Using Geocoding to Validate HCBS Provider Self-Assessments

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Introduction

The Centers for Medicare and Medicaid Services (CMS) issued a final rule in January 2014 defining what constitutes a home and community-based service (HCBS) setting. The Maryland Developmental Disabilities Administration (DDA) mandated that HCBS waiver providers fill out self-assessments to determine their compliance levels (they must be in compliance by March 2022). DDA then asked Hilltop to validate the self-assessments.

The Importance of Geographic Proximity

The physical proximity of provider sites to institutions and provider sites to each other is an indicator of community integration. When provider sites are located in or close to inpatient institutions, or when settings are clustered close together, there is concern that HCBS waiver participants may be isolated from and may not have the opportunity to interact with the broader community, which contradicts the intent of the final rule.

Methods

Geocoding refers to the process of transforming a description of a location (a street address) to geographical coordinates (latitude and longitude) that correspond to that location on the earth's surface.

A total of 455 institutions and 2,339 provider self-assessments were included in this study. Non-residential providers completed assessments for each service at each site (375), while residential providers completed assessments for each site operated (1,964).

First we determined the latitude and longitude coordinates for each institutional and site address. Then we determined the distance between each set of coordinates for service sites and institutions, service sites to service sites operated by the same provider, and residential sites to residential sites. We used only the closest distances in the analysis and validated three physical proximity assessment questions using the provider's original assessment response and appropriate distance measure. Next, we mapped residential sites by plotting the coordinates of each site. We accounted for population density by calculating the ratio of residential provider sites to the population of each ZIP code. We then created a heat map of residential provider sites per 10,000 persons.

Findings

Of the three physical proximity assessment questions, question two (site near an institution) had the highest percentage of valid provider responses (97.73%), while question three (operationally related sites close to each other) had the lowest percentage of valid provider responses (74.54%).

Provider Response Validation

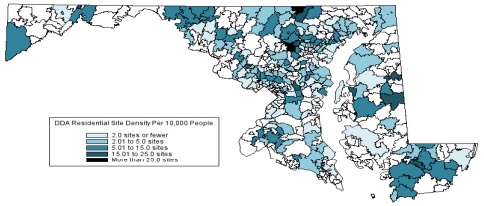
Assessment Question Validated		Provider Sites
Question 1: Response to Site Located in an Institution (N=2,339)	Response = Valid	94.74% (2,216)
Question 2: Response to Site Located Close to Inpatient Institutional Treatment (N=2,339)	Response = Valid	97.73% (2,286)
Question 3: Response to Multiple Provider Sites Operated within .5 Miles of Each Other (N=2,286)	Response = Valid	74.54% (1,704)

Summary Statistics

- The average closest distance from a provider site to an institution is 1.69 miles.
- 86.11% of the closest institutions to provider sites are nursing homes.
- The average closest distance from a residential provider site to another residential provider site is .39 miles.

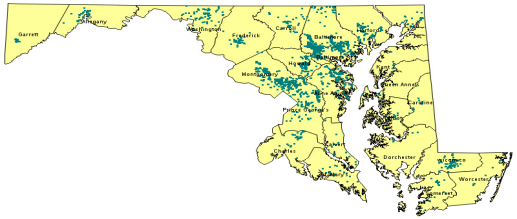
Maps

DDA Residential Provider Site Density per 10,000 People, by ZIP Code



Note: White areas (ZIP codes) indicate no residential provider sites.

Residential Provider Site Dot Density Map



Conclusion and Policy Implications

- Residential provider sites appear to be clustered together. Providers should be made aware of this occurrence and review internal policies to ensure that HCBS recipients are not isolated but rather are given opportunities to interact with community members not receiving these waiver services.
- Knowing which areas of the state have few residential providers may help DDA ensure the availability of services in these areas as new providers enter the system.

Study Limitations

- The distances calculated are from point A to point B, as opposed to driving distances. This could have caused some responses to inadvertently be considered invalid.
- While every attempt was made to use up-to-date institutional addresses, it is possible that some addresses used were no longer there (e.g., a nursing home closed but was still in MMIS), which could have also caused a provider's response to be considered invalid.

Acknowledgements

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