

MILLIMAN REPORT

# Hawai`i Medicaid Applied Behavior Analysis Rate Study

Commissioned by the State of Hawai`i Med-QUEST Division

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# Executive Summary

## OVERVIEW

The State of Hawai'i Department of Human Services (DHS) Med-QUEST Division (MQD) engaged Milliman to conduct an Applied Behavior Analysis (ABA) services rate study for its Medicaid QUEST Integration (QI) program. This rate study aims to support MQD's understanding of current and expected costs associated with ABA provider service delivery and staffing requirements. This rate study focused on the development of benchmark "comparison rates" for ABA services that the State and other stakeholders can use when evaluating changes to overall funding. *It is important to note that before implementing the comparison rates developed in this rate study, there are a number of implementation steps that must be considered and are described in this report, including new funding that would need to be appropriated by the state legislature.* If approved, new ABA rates could be published by MQD in a "QI memo" for reference by consideration by ABA providers and QI Medicaid Managed Care Organizations (MCOs) when negotiating contracts.

This rate study is in compliance with the Hawai'i State Legislature's Senate Concurrent Resolution #132 passed in 2023<sup>1</sup>, which requests that MQD:

- "take steps necessary to ensure that adequate provider rates are established for applied behavioral analysis services"
- "assess current reimbursement rates for applied behavior analysis services"
- "submit a report of its findings and recommendations on appropriate reimbursement rate increases, including any proposed legislation, to the Legislature no later than twenty days prior to the convening of the Regular Session of 2024"

This rate study focuses on the following ABA covered services included in QI-2301 (FFS 23-01 Memorandum)<sup>2,3</sup>:

- 97151 - Behavior Identification Assessment
- 97152 - Behavior Identification Supporting Assessment
- 0362T - Behavior Identification Supporting Assessment
- 97153 - Direct Treatment by Protocol
- 97154 - Group Treatment by Protocol
- 97155 - Direct Treatment with Protocol Modification
- 97156 - Family Training
- 97157 - Multiple-Family Training
- 97158 - Group Treatment with Protocol Modification
- 0373T - Direct Treatment of Severe Maladaptive Behavior

As a key part of this rate study, we have conducted stakeholder outreach and engagement with ABA providers and their associations, collected provider cost and wage survey data, and presented draft rate calculations for provider feedback. The feedback from discussions with ABA provider stakeholders included the following reported challenges:

- Providers stated that Registered Behavior Technicians® (RBTs) are difficult to recruit and retain due to workforce competition; hiring challenges have been increased since the public health emergency. Reasons included:
  - Competing wages from larger agencies and other industries
  - Worker burnout due to job related duties and scheduling

<sup>1</sup> Source: SCR 132 - Requesting the Department of Human Services' Med-quest Division to Take Steps Necessary to Ensure That Adequate Provider Rates are Established for Applied Behavior Analysis Services. State of Hawai'i: Department of Human Services. 2023. Retrieved from: [https://www.capitol.hawaii.gov/session/measure\\_indiv.aspx?billtype=SCR&billnumber=132&year=2023](https://www.capitol.hawaii.gov/session/measure_indiv.aspx?billtype=SCR&billnumber=132&year=2023)

<sup>2</sup> QI-2301 FFS 23-01: Coverage of Intensive Behavioral Therapy (IBT) For Treatment of Children Under 21 Years of Age with Autism Spectrum Disorder (ASD). Department of Human Services. January 13, 2023. Retrieved from: [https://medquest.hawaii.gov/content/dam/formsanddocuments/provider-memos/qi-memos/qi-memos-2023/QI-2301\\_FFS%2023-01%20&%20Attachments%20A-B-C%20\(part%201\)%20-%20signed.pdf](https://medquest.hawaii.gov/content/dam/formsanddocuments/provider-memos/qi-memos/qi-memos-2023/QI-2301_FFS%2023-01%20&%20Attachments%20A-B-C%20(part%201)%20-%20signed.pdf)

<sup>3</sup> CPT copyright 2023 American Medical Association. All rights reserved.

- Competing with other industry companies offering larger hiring bonuses
- Providers stated that Board Certified Behavior Analyst® (BCBA) staff can be a stable workforce, however, they are difficult to recruit and often are home-grown from the provider RBT staff
  - BCBA's often leave an agency to start their own
- Providers stated that billing policies differ across payors which can lead to unpaid service time. For example:
  - Not all Medicaid MCOs allow for billing of RBT and BCBA concurrent services (where separate services are provided to the same client at the same time)
  - One Medicaid managed care plan has a much lower assessment hours limit

During stakeholder meetings providers reported that travel costs vary by island; however, ABA provider survey results indicated that transportation costs were a small portion of total agency costs, and surveys did not demonstrate a clear variation in transportation costs across islands. MQD may want to consider a future robust ABA transportation survey to capture the travel time and mileage differences across islands.

This rate study utilized payment methodologies under an Independent Rate Model (IRM). The assumptions within the IRM were informed by provider survey responses, stakeholder feedback, independent research, and policy decisions by MQD. The modeled comparison rates under the IRM include the following key components as outlined in **Figure 1** (see the *Methodology and Data Relied Upon* section of this report for more details):

**FIGURE 1: INDEPENDENT RATE MODEL COMPONENTS**

IRM COMPONENT	DESCRIPTION
Direct Care Staff and Supervisor Salaries and Wages	Includes labor-related costs for direct care staff and supervisors, for both employee wages and salaries and contractor rates
Employee Related Expenses (ERE)	Includes payroll-related taxes and fees and employee benefits
Administration, Program Support, Overhead	Includes administrative staff salaries and wages and program vehicle expenses, program operating expenses, including, management, accounting, legal, information technology, etc., excluding room and board (per CMS requirements and consistent with MQD's approved 1115 demonstration) <sup>4</sup>

The IRM components listed above provide a consistent framework across services, while still allowing for customization for each service to determine the appropriate reimbursement level and service delivery incentives. The labor cost assumptions in the IRM provide clear and transparent expectations for the assumed direct care professional wages and benefits levels for providers to follow. The IRM also provides MQD with a mechanism for future rate updates and for developing rates for new services and/or service definitions.

#### NOTABLE WORK CONTRIBUTING TO COMPARISON RATE DEVELOPMENT

The development of the comparison rates reflects intensive work with MQD and ABA stakeholders to better understand the costs associated with behavioral health program service delivery. This process included the following efforts to better understand the resources required to provide the ABA services included in this rate study:

**MQD bi-weekly status calls.** Milliman participated in bi-weekly meetings with MQD representatives to discuss service requirements, stakeholder feedback received, planned adjustments to the IRM and comparison rates in response to the feedback (August 2023 – December 2023).

**MQD ABA rate study project webpage:** MQD created an ABA Rate Study project specific webpage on its medquest.hawaii.gov website<sup>5</sup>. MQD leveraged the ABA Rate Study webpage to communicate the project

<sup>4</sup> Hawaii QUEST Integration. Department of Health & Human Services. Centers for Medicare & Medicaid Services. July 3<sup>rd</sup>, 2019. Retrieved from: [https://medquest.hawaii.gov/content/dam/formsanddocuments/med-quest/hawaii-state-plan/Hawaii\\_QUEST\\_Integration\\_1115\\_Demonstration\\_Extension\\_Approval\\_Package.pdf](https://medquest.hawaii.gov/content/dam/formsanddocuments/med-quest/hawaii-state-plan/Hawaii_QUEST_Integration_1115_Demonstration_Extension_Approval_Package.pdf)

<sup>5</sup> Fee Schedules: ABA Rate Study. State of Hawai'i Department of Human Services. Med-QUEST Division. Retrieved from: <https://medquest.hawaii.gov/en/plans-providers/fee-for-service/fee-schedules.html>.

background and provide project specific resources. Project specific materials and stakeholders' meetings recordings were posted to the webpage as they became available.

**Stakeholder meetings.** Engagement of stakeholders via four different public meetings: kickoff meeting, technical workgroup provider survey meeting, service requirements and workforce meeting, and a rate assumptions/draft rates meeting. In addition, separate meetings were held with a managed care plan and ABA agencies/provider association representatives. A dedicated provider email inbox was offered to ABA stakeholders for questions and feedback.

**MQD ABA provider survey for ABA direct care and supervisory staff “provider survey”.** As part of the ABA Rate Study efforts, MQD released a Provider Cost and Wage survey to capture the cost and service delivery experience of Medicaid enrolled billing providers delivering ABA services in Hawai'i. The ABA provider survey was released in October 2023 and providers were given approximately three weeks to complete the survey, inclusive of a one-week extension. Twenty ABA provider agencies submitted a provider survey via a dedicated provider email inbox. An ABA provider email inbox was offered to ABA providers as part of the efforts to support ABA providers and stakeholders to provide feedback and questions to inform the ABA rate study assumptions.

### MODELED COMPARISON RATES AND ESTIMATED IMPACT

To support budget estimates and potential new state general fund requirements for the State's consideration, MQD requested the development of a range of comparison rates for the ABA services included in this rate study. As such we have modeled rates under the following three scenarios ranging from low to high based on different wage input assumptions (all other rate factors are the same across scenarios):

- **Scenario 1:** Based on the 50<sup>th</sup> percentile Bureau of Labor Statistics (BLS) wage blend for direct care staff
- **Scenario 2:** Based on the median direct care staff wage from the ABA provider survey results
- **Scenario 3:** Based on the 75<sup>th</sup> percentile BLS wage blend for direct care staff

Estimated CY 2024 payments are based on a fixed level of services from CY 2022, without trending or adjustments for potential increases in utilization that may occur in response to higher reimbursement. Estimated CY 2024 payments also do not reflect adjustments for inflation or changes in MCO negotiated rates that may occur from CY 2022. ***Actual Q1 ABA payments made by MCOs to providers will differ from the simulated payments in this modeling. Reasons for differences include but are not limited to future changes in enrollment, utilization, service mix, negotiated rates between MCOs and providers, state funding, and other factors.***

Modeled comparison rates under each of the three rate scenarios are estimated to result in an increase in aggregate ABA service payments based on modeling using calendar year (CY) 2022 Medicaid managed care utilization. **Figure 2** below provides an aggregate summary of estimated payment change for each modeled scenario. For detailed rate calculations, see **Appendix A** of this report.

FIGURE 2: ESTIMATED MANAGED CARE PAYMENT IMPACT FROM MODELED RATES

2022 CLAIMS DATA			SCENARIO 1 <sup>6</sup>		SCENARIO 2		SCENARIO 3	
	SUM OF PAID	SUM OF PAID UNITS	ESTIMATED PAYMENT IMPACT	COMPOSITE RATE CHANGE %	ESTIMATED PAYMENT IMPACT	COMPOSITE RATE CHANGE %	ESTIMATED PAYMENT IMPACT	COMPOSITE RATE CHANGE %
<b>Total</b>	\$19.1M	1,196,792	+\$6.5M	+33.93%	+\$7.8M	+40.69%	+\$9.4M	+49.22%

It is important to note that while there are aggregate modeled ABA payment increases, at the individual service level there is a range of both modeled rate increases and decreases compared to the current ABA rates published in MQD's latest ABA Q1 memo:

<sup>6</sup> Scenario 1 has an estimated \$73k aggregate payment decrease for ABA service codes 97151 and 97152 combined. In the event that MQD does not adopt new rates for these services, the estimated payment impact under this scenario would be approximately \$73K higher than shown.

- Individual service rates (with 1-staff to 1-client ratio, or “1:1”) generally have significant modeled rate increases across all rate scenarios, including direct treatment services for RBTs (procedure code 97153) and direct treatment with protocol modification for Licensed Behavior Analysts (LBAs, procedure code 97155).
- Behavior identification assessment service rates (procedure code 97151) have modeled rate decreases that are reflected in Scenario 1 and Scenario 2. It is our understanding that when the current MQD assessment rates were developed, indirect time was not separately billable (and the MQD rates included reimbursement for indirect time). Beginning January 1, 2019, indirect time became billable for procedure code 97151,<sup>7</sup> however we understand that the MQD assessment rate did not change as a result of this change in billing guidance.<sup>8</sup> Under the modeled assessment rate approach in this rate study, an adjustment for indirect time has not been included (since it is separately billable), but a time adjustment has been included to account for coordination and scheduling of the assessments (this has increased the proposed rates).
- Group service rates (i.e., procedure codes 97154, 97157, and 97158) are based on 1:1 individual service modeled rate with downward adjustments applied to reflect the number of members served. We believe the rate differentials for group services appropriately reflect the allocation of costs across multiple clients who are served at the same time. The current MQD fee schedule, on the other hand, contains similar rates for both 1:1 and 1-staff to 2-client “1:2” services, which effectively pays double the individual service rate for 1:2 group services (across two billable units) for the same amount of service time. We believe the group service rate differentials are especially important given the modeled rate increases to the 1:1 individual service rates.

## IMPLEMENTATION CONSIDERATIONS

MQD will need to consider the following key implementation steps before adopting new ABA rates in the QI memo:

- Obtain additional state general funds for rate increases
- Discuss new rate methodologies and modeled rates with Medicaid MCOs and ABA providers
- Update managed care capitation rates and include in a new rate certification for CMS approval
- Update MQD QI ABA service policies and distribute QI memos with MQD’s selected comparison rates for each service (e.g., billing policies on concurrent billing and updating the allowable rendering providers for procedure codes 97152 and 0362T)
- Discuss with ABA providers the assumptions on direct care staff wages, employee benefits, and supervision time built into the modeled comparison rates

<sup>7</sup> Association for Behavior Analysis International (ABAI). Supplemental Guidance on Interpreting and Applying the 2019 CPT Codes for Adaptive Behavior Services. January 2019. Retrieved from: [https://www.abainternational.org/ABAIUploads/Practice/FINAL\\_CPT\\_Supplemental\\_Guidance\\_1\\_9\\_19.pdf](https://www.abainternational.org/ABAIUploads/Practice/FINAL_CPT_Supplemental_Guidance_1_9_19.pdf)

<sup>8</sup> Based on review of QI memo 1908 (QI-1908) from 2015 and 2019. QI-1908 FFS 19-03: Update for Billing Codes for Intensive Behavioral Therapy (IBT) for Treatment of Children Under 21 Years of Age with Autism Spectrum Disorder (ADS). Department of Human Services. March 8, 2019. Retrieved from: [https://medquest.hawaii.gov/content/dam/formsanddocuments/provider-memos/qi-memos/qi-memos-2019/QI-1908\\_FFS\\_19-03.PDF](https://medquest.hawaii.gov/content/dam/formsanddocuments/provider-memos/qi-memos/qi-memos-2019/QI-1908_FFS_19-03.PDF)

## Introduction and Background

Hawai'i MQD engaged Milliman to conduct an ABA services rate study for its Medicaid QI program. This rate study aims to support MQD's understanding of current and expected costs associated with ABA provider service delivery and staffing requirements. This rate study focused on the development of benchmark "comparison rates" for ABA services that the State and other stakeholders can use when evaluating changes to overall funding. *It is important to note that before implementing the comparison rates developed in this rate study, there are a number of implementation steps that must be considered and are described in this report, including new funding that would need to be approved by the state legislature.* If approved, new ABA rates could be published by MQD in a "QI memo" for reference by consideration by providers and QI Medicaid MCOs when negotiating contracts.

As required under Hawai'i State Legislature's Senate Concurrent Resolution #132<sup>9</sup> passed in 2023, MQD commissioned this ABA rate study to support budget estimates and potential new state general fund requirements for the State's consideration, MQD requested a range of modeled comparison rate scenarios under the IRM approach. Per MQD's direction, we modeled three rate options for each service under different direct care staff wage assumptions. See the *Methodology and Data Relied Upon* section of this report for more details on the IRM development and payment impact modeling process.

The modeled comparison rates from this rate study do not constitute a requirement or commitment that MCOs or other payors adjust current payment arrangements to match these benchmarks, but rather they are informational for potential adoption by providers, MCOs, and other stakeholders during the rate negotiation process. Of particular note:

- MQD is not currently considering the adoption of comparison rates developed in this rate study as an MQD fee-for-service fee schedule.
- Expected funding increases resulting from the modeled comparison rates in this rate study would not be implemented until additional state general funds could be identified.
- At this time, MQD does not plan to reprice individual claims using the comparison rates when determining capitation rates to be paid to the MCOs.

### STAKEHOLDER ENGAGEMENT

As a key part of the ABA rate study, we have conducted stakeholder outreach and engagement with ABA providers and their associations, collected provider cost and wage survey data, and presented draft rate calculations for provider feedback. In addition to provider meetings, MQD created an ABA project website<sup>10</sup> to post project related materials and an ABA specific Milliman email inbox to collect stakeholder feedback. The goal of the stakeholder engagement process was to establish an appropriate balance between building consensus among key stakeholders and achieving MQD financing and policy goals. **Figures 3** and **4** below summarize stakeholder engagement and feedback received.

<sup>9</sup> Source: SCR 132 - Requesting the Department of Human Services' Med-quest Division to Take Steps Necessary to Ensure That Adequate Provider Rates are Established for Applied Behavior Analysis Services. State of Hawai'i: Department of Human Services. 2023. Retrieved from: [https://www.capitol.hawaii.gov/session/measure\\_indiv.aspx?billtype=SCR&billnumber=132&year=2023](https://www.capitol.hawaii.gov/session/measure_indiv.aspx?billtype=SCR&billnumber=132&year=2023)

<sup>10</sup> Fee Schedules: ABA Rate Study. State of Hawai'i Department of Human Services. Med-QUEST Division. Retrieved from: <https://medquest.hawaii.gov/en/plans-providers/fee-for-service/fee-schedules.html>

**FIGURE 3: STAKEHOLDER ENGAGEMENT SUMMARY**

STAKEHOLDER ENGAGEMENT/MEETINGS	DESCRIPTION
Regular MQD Status Meetings	<p>Milliman participated in scheduled meetings with MQD representatives. MQD and Milliman met bi-weekly, during these meetings, we discussed:</p> <ul style="list-style-type: none"> <li>Stakeholder engagement preparation</li> <li>Research findings</li> <li>Preliminary analyses, including draft comparison rates, wage changes, and self-directed rates</li> <li>Provider feedback from the provider workgroup sessions</li> </ul>
Stakeholder Meetings	<p>MQD and Milliman representatives facilitated the following ABA stakeholder meetings:</p> <ul style="list-style-type: none"> <li>ABA rate study Kick-off meeting: MQD invited ABA providers and MCOs to attend a project kickoff meeting with MQD and Milliman representatives regarding the comparison rate development process and its scope. Stakeholders were encouraged to provide feedback during the meeting and at any time in the future via e-mail.</li> <li>ABA provider survey technical workgroup meeting: MQD invited ABA providers to attend a technical workgroup meeting to review the provider survey developed to gather data for the Med-QUEST ABA Rate Study. The meeting discussed key components of the provider survey that includes the direct costs of providing ABA services in HI.</li> <li>ABA service requirements and workforce meeting: The stakeholder meeting discussed several topics to inform the study that included staffing approach, service delivery, and staff retention and recruiting.</li> <li>ABA service draft comparison rates: ABA stakeholders were invited to the ABA draft comparison rates meeting to review and provide feedback on the service assumptions and the draft rate calculations.</li> <li>Separate meetings held with Hawai'i Association for Behavior Analysis (HABA), Hawai'i Medical Service Association (HMSA), and a provider entity representative: The primary goals of the stakeholder meetings were to discuss the costs related to service delivery, the service requirements, and to discuss assumptions specific to each service type and gather feedback.</li> </ul>
Provider Surveys	<p>MQD and Milliman representatives released the 2023 ABA Provider Cost and Wage survey. The ABA provider survey was released in October 2023 and providers were given approximately three weeks to complete the survey, inclusive of a one-week extension. Twenty ABA provider agencies submitted a provider survey via a dedicated provider email inbox. An ABA provider email inbox was offered to ABA providers as part of the efforts to support ABA providers and stakeholders to provide feedback and questions to inform the ABA rate study assumptions.</p>

**FIGURE 4: KEY THEMES OF STAKEHOLDER FEEDBACK**

TOPIC	REPORTED KEY THEMES
Recruitment and Retention	<ul style="list-style-type: none"> <li>Difficulty in retaining employees at all levels due to: <ul style="list-style-type: none"> <li>Workforce shortage that has been worsened since the public health emergency</li> <li>Intensity of work and burnout</li> <li>Non-billable activities expectations</li> <li>Ability to obtain higher wages with other employers</li> <li>Mainland and Department of Education (DOE) competition is high</li> </ul> </li> <li>RBT staff are increasingly less experienced due to difficulty in retaining RBT experienced staff or at bachelor's level.</li> <li>BCBA staff are difficult to recruit and retain due to low predominated workforce with the required credentials and experience level and due to BCBA staff leaving their current employer to pursue their own practice.</li> <li>Retention Strategies: <ul style="list-style-type: none"> <li>Employee benefits</li> <li>Behavior Analyst training program - offer unrestricted hours (non-financial) and tenure bonuses</li> </ul> </li> </ul>



TOPIC	REPORTED KEY THEMES
Wages and Benefits	<ul style="list-style-type: none"> <li>Significant pressure on wages due to: <ul style="list-style-type: none"> <li>Competition from other programs and private sector</li> <li>Employee expectations</li> <li>Workforce shortages that predated COVID</li> </ul> </li> <li>Provider shared the following in terms of wages and benefits offered: <ul style="list-style-type: none"> <li>Offer Continued Education (CE) hours, Paid Time Off (PTO), immediate vesting, bonuses</li> <li>HI statewide requirements, over 20 hours requires benefits (most RBTs exceed this criteria)</li> <li>Health insurance costs are high (smaller organizations can't compete with larger organizations)</li> </ul> </li> </ul>
Supervision	<ul style="list-style-type: none"> <li>Supervision time is an average of 10% - 15% per 15-minute unit</li> <li>On average, RBTs have one hour of administrative tasks for every eight hours of service</li> <li>Typical caseload supervision is six, but could go up to ten and depends on RBT hours per week</li> <li>Report writing for BCBAs impacts the caseload size</li> <li>Board Certified Assistant Behavior Analyst® (BCaBA) are more experienced than RBTs and require less supervision</li> </ul>
ABA Provider Types	<ul style="list-style-type: none"> <li>Board Certified Behavior Analyst – Doctoral® (BCBA-D) rarely provides the services included in this rate study</li> <li>To specify in the HI ABA services policy the use of a Licensed Behavior Analyst (LBA) as a Qualified Health Provider (QHP) rather than BCBA or BCBA-D. This recommendation intends to align current HI ABA policy with current HI state requirement for QHP that requires a state-issued license. QHPs authorized to provide ABA services under no supervision are licensed and certified by the Behavior Analyst Certification Board (BACB), and have at least a master's degree</li> <li>BCBA and BCBA-D have the same scope of practice for ABA services and assessments</li> <li>RBTs path to BCBA, including both training and educational requirements, can take up to 7 years</li> </ul>
Service Delivery and Staffing	<ul style="list-style-type: none"> <li>Providers stated that 0362T and 0373T are not frequently billed</li> <li>RBTs with less than bachelor's degree need longer training hours than RBTs with bachelor's degree</li> </ul>
Turnover	<ul style="list-style-type: none"> <li>RBTs have the highest turnover rate</li> <li>BCBAs are committed to the field, therefore experiencing less turnover but are more difficult to recruit</li> </ul>
Service Setting	<ul style="list-style-type: none"> <li>Providers stated that services are reimbursed the same rate for all place of service (e.g., there is no difference between a clinical and community-based setting)</li> <li>Services provided in the community has higher supervision</li> <li>Staff are paid minimum wage when traveling to provide services in the community</li> <li>Providers stated that travel costs are variable by island but there were little travel costs reported in the provider surveys</li> </ul>
97151 service billing	<ul style="list-style-type: none"> <li>Health plans have varying approaches in reimbursement policy for procedure code 97151; some health plans have a cap of 10 hours for an assessment while other have 4.5 hours.</li> <li>97151 billing code can be used for non-client facing time.</li> </ul>
Concurrent Services and Billing	<ul style="list-style-type: none"> <li>Providers reported that certain services must be provided concurrently in order to provide the care needed for clients and some payors, but not all (inclusive of Hawai'i MCOs), are reimbursing for concurrent services.</li> <li>Most providers are asking for procedure costs 97153 and 97155 to be billed concurrently.</li> </ul>

In consideration of stakeholder feedback received and to support the purpose of this initiative, the modeled rates included service specific adjustments detailed in **Figure 5** below:

**FIGURE 5: SERVICE SPECIFIC ADJUSTMENTS ASSUMPTIONS BASED ON STAKEHOLDER FEEDBACK**

TYPE	ADJUSTMENT DESCRIPTION
Provider Type Billing Modifier	Licensed Behavior Analyst (LBA) provider grouping developed in lieu of separate BCBA and BCBA-D billing modifiers for ABA services (i.e., HO and HP), which was based on stakeholder feedback, other state practices, and to align with the scope of practice for staff that develop and oversee the services. As a result of using an LBA provider type description, authorized staff to provide services as a licensed BCBA whether they have a doctoral or a master's degree level are to use an HO modifier for billing.
Concurrent Billing of 97153 and 97155	<p>The draft ABA comparison rates incorporated feedback received from ABA service providers and other ABA stakeholders on allowing concurrent billing of the following services to provide the care needed to individuals:</p> <ul style="list-style-type: none"> <li>97153 - Direct Treatment by Protocol</li> <li>97155 - Direct Treatment with Protocol Modification</li> </ul> <p>The estimated payment impacts include the following assumptions:</p> <ul style="list-style-type: none"> <li>97153: delivered by an RBT under the supervision of an LBA</li> <li>97155: delivered by an LBA as the sole provider or by a BCaBA under the supervision of an LBA</li> </ul> <p>97155 modeled rates would need to be updated to include RBT labor costs if current MQD QI payment policy does not adjust to allow for concurrent billing of the 97153 and 97155 service codes.</p>
Group Services	Group services (i.e., procedure codes 97154, 97157, and 97158) rate modeling adjusts the rates based on the number of members served. This differs from the current MQD fee schedule approach which for certain services pays 1:1 and 1:2 services at similar rates
97151, 97152 and 0362T	<p>Adjustments to the below services were informed by stakeholder feedback and discussions with MQD.</p> <p>97151 - Behavior identification assessment:</p> <ul style="list-style-type: none"> <li>Modeled comparison rates assumed indirect time as billable.</li> <li>Application of a time adjustment to the rate modeling to account for coordination and scheduling of the assessments.</li> </ul> <p>97152 and 0362T - Behavior identification supporting assessment service:</p> <ul style="list-style-type: none"> <li>97152 service rate development assumed service delivery by BCaBA under the direction and supervision of an LBA; the LBA is not able to bill for this service</li> <li>The 97152 service rate development adjustment is made parallel to an adjustment to the 0362T rate that assumes a service delivery (and billing) by an LBA with 2 RBTs.</li> </ul>

## Results

To support budget estimates and potential new state general fund requirements for the State's consideration, MQD requested the development of comparison rates using three scenarios for ABA services included in this rate study. Per MQD's direction we have modeled three rate scenarios for each service listed below, relying on staff wage assumptions guided by stakeholder feedback. The rate differentials for each scenario were derived from underlying staff wage assumptions, which used available BLS data and the 2023 ABA provider survey results:

- **Scenario 1:** Based on the 50<sup>th</sup> percentile BLS wage blend
- **Scenario 2:** Based on the median wage from the ABA provider survey results
- **Scenario 3:** Based on the 75<sup>th</sup> percentile BLS wage blend

Estimated CY 2024 payments are based on a fixed level of services from CY 2022, without trending or adjustments for potential increases in utilization that may occur in response to higher reimbursement. Estimated CY 2024 payments also do not reflect adjustments for inflation or changes in MCO negotiated rates that may occur from CY 2022. **Actual QI ABA payments made by MCOs to providers will differ from the simulated payments in this modeling. Reasons for differences include but are not limited to future changes in enrollment, utilization, service mix, negotiated rates between MCOs and providers, state funding, and other factors.**

Modeled comparison rates under each of the three rates scenarios are estimated to result in an increase in aggregate ABA service payments based on modeling using CY 2022 Medicaid managed care utilization. **Figure 6** below provides an aggregate summary of estimated expenditure change for each modeled scenario. The estimated payment impact does not assume an increase in service utilization due to higher reimbursement rates (i.e., utilization increases if there are more providers willing to contract with Medicaid). For detailed rate calculations, see **Appendix A** of this report.

FIGURE 6: ESTIMATED MANAGED CARE PAYMENT IMPACT FROM MODELED RATES

	CY 2022 MANAGED CARE CLAIMS DATA		MODELED RATES		
	SUM OF PAID	SUM OF PAID UNITS	MODELED PAYMENTS	ESTIMATED COMPOSITE PAYMENT INCREASE	ESTIMATED COMPOSITE PAYMENT CHANGE %
<b>Scenario 1<sup>11</sup></b>	\$19.1M	1,196,792	\$25.6M	\$6.5M	33.93%
<b>Scenario 2</b>	\$19.1M	1,196,792	\$26.9M	\$7.8M	40.69%
<b>Scenario 3</b>	\$19.1M	1,196,792	\$28.5M	\$9.4M	49.22%

It is important to note that while there are aggregate modeled ABA payment increases, at the individual service level there is a range of both modeled rate increases and decreases compared to the current ABA rates published in MQD's latest ABA QI memo.

- Individual service rates (with 1-staff to 1-client ratio, or "1:1") generally have significant modeled rate increases across rate scenarios, including direct treatment services for RBTs (procedure code 97153) and direct treatment with protocol modification for LBAs (procedure code 97155).
- Behavior identification assessment service rates (procedure code 97151) have modeled rate decreases that are reflected in Scenario 1 and Scenario 2. It is our understanding that when the current MQD assessment rates were developed, indirect time was not separately billable (and the MQD rates included reimbursement for indirect time). Beginning January 1, 2019, indirect time became billable for procedure code 97151,<sup>12</sup> however we

<sup>11</sup> Scenario 1 has an estimated \$73k aggregate payment decrease for ABA service codes 97151 and 97152 combined. In the event that MQD does not adopt new rates for these services, the estimated payment impact under this scenario would be approximately \$73K higher than shown.

<sup>12</sup> Association for Behavior Analysis International (ABAI). Supplemental Guidance on Interpreting and Applying the 2019 CPT Codes for Adaptive Behavior Services. January 2019. Retrieved from: [https://www.abainternational.org/ABAIUploads/Practice/FINAL\\_CPT\\_Supplemental\\_Guidance\\_1\\_9\\_19.pdf](https://www.abainternational.org/ABAIUploads/Practice/FINAL_CPT_Supplemental_Guidance_1_9_19.pdf)

understand that the MQD assessment rate did not change as a result of this change in billing guidance.<sup>13</sup> Under the modeled assessment rate approach in this rate study, an adjustment for indirect time has not been included (since it is separately billable), but a time adjustment has been included to account for coordination and scheduling of the assessments (this has increased the proposed rates).

- Group service rates (i.e., procedure codes 97154, 97157, and 97158) are based on 1:1 individual service modeled rate with downward adjustments applied to reflect the number of members served. We believe the rate differentials for group services appropriately reflect the allocation of costs across multiple clients who are served at the same time. The current MQD fee schedule, on the other hand, contains similar rates for both 1:1 and 1-staff to 2-client (1:2) services, which effectively pays double the individual service rate for 1:2 group services (across two billable units) for the same amount of service time. We believe the group service rate differentials are especially important given the modeled rate increases to the 1:1 individual service rates.

## IMPLEMENTATION CONSIDERATIONS

MQD will need to consider the following key implementation steps before adopting new ABA rates in the QI memo:

- Obtain additional state general funds for rate increases
- Discuss new rate methodologies and modeled rates with Medicaid MCOs and ABA providers
- Update managed care capitation rates and include in a new rate certification for CMS approval
- Update MQD QI ABA service policies and distribute QI memos with MQD's selected comparison rates for each service (e.g., billing policies on concurrent billing and updating the allowable rendering providers for procedure codes 97152 and 0362T)
- Discuss with ABA providers the assumptions on direct care staff wages, employee benefits, and supervision time built into the modeled comparison rates

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<sup>13</sup> Based on review of QI memo 1908 (QI-1908) from 2015 and 2019. QI-1908 FFS 19-03: Update for Billing Codes for Intensive Behavioral Therapy (IBT) for Treatment of Children Under 21 Years of Age with Autism Spectrum Disorder (ADS). Department of Human Services. March 8, 2019. Retrieved from: [https://medquest.hawaii.gov/content/dam/formsanddocuments/provider-memos/qi-memos/qi-memos-2019/QI-1908\\_FFS\\_19-03.PDF](https://medquest.hawaii.gov/content/dam/formsanddocuments/provider-memos/qi-memos/qi-memos-2019/QI-1908_FFS_19-03.PDF)

## Methodology and Data Relied Upon

The comparison rate modeling approach relied upon for this rate study was the IRM, which approximates the average costs that a reasonably efficient ABA provider would be expected to incur while delivering these services. As denoted by its description – **independent** rate model – this approach builds rates from the ground up, by determining the costs related to the individual components shown below and summing the component amounts to derive a comparison rate for each service.

The IRM approach can be distinguished from other provider payment methodologies in that it estimates what the costs for each service could be given the resources (salaries and other expenses) reasonably expected to be required, on average, while delivering the services. This approach relies on multiple independent data sources to develop rate model assumptions to construct the comparison rates. By contrast, many cost-based methods rely primarily on the actual reported historical costs incurred while delivering services, which can be affected by operating or service delivery decisions made by providers, and can be limited by current reimbursement level. These operating or service delivery decisions may be inconsistent with program service delivery standards or be caused by program funding limitations that do not necessarily consider the average resource requirements associated with providing these services or include incentives for direct care staff retention. **Figure 1** provides an overview of the key components and elements of the IRM approach. The IRM approach constructs a rate for each service as the sum of the costs associated with each of the components shown in **Figure 7**.

FIGURE 7: INDEPENDENT RATE MODEL COMPONENTS

COMPONENT	ELEMENTS	SUB-ELEMENTS	CLARIFYING NOTES
Clinical Staff and Supervisor Salaries and Wages	Service-related Time	Direct Time	Corresponding time unit, or staffing requirement assumptions where not defined. Adjusted for staffing ratios for some services (i.e., more than one person served concurrently, e.g., in group counseling sessions or for residential services).
		Indirect Time	Service-necessary planning, note taking and preparation time
		PTO/Training/ Conference Time	Paid vacation, holiday, sick, training, non-productive, and conference time; also considers additional training time attributable to employee turnover
		Supervisor Time	Accounted for using a span of control variable
	Wage Rates	Can Vary by Staff Type	Wage rates vary depending on types of direct service employees, which have been assigned to provider groups
Employee Related Expenses (ERE)	Payroll-related Taxes and Fees	Federal Insurance Contributions Act (FICA), Federal Unemployment Tax Act (FUTA), State Unemployment Insurance (SUI), Workers Compensation	Applicable to all employees, and varies by wage level assumption
	Employee Benefits	Health, Dental, Vision, Life and Disability Insurance, and Retirement Benefits	Amounts may vary by provider group
Administration, Program Support, Overhead	All other business-related costs	Includes administrative staff salaries and wages and program vehicle expenses, program operating expenses, including, management, accounting, legal, information technology, etc.	Excludes room and board expenses.

## RATE MODEL COMPONENTS

This subsection provides a description of the key rate components listed in **Figure 7**, which are:

- Direct care staff and supervisor salary and wages
- Employee related expenses
- Administration, program support, overhead

### Direct Care Staff and Supervisor Salary and Wages

The direct care staff salary and wage components are typically the largest component of rates, comprising the labor-related cost, or the product of the time and expected wage rates for the direct care staff who deliver each of the services. This component includes costs associated with the direct care staff expected to deliver the services and their immediate supervisors.

#### Direct Care Staff and Supervisor Time Assumptions

In the IRM approach, direct care staff time is categorized as direct time, indirect time, and supervisor time. Adjustments for paid time off (PTO), holidays, and training time are also incorporated. There are also other time assumptions that are services specific. All assumptions were reviewed with stakeholders for feedback. **Figure 8** provides a description of each of these sub-elements and related adjustments.

**FIGURE 8: SUMMARY OF SUB-ELEMENTS RELATED TO DIRECT CARE STAFF AND SUPERVISOR TIME**

TIME SUB-ELEMENT	DEFINITION	ASSUMPTIONS
Direct Care Staff Direct Time	<ul style="list-style-type: none"> <li>▪ Amount of time incurred by direct staff that can be billed for services provided to individuals.</li> <li>▪ For example, a service billed as a 15-minute unit assumes that the direct care staff direct time is approximately 15 minutes, an assumption that is consistent with service billing guidelines. Examples of the most common unit types, which vary by service, are a set number of minutes per service unit (e.g., 15-minute, 30-minute), per encounter, per day, or per month.</li> </ul>	<ul style="list-style-type: none"> <li>▪ ABA services in this rate study are assumed to have 15-minutes of direct service time. For most services, it is assumed that the indirect time does not result in a billable unit.</li> <li>▪ In 2021 the American Medical Association (AMA) changed the service descriptions of select assessment services to allow specific indirect activities to produce a billable unit (e.g., 97151), even when the time is not "person facing". For these services, the rate model reflects all billable time (both person facing and non-person facing) as direct time, and non-billable and non-client-facing time as indirect time</li> <li>▪ Assumptions included in the IRM were reviewed with stakeholders.</li> </ul>
Direct Care Staff Indirect Time	<ul style="list-style-type: none"> <li>▪ Time that must be spent by non-supervisory direct care staff to provide the service, but is not spent "person facing", and does not result in a billable unit of service.</li> <li>▪ Time incurred for necessary activities such as planning, summarizing notes, updating records, and other non-billable but appropriate time not otherwise included in direct care staff direct time.</li> </ul>	<p>Indirect time assumptions are assumed to vary by staff type due to different scope of work. The comparison rates assumed:</p> <ul style="list-style-type: none"> <li>▪ 2 minutes of indirect time per 15 minutes of BCaBA and RBT time for ABA services. Adjustments applied to specific services to meet service delivery assumptions (i.e., 97156).</li> <li>▪ 6 minutes per 15 minutes of LBA time for ABA services. Adjustments applied to specific services to meet service delivery assumptions (i.e., 97156).</li> <li>▪ 97156 assumptions accounted for increased indirect time activities associated with providing the service.</li> <li>▪ Assumptions included in the IRM were reviewed with stakeholders.</li> </ul>

TIME SUB-ELEMENT	DEFINITION	ASSUMPTIONS
PTO Adjustment Factor	<ul style="list-style-type: none"> <li>Accounts for additional time that must be covered over the course of a year by other staff, thereby representing additional direct care staff time per unit.</li> <li>Annual time related paid vacation, holiday, and sick time.</li> <li>Annual training and/or conference time expected to be incurred by direct care staff and supervisors.</li> <li>Increased for an estimate that considers the amount of one-time training/onboarding and the frequency of this type of training time that can be attributable to employee turnover.</li> </ul>	<ul style="list-style-type: none"> <li><b>Appendix B</b> provides the PTO and training assumptions by provider type.</li> <li>97151 Behavior Identification Assessment service rate buildup includes an adjustment factor set at 10% of the PTO/Training time assumption to account for time associated with provider overall support to the individual such as scheduling and coordination.</li> <li>Assumptions included in the IRM were reviewed with stakeholders.</li> </ul>
Supervisor Time	<ul style="list-style-type: none"> <li>Overall, supervisors, commonly referred to as front line supervisors, are typically more experienced or higher credentialed provider types responsible for the direct oversight and supervision of those employees that are directly providing the services to individuals.</li> <li>Supervision of direct care staff does not result in a separate billable unit of service.</li> <li>Supervisor responsibilities may vary, but primarily are providing direct supervising, hiring, training and discipline of the direct care staff, whose primary responsibilities are providing services. Supervisor responsibilities may also include program planning and evaluation, advocacy, working with families, and working with community members.</li> <li>Supervisor time is determined through application of a "span of control" assumption, which is a measure of how many clinical staff a supervisor can supervise</li> </ul>	<ul style="list-style-type: none"> <li>For the services included in this analysis that can be provided by a BCaBA and RBT, their time providing the service is under the direction and supervision of an LBA per QI MQD current policy.</li> <li>Case supervision "span of control" assumption of 1 supervisor to 6 direct staff was used, meaning that on average, every 6 hours of clinical staff time will require 1.6 hours of a supervisor's time.</li> <li>Per MQD current policy, supervision is provided by a licensed qualified behavior analyst, a minimum of 10% of BCaBA and RBT staff time.</li> <li>Assumptions included in the IRM were reviewed with stakeholders.</li> </ul>

### Wage Rate Assumptions for ABA Staff

The direct care staff hourly wage for each provider type was developed using two methodologies summarized below. The selection of wage percentile and blend, and the annual trend factor was informed by the emerging workforce-specific wage trend, stakeholder feedback, and MQD's intent to maintain a strong workforce in Medicaid to carry out ABA services in today's inflationary and workforce shortage environment. **Figure 4** highlights themes related to wage levels from stakeholder feedback.

### BLS Wage Analysis

We collected May 2022 wage data from the BLS for State of Hawai'i, published in April 2023 (the most recent BLS wage data currently available). BLS wage data was relied upon because they are publicly available, updated on an annual basis, collected in a consistent and statistically credible manner, and provide the most detailed wage information which allows for wage assumptions to vary by region, by wage percentile, and by provider type. The BLS Standard Occupational Classification (SOC) system does not always include specific occupation codes that directly corresponds to ABA staff credentials and qualifications. For the purpose of developing ABA staff wage assumptions, we have grouped together relevant BLS occupational codes and blended the wage data based on wage weight assumptions for each selected occupation. Each combination of BLS occupational codes is referred to as a "provider grouping".

The BLS occupational codes and weighting within each provider grouping were determined based on review of the requirements and qualifications for each ABA service and the BLS occupational code descriptions, along with consideration of ABA provider survey results. The selection of the BLS wage percentiles and annual trend factor was informed by the emerging workforce-specific wage trend, stakeholder feedback (via provider survey and

workgroup meetings), and MQD's intent to maintain a strong behavioral workforce in Medicaid to carry out behavioral health program goals in today's inflationary and workforce shortage environment.

CY 2024 wage levels for purposes of rate calculation were developed using the following steps:

- Obtain the most recent BLS wage data (May 2022) by occupational code for the State of Hawai'i.
- For each provider type, identify similar BLS occupational categories and their related hourly wages relying on feedback received via 2023 ABA provider survey and our understanding of the staff scope of work.
- Apply an annual trend factor of 3.12% to the base wage rates, which resulted in an overall 6.9% increase in wages from May 2022 to July 2024.<sup>14</sup>
- Calculate the proposed CY 2024 statewide hourly wage rate for each provider type using the trended wages at 50<sup>th</sup> percentile and 75<sup>th</sup> percentile.

### 2023 Provider Survey Wage Analysis

ABA providers were asked via the ABA Rate Study Provider Survey to report the average hourly wage for employed ABA staff as of September 1, 2023. Provider survey wage data were compiled and analyzed for reasonableness and relevancy. The median wage was selected for comparison purposes for authorized ABA staff to deliver the services. We then applied an annual trend factor of 3.12% to the median hourly wage reported, which resulted in an overall 2.6% increase in wages from September 2023 to July 2024. For purposes of developing an LBA wage estimate, we combined the total survey results of the BCBA-D and the BCBA to determine a relevant median wage based on their skill level and service requirements.

**Appendix C** summarizes the wage assumptions underlying the rate model for each of the modeled rate scenarios. The proposed model wages were informed by both the BLS wage data, the provider survey results, stakeholder feedback, and input from MQD.

### Employee Related Expenses (ERE)

This component captures the ERE expected to be incurred for direct care staff and supervisors for each service. ERE percentages were calculated based on the expected level of ERE as a percentage of direct care staff and supervisor salaries and wages for a given wage region. ERE expenses are calculated as the product of the calculated direct care staff and supervisor salary and wage and an ERE percentage, which varies by provider group.

Employee related expenses include:

- Employer entity's portion of payroll taxes, employee medical and other insurance benefits
- Employer portion of retirement expenses incurred on behalf of direct care staff and supervisors

A significant portion of the ERE is driven by the cost of health insurance and retirement benefits the employer provides to its employees. MQD recommended a robust ERE to incentivize providers to offer benefits and to support the retention of a skilled workforce. **Figure 9** provides a summary of the employee-related assumptions and their related sources. Insurance and retirement costs were sourced from BLS data for the health care and social assistance<sup>15</sup> civilian worker classification.

**FIGURE 9: EMPLOYEE RELATED EXPENSE ASSUMPTIONS**

COMPONENTS	ASSUMPTIONS FOR CY2024	SOURCE
Employee Social Security Withholding	6.2% Wage Base Limit: \$160,200 (as projected by SSA under intermediate scenario)	Internal Revenue Service. Topic No. 751 Social Security and Medicare Withholding Rates. Retrieved from <a href="https://www.irs.gov/taxtopics/tc751">https://www.irs.gov/taxtopics/tc751</a>

<sup>14</sup> Federal Reserve Economic Data. (June 2023). Average Hourly Earnings of All Employees, Education and Health Services. Retrieved from: <https://fred.stlouisfed.org/series/CES6500000003>

<sup>15</sup> Bureau of Labor Statistics. (April 2023). May 2022 State Occupational Employment and Wage Estimates: Hawai'i. Retrieved from: [https://www.bls.gov/oes/current/oes\\_hi.htm](https://www.bls.gov/oes/current/oes_hi.htm)



COMPONENTS	ASSUMPTIONS FOR CY2024	SOURCE
		Social Security Administration. 2023 Old-Age, Survivors, and Disability Insurance (OASDI) Trustee Report. Retrieved from <a href="https://www.ssa.gov/oact/TR/2023/V_C_prog.html#147902">https://www.ssa.gov/oact/TR/2023/V_C_prog.html#147902</a>
Employer Medicare Withholding	1.45%	Journal of Accountancy. Social Security wage base, COLA set for 2023. Retrieved from <a href="https://www.journalofaccountancy.com/news/2022/oct/social-security-wage-base-cola-set-2023.html">https://www.journalofaccountancy.com/news/2022/oct/social-security-wage-base-cola-set-2023.html</a>
FUTA Tax	\$420 (6% of first \$7,000)	Internal Revenue Service. Topic No. 759 Form 940 – Employer's Annual Federal Unemployment (FUTA) Tax Return – Filing and Deposit Requirements. Retrieved from <a href="https://www.irs.gov/taxtopics/tc759">https://www.irs.gov/taxtopics/tc759</a>
SUI Tax	6.20% Wage Base Limit: \$56,700	State of Hawai'i Department of Labor and Industrial Relations – Tax Rate Schedule and Weekly Benefit Amount <a href="https://labor.hawaii.gov/ui/tax-rate-schedule-and-weekly-benefit-amount/">https://labor.hawaii.gov/ui/tax-rate-schedule-and-weekly-benefit-amount/</a>
Workers Compensation	1.4% calculated as percentage of Wage and Salaries and Paid Leave components per December 2022 national data.	U.S. Bureau of Labor Statistics. Economic News Release, December 2022, Employer Costs for Employee Compensation. Table 1. Civilian Workers. Retrieved from <a href="https://www.bls.gov/news.release/eccec.htm">https://www.bls.gov/news.release/eccec.htm</a>
Insurance Benefits	\$7,651 per year (\$3.42 base hourly cost for the health care and social assistance industry group multiplied by 2,080 hours, trended from June 2023 to July 2024)	U.S. Bureau of Labor Statistics. (March 2023). Economic News Release, Table 2. Employer Costs for Employee Compensation for civilian workers by occupational and industry group. Retrieved from <a href="https://www.bls.gov/news.release/archives/eccec_06162023.pdf">https://www.bls.gov/news.release/archives/eccec_06162023.pdf</a>
Retirement Percent	3.7%	U.S. Bureau of Labor Statistics. (March 2023). Economic News Release, Table 2. Employer Costs for Employee Compensation for civilian workers by occupational and industry group. Retrieved from <a href="https://www.bls.gov/news.release/archives/eccec_06162023.pdf">https://www.bls.gov/news.release/archives/eccec_06162023.pdf</a>
Milliman Medical Index	5.6% trended from 3/1/2023 to 7/1/2024 using a trend factor of 1.08	Annual Analysis 2023 Milliman Medical Index. (May 25, 2023). Retrieved from: <a href="https://www.milliman.com/en/insight/2023-Milliman-Medical-Index/">https://www.milliman.com/en/insight/2023-Milliman-Medical-Index/</a>

The detailed calculations related to the ERE percentage are shown by provider group in **Appendix D**.

#### Administration / Program Support / Overhead

An adjustment to account for the cost of administration and program support expenses for providing ABA services is built into each of the rate models. The assumption of 18% of the total expenses was used for all services and includes an assumed program vehicle expenses in addition to administrative staff salaries and wages. The adjustment factor of 18% is a rounded value based on assumed expense ratios that align with the following ABA provider survey results:

- An average of 17.3% of Administrative and Program Support Expenses
- An average of 0.5% of Transportation Expenses

Other program costs are also considered in the assumed adjustment factor, including, but not limited to, liability insurance, assessment fees, and software fees. This adjustment factor is intended to account for the following types of costs:

**Administrative-related expenses** - Generally, administrative-related expenses would include all expenses incurred by the provider entity necessary to support the provision of services but not directly related to providing services to individuals. These expenses exclude transportation, wages, and employee-related expenses for direct care, and may include, but are not limited to:

- Salaries and wages, and related employee benefits for employees or contractors that are not direct service workers or first- and second-line supervisors of direct service workers
- Liability and other insurance
- Licenses and taxes
- Legal and audit fees

- Accounting and payroll services
- Billing and collection services
- Bank service charges and fees
- Information technology
- Telephone and other communication expenses
- Office and other supplies including postage
- Accreditation expenses, dues, memberships, and subscriptions
- Meeting and administrative travel related expenses
- Training and employee development expenses, including related travel
- Human resources, including background checks and other recruiting expenses
- Community education
- Marketing/advertising
- Interest expense and financing fees
- Facility and equipment expense and related utilities
- Vehicle and other transportation expenses not related to transporting individuals receiving services or transporting employees to provide services to individuals
- Board of director-related expenses
- Translation services

**Program support costs** - include supplies, materials, and equipment necessary to support service delivery

The IRM administration, program support, and overhead adjustment considers each of these expenses and is applied as the percent of the final rate that is allocated for these administrative activities.

### ESTIMATED PAYMENT IMPACT

The estimated payments under each modeled comparison rate scenario were calculated by multiplying modeled rates by the service units in the CY 2022 Medicaid managed care claim data, originally received from the MCOs on May 1<sup>st</sup>, 2023, via separate data feed extracts. We compared modeled comparison rate payments to 2022 baseline payments as follows:

- We summed the reported MCO paid amounts in the CY 2022 Medicaid managed care claim data. An average unit cost was calculated by dividing the sum of paid claim dollars by the sum of paid units across all provider types for each ABA service.
- Services that had zero paid amount while also having positive unit counts were excluded from the estimated payment impact calculation. Direct treatment of severe maladaptive behavior (0373T) was excluded from rate comparison calculations due to zero CY 2022 utilization. **Figure 6** provides an aggregate summary of total change and estimated payment impact increases for modeled ABA service rates.

## Caveats and Limitations

*This report is intended for the use of the State of Hawai'i Med-QUEST Division (MQD) in support of its 2023 Applied Behavior Analysis (ABA) rate study and is not appropriate for other purposes.*

*We understand this report will be shared publicly with Hawai'i ABA stakeholders, including ABA providers, Medicaid MCOs, and the Hawai'i State Legislature. To the extent that information contained in this report is provided to any approved third parties, the report should be distributed in its entirety. Any user of the data must possess a certain level of expertise to not misinterpret the information presented.*

*Milliman makes no representations or warranties regarding the contents of this report to third parties. Likewise, third parties are instructed that they are to place no reliance upon this report prepared for MQD by Milliman that would result in the creation of any duty or liability under any theory of law by Milliman or its employees to third parties. Other parties receiving this report must rely upon their own experts in drawing any conclusions about the rates, assumptions, and trends.*

*In preparing this analysis, we relied on information provided by MQD, ABA providers, the managed care plans of Hawai'i, the Bureau of Labor and Statistics, and the Federal Reserve Bank of St. Louis. We accepted this information without audit but reviewed the information for general reasonableness. Our results and conclusions may not be appropriate if this information is not accurate.*

*Future alignment of the projected rate and actual ABA provider experience will depend on the extent to which future experience conforms to the assumptions reflected in the independent rate model. It is certain that actual experience will not conform exactly to the assumptions used in the rate development due to differences in ABA labor costs, provider efficiency, and many other factors. Actual amounts will differ from projected amounts to the extent that actual experience is higher or lower than expected.*

*Milliman has developed certain models to estimate the values included in this report. We have reviewed the models, including their inputs, calculations, and outputs for consistency, reasonableness, and appropriateness to the intended purpose. The models rely on data and information as input to the models. We have relied upon certain data and information provided by MQD and other sources and accepted it without audit. To the extent that the data and information provided is not accurate, or is not complete, the values provided in this report may likewise be inaccurate or incomplete. The models, including all input, calculations, and output may not be appropriate for any other purpose.*

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## Appendix A.1, A.2, & A.3

State of Hawai'i  
Department of Human Services  
Med-QUEST Division  
ABA Rate Study  
Appendix A.1: ABA Comparison Rates - Scenario 1

Procedure Code and Modifier	Service Description	Direct Service Employee Salaries & Wages	Indirect Service Employee Salaries & Wages	Employee Related Expenses	Administration, Program Support & Overhead	Total Rate	Current Rate
97151-HO	Behavior identification assessment	\$19.17	\$0.00	\$4.22	\$5.13	\$28.52	\$31.25
97152-HN	Behavior identification supporting assessment	\$11.34	\$1.51	\$3.75	\$3.64	\$20.24	\$18.75
97153-HM	Direct treatment by protocol	\$9.73	\$1.30	\$3.45	\$3.18	\$17.66	\$12.50
97154-UN	Group treatment by protocol	\$6.30	\$1.68	\$2.33	\$2.26	\$12.58	\$12.50
97154-UP	Group treatment by protocol	\$4.20	\$1.40	\$1.63	\$1.59	\$8.83	\$10.42
97154-UQ	Group treatment by protocol	\$3.15	\$1.26	\$1.29	\$1.25	\$6.95	\$9.38
97154-UR	Group treatment by protocol	\$2.52	\$1.18	\$1.08	\$1.05	\$5.83	\$8.75
97154-US	Group treatment by protocol	\$1.80	\$0.96	\$0.81	\$0.78	\$4.35	\$7.29
97155-HO	Direct treatment with protocol modification	\$17.25	\$6.90	\$5.32	\$6.47	\$35.94	\$31.25
97155-HN	Direct treatment with protocol modification	\$11.34	\$1.51	\$3.75	\$3.64	\$20.24	\$18.75
97156-HO	Family training	\$17.25	\$13.80	\$6.84	\$8.32	\$46.20	\$41.67
97156-HN	Family training	\$11.34	\$4.53	\$4.63	\$4.50	\$25.01	\$25.00
97157-UN	Multiple-family training	\$12.86	\$3.43	\$4.10	\$4.47	\$24.86	\$31.75
97157-UP	Multiple-family training	\$8.57	\$2.86	\$2.88	\$3.14	\$17.45	\$29.58
97157-UQ	Multiple-family training	\$6.43	\$2.57	\$2.27	\$2.47	\$13.74	\$27.92
97157-UR	Multiple-family training	\$5.14	\$2.40	\$1.90	\$2.07	\$11.51	\$26.25
97157-US	Multiple-family training	\$3.67	\$1.96	\$1.42	\$1.55	\$8.60	\$24.58
97158-UN	Group treatment with protocol modification	\$12.86	\$3.43	\$4.10	\$4.47	\$24.86	\$31.75
97158-UP	Group treatment with protocol modification	\$8.57	\$2.86	\$2.88	\$3.14	\$17.45	\$29.58
97158-UQ	Group treatment with protocol modification	\$6.43	\$2.57	\$2.27	\$2.47	\$13.74	\$27.92
97158-UR	Group treatment with protocol modification	\$5.14	\$2.40	\$1.90	\$2.07	\$11.51	\$26.25
97158-US	Group treatment with protocol modification	\$3.67	\$1.96	\$1.42	\$1.55	\$8.60	\$24.58
0373T-HO	Direct treatment of severe maladaptive behavior	\$17.25	\$6.90	\$5.32	\$6.47	\$35.94	\$31.25
0373T-HN	Direct treatment of severe maladaptive behavior	\$11.34	\$1.51	\$3.75	\$3.64	\$20.24	\$18.75
0373T-HM	Direct treatment of severe maladaptive behavior	\$9.73	\$1.30	\$3.45	\$3.18	\$17.66	\$12.50
0362T-HO	Behavior identification supporting assessment	\$30.96	\$4.13	\$9.77	\$9.85	\$54.71	\$31.25

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Med-QUEST Division  
ABA Rate Study  
Appendix A.2: ABA Comparison Rates - Scenario 2

Procedure Code and Modifier	Service Description	Direct Service Employee Salaries & Wages	Indirect Service Employee Salaries & Wages	Employee Related Expenses	Administration, Program Support & Overhead	Total Rate	Current Rate
97151-HO	Behavior identification assessment	\$20.11	\$0.00	\$4.34	\$5.37	\$29.81	\$31.25
97152-HN	Behavior identification supporting assessment	\$14.93	\$1.99	\$4.27	\$4.65	\$25.85	\$18.75
97153-HM	Direct treatment by protocol	\$10.23	\$1.36	\$3.55	\$3.32	\$18.46	\$12.50
97154-UN	Group treatment by protocol	\$6.62	\$1.77	\$2.39	\$2.37	\$13.15	\$12.50
97154-UP	Group treatment by protocol	\$4.41	\$1.47	\$1.68	\$1.66	\$9.23	\$10.42
97154-UQ	Group treatment by protocol	\$3.31	\$1.32	\$1.32	\$1.31	\$7.27	\$9.38
97154-UR	Group treatment by protocol	\$2.65	\$1.24	\$1.11	\$1.10	\$6.09	\$8.75
97154-US	Group treatment by protocol	\$1.89	\$1.01	\$0.83	\$0.82	\$4.55	\$7.29
97155-HO	Direct treatment with protocol modification	\$18.10	\$7.24	\$5.47	\$6.76	\$37.56	\$31.25
97155-HN	Direct treatment with protocol modification	\$14.93	\$1.99	\$4.27	\$4.65	\$25.85	\$18.75
97156-HO	Family training	\$18.10	\$14.48	\$7.03	\$8.69	\$48.29	\$41.67
97156-HN	Family training	\$14.93	\$5.97	\$5.28	\$5.75	\$31.93	\$25.00
97157-UN	Multiple-family training	\$15.01	\$4.00	\$4.45	\$5.15	\$28.60	\$31.75
97157-UP	Multiple-family training	\$10.00	\$3.33	\$3.12	\$3.61	\$20.07	\$29.58
97157-UQ	Multiple-family training	\$7.50	\$3.00	\$2.46	\$2.85	\$15.81	\$27.92
97157-UR	Multiple-family training	\$6.00	\$2.80	\$2.06	\$2.38	\$13.25	\$26.25
97157-US	Multiple-family training	\$4.29	\$2.29	\$1.54	\$1.78	\$9.89	\$24.58
97158-UN	Group treatment with protocol modification	\$15.01	\$4.00	\$4.45	\$5.15	\$28.60	\$31.75
97158-UP	Group treatment with protocol modification	\$10.00	\$3.33	\$3.12	\$3.61	\$20.07	\$29.58
97158-UQ	Group treatment with protocol modification	\$7.50	\$3.00	\$2.46	\$2.85	\$15.81	\$27.92
97158-UR	Group treatment with protocol modification	\$6.00	\$2.80	\$2.06	\$2.38	\$13.25	\$26.25
97158-US	Group treatment with protocol modification	\$4.29	\$2.29	\$1.54	\$1.78	\$9.89	\$24.58
0373T-HO	Direct treatment of severe maladaptive behavior	\$18.10	\$7.24	\$5.47	\$6.76	\$37.56	\$31.25
0373T-HN	Direct treatment of severe maladaptive behavior	\$14.93	\$1.99	\$4.27	\$4.65	\$25.85	\$18.75
0373T-HM	Direct treatment of severe maladaptive behavior	\$10.23	\$1.36	\$3.55	\$3.32	\$18.46	\$12.50
0362T-HO	Behavior identification supporting assessment	\$32.52	\$4.34	\$10.05	\$10.29	\$57.19	\$31.25

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Appendix A.3: ABA Comparison Rates - Scenario 3

Procedure Code and Modifier	Service Description	Direct Service Employee Salaries & Wages	Indirect Service Employee Salaries & Wages	Employee Related Expenses	Administration, Program Support & Overhead	Total Rate	Current Rate
97151-HO	Behavior identification assessment	\$21.82	\$0.00	\$4.56	\$5.79	\$32.17	\$31.25
97152-HN	Behavior identification supporting assessment	\$15.11	\$2.01	\$4.30	\$4.70	\$26.12	\$18.75
97153-HM	Direct treatment by protocol	\$10.83	\$1.44	\$3.66	\$3.50	\$19.43	\$12.50
97154-UN	Group treatment by protocol	\$7.05	\$1.88	\$2.48	\$2.50	\$13.91	\$12.50
97154-UP	Group treatment by protocol	\$4.70	\$1.57	\$1.74	\$1.76	\$9.76	\$10.42
97154-UQ	Group treatment by protocol	\$3.53	\$1.41	\$1.37	\$1.38	\$7.69	\$9.38
97154-UR	Group treatment by protocol	\$2.82	\$1.32	\$1.15	\$1.16	\$6.44	\$8.75
97154-US	Group treatment by protocol	\$2.01	\$1.07	\$0.86	\$0.87	\$4.81	\$7.29
97155-HO	Direct treatment with protocol modification	\$19.64	\$7.86	\$5.74	\$7.30	\$40.54	\$31.25
97155-HN	Direct treatment with protocol modification	\$15.11	\$2.01	\$4.30	\$4.70	\$26.12	\$18.75
97156-HO	Family training	\$19.64	\$15.71	\$7.38	\$9.38	\$52.12	\$41.67
97156-HN	Family training	\$15.11	\$6.04	\$5.31	\$5.81	\$32.27	\$25.00
97157-UN	Multiple-family training	\$15.74	\$4.20	\$4.57	\$5.38	\$29.88	\$31.75
97157-UP	Multiple-family training	\$10.49	\$3.50	\$3.20	\$3.77	\$20.97	\$29.58
97157-UQ	Multiple-family training	\$7.87	\$3.15	\$2.52	\$2.97	\$16.51	\$27.92
97157-UR	Multiple-family training	\$6.30	\$2.94	\$2.11	\$2.49	\$13.84	\$26.25
97157-US	Multiple-family training	\$4.50	\$2.40	\$1.58	\$1.86	\$10.33	\$24.58
97158-UN	Group treatment with protocol modification	\$15.74	\$4.20	\$4.57	\$5.38	\$29.88	\$31.75
97158-UP	Group treatment with protocol modification	\$10.49	\$3.50	\$3.20	\$3.77	\$20.97	\$29.58
97158-UQ	Group treatment with protocol modification	\$7.87	\$3.15	\$2.52	\$2.97	\$16.51	\$27.92
97158-UR	Group treatment with protocol modification	\$6.30	\$2.94	\$2.11	\$2.49	\$13.84	\$26.25
97158-US	Group treatment with protocol modification	\$4.50	\$2.40	\$1.58	\$1.86	\$10.33	\$24.58
0373T-HO	Direct treatment of severe maladaptive behavior	\$19.64	\$7.86	\$5.74	\$7.30	\$40.54	\$31.25
0373T-HN	Direct treatment of severe maladaptive behavior	\$15.11	\$2.01	\$4.30	\$4.70	\$26.12	\$18.75
0373T-HM	Direct treatment of severe maladaptive behavior	\$10.83	\$1.44	\$3.66	\$3.50	\$19.43	\$12.50
0362T-HO	Behavior identification supporting assessment	\$34.75	\$4.63	\$10.42	\$10.93	\$60.73	\$31.25

## Appendix B



State of Hawai'i Department of Human Services Med-QUEST Division ABA Rate Study Appendix B: PTO, Training Time, and Non-Productive Time Factor by Provider Group												
	A	B	C	D	E	F	G	H	I	J	K	L
Provider Group	Total Hours	Paid Holidays and PTO per year	On-going training/ conference time hours per year	Total	Training hours/inefficient time for each new hire	Turnover percentage	New hire training hours per year	Hours of replacement for non-productive time	Annual productive time	PTO / training / conference time adjustment factor	Additional non- productive time	Adjustment factor using additional non- productive time
				B + C			E * F	D + G	A - H	A / I - 1		A / (I* (1-K) ) - 1
RBT	2,080	160	93	253	40	35%	14	267	1,813	14.7%	10.0%	27.5%
BCaBA	2,080	160	93	253	40	35%	14	267	1,813	14.7%	10.0%	27.5%
LBA	2,080	160	93	253	40	35%	14	267	1,813	14.7%	10.0%	27.5%

## Appendix C

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Appendix C: Provider Groupings and Wages

Provider Grouping <sup>[1]</sup>		May 2022 - BLS Wages		Provider Survey	Trended Hourly Wages (3.12% Annual Trend Rate)		
Bureau of Labor Statistics (BLS) Occupations	BLS Wage-Blend Weight	50th Percentile	75th Percentile	Sep 2023 Median Wage	Scenario 1 BLS - 50th Percentile	Scenario 2 Survey Median	Scenario 3 BLS - 75th Percentile
<b>Registered Behavior Technician® (RBT®)</b>	<b>100%</b>	<b>\$22.36</b>	<b>\$24.64</b>	<b>\$24.50</b>	<b>\$23.91</b>	<b>\$25.14</b>	<b>\$26.34</b>
Social and Human Service Assistants	10%	\$17.90	\$21.39		\$19.13		\$22.87
Psychiatric Technicians	90%	\$22.86	\$25.00		\$24.44		\$26.72
<b>Board Certified Assistant Behavior Analyst® (BCaBA®)</b>	<b>100%</b>	<b>\$27.60</b>	<b>\$38.60</b>	<b>\$40.50</b>	<b>\$29.50</b>	<b>\$41.55</b>	<b>\$41.26</b>
Substance Abuse, Behavioral Disorder, and Mental Health Counselors	100%	\$27.60	\$38.60		\$29.50		\$41.26
<b>Licensed Behavior Analyst (LBA) <sup>[2]</sup> (BCBA®) and (BCBA-D®) Provider Level</b>	<b>100%</b>	<b>\$56.27</b>	<b>\$64.06</b>	<b>\$61.50</b>	<b>\$60.15</b>	<b>\$63.09</b>	<b>\$68.48</b>
Social Workers, All Other	10%	\$40.85	\$47.44		\$43.67		\$50.71
Psychologists, All Other	90%	\$57.98	\$65.91		\$61.98		\$70.46

Notes:

[1] "Behavior Analyst Certification Board, Inc.®," "BACB®," "Board Certified Behavior Analyst®," "BCBA®," "BCBA-D®" and "Board Certified Behavior Analyst-Doctoral®," "Board Certified Assistant Behavior Analyst®," "BCaBA®," "Registered Behavior Technician®", and ("RBT®") are owned by the Behavior Analyst Certification Board®.

[2] Proposed Licensed Behavior Analyst provider grouping in lieu of separate provider groupings for BCBA and BCBA-D; intends to reflect a mix of assumed BLS occupations representing BCBA and BCBA-D provider types.

Wage Data Source: Bureau of Labor Statistics. (April 2023). May 2022 State Occupational Employment and Wage Estimates: Hawai'i. Retrieved from: [https://www.bls.gov/oes/current/oes\\_hi.htm](https://www.bls.gov/oes/current/oes_hi.htm)

Trend Data Source: Federal Reserve Economic Data. (June 2023). Average Hourly Earnings of All Employees, Education and Health Services. Retrieved from: <https://fred.stlouisfed.org/series/CES6500000003>

## Appendix D

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Appendix D: Employee Related Expenses Using Survey Median Wage

	A	B	C	D	E	F	G	H	I	J	K	L
	Survey Median Wage	Annual Employee Salary	Medicare	Social Security	FUTA	SUI	Workers Comp	Insurance	Retirement	ERE per Employee	ERE Percentage	Annual Salary and ERE
Provider Group	Trended from 9/1/2023 to 7/1/2024 at a rate of 3.12%	A * 2,080	B * 1.45%	B * 6.2% up to \$160,200 estimated taxable limit	6% of First \$7,000 Earned	B * 6.2% up to \$56,700 estimated taxable limit	B * 1.4%	Trending based on Milliman Medical Index	B * 3.7%	Sum of C through I	J / B	B * ( 1 + K )
Registered Behavior Technician®	\$25.14	\$52,291	\$758	\$3,242	\$420	\$3,242	\$732	\$7,651	\$1,935	\$17,980	34.4%	\$70,271
Board Certified Assistant Behavior Analyst®	\$41.55	\$86,424	\$1,253	\$5,358	\$420	\$3,515	\$1,210	\$7,651	\$3,198	\$22,605	26.2%	\$109,029
Licensed Behavior Analyst	\$63.09	\$131,227	\$1,903	\$8,136	\$420	\$3,515	\$1,837	\$7,651	\$4,855	\$28,318	21.6%	\$159,545

## Appendix E.1 - E.7

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Appendix E.1: Preliminary ABA Rate Calculations - Scenario 2

Service Information

Service Code:

0362T-HO

Service Category:

Adaptive Behavior Assessment

Service Description:

Behavior identification supporting assessment

Reporting Units:

15 minutes

Ref.	Description	Registered Behavior Technician®	Registered Behavior Technician®	Supervisor: Licensed Behavior Analyst	Total	Notes
A	Average minutes of direct time per unit	15	15	15		
B	Average minutes of indirect time per unit	2.00	2.00	2.00		
C	Total minutes per unit	17.00	17.00	17.00		C = A + B
D	Staffing Ratio	1.00	1.00	1.00		
E	Supervisor span of control					
F	Supervisor time per unit					F = C / D / E
G	PTO/training/conference time adjustment factor	14.7%	14.7%	14.7%		Based on separate PTO build
H	Adjusted total minutes per unit	19.50	19.50	19.50		H = C / D * ( 1 + G )    H = F * ( 1 + G )
I	Hourly wage	\$ 25.14	\$ 25.14	\$ 63.09		Based on separate wage build
J	Total wages expense per unit	\$ 8.17	\$ 8.17	\$ 20.51	\$ 36.85	J = I * H / 60
K	Employee related expense (ERE) percentage	34.4%	34.4%	21.6%		Based on separate ERE build
L	Total ERE expense per unit	\$ 2.81	\$ 2.81	\$ 4.43	\$ 10.05	L = J * K
M	Administration / program support / overhead				18.0%	Portion of total rate
N	Administration Expenses				\$ 10.29	N = M * ( J + L ) / ( 1 - M )
O	Rate Per 15 minutes				\$57.19	O = J + L + N

Ref.	Summary of Rate Model Components				Total	Notes
P	Direct Service Provider Salaries & Wages				\$ 32.52	
Q	Indirect Service Employee Salaries & Wages				\$ 4.34	
R	Employee Related Expenses				\$ 10.05	
S	Administration, Program Support & Overhead				\$ 10.29	
T	Total Rate				\$57.19	

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Appendix E.2: Preliminary ABA Rate Calculations - Scenario 2

Service Information

Service Code: 97153-HM  
Service Category: Adaptive Behavior Treatment  
Service Description: Direct treatment by protocol  
Reporting Units: 15 minutes

Ref.	Description	Registered Behavior Technician®	Supervisor: Licensed Behavior Analyst	Total	Notes
A	Average minutes of direct time per unit	15			
B	Average minutes of indirect time per unit	2.00			
C	Total minutes per unit	17.00			C = A + B
D	Staffing Ratio	1.00			
E	Supervisor span of control		6.00		6 employees assumed to be managed by 1 supervisor
F	Supervisor time per unit		2.83		F = C / D / E
G	PTO/training/conference time adjustment factor	14.7%	14.7%		Based on separate PTO build
H	Adjusted total minutes per unit	19.50	3.25		H = C / D * ( 1 + G )    H = F * ( 1 + G )
I	Hourly wage	\$ 25.14	\$ 63.09		Based on separate wage build
J	Total wages expense per unit	\$ 8.17	\$ 3.42	\$ 11.59	J = I * H / 60
K	Employee related expense (ERE) percentage	34.4%	21.6%		Based on separate ERE build
L	Total ERE expense per unit	\$ 2.81	\$ 0.74	\$ 3.55	L = J * K
M	Administration / program support / overhead			18.0%	Portion of total rate
N	Administration Expenses			\$ 3.32	N = M * ( J + L ) / ( 1 - M )
O	Rate Per 15 minutes			\$18.46	O = J + L + N

Ref.	Summary of Rate Model Components			Total	Notes
P	Direct Service Provider Salaries & Wages			\$ 10.23	
Q	Indirect Service Employee Salaries & Wages			\$ 1.36	
R	Employee Related Expenses			\$ 3.55	
S	Administration, Program Support & Overhead			\$ 3.32	
T	Total Rate			\$18.46	



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Appendix E.3: Preliminary ABA Rate Calculations - Scenario 2

Service Information

Service Code: 97155-HO  
Service Category: Adaptive Behavior Treatment  
Service Description: Direct treatment with protocol modification  
Reporting Units: 15 minutes

Ref.	Description	Licensed Behavior Analyst	Total	Notes
A	Average minutes of direct time per unit	15		
B	Average minutes of indirect time per unit	6.00		
C	Total minutes per unit	21.00		C = A + B
D	Staffing Ratio	1.00		
E	Supervisor span of control			
F	Supervisor time per unit			F = C / D / E
G	PTO/training/conference time adjustment factor	14.7%		Based on separate PTO build
H	Adjusted total minutes per unit	24.09		H = C / D * ( 1 + G )    H = F * ( 1 + G )
I	Hourly wage	\$ 63.09		Based on separate wage build
J	Total wages expense per unit	\$ 25.33	\$ 25.33	J = I * H / 60
K	Employee related expense (ERE) percentage	21.6%		Based on separate ERE build
L	Total ERE expense per unit	\$ 5.47	\$ 5.47	L = J * K
M	Administration / program support / overhead		18.0%	Portion of total rate
N	Administration Expenses		\$ 6.76	N = M * ( J + L ) / ( 1 - M )
O	Rate Per 15 minutes		\$37.56	O = J + L + N

Ref.	Summary of Rate Model Components		Total	Notes
P	Direct Service Provider Salaries & Wages		\$ 18.10	
Q	Indirect Service Employee Salaries & Wages		\$ 7.24	
R	Employee Related Expenses		\$ 5.47	
S	Administration, Program Support & Overhead		\$ 6.76	
T	Total Rate		\$37.56	

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Appendix E.4: Preliminary ABA Rate Calculations - Scenario 2

Service Information

Service Code:

97155-HN

Service Category:

Adaptive Behavior Treatment

Service Description:

Direct treatment with protocol modification

Reporting Units:

15 minutes

Ref.	Description	Board Certified Assistant Behavior Analyst®	Supervisor: Licensed Behavior Analyst	Total	Notes
A	Average minutes of direct time per unit	15			
B	Average minutes of indirect time per unit	2.00			
C	Total minutes per unit	17.00			C = A + B
D	Staffing Ratio	1.00			
E	Supervisor span of control		6.00		6 employees assumed to be managed by 1 supervisor
F	Supervisor time per unit		2.83		F = C / D / E
G	PTO/training/conference time adjustment factor	14.7%	14.7%		Based on separate PTO build
H	Adjusted total minutes per unit	19.50	3.25		H = C / D * ( 1 + G )    H = F * ( 1 + G )
I	Hourly wage	\$ 41.55	\$ 63.09		Based on separate wage build
J	Total wages expense per unit	\$ 13.51	\$ 3.42	\$ 16.92	J = I * H / 60
K	Employee related expense (ERE) percentage	26.2%	21.6%		Based on separate ERE build
L	Total ERE expense per unit	\$ 3.53	\$ 0.74	\$ 4.27	L = J * K
M	Administration / program support / overhead			18.0%	Portion of total rate
N	Administration Expenses			\$ 4.65	N = M * ( J + L ) / ( 1 - M )
O	Rate Per 15 minutes			\$25.85	O = J + L + N

Ref.	Summary of Rate Model Components			Total	Notes
P	Direct Service Provider Salaries & Wages			\$ 14.93	
Q	Indirect Service Employee Salaries & Wages			\$ 1.99	
R	Employee Related Expenses			\$ 4.27	
S	Administration, Program Support & Overhead			\$ 4.65	
T	Total Rate			\$25.85	

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Appendix E.5: Preliminary ABA Rate Calculations - Scenario 2

Service Information

Service Code: 97156-HO  
Service Category: Adaptive Behavior Treatment  
Service Description: Family training  
Reporting Units: 15 minutes

Ref.	Description	Licensed Behavior Analyst	Total	Notes
A	Average minutes of direct time per unit	15		
B	Average minutes of indirect time per unit	12.00		
C	Total minutes per unit	27.00		C = A + B
D	Staffing Ratio	1.00		
E	Supervisor span of control			
F	Supervisor time per unit			F = C / D / E
G	PTO/training/conference time adjustment factor	14.7%		Based on separate PTO build
H	Adjusted total minutes per unit	30.98		H = C / D * ( 1 + G )    H = F * ( 1 + G )
I	Hourly wage	\$ 63.09		Based on separate wage build
J	Total wages expense per unit	\$ 32.57	\$ 32.57	J = I * H / 60
K	Employee related expense (ERE) percentage	21.6%		Based on separate ERE build
L	Total ERE expense per unit	\$ 7.03	\$ 7.03	L = J * K
M	Administration / program support / overhead		18.0%	Portion of total rate
N	Administration Expenses		\$ 8.69	N = M * ( J + L ) / ( 1 - M )
O	Rate Per 15 minutes		\$48.29	O = J + L + N

Ref.	Summary of Rate Model Components		Total	Notes
P	Direct Service Provider Salaries & Wages		\$ 18.10	
Q	Indirect Service Employee Salaries & Wages		\$ 14.48	
R	Employee Related Expenses		\$ 7.03	
S	Administration, Program Support & Overhead		\$ 8.69	
T	Total Rate		\$48.29	

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Appendix E.6: Preliminary ABA Rate Calculations - Scenario 2

Service Information

Service Code: 97156-HN  
Service Category: Adaptive Behavior Treatment  
Service Description: Family training  
Reporting Units: 15 minutes

Ref.	Description	Board Certified Assistant Behavior Analyst®	Supervisor: Licensed Behavior Analyst	Total	Notes
A	Average minutes of direct time per unit	15			
B	Average minutes of indirect time per unit	6.00			
C	Total minutes per unit	21.00			C = A + B
D	Staffing Ratio	1.00			
E	Supervisor span of control		6.00		6 employees assumed to be managed by 1 supervisor
F	Supervisor time per unit		3.50		F = C / D / E
G	PTO/training/conference time adjustment factor	14.7%	14.7%		Based on separate PTO build
H	Adjusted total minutes per unit	24.09	4.02		H = C / D * ( 1 + G )    H = F * ( 1 + G )
I	Hourly wage	\$ 41.55	\$ 63.09		Based on separate wage build
J	Total wages expense per unit	\$ 16.68	\$ 4.22	\$ 20.91	J = I * H / 60
K	Employee related expense (ERE) percentage	26.2%	21.6%		Based on separate ERE build
L	Total ERE expense per unit	\$ 4.36	\$ 0.91	\$ 5.28	L = J * K
M	Administration / program support / overhead			18.0%	Portion of total rate
N	Administration Expenses			\$ 5.75	N = M * ( J + L ) / ( 1 - M )
O	Rate Per 15 minutes			\$31.93	O = J + L + N

Ref.	Summary of Rate Model Components			Total	Notes
P	Direct Service Provider Salaries & Wages			\$ 14.93	
Q	Indirect Service Employee Salaries & Wages			\$ 5.97	
R	Employee Related Expenses			\$ 5.28	
S	Administration, Program Support & Overhead			\$ 5.75	
T	Total Rate			\$31.93	

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Appendix E.7: Preliminary ABA Rate Calculations - Scenario 2

Service Information

Service Code: 97151-HO  
Service Category: Adaptive Behavior Assessment  
Service Description: Behavior identification assessment  
Reporting Units: 15 minutes

Ref.	Description	Licensed Behavior Analyst	Total	Notes
A	Average minutes of direct time per unit	15		
B	Average minutes of indirect time per unit	-		
C	Total minutes per unit	15.00		C = A + B
D	Staffing Ratio	1.00		
E	Supervisor span of control			
F	Supervisor time per unit			F = C / D / E
G	PTO/training/conference time adjustment factor	27.5%		Based on separate PTO build (includes 14.7% unproductive time adjustment)
H	Adjusted total minutes per unit	19.12		H = C / D * ( 1 + G )    H = F * ( 1 + G )
I	Hourly wage	\$ 63.09		Based on separate wage build
J	Total wages expense per unit	\$ 20.11	\$ 20.11	J = I * H / 60
K	Employee related expense (ERE) percentage	21.6%		Based on separate ERE build
L	Total ERE expense per unit	\$ 4.34	\$ 4.34	L = J * K
M	Administration / program support / overhead		18.0%	Portion of total rate
N	Administration Expenses		\$ 5.37	N = M * ( J + L ) / ( 1 - M )
O	Rate Per 15 minutes		\$29.81	O = J + L + N

Ref.	Summary of Rate Model Components		Total	Notes
P	Direct Service Provider Salaries & Wages		\$ 20.11	
Q	Indirect Service Employee Salaries & Wages		\$ 0.00	
R	Employee Related Expenses		\$ 4.34	
S	Administration, Program Support & Overhead		\$ 5.37	
T	Total Rate		\$29.81	

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Appendix E.8: Preliminary ABA Rate Calculations - Scenario 2

Service Information

Service Code: 97152-HN  
Service Category: Adaptive Behavior Assessment  
Service Description: Behavior identification supporting assesment  
Reporting Units: 15 minutes

Ref.	Description	Board Certified Assistant Behavior Analyst®	Supervisor: Licensed Behavior Analyst	Total	Notes
A	Average minutes of direct time per unit	15			
B	Average minutes of indirect time per unit	2.00			
C	Total minutes per unit	17.00			C = A + B
D	Staffing Ratio	1.00			
E	Supervisor span of control		6.00		6 employees assumed to be managed by 1 supervisor
F	Supervisor time per unit		2.83		F = C / D / E
G	PTO/training/conference time adjustment factor	14.7%	14.7%		Based on separate PTO build
H	Adjusted total minutes per unit	19.50	3.25		H = C / D * ( 1 + G )    H = F * ( 1 + G )
I	Hourly wage	\$ 41.55	\$ 63.09		Based on separate wage build
J	Total wages expense per unit	\$ 13.51	\$ 3.42	\$ 16.92	J = I * H / 60
K	Employee related expense (ERE) percentage	26.2%	21.6%		Based on separate ERE build
L	Total ERE expense per unit	\$ 3.53	\$ 0.74	\$ 4.27	L = J * K
M	Administration / program support / overhead			18.0%	Portion of total rate
N	Administration Expenses			\$ 4.65	N = M * ( J + L ) / ( 1 - M )
O	Rate Per 15 minutes			\$25.85	O = J + L + N

Ref.	Summary of Rate Model Components			Total	Notes
P	Direct Service Provider Salaries & Wages			\$ 14.93	
Q	Indirect Service Employee Salaries & Wages			\$ 1.99	
R	Employee Related Expenses			\$ 4.27	
S	Administration, Program Support & Overhead			\$ 4.65	
T	Total Rate			\$25.85	

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Appendix E.9: Preliminary ABA Rate Calculations - Scenario 2

Service Information

Service Code:

0373T-HM

Service Category:

Adaptive Behavior Treatment

Service Description:

Direct treatment of severe maladaptive behavior

Reporting Units:

15 minutes

Ref.	Description	Registered Behavior Technician <sup>®</sup>	Supervisor: Licensed Behavior Analyst	Total	Notes
A	Average minutes of direct time per unit	15			
B	Average minutes of indirect time per unit	2.00			
C	Total minutes per unit	17.00			C = A + B
D	Staffing Ratio	1.00			
E	Supervisor span of control		6.00		6 employees assumed to be managed by 1 supervisor
F	Supervisor time per unit		2.83		F = C / D / E
G	PTO/training/conference time adjustment factor	14.7%	14.7%		Based on separate PTO build
H	Adjusted total minutes per unit	19.50	3.25		H = C / D * ( 1 + G )    H = F * ( 1 + G )
I	Hourly wage	\$ 25.14	\$ 63.09		Based on separate wage build
J	Total wages expense per unit	\$ 8.17	\$ 3.42	\$ 11.59	J = I * H / 60
K	Employee related expense (ERE) percentage	34.4%	21.6%		Based on separate ERE build
L	Total ERE expense per unit	\$ 2.81	\$ 0.74	\$ 3.55	L = J * K
M	Administration / program support / overhead			18.0%	Portion of total rate
N	Administration Expenses			\$ 3.32	N = M * ( J + L ) / ( 1 - M )
O	Rate Per 15 minutes			\$18.46	O = J + L + N

Ref.	Summary of Rate Model Components			Total	Notes
P	Direct Service Provider Salaries & Wages			\$ 10.23	
Q	Indirect Service Employee Salaries & Wages			\$ 1.36	
R	Employee Related Expenses			\$ 3.55	
S	Administration, Program Support & Overhead			\$ 3.32	
T	Total Rate			\$18.46	

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Appendix E.10: Preliminary ABA Rate Calculations - Scenario 2

**Service Information**

Service Code: 97154-UN  
Service Category: Adaptive Behavior Treatment  
Service Description: Group treatment by protocol  
Reporting Units: 15 minutes

Ref.	Description	Registered Behavior Technician®	Supervisor: Licensed Behavior Analyst	Total	Notes
A	Average minutes of direct time per unit	15			
B	Average minutes of indirect time per unit	4.00			
C	<b>Total minutes per unit</b>	<b>19.00</b>			$C = A + B$
D	Staffing Ratio	2.00			
E	Supervisor span of control		3.00		3 employees assumed to be managed by 1 supervisor
F	Supervisor time per unit		3.17		$F = C / D / E$
G	PTO/training/conference time adjustment factor	14.7%	14.7%		Based on separate PTO build
H	<b>Adjusted total minutes per unit</b>	<b>10.90</b>	<b>3.63</b>		$H = C / D * ( 1 + G ) \parallel H = F * ( 1 + G )$
I	Hourly wage	\$ 25.14	\$ 63.09		Based on separate wage build
J	<b>Total wages expense per unit</b>	<b>\$ 4.57</b>	<b>\$ 3.82</b>	<b>\$ 8.39</b>	$J = I * H / 60$
K	Employee related expense (ERE) percentage	34.4%	21.6%		Based on separate ERE build
L	<b>Total ERE expense per unit</b>	<b>\$ 1.57</b>	<b>\$ 0.82</b>	<b>\$ 2.39</b>	$L = J * K$
M	Administration / program support / overhead			18.0%	Portion of total rate
N	<b>Administration Expenses</b>			<b>\$ 2.37</b>	$N = M * ( J + L ) / ( 1 - M )$
O	<b>Rate Per 15 minutes</b>			<b>\$13.15</b>	$O = J + L + N$
Ref.	Summary of Rate Model Components			Total	Notes
P	Direct Service Provider Salaries & Wages			\$ 6.62	
Q	Indirect Service Employee Salaries & Wages			\$ 1.77	
R	Employee Related Expenses			\$ 2.39	
S	Administration, Program Support & Overhead			\$ 2.37	
T	<b>Total Rate</b>			<b>\$13.15</b>	



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Appendix E.11: Preliminary ABA Rate Calculations - Scenario 2

Service Information

Service Code:

97157-UN

Service Category:

Adaptive Behavior Treatment

Service Description:

Multiple-family training

Reporting Units:

15 minutes

Ref.	Description	Board Certified Assistant Behavior Analyst®	Supervisor: Licensed Behavior Analyst	Total	Notes
A	Average minutes of direct time per unit	15			
B	Average minutes of indirect time per unit	4.00			
C	Total minutes per unit	19.00			C = A + B
D	Staffing Ratio	2.00			
E	Supervisor span of control		1.00		1 employees assumed to be managed by 1 supervisor
F	Supervisor time per unit		9.50		F = C / D / E
G	PTO/training/conference time adjustment factor	14.7%	14.7%		Based on separate PTO build
H	Adjusted total minutes per unit	10.90	10.90		H = C / D * ( 1 + G )    H = F * ( 1 + G )
I	Hourly wage	\$ 41.55	\$ 63.09		Based on separate wage build
J	Total wages expense per unit	\$ 7.55	\$ 11.46	\$ 19.01	J = I * H / 60
K	Employee related expense (ERE) percentage	26.2%	21.6%		Based on separate ERE build
L	Total ERE expense per unit	\$ 1.97	\$ 2.47	\$ 4.45	L = J * K
M	Administration / program support / overhead			18.0%	Portion of total rate
N	Administration Expenses			\$ 5.15	N = M * ( J + L ) / ( 1 - M )
O	Rate Per 15 minutes			\$28.60	O = J + L + N

Ref.	Summary of Rate Model Components			Total	Notes
P	Direct Service Provider Salaries & Wages			\$ 15.01	
Q	Indirect Service Employee Salaries & Wages			\$ 4.00	
R	Employee Related Expenses			\$ 4.45	
S	Administration, Program Support & Overhead			\$ 5.15	
T	Total Rate			\$28.60	

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Appendix E.12: Preliminary ABA Rate Calculations - Scenario 2

Service Information

Service Code: 97158-UN  
Service Category: Adaptive Behavior Treatment  
Service Description: Group treatment with protocol modification  
Reporting Units: 15 minutes

Ref.	Description	Board Certified Assistant Behavior Analyst®	Supervisor: Licensed Behavior Analyst	Total	Notes
A	Average minutes of direct time per unit	15			
B	Average minutes of indirect time per unit	4.00			
C	<b>Total minutes per unit</b>	<b>19.00</b>			$C = A + B$
D	Staffing Ratio	2.00			
E	Supervisor span of control		1.00		1 employees assumed to be managed by 1 supervisor
F	Supervisor time per unit		9.50		$F = C / D / E$
G	PTO/training/conference time adjustment factor	14.7%	14.7%		Based on separate PTO build
H	<b>Adjusted total minutes per unit</b>	<b>10.90</b>	<b>10.90</b>		$H = C / D * ( 1 + G )$    $H = F * ( 1 + G )$
I	Hourly wage	\$ 41.55	\$ 63.09		Based on separate wage build
J	<b>Total wages expense per unit</b>	<b>\$ 7.55</b>	<b>\$ 11.46</b>	<b>\$ 19.01</b>	$J = I * H / 60$
K	Employee related expense (ERE) percentage	26.2%	21.6%		Based on separate ERE build
L	<b>Total ERE expense per unit</b>	<b>\$ 1.97</b>	<b>\$ 2.47</b>	<b>\$ 4.45</b>	$L = J * K$
M	Administration / program support / overhead			18.0%	Portion of total rate
N	<b>Administration Expenses</b>			<b>\$ 5.15</b>	$N = M * ( J + L ) / ( 1 - M )$
O	<b>Rate Per 15 minutes</b>			<b>\$28.60</b>	$O = J + L + N$
Ref.	Summary of Rate Model Components			Total	Notes
P	Direct Service Provider Salaries & Wages			\$ 15.01	
Q	Indirect Service Employee Salaries & Wages			\$ 4.00	
R	Employee Related Expenses			\$ 4.45	
S	Administration, Program Support & Overhead			\$ 5.15	
T	<b>Total Rate</b>			<b>\$28.60</b>	



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