Executive Summary
This report will provide a summary of outcomes for the sixth Annual Health Risk Assessment (HRA) that was conducted at Norwalk Community College (NCC) during the spring 2021 semester. This year’s HRA captured data pertaining to the impact of the COVID-19 pandemic and campus shut down. A large majority of NCC employees performed job-related functions via a telework setting. The primary aims of the HRA are to identify risk factors associated with our employees and to use the outcomes to steer the Wellness Committee (WC) programming regarding campus repopulation in the upcoming academic year.

Funding Information
No funding was provided.

Overview and Background
The mission of the WC is:
“The WC will provide appropriate health and wellness guidelines and recommendations to assist with positive and well-informed lifestyle modifications for the NCC campus and associated individuals, while acting as role models” (approved by executive cabinet, May 2014).

The WC is an established standing committee at NCC that reports to college governance. This committee has representation of members across multiple departments and divisions of the college, as well as student representation. The 2021 HRA is the sixth consecutive annual survey administered by the WC to measure employee health and identify potential risk factors that can be addressed via our Workplace Wellness Program (WWP). The WC’s WWP has three major areas of focus: 1) Health Behavior Modification, 2) Physical Activity Promotion, and 3) Nutrition Education.

Workplace health industry standards [1] suggest annual HRA reporting to support the current and future programmatic needs of any WWP. During the uncertain times of the COVID-19 pandemic, there is an uptick in the severity of metabolic, cardiovascular, and mental health risk factors that are exacerbated by physical inactivity associated with a telework setting [2]. In these times, the importance of WWP has exponentially increased as a resource for working adult’s health management. The target population of our campus includes employees, defined as full-time/part-time faculty/staff, NCC Foundation (NCCF) Members, sub-contracted vendors (i.e., security, cleaning, etc.), and students. For the 2021 HRA, students were not included. This is due to the questionnaire being designed specifically for employees of an organization. Although excluded from the HRA, students were not excluded from any other WC activity/lecture/screening offered virtually this past academic year.

1 – Approved
**Specific Aims**
The primary aims of the 2021 HRA were to:
1. Identify risk factors of college employees.
2. Measure overall employee health and wellbeing within the scope of the questionnaire.
3. Use data to assist with future virtual and in-person programming, screenings, and wellness activities for our campus.

**Implementation and Procedures**

**Design and Approval**
The WC Chair, two committee members, and the Executive Director were appointed to an ad hoc sub-committee to implement the 2021 HRA. The sub-committee determined that the University of Michigan’s Health Management Research Center’s Health Risk Assessment, which was used for the previous year, would be used again with minor revisions [3]. Revisions included an option to select “Prefer not to answer” for demographic questions on age, gender, race/ethnicity, and income. There was also the addition of new questions to capture data pertaining to COVID-19, resistance training, and sodium intake. In past HRA summary reports, there was missing data on resistance training, which is part of the US Physical Activity Guidelines. Sodium intake, which can increase blood pressure and is a well-documented chronic condition within our employee population, was also not addressed in previous HRA reports. The new questions and response options are listed below. The 2021 questionnaire is available upon request (please e-mail: pgallo@norwalk.edu).

**New questions for the 2021 HRA Survey:**
- Q#19 Each day, how many servings of food do you eat that are high in sodium, such as packaged, prepared and restaurant foods? (1/4 tsp salt = 575 mg sodium; 1/2 tsp salt = 1,150 mg sodium; 3/4 tsp salt = 1,725 mg sodium; 1 tsp salt = 2,300 mg sodium).
  Responses: 5-6 servings a day; 3-4 servings a day; 1-2 servings a day; Rarely/never.
- Q#20 Over the past year, has the COVID-19 Pandemic reduced your physical activity levels?
  Responses: Hardly any; Some; A Lot; Since the COVID-19 Pandemic physical activity has increased for me.
- Q#23 How many days per week do you perform resistance training (AKA: weightlifting) with the use of free weights, resistance machines, elastic bands, or body weight (i.e., push-ups)?
  Responses: 7 days; 5-6 days; 3-4 days; 1-2 days; none.
- Q#28 When was the last time you had these preventative services or health screenings? Added “COVID-19 Vaccination.”
  Response: <1 year; 1-2 years ago; Never; Do Not Know; N/A.

**Implementation and Administration**
The 2021 HRA was converted and distributed as a Survey Monkey questionnaire. The WC Executive Director authored a Public Relations request and message sent to all employees of the college announcing the release of the HRA and dates it would be available for completion. This year’s HRA was accompanied with a QR code for easy access to the survey from any device. Public Relations sent a reminder message at the halfway point of the data collection period. It was determined that NCC Institutional Review Board approval for human subjects was not be necessary.

**Procedures**
The survey was administered on a voluntary basis and all self-reported information was anonymous and kept confidential. Although not necessary, it was recommended that each participant have a copy of their most recent laboratory results to help answer some of the questions. The data collection period was reduced from five weeks
to three weeks due to recent research indicating that the majority of survey responses will occur in a shorter duration. The HRA was opened on Monday April 12, 2021 and closed on Monday May 3, 2021.

**Data Analysis**
Once the data collection phase was complete, the WC Executive Director aggregated raw data into a spreadsheet that would be used for analysis and generation of descriptive statistics. Due to a “lower-than-normal” response rate, this year’s data was categorized into three groups: 1) fulltime and part time faculty, 2) fulltime and part time staff (including one subcontractor), and 3) total respondents.

Out of the 49-question inventory, 30 questions pertaining to the health-related components of fitness were selected for analysis. These 30 questions provide information about risk factors linked to cardiovascular, metabolic, renal, and orthopedic disease and contributing to increased rates of mortality in the United States [4]. Also included for analysis were questions pertaining to COVID-19, physical activity/inactivity, diet, and lifestyle habits (i.e., stress management), which align with the three primary branches of the WWP and current health-fitness position stands [4-7].

**Results**

**Completion Rate**
Twenty-four participants completed the 2021 HRA survey, including 11 staff, 12 faculty, and 1 subcontractor. Of the total number of participants, 71% (n=17) were female, 25% (n=6) were male, and 4% (n=1) preferred not to indicate gender. The participants had an average age of 48 (±14) years with an age range of 24 - 61 years. Average age for this year’s respondents is 10 years less than the 2020 HRA results. A total of 58% (n=14) participants responded that they had previously completed the HRA, 16% (n=4) had not previously completed the HRA, and 25% (n=6) could not recall if they had previously completed the 2020 HRA.

**Completion Rate in Comparison to 2020**
In comparison to the 2020 HRA there was a -38% (n=-15) decrease in respondents. The total analyzed responses for the 2020 HRA was N=39. Comparison of the 2020 to 2021 HRA found that there were a similar number of staff respondents (n=12 [2021] vs. n=15 [2020]) and a significant decrease of -57% (n=-12) in faculty respondents. In total there was a significant reduction in total male respondents with 76% (n=19) less males completing this year’s HRA. There was a very small response rate from part time faculty (n=5) and staff (n=1) making analysis of these groups difficult for this year’s survey. It is possible that the COVID-19 pandemic and burnout with virtual activities such as this survey may have impacted the number of faculty respondents for the 2021 HRA.

**Participant Demographics**
Results from Tables 1 and 2 provide participant characteristics and perspective regarding cardiovascular health (blood pressure) and anthropometry (body mass index [BMI], waist circumference, height, and weight). All demographic variables are reported as means (±SD) for faculty, staff, and the total sample (Table 1). Categorical variables in Table 2 are reported as proportions for self-reported gender and race/origin.

Average systolic blood pressure for total respondents was 121/74 mmHg, which is classified as “elevated” or pre-hypertension according to the American Heart Association’s 2018 hypertension guidelines [8], in contrast to the previous year’s findings of staff having significantly higher blood pressure versus faculty, this year’s HRA results indicate similar measures of blood pressure for both faculty and staff (Table 1). Out of total respondents, 17% (n=4) of the sample is currently medicated to manage hypertension. The percentage of those who self-reported currently having, taking medication for, or receiving medical treatment for hypertension totaled 21% (n=6) of respondents who knew what their blood pressure measurement was. A total of 11 (46%) respondents
indicated that they “do not know” their blood pressure. Similarly, a total of 12 (50%) respondents indicated that they “do not know” or “have not had a blood test in the past 5 years” regarding total cholesterol levels. It is recommended by the American College of Sports Medicine (ACSM) that blood pressure and blood profiles be checked at least once every three years for adults [4]. Average BMI (29 kg·m⁻²) for the total sample falls into the upper limit of the “overweight” category, making this sample borderline obese (>30 kg·m⁻² is classified as obese) [7].

**Self-Reported Chronic Disease/Conditions Risk**
The data was analyzed for the frequency of chronic diseases/conditions that participants self-reported as “had in the past,” “currently have,” “is currently medicated for,” and/or “is under medical care.” In order of highest to lowest frequencies, the results indicate that NCC employees self-reported low allergies (33%), back pain (25%), and hypertension (25%), and arthritis (20%) as the most chronic diseases/conditions that they currently have, are medicated for, and/or are currently seeking medical care. These findings are very similar to the results of the 2020 HRA Summary Report [3].

**Anxiety, Depression, and Stress**
Anxiety, depression, and stress management continue to be a major area of health that impacts our employees at NCC. COVID-19 related sequelae also poses a new and serious impact on the mental health of working adults globally [9]. A total of 75% (n=18) individuals reported feeling tense, anxious, or depressed “often” or “sometimes.” Furthermore, 25% (n=6) of individuals indicated that they use drugs or medication (including prescription) “almost every day” or “sometimes” to help manage feelings of anxiety or stress. Eighty-three percent (n=20) of total respondents stated that stress has negatively impacted their health over the past 12 months of employment, which is consistent across both the faculty and staff groups. A total of 92% (n=11) of staff reported missing anywhere from 2-15 days of work over the past year, specifically due to stress. This is a staggering number compared to the 2020 HRA data and is likely attributed to the stress and anxiety of teleworking or returning to work during the COVID-19 pandemic.

**Physical Activity**
New to this year’s HRA was a question pertaining to how COVID-19 has impacted physical activity. Similar to other research findings [9], a total of 33% (n=8) respondents have self-reported that physical activity has significantly increased since the start of the pandemic. A total of 9 (38%) and 7 (29%) respondents stated that COVID-19 has negatively impacted physical activity “a lot” or “some,” respectively.

When asked about engagement in vigorous exercise, a total of 67% (n=16) participants reported engaging in this type of exercise at least 3-5 days a week. These totals meet the minimum Physical Activity Recommendations for vigorous activity, which are 3-4 days of 20 minutes and is consistent with the 2020 HRA results [4]. For moderate exercise, a total of 40% (n=10) individuals indicated that they engage in 5 or more days of moderate intensity at least 10 minutes in duration. These exercise volumes (intensity * duration) do not meet minimal physical activity recommendations for moderate intensity aerobic exercise. New to this year’s HRA is a question pertaining to the resistance training (weightlifting or body weight exercise) recommendations of 1-2 days per week. A total of 58% (n=14) respondents resistance train at least two days per week, with the remaining 42% (n=10) reporting that they engage in no resistance training at all.

**Nutrition**
A total of 54% (n=13) individuals reported eating 3-4 or 5-6 servings a day of high fiber grains, fruits, and vegetables. This is a significant reduction from last year’s HRA for both faculty and staff. When asked about the number of food servings per day containing high amounts of saturated fat, sodium, or cholesterol, 42% (n=10) of respondents indicated that they ingest 3-4 servings per day. The 2021 HRA also asked about sodium
intake which indicated that 17% (n=4) of our respondents are consuming sodium above the recommended daily intake of 2,400mg [6].

**COVID-19 Vaccination**
A total of 75% (n=18) of all respondents indicated that they have been fully vaccinated for COVID-19 which represents 92% of the faculty group and 58% of the staff group. These results are interesting considering the staff group has been on campus more over the past academic year and are exposed to more public facing job functions.

**Participation in Workplace Wellness Programming (WWP) and reported areas of improvement**
A total of 15 respondents (63%) indicated that the WWP has value to them, and they are interested in participating in associated programming. The remainder of the respondents stated that although interested in WWP, they are currently unsure if they will participate in programming at this time. In order of highest frequency to least, this year’s respondents indicated that they are interested in the following health fitness goals over the upcoming calendar year.
- Increased physical activity
- Weight loss through diet and exercise
- Reducing and coping with stress
- Reducing sodium intake
- Lowering cholesterol
- Improving management of hypertension
- Reducing alcohol consumption weekly

**Discussion**
The findings of this report provide some new insight regarding how COVID-19 has impacted our employees’ health and wellness over the past academic year. Much of the report falls in alignment with previous HRA results and general research findings regarding COVID-19, physical activity, nutrition, and mental health.

The chief chronic conditions that are currently being managed by this population include allergies, low back pain, arthritis, and hypertension, hypercholesterolemia (high cholesterol), and overweightness. This sample eats less fiber and more fat than the recommended servings per day. Although this sample is classified on average as pre-hypertensive, daily intake of sodium is below that of what is recommended. The results of the survey demonstrate that this group of individuals meets the physical activity guidelines for vigorous aerobic exercise. On the contrary, a large portion of the sample does not meet physical activity recommendations for moderate intensity and resistance training. Consistent with current literature about 35% of working adults report increased physical activity since the start of the COVID-19 pandemic and the pivot to telework settings. Anxiety and stress occurrence are higher than in past HRAs, especially within the staff group, and is resulting in mental health related absences from work. COVID-19 related sequela is a mental health concern that employers must be prepared to manage since it is likely that many employees will be experiencing it upon re-entry to work or soon after return to work protocols are established.

In conclusion, the findings of this HRA demonstrate a need and the importance of sustainable workplace wellness programming to assist with the health and wellbeing of working adults. Well-rounded programming is essential and should continue to focus on the three major areas of our workplace wellness programming, which includes 1) Health Behavior Modification (including Stress Management), 2) Physical Activity Promotion, and 3) Nutrition Education. Programming needs to be offered both in person and virtually and should include COVID-19 and return to work related considerations for all employees.
Summary of Future Programming

The NCC Wellness Committee will focus on the following topics for Workplace Wellness Programming during the 2021-2022 academic year and beyond. Now more so then ever, the work of this committee is critical to enhance employee health as we begin to repopulate campus and recover from the COVID-19 pandemic.

1. Stress, anxiety, and depression management services and referral system is indeed a top priority for our employees. This includes programming to help employees with repopulation of campus, return to in-person work, and continuation of virtual programming.
2. Seminars, screenings, and workshops to address the management of hypertension, cholesterol, low back pain, allergies, arthritis, alcohol consumption, and dietary sodium intake.
3. Programming for weight management and improved physical activity. This programming must focus on benefits of resistance training and accessibility of exercises at both home and work.
4. Dissemination of information on the importance of COVID-19 vaccination and CDC guidelines for social distancing at the workplace.

Supplemental Information:

Appendix A includes infographics for the purpose of education and awareness. Figure 1 describes the 2018 Physical Activity Guidelines for adults, helping individuals to understand how long and how frequently they should be getting physical activity, as well as what intensities and activities are recommended. In Figure 2, serving recommendations are shown for each food group, as well as ingredients that should be limited (such as saturated fat, sodium, and added sugar). Figure 3 includes the serving recommendations for the DASH diet (Dietary Approaches to Stop Hypertension), to lower blood pressure and improve heart health. The American Heart Association and American Stroke Association’s Blood Pressure Categories are listed in Figure 4 to clearly illustrate the new blood pressure classifications for those who are being screened or medically treated for hypertension.

Acknowledgments

The Wellness Committee would like to thank the following individuals for their support and assistance with the 2021 HRA.

Justin Davis, Director of Culinary Arts, Wellness Committee Chair
Cathy Hara, Program Assistant, Nursing and Allied Health, HRA Subcommittee Member
Nicole Mendola, Exercise Science Faculty, Wellness Committee Member
References
Table 1: Participant Characteristics

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Participants (n)</th>
<th>Age (years)</th>
<th>Weight (pounds)</th>
<th>Height (inches)</th>
<th>BMI (kg·m⁻²)</th>
<th>Waist (in)</th>
<th>Systolic Blood Pressure (mmHg)</th>
<th>Diastolic Blood Pressure (mmHg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Faculty</td>
<td>12</td>
<td>55 (±10)</td>
<td>170 (±33)</td>
<td>65 (±4)</td>
<td>28 (±5)</td>
<td>32 (±4)</td>
<td>123 (±8)</td>
<td>75 (±3)</td>
</tr>
<tr>
<td>Total Staff</td>
<td>12</td>
<td>46 (±11)</td>
<td>182 (±38)</td>
<td>67 (±6)</td>
<td>29 (±5)</td>
<td>31 (±6)</td>
<td>120 (±8)</td>
<td>74 (±9)</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>48 (±14)</td>
<td>176 (±37)</td>
<td>66 (±5)</td>
<td>29 (±5)</td>
<td>32 (±5)</td>
<td>121 (±8)</td>
<td>74 (±7)</td>
</tr>
</tbody>
</table>

Reported as mean averages (±standard deviation).
| Table 2: Categorical data for Participant Demographics |
|---------------------------------|----------------|-----------------|----------------|
| **Faculty (n=12)**              | **Variable**   | **Participants (n)** | **Percentage (%)** |
| Gender                          | Female         | 9               | 75%            |
|                                | Male           | 3               | 25%            |
|                                | Prefer not to Answer | 0               | --             |
| Race/origin                    | Black          | 2               | 17%            |
|                                | Hispanic       | 0               | --             |
|                                | Asian          | 0               | --             |
|                                | White          | 8               | 66%            |
|                                | Prefer not to Answer | 2               | 17%            |
| **Staff (n=12)**                |                |                 |                |
| Gender                          | Female         | 8               | 67%            |
|                                | Male           | 3               | 25%            |
|                                | Prefer not to Answer | 1               | 8%             |
| Race/origin                    | Black          | 1               | 8%             |
|                                | Hispanic       | 0               | --             |
|                                | Asian          | 0               | --             |
|                                | White          | 9               | 75%            |
|                                | Prefer not to Answer | 2               | 17%            |
| **Total (n=24)**                |                |                 |                |
| Gender                          | Female         | 17              | 71%            |
|                                | Male           | 6               | 25%            |
|                                | Prefer not to Answer | 1               | 4%             |
| Race/origin                    | Black          | 3               | 13%            |
|                                | Hispanic       | 0               | --             |
|                                | Asian          | 0               | --             |
|                                | White          | 17              | 71%            |
|                                | Prefer not to Answer | 4               | 16%            |
Appendix A
2021 HRA Infographics and Recommendations

Figure 1: Department of Health and Human Services: 2018 Physical Activity Guidelines for Adults

Is it moderate or vigorous? Use the “talk test” to find out.
When you’re being active, just try talking:
- If you’re breathing hard but can still have a conversation easily, it’s moderate-intensity activity
- If you can only say a few words before you have to take a breath, it’s vigorous-intensity activity

What counts?
Whatever gets you moving!

You can get more active.
No matter who you are, where you live, on your own, or together.
You can find a way that works for you.

And over time, physical activity can help you live a longer, healthier life.
✅ Lower your risk of diseases like type 2 diabetes and some cancers
✅ Control your blood pressure
✅ Stay at a healthy weight

So take the first step. Get a little more active each day. Move your way.

Find tips to get moving and build a weekly activity plan.
health.gov/MoveYourWay/Activity-Planner
Figure 2: MyPlate Plan Serving Recommendations

Find your Healthy Eating Style

Everything you eat and drink matters. Find your healthy eating style that reflects your preferences, culture, traditions, and budget—and maintain it for a lifetime! The right mix can help you be healthier now and into the future. The key is choosing a variety of foods and beverages from each food group—and making sure that each choice is limited in saturated fat, sodium, and added sugars. Start with small changes—*MyWins*—to make healthier choices you can enjoy.

### Food Group Amounts for 2,000 Calories a Day

<table>
<thead>
<tr>
<th>Fruits</th>
<th>Vegetables</th>
<th>Grains</th>
<th>Protein</th>
<th>Dairy</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 cups</td>
<td>2 1/2 cups</td>
<td>6 ounces</td>
<td>5 1/2 ounces</td>
<td>3 cups</td>
</tr>
<tr>
<td>Focus on whole fruits</td>
<td>Vary your veggies</td>
<td>Make half your grains whole grains</td>
<td>Vary your protein routine</td>
<td>Move to low-fat or fat-free milk or yogurt</td>
</tr>
<tr>
<td>Focus on whole fruits that are fresh, frozen, canned, or dried.</td>
<td>Choose a variety of colorful fresh, frozen, and canned vegetables—make sure to include dark green, red, and orange choices.</td>
<td>Find whole-grain foods by reading the Nutrition Facts label and ingredients list.</td>
<td>Mix up your protein foods to include seafood, beans and peas, unsalted nuts and seeds, soy products, eggs, and lean meats and poultry.</td>
<td>Choose fat-free milk, yogurt and soy beverages (soy milk) to cut back on your saturated fat.</td>
</tr>
</tbody>
</table>

- Drink and eat less sodium, saturated fat, and added sugars. Limit:
  - Sodium to 2,300 milligrams a day.
  - Saturated fat to 22 grams a day.
  - Added sugars to 50 grams a day.

- Be active your way: Children 6 to 17 years old should move 60 minutes every day. Adults should be physically active at least 2 1/2 hours per week.
Figure 3: DASH Diet for Hypertension

The DASH diet (Dietary Approaches to Stop Hypertension) has been shown to help lower blood pressure and prevent heart disease, stroke, diabetes and even some forms of cancer. It focuses on eating more fresh fruits and vegetables.

This is a guide to how much of each food group you should eat every day, based on eating 2,000 calories per day.
### Blood Pressure Categories

<table>
<thead>
<tr>
<th>Blood Pressure Category</th>
<th>Systolic mm Hg (upper number)</th>
<th>Diastolic mm Hg (lower number)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Less than 120</td>
<td>Less than 80</td>
</tr>
<tr>
<td>Elevated</td>
<td>120 – 129</td>
<td>Less than 80</td>
</tr>
<tr>
<td>High Blood Pressure (Hypertension) Stage 1</td>
<td>130 – 139</td>
<td>80 – 89</td>
</tr>
<tr>
<td>High Blood Pressure (Hypertension) Stage 2</td>
<td>140 or higher</td>
<td>90 or higher</td>
</tr>
<tr>
<td>Hypertensive Crisis (consult your doctor immediately)</td>
<td>Higher than 180</td>
<td>Higher than 120</td>
</tr>
</tbody>
</table>