Study Title: Pilot Feasibility Study for HypoPals, a Mobile Health Program for Improving Hypoglycemia Management

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UNIVERSITY OF MICHIGAN CONSENT TO BE PART OF A RESEARCH STUDY

1. KEY INFORMATION ABOUT THE RESEARCHERS AND THIS STUDY

Study title: Feasibility trial of HypoPals, a mobile health intervention for improving hypoglycemia selfmanagement in T1D adults using advanced diabetes technologies

Agency sponsoring the study: National Institute of Diabetes and Digestive and Kidney Diseases

Principal Investigator: Yu Kuei (Alex) Lin, MD, Clinical Assistant Professor, Division of Metabolism, Endocrinology and Diabetes, Department of Internal Medicine, University of Michigan

1.1 Key Study Information

People living with type 1 diabetes commonly have to navigate between high and low blood sugar. Particularly, low blood sugar (also known as hypoglycemia, 'hypo' or 'lows') can cause devastating shortterm and long-term problems. However, despite using advanced diabetes technologies such as continuous glucose monitoring systems (CGMs) and closed-loop insulin pumps, many people continue to find challenges in minimizing low blood sugar events. Our recent research showed that whether people feel their low blood sugar symptoms and how people think of low blood sugar are important to their management of low blood sugar. However, currently there are no widely accessible ways helping people sharpen their skills to better detect their low blood sugar symptoms, or helping people consider how they think of low blood sugar, to promote management of low blood sugar events and make it easier.

We developed a technology ("HypoPals") which incorporates data from CGMs and sends personalized text messages to help people sharpen their low blood sugar symptom detection skills, and help people consider how they think of low blood sugar. Before we do the final study to test if HypoPals can effectively help minimize dangerous low blood sugar events, we need to make sure that HypoPals runs smoothly, and the way we conduct the final study will be correct (i.e., we need to 'pilot test' our technology and research methods). Pilot-testing is a critical step of research because it makes sure that the final study will generate useful data and eventually help answer important scientific questions and promote better care.

You may be eligible to take part in this study. This form contains important information that will help you decide whether to join the study. Please take the time to carefully review this information, talk to the researchers about the study, and ask them any questions you have. You may also wish to talk to others such as your family, friends, or other doctors about joining this study. If you decide to join the study, you will be asked to provide consent before you can start study-related activities. Before you do, be sure you understand what the research study is about.

A research study is different from the regular medical care you receive from your doctor. Research studies do not always offer the possibility of treating your disease or condition. Instead, research studies hope to make discoveries and learn new information about diseases and how to treat them. Please consider the reasons why you might want to join a research study or why it is not the best decision for you at this time. All participants will undergo "randomization", a process that decides which group(s) of text messages you will receive. For example, you may get HypoPals text messages up to four times a day

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for up to 12 weeks. You will also be asked to complete research questionnaires when entering the study and at 12 weeks, 6 and 12 months after entering the study. In your decision to participate in this study, consider all of these matters carefully.

There can be risks associated with joining any research study. The type of risk may impact whether you decide to join the study. For this study, we do not expect there will be any risks impacting your health. Some of these risks may include breach of confidentiality or data security, but extreme precautions will be taken place to protect your confidentiality and data safety.

Participating in this study may not offer any direct benefit to you, especially because we do not yet know whether HypoPals can effectively decrease dangerous low blood sugar. However, this study will provide key information to help make HypoPals better and to support the conduct of the final study to find out if HypoPals can prevent dangerous low blood sugar events and potentially save people's lives.

You can continue to receive your usual medical care even if you do not wish to participate in this voluntary study. Even if you decided to join the study now, you are free to leave at any time if you change your mind.

More information about this study continues in Section 2 of this document.

2. PURPOSE OF THIS STUDY

2.1 Study purpose:

We are doing a 'pilot test' to make sure that HypoPals runs smoothly, and the way we conduct the final study will be correct. Pilot-testing is a critical step of research because it makes sure that the final study will generate useful data and eventually help answer important scientific questions and promote better care.

3. WHO MAY PARTICIPATE IN THE STUDY

Taking part in this study is completely **voluntary**. You do not have to participate if you don't want to. You may also leave the study at any time. If you leave the study before it is finished, there will be no penalty to you, and you will not lose any benefits to which you are otherwise entitled.

3.1 Who can take part in this study?

We are enrolling adults (age between 18 and 70) living with type 1 diabetes for at least 5 years who have been using CGMs in the past year, are currently using the Dexcom CGM at least 70% of the time, have received diabetes education in the past, currently spend at least 1% of time with blood sugar levels <54 mg/dL or had severe hypoglycemia (low blood sugar event requiring assistance for management) in the past year, are able to communicate with English, and use a cellphone that can share Dexcom CGM data and receive text messages.

People who are pregnant, are actively planning pregnancy within a year, are actively participating in diabetes/hypoglycemia clinical trials, have untreated adrenal insufficiency or hypothyroidism, or have uncontrolled mental disorders or chronic cognitive dysfunction should not participate in the study.

3.2 How many people are expected to take part in this study?

Up to 40 participants are expected to participate in this study.

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4. INFORMATION ABOUT STUDY PARTICIPATION

4.1 What will happen to me in this study?

If not already done, all participants will be asked to download the Dexcom app and Dexcom Share app on their phones and link their CGMs to these apps for sharing CGM blood sugar information. All participants will be asked to complete a study questionnaire, and then receive 2 weeks of daily text messages (1 time a day; total 1-3 messages a day) that provide basic knowledge about low blood sugar. These basic knowledge text messages help ensure all participants have the basic understanding of low blood sugar before entering the next phase of the study.

All participants will then undergo "randomization", a process that decides which group(s) of text messages the participant will receive at the next phase. Randomization is important because it depends on a preset algorithm, rather than researchers or participants, to assign the group of text messages to be delivered; this helps reduce biases in the study. We will not be able to reassign the text message group once the randomization is completed.

At the next phase, based on the randomization, participants may start receiving messages:

- Focusing on sharpening skills to better detect low blood sugar symptoms (0-3 times a day; total 0-6 messages a day),
- Messages focusing on helping participants consider how they think of low blood sugar (1 time a day, total 1-4 messages a day),
- Both (1-4 times a day; total 1-10 messages a day), □ Or continuing usual care (no additional messages).

Except those assigned to continuing usual care, all participants will be asked to complete a quick Dexcom Developer authentication process for sharing Dexcom CGM information with HypoPals.

This phase will last about 10 weeks. During this time, participants will be contacted by the study team two times (week 2 and week 6) to ensure that the participants are receiving messages, to check how participants read the messages, and to check other things including if the participant is doing well. At the end of this phase (week 12), participants will be asked to complete a study questionnaire.

During the rest of the study, participants will be followed for additional 9 months, and will be contacted and asked to complete study questionnaires at 6 months and 12 months of the study.

Participants' CGM information will be collected by the study team before the beginning of the text messaging, and at 12 weeks, 6 months and 12 months of the study. The study will overall last about 1 year, while most study activities will be completed at the first 12 weeks. <u>It is very important for all participants, including those assigned to continuing usual care, to try staying in the study, so researchers can collect necessary data to answer the scientific questions.</u>

4.2 How much of my time will be needed to take part in this study?

We expect the amount of time related to study activities to be:

- In the first 12 weeks, about 130 minutes for completing study questionnaires (~60 minutes at the beginning and ~60 minutes at 12 weeks) and other communications with the study team (~5 minutes at week 2 and ~5 minutes at week 6), and 0-5 minutes each day for reading messages

- At 6 and 12 months, ~50 minutes each for completing study questionnaires

While we strongly encourage participants to complete the study questionnaires at one time, you may take a break and return to complete the study questionnaire if you have to stop while filling it.

4.3 When will my participation in the study be over?

Your participation is complete when study questionnaire is completed and CGM data are downloaded at 12 months.

4.4 What will happen with my information collected in this study?

We will use the collected information to refine HypoPals and prepare the final study testing if HypoPals can effectively prevent dangerous low blood sugar events. We plan to publish what we learn from this study to advance medical care, but we won't include any personal information that could reveal who has participated in this study. Limited information about you may continue to be used after the study is over, for other research, education, or other activities. But use of this information would not reveal your identity. Your collected information may also be shared with other researchers, here, around the world, and with companies. Your identifiable private information will be stripped of identifiers and used for future research studies or distributed to another researcher for future researcher studies without additional informed consent.

5. INFORMATION ABOUT STUDY RISKS AND BENEFITS

5.1 What risks will I face by taking part in the study? What will the researchers do to protect me against these risks?

We do not expect text messages that provide information about low blood sugar, help sharpen skills to better detect low blood sugar symptoms, or help people consider how they think of low blood sugar would lead to any risks, and the study procedure is unlikely to make you sick or hurt. While the messages have been carefully reviewed, some participants may experience distress from the hypoglycemia contents. As rule of all research studies, you can choose to stop from participating in the study you do not want to continue.

The risk of breach of confidentiality or data security (people outside the study seeing information about you or accessing the text messages) is very small. To keep your personal information confidential, we will label your study record with a code rather than your name or any other details that someone could use to identify you. All information collected during your participation in this study will only be accessible to the study team and authorized staff members. Although we will keep a list of all study participants, no one outside our study team will be able to figure out who has participated in the study or link the participants to their study record. The study's mobile program is on secure servers at the University of Michigan to ensure data and privacy security. While, as with any research study, there may be additional risks that are unknown or unexpected, the study team will monitor the study and try to prevent any harm or risk from the study whenever possible.

5.2 What happens if I get hurt, become sick, or have other problems as a result of this research? The researchers have taken steps to minimize the risks of this study, including the communications with you at week 2 and week 6. While we do not expect HypoPals text messages or other study procedures to

cause any harm, if you suspect that you are experiencing any injury, side effects or other problems from the study, please tell the researchers listed in Section 10. You should also tell your regular doctors**.**

5.3 If I take part in this study, can I also participate in other studies?
Being in more than one research study at the same time may increase the risks to you and may also affect the results of the studies. Please discuss with the researchers involved in each study before taking part in more than one study.

5.4 How could I benefit if I take part in this study? How could others benefit?
Participating in this study may not offer any direct benefit to you, especially since we do not yet know whether HypoPals can effectively decrease dangerous low blood sugar. However, this study will provide key information to help make HypoPals better and to support the conduct of the final study to find out if HypoPals can prevent dangerous low blood sugar events and potentially save people's lives.

5.5 Will the researchers tell me if they learn of new information that could change my willingness to stay in this study?
Yes, the researchers will tell you if they learn of important new information that may change your willingness to stay in this study. If new information is provided to you after you have joined the study, it is possible that you may be asked to sign a new consent form that includes the new information.

6. ALTERNATIVES TO PARTICIPATING IN THE STUDY

6.1 If I decide not to take part in this study, what other options do I have?
If you do not wish to participate in this voluntary study, you can continue with your usual medical care.

7. ENDING THE STUDY

7.1 If I want to stop participating in the study, what should I do?
You are free to leave the study at any time. While in principle we encourage people to stay in the study, if you leave the study before it is finished, there will be no penalty to you, and you will not lose any benefits to which you may otherwise be entitled. To improve how we conduct the study, we will encourage you to tell us why you are leaving the study, and your reasons may be kept as part of the study record. If you decide to leave the study before it is finished, please tell one of the persons listed in Section 10 "Contact Information".

7.2 Could there be any harm to me if I decide to leave the study before it is finished? We do not expect any harm if you decide to leave the study before it is finished.

7.3 Could the researchers take me out of the study even if I want to continue to participate?
Yes. There are many reasons why the researchers may need to end your participation in the study. Some examples are:

- The researcher believes that it is not in your best interest to stay in the study.
- You become ineligible to participate.
- Your condition changes and you need treatment that is not allowed while you are taking part in the study.
- You do not follow instructions from the researchers.
- The study is suspended or canceled.

8. FINANCIAL INFORMATION

8.1 Who will pay for the costs of the study? Will I or my health plan be billed for any costs of the study?

There are no costs or billing for this study. You or your health plan will pay for all the things you would have paid for even if you were not in the study, like:

- Health care given during the study as part of your regular care
- Items or services needed to give you study drugs or devices Monitoring for side effects or other problems Deductibles or co-pays for these items or services.

If you do not have a health plan, or if you think your health plan may not cover these costs during the study, please talk to the researchers listed in Section 10 below or call your health plan's medical reviewer. By signing this form, you do not give up your right to seek payment if you are harmed as a result of being in this study.

8.2 Will I be paid or given anything for taking part in this study?

To show our appreciation and to compensate you for your time spent participating in this study, you will receive a $30 check after completing enrollment, $180 after completing the study procedures in the initial 12 weeks, $30 after completing the 6 months questionnaires, and $30 after completing the 12month questionnaire. The check will be delivered by mail approximately 2-3 weeks after the recruitment/study procedures.

8.3 Who could profit or financially benefit from the study results?

Research can lead to new discoveries, such as new tests, drugs, or devices. Researchers, their organizations, and other entities, including companies, may potentially benefit from the use of the data or discoveries. You will not have rights to these discoveries or any proceeds from them.

9. CONFIDENTIALITY OF SUBJECT RECORDS

The information below describes how the confidentiality of your research records will be protected in this study, and any sub-studies described in this document.

9.1 How will the researchers protect my information?

Please see section 5.1 "What risks will I face by taking part in the study? What will the researchers do to protect me against these risks?" for details.

This research is covered by a Certificate of Confidentiality from the National Institutes of Health. The researchers with this Certificate may not disclose or use information, documents, or biospecimens that may identify you in any federal, state, or local civil, criminal, administrative, legislative, or other action, suit, or proceeding, or be used as evidence, for example, if there is a court subpoena, unless you have consented for this use. Information, documents, or biospecimens protected by this Certificate cannot be disclosed to anyone else who is not connected with the research except, if there is a federal, state, or local law that requires disclosure (such as to report child abuse or communicable diseases but not for federal, state, or local civil, criminal, administrative, legislative, or other proceedings, see below); if you have consented to the disclosure, including for your medical treatment; or if it is used for other scientific research, as allowed by federal regulations protecting research subjects.

The Certificate cannot be used to refuse a request for information from personnel of the United States federal or state government agency sponsoring the project that is needed for auditing or program evaluation by the SPONSOR which is funding this project or for information that must be disclosed in order to meet the requirements of the federal Food and Drug Administration (FDA). You should understand that a Certificate of Confidentiality does not prevent you from voluntarily releasing information about yourself or your involvement in this research. If you want your research information released to an insurer, medical care provider, or any other person not connected with the research, you must provide consent to allow the researchers to release it.

The Certificate of Confidentiality will not be used to prevent disclosure as required by federal, state, or local law of [list what will be reported, such as child abuse and neglect, or harm to self or others].

The Certificate of Confidentiality will not be used to prevent disclosure for any purpose you have consented to in this informed consent document.

A description of this clinical trial will be available on http://www.clinicaltrials.gov/. This Web site will not include information that can identify you. At most, the Web site will include a summary of the results. You can search this Web site at any time.

10. CONTACT INFORMATION

10.1 Who can I contact about this study?

Please contact the researchers listed below to:

- Obtain more information about the study
- Ask a question about the study procedures or treatments Talk about study-related costs to you or your health plan
- Report an illness, injury, or other problem (you may also need to tell your regular doctors)
- Leave the study before it is finished
- Express a concern about the study

Principal Investigator: Alex Lin, MD **Mailing Address:** 1000 Wall Street, Ann Arbor, MI 48105 **Telephone:** 734-232-1573 **Email:** yuklin@med.umich.edu	**Study Coordinator:** Emily Hepworth **Mailing Address:** 1000 Wall Street, Ann Arbor, MI 48105 **Telephone:** 208-670-3892 **Email:** hepworem@med.umich.edu

You may also express a question or concern about a study by contacting the Institutional Review Board listed below:

University of Michigan Medical School Institutional Review Board (IRBMED)
2800 Plymouth Road
Building 520, Room 3214
Ann Arbor, MI 48109-2800
Telephone: 734-763-4768 (For International Studies, include the appropriate calling codes.)
Fax: 734-763-1234 e-mail:
irbmed@umich.edu

If you are concerned about a possible violation of your privacy or concerned about a study you may contact the University of Michigan Health System Compliance Help Line at 1-866-990-0111.

When you call or write about a concern, please provide as much information as possible, including the name of the researcher, the IRBMED number (at the top of this form), and details about the problem. This will help University officials to look into your concern. When reporting a concern, you do not have to give your name unless you want to.

11. RECORD OF INFORMATION PROVIDED

11.1 What documents will be given to me?

Your signature in the next section means that you have received a copy of this "Consent to be Part of a Research Study" document. (Note: In addition to the copy you receive, copies of this document will be stored in a separate confidential research file.)

12. SIGNATURES

Completing the following information section and click on the "Submit" button below expresses that you understand the information above and agree to participate in the study. Legal name: _____ (First name) _____ (Last name) [Submit]

Sig-A

Consent to Participate in the Research Study

I understand the information printed on this form. I have discussed this study, its risks and potential benefits, and my other choices with [NAME OF STUDY TEAM MEMBER OBTAINING CONSENT] _____. My questions so far have been answered. I understand that if I have more questions or concerns about the study or my participation as a research subject, I may contact one of the people listed in Section 10 (above). I understand that I will receive a copy of this form at the time I sign it and later upon request. I understand that if my ability to consent or assent for myself changes, either I or my legal representative may be asked to re-consent prior to my continued participation in this study.

Print Legal Name: _____

Signature: _____

Date of Signature (mm/dd/yy): _____