

**Transdisciplinary Awards Program in Translational Medicine and Therapeutics (TAPITMAT)
Program in Incentive Based Translational Science (IBTS)**

“Using Wireless Technologies to Improve Patient Health”

Submission Requirements

Guidelines

- The proposal must center on novel approaches to testing and delivering interventions for people at high risk for poor health outcomes. We are seeking pilot projects that utilize wireless technologies (e.g. wearable devices, wireless pill bottles, weight scales, etc.) with engagement strategies from fields like behavioral economics to translate ideas into practice in ‘real world’ settings. We are particularly interested in projects that utilize these technologies to help us better understand variability of response to therapeutics and susceptibility to disease.
- Proposals *must* utilize the Way to Health platform. Way to Health is an integrated 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. Please contact Lisa Wesby wesby@mail.med.upenn.edu to schedule a meeting to discuss your research project and to obtain information about the Way to Health platform. We will provide the Way to Health platform free of charge for funded grantees provided you use existing functionalities (see attached for further information). We will provide website development and maintenance as well as project management of the Way to Health site. However, projects requiring the development of new platform functionality will be required to pay the incremental costs. Please note that applicants will need to include the cost of devices and any participant incentives in their project budgets.
- TAPITMAT/IBTS 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 within the University of Pennsylvania. Novel collaborative applications between faculty located in different Schools at Penn are encouraged.
- All proposals are due by **April 16, 2015 at noon** for a project start date of **June 1, 2015**. **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. **PLEASE ENSURE THAT YOU CHOOSE THE TAPITMAT GRANT 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**. The new biosketch format is not required. Do not submit additional biosketches.
- **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. In addition, for research teams proposing projects that require access to external premises, patients, customers, visitors or data, please describe the status of the requisite support needed from the proposed organizations. References should be attached to your research proposal and will not count toward your two page limit. **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.

Budget Guidelines

- Budgets can be up to \$40,000 in direct costs for a maximum duration of 1 year beginning on June 1, 2015. Indirect costs should not be included as these pilots funded are considered institutional (internal) grants. We expect to fund approximately 4 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 one year from the start of the grant period (e.g., June 1, 2015). If grants extend beyond the 12 month period, additional charges may be incurred.
- Name, title/role, percent effort, salary, and benefits must be defined in the budget for each grant participant. There is no salary cap limit since funding is from a non-grant source.
- 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 UL1TR000003. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.”**
 - **Please refer to the Way to Health Platform in the methods section of the manuscript.**
- 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. 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. **PLEASE ENSURE THAT YOU CHOOSE THE IBTS GRANT PROGRAM WHEN SUBMITTING YOUR GRANT PROGRAM.** 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, Brent Bell, 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 Karen Mitchell 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/departamental 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.

For technical questions related to completing the online application please contact Katheleen Tencer, ktencer@mail.med.upenn.edu or Jason Molli, molli@exchange.upenn.edu

Way to Health

Way to Health (WTH) is a web-based platform that automates many of the research functions necessary for conducting randomized controlled trials of behavioral health interventions. This was designed by faculty and staff at the LDI Center for Health Incentives and Behavioral Economics (CHIBE) at the University of Pennsylvania to create an efficient, scalable, and low cost way to test behavioral interventions using a platform that can be deployed anywhere in the United States. Given that as much as 40% of premature mortality in the US may be due to unhealthy behaviors and the ongoing shifts in health financing away from fee-for-service towards alternative payment models, evidence on how to efficiently improve behaviors using technology has both health and economic benefits. To date we have used the platform with participants in 45 states, and the platform offers a wide range of built-in functionalities to facilitate the systematic testing of behavioral interventions to promote health. The platform is linked to a wide range of wireless technologies but can be used with any combination of wearable devices and smart phone apps to create an ecosystem that provides feedback to patients, their peers, social supporters, or, through an exception handling process, their providers, all with the goal of improving health in ways that leverage technology to do so at lower cost than would otherwise be possible.

Highlights

- Online and mobile participant enrollment (remote or in-office), survey administration, and integrated biomedical devices ensure complete data at the point of collection, reducing the time spent acquiring and cleaning data
- Computerized randomization of participants, including the capacities for stratified, blocked, and adaptive randomization strategies
- Compatibility with EPIC allows for easy review of lab test results
- Automated communication with participants via voice, text, or email means you can enroll a large number of participants and your team spends less time on the telephone or writing e-mail messages
- Capability to test a variety of incentive structures, including lotteries
- Electronic record of participant payments automates transactions and reduces research team paperwork
- Templates allow research teams with no web development experience to build participant web sites
- Online research and electronically-secured data are more secure than paper records

Potential for increased data collection efficiency

For the right study, the web-based approach used in Way to Health can require significantly reduced staff effort to achieve similar productivity. As an example, using traditional paper and Excel-spreadsheet methods, an experienced Penn research team conducting a weight-loss intervention among 66 participants spent nearly 40 hours a week during the data-collection phase of the study, contacting participants, collecting weight data, tracking, and completing paperwork. Using Way to Health to deploy a similar study among 132 participants, the same Penn team subsequently spent half the time (about 19 hours), on average, in data collection, suggesting a 4-fold increase in staff efficiency. In addition, the reach of the platform is much greater than is possible using local recruitment only.

Flexibility for innovation

An experienced web development team means that the WTH platform can be customized to meet your needs. This requires greater resources than using only the readily available (core) functions, but allows considerable flexibility (additional fees may apply for significant changes).

Readily available options

- Way to Health can test the effects of a number of intervention types...
 1. Lottery incentives
 2. Reminders
 3. Feedback
 4. Group/Team incentives
 5. Peer networks
 6. Rewards vs. penalties
 7. Gamification
 8. Precommitment
 9. Deposit contracts
 10. Text/email/IVR communication
 11. Bi-directional messaging
- ...on a number of biomedical measurements
 1. Blood pressure
 2. Weight
 3. Blood sugar
 4. Use of CPAP
 5. Distance walked
 6. Medication adherence
 7. Nicotine metabolites
- ...with the following integrated biomedical devices (price list attached)
 1. Wireless Scales
 2. Moves App
 3. Fitbit Pedometer
 4. GlowCap pill bottle
 5. Glucometer
 6. Wireless bp cuff

Device Price List

- Withings Scale: \$84 per scale
- Withings blood pressure device: \$97.46 per cuff
- Fitbit Flex: \$80 per device (includes a 20% research discount)
- *Vitality GlowCap: \$144 per kit (1 pill bottle and 1 nightlight)
- Moves iOS and Android App for Step Counts: \$0
- iHealth glucometer: \$30 per device (does not include test strips)
- CSV upload: If you are testing a new device that hasn't been integrated, you can use the CSV upload to import device data to Way to Health at no additional cost.

*Price includes a 12 month minimum subscription. AT&T is in the process of disabling their 2G network, and as a result, the GlowCap device will not function after 12/31/2015. We are currently testing other medication adherence options.

Additional core capabilities

- Enroll a pre-specified number of participants to a study or specific arms, and create cohorts
- Assign automatic medical alerts for pre-specified clinical parameters such as excessive weight loss, abnormal blood pressure or blood sugar readings
- Set and reset health-related targets (e.g. monthly weight target, target quit dates, walking target)
- Build and deploy surveys to determine study eligibility and ongoing data collection
- Assign participants to groups using traditional, blocked, stratified, and/or adaptive randomization approaches
- Schedule reminders for participants to complete a survey or other study-related tasks such as lab work
- Communicate with participants via email/text/phone and via participant's study dashboard
- Bidirectional communication with participants via text
- Display customized progress charts to participants
- Handle participant remunerations for study tasks and incentives for achieving health-related targets using automated functions for collecting and disbursing money through a variety of media



LDI CHIBE

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at the LEONARD DAVIS INSTITUTE

- Build social networking sites with chat-room features for all participants or specified cohorts of participants
- Integrate seamlessly with Respironics CPAP machine, IncentaHealth scale, MedApps Bluetooth-enabled scales, blood pressure cuffs, and glucometers, the FitBit pedometer and Vitality GlowCaps (medication adherence)
- Secure data by assigning roles for specific users
 - Research staff can export de-identified data directly from the website or view data on the website
 - Research Coordinators can view identifiable data to follow up with participants when necessary
- Pre-test all study features before deploying to real participants
- Store data in MySQL-based systems, with appropriate information and environmental security
- Enable participation among users of all common browsers: Firefox, Chrome, and Internet Explorer 7 and above

To discuss how Way to Health can work with your research plans, contact

Lisa Wesby, Way to Health Research Operations Manager

wesby@mail.med.upenn.edu or 215-573-2782