Project Title	**The Program to Reduce Implicit Bias in Carroll Hospital Center Using the Implicit Association Test**
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Organization Name	Agency for the Eradication of Implicit Bias in Healthcare
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The Program to Reduce Implicit Bias in Carroll Hospital Center Using the Implicit Association Test

Problem Statement

Natural brain processes make all individuals susceptible to unconscious bias; however, stressful, fearful, or anger-evoking situations as well as the negative influence of media and social surroundings increase the risk of holding obstructive bias, and there is a greater risk of being negatively impacted by this phenomenon when belonging to a minority population (Rose & Flores, 2020). As a result, high rates of infant mortality (10.2 deaths per 1,000 live births for the Non-Hispanic Black population compared to 4.1 in the White population) and cardiovascular related diseases (190.0 cases per 1,000 in the Non-Hispanic Black population compared to 161.3 in the White population) in Maryland are more prevalent in minority populations than in non-minorities and are mostly caused by implicit bias in healthcare professionals (*Vital Statistics Administration* et al., 2018).

Background

One of the few key characteristics that all life has in common is an unconscious response to stimuli, external influences that evoke internal reactions. The human brain analyzes millions of these observations per second; however, it tends to bypass these processes by means of the psychological construct called schemas, a mental outline of concepts which organize individual ideas into broader categories (Kang, 2016). While the process of generalizing information is an essential cognitive tool for survival, when involving other people, this operation can influence social awareness and decision-making and can lead to involuntary discriminatory actions (Ogunyemi, 2021). This is known as implicit, unconscious, or cognitive bias.

To illustrate this concept, Princeton psychologist, Darlene Gross conducted a study where she showed a group of educators the same exact video of a young girl and asked them to judge her potential. Half of the educators were told the student came from a low income family while the other half were told she came from a wealthy background; the group that believed the student was rich predicted that she would excel greater in school, work habits, and motivation than the group who believed she was poor (Kang, 2016). Socio-economic status is a major target of cognitive association; however, other biases that target specific communities include beauty bias, ageism, vocal bias, racial and ethnic bias, gender bias, and literacy bias (Ogunyemi, 2021). Because these mechanisms are an uncontrollable, psychological response, everyone is susceptible to it as well as its consequences, especially in fast-paced, high-pressured environments when coupled with lack of concrete guidance and feedback (Rose & Flores, 2020). Healthcare professionals are no exception.

On the basis of perceived socio-economic status, education, age, class, gender, race, ethnicity, language, accent, disability status, appearance, and more, the ways healthcare professionals perceive, interact with, diagnose, and treat patients are subtly influenced. In the early 2000s, the Institute of Medicine produced two landmark reports, *Crossing the Quality Chasm* and *Unequal Treatment*, which found that minorities with the same insurance and socio-economic status as non-minorities receive lower quality healthcare when controlling for comorbidities and other confounders (Rose & Flores, 2020). As a result of unconscious categorization, interpersonal behaviors between healthcare professionals and minority patients are impacted alongside diagnostic and referral decisions, treatment and symptom management, as well as the overall quality of care given and received (Rose & Flores, 2020). In a bibliographic review of fifteen studies on cognitive bias in healthcare professionals, William J.

Hall et. al. found that there is an association between negative implicit bias against racial and ethnic minorities and health disparities such as cardiovascular illness and infant mortality, common measures of predicting population health, among these groups. In fact, the National Healthcare Disparities Report confirmed that Black, Indigenous, Hispanic, Latinx, and Asian Americans are less satisfied with their level of care and receive poorer health outcomes than their White counterparts (Hall et al., 2015). Additionally, women and sexual minorities are at increased risk of sexual and mental health disparities due to unequal healthcare access and preventive screening as a result of these biases (Baptiste-Roberts et al., 2017). While unconscious associations are an inevitable part of life, healthcare workers have a responsibility to understand these common biases and mitigate strategies to override them in order to ensure health equity for minority populations in the United States.

Current and Past Programs

In recent decades, there has been an increase in research designed to identify and assess implicit biases in healthcare professionals. For instance, in 1995, Harvard graduate Anthony G. Greenwald developed what is known as the Implicit Association Test (IAT) to programmatically measure the strength of associations between concepts and assumptions in people (*Project Implicit*, n.d.). This online test measures latency and accuracy in a series of rapid, contrasting but interconnecting prompts to determine the degree of an individual's bias in 14 distinct categories. The results for each IAT are classified on a spectrum of -2.0 (extreme minority bias) and 2.0 (extreme majority bias); scores reflecting the lowest implicit bias are close in absolute value to zero, and any score below -0.65 or above 0.65 is considered statistically significant bias (*Weight*, n.d.). In order to synthesize existing IAT data for evaluation of the role of implicit bias in healthcare, Ivy W. Maina et. al. conducted a literature review of 37 related independent studies.

More than half of the studies produced results that exhibit slight to strong racial bias in healthcare providers, and conclusions indicate that a greater presence of bias in providers yields poorer health outcomes for the people in their care and those they interact with (Maina et al., 2018). This review supports a growing body of evidence linking bias in healthcare to disparate health outcomes in minority populations.

As a result of publications such as these, mitigation strategies are being produced to counteract cognitive associations in clinical settings. For instance, one scholar suggests tasking candidate selection committees within hospital systems with the requirement of diversification standards in addition to a greater selection of minority professionals (Capers IV, 2020). While this approach fosters equity in inclusion, it may also perpetuate further discrimination in the employment process. Another approach advocates for the amendment of training protocols to incorporate meditation and mindfulness as a regular part of training maintenance (Burgess et al., 2017). Auspicious aspects of this proposition include challenging stereotypes and raising sustainable awareness within the field of healthcare. What is yet to be addressed is an institution of uniformity within healthcare systems to ensure all patients receive the same access to the unalienable right to health as well as a method by which these operations are incentivized within the target organization(s). Although these bias reduction approaches offer insightful methods to dismantling discrimination within healthcare, assurance of the full participation of healthcare associates is challenging, and there is no gold standard in unconscious bias training among these professionals.

Population

The target population for the program to mitigate the effects of implicit bias in healthcare are employees, patients, and personnel in Maryland initially pertaining to Carroll

Hospital Center in Westminster. As of 2019, the city's population is 18,552, and 24% of the city's population belongs to a racial or ethnic minority (*Westminster, MD*, 2019). Diversity among healthcare professionals in Maryland is similarly lacking; White individuals dominate the occupations of community and social services; physical and social sciences; health diagnosing and treating; health technology; and healthcare support (*HRSA Health Workforce*, 2017). Assessment of need for program implementation in Carroll Hospital center was determined in part by the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) data which reveal substandard patient ratings in reference to Carroll Hospital Center (*Find Healthcare Providers*, 2021). For instance, according to *Hospital Compare*, 41% of its patients reported understanding their care leaving the hospital, and 50% reported understanding their treatment, which are 11% and 13% under the national average respectively. Baseline patient survey rating for Carroll County Hospital is two out of five stars in 2021 (*Carroll Hospital Center*, 2021).

The proposed project is to develop and integrate a system of hiring standards and training-upkeep mechanisms in application of the Implicit Association Test and in partnership with Carroll Hospital Center for a period of two years. Population-specific considerations include the availability and proclivity of the target group. As a result, four (race, age, weight, and gender) out of the 14 IAT tests will be administered to new and existing hires as well as on a quarterly basis accompanied by implicit bias mitigation sessions which will be delivered to all hospital faculty and referred to throughout the program as "Workplace Improvement Sessions." Participants who score below -0.65 or above 0.65 on any of the four IATs will undergo training specialized to the individual results which will be referred to as "Hospital Practice Strengthening Sessions." This approach alleviates the direct culpability of the individuals involved in the

program as well as eliminates the need for candidate specifications. It also provides a framework for reciprocity in equivalent populations in addition to supporting the United Nations' Sustainable Development Goals 3 and 10, good health and well-being and reduced inequalities, respectively (*Sustainable Development Goals*, n.d.). Collaborative challenges may be incurred as a result of the administrative strain of COVID-19; however, the increased manifestation of morbidity in minority populations in addition to recent elevated cognitive stigmatization as a result of the pandemic warrants immediate investigation into root cause of health disparity (Rose & Flores, 2020).

Program Description

Program Goals and Objectives

- Goal: Decrease implicit bias in Carroll Hospital Center staff, measurable by collective IAT scores of Carroll Hospital Center staff, in absolute value by 10%.
    - Objective: Administer the race, age, weight, and gender Implicit Association Tests to all new and existing Carroll Hospital personnel on a quarterly basis as well as develop and engage all Carroll Hospital Center personnel in quarterly Workplace Improvement Sessions.
    - Objective: Develop and implement specialized training modules to be completed by all personnel who attain scores above 0.65 or below -0.65 on any of the four IATs, quarterly, between November, 2022 and October, 2024.
    - Objective: Quarterly obtain and analyze the IAT scores from Carroll Hospital Center staff throughout the duration of the program to inform future health education directives and estimate the reduction of implicit bias.
- Goal: Improve Carroll Hospital Center's HCAHPS patient survey rating by half a star.

    - Objective: Develop and administer Workplace Improvement Sessions on the importance of communication, consent, and identifying destructive behavior to all Carroll Hospital personnel upon hire as well as during quarterly implicit bias mitigation sessions.
    - Objective: Evaluate HCAHPS patient survey data for Carroll Hospital Center every three months to inform quarterly implicit bias mitigation sessions.
- Goal: Close the intervals between non-Hispanic Black and White infant mortality and cardiovascular morbidity by 1.25 percent each.
    - Objective: Develop a community advisory consortium in Carroll County to investigate and inform program staff on the most pertinent issues of local health disparity. This valuable information will be incorporated into quarterly Workplace Improvement Sessions.
    - Objective: Quarterly evaluate infant mortality (10.2 deaths per 1,000 live births for the Non-Hispanic Black population compared to 4.1 in the White population) and cardiovascular related diseases (190.0 cases per 1,000 in the Non-Hispanic Black population compared to 161.3 in the White population) in Carroll County to track the progression of disparate health outcomes (Vital Statistics Administration et al., 2018)

Program Intervention Strategies

As a pilot program, the initiative to reduce implicit bias in healthcare settings will be designed for implementation in Carroll Hospital Center. The pilot will run for the duration of 24 months, beginning November 1, 2022 and ending October 31, 2024, to confirm the feasibility and to determine the scalability of the program intervention. In an effort to reach the vulnerable

populations of Carroll County, assumed to be harmfully impacted by negative cognitions held by healthcare professionals, the program staff will implement a system of administrative and educational support within the Carroll Hospital Center and the surrounding community.

The program, Reducing Implicit Bias in Carroll Hospital Center Using the Implicit Association Test, will employ 24 staff and engage approximately 1,000 Carroll Hospital Center employees in quarterly administrations of the race, age, weight, and gender Implicit Association Tests, Workplace Improvement Sessions, and Hospital Practice Strengthening Sessions (*Carroll Hospital Center, Inc. Company Profile*, 2020). Between December 2022 and January 2023, the Hospital Practice Strengthening Sessions Planning Committee will evaluate the outlying response categories of the race, age, weight, and gender Implicit Association Tests and develop specific online training modules via Adobe Captivate unique to the type and severity of bias held in test subjects. For instance, pertaining to the race IAT, a training module will be developed for respondents with a strong negative association for people of color in addition to a training module for respondents with a strong negative association for people of European descent. Overall, eight training modules will be developed for the Hospital Practice Strengthening Sessions.

The testing process will take place over 30 days every three months during which time one member of the program staff will supervise the completion of the four IATs by all Carroll Hospital Center employees and record the scores of each individual. The test will be delivered via program-provided computers in groups of four, eight times a day. Respondents scoring above 0.65 or below-0.65 in any IAT will be referred to the appropriate training module(s) which will be conducted online similarly to the IAT. Upon receipt of a substandard IAT score, respondents

will be assigned to schedule a 20 minute Hospital Practice Strengthening Session with the corresponding engagement team per dissatisfactory module to complete the designated training.

At the same time as well as every other two months, the HCAHPS and vital statistics evaluators will analyze the data provided by the Medicare website, *Hospital Compare*, and the Vital Statistics Administration's vital statistics reports for Maryland in order to recognize trends and formulate recommendations to the Workplace Improvement Sessions Planning Committee. This committee is responsible for the fabrication of the variable, more generalized bias mitigation training sessions which will be conducted quarterly by the Workplace Improvement Session Engagement Team. The planning committee will collaborate with program evaluators, community consortia, and CHC administrators and evaluate prominent IAT weaknesses relative to collected scores to determine a need-based course of action for the Workplace Improvement Sessions.

Workplace Improvement Sessions will be delivered during the same 30-day time frame as the IAT implementation period. The Workplace Improvement Sessions Engagement Team will be tasked with delivering eight 30 minute Workplace Improvement Sessions per day for 30 days to Carroll Hospital Center employees in groups of four. These trainings are to be administered quarterly upon the completion of the four Implicit Association Tests. The sessions involve 15 minutes of lecture contingent on quarterly assessments of HCAHPS data, vital statistics, and community feedback followed by a ten minute question and answer session and a five minute questionnaire. The repetition of these training sessions is intended to build off one another in a sustainable manner to address strategies to recognize and combat implicit bias in day-to-day life with respect to progressive feedback.

Logic Model

Inputs	Activities	Outputs	Short-Term Outcomes	Intermediate Outcomes	Long-Term Outcomes
• Program staff • Volunteers • Conference rooms • HCAHPS data • Vital Statistics • IAT and Adobe Captivate Software	• Hire and train program staff • Develop the eight Hospital Practice Strengthening Session modules • Record HCAHPS data And vital statistics • Administer four IATs to All CHC staff quarterly • Plan and administer Workplace Improvement Sessions quarterly • Engage outlying respondents in Hospital Practice Strengthening Sessions	• Trained program staff • Completion of health education program by CHC • Developed Hospital Practice Strengthening Sessions • Comprehensive training sessions and protocol that can be continued past the program timeline	• Reduction of negative cognitive associations in CHC staff • Experiential gain to program staff and volunteers • Production and publication of research analysis in the field of implicit association in healthcare • Variable HCAHPS patient survey ratings • Comprehensive care to minority patients in Carroll County	• Culturally competent CHC healthcare workers • Improved patient-provider relationships at CHC measured by HCAHPS data • Evaluated effectiveness on program implementation on health of priority population measured by key indicators (cardiovascular morbidity and infant mortality indices between non-Hispanic Black and White populations in Carrol County)	• Continuation of program implementation protocol at CHC • Adoption of program policies in additional hospital systems • Established scalability of the whole-systems intervention

Assumptions: Implicit bias in healthcare negatively impacts the health of minorities, minority residents of Carroll County have access to Carroll Hospital Center (CHC), CHC directors and personnel will participate in the program

Timeline

The program will begin on November 1, 2022 and conclude on October 31, 2024. In the first month, program logistics will be established, grant funding mechanisms will be secured, program staff will be hired, and payroll will be set up. Training for staff as well as the introduction of mechanisms for marketing and data-recording will take place during the final two months of 2022. Following this, the development of the eight IAT-specialized training modules for the Hospital Practice Strengthening Sessions is estimated to take two months concurrent with the initial observations and analysis of HCAHPS and CHC vital statistics. These observations occur every two months for two months and will inform the planning sessions for the Workplace Improvement Sessions which take place every three months starting January 1, 2023. After the planning of these sessions, the four specified IATs (race, age, weight, and gender) will be administered to the Carroll Hospital Center staff over the following 30 days, and the Workplace Improvement Sessions will be administered to the same population following these tests. Beginning in March, 2023 and every three months, Hospital Practice Strengthening Sessions will be delivered to outlying IAT respondents. Results will be analyzed and reported in the final three months of the program.

Stakeholder Engagement Plan

To ensure the success of the program's interventions, a collaboration between planners, decision makers, implementers, participants, and partners will need to take place. The program planners and decision makers can be either paid or unpaid volunteers and are responsible for the organization, functionality, and prioritization of the program based on funding-availability, budgeted needs, and program demand. Program implementers are directly involved with the day-to-day operations and execution of the program to reduce implicit bias in the Carroll Hospital

Center. The program's participants consist of the Carroll Hospital Center's administration and current and future personnel in addition to Carroll Hospital Center patients, HCAHPS respondents, and in-patient and out-patient vital statistics. No state licensure is required for the human resources involved in the health administration and education disciplines utilized throughout this program (Issel et al., 187; 2022). The program is fully funded by its partner, the Agency for Healthcare Research and Quality, and similarly aligns with its mission "to produce evidence to make health care safer, higher quality, more accessible, equitable, and affordable" (Mission & Budget, 2021).

Budget Justification

Senior Personnel.

Senior personnel include the program's manager, director of health education planning and engagement, community health officer, and administrative advisory committee. The program manager oversees the program to reduce implicit bias and will work 20 hours a week and earn $40 an hour, the pay for a program manager in the 75th percentile of Maryland salaries for similar positions (Salary.com, 2021). The director of health education planning and engagement will oversee the Hospital Practice Strengthening Session and Workplace Improvement Session planning committees and engagement teams and will work 20 hours per week for $32.48 an hour, the nation's average for directors of health education (Average Director Of Health Education Salary, 2021). The community health officer is essential for the relay of information between the program personnel, stakeholders, and community. This person will work 15 hours a week for $23.51 an hour, Baltimore's average for community health workers (Community Health Worker Salary in Baltimore, MD, 2021). Lastly, the administrative advisory committee is responsible for the oversight of administrative positions within the program staff and will consist

of three individuals working 15 hour weeks at $23.25 an hour, Maryland's average administrative coordinator salary (Administrative Coordinator Salary in Maryland, n.d.). All senior personnel will work 46 weeks out of the year for two years.

Other Personnel.

The financial officer is essential to budgeting, planning, and allocation. This person will work for $23.24 an hour and will only need to work five hours a week (Finance Officer Salary in Maryland, n.d.). The director of scheduling and coordination will work the same amount of time per week for $18.61 an hour (Average Scheduling Coordinator Salary, 2021). The CHC policy development committee is responsible for policy advisement to Carroll Hospital Center based on research findings and will consist of three individuals working ten hours a week for $22.96 hourly (Health Policy Analyst Salary, 2021). The CHC liaison officer will report findings between program and CHC staff; this person will work ten hours a week for $22.86 an hour (Average Liaison Salary, 2021). The total quality manager is expected to carry-out quality improvement mechanisms for the program and its partner, CHC, and will be paid Maryland's average of $39.65 an hour for 15 hours a week (Quality Manager Salary in Maryland, 2021). The social marketing team will consist of two individuals working ten hours a week for $28 an hour, and the research processes and findings liaison will work ten hours a week for $20.19 an hour (Social Media Marketer Annual Salary, 2021; Health Writer Salary, n.d.). Each of the aforementioned personnel will be required to work for 46 weeks out of the year. On the other hand, the HCAHPS/vital statistics evaluators and Hospital Practice Strengthening Session and Workplace Improvement Session planning committees and engagement teams will only be required to work 26 weeks out of the year, as their work is time-specific and relative to quarterly sessions. These teams will each consist of three individuals working 15 hours a week. The

average salaries for these positions are $24.62, $20.31, and $20.31, respectively (Average Evaluator Salary, 2021; Corporate Trainer Salary, n.d.).

Fringe Benefits.

The six employees pertaining to senior personnel will collectively receive fringe benefits of $93,567 a year. Fringe benefits allocated for the additional 18 program staff members are estimated to equal a total of $125,727. These benefits include life insurance, retirement plans, child care assistance, tuition reimbursement, cafeteria subsidies, etc., and they are estimated to total $60,087.

Equipment and Maintenance.

Four laptop computers will be needed to plan and engage CHC staff in online IAT testing and training at cost of $500 each in addition to an $800 printer, copier, and fax machine. Yearly estimated maintenance per computer is $250 (2021 Computer Repair Prices: Mac, PC & Laptop Repair Costs, 2021). Estimated expenses for miscellaneous office supplies including printer ink, paper, stationary, pens, etc. is $500.

Travel.

The program will not require any traveling or traveling expenses. The program will take place in Carroll County, Maryland for the full two-year duration. Local personnel will be considered for hire.

Participant Support.

Of the 24 members involved in the program implementation, stipends afforded are $500 each to cover training-related expenses. Allotted subsidence to each program member is $100 to offset housing-related training expenses. Total participant costs are estimated to equal a total of $38,800.

Other Direct Costs.

Staff training and maintenance costs are estimated to be $1,111 per person (ELM Learning, 2021). The program will consist of 24 personnel requiring a total of $26,664 to be allocated to this expense. Additionally, each of the four laptop computers will need to be equipped with Adobe Captivate, training module development software, which costs $39.99 a month. On four laptops for 12 months, the estimated cost is $1,919.52 (Adobe Captivate, 2021). Publications are estimated to cost $1,350 each, and the program anticipates releasing two publications (Van Noordan, 2013). Finally, according to Marketing Costs Healthcare, n.d., estimated costs for ads and program promotion are $3,000 a month.

Evaluation Plan

Definition of Program Success

The proposed intervention to reduce implicit bias in the Carroll Hospital Center will be successful if the mitigation of implicit bias in CHC personnel reduces health disparities in the hospital's minority patients. If the intervals between non-Hispanic Black and White infant mortality and cardiovascular morbidity each decrease by 1.25 percent, the program will be considered successful.

Key Evaluation Questions

Were the Hospital Practice Strengthening Sessions successful in reducing the quarterly IAT scores of health professionals at the Carroll Hospital Center? Did the Medicare *Hospital Compare* rating improve for CHC? Did the reduction of implicit bias in CHC professionals contribute to increased equitability in the scores for infant mortality and cardiovascular morbidity amongst race? How receptive were the CHC professionals to the program's interventions? How can this project be improved or replicated in a scale-up approach?

Key Indicators of Project Performance and Outcomes

One of the project's major key indicators of project performance is infant mortality, specifically in comparison between the White and non-Hispanic Black populations. While in the state of Maryland, the White infant mortality rate is 4.1 deaths per 1,000 live births, the non-Hispanic Black infant mortality rate is more than double that at 10.2 deaths per 1,000 live births (*Vital Statistics Administration* et al., 2018). According to Saluja et. al, multiple studies suggest a major source of this disparity is the presence of racial implicit bias in the healthcare system. Since high-stress environments foster harmful cognitive processes, settings such as emergency departments and labor and delivery units are vulnerable to pervasive bias-contributing disparities. In 2012, a study found, when adjusting for necessary procedures, cesarean sections, a procedure which increases the likelihood of a negative maternal/fetal outcome, is more likely to be performed on Black and Latina women than White women (Saluja & Bryant, 2021). As a result, it is assumed that the greater the disparity between racial infant mortality, the more likely the population is negatively affected by implicit bias.

Another major indicator of project performance is the rate of cardiovascular morbidity between the Maryland White and non-Hispanic Black populations. Black Americans are more likely to acquire non-ischemic cardiovascular illness than their white counterparts and comparatively experience higher rates of cardiovascular-related hospitalization and death (Shirey & Morris, 2019). In Maryland alone, the Non-Hispanic Black population experiences a rate of cardiovascular morbidity of 190.0 cases per 1,000 compared to 161.3 in the White population (*Vital Statistics Administration* et al., 2018). Despite the greater prevalence of risk factors, such as hypertension, faced among the Black population, the racial discrepancy in morbidity rate transcends expectations based only on racial variation of generalized cardiovascular risk

factor burden (Shirey & Morris, 2019). Notwithstanding the evidence of a higher prevalence of cardiovascular morbidity in the Black population, Black patients are underrepresented in advanced cardiovascular treatments suggesting an implicit, interpersonal agency (Shirey & Morris, 2019). Thus, it is expected cardiovascular morbidity is a sound indicator of implicit bias in healthcare professionals.

Other indicators for evaluation include the progression of the Carroll Hospital Center employees implicit association scores, as well as incoming Hospital Consumer Assessment of Healthcare Providers and System data which inform the Medicare *Hospital Compare* quality rating. In order for the project for Reducing Implicit Bias in Carroll Hospital Center Using the Implicit Association Test to achieve its primary goal to contribute to the mitigation of bias-related disparities, it must first accomplish the aim of improving the implicit association scores in Carroll Hospital Center employees; this is monitored and evaluated quarterly. This information, as well as new reports of CHC-related HCAHPS data will establish internal validity and inform the progression of intervention strategies to ensure the conditional goal of implicit bias reduction is met.

Data Collection Methods

Evaluation will be conducted using a combination of online questionnaires and face to face interviews between program staff and implicit bias training participants to establish receptivity of information, intent to progress outside of the program, impact, and feedback. These feedback mechanisms will be established quarterly following the implementation of the IAT in subsequent groups of four. The research processes and findings liaison will be responsible for the collection and synthesis of IAT scores of CHC employees obtained throughout the 24-month process in order to determine the theory of change and consequent

success or failure of the program's intent to reduce implicit bias in addition to the progression of participation among CHC employees. The research processes and findings liaison, in addition to the social marketing team, is also in charge of collaborating with the community consortium to identify local impact through word of mouth, social media inquiries and interaction, and analysis of HCAHPS and Medicare *Hospital Compare* data.

Ethical Considerations

In pursuit of the application of the project for Reducing Implicit Bias in Carroll Hospital Center Using the Implicit Association Test, ethical considerations of scalability, federal regulations, and participant eligibility were examined. For instance, with the intent to expand the impacted population, this project addresses external validity through the analysis of the pilot program's intervention strategies and outcomes. It observes the legal considerations of the target country, the United States, with translatability to other health systems and international essential public health functions (*CDC 10 Essential Public Health Services*, 2021). In conjunction with The U.S. Department of Health and Human Services' codified regulations, the program to reduce implicit bias observes ethical hiring and subjectifying principles. Program staff will be employed and trained with culturally competent consideration to engage all hospital staff in the same mediation regardless of and with respect to social context. Program participants will be properly informed of the 24 month proceedings, and written consent will be obtained from each CHC employee (OHRP, 2016). Eligibility for participation is limited to the employees of Carroll Hospital Center in cooperation with CHC patients and the Carroll County community.

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Appendix A

Stakeholder Engagement Table

Stakeholders	Description	Examples	Shared Information
Program Planners and Decision Makers	Program planners and decision makers are responsible for the organization, functionality, and prioritization of the program based on funding-availability, budgeted needs, and program demand.	• Program Manager • Administrative Advisory Committee • Director of Health Education Planning and Engagement • Community Health Officer • HCAHPS and Vital Statistics Evaluators • Workplace Improvement and Hospital Practice Strengthening Sessions Planning Committees • Total Quality Manager • Director of Scheduling and Coordination • Financial Officer	These stakeholders will be given the overall goals and objectives of the program. Program planners and decision makers will be advised of the importance and relevance of the program's functions. These stakeholders will receive the quarterly IAT results for evaluation purposes.
Program Implementers	Program implementers are directly involved with the day-to-day operations and execution of the program to reduce implicit bias in CHC.	• Workplace Improvement and Hospital Practice Strengthening Sessions Engagement Teams • CHC Liaison Officer • CHC Policy Development Committee • Social Marketing Team • Volunteers and Advisory Consortia	These stakeholders will be given the overall goals and objectives of the program and will receive monthly inputs and updates from advisory committees.
Program Participants	The program will administer training to all personnel pertaining to CHC. The anonymous responses of CHC patients with explicit consideration of minority health will be utilized.	• CHC Administration • Current and Future CHC Personnel • HCAHPS Respondents • CHC In-Patient and Out-Patient Vital Statistics	CHC Administration will participate in monthly meetings. CHC personnel will participate in training and evaluation. The Carroll community will have access to quarterly reports.
Program Partners	The program to reduce implicit bias in healthcare in partnership with the CHC is funded entirely by the Agency for Healthcare Research & Quality.	Agency for Healthcare Research & Quality (AHRQ)	The Agency for Healthcare Research & Quality will be given quarterly financial and progressive reports.

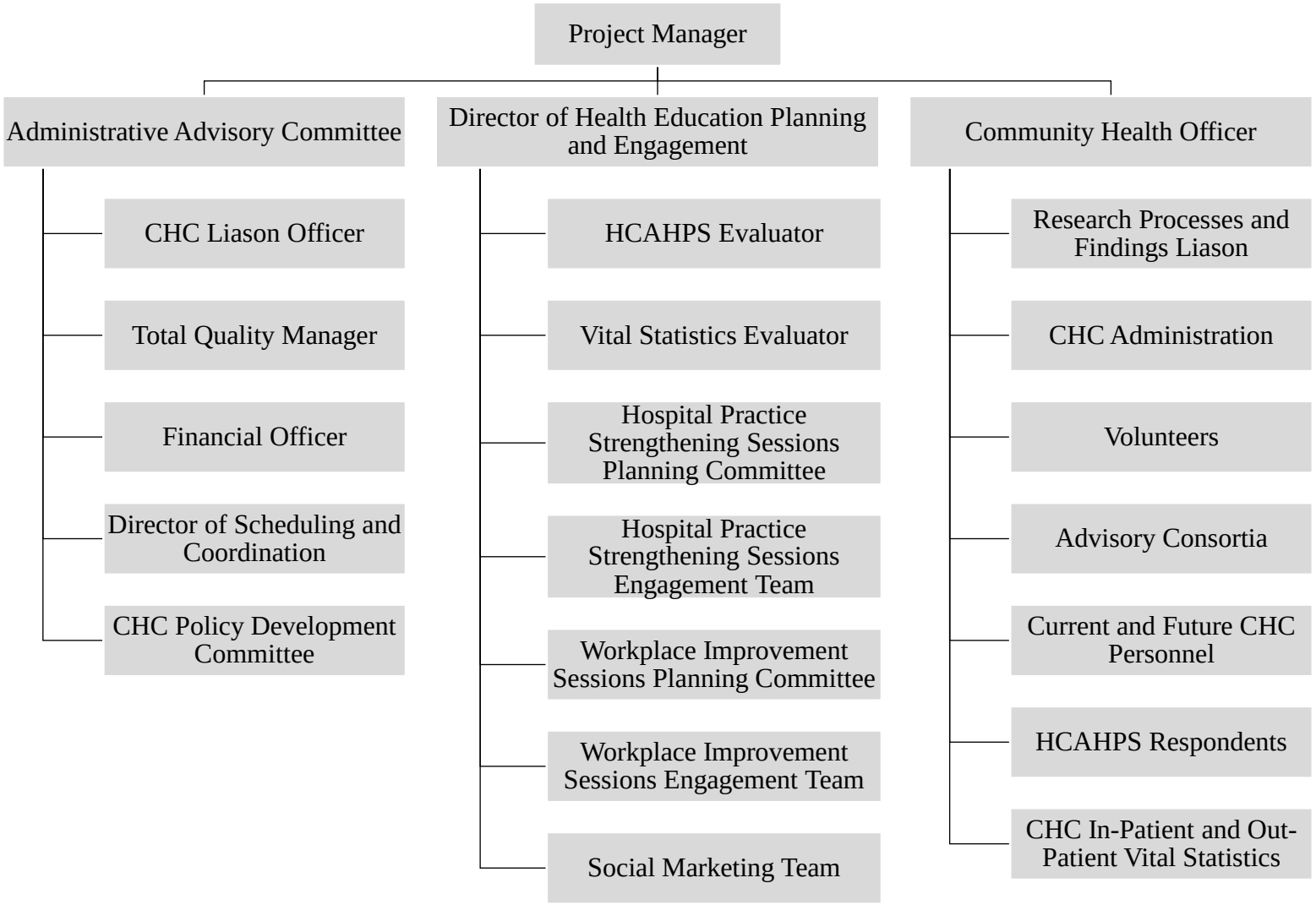
Appendix B

Timeline

Duration: Dec. 2022–Oct. 2024	2022		2023												2024									
Activity:	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
Establish program logistics																								
Secure grant funding mechanism																								
Hire program staff																								
Set-up employee payroll																								
Train program staff																								
Set up data-recording and marketing mechanisms																								
Develop eight IAT-specialized training modules for Hospital Practice Strengthening Sessions																								
Record and analyze HCAHPS and CHC vital statistics																								
Plan Workplace Improvement Sessions																								
Implement Workplace Improvement Sessions																								
Administer IATs to all CHC personnel																								
Deliver Hospital Practice Strengthening Sessions to outlying respondents																								
Analyze and report results																								

Appendix C

Personnel Table



Appendix D

Budget Table

					YEAR 1:	
Project Title: Reducing Implicit Bias in Carroll Hospital Center Using the Implicit Association Test	**Hours/week (personnel salary and wages only)**	**Units**	**%Effort/OR Unit cost if other than personnel**	**Amount ($)**	**Funds Requested ($)**	
A. SENIOR PERSONNEL:						
Program manager	20	1	6	36,800	**18,400**	(Salary.com, 2021)
Director of health education planning and engagement	20	1	6	29,882	**14,941**	(*Average Director Of Health Education Salary*, 2021)
Community health officer	15	1	5	16,222	**6,083**	(*Community Health Worker Salary in Baltimore, MD*, 2021)
Administrative advisory committee	15	3	5	48,128	**54,143**	(*Administrative Coordinator Salary in Maryland*, n.d.)
TOTAL A. SENIOR PERSONNEL					**93,567**	
B. OTHER PERSONNEL						
Financial officer	5	1	1.5	5,345	**668**	(*Finance Officer Salary in Maryland*, n.d.)
Director of scheduling and coordination	5	1	1.5	4,280	**535**	(*Average Scheduling Coordinator Salary*, 2021)
CHC policy development committee	10	2	3	21,123	**10,562**	(*Health Policy Analyst Salary*, 2021)
CHC liaison officer	10	1	3	10,516	**2,629**	(*Average Liaison Salary*, 2021)
Total quality manager	15	1	4.5	27,359	**10,259**	(*Quality Manager Salary in Maryland*, 2021)
HCAHPS/vital statistics evaluators	15	3	4.5	28,805	**32,406**	(*Average Evaluator Salary*, 2021)
IAT-Specific health training / bias mitigation session pla	15	3	4.5	23,763	**26,733**	(*Corporate Trainer Salary*, n.d.)
IAT-Specific health training / bias mitigation session ex	15	3	4.5	23,763	**26,733**	(*Corporate Trainer Salary | PayScale*, n.d.)
Social marketing team	10	2	3	25,760	**12,880**	(*Social Media Marketer Annual Salary, 2021*)
Research processes and findings liason	10	1	3	9,287	**2,322**	(*Health Writer Salary*, n.d.)
TOTAL B. OTHER PERSONNEL					**125,727**	
TOTAL SALARIES AND WAGES (A+B)					**219,295**	
C. FRINGE BENEFITS (NOT INCLUDING HEALTH INSURANCE)						
Senior Personnel		6		93,567	**25,637**	
Other personnel		18		125,727	**34,449**	
TOTAL C. FRINGE BENEFITS at 27.4%					**60,087**	
TOTAL SALARIES AND WAGES AND FRINGE BENEFITS (A+B+C)					**279,381**	
D. EQUIPMENT and EQUIPTMENT MAINTANANCE						
Fax, printer, and copier combo		1	800	800	**800**	
Laptop computers		4	500	2000	**2,000**	
Computer maintenance		4	250	1000	**1,000**	(*2021 Computer Repair Prices*, 2021)
Misc. supplies				500	**500**	
TOTAL D. EQUIPMENT					**3,500**	
E. TRAVEL						
N/A				**0**	**0**	
TOTAL E. TRAVEL					**0**	
F. PARTICIPANT SUPPORT COSTS						
Stipends		24		12000	**12,000**	
Subsistence		24		2400	**2,400**	
TOTAL F. PARTICIPANT COSTS					**38,800**	
G. OTHER DIRECT COSTS						
Staff Training and Maintanance		24	1111	26664	**26,664**	(ELM Learning 2021)
Adobe Captivate		4	479.88	1919.52	**1,920**	(*Adobe Captivate*, 2021)
Publication Costs/Dissemination		6	1350	8100	**8,100**	(Van Noordan, 2013)
Ads/Program Promotion		12	3000	36000	**36,000**	(*Marketing Costs Healthcare: What You Need to Know*, n.d.)
TOTAL G. OTHER DIRECT COSTS					**72,684**	
H. TOTAL DIRECT COSTS (A through G)					**394,365**	
I. INDIRECT COSTS (F&A) BASE: SALARIES/WAGES AND BENEFITS 35%					**97,783**	
J. GRAND TOTAL DIRECT and INDIRECT COSTS (H+I)					**492,148**	

Appendix E

Public Health Librarian Consultation

On November 16, 2021 an individual consultation was scheduled with the public health librarian, Professor Wang, and preliminary materials were provided. The meeting was held via Zoom on December 2, 2021. During the consultation, APA 7 referencing style was evaluated, critiqued, and consequently, resolved. Professor Wang made note of the use of valuable scholarly sources and offered suggestions for the inclusion of additional appropriate sources.