Intellectual and Developmental Disabilities

Value-Based Payments: Intellectual and Developmental Disabilities Quality Indicators Associated with Billing Expenditures

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Abstract:	While managed care is expanding into the intellectual and developmental disabilities (IDD) service system, there is little agreement about measurable and meaningful outcomes for people with IDD, including for use in value-based payments (VBP). In this study we examined potential VBP metrics for people with IDD – relationships between quality and costs. We analyzed Basic Assurances ® data and long-term services and supports billing data from 68 human service organizations that supported 6,608 people with IDD. Our final hierarchical regression model predicted 66.40% of the variance of annual LTSS billing per person. Our findings suggest quality assurance indicators can account for a significant portion of cost variance – quality metrics represent a potential for cost savings and efficient service delivery.

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Abstract

While managed care is expanding into the intellectual and developmental disabilities (IDD) service system, there is little agreement about measurable and meaningful outcomes for people with IDD, including for use in value-based payments (VBP). In this study we examined potential VBP metrics for people with IDD – relationships between quality and costs. We analyzed Basic Assurances® data and long-term services and supports billing data from 68 human service organizations that supported 6,608 people with IDD. Our final hierarchical regression model predicted 66.40% of the variance of annual LTSS billing per person. Our findings suggest quality assurance indicators can account for a significant portion of cost variance – quality metrics represent a potential for cost savings *and* efficient service delivery.

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According to the Centers for Medicare and Medicaid Services (CMS; n.d.-a), Medicaid managed care:

> is a health care delivery system organized to manage cost, utilization, and quality. Medicaid managed care provides for the delivery of Medicaid health benefits and additional services through contracted arrangements between state Medicaid agencies and managed care organizations (MCOs) that accept a set per member per month (capitation) payment for these services. (n.p.)

Managed care purports to not only reduce program costs, but also increase the quality of care. Although managed care varies widely (Carmody, 2019), the mechanism most often utilized is alternative payment models. In the traditional service system, which follows a fee-for-service (FFS) model, reimbursement is based on the *number* of services provided. For example, reimbursement would occur if a person saw a healthcare provider five times, regardless of if the provider visits were successful, or if they produced favorable outcomes. In contrast, alternative payment models, such as value-based payments (VBP), shift from focusing on the number of services provided, such as in FFS, to the *quality* of the services provided, that is the outcomes. Quality

> indicates that [people] receive appropriate and timely care that is consistent with evidence-based guidelines and patient goals, and that results in optimal outcomes and experience… Ideally, quality should be evaluated using a harmonized set of appropriately adjusted process measures, outcome measures, patient-reported outcome measures, and patient experience measures that together provide an

> accurate and comprehensive assessment." (Health Care Payment Learning & Action Network, 2017, p. 7)

For example, in a VBP scenario, the provider would be paid for producing favorable outcomes. In managed care, MCOs are incentivized to minimize service costs in order to maximize profits (Yamaki et al., 2018); VBP operates under the assumption that by emphasizing quality, there will be associated health care cost reductions. CMS (n.d.-b) suggests, "shifting the focus away from volume of care" incentivizes "providers to improve coordination of care efforts;" in doing so, "states can begin to move toward a more proactive, population-based service delivery system rather than reactive, individual-focused care" (p. 6).

VBP metrics can range widely. For example, a number of VBP focus on health outcomes, such as body mass index, blood pressure, diabetes, urinary tract infections (Ensslin & Kruse, 2016; National Committee for Quality Assurance, 2020). Some VBP metrics include screenings, such as for depression or cancer, or immunizations or antibiotic use (Ensslin & Kruse, 2016; National Committee for Quality Assurance, 2020). Others focus on emergency department utilization and readmission (Ensslin & Kruse, 2016; National Committee for Quality Assurance, 2020; Oss, 2019). Additional examples of VBP metrics include housing and food insecurity, staff retention, and consumer satisfaction (Ensslin & Kruse, 2016; OPEN MINDS, 2020; Oss, 2019). Although these, and many other VBP are used across the United States, the most prevalent performance measures in VBP contracts in 2019 were: follow-up after hospitalization; hospital readmission rates; emergency room utilization; patient/consumer satisfaction; and, access to care measures (Oss, 2019). Metrics like emergency room visits and hospital admissions are often utilized because these hospital visits are associated with increased expenditures (Blaskowitz et al., 2019). Therefore, by reducing admissions and emergency room visits, there can be a

resulting reduction in health care costs (Blaskowitz et al., 2019; Centers for Medicare and Medicaid, n.d.-b). However, these prevalent performance measures are also more often associated with traditional acute care, rather than long-term services and supports (LTSS; Oss, 2019). In contrast to acute care, LTSS has a lifelong nature – acute care tends to be more episodic – and requires a different set of services and supports (Carmody, 2019). LTSS go beyond health and wellness, and cover quality of life and social determinants of health more broadly, often including not only traditional acute health but also wrap-around services, such as personal care, residential supports, employment supports, and many more services (citation removed for review).

Managed Care and People with Intellectual and Developmental Disabilities

As of July 2014, 55 million people were enrolled in managed care in the United States (Centers for Medicare and Medicaid, n.d.-a). However, people with intellectual and developmental disabilities (IDD) receiving LTSS have largely been carved out – excluded from – of managed care. As of 2017, 19 states enrolled some portion of people with IDD in managed care; however, only nine states covered Home and Community Based Services (HCBS) for people with IDD in managed care (Tallant & Dembner, 2019). Yet, as states grapple with increasing budgetary pressures, managed LTSS for people with IDD is become more common (Williamson et al., 2017).

Both because of a lack of utilization of managed LTSS for people with IDD, and because provision of managed care for people with IDD is understudied, managed LTSS for people with IDD may also be implemented without an appropriate evidence base. Not only is there little research about the quality standards which should be employed for managed LTSS for people with IDD (ANCOR, 2019), there is conflicting research about the cost effectiveness and quality

of managed care, both for people with IDD, and other populations (Burns, 2009a, 2009b; Caswell & Long, 2015; Duggan & Hayford, 2013; Tallant & Dembner, 2019; Wegman et al., 2015; Williamson, 2015; Williamson et al., 2017; Yamaki et al., 2018). In fact, a recent report by Tallant and Dembner (2019) about the current implementation of MTLSS for people with IDD found "the move to managed care has been particularly problematic for individuals with IDD… Kansas and Iowa present the grimmest reality of what can happen when a state rushes into large systems change without adequate preparation and with a main goal of saving money" (p. 6). For example, Tallant and Dembner (2019) point to dramatic service cuts, provider shortages, and long waits for services, all of which represent potential harm to the lives of people with IDD. As such, Tallant and Dembner (2019) recommend states implement consumer-centered quality outcome measures as part of MTLSS for people with IDD. Yet, there is little research about VBP for LTSS for people with IDD; there is also a lack of agreement regarding measurable and meaningful outcomes for people with IDD (Carmody, 2019; citation removed for review; Tallant & Dembner, 2019). For these reasons, and because of the expansion of managed care into the LTSS IDD system, evidenced-based quality standards are critical.

The aim of this study was to explore potential VBP metrics for people with IDD, which could be utilized in managed LTSS. In doing so, we were interested in examining the relationship between quality and costs. We had the following research question: what is the relationship between quality and billing (expenditures) in services for people with IDD? To explore this research question, we analyzed Basic Assurances® organizational data and billing data from 68 human service organizations that supported 6,608 people with IDD.

Methods

Data

This was a secondary data analysis – data were originally collected from one state developmental disabilities department. This southern state is moderately large in terms of population size (within the top third) and gross domestic product (GDP; within the top third). The data were from human service organizations who provided services to people with IDD which received the state developmental disabilities department's service programs. As part of their quality assurance program, the state conducts Basic Assurances® reviews (described in more detail below) each year with a random sample of human service organizations that provide services to people with IDD. This data, as well as billing data which organizations are required to provide to the state for reimbursement, was transferred to the research team. The state developmental disability department first removed all personal identifiers from the data, then coded it, and then transferred the data to the research team.

The dataset included a total of 68 human service organizations that supported 6,608 unduplicated people with IDD annually. The organizations in the sample provided a range of different types of services, but most commonly provided employment/day services (98.53%) and residential services (92.65%; Table 1). The majority of organizations (51.47%) were located in both urban and rural areas, with fewer organizations serving in only urban (23.53%) or rural (25.00%) areas. Most organizations were medium sized (51 to 400 people supported annually; 52.94%), while 44.12% were small (1 to 50 people), and 2.94% were large (401+ people).

Variables and Measures

Annual Billing. The dependent variable (DV) in this study was average annual billing per person. The state provided us with the total aggregate billing for all LTSS for all people supported for each agency in the sample. This data comprised five years (2014 through 2018). Since some agencies did not operate in all years (eight agencies had partial data), we averaged

agencies' total billing across the years (the data thereby represents average annual billing). In addition, since organizations supported different numbers of people with IDD, the billing was converted into an average rate per person supported (doing so also minimized collinearity). The final DV was the average annual billing per person for each agency.

Quality metrics. Data regarding quality came from the Basic Assurances® assessment (The Council on Quality and Leadership, 2015). The Basic Assurances® is an organizational assessment that ensures health, safety, and human security of human service organizations – they are non-negotiable requirements for service and support providers. The Basic Assurances® contain 10 factors: (1.) Rights Protection and Promotion; (2.) Dignity and Respect; (3.) Natural Support Networks; (4.) Protection from Abuse, Neglect, Mistreatment and Exploitation; (5.) Best Possible Health (6.) Safe Environments; (7.) Staff Resources and Supports; (8.) Positive Services and Supports; (9.) Continuity and Personal Security; and, (10.) Basic Assurances® System. Within the 10 factors are 46 different sub-topics, called indicators (see Table 2). For each of the 46 indicators, both the *system* (policies and procedures) and actual *practice,* or implementation, are examined and measured.

To determine if indicators are present in both systems and practices, expert reviewers collected a number of data points, including: interviews with organizational leadership; Personal Outcome Measures® quality of life interviews with people with IDD; data and record reviews; focus groups with people with IDD about their quality of life, quality of services, and satisfaction; focus groups with direct support professional staff about quality services, and strengths and opportunities for their organization; reviews of organizational policies and regulations; and, observations of a variety of the agency's settings. All of these data, including major and minor themes, are then utilized to complete decision trees to determine if the

indicators are present or not for both systems (present (1); not present (0)) and practice (present (1); not present (0)). (See The Council on Quality and Leadership (2015) for more in-depth information regarding decision trees.) The expert reviewers from this state, which are trained and tested for reliability (must pass at least 85% reliability with expert reviewers) by the Council on Quality and Leadership (CQL), typically work in teams of two or three and make all decisions as a team utilizing interrater reliability methods.

The data were comprised of Basic Assurances® reviews conducted originally between January 2015 and April 2019. Each agency in the sample had one Basic Assurance® review.

Control variables. We utilized three variables about each agency as control variables. Our first control variable was agency size; research suggests the size of an agency can impact an organization's ability to provide services (Carr & Louis, 2019). As a proxy for the size of the agency, we utilized the number of people with IDD served, which fell into the following categories (categories were decided upon consultation with an expert who has worked with hundreds of disability service organizations (K. Dunbar, personal communication, October 2, 2019): small (1 to 50 people supported); medium (51 to 400 people supported); and large (401+ people supported).

The second control variable used was the type of services the agencies provided. Not only are different service categories reimbursed at different rates, they can also require agencies to have different infrastructures. The agencies in this sample provided the following categories of services: residential; employment/day; respite; therapies; and, recreation and transportation. Agencies could fall into multiple categories; as such, each category was coded as yes/no for each service category.

The final control variable was the geographic location of the agency. Geographic location can impact the agencies' resources, infrastructure, and opportunities (citation removed for review). Geographic location in this study fell into three categories: rural settings; urban settings; and, both rural and urban settings.

Analysis

We had the following research question: what is the relationship between quality and billing (expenditures) in services for people with IDD? To explore this question, we first ran descriptive statistics to examine characteristics of average annual billing per person. Then a hierarchical multiple regression analysis was conducted in a stepwise manner in order to examine the relationship between Basic Assurances® quality indicators (IVs), and average annual billing per person (DV), while controlling for agency size, provider type, and geographic location (variables were non-standardized). (See Table 1 for descriptive differences across control variables.) To do so, we first conducted a linear regression model with the DV (billing per person) and only the control variables. Basic Assurances® quality indicator variables (IVs) were then entered hierarchically in a stepwise fashion, with an additional variable added during each model until variables no longer produced significant R^2 change.

Results

Agencies' average annual LTSS billing per person ranged from $1,246.24 to $202,527.37. The average annual LTSS billing per person across the agencies was $58,813.31 (*SD* = $36,303.78).

A hierarchical multiple regression was conducted in a stepwise manner to predict average annual LTSS billing per person from Basic Assurances® quality indicators (controlling for agency size, provider type, and geographic location). We first conducted a linear regression

analysis with the control variables (agency size, provider type, and geographic location), which was not significant, F (9, 62) = 1.54, p = 0.16, R^2 = 0.21 (Table 3). Then, at step one of the stepwise analysis we began entering the Basic Assurances® quality indicators. This process resulted in the addition of the following seven variables:

- The organization implements an ongoing staff development program (practice);
- People access quality health care (system);
- The organization monitors Basic Assurances (system);
- Supports and services enhance dignity and respect (system);
- People have meaningful work and activity choices (practice);
- The support needs of individuals shape the hiring, training, and assignment of all staff (practice); and,
- People have supports to manage their own health care (system)

The seven models significantly improved our ability to predict annual LTSS billing per person (Model 1: F (10, 62) = 2.39, p = 0.021; Model 2: F (11, 62) = 3.17, p = 0.002; Model 3: F (12, 62) = 3.53, $p < 0.001$; Model 4: F (13, 62) = 4.13, $p < 0.001$; Model 5: F (14, 62) = 4.64, $p < 0.001$; Model 6: F (15, 62) = 5.30, $p < 0.001$; Model 7: F (16, 62) = 5.68, $p < 0.001$). The final model predicted 66.40% of the variance of annual LTSS billing per person.

According to the final model (Table 4), controlling for all other variables, the average annual LTSS billing per person for organizations that implemented an ongoing staff development program (practice) was $32,531 lower per person supported than organizations that did not implement an ongoing staff development program (t = -3.99, $p < 0.001$; see Figure 1). Controlling for all other variables, the average annual LTSS billing per person for organizations that had systems in place to ensure people accessed quality health care was $40,431 higher per

person supported than organizations that did not have systems in place to ensure people accessed quality health care ($t = 3.93$, $p < 0.001$). Controlling for all other variables, the average annual LTSS billing per person for organizations that had systems in place to monitor the Basic Assurances® was $24,209 higher per person supported than organizations that did not have systems in place to monitor the Basic Assurances® ($t = 2.21$, $p = 0.032$). Controlling for all other variables, the average annual LTSS billing per person for organizations that had systems in place ensure supports and services enhanced dignity and respect was $41,492 lower per person supported than organizations that did not have systems in place to ensure supports and services enhanced dignity and respect ($t = -3.71$, $p < 0.001$). Controlling for all other variables, the average annual LTSS billing per person for organizations that ensured people had meaningful work and activity choices in practice was $22,576 higher per person supported than organizations that did not ensure people had meaningful work and activity choices ($t = 2.97$, $p = 0.005$). Controlling for all other variables, the average annual LTSS billing per person for organizations that ensured the support needs of individuals shaped the hiring, training, and assignment of all staff (practice) was $25,412 lower per person supported than organizations that did not ensure the support needs of individuals shaped the hiring, training, and assignment of all staff ($t = -2.98$, $p = 0.005$). Controlling for all other variables, the average annual LTSS billing per person for organizations that had systems in place to support people to manage their own health care was $21,960 higher per person supported than organizations that did not have systems in place to support people to manage their own health care ($t = 2.20$, $p = 0.033$).

Two control variables were also significant in the final model. Controlling for all other variables, small agencies' average annual LTSS billing was $19,839 higher per person supported than medium agencies ($t = -2.47$, $p = 0.017$). According to the model, controlling for all other

variables, small agencies' annual LTSS billing was $60,445 per person supported, whereas for medium agencies it was $40,606. Controlling for all other variables, agencies located in *both* urban and rural areas' average annual LTSS billing was $23,921 lower per person supported than agencies in urban areas only ($t = 2.73$, $p = 0.009$), and $23,483 lower per person supported than agencies in rural areas only ($t = 2.42$, $p = 0.020$). According to the model, controlling for all other variables, the agencies in both urban rural areas had an average annual billing of $60,445 per person supported, whereas for urban only agencies it was $84,366, and rural agencies only it was $83,923.

Discussion

As VBP metrics for LTSS for people with IDD are lacking, and because of the expansion of managed care into the LTSS IDD service system, the aim of this study was to explore the relationship between quality and costs. To do so, we explored the relationship between quality metrics, based on the Basic Assurances®, and LTSS billing expenditures. Our findings revealed quality assurance indicators can account for a significant portion of cost variance. That is, our findings add to literature which notes quality metrics are important – the impact of quality practices on cost is just one of the many forms of evidence to suggest this.

VBP are designed to encourage quality of service delivery and improve outcomes while reducing unnecessary costs. With alternative payment models, financial incentives are designed to encourage and reward quality service provision (National Association of Medicaid Directors, 2017) – to "ensur[e] that valuable activities are compensated appropriately" (Health Care Payment Learning & Action Network, 2017, p. 8). As such, VBP represent an opportunity to spend money efficiently (ANCOR, 2019). While "changes in payment are necessary" to promote

service delivery transformation, costs should reflect "appropriate and necessary spending" (Health Care Payment Learning & Action Network, 2017, p. 8).

> Yet, VBP for people with IDD based on quality and outcome metrics are lacking. VBP models rely on robust and reliable quality measures that accurately reflect the outcomes of the service. In the health system, data such as rates of infection, diabetes, or post-acute hospitalizations may demonstrate quality of care; however, when goals for services relate to independent living, employment, or community participation, valid and reliable metrics are far more challenging to identify. IDD stakeholders fear a return to a 'medical model' of services if measurement of quality of care relies primarily on clinical outcomes and does not incorporate a broader definition of quality. Quality outcome measures in HCBS, specifically for people with IDD, are not widely agreed upon, nor are they easily defined. (Lewis et al., 2018, p. 5)

There is little agreement about how to measure quality and outcomes for people with IDD (ANCOR, 2019). In instances lacking common models/measures, MCOs will often define quality themselves by necessity (Oss, 2019); this is particularly problematic for people with IDD as many MCOs are not familiar with IDD or their unique needs (Lewis et al., 2018). In addition, there are concerns that if the primary focus of VBP metrics for people with IDD is cost savings there may be a reduction in the availability and quality of services, both of which would hinder people with IDD (ANCOR, 2019; Lewis et al., 2018; Tallant & Dembner, 2019). Financial incentives alone will not achieve quality person-centered services for people with IDD (National Association of Medicaid Directors, 2017), particularly as its difficult to produce cost savings with IDD services (ANCOR, 2019). Instead, the primary motivating factor behind managed care

and VBP should be improving quality and outcomes (Health Care Payment Learning & Action Network, 2017); our findings suggest, cost savings will likely follow.

Increased Billing Expenditures

There were several quality indicators which were associated with higher LTSS billing. For example, when systems were in place to ensure people had access to quality health care, there was higher billing per person supported on average then when systems did not ensure people had access to quality health care. We believe this trend of increased costs is likely a result of people having more care, and better, care. In order for this indicator (access to quality health care) to be considered in place, organizations must have policies and protocols about health care evaluations and screenings, must have consistent standards of care for prevention, early detection, and treatment, people must receive medical evaluations according to accepted medical practice, and people must have routine and comprehensive physical examinations (The Council on Quality and Leadership, 2015). In addition, people with IDD must have current and relevant specialized health care assessments of any and all health conditions (The Council on Quality and Leadership, 2015). While quality health care may cost more, availability of preventative care, and access to care more broadly, positively impact people's health and reduce health disparities (Kim et al., 2012; United States Department of Health & Human Services, 2015). This is particularly important for people with IDD, who not only face health disparities, but also whose health and quality of life is significantly impacted by the services they receive (Burns, 2009b; Frank et al., 2003; Glasson et al., 2014; Haveman et al., 2010; Nochajski, 2000; Ouellette-Kuntz, 2005; World Health Organization, 2001). Alternatively, there may be higher billing per person supported on average when systems are in place to ensure people had access to quality health care not necessarily because quality health care cost *more*, but rather, more people have

access to health care – perhaps people were not getting the health care they needed. More research is needed to explore this relationship. Particularly because untreated conditions can often result in secondary conditions, which could result in increased costs. For example, people not receiving the support they need might end up later cause higher expenditures because of crisis health episodes.

Similarly, when systems were in place to support people to manage their own healthcare, there was higher LTSS billing per person supported on average compared to when systems were not in place to support people to manage their own healthcare. Self-management of health includes people with IDD being involved in choosing their providers, people with IDD being provided with information about their health and treatments, people with IDD being supported to make choices regarding medical care and medication, people with IDD knowing how to access emergency medical services, people with IDD being supported to know about their medications and self-administer with support, and people with IDD having the therapeutic and adaptive equipment they need (The Council on Quality and Leadership, 2015). As such, we believe the link between self-management and increased billing is likely a result of people getting the services they want and need as a result of being more involved in their own health care. In fact, research suggests self-management of health can lead to improvements in not only self-efficacy, but also health behaviors and health status (Lorig et al., 2001; Ory, Ahn, Jiang, Lorig, et al., 2013; Ory, Ahn, Jiang, Smith, et al., 2013).

In addition, agencies that supported people to have meaningful work and activity choices were associated with higher billing per person supported on average than agencies that did not promote meaningful work and activity choices. Promoting meaningful work and activity choices involves: assessing and identifying the work and activities people with IDD want to participate

in; supporting people with IDD to identify which types of work/activities they prefer, focusing supports on assisting people with IDD to achieve their goals and desires; ensuring work and activity options are not only age appropriate and culturally normative, but that they also promote a positive self-image; prioritizing competitive and integrated work for those seeking employment; ensuring people with IDD are paid fairly for the work they perform and ensuring people with IDD have control over their personal resources; and, supporting people with IDD to engage in community life (The Council on Quality and Leadership, 2015). We theorize there could be several contributors to this relationship between meaningful work and activity supports and increased billing. It could be that more supports and services are utilized to make their work/activity opportunities quality-based, meaningful, integrated, and community-based. Whereas currently most people with IDD are funneled into day habilitation and subminimum wage jobs which not only hold low expectations of people, having them participate in tasks like parts assembly that do not end up transferring to real world skills, but also can serve as a form of warehousing (Bond et al., 2012; Cannella-Malone & Schaefer, 2017; Novak, 2015). In contrast, people who work in supported employment not only have higher quality of life than people who are in sheltered settings, they are also more likely to engage with their communities (Jahoda, Kemp, Riddell, & Banks, 2008; Kilsby & Breyer, 1996; Verdugo et al., 2005). In addition, research also suggests that people with IDD who have meaningful work and activity choices have significantly fewer emergency room visits, injuries, and ‘challenging’ behavioral events than people with IDD without meaningful work and activity choices (citation removed for review).

An increase billing related to people having meaningful work and activity choices may also be a result of the initial investment required to get people jobs; organizations might begin to

realize a cost savings as the person becomes more situated in the job and gains more skills (e.g., less job coaching, etc.). We believe more research is needed to tease out not only the relationship between billing and meaningful work and activity choices, but also if this inverse relationship holds constant over time (e.g., is billing still increased when people have been in jobs for a longer period or does it even out or reduce?).

Finally, agencies that had systems in place to monitor the Basic Assurances® were also associated with higher billing per person supported than agencies that did not monitor the Basic Assurances®. This indicator describes organizations having a policy, which utilizes a variety of metrics, to measure quality and learning through a personal and organizational lens, including by evaluating all of the systems and practices described in the Basic Assurances®. This includes monitoring, having policies and systems that focus on continuous improvement, leadership to make progress, the collection and analyzing of data to evaluate the progress of improvement, the consultation and involvement of people with IDD, families, staff, and community members in the evaluation of that progress, and, ultimately, showing substantive improvement maintained over time (The Council on Quality and Leadership, 2015). While we believe the emphasis on continuous improvement may be one reason that agencies that monitor the Basic Assurances® were associated with higher billing per person supported, it could also be that as a result of these efforts, the agencies that monitor the Basic Assurances® have better record keeping and less unrealized revenue/billing as a result.

While these quality metrics were associated with higher LTSS billing, it does not mean that MCOs or providers are free to avoid, abandon, or disregard these best practices simply because of cost – financial incentives should not be the primary motivating factor behind VBP (ANCOR, 2019; Health Care Payment Learning & Action Network, 2017; National Association

of Medicaid Directors, 2017). Regardless of cost, people with IDD are entitled to quality health care (Office of the United Nations High Commissioner for Human Rights & World Health Organization, 2008; United Nations, 1948). Regardless of cost, "all people [should be] afforded the same choices in healthcare available to others" (The Council on Quality and Leadership, 2015, p. 24). Regardless of cost, people with IDD are entitled to meaningful work and activity choices (United Nations, 1948, 2006).

Reduced Billing Expenditures

There were also three quality indicators which were associated with lower LTSS billing per person supported on average. The most impactful quality indicator in the entire analysis was related to organizations implementing ongoing staff development programs. Agencies that implemented ongoing staff development programs had significantly lower billing on average per person supported than agencies without ongoing staff development programs. Ongoing staff development should include ensuring that during onboarding new employees are oriented to the organization's values, programs, and practices (The Council on Quality and Leadership, 2015). All staff should receive ongoing training to maintain, update, and/or improve their competencies and performance based on best practices, both within and outside of the organization, and adult learning theory. Ongoing staff development should also include personal development planning, mentorship, and on the job support. Finally, ongoing staff development should be based on feedback from people with IDD and the staff themselves. Research suggests that ongoing staff development can significantly improve the health and safety of people with IDD (citation removed for review). One study found that agencies that implemented ongoing staff development saw 61% fewer instances of abuse and neglect, 62% fewer injuries, and 40% fewer emergency room visits, all of which can impact expenditures, compared to those agencies

without ongoing staff development (citation removed for review). It may be that, as a result of ongoing staff development, staff are not only able to prevent or reduce adverse situations, but also are better at recognizing risk factors. As a result of their training they may also be more competent and have more self-efficacy when supporting people with IDD.

Similarly, we also found that when the support needs of individuals shaped the hiring, training, and assignment of all staff, agencies had lower billing per person supported on average, than agencies who did not have the support needs shape the hiring, training, and assignment of all staff. This indicator includes not only staffing teams selected and coordinated in consultation with the person with IDD, but also ensuring people have sufficient support from staff to receive the services and supports aligned with their plan (The Council on Quality and Leadership, 2015). We theorize that by when organizations align hiring, training, and assignment of staff with the needs of the person with IDD, staff are more likely to provide better support as a result of increased competencies, and because they will be more in tune with what the person wants and needs. Yet, currently, the lack of training guidelines for support staff can hinder the quality of supports DSPs provide (Hasan, 2013; National Direct Service Workforce Resource Center, 2013). However, increased training, whether it be ongoing staff development or training specific to the needs of the person being supported, can increase the self-efficacy of support staff, as well as help promote professional growth and advancement opportunities (Britton Laws et al., 2014; Firmin et al., 2013; Hasan, 2013; Hewitt & Larson, 2007; Keesler, 2016; National Direct Service Workforce Resource Center, 2013; Taylor, 2008). In addition, increased training can reduce staff turnover, and increase the health, safety, and quality of life of people with IDD, both of which can produce cost savings (Britton Laws et al., 2014; citation removed for review; Hasan, 2013; Hewitt & Larson, 2007; Keesler, 2016; Taylor, 2008).

The third quality indicator associated with lower billing was organizations having systems in place to ensure supports and services enhanced dignity and respect. According to the Basic Assurances®, ensuring supports and services enhance dignity and respect includes people receiving information about services and supports in language that is accessible and culturally applicable to them (The Council on Quality and Leadership, 2015). It also means people having autonomy and independence regarding life choices, including their daily schedules and routines. It means people are only provided with supports to the extent that they need them – they are not 'over-supported.' Supports should not only be provided in integrated settings, but transportation and other supports should also be provided so people can access the community and community services. These elements of respectful practice are likely associated with cost savings because of the benefits of community integration, a reduction in over-supporting people, and services and supports being better designed to meet the wants and needs of the person (Beadle- Brown et al., 2016; Dunbar, 2019, Personal communication; Larson et al., 2013; Schmittdiel et al., 1997). In addition, respect in, and of, itself can produce better quality of life outcomes (citation removed for review). Research also suggests that treating people with IDD with dignity and respect can significantly reduce the frequency of people with IDD's emergency room visits, the number of injuries they have, and the number of 'challenging' behavioral events they have, all of which represent potential cost savings (citation removed for review). For example, one study found people with IDD who were respected had lower behavior intervention services expenditures than those who were not respected, regardless of their impairment severity (citation removed for review). In essence, "respect means listening and responding to the person's needs" (The Council on Quality and Leadership, 2017, p. 35).

Other Factors Associated with Billing Expenditures

There were also two variables which were used as controls that resulted in significant differences in LTSS billing. Controlling for all other variables, small agencies had higher billing on average per person supported than medium agencies. Research suggests agency size can impact an organization's ability to provide services (Carr & Louis, 2019). Not only can economies of scale produce cost savings, larger agencies are often able to take more risks than smaller organizations. In addition, smaller agencies may also be more likely to provide niche or more customized services – both of which are important – which could be why they were associated with higher billing per person supported in our study.

Furthermore, controlling for all other variables, agencies located in both urban and rural settings had lower billing on average per person supported than agencies that were located only in urban areas, or agencies that were only located in rural areas. Geographic location can impact organizations' resources, opportunities, and infrastructure (citation removed for review). Agencies in both geographic settings may be better designed to deal with geographic spread. It could also be that by being in both rural and urban settings, agencies can benefit from the strengths (e.g., resources, community, infrastructure, etc.) of both types of settings. Additionally, there could be an interaction between geographic location and agency size which was not examined in this study.

Limitations

When interpreting the findings from our study, a number of limitations should be noted. First, the agencies in the sample represented one state. In addition, all of the agencies in the sample supported people who received services from the state's developmental disabilities department. In addition, since this was a secondary data analysis, we did not have the ability to add additional questions or variables. Our utilization of a linear regression model assumed linear

correlations between the variables; future studies should explore curve linear relationships. We would like to remind readers that correlation does not equal causation. Finally, this was an exploratory study; future research should examine the replicability of the study and its findings.

Conclusion

If managed care continues to expand into the LTSS IDD service system, evidence-based best practices are critical to ensure there truly is a focus on quality, rather than just cost savings. While this research was some of the first of its kind to explore VBP for managed LTSS for people with IDD, we recognize that much more research is necessary to explore not only VBP for people with IDD, but also quality in managed LTSS more broadly. However, regardless of if, or when, managed LTSS or VBP are implemented in the IDD system, our findings suggest if organizations enhance dignity and respect, implement ongoing staff development programs, and have the needs of individuals with IDD shape the hiring, training, and assignment of all staff there is a potential for cost savings. By prioritizing these metrics, we may be able to not only produce cost savings, but also increase the quality of services provided to people with IDD, and improve their quality of life as a result.

While quality and quality monitoring are certainly investments, both financially and philosophically, there needs to be careful attention to ethical quandaries – "Is it ethical to assign a specific monetary value on quality of life and outcomes?... careful attention needs to be paid to the ethics of attaching money to quality and value" (citation removed for review). It is not a question of if we can afford to implement these systems and practices, but rather a question of if we can afford to not – you cannot put a price tag on people's rights; they are non-negotiable.

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Figure 1. The relationship between quality indicators and average annual billing per person supported (controlling for agency size, provider type, and geographic location).

Figure 1

Click here to access/download;Figure;Figure1 model results.tif

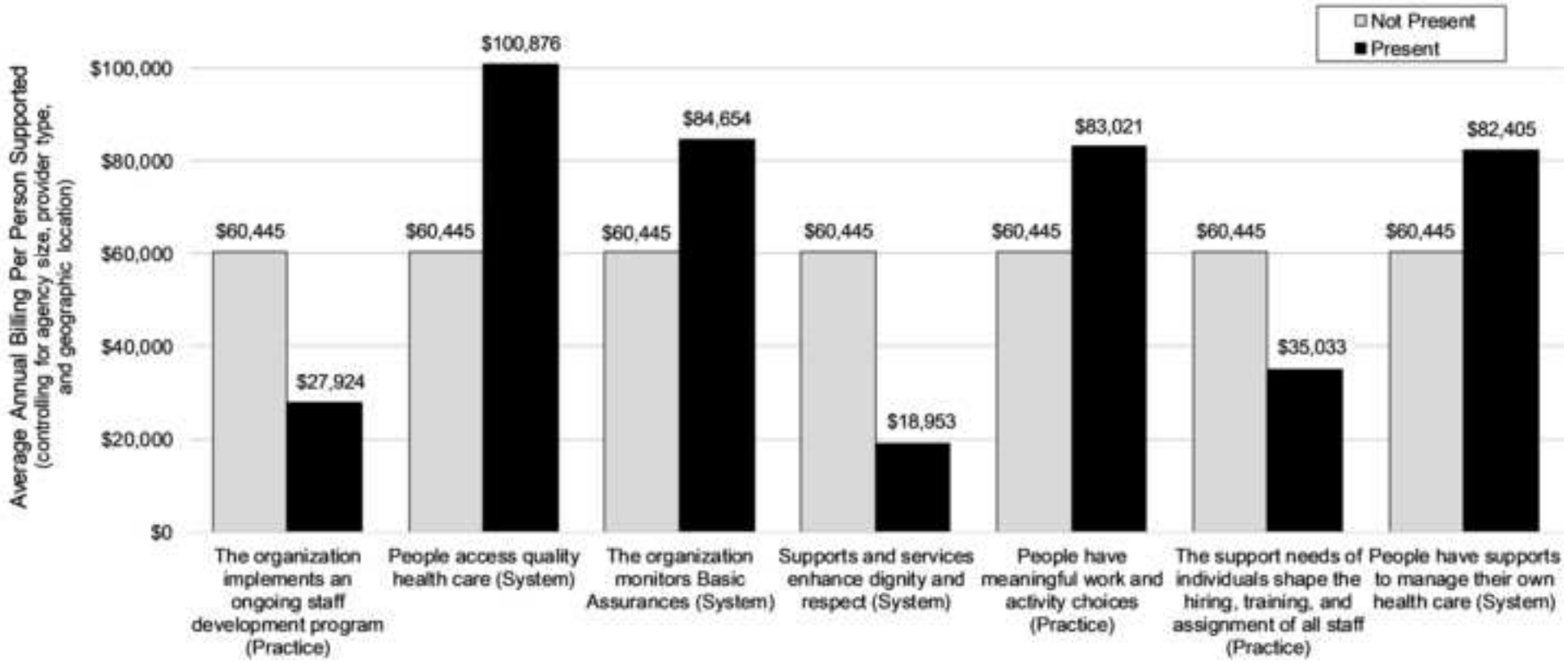

Table 1

Demographics and Descriptive Statistics of Agencies in Sample (n = 68)

Variable	n	%	Average billing per person
Geographic location			
Both	35	51.47	$53,413.23
Urban	16	23.53	$70,688.15
Rural	17	25.00	$58,754.80
Provider type			
Employment/day	67	98.53	$59,603.56
Residential	63	92.65	$59,297.29
Recreation and transportation	49	72.06	$54,134.82
Respite	25	36.76	$51,786.41
Therapies	19	27.94	$63,132.34
Agency size			
Small (1 to 50 people supported)	30	44.12	$70,061.25
Medium (51 to 400 people supported)	36	52.94	$50,974.34
Large (401+ supported)	2	2.94	$31,195.61

Note . Agencies could provide more than one service type.

Table 3

Average Annual Billing Per Person Supported: Regression Models

Model	*F*	*df*	R^2	ΔR^2
0	1.54	9, 62	0.21	
1	2.39*	10, 62	0.31	0.11**
2	3.17**	11, 62	0.41	0.09**
3	3.53***	12, 62	0.46	0.05*
4	4.13***	13, 62	0.52	0.06*
5	4.64***	14, 62	0.57	0.05*
6	5.30***	15, 62	0.63	0.05*
7	5.68***	16, 62	0.66	0.04*

Note. *$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

Table 4

Average Annual Billing Per Person Supported: Coefficients

	0				1			
	B (95% C.I.)	*SE B*	*β*	VIF	*B* (95% C.I.)	*SE B*	*β*	VIF
Variables (*B (C.I.); VIF*)								
Constant	$3,085 (-$84,378 to $90,547)	43,606			$21,163 (-$61,983 to $104,308)	#####		
Agency size (ref: small)								
Medium	-$16,696 (-$38,730 to $5,338)	10,985	-0.23	1.50	-$12,817 (-$33,696 to $8,062)	#####	-0.17	1.52
Large	-$53,063 (-$110,042 to $3,916)	28,408	-0.25	1.23	-$42,818 (-$96,830 to $11,194)	#####	-0.20	1.25
Provider type: Employment/day (ref: no)	$52,514 (-$23,733 to $128,760)	38,014	0.18	1.12	$52,153 (-$19,475 to $123,781)	#####	0.18	1.12
Provider type: Residential (ref: no)	$13,883 (-$21,637 to $49,403)	17,709	0.10	1.14	$11,650 (-$21,755 to $45,056)	#####	0.09	1.14
Provider type: Therapies (ref: no)	$17,417 (-$4,308 to $39,143)	10,832	0.11	1.23	$14,608 (-$5,897 to $35,113)	#####	0.18	1.24
Provider type: Recreation and transportation (ref: no)	-$10,874 (-$32,302 to $10,553)	10,683	0.31	1.16	-$8,152 (-$28,373 to $12,069)	#####	-0.10	1.17
Provider type: Respite (ref: no)	-$2,539 (-$23,671 to $18,593)	10,536	0.81	1.28	-$5,312 (-$25,259 to $14,636)	9,941	-0.07	1.29
Geography (ref: both urban and rural)								
Urban	$19,008 (-$4,408 to $42,424)	11,675	0.23	1.28	$28,174 ($5,248 to $51,101)*	#####	0.33	1.39
Rural	-$507 (-$26,340 to $25,325)	12,879	-0.01	1.42	$2,282 (-$22,065 to $26,629)	#####	0.03	1.43
The organization implements an ongoing staff development program (Practice)					-$28,840 (-$49,163 to -$8,518)**	#####	-0.35	1.14
People access quality health care (System)								
The organization monitors Basic Assurances (System)								
Supports and services enhance dignity and respect (System)								
People have meaningful work and activity choices (Practice)								
The support needs of individuals shape the hiring, training, and assignment of all staff (Practice)								
People have supports to manage their own health care (System)								

Note. *$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

2				3				4		
B (95% C.I.)	*SE B*	*β*	VIF	*B* (95% C.I.)	*SE B*	*β*	VIF	*B* (95% C.I.)	*SE B*	*β*
-$125 (-$79,807 to $79,558)	39,691			$14,955 (-$63,120 to $93,029)	38,871			$32,783 (-$42,601 to $108,168)	37,513	
-$13,817 (-$33,468 to $5,834)	9,788	-0.19	1.52	-$18,000 (-$37,333 to $1,334)	9,625	-0.25	1.58	-$18,623 (-$36,974 to -$272)*	9,132	-0.25
-$31,054 (-$82,553 to $20,445)	25,652	-0.15	1.29	-$41,796 (-$92,423 to $8,831)	25,206	-0.20	1.34	-$32,062 (-$80,701 to $16,576)	24,203	-0.15
$55,573 (-$11,844 to $122,989)	33,581	0.19	1.12	$46,117 (-$19,477 to $111,712)	32,657	0.16	1.14	$41,564 (-$20,778 to $103,905)	31,022	0.14
$5,748 (-$25,956 to $37,453)	15,792	0.04	1.16	$4,606 (-$25,993 to $35,205)	15,234	0.03	1.16	$4,837 (-$24,197 to $33,871)	14,448	0.04
$12,679 (-$6,657 to $32,015)	9,632	0.16	1.25	$12,814 (-$5,837 to $31,465)	9,286	0.16	1.25	$12,529 (-$5,170 to $30,228)	8,807	0.16
-$8,267 (-$27,286 to $10,753)	9,474	-0.10	1.17	-$10,223 (-$28,654 to $9,209)	9,177	-0.13	1.18	-$13,116 (-$30,751 to $4,519)	8,775	-0.16
-$1,041 (-$20,052 to $17,970)	9,470	-0.01	1.33	-$2,643 (-$21,038 to $15,752)	9,158	-0.03	1.33	-$3,728 (-$21,203 to $13,747)	8,696	-0.05
$23,095 ($1,225 to $44,965)*	10,894	0.27	1.43	$21,585 ($445 to $42,724)*	10,525	0.26	1.44	$22,545 ($2,472 to $42,617)*	9,988	0.27
$5,802 (-$17,237 to $28,841)	11,476	0.07	1.45	$5,667 (-$16,556 to $27,890)	11,064	0.06	1.45	$10,915 (-$10,568 to $32,398)	10,690	0.12
-$29,045 (-$48,160 to -$9,930)**	9,522	-0.35	1.14	-$31,277 (-$49,826 to -$12,727)**	9,235	-0.38	1.15	-$29,599 (-$47,249 to -$11,950)**	8,783	-0.36
$29,318 ($8,287 to $50,350)**	10,476	0.32	1.15	$26,864 ($6,455 to $47,272)*	10,161	0.30	1.16	$42,682 ($19,697 to $65,666)***	11,438	0.47
				$26,193 ($2,352 to $50,034)*	11,870	0.25	1.18	$30,851 ($7,937 to $53,764)**	11,402	0.29
								-$31,914 (-$56,894 to -$6,934)*	12,430	-0.32

	5				6				7	
VIF	*B* (95% C.I.)	*SE B*	*β*	VIF	*B* (95% C.I.)	*SE B*	*β*	VIF	*B* (95% C.I.)	*SE B*
	$27,470 (-$44,582 to $99,522)	35,835			$45,011 (-$24,414 to $114,436)	#####			$60,445 (-$7,821 to $128,710)	33,914
1.59	-$18,099 (-$35,611 to -$586)*	8,710	-0.25	1.59	-$21,284 (-$38,016 to -$4,553)*	8,317	-0.29	1.62	-$19,839 (-$35,990 to -$3,689)*	8,024
1.37	-$31,699 (-$78,102 to $14,703)	23,078	-0.15	1.37	-$27,729 (-$71,689 to $16,231)	#####	-0.13	1.38	-$13,133 (-$57,482 to $31,215)	22,032
1.15	$44,384 (-$15,136 to $103,905)	29,603	0.15	1.15	$43,942 (-$12,309 to $100,194)	#####	0.15	1.15	$34,675 (-$20,101 to $89,451)	27,213
1.16	$4,692 (-$23,007 to $32,391)	13,776	0.03	1.16	-$2,570 (-$29,341 to $24,200)	#####	-0.02	1.22	-$5,664 (-$31,573 to $20,245)	12,871
1.25	$16,188 (-$967 to $33,343)	8,532	0.20	1.29	$14,409 (-$1,861 to $30,680)	8,088	0.18	1.30	$14,399 (-$1,253 to $30,052)	7,776
1.20	-$12,110 (-$28,954 to $4,735)	8,378	-0.15	1.20	-$12,810 (-$28,738 to $3,119)	7,918	-0.16	1.20	-$14,762 (-$30,190 to $665)	7,664
1.34	-$5,682 (-$22,432 to $11,067)	8,331	-0.07	1.35	$1,783 (-$15,062 to $18,627)	8,373	0.02	1.53	-$1,815 (-$18,351 to $14,721)	8,215
1.44	$22,795 ($3,645 to $41,946)*	9,525	0.27	1.44	$25,802 ($7,556 to $44,049)**	9,070	0.31	1.47	$23,921 ($6,283 to $41,559)**	8,762
1.51	$16,453 (-$4,549 to $37,454)	10,445	0.19	1.58	$21,491 ($1,266 to $41,715)**	#####	0.24	1.64	$23,483 ($3,941 to $43,025)*	9,708
1.16	-$36,208 (-$53,913 to -$18,503)***	8,806	-0.44	1.28	-$31,998 (-$49,042 to -$14,953)***	8,473	-0.39	1.33	-$32,521 (-$48,925 to -$16,116)***	8,150
1.63	$36,660 ($14,172 to $59,148)**	11,184	0.40	1.72	$36,725 ($15,473 to $57,978)**	#####	0.41	1.72	$40,431 ($19,707 to $61,156)***	10,296
1.21	$30,563 ($8,702 to $52,424)**	10,873	0.29	1.21	$34,272 ($13,415 to $55,129)**	#####	0.33	1.24	$24,209 ($2,113 to $46,285)*	10,967
1.57	-$33,727 (-$57,605 to -$9,848)**	11,876	-0.34	1.58	-$34,971 (-$57,558 to -$12,384)**	#####	-0.35	1.58	-$41,492 (-64,025 to -$18,959)***	11,195
	$20,075 ($3,450 to $36,699)*	8,268	0.27	1.42	$23,118 ($7,233 to $39,004)**	7,897	0.31	1.45	$22,576 ($7,285 to $37,866)**	7,596
					-$22,940 (-$40,635 to -$5,245)*	8,796	-0.28	1.43	-$25,412 (-$42,585 to -$8,239)**	8,531
									$21,960 ($1,870 to $42,050)*	9,981

β	VIF
-0.27	1.63
-0.06	1.52
0.12	1.18
-0.04	1.23
0.18	1.30
-0.18	1.22
-0.02	1.59
0.28	1.48
0.27	1.66
-0.39	1.33
0.45	1.77
0.23	1.50
-0.41	1.70
0.31	1.45
-0.31	1.46
0.24	1.66

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