunningham, S.M. (2022). HBCUs' Preparedness Planning and Responses to Reopening Campuses Safely during the COVID-19 Pandemic: Needs, Assets, and Insights for Future Emergencies and Disasters. *Journal of Emergency Management*, May/June, 2(3). DOI: 10.5055/jem.0700.

single workforce diversity index for current EM employees, we also drafted an index to estimate the number of diverse EM professionals in the pipeline (e.g., undergraduate and graduate programs). The project was conducted between September 30, 2021, and June 30, 2022. The research team met with FEMA's project specialist to refine the workplan proposed to accomplish the objectives of the project. Upon approval of the workplan, team members met with representatives of relevant FEMA Special Interest Groups (SIGs) to inform them of the project. We also had consultations with interdisciplinary advisers and members of the HBCU Emergency Management Workforce Diversity Network. Multiple approaches were used to gather input to develop a draft workforce index. The primary research questions were:

- What constitutes an EM workforce professional (in terms of job titles, occupations, and disciplinary training)?
- What constitutes a recent EM graduate (in terms of disciplinary backgrounds, academic-type programs, etc.)?
- What data are needed to estimate the need for a diverse EM workforce?
- Where would one get these data (i.e., number of current EM workers by race/ethnicity)?
- What other parameters need to be considered in developing an EM diversity workforce index?

To address these questions, we collected data from various sources, using multiple methods, including the following:

- *Literature scan.* We conducted a literature scan to identify examples of tools known as a “workforce diversity index” and ways they are utilized by various entities.
- *Interviews.* Upon identification of three tools, we contacted the developers (lead author of the published reports) to discuss our plans for developing the EM prototype and gather their lessons learned in developing their respective tools.
- *Data source identification.* We also used the literature scan and interviews to identify sources for soliciting the number of employees classified as EM personnel at the local, state, regional and/or national levels.
- *Focus group with HBCU EM Personnel.* We used the information from the scan and interviews to draft two workforce diversity indexes—one based on the current workforce and the other on students/trainees in the EM pipeline. After drafting the two prototypes, we conducted a 60-minute virtual focus group with nine key informants in EM positions at HBCIs to gather input on the proposed index and plans for data collection to populate the index.
- *Feedback from the field.* Findings were also presented at FEMA's 2022 Higher Education Symposium to gather input from others in the field to refine the indexes and data collection plans; and to gather suggestions for using the indexes by FEMA or others in the field.

- *Pilot process of searching data sources.* We also piloted the process for collection of data from the identified sources during the scan and interviews to assess challenges to initially populating the workforce index.

A summary of the key data sources from above and activities used to collect the data for each appear in Table 2. The results from these activities are summarized in the Results section (following the table).

Table 1: Summary of Key Sources of Information and Data Collection Activities

Source of Information	Data Collection Activities
Literature review and environmental scan of published and grey literature.	<ul style="list-style-type: none"> ▪ Systematic review using search engines. ▪ Identified three workforce equity indexes. ▪ Summarized equity issues in workforce development.
Interviews with developers of similar or related indexes.	<ul style="list-style-type: none"> ▪ Contacted authors of research papers identified in Lit Review/Scan. ▪ Conducted virtual interviews with principal authors and staff. ▪ Identified additional resources such as databases to use in estimating total numbers of EM personnel in workforce or recent graduates in pipeline.
Focus group with members of the HBCU Emergency Management Workforce Consortium.	<ul style="list-style-type: none"> ▪ Gather feedback from members regarding. ▪ Formulae used in existing indexes and application to an EM Workforce or Pipeline Index. ▪ Perceptions of the feasibility, acceptability, and sustainability of the Workforce or Pipeline Index. ▪ Recommendations for what data sources to check to estimate workforce diversity and ways to collect pipeline data to track recent HBCU EM graduates.

Results

Lessons Learned from the Stakeholder Consultations and Literature Scan

Literature review and stakeholder interviews: We initially identified three examples of tools based on the review of literature on workforce diversity in general and reviews of public health workforce diversity specifically. In the health/public health arena, we identified the Healthcare Workforce

Diversity Index⁷ and the Reproductive Health Workforce Diversity Tracker.⁸ There is also one index in the literature related to academic rank equity—the Academic Medicine Rank Equity Index;⁹ and others to estimate the number of emergency medicine physicians¹⁰ and dental workforce.¹¹ The interviewees also suggested additional tools to consider. Table 2 displays these tools. We identified no indexes that were exclusive to Blacks/African Americans or HBCUs nor EM-related equity across the profession. Table 2 displays the indexes identified during the literature review and interviews along with a brief description for each.

Table 2: Indexes/Tools Identified During the Literature Review and Environmental Scan

<i>Index/Tool</i>	<i>Description</i>
Health Workforce Diversity Index and Tracker (George Washington Univ; Salsberg et al.)	Compare rates for 10 health care professions for current workforce and new graduates by race/ethnicity with current working-age population in US.
Workforce Diversity Tracker for Global Health (adaptation of #1)	Same calculations but based on WHO worldwide data.
Rank Equity Index (Fassiotta et al.; based on Executive Equity Index in business sector)	Measures parity in the advancement of underrepresented populations in Academic Medicine to examine emergency medicine faculty rank progression by race/ethnicity.
Social Mission Metrics Initiative	Includes benchmarks for student diversity and faculty diversity, including structural level factors for students such as admissions policies and graduation rates by race/ethnicity.

⁷ Salsberg, E. et al. 2021. Health Workforce Diversity Tracker. As part of Mullan Institute’s study, “[Estimation of Current and Future Racial and Ethnic Representation in the U.S. Health Care](https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2777977)” (https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2777977).

⁸ Reproductive Healthcare Workforce Index. Fitzhugh Mullan Institute for Health Workforce Equity.

⁹ Magali Fassiotta, Brenda Flores, Robert Victor, Jonathan Altamirano, Luis C Garcia, Shaila Kotadia, Yvonne Maldonado. (2020). [Rank Equity Index: Measuring Parity in the Advancement of Underrepresented Populations in Academic Medicine](https://pubmed.ncbi.nlm.nih.gov/32889948/). (https://pubmed.ncbi.nlm.nih.gov/32889948/). DOI: 10.1097/ACM.00000000000003720.

¹⁰ Catherine A Marco, D Mark Courtney, Louis J Ling, Edward Salsberg, Earl J Reisdorff, Fiona E Gallahue, Robert E Suter, Robert Muellemann, Bradley Chappell, Dian Dowling Evans, Nathan Vafaie, Chelsea Richwine. (2021). The Emergency Medicine Physician Workforce: Projections for 2030. *Annals of Emergency Medicine*, Aug 2; S0196-0644(21)00439-X, DOI: 10.1016/j.annemergmed.2021.05.029.

¹¹ Edward Salsberg MPA, Erin Brantley PhD, MPH, Sara Westergaard MD, MPH, Jenee Farrell BS, Christina Rosenthal DDS, MPH (2021). [Limited, uneven progress in increasing racial and ethnic diversity of dental school graduates](https://doi.org/10.1002/jdd.12793). ADEA/Voice of ADEA, (https://doi.org/10.1002/jdd.12793).

<i>Index/Tool</i>	<i>Description</i>
Contraceptive Health Workforce Tracker	Not race/ethnicity nor diversity tracker but model for equity tool—tracks state by state and across counties within a state; compares density of prescription contraceptive workforce.
Dental Graduate Tracker	Model for estimating students in pipeline: Dental schools' diversity in new graduates; uses IPEDS and ACS to assess number of graduates by race/ethnicity (IPEDS) compared to the diversity of populations they draw from (ACS).

Potential data sources to populate an EM diversity index: Interviews with the lead authors of these tools yielded three potential sources for extracting the number of employees classified as EM personnel at the local, state, regional and/or national levels: the American Community Survey, U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS), and the Registry. Our stakeholders and the literature scanned also revealed several sources for generating other numbers for the indexes such as the total number of EM professionals in a specific community and the number of Black working-age professionals and college-age individuals on which to base the estimates. However, the number of students in EM-related training programs in general and at HBCU in particular will be more challenging to estimate from existing data sources. Table 3 summarizes two of these key data sources, after which more detail is provided in the paragraphs that follow.

Table 3: Data Sources Suggested by Interviewees for Review

<i>Data Source</i>	<i>Description</i>
American Community Survey (ACS)	For the current workforce—ages 20 to 65, who are working, in a health profession based on their reported occupation, and who report having the minimum degree level necessary for that profession; based on Census Occupation Code List, 2018 version.
Integrated Post-Secondary Educational Data System (IPEDS), National Center for Education Statistics, U.S. Department of Education.	For pipeline (data for new health profession graduates)—collects data on the race and ethnicity of graduates by specific fields of study, based on the Classification of Instructional Programs (CIP).

American Community Survey (ACS): For their health workforce diversity tracker, Salsberg et al. reported sat from the 2019 ACS on the diversity of those ages 20 to 65, who were working, in a health profession based on their reported occupation, and who reported having the minimum degree

level necessary for that profession (e.g., a doctoral or professional degree for physicians). Occupations were based on the Census Occupation Code List, 2018 version. The health workforce was reported based on respondents' state of residence. Salsberg et al. also used ACS data to establish benchmark populations. For the workforce, this was individuals ages 20 to 65 who are either working or unemployed and looking for work (the current workforce). For new graduates, the benchmark population was all adults ages 20 to 35, a time period in which most postsecondary education is completed. ACS data for those who identify their race/ethnicity as Black can be used in the proposed workforce and pipeline indexes.

Integrated Postsecondary Education Data System: The health workforce diversity tracker project also collected data on recent graduates in the health professions. These data were drawn from the Integrated Post-Secondary Educational Data System (IPEDS) from the National Center for Education Statistics at the U.S. Department of Education. Salsberg et al. pooled data reported from 2017 through 2019 to avoid findings based on short-term fluctuations. IPEDS collects data on the race and ethnicity of graduates by specific fields of study, based on the Classification of Instructional Programs (CIP). The Salsberg team created a crosswalk of fields of study reported in IPEDS likely to lead to their professions of interest for the current workforce. Specifically, their analyses focused on the 10 largest health care professions defined by the U.S. Bureau of Labor Statistics' Standard Occupational Classification as being "health diagnosing and treating practitioners who require a postsecondary degree." Salsberg's research team, then, restricted their analyses to degrees awarded at the minimum level necessary to enter a field or higher (e.g., Associate degrees and higher for nurses and doctoral degrees for dentists).

Specific EM-related Professional Registries: Our consultation with the lead developer of the Academic Medicine Rank Equity Index (Fassiotti et al., 2021) also suggested that it will be challenging to identify all of the EM professions or academic programs that might need to be considered for the proposed EM workforce diversity index. In development of their Rank Equity Index, the team based their index on the Executive Parity Index (previously developed in the business sector for racial/ethnic equity comparisons; and used self-reported demographic data and rank data from the Association of American Medical Colleges annual survey in 2017. Thus, they had a captive audience with a specific disciplinary identity. Fassiotti suggested that a much more diversified source of data would be needed for our purposes.

Marco et al. (2020) also found it useful to use data from a captive audience (Medicare claims providers and residents registered with the American Medical Association) to estimate the 2030 workforce needs for emergency medicine physicians, nurses, nurse practitioners, and physician assistants.¹² The practitioners have unique provider identifiers to distinguish them by profession and residents must register in the AMA-maintained resident database. To our knowledge and in our discussions with the EM stakeholders, there are not parallel data sources in the EM profession in general—for specific disciplines, yes, such as Emergency Medicine Physicians, but not for other

¹² Marco et al, 2021. The Emergency Medicine Physician Workforce: Projections for 2030. *Ann of Emerg Med*. DOI: 10.1016/j.annemergmed.2021.05.029.

specialties or subdisciplines, particularly non-medical fields—e.g., food safety, environmental safety, public safety).

In our literature scan, we also identified the LEADS study conducted by the National Registry of Emergency Management Technicians¹³ as one possible source from which to estimate numbers for the EM field. However, this data source has its own limitations. LEADS (now LEADS II) is the Longitudinal EMS Attributes and Demographic Study which describes information about individuals in the Registry (who replied to the survey) who provide emergency medical services in the U.S. LEADS II began in 2013 and is expected to reach completion in 2022. Fact sheets on the website are only for 2014 and 2015. However, as descriptive as the study title information is, the fact sheets on the NREMT website show no racial/ethnic demographic data from the study. The instrument used in the survey has some useful information for characterizing EMS positions and settings in which they provide services but is limited because it primarily addresses health care settings.

Our lessons learned, although mixed with respect to their potential for informing the diversity index, did yield useful information for narrowing our parameters, including the diversity value index (which numbers to select as numerators and denominators) and benchmarks (which numbers to use against which to compare the data for Blacks once collected). More details about how these lessons were applied are presented below.

Application of Lessons Learned to Draft Proposed EM Diversity Indexes

As a result of our interviews with the authors and other stakeholders (FEMA SIGs, HBCU EM Network members), we developed two draft prototypes. At the suggestion of our informants, instead of just a single workforce diversity index for current EM employees, we also drafted an index to estimate the number of diverse EM professionals in the pipeline (e.g., undergraduate and graduate programs). We also limited our focus to African American EM professionals so that we could pilot processes with one group before expanding to other underrepresented minorities in the workforce or pipeline. The summaries and formulae below are for the proposed indexes: 1) the Workforce Diversity Index and 2) the Pipeline Diversity Index. In the formulae, the diversity index values are based on a *numerator*—the percent or number of Blacks in the profession/pipeline student population—divided by a *denominator*, the percent or number of the benchmark population of that working age or college age in the target community. The benchmarks were also determined based on information gathered in consultations with the stakeholders (developers of other equity tools, HBCU EM Workforce Members). The benchmarks and diversity index values are proposed for application on a regional basis, specifically within regions with at least one HBCU (more on this is summarized below).

¹³ [National Registry of Emergency Management Technicians. Longitudinal EMS Attributes and Demographic Study II \(LEADS II\)](https://www.nremt.org/) (https://www.nremt.org/).

WORKFORCE DIVERSITY INDEX: PROPOSED FORMULA

The Workforce Diversity Index (WDI) will focus on current professionals, those with more than one year beyond having graduated from an EM training program and/or in an occupation related to the EM profession. The purpose of the Workforce Diversity Index is to estimate the percentage of Blacks among such professionals and the extent to which that percentage reflects the working-age Black population (i.e., the benchmark population) in a specific region. Initially, we proposed a formula for the Workforce Diversity Index based on the equity question: *Is the percentage of Blacks in the EM workforce proportional to the percentage of Blacks in the U.S.?* However, we now propose that the equity question should read: *Is the Black percentage of the EM workforce in a region an equitable proportion relative to Blacks' percentage in the working-age population in that region?* This is a quite different question but informed by our research.

As mentioned earlier, we conducted interviews with workforce index and equity index experts, reviewed peer-reviewed journal articles on the development of these indexes and conducted a focus group with EM leaders at HBCUs. We found that workforce indexes are not based on estimates generated from the total number of individuals in the U.S. population, but on the number of people in the working-age population in the U.S. It is also well known that Blacks tend to be concentrated in certain geographical areas (not in all states in the U.S.). Because HBCUs are typically located in or near predominantly Black communities, our experts also advised that we should focus more narrowly such as only on the federal regions of the country in which HBCUs are located.

Thus, we did not address gaps in EM workforce diversity in terms of the Black percentage in the total EM workforce compared to the Black percentage in the total U.S. population, as we had initially proposed. Instead, as the experts suggested, we shifted our focus to 1) the number of Blacks in and total number in the working-age population; and b) the number of Blacks in and total EM workforce in a region. We also are proposing that these numbers will only be estimated for areas that are heavily Black populated or in which HBCUs are located. For example, if Blacks are 12% of the working-age population in a region; then, an equitable goal for the percentage of Blacks in the EM workforce would be 12%.

We refined our proposed formula to calculate the Workforce Diversity Index within a specific region as a ratio based on the following procedures:

- a. Estimate the percentage of Blacks among current EM workforce professionals (the number of Black EM professionals divided by the total number of EM professionals in the region).
- b. Estimate the percentage of the working-age population that is Black (the number of Blacks who are working-age divided by the total number of working-age population in the region).
- c. Then calculate the ratio for percentage "a" above relative to (divided by) percentage "b" above.

In this case: "a" divided by "b" = $(.12/.12) = 1.0$; and the Workforce Diversity Index (WDI) would be equal to 1 (suggesting equity is achieved).

The lower the ratio—that is, the closer to 0 and further away from 1 (e.g., .50, .33)—the wider the diversity gap.

A WDI of 0.5 (50%) means that the representation of Black EM individuals among the total EM population is only half of their representation in the benchmark population (e.g., if “a” is only equal to 6%, the WDI would be $.06/.12 = .50$).

The WDI estimate could then be used to allocate the resources needed to increase the percentage of Blacks in the EM workforce in the region to a more equitable percentage.

PIPELINE DIVERSITY INDEX: PROPOSED FORMULA

The proposal for a Pipeline Diversity Index grew out of discussions with experts about the need for such an index to estimate the diversity gap for the number of Black students that might be needed to close the gap identified by the Workforce Diversity Index. However, the pool of potential students to possibly attract into the pipeline needs to be considered. The Pipeline Index was proposed to estimate whether the percentage of recent Black graduates among the total population of recent graduates of EM disciplines/academic programs is equitable relative to the percentage of Blacks in the college-age population in a region. The experts advised that the college age used by similar indexes is 20 to 35 years and may vary by profession and level of education (e.g., baccalaureate, master’s, doctorate). To estimate this ratio, different data are needed than those used for the Workforce Diversity Index. Specifically needed within a region are 1) the number of Black graduates of EM disciplines/academic programs in the past year, 2) the total number of graduates of EM disciplines/academic programs in the past year, 3) the number of Black individuals who are college age, and 4) the total number of college-age individuals.

We developed the formula to calculate the Pipeline Diversity Index within a specific region as a ratio based on the following procedures:

- a. Estimate the percentage of Blacks among recent EM graduates (one year or less) as the number of Black EM graduates divided by the total number of EM graduates in the region.
- b. Estimate the percentage of the college-age population that is Black as the number of Blacks who are college-age divided by the total number of college-age population in the region.
- c. Then calculate the ratio for percentage “a” above relative to (divided by) percentage “b” above.

Example: If “a” divided by “b” = $(.12/.12) = 1.0$; then, the Pipeline Diversity Index (PDI) would be equal to 1 (suggesting equity is achieved).

The lower the ratio—that is, the closer to 0/further away from 1 (e.g., .50, .33)—the wider the diversity gap.

A PDI of 0.5 (50%) means that the representation of Black EM graduates among the total college-age population is only half of their representation in that benchmark population (e.g., if “a” is only equal to 6%, the PDI would be $.06/.12 = .50$).

The PDI estimate could then be used along with the Workforce Diversity Index to estimate pipeline needs and workforce gaps; and to allocate the resources needed to increase the percentage of Blacks in the EM training pipeline in the region to a more equitable percentage. Estimating the gap between the Workforce Diversity Index and the Pipeline Diversity Index for a region was not considered for this project but is an issue that needs attention.

Focus Group Feedback on the Proposed Indexes

The two proposed indexes were presented to a group of nine EM professionals who held positions at HBCUs. The focus group discussion centered on gathering feedback about the feasibility and acceptability of the proposed indexes, processes for capturing data to populate the indexes, and additional parameters to consider in populating the indexes and implementing them to advance diversity in the EM workforce and pipeline.

Key findings were in the areas of workforce position titles and their variations; where EM pipeline graduates find jobs; where data might be available to populate the indexes; the feasibility and acceptability of the indexes; and sustainability of a program to collect data and track pipeline graduates over time using the indexes. The following figures summarize the key findings:

Position Titles in EM Workforce

- Director of EM/EM Director
- EM Planner
- EM Specialist
- Grants Specialist
- Operations Plans
- Response, Recovery, and Mitigation – bureau chiefs
- ER Physicians
- Public Health – *Bioterrorism; Disease Control, Environmental Health and Safety*
- Law Enforcement
- Nursing Chaplains
- EMTs
- Psychologists, Behavioral health specialists
- Utilities (e.g., city power)
- Risk Communications
- Artificial Intelligence
- Computer science
- Meteorology
- Food security specialists

Where to find EM jobs

- Regional EM Managers for FEMA (can send listings for new hires)
- State employee website
- LinkedIn
- Word-of-mouth
- Inter-university consortium listserv
- University website
- Indeed
- EMS in geographic area

Where to get data

- Emergency Management Technician Registry (scan)
- Emergency Medicine Registry (scan)
- Local and state trainings – State Emergency Response Team (SERT) Track as you go through your training programs
- Certifications – several within first year of being on job
- Qualifications committee for instant mgt teams to deploy out – renew those quals.
- For general staff person, must take IS 100, 200, 700, 800, and for instructional classroom 300 and 400
- International EM Association
- Florida Emergency Preparedness Association
- Florida Emergency Management Association
- Other similar State organizations

FEASIBILITY

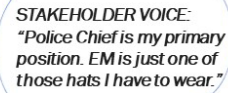
- HBCUs could collect data and would be open to doing so, but would need additional resources for new data collection
- Existing data include Institutional Research Office data
- Can ask other disciplines if they have data, ask first if they are aware of EM

Barriers include

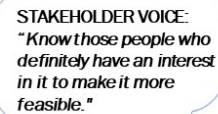
- EM personnel are often overwhelmed as they also serve primarily as Fire Chief or Police Chief on a campus; therefore, even EM Directors may need other partners on- and off-campus

Facilitators

- Stress value of what you are doing, can lead to finding others in EM
- Encourage others to be involved in SERT program



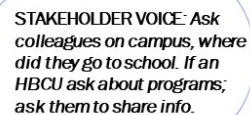
STAKEHOLDER VOICE:
"Police Chief is my primary position. EM is just one of those hats I have to wear."



STAKEHOLDER VOICE:
"Know those people who definitely have an interest in it to make it more feasible."

ACCEPTABILITY

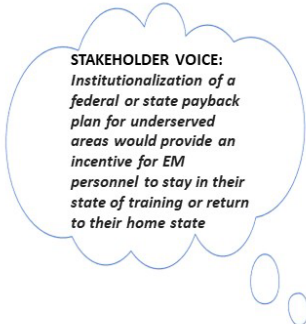
- Although HBCUs represented are not tracking recent graduates, they are open to third-party data collections or reporting such as to FEMA or US Dept. of Education
- **FACILITATOR:**
 - Ask colleagues where they went to school, and if at an HBCU, ask about the program names, then solicit their cooperation and making people aware



STAKEHOLDER VOICE: Ask colleagues on campus, where did they go to school. If an HBCU ask about programs; ask them to share info.

SUSTAINABILITY

- HBCUs need **funding and other incentives** to sustain such efforts
- Institutionalization of **federal and state payback programs for underserved areas** like in other fields (e.g., repayment of medical education loans if work in a rural area or incentive to stay in understaffed state)
- **Withhold federal funds from states or county emergency managers until they demonstrate integration** of HBCUs into their budgets and operations plans (hires, funds to HBCUs)
- **Fund pipeline training programs** so graduates commit to working in the state (stay or return) to avoid “brain drain, especially in coastal areas or disaster states (e.g., internships)




STAKEHOLDER VOICE:
Institutionalization of a federal or state payback plan for underserved areas would provide an incentive for EM personnel to stay in their state of training or return to their home state

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SUSTAINABILITY

- Have a **Google group of graduates** so university knows where they are and the positions they hold
- Federally Qualified Health Centers – grant **recent graduates access to training and continuing** to strengthen their skill set.
- **Concentrate on women** in the EM workforce, need for workforce development
- **Financial support provided to HBCUs would demonstrate that HBCUs are valued**



STAKEHOLDER VOICE:
Funds and monies placed at HBCUs would demonstrate that we (HBCUs) are valued

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SUSTAINABILITY

- **Salary seems to be a concern** when you come into the field, so need incentives for new professionals to stay in or enter the field
- Students want to know that they will have a **lucrative career**
- Figure out how to **reduce the “brain drain”**
- HBCUs are located in disaster areas and often **attract people initially to campuses** in these areas **for experience** (*but many go into industry after gaining that experience*)

Conclusions

The multiple data sources (consultations, interviews, literature scan, and focus group) were helpful in answering the primary questions that guided this project. Our conclusions for the questions and recommendations for next steps are as follows.

Key Conclusions

WHAT CONSTITUTES AN EM WORKFORCE PROFESSIONAL AND RECENT EM GRADUATE?

Lessons learned from the consultations suggested that new methods for capturing primary self-reported data from EM professionals and recent graduates may be needed to populate an EM current workforce diversity index and/or an EM pipeline diversity index. The focus group and interviews revealed that the list of EM professions and training programs will be long and not exhaustive. Therefore, a narrow list of professions and academic programs on which to focus is needed in order to feasibly execute such a project. Although “usual suspect” positions such as emergency manager and preparedness specialist might readily make such a list, other specialties such as food safety specialist and environmental specialist might not. Therefore, a range of disciplinary backgrounds needs to be represented on any panel of experts that might be convened to assist with compiling this list. Occupations in the American Community Survey and Department of Education’s IPEDS database offer a start.

WHAT DATA ARE NEEDED TO ESTIMATE THE NEED FOR A DIVERSE EM WORKFORCE AND WHERE WOULD ONE GET THESE DATA?

Although some secondary data sources exist such as the American Community Survey to estimate the working-age population from which EM personnel are drawn and the college-age population on which to generate the pipeline rates, the numbers for the EM professionals and graduate trainees are not readily available. Primary data collection may be needed. The results indicated that even the Department of Education's expansive IPEDS does not seem to capture the data about professions or graduates from training programs that will be needed. Lessons learned from the consultations suggested that new methods for capturing primary self-reported data from EM professionals and recent graduates may be needed to populate an EM current workforce diversity index and/or an EM pipeline diversity index.

WHAT OTHER PARAMETERS NEED TO BE CONSIDERED IN DEVELOPING AN EM DIVERSITY WORKFORCE INDEX?

A key factor in this process will be ensuring that the processes for data collection to populate the indexes and the guidance on their uses are feasible and acceptable to the field. The focus group and interviews were helpful in determining the feasibility and field's likely acceptability of collecting data to populate a workforce diversity index and tracking students as they graduate from EM or other programs to populate a pipeline diversity index. Although feasible and acceptable to the field, resources are needed to facilitate the implementation of processes to inform the field about the indexes and their utility; and provide guidance on their potential application in decision-making, policy formulation, and resource allocation at regional levels.

In summary:

1. The proposed formulae for the Workforce Index and Pipeline Index were received favorably.
2. Several model indexes are available as models for refining the formulae for the two indexes discussed.
3. Developers of current tools as well as focus group participants perceive that the field will find utility in each index.
4. Focus group participants also indicated that the Pipeline Index would be feasible to implement and acceptable on their campus; however, several barriers to implementation and sustainability were also expressed.

Such information is expected to be useful if, as a field, we want to force the issue of collecting diversity data on EM personnel with federal agencies such as Homeland Security and FEMA, but also with the U.S.

Recommendations and Next Steps

The following **recommendations** are made to facilitate discussions on how to move this effort forward should FEMA or other entities elect to advance equity in the EM workforce using one or both of the proposed indexes:

1. Continue development of the prototype index tools.
2. Seek funding to support pilot test of processes to populate the database (e.g., collecting data from HBCUs and existing population-based data) to establish baselines for indexes.
3. Disseminate pilot test to HBCUs and field to address any challenges encountered.
4. Refine prototypes and seek funding to scale-up implementation of the tool.
5. On HBCU campuses, implement internal needs and assets assessments to determine feasibility, assessment, and sustainability of a diversity equity initiative.
6. Focus some resources on workforce development for women.
7. Work with federal and state emergency management agencies and associations to better integrate HBCUs into their plans and operations, with incentives for successful integration and disincentives (withholding federal funds) when not demonstrated.
8. Leverage the resources of pipeline programs funded by non-FEMA or non-EM funding streams to share training, technical assistance, internship opportunities, and other supports that engage students/recent graduates to demonstrate EM is a viable career choice.
9. Work with Federally Qualified Health Centers (FQHCs), business sector, and individual HBCUs or HBCU EW consortium to identify placement opportunities to train students in and new positions for recent graduates to continue strengthening their EM competencies.
10. Provide HBCUs with funds to support new dedicated EM hires to support other positions that are being overwhelmed by EM responsibilities (e.g., decouple Chief of Police/Fire Chief from EM duties, have dedicated personnel who can deal with the EM activities).

Suggested **immediate next steps** specific to the indexes would be to:

1. Convene EM experts and professionals from the field and academic training programs in a Delphi-technique approach to refine the parameters for each index.
2. Narrow the disciplines and EM professions for which such an index would need data.
3. Narrow the list of geographic regions in which to pilot a process to collect data to populate the workforce and pipeline indexes.
4. Disseminate these findings and solicit feedback to further refine the indexes.
5. Begin population of the data parameters and assess the formulae.