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Linking Public Health and Public Safety Data on Co-Occurring Disorders Among Adults in Hawai'i's Criminal Justice System

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Abstract

In order to better understand the behavioral health treatment needs of adults involved in the criminal justice system and to improve the continuum of services provided to this vulnerable population, Hawai'i initiated a data linkage project that connects substance use and mental health

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Note: Cell values <11 and corresponding percentages have been suppressed.

data from the state Department of Public Safety with behavioral health treatment data from the state Department of Health for the state of Hawai‘i. Specifically, this linkage project begins to examine behavioral health treatment levels recommended by the criminal justice system and Hawai‘i State Hospital inpatient psychiatric admissions. We provide a preliminary summary on individuals who were both involved in the criminal justice system and court-ordered to receive inpatient psychiatric treatment, and outline data governance procedures, future directions, and practice recommendations.

Keywords

substance use; mental health; data linkage; criminal justice; public safety; psychiatric care

Introduction

Reducing recidivism and providing adequate treatment services for those with co-occurring substance use and mental illness are among Hawai‘i’s top public health and safety priorities. As in other states, data silos, or limitation of agency data and information to only “within-house” use, impose barriers when coordinating care for these two vulnerable populations.^{1,2} Both behavioral health and criminal justice agencies commonly assess criminogenic risk, mental health, and substance use in order to guide client intervention. In Hawai‘i, probation officers, parole officers, and prison case managers administer the Adult Substance Use Survey - Revised (ASUS-R) at the start of the probation period and every six to twelve months thereafter, depending on the level of supervision, to assess for alcohol and drug use and mental health.^{3,4}

The Hawai‘i State Hospital (HSH) is the only public psychiatric hospital administered by the Adult Mental Health Division (AMHD) of the Hawai‘i State Department of Health (DOH). The vast majority of patients in HSH are court-ordered admissions⁵, and many of them have co-occurring disorders, with over 70% of patients admitted between July 2020 - June 2021 diagnosed with a co-occurring substance use disorder, a likely underestimate of all those with substance use treatment needs.^{6,7} This presented an opportunity for data linkage between the criminal justice system and the state health department and subsequent linkages to care across both systems. Both agencies are committed to ensuring that the treatment provided to co-involved clients is appropriate for their measured risk. As part of the Centers for Disease Control and Prevention Overdose Data to Action (OD2A) project, Hawai‘i was able to initiate a novel linkage between behavioral health data from the criminal justice system and the HSH.

Methods

Cross-agency communication between the State of Hawai‘i Interagency Council on Intermediate Sanctions (ICIS) and DOH for this linkage project was first established through the OD2A cooperative agreement, where both agencies agreed to work collaboratively to improve data collection and sharing as well as care coordination efforts. Meetings between both organizations were scheduled at least monthly to discuss project progress and logistics, with additional meetings scheduled as needed. Memorandums of agreement

and data sharing agreements were then established to outline agreed-upon OD2A project activities and expectations for data sharing and other considerations necessary to facilitate the data linkage such as data security. Staffing onsite at DOH through analysts from the University of Hawai'i as a DOH HIPAA business associate carried out the record linkage and analyses.

Data request, transfer agreement, and governance forms required by each agency involved were completed, which helped to ensure internal protocols and data governance procedures were established prior to the handling of any data. The data linkage project is currently in its pilot phase, such that a subset of the ICIS and AMHD data had been successfully linked. Current workflows will be expanded and applied to a larger proportion of the dataset until all existing and newly created records are linked.

The project linked datasets from each of the following two sources: (1) myAvatar, an electronic health record system developed by Netsmart and used by the AMHD, which includes data on assessments and treatment received by their clients statewide; and (2) Cyzap, an electronic assessment management platform used by ICIS to store assessment data, including those related to substance use and mental health risk, for almost all individuals who are placed on probation or parole, or are incarcerated. myAvatar contains data on AMHD clients including responses to an intake tool (the Quality-of-Life Interview-Very Brief), as well as other mental health and substance use-related screenings and treatment data, while Cyzap contains data collected through survey instruments such as the Level of Service Inventory-Revised (LSI-R) and the ASUS-R. Identifiers shared in both databases were client name, date of birth, and unique client identification numbers, and were used for record linkage. For this pilot linkage, ASUS-R assessment records in Cyzap were linked with HSH patient records in myAvatar. Records for individuals found in both datasets were merged through probabilistic record linkage in R using the RecordLinkage package, then analyzed for recommended substance use treatment levels and inpatient psychiatric admissions between 2017 and 2020.

Results

Processing 904 HSH records from myAvatar and 10,822 ASUS-R records, a total of 107 individuals were linked across both systems who were assessed using the ASUS-R between 2017 and 2020 and were also clients at HSH during that same timeframe (Table 1). Expressed as a proportion, 11.8% (107 of 904) of HSH psychiatric admissions also had a criminal justice ASUS-R record, and 1.0% (107 of 10,822) of criminal justice clients were psychiatric admissions to HSH.

Of the 107 matched individuals, about 75.7% ($n = 81$) were male, and over a third ($n = 39$, 36.4%) were 26–35 years of age at the time they received HSH services. Forty-four (41.1%) individuals were identified as having an assessment by the criminal justice system prior to being admitted to HSH in this timeframe. The treatment level most frequently recommended by the criminal justice system was 'therapeutic community', followed by 'intensive residential treatment' (Supplemental Digital Content Table available at <http://links.lww.com/JPHMP/B14>).

Discussion and conclusion

The promise of this pilot data linkage is to eventually allow us to compare the treatment level recommended to clients in Hawaii's criminal justice system with the court-ordered treatment received in the mental health system, begin identifying gaps in the continuity of care throughout these two systems, and prompt subsequent reassessments or interagency referrals to more appropriate services as needed. Upon HSH admission, patients often downplay their substance use disorder or withhold information when evaluated, making it difficult for HSH treatment teams to quickly and accurately identify treatment needs. Thus, timely sharing of results from ICIS-administered mental health- and substance use-related assessments may help HSH staff to better tailor treatment plans for patients with co-occurring mental illness and substance use disorders. Findings will also be used to inform ICIS' ASUS-R and other assessment certification processes and to better train staff on methods for achieving accurate assessment scores used to assign levels of substance use treatment.

As this linkage expands to include more AMHD facilities, population-level analysis can help inform program planning by characterizing those who are more likely to respond better or worse under certain treatment settings. Furthermore, tracking the volume and treatment progress of individuals with co-occurring disorders can help to justify maintaining or expanding funding for existing contracted treatment services, thus increasing referral options. Lastly, this project may help identify the necessary data elements for collection at different points across both agencies, thereby consolidating screening or evaluation efforts.

Of note, only individuals whose ASUS-R assessments and/or HSH admissions occurred between 2017 to 2020 were included. Thus, the linked records may not have captured all involvement by these same individuals within the criminal justice and mental health systems. It is possible that an individual may have been admitted to HSH (or both HSH and ICIS) prior to 2017, but only their ASUS-R assessment record was captured in this data linkage, or vice versa. Thus, the number of overlapping individuals is likely to be an underestimate of those involved in both systems. Additionally, AMHD offers an array of mental health treatment services at other facilities statewide, such as their community mental health centers. However, this pilot linkage project includes data from HSH only; records from the wider AMHD client population are yet to be linked to the ASUS-R records.

Although working with subsets of data introduces these limitations, working with smaller samples for this pilot project, as opposed to all ASUS-R and HSH records in the Cyzap and myAvatar database, respectively, helped to demonstrate the capability of this novel linkage given regulatory and privacy concerns. The project is expanding to include data from before 2017 and after 2020 as well as data from additional mental health facilities in the state. Diagnosis codes related to substance use, mental health, and other social determinants of health, such as housing, will also be further examined.

It is important to acknowledge key facilitators of this ongoing project. Securing funding from OD2A and designating this work as a priority area of the cooperative agreement helped to focus the scope and responsibilities in subsequent memorandums of agreement.

Collaboration was also facilitated by long-standing partnerships already established by ICIS, which engages the Judiciary, Department of Public Safety, Department of the Attorney General, DOH, Office of the Public Defender, Hawaii Paroling Authority, Department of the Prosecuting Attorney, and the Honolulu Police Department.⁸ As the project involves cross-agency data sharing, it is essential for all agencies involved in the collaboration to have knowledge, expertise, and equipment for proper data storage and transfer. Proper protocols for secure data use, transfer, and storage were developed and established prior to the transferring or handling of any data. Both datasets were made available in formats that were readily analyzable. Data cleaning and linkage are being conducted at dedicated workstations with encryption in enclosed office spaces at AMHD to ensure compliance with HIPAA and other policies. Furthermore, project staff meet regularly to address data issues and discuss data strengths and limitations. This linkage project was ultimately facilitated by the ICIS-DOH collaboration and strong support from respective leadership in their shared mission to link individuals to appropriate substance use, mental health, and other services within the care continuum during and after their involvement with the criminal justice system.⁸

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Implications for Policy and Practice

- Cross-agency communication between data administrators and staff with access to the data must be continuous throughout data-related activities to ensure protocol fidelity, and privacy and confidentiality of the respective agencies' clients and their data.
- Securing funding that supports work in alignment with goals or priorities shared by public health and public safety (e.g., reducing recidivism) can serve as a major facilitator of sustained partnership between these systems. The funding mechanism can help to streamline memorandums of agreement which memorialize and protect the integrity of the collaborative terms originally agreed upon.
- A public university working in partnership with state agencies can support project implementation needed to carry out complex record linkage activities and can help with state public health workforce development.
- Given potential regulatory, privacy, and confidentiality concerns surrounding identifiable, individual-level data, it is helpful to start a linkage project with a smaller subset of data to demonstrate the capability and value of the linkage to key stakeholders before expanding to the full dataset.
- Data shared between public health and public safety should be leveraged to help identify patient treatment needs, optimize referrals to care, and minimize redundancies across both systems.

Table 1.

Gender, age, and race of individuals from the AMHD-HSH and ICIS-ASUS-R datasets, 2017–2020

	AMHD-HSH		ICIS-ASUS-R		Both AMHD-HSH and ICIS-ASUS-R	
	N	%	N	%	N	%
TOTAL	904	100	10822	100	107	100
Gender						
Male	640	70.8	8603	79.5	81	75.7
Female	264	29.2	2012	18.6	25	23.4
Age Group						
Under 18 years	-	-	52	0.5	-	-
18 – 25 years	86	9.5	1777	16.4	15	14.0
26 – 35 years	240	26.5	3652	33.7	39	36.4
36 – 45 years	201	22.2	2658	24.6	22	20.6
46 – 55 years	176	19.5	1747	16.1	17	15.9
56 years and older	201	22.2	936	8.6	14	13.1
Race/ethnicity						
Asian	-	-	1234	11.4	17	15.9
Black or African American	-	-	288	2.7	<11	supp
Hispanic / Latinx	-	-	286	2.6	<11	supp
Native Hawaiian / Part Hawaiian	-	-	4217	39.0	27	25.2
Other / Mixed	-	-	2166	20.0	25	23.4
Pacific Islander	-	-	672	6.2	<11	supp
White	-	-	1661	15.3	24	22.4

Note: Cell values <11 and corresponding percentages have been suppressed.