The 2014-2017 BIP DOH/OPWDD grant that funded telemedicine-enabled urgent care for 2,000 I/DD individuals generated positive clinical and economic outcomes[[1]](#footnote-1). But those benefits have not been available to OPWDD agencies, which have little or no access to telehealth services. This is largely due to limitations in reimbursement for telemedicine visits. Advocates in the legislature and OPWDD requested statutory changes in telemedicine reimbursement regulations regarding the originating site, to remove limitations to allow telemedicine visits when individuals are in their home.

Effective April 1, these statutory amendments were made as part of the state budget[[2]](#footnote-2). This will incentivize all parties to expand delivery of technology-enabled preventative, urgent, episodic, and chronic care clinical services. OPWDD has the responsibility for creating guidelines for the implementation of the amendments. The purpose of this document is to provide OPWDD with information and recommendations drawing upon learnings and best practices that were developed during the 3-year DOH BIP grant.

This document contains an overview of existing telehealth and telemedicine technologies, ways to apply them to the I/DD population, and a stratification model for matching the best technology solution with the individual or home. It also provides some observations on costs and how to evaluate the return on an investment in telemedicine.

# Considerations for effective application of telemedicine use with individuals with I/dd and other Medicaid populations

The objectives for care via telemedicine are to:

* stabilize and improve health
* reduce unnecessary ED visits and hospitalizations
* support independence

As cost is a factor, a stratification model can be used to match the most cost-effective technology intervention with need. In this way, telemedicine can deliver on its promise: applying the right care and intervention by the right resource at the right time to meet the individual’s needs. The stratification model presented here can inform OPWDD guidelines for application of the new Waiver 1115 innovation funds.

# The Stratification Process

There are four primary components to the approach to stratification of the census of people supported by OPWDD that identifies the best-fit technology to deliver person-centered care: that meets the objectives is based on four primary components:

1. **Residence type**. This is a significant factor in telemedicine’s ability to add value. For individuals living with minimum support in community, telemedicine can be a supportive safety net, helping maintain independence and achieving person-centered goals. For those who live in higher support facilities, telemedicine improve the quality of medical care, and can drive down the direct and indirect cost of care while making it more immediate, more convenient and less disruptive to the community residence. .

There are five relevant residence categories for individuals with I/DD:

* ICF (Highest level of support for the most medically complex people)
* Supervised IRA (24/7 support)
* Supported IRA (some support)
* ISS/CSS (an apartment with limited support)
* Community (living with family, foster care, or on their own)

1. **Acuity** of condition(s), which we measure by obtaining a DDP2 score for every individual (soon to be the CAS).
2. **Activation** and engagement as measured by Patient Activation Measurement (PAM) – relevant for individuals living in Community and ISS/CSS housing. May also be a useful tool for creating telemedicine enabled care plans for individuals living in Supportive IRAs.
3. **Connectivity**, which affects the ability to leave biometric devices in the home for regular readings, and to conduct teleconsultations using a smart phone, tablet or laptop computer.

For individuals living in all type of community residences, the following tools and interventions are invaluable in helping them stay independent, particularly for those with chronic illness. In general, the greater the level of support, which is dictated by the certified setting, the fewer the types of telemedicine needed.

Experience in the DOH BIP grant showed that high acuity individuals living alone took advantage of the telemedicine program, and as a result of the attention, care and coaching they received, increased their activation from low to high levels. Activation is defined as a mentality and mindset that translates into self-care actions and behaviors; Insignia Health’s Patient Activation Measure (PAM) program has demonstrated that each point of activation translates into Medicaid savings in medical/behavioral utilization. The higher the activation, the greater the savings.

# The Technology/Telemedicine Categories

(Reflects technology that is currently available)

* **Diagnostic Telemedicine Rollerbag** – enables a clinical visit conducted in the individual’s residence. Diagnostic devices such as stethoscope, otoscope, dermatology camera, ECG, spirometer, BP cuff, are deployed by a telepresenting Medical Assistant or other resource to a remotely located provider. Can be used for urgent and primary care. Excellent option when a video teleconsultation isn’t enough, but the ER isn’t necessary.
* **Video Teleconsultation** – a HIPAA compliant browser-based application that allows a video conversation between the individual and a provider using any tablet, smart phone or laptop, for medical and/or behavioral primary or urgent care. (Excellent triage tool; DOH BIP grant showed 60% of urgent visits performed with the telemedicine rollerbag could have been resolved using this technology).
* **Medical Triage via software algorithm** – a software algorithm that uses evidence based guidelines to assess an individual’s self-reported complaints and symptoms in the context of their diagnoses and (if utilized) readings from biometric devices as part of a remote monitoring plan of care (see below). The software delivers an opinion and recommendation that can be used by the patient or caregiver to take appropriate action, such as “Go to the ER,” or “Call the physician.” This capability can support an off-site residence nurse called to make a triage decision.
* **Interactive Voice Response (IVR) for reminders** – this tool pushes medication reminders and other messages to the individual via phone, email or text.
* **Interactive Voice Response (IVR) for self-reporting** – this tool pushes surveys to enable the individual to report information back to a monitoring care coordinator. Examples include daily bowel movements, diet, health status
* **Remote Patient Monitoring (RPM)** – used to monitor/intervene with those with chronic illnesses; the individual/caregiver uses biometric device(s) plus a transmitting device to take and send readings to a dashboard monitored by a remote RPM monitoring nurse. Transmitting devices can be a single user modem that is paired with an individual’s devices, or a web-based application on a tablet or laptop that can be used to serve multiple people (typically 5-6 people) using the same set of devices, as each person would have a username and password.

The remote RPM monitoring nurse does the following:

* + Reviews readings
  + Notes abnormal readings
  + Contacts patient/care giver to validate the reading
  + Coaches and educates the patient
  + Escalates alerts to provider per protocol

Some RPM products with tablets included offer additional features, including:

* **Electronic Triage via an interactive tablet** – an algorithm built into the RPM software on a tablet that transmits readings can be activated to do a medical triage, using the individual’s chronic diagnoses, current biometric readings and self-reported signs and symptoms. The triage algorithm produces an outcome and recommended action. The triage algorithm may activate automatically in response to an abnormal biometric reading, or it can be initiated by the individual/caregiver when an individual is not feeling well. (see “Medical Triage Via Software Algorithm”, above)
* **Video Teleconsultation via interactive tablet** – a HIPAA compliant video conversation between the individual/caregiver and the provider, conducted with the RPM tablet mentioned above. A video teleconsultation may be the recommendation of the triaging software algorithm described above, or initiated for other medical/behavioral reasons by the individual/caregiver.

# Stratification model by Residence Type

The chart below shows how tools may be utilized by residence type.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | ICF | Supervised IRA | Supportive IRA | ISS-CSS | Community |
| IVR for reminders |  |  | See Observation 1 | See Observation 1 | X |
| IVR for self-reporting |  |  | See Observation 1 | See Observation 1 | X |
| RPM diagnostic monitoring, all configurations | See RPM section | See RPM section | X | X | X |
| RPM diagnostic monitoring with built-in triage algorithm | See RPM section | See RPM section | X | X | X |
| RPM diagnostic monitoring with built-in triage algorithm and teleconsultation | See RPM section | See RPM section | X | X | X |
| Software algorithm for triage | X | X | X | X | X |
| Teleconsultation | X | X | X | x | X |
| Diagnostic Telemedicine rollerbag | See Observation 2c | See Observation 2c | X | X | X |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

# Observations about Stratification by Residence Type

1. IVR: Interactive Voice Response (IVR) for reminders and self-reporting would not likely be useful or appropriate in a group home with a high level of support. However, supportive IRAs likely have activated individuals who would benefit from “IVR” emails or texts for reminders and self-reporting. For a phone IVR to be successful, though, the home’s other residents would need to understand how to respond to such a call.
2. Video teleconsultations and the diagnostic telemedicine rollerbag can be a tool for urgent care, chronic care, primary care and transitional care. Both modalities are considered “telemedicine visits” and should be eligible for reimbursement. Both deliver a synchronous video consultation between a provider and an individual (or the caregiver in the presence of the individual).
   1. The video teleconsultation is extremely cost effective for triage, follow-up to a software algorithm triage, or non-acute care. It is superior to a phone call in that the provider can observe the individual, and speak with them if they are verbal. This allows the provider to triage, assess, diagnose and order treatment for many types of complaints. One outcome could be to dispatch a diagnostic telemedicine rollerbag for a clinical examination, if this was available.
   2. The diagnostic telemedicine rollerbag gives the provider the ability to conduct a clinical office exam in the individual’s home. This requires the use of a trained telepresenter. The telepresenter may be a direct support staff member, care coordinator, medical assistant, registered nurse, nurse practitioner, or physician’s assistant. The provider of the telemedicine service makes this determination based on a number of factors, including what types of treatment they want to provide in the residence, and the cost. There is no reimbursement from Medicaid or Medicare for the telepresenter at this time.
   3. After-hours telemedicine-enabled urgent care, with access to triage, video consultation and diagnostic assessment, was proven to be a cost-effective way to address medical needs in Supervised IRAs (and by inference, ICFs). In addition to the reduced costs of such service provision, telemedicine enabled the agency to avoid related costs including:
      1. Overtime for direct support staffing at night and on weekends,
      2. Transportation to the ER or clinic
      3. loss of revenue due to the individual missing program the next day

# Remote patient monitoring in Supervised Homes and ICFs

It is important to appreciate that incorporating RPM into a supervised home or ICF will affect residence nurses and house managers who will need to adjust their workflows and protocols to accommodate additional readings, use of different devices for specified individuals, using PINs, and responding to calls from the alert monitoring care coordinator or nurse. The way to mitigate resistance to these impacts is to consistently demonstrate the value of RPM: improved health outcomes by preventing exacerbation of symptoms being monitored, and changes made to individuals’ care plans in response to data obtained via monitoring.

To determine whether to offer RPM to individuals in a heavily supervised setting, start by creating a matrix of all individuals in the group home and their device needs. See Examples 1 and 2 below:

*Example 1: Supervised IRA with* 11 residents, 9 enrolled in RPM as follows: *All are hypertensive, 3 have asthma, 3 are diabetic, 5 have heart failure*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| RPM Enrolled Individuals | Scale | PulseOx | Glucose Reader | BP machine  /cuff size | Transmitting device is a multi-user web based application installed on a computer located in the Supervised IRA |
| Individual A | X | X | X | LG |
| Individual B | X |  |  | SM |
| Individual C | X | X |  | Med |
| Individual D |  |  | X | LG |
| Individual E |  | X |  | LG |
| Individual F | X |  |  | LG |
| Individual G |  |  | X | LG |
| Individual H | X |  |  | Med |
| Individual I |  |  |  | Med |
| Total | 5 | 3 | 3 | 5 LG; 3 MED, 1 SM |  |

In a group home with 4+ RPM enrollees, the ideal solution is a multi-user technology. In the example above using Henry Schein/Medpod RPM technology, the house staff or residence nurse opens the RPM application on the computer, logs-in with the first user’s name and PIN, and takes readings using the devices required for that individual. The nurse then logs out of that user, logs in as the second resident, and uses the same set devices to take readings for that person. The log-in and password ensure data captured by the devices is delivered to the correct individual’s record. Since all users share a set of biometric devices, the cost per person is likely minimized. And as a log-in is required for every reading, errors are minimized as well.

In this scenario, the 2 house residents who are not enrolled in RPM will continue to use the house’s own instruments for taking vital signs according to their care plan.

*Example 2: Supervised IRA with 6 residents, 3 enrolled in RPM as follows: 2 are hypertensive, 1 is diabetic, 1 is obese, and 1 is obese and asthmatic.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| RPM Enrolled Individuals | Scale | PulseOX | Glucose Reader | BP machine  /cuff size | Transmitting Device |
| Individual A | X | X |  | LG |  |
| Individual B |  |  | X |  |  |
| Individual C | X |  |  | X-LG |  |
| Totals | 2 | 1 | 1 | 1 LG, 1 X-LG |  |

In this scenario, there are three individuals with a total of 6 devices. This group home could also benefit from a multi-user device along with a single set of peripherals. Noting that 3 house members are not currently enrolled, an advantage of a multi-user approach is that it can accommodate additional RPM enrollees within the same home, using the same equipment, if it is anticipated that another individual will need monitoring.

On the other hand, it would not be unreasonable to go with a single user scenario: a modem for each individual along with the specific devices paired with the modem for each person. The single user modem scenario works best in homes with just 1-3 users.

There are additional benefits of RPM that may not be evident on their face:

**Peace of Mind.** Remote monitoring for individuals living in community can bring the additional benefit of peace of mind to individuals and their caregivers, in particular parents. The notion that someone is looking at the individual’s readings every time they are taken, and reacting when the readings are out of parameter, can be very reassuring.

**Increased activation**. RPM also has the potential to increase activation in people who are interested in watching their numbers (e.g., BP, sugar, weight, oxygenation) change and stabilize. User friendly devices that communicate readings to the enrollee simply and clearly, including trends and progress toward goals, can motivate individuals to achieve results.

**Blending RPM with telemedicine capabilities creates a comprehensive system of care.** The RPM tablet triage capability described above has the potential to prevent unnecessary ED visits, particularly when coupled with the capability to connect the enrollee to a virtual waiting room where they can be seen by the next available NP or MD for a teleconsultation.

When combined with access to a MobileDoc telemedicine rollerbag, RPM, triage and teleconsultations provide a comprehensive system of care. Here is an example:

*A non-verbal individual with diabetes, asthma and hypertension is being monitored with biometric devices. A reading indicates there is a problem, and the individual’s caregiver uses the triage software built into the RPM tablet to see what to do. The software advises the physician should be called. Pressing a button on the tablet, the caregiver is logged into a virtual waiting room, in queue to see the next NP. The NP logs into the room, sees and speaks with the caregiver, reviews all the data provided, and visually assesses the individual. The NP determines a clinical exam is necessary, and dispatches a telepresenter with the telemedicine rollerbag to the residence. Within 90 minutes of the initial call, the NP is virtually examining and treating the individual, making a change to the care plan, and prescribing a medication. All without travel, disruption to the individual or the house, need for additional staff, or spending time sitting in a clinic waiting room.*

For chronically ill individuals living in community who are activated enough to consistently and appropriately use monitoring devices (or with roommates, parents or others to assist), remote patient monitoring is a win.

# Stratification model by Tool

The chart below provides a reference for selecting the right tools based on the patient centered characteristics of acuity, PAM activation, residence type and whether the individual or house has access to internet or cellular connectivity.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Tools | Acuity | PAM Activation | Residence Type | Connectivity |
| Interactive Voice Response for reminders | All levels | All levels | ISS/CSS, Community | Not needed |
| Interactive Voice Response for self-reporting | All levels | Med, high | ISS/CSS, Community | Not needed |
| RPM diagnostic monitoring (with or without built-in triage and teleconsultation | High, Medium | High PAM activation for ISS/CSS and community living; medium-to-high PAM activation for supportive IRAs. In supervised IRAs and ICFs, need commitment from staff/nurses | | Required |
| Teleconsultations for urgent, primary, chronic, transitional care | All levels | All levels | All types | Required |
| Diagnostic telemedicine rollerbag for urgent, primary, chronic, transitional care | All levels | All levels | All types | Not needed |

# Some Observations About The Cost Of Providing Care With Telemedicine

To provide some perspective, this chart gives a general range of pricing across four telemedicine vendors that served the DOH grant program. It is not a survey of current pricing and does not necessarily represent the entire telemedicine market.

|  |  |
| --- | --- |
| Program | Cost Range |
| Remote Patient Monitoring – equipment only, assuming a single user modem and 1 peripheral, no video | Monthly PMPM, for 1 person:  $32-$90 |
| Remote Patient Monitoring w/ software triage and video teleconsultation capability, multi-user scenario: 3 users with 6 devices. | Monthly PMPM, for 3 people:  $32-$51 |
| RPM/IVR alert management (3rd party) | Ranges from $50-$85 PMPM |
| Video Teleconsultations | Per transaction fee of $1-$4 |
| Interactive Voice Response (IVR) | PMPM for phone reminders and surveys: $6-$30 |

If in an Article 16 clinic incorporates a telemedicine program, the cost of rollerbags and telepresenters may also be considered:

|  |  |
| --- | --- |
| Diagnostic Telemedicine Rollerbag | Monthly Lease price:  $300-700 depending on medical devices supplied in the bag |
| Diagnostic telemedicine rollerbag transaction fee | Ranges from $0-$6 |
| Telepresenters  (3rd party) | Hourly rate of $17-$70 depending on their medical credentials |

In addition to cost, the ROI should include the consideration of tangible and intangible benefits of using telemedicine to care for OPWDD individuals. Those include:

* Avoiding unnecessary utilization of Emergency Department and even urgent care clinics
* Improving access to high quality, person-centered care (see DOH grant results)
* Extending the capacity of residential nurses (by using technology to bring triage services and clinic care to the home)
* Supporting and enhancing independence
* Avoiding transportation and extra staffing expense associated with trips to the ED
* Avoiding the loss of revenue due to a missed day program (because the MD can authorize return to the program during telemedicine visit.)
* Progression in moving toward paperless- (or less paper) based systems
* The accompanying increase in exposure to and use of technology by nurses and support staff.

# In Summary

This paper is intended to provide the foundation necessary to make the effective use of telehealth and telemedicine a reality for the 127,000 people OPWDD supports. Care delivered via telemedicine for the I/DD population can be so much more than just the use of devices to extend the capacity of providers, or provide services after-hours. Care delivered through telehealth and telemedicine – particularly if delivered by their familiar primary care provider -- can wrap around the individual to enhance safety, security, health and well-being, promote independence and reduce the cost of care for people with intellectual and developmental disabilities.

Stars seem to be aligning: with OPWDD’S current Assistive Technology funding, the approval to move to the 1115 Waiver offering more flexibility in service delivery, and the broadening of the NYS DOH definition of an originating site to include a person’s home, OPWDD is in the position to improve the health of its constituents, reduce disruptive and costly trips to the Emergency Department or urgent care clinic, while saving money.

**Call on us.** The authors of this document are available for questions, perspective and continued support to OPWDD as it creates the guidelines for bringing this remarkable technology into the daily lives of its constituents.

1. ACA DOH BIP Grant results, published Jan. 6, 2018 [↑](#footnote-ref-1)
2. HMH Article VII Part S, published April 2018 [↑](#footnote-ref-2)