# Behavioral Health Data Analytics Collaborative

## Program Overview

### Data Warehouse Purpose

Integrity Partners for Behavioral Health (IPBH) partnered with the University at Buffalo (UB) to create a data warehouse of a combined limited data set made of PHI from IPBH Partners' EHR systems. The underlining goal was to address NYS priorities that pertain to creating a sophisticated data analytics platform, integrating evidence-based treatment protocols across networks of behavioral health organizations, and reducing the cost of care while improving outcomes for mental health and substance use disorder patients.

The initiative received Institutional Review Board (IRB) approval which allows us to provide a limited data set of EHR information to UB, which is required under HIPAA as well as written approval by the NYS Office of Mental Health and is in compliance with the NYS Mental Hygiene Law.

### IPBH envisions a data warehouse that will:

- provide CQI standardized & customized reports for the IPBH network & individual IPBH Partners,
- prepare IPBH for VBP contracts,
- facilitate clinical integration, linking to PH & SDOH organizations, and securing ongoing grant support,
- support long-term sustainability of the network, and
- provide immense research potential which will advance the Behavioral Health field and inform practice.

### Specific aims

There are (9) specific aims:

1. Create a data warehouse using patient data from Electronic Health Records (EHR) of Integrity Partners (phase 1). Phase 2 will bring additional provider sites into the data warehouse making it even more robust and provide the same value to IPA partners and their member organizations.
2. Characterize substance use (SU) and mental health (MH) services along with additional health data/variable points which expose paths toward health behavior success
3. Examine the effectiveness of these services as measured by treatment outcomes and need for subsequent additional services.
4. Develop profiles and predictors of treatment success relative to costs of treatment, not only in initial delivery of services but also in terms of subsequent costs and other health outcomes associated with effective treatment/health behaviors.
5. Uncover service providers with high success. This will allow us to launch deeper investigations into factors related to that success and will be a guide to implementing a value-based payment model.
6. Examine opportunities to connect to other sources of data like NYS RHIOs and SDOH organizations.
7. Disseminate findings through peer-reviewed publications and professional conferences.
8. Explore funding opportunities for sustainability.

9. Establish CQI metric and reporting mechanisms

## What is the target population, and what data will be collected?

1. The target population are individuals with Mental Health (MH) and/or Substance Use Disorder (SUD) diagnoses through providers across the Integrity IPA, Capital Behavioral Health Network, and eventually will include other statewide partners.
2. We will obtain Electronic Health Record (EHR) data including assessment data, authorization data, claims data, diagnostic & procedure codes, member data, pharmacy data and provider data.
3. This data will allow us to develop baseline profiles.
4. We will further characterize the MH and SU populations being served
5. The data warehouse consists of organizational EHR data.
6. These data along with other data such as pharmacy and provider data, will allow us to understand which medications are being prescribed, dose levels, and patient outcomes.
7. We will also be able to analyze the association between treatment/services provided and costs as it relates to outcomes.
8. Finally, we would be able to describe service providers who have superior outcome success thereby allowing for those successes to be integrated across other systems of care.

## Uses of CQI Reports

**Currently**

1. Improve data entry and fill in the gaps,
2. identify funding opportunities, using data to support your argument in grants proposals,

**Future Goals**

3. identify indicators of various treatment protocols,
4. identify successful treatment protocols tied to better outcomes,
5. use data to improve efficiency and client outcomes (i.e. eliminating portions of protocols that have little to no impact and adding steps to protocols that improve client outcomes),
6. follow cost analysis trends to help increase revenue,
7. improve staff accountability, and
8. identify gaps in services that lead to new programs and initiatives.

## Future Research Questions

The main, overall research question is, **what factors make up profiles and predictors of success as it relates to Mental Health and Substance Use services that can be integrated across networks of service providers?** Additionally, many parallel questions will be asked such as:

1. What services and/or behaviors lead to treatment engagement, retention, and successful treatment completion?
2. What are the relative costs associated with success?
3. Which community-based service providers are leading the way in treatment outcome success, and how can these efforts be further investigated, tested, and transferred into other usual care systems?

## Research Inquiries Driving Analysis

Researchers in the University at Buffalo's School of Social Work, Department of Biostatistics, Buffalo Center for Social Research, School of Public Health and Health Professions, and Population Health Observatory will be able to conduct sophisticated data analytics and examine:

1. client predictors and profiles of successful and unsuccessful treatment outcomes,
2. questions related to which intervention(s) works best for specific client profiles,
3. identify outcome differences in intervention types and/or combinations (e.g., CBT vs. MI;  CBT vs. CBT and case management),
4. type of provider and client treatment outcomes (e.g., Nurse Practitioner vs. Psychiatrist; LCSW vs. LMHC),
5. cost effectiveness related to outcomes and types of intervention,
6. profiles of hospitalized and re-hospitalized clients,
7. client profiles of no-shows, and
8. treatment modalities and outcomes (in-person vs. telephone vs. telemedicine).

## Additional Objectives of the Data Warehouse

1. Development of evidence-based profiles and predictors of treatment success relative to costs of treatment, in initial delivery of services and in terms of subsequent costs and other health outcomes associated with effective and efficient treatment and positive behavioral health-related behaviors.
2. Creation of reports that describe strategies to integrate evidence-based and successful treatment models into the provider network.

## Data Security and Transmission Process

Integrity has created a secure infrastructure to receive PHI from our partner providers, remove the appropriate identifiers to create a Limited Data Set (LDS) and send the LDS to UB.

### Data Security

Integrity takes data security very seriously. You are entrusting us with your patients' data, and it is our intention to protect that information vigorously. Below is an overview of the internal policies we have in place to ensure our system is secure, as well as the procedures we will follow to create a limited data set of PHI to provide to the University at Buffalo.

*IPBH Policies include:*

- Network & Information security policy
- Acceptable Use policy
- Asset Management policy
- Incident Response plan

- Breach notification procedures
- Inadvertent disclosure procedures
- Use, disclosure & de-identification of PHI
- Clean desk policy

*IPBH Risk Audit:*

- Integrity has had (2) policy reviews completed by FoxPointe, which is a division of Bonadio Group. Additional minor revisions are being made, and our policies will be submitted a 3rd time.
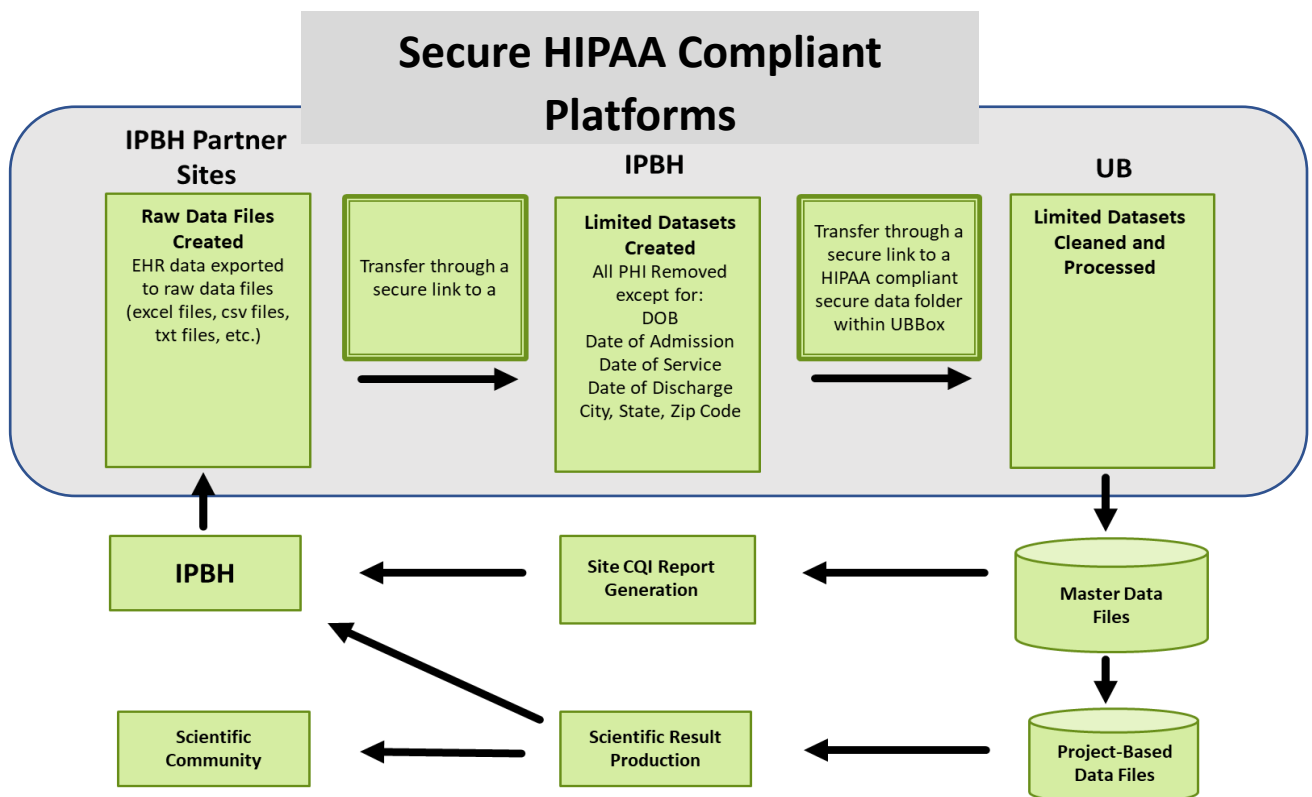
*IPBH breach insurance:*

- Integrity has a breach insurance policy with Beazley. It covers us for Cyber extortion, Data & Network liability, Data recovery costs, among other things.

## Transmission process & creation of the Limited Data Set

1. A secure, encrypted (AES-256) link will be sent from IPBH to each partner organization
2. Files will be uploaded through the secure link to IPBH's HIPAA compliant platform (Microsoft OneDrive) and will always remain on this platform. PHI is not permitted to be downloaded from the cloud onto any computer.

3. Only a qualified data expert from each IPA participating in the data warehouse will control access to the data using explicitly defined Access Control Permissions.
4. Data will be de-identified by the data expert with a three-step verification process, creating a limited data set
   a. An algorithm will be applied to each file creating a unique identifier (when needed).
   b. PHI information will be deleted from the file creating a limited data set (first validation)
   c. A second validation process will include running and scanning all variables to ensure no identifiers were missed
5. Identified data will be saved in a separate folder from de-identified data
6. Obvious file names will be used to avoid sending data in error
7. UB staff will send a secure, encrypted link to the data expert and the Limited Data Set will be uploaded to their HIPAA compliant platform

# Data Transmission Process