**Aim 1 – Nandita Biostat**

* H1: Cobalt+ will improve HCW mental health (depression, anxiety, well-being), satisfaction with access to care, and work productivity.
* H2 (exploratory): Cobalt+ will improve mental health in Black HCWs more than in others
* H3 (exploratory): Cobalt+ will improve mental health in women HCWs more than in men HCW

The primary outcome is the 6 month change in PHQ-9. Secondary outcomes include 9-month change in PHQ-9 and 6- and 9-month changes in GAD-7, WBI, and measures of work force productivity, and satisfaction with access to care as noted above.

**Fidelity**

* For the monthly automated text messaging reminders, we will assess how well these are delivered by assessing how often:
  + links are clicked on (AP)
    - month 1 - https://penncobaltplus.com/homepage
    - month 2 - https://penncobaltplus.com/on-your-time lately
    - month 3 – crowd sourced
    - month 4 - <https://penncobaltplus.com/in-the-studio>
    - month 5 - https://penncobaltplus.com/3Hbgw9X
    - month 6 – crowd sourced
  + text messages receive a response (LS, MS)
  + participants request to stop receiving texts (LS)
* For the opt out appointments, we will assess how often
  + appointments are fulfilled or cancelled. (AP)
    - jan 10 - # found,
    - jan 17 - # booked, cancelled

**Additional exploratory analyses Aim 1 – LS, RG**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Survey** | **Question** | **Need** | **Who** | **Extra** |
| Enr, 2, 4, 6 (inter only) | Why didn’t book an appt | Wordcloud, NLP | Art |  |
| Enr, 2, 4, 6 | Why didn’t book an appt | Hand code | Lauren, Rachel, Meg |  |
| All | How many responded outside of response window | Hand code | Lauren |  |
| Enr, 6, 9 | LEAPS, open-ended | Hand code | Rachel, Meg |  |
| 6 | Penn-dept, open-ended | Hand code | Rachel, Meg |  |
| 6 | Satisfaction with cobalt- why | Hand code | Lauren, Rachel, Meg |  |
| 6 | Satisfaction with cobalt- why | NLP, wordcloud | Art |  |
| na | appointments are fulfilled or cancelled. | analysis | Art |  |

**Aim 2:** To better understand perceptions of access to mental health care and the effectiveness of *Cobalt* compared with *Cobalt+* among HCWs through semi-structured qualitative interviews Intervention fidelity

**6.8 Intervention fidelity** we will assess how well these are delivered by assessing how often: links are clicked on.

* links are clicked on (AP)
  + month 1 - https://penncobaltplus.com/homepage
  + month 2 - https://penncobaltplus.com/on-your-time lately
  + month 3 – crowd sourced
  + month 4 - <https://penncobaltplus.com/in-the-studio>
  + month 5 - https://penncobaltplus.com/3Hbgw9X
  + month 6 – crowd sourced

data sources:

* excel with denom (w2h links.excel)
* bit.ly csvs

Outcome:

* number of clicks total
* % of clicks total
* number of clicks per month
* % of clicks per month

**6.8 Intervention fidelity** For the opt out appointments, we will assess how often appointments are fulfilled or cancelled.

Data sources:

* Pennkeys excel
* Cobalt backend

Outcome:

* Complete excel per participant similar to:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| # of appts | # of appts completed | # of appts cancelled | Enrolled on: | Finished study on: |
|  |  |  | 1/31/22 | 10/31/22 |
|  |  |  | 2/1/22 | 11/1/22 |
|  |  |  | 2/3/22 | 11/3/22 |
|  |  |  | 2/4/22 | 11/4/22 |
|  |  |  | 2/4/22 | 11/4/22 |
|  |  |  | 2/6/22 | 11/6/22 |
|  |  |  | 2/7/22 | 11/7/22 |
|  |  |  | 2/7/22 | 11/7/22 |
|  |  |  | 2/7/22 | 11/7/22 |
|  |  |  | 2/7/22 | 11/7/22 |

**6.9 COVID-19 case burden:** To assess citywide COVID-19 burden we will use the Philadelphia Department of Health daily posted stats regarding cases and mortality and the Penn Medicine daily COVID-19 ED visits, inpatient admissions, % ventilated patients, and outcomes. We will evaluate this information as specified in the analysis to evaluate potential associations between system-level or regional level case burden and PHQ-9 and GAD-7 scores at baseline and over-time.

Data sources:

* Philadelphia Department of Health daily posted stats regarding **cases** and **mortality**
  + <https://www.opendataphilly.org/dataset?q=covid&organization=city-of-philadelphia&sort=score+desc%2C+metadata_modified+desc>
* Penn Medicine daily COVID-19 ED visits, inpatient admissions, % ventilated patients, and outcomes
  + Talk to Mohan for COVID Watch data (LS, AA, AP)
* Cobalt+ survey data
  + PHQ-9 and GAD-7 at baseline, month 2, month 4, month 6, month 9
    - Time frame: January 31, 2022 – March 10th 2023.

Outcome:

* evaluate potential associations between system-level or regional level case burden and PHQ-9 and GAD-7 scores at baseline and over-time.
  + Scatterplots over time? Graphics similar to the work Art did for Cobalt/Cobalt+ in early 2022