

**Translational Medicine and Therapeutics (ITMAT)**

**“Connected Health and Population Health Improvement pilot program”**

**Submission Requirements**

**Overview**

The proposal must center on novel approaches to testing and delivering interventions to improve health outcomes or health behavior for people at high risk for poor health outcomes. The purpose of this RFA is to support research teams to do quick turnaround studies focused on improving the management of population-based health within Penn Medicine patients. These are designed to be relatively short-term projects to create a cycle for rapid learning and iterative improvement, with a planned duration for each pilot of 3 to 6 months. This type of initiative is important to accelerating the rate of progress in preparing for the rapidly evolving shifts in health care financing towards health care systems taking on population risk, as existing governmental funding mechanisms typically have significant lag times between idea inception and funding. This type of academic work – in which promising approaches are tested in application to improving health among patients in our health system and communities – will help to rapidly develop evidence on how to efficiently manage population health that would be useful for both UPHS and for the nation.

**Guidelines**

- **The project period for this pilot program is 12 months; NO COST EXTENSIONS ARE NOT ALLOWED.**
- We encourage proposals to use the Way to Health platform. Way to Health is a cloud-based research platform that integrates information from wireless technologies, communications tools, and other applications to allow investigators to test ways of improving health behaviors and helping people keep on track to better health. For more information about readily available features on the platform please refer to the WTH Platform Feature List. We highly recommend scheduling an introductory consultation meeting with the WTH Team prior to grant submission. Please contact Christianne Sevinc ([Christianne.Sevinc@uphs.upenn.edu](mailto:Christianne.Sevinc@uphs.upenn.edu)) to schedule. We will provide the Way to Health platform free of charge for funded grantees provided you use Core Features (see WTH Platform Feature List). We will provide protocol design consultation, implementation assistance, training, technical support and general maintenance of the platform.
- ITMAT grants are available to registered members of the Institute for Translational Medicine and Therapeutics (ITMAT) including Associate Members who hold Instructor A or Research Associate positions. You can register to become a member at <http://www.itmat.upenn.edu/membership.shtml>
- Proposals must have at least two Co-Principal Investigators, ideally from different disciplines or Schools within the University of Pennsylvania. Novel collaborative applications between faculty located in different Schools at Penn are encouraged. We also encourage teams to include clinical collaborators from within Penn Medicine.
- All proposals are due by **March 14, 2017 at noon** for a project start date of **June 1, 2017**. **LATE SUBMISSIONS WILL NOT BE ACCEPTED NOR WILL EXTENSIONS BE GRANTED.**

**Required Documents**

- **Submission:** Please submit online at [www.med.upenn.edu/apps/itmat/pg](http://www.med.upenn.edu/apps/itmat/pg). **PLEASE ENSURE THAT YOU CHOOSE THE CONNECTED HEALTH AND POPULATION HEALTH IMPROVEMENT PILOT PROGRAM WHEN SUBMITTING YOUR GRANT.** Please refer to Document Submission Section for specific instructions related to this system.
- **Abstract Page:** The abstract text should be no longer than 250 words.

- **Budget:** Please use the excel template budget page and provide detailed expenses.
- **Budget Justification:** Please provide a short justification for all personnel, supplies, and equipment that will be expensed to this project. Please provide a distinct justification if resources are to be spent on services provided from outside Penn.
- **NIH Biosketch:** An NIH format biosketch must be submitted for the *PI and the Co-PIs only*.
- **Research Proposal:** The research proposal should be no longer than two single-spaced pages with one-inch margins and should include the essential background information relative to the project. Please use Arial size 11 font. Please indicate the importance of this funding to the feasibility of your research proposal and potential for future funding. Please indicate if any other funds are available to you for the proposed research. Since we will prioritize funding projects done in Penn Medicine clinical settings, it will be important to identify a clinical operations leader from UPHS or CHOP who will partner with you on your project. References should be attached to your research proposal and will not count toward your two page limit. Please provide a timeline of implementation to ensure meeting the end date of May 31, 2018. **NO OTHER SUPPORTING DOCUMENTATION WILL BE CONSIDERED.**
- Copies of **IRB approval letters** will be required if an application is funded. Funding will be delayed until these approval documents are received. Applicants are encouraged to submit documentation of IRB “approval in concept” along with their submission.

#### **Budget Guidelines**

- Budgets in the range of \$10,000-50,0000 will be funded in direct costs for a maximum duration of 12 months beginning on June 1, 2017 with an end date of May 31, 2018. All funds must be expensed by this end date. **NO COST EXTENSTIONS ARE NOT ALLOWED.** We expect to fund approximately 5-10 pilots through this initiative.
- Budgets must be submitted on approved excel template.
- Please refer to the attached document which describes Way to Health functionality as well as a price list for the most commonly used devices.
- The free use of the Way to Health platform is for 12 months from the start of the grant period (e.g., June 1, 2017). If grants extend beyond the 12 month period, additional charges may be incurred.
- While the pilot program supports WTH website development, maintenance and project management, it does not include the research staff to run the projects on the platform.
- Include the cost of devices and any participant incentives in their project budgets.
- Name, title/role, percent effort, salary, and benefits must be defined in the budget for each grant participant. Note that salary support for faculty is discouraged. Applicants proposing faculty salary support should provide clear justification for why the pilot requires this. Please use the NIH salary cap limit.
- Supplies should be detailed by type and number in the budget and the budget justification.
- Equipment expenditures and service contracts should be detailed in the budget and budget justification. Please keep in mind that equipment is defined as any item costing more than \$5,000 with an estimated useful life greater than one year.

#### **Other**

- Any publications that are the direct result of this funding must reference:
  - **“Supported in part by the Institute for Translational Medicine and Therapeutics of the Perelman School of Medicine at the University of Pennsylvania.”**
  - **“Research reported in this publication was supported by the National Center for Advancing Translational Sciences of the National Institutes of Health under Award Number**

**UL1TR001878. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.”**

- **Refer to the Way to Health Platform in the methods section of any manuscripts that emerge from this work.**
- A progress report will be requested every year for 4 years so that we can track the success of supporting projects that result in the receipt of a grant, publication, or technology transfer. These summaries should be uploaded to ITMAT’s Pilot Grant System at [www.med.upenn.edu/apps/itmat/pg](http://www.med.upenn.edu/apps/itmat/pg). You will need your PennKey logon and password to access this system.
- **You will be prohibited from applying for ITMAT pilot funding if you do not reference the funding support on publications and if you do not submit progress reports.**

### **Document Submission**

All applications should be submitted via ITMAT’s Pilot Grant System at [www.med.upenn.edu/apps/itmat/pg](http://www.med.upenn.edu/apps/itmat/pg). ***PLEASE ENSURE THAT YOU CHOOSE THE “Connected Health and Population Health Improvement Pilot Program” WHEN SUBMITTING YOUR GRANT.*** You will need your PennKey logon and password to access this system. If you do not have a PennKey, obtaining one will take at least 48 hours so do not wait until the last minute. We will not accept applications late because of this. Once you start an application, you can proxy someone (grants manager, post doc, etc.) to finish it for you.

- Each investigator and Co-Investigator must be an ITMAT member.
- Each Investigator and Co-Investigator must have the approval of their respective Business Administrator.
- ***Penn Faculty should select the Business Administrator or Grants Manager that normally signs off on all of their research proposals.***
- ***CHOP Faculty*** must select Bernice Saxon, Prema Sundaram, Michael Campbell, or Robert DeNight as their Business Administrator. ***PLEASE ONLY CHOOSE ONE.***
- ***Wistar Faculty*** must select Jessica Blodgett as their Business Administrator.
- ***University of the Sciences Faculty*** must select Sarah E. Robinson as their Business Administrator.
- If your grants are managed by a division within the ***Department of Medicine, please select Susan Wahl as your Business Administrator.*** She will coordinate divisional/departmental approval.
- ***Please ensure that the documents you upload are the final documents. ITMAT will not update or replace files. This means that prior to hitting the submit button, all documents must be final.***
- When contacting the ITMAT business office, please use the same discretion you would employ if contacting an external sponsor.
- Please ensure that you have liaised with all of the Co-Investigators on your application. This will avoid proposals being rejected by their Business Administrator.
- All documents must be uploaded by ***noon*** on the due date of the proposal to ensure time for all approvals. All approvals must be completed by ***5 pm*** on the due date. ***We suggest you do not wait until noon to start uploading documents.***
- Once all approvals are completed, the grant will be received by ITMAT.

### **Application or Funding Questions**

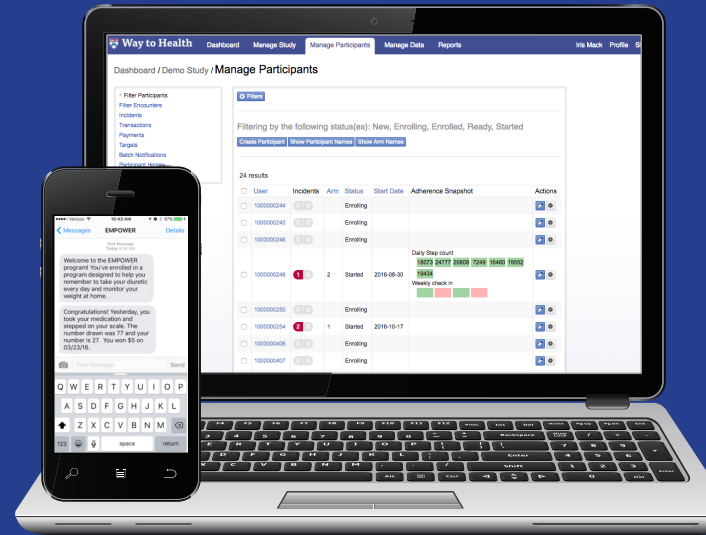
For programmatic or budget questions please contact Joelle Friedman, Associate Director of the LDI Center for Health Incentives and Behavioral Economics (CHIBE), at [joellef@mail.med.upenn.edu](mailto:joellef@mail.med.upenn.edu).

For technical questions related to completing the online application please contact Jessica Bickhart, [Bickhart@mail.med.upenn.edu](mailto:Bickhart@mail.med.upenn.edu) or Jason Molli, [molli@upenn.edu](mailto:molli@upenn.edu)



# Way to Health

Deliver and test behavioral interventions anywhere in the United States using Way to Health's efficient and scalable platform.



## Key Features

### Customized Enrollment

Online and mobile participant enrollment and survey administration

### Integration with Biomedical Devices

Ensure complete data at the point of collection via integrated devices (see reverse for full list)

### Automated Randomization

Computerized randomization of participants, including the capacities for stratified, blocked, weighted, and adaptive randomization strategies

### Automated Participant Communication

Schedule communications with participants via voice, text, or email even with rolling enrollment

### Built-in Behavioral Economic Tools

Test a variety of financial and social incentive structures including basic and escalating lotteries, gamification (team or individual) using points, levels and medals

### Reduce Payment Processing Time

Automated transactions and electronic record of participant payments

### Security

Secure high-performance servers that have the necessary security protections to permit storage and analysis of data containing protected health information

### At-a-Glance Adherence

Get a view into participants daily interactions with quick and effortless indicators for progress

## Integrations



**Epic**

Appointment reminders, sending alerts/results, filing flowsheet data

### Medview/Clinstream

Inpatient+ER visit and discharge data



## Power of Way to Health

Way to Health can be used to test the effects of a multitude of interventions on a number of biomedical measurements using integrated biomedical devices.



### Intervention Types

- Lottery Incentives
- Group/team Incentives
- Gamification
- Deposit Contracts
- Reminders
- Peer Networks
- Pre-commitment Contracts
- Bi-directional Messaging
- Feedback
- Rewards vs. Penalties
- Loss vs. Gain Framing



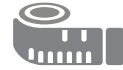
### Clinical Targets

- Cholesterol
- Diabetes
- Arthritis
- Insomnia
- Hypertension
- Patient Compliance
- CHF
- Preeclampsia
- Post-op Morbidity
- Asthma
- Hepatitis
- Skin Cancer



### Biomedical Devices

- Wireless Scales
- Smart Pill Bottles
- Glucometers
- Pedometers
- Heart Rate Trackers
- Blood Pressure Cuffs
- Sleep Trackers
- SMS Receiver



### Biomedical Measurement

- Blood Pressure
- Medication Adherence
- Heart Rate
- Nicotine Metabolites
- Weight
- Steps
- Inhaler Use
- Cholesterol
- Blood Sugar
- Sleep
- CPAP Use

## Flexibility for Innovation

The Way to Health platform can be customized to meet your needs. This requires greater resources than using only the readily available (core) functions, but allows considerable flexibility.

For example:

- Set and reset health-related targets (e.g. monthly weight, quit dates, walking)
- Display progress charts, study instructions, payments, and study resources to participants on customized dashboards

To discuss how Way to Health can work with your research plans or clinical project, contact the Way to Health team at [waytohealth@uphs.upenn.edu](mailto:waytohealth@uphs.upenn.edu).





## Way to Health Platform Feature List

*Customized Design of Interventions and Protocols. Easily design, schedule and deliver remote health interventions and behavioral research studies using the features listed below.*

*Core features are readily available for use; Custom features require consultation with the WTH team.*

Feature	Core	Custom*
<b>Online enrollment</b> – Enroll participants on the platform via the administrative backend or the participant portal. WTH collects basic demographic data, contact information and communication preference. Additional data on the participant can be collected via the survey function.	✓	
<b>Automated randomization</b> – WTH has three standard forms of randomization: <ul style="list-style-type: none"> <li>• Basic randomization</li> <li>• Blocked randomization</li> <li>• Blocked randomization with stratification</li> </ul>	✓	
<b>Survey administration</b> – WTH is integrated with Qualtrics, a survey administration platform. This integration enables users to collect custom data fields and information on participants. Common uses include informed consent, screening/eligibility, additional baseline demographics, and general data collection.	✓	
<b>Integrated biometric devices</b> – WTH connects with a variety of biometric devices for streamlined automated hovering. Current device integrations track physical activity, heart rate, blood pressure, blood glucose, medication adherence, sleep, and weight. A full list of devices can be found on the “Out of the Box Device Integrations Sheet”.	✓	



# Way to Health

Feature	Core	Custom*
<p><b>New device integrations</b> – Available upon request.</p>		✓
<p><b>Upload your own data</b> – Use the CSV upload feature to add data into WTH. This is useful for non-integrated devices.</p>	✓	
<p><b>Automated participant communication</b> – Communicate with participants via email, text and interactive voice recording. Types of communication include:</p> <ul style="list-style-type: none"> <li>• Reminders (e.g. reminder to take medication, complete a survey, etc.)</li> <li>• Feedback messaging based on collected biometric data and survey responses</li> </ul>	✓	
<p><b>1:1 Text conversations</b> – Bi-directional text messaging enables you to send a message to a participant and request a response. Logic can be built to send feedback based on multiple choice responses and numeric values. Open ended responses can also be tracked if no feedback logic is needed.</p>	✓	
<p><b>Text conversations with branching logic</b> – Bi-directional text messaging that asks a series of questions to the participant and changes the conversation flow based on prior answers.</p>		✓
<p><b>Receive picture messages</b> – Collect picture data from participants</p>	✓	
<p><b>Financial incentive schemes</b> – Reward participants for achieving goals or completing intervention requirements</p> <ul style="list-style-type: none"> <li>• Direct incentive payouts</li> <li>• Gain-framed or loss-framed incentive payouts</li> </ul>	✓	



# Way to Health

Feature	Core	Custom*
<ul style="list-style-type: none"> <li>Lottery function that uses randomly selected numbers and automatically credits participants with matching numbers</li> <li>Manual transactions</li> </ul>		
<p><b>Financial tracking and processing</b> – Manage participant payments</p> <ul style="list-style-type: none"> <li>Automatically send check payments to participants on a recurring basis through Wells Fargo</li> <li>Use WTH to track earnings and pay participants via a non-integrated payment system, e.g. a reloadable debit card</li> </ul>	✓	
<p><b>Basic participant portal</b> – Set up participant facing site where participants can enroll themselves, view and update personal information, see notifications and upcoming schedule items, take surveys and reference study/protocol instructions</p>	✓	
<p><b>Participant portal with customized dashboard cards</b> – All of the above plus the ability to build custom dashboards to display information such as a progress report, adherence snapshot, total earnings, earnings over time, lottery numbers, last check processed, achievements (gamification) FAQs and other custom content.</p>		✓
<p><b>Basic participant targets</b> – Set goals for participants to encourage healthy behaviors such as a target step count, weight or adherence to medication. Targets can be set at the arm/protocol level, or for individual participants. Targets can be set for individual data points (e.g. a single device upload)</p>	✓	
<p><b>Custom participant targets</b> – Set goals for participants based on user-defined logic such as data collected at baseline. Moving targets based on re-evaluation of ongoing data collection can also be custom built.</p>		✓





# Way to Health

Feature	Core	Custom*
<p><b>Basic gamification</b> – Encourage engagement by applying gaming concepts:</p> <ul style="list-style-type: none"> <li>• <b>Points:</b> Define loss or gain of points based configurable logic</li> <li>• <b>Set pre-defined levels</b> that a participant can move up or down</li> <li>• <b>Award medals:</b> Bronze, silver, gold, or platinum medals for achieving goals or targets</li> </ul>	✓	
<p><b>Custom gamification</b> – Create complex gaming functions across teams/cohorts</p> <ul style="list-style-type: none"> <li>• Create 2+ participant teams to work together to achieve goals</li> <li>• Send a participant feedback on his teammates and the team’s progress</li> <li>• Credit teams using different financial incentive schemes for meeting shared goals</li> </ul>		✓
<p><b>Partners</b> – Promote participant engagement and support via designated partners</p> <ul style="list-style-type: none"> <li>• <b>Support Partner:</b> Send notifications about a participant’s progress, non-compliance alerts, or reminders</li> <li>• <b>Participant Partner:</b> Support partner plus ability to log in and interact with their own WTH site to access resources, complete surveys, etc.</li> </ul>	✓	
<p><b>Basic Epic integrations</b> – If your intervention is working with UPHS patients, you can:</p> <ul style="list-style-type: none"> <li>• Pull appointment data to send reminders to patients</li> <li>• Find inpatient/ER visits and auto-start based on discharge date</li> </ul>	✓	



# Way to Health

Feature	Core	Custom*
<b>Custom Epic integrations</b> – Request specific data points to be pushed or pulled into/from Epic.		✓
<b>Smart logic for complex protocol design</b> <ul style="list-style-type: none"><li>• <b>Aggregating:</b> Ability to pull data from multiple sources of the same type of device (e.g. Fitbit pedometer and Misfit pedometer) allows participants to have differing devices</li><li>• <b>Averaging:</b> Configurable logic to determine the average data point over a user-defined period of time (e.g. Average step count for a one-week period)</li><li>• <b>Data summarization:</b> Configurable logic to summarize several data points collected for the same device (e.g. a participant is asked to check their glucose 4x/day in order to be marked as adherent to their medication)</li></ul>	✓	

\*Custom development work is required and fees may apply. Schedule a meeting with the Way to Health Team to discuss your project needs: [waytohealth@uphs.upenn.edu](mailto:waytohealth@uphs.upenn.edu).



# Way to Health

Out of the Box Device Integrations  
Way to Health has a number of integrated biomedical devices available and we continue to add new ones.



	Vendor	Price*
	<b>Physical Activity</b>	
	Fitbit App	Free
	Fitbit Flex 2	\$99.95
	Fitbit Charge 2 HR	\$149.95
	Moves iOS and Android App	Free
	Withings App	Free
	Withings Activité Steal	\$112.46
	Withings Activité Pop	\$97.46
	Misfit Shine	\$69.99
	Misfit Shine 2	\$99.99
	<b>Blood Pressure</b>	
	Withings Cuff	\$97.46
	SMS Blood Pressure Receiver	Free
	<b>Medication Adherence</b>	
	Adheretech	\$342 and up
	Wisepill	\$165 and up
	<b>Sleep Tracking</b>	
	Fitbit Flex 2	\$99.95
	Misfit Shine	\$69.99
	Withings Activité Pop	\$97.46
	<b>Weight Tracking</b>	
Withings Body Scale	\$97.46	
	<b>Blood Glucose</b>	
iHealth Glucometer <i>(excludes cost of test strips)</i>	\$17.97	
<b>Other</b>	CSV Upload <i>import data from a non-integrated device</i>	Free
	Bi-directional SMS <i>adherence assessment and intervention</i>	Twilio messaging rates apply

\*Pricing subject to change