



The Office of the National Coordinator for
Health Information Technology

Consumer Health Data Aggregator Challenge & Provider User Experience Challenge

March 20, 2017



ONC Challenge Goals

- Better health, better care, lower cost
- Spotlight areas of high interest to ONC and HHS
- Direct attention and investment to new market opportunities
- Increase awareness and uptake of new standards, data, and tools

Interoperability and APIs

- Patient data remains scattered across different sources
- Digitization of data and its availability through EHRs enables great opportunities for innovation
- Standardized APIs allow data to be moved and aggregated by clinicians and patients

Connecting and Accelerating a FHIR App Ecosystem

- Technology that can pull info from different sources and present it in a user-friendly way is limited
- Community-driven, user-focused innovation to build a stronger health IT ecosystem
- Three-part strategy:
 - Consumer Health Data Aggregator Challenge
 - Provider UX Challenge
 - Discovery Infrastructure for Clinical Health IT Apps Cooperative Agreement



Twin Challenges

- Consumer Health Data Aggregator Challenge
 - Help consumers aggregate their data in one place, under their control
- Provider User Experience Challenge
 - Enable innovative ways for providers to interact with patient health data



App Features

Technical Requirements

- Uses FHIR Draft Standard for Technical Use 2 (DSTU2)
- Leverages data as specified in the 2015 Edition Common Clinical Data Set

Targets

- Verified compatibility with different health IT developer systems implemented in production settings
- Tested with real users
- Market-ready and available



Submission Requirements

Phase 1

- Mockup/wireframes of the app
- Technical specifications
- Business/sustainability plan
- Provider partnership

Phase 2

- Access to the app or a private demo version
- To highlight FHIR capabilities:
 - Video demo
 - Slide deck



Review Criteria

Phase 1

- Technical feasibility of plan, including number of EHR sources targeted
- Adherence to data privacy and security best practices and applicable law (including HIPAA)
- Strength of business/sustainability plan
- Provider and/or health IT developer partnerships
- *(Provider)* Impact potential in clinical setting

Phase 2

- Number, sources, and types of data aggregation using FHIR
- Functionality and quality of data aggregation
- Privacy and security of patient data
- User experience and visual appeal
- *(Provider)* Impact potential in clinical setting



First Place Winner of the ONC's
Consumer Health Data Aggregator
Challenge

- A cloud-based mobile responsive application designed to make it easy for patients to gather their medical information from all their providers then manage and share the information from one accessible and secure location
- Secure bi-directional communication with physicians, family and friends, and researchers

with a goal that this connection will result in better care for us and for those who come after us

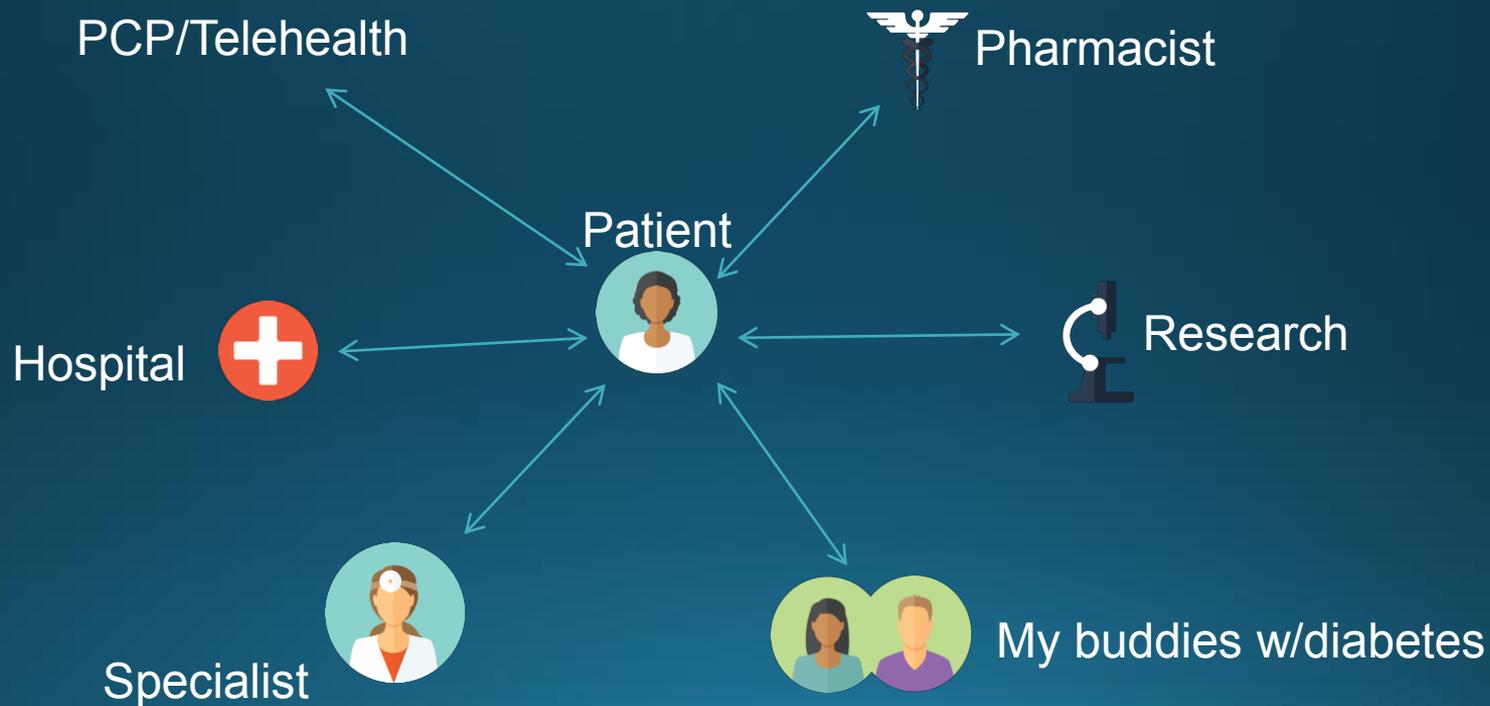


When Diagnosed With An Illness



- We need to connect with 3 important groups of people:
 - Our medical providers: for us to receive and share our medical Information and better understand our conditions
 - With our family and care team: to help us manage our illness
 - Researchers: to understand and join with researchers to find cures faster.

A Secure Platform to Link and Share With Others



MyLinks Has Easy Navigation Buttons

The screenshot displays the MyLinks web application interface. At the top, a navigation bar includes the MyLinks logo and menu items: Documents, Health Record, Journal, Research, and Forum. On the right side of the navigation bar, there is a user profile dropdown labeled 'debi', along with notification, mail, and chat icons.

The main content area features a large teal banner with the text "Welcome to MyLinks. Let's get started!" and a "Take a tour" button. Below this banner is a central hub-and-spoke diagram with a central female user icon. Six spokes radiate from the center to various service icons: "Health Devices" (heart with ECG), "Secure Communication" (doctor icon), "Research" (microscope), "Combined charts" (clipboard with red cross), "Manage family's records" (family icon), and "Patient Education" (Caduceus symbol). Below the diagram, there are four large light blue boxes, each representing a primary service area with an icon, a title, and a set of sub-navigation buttons:

- My Health Record**: Includes buttons for "Devices", "Share", and "Import".
- Health Tools**: Includes buttons for "Information" and "Tools".
- Participate in Research**: Includes buttons for "Topics" and "Clinical Trials".
- Connect with Others**: Includes buttons for "Forum", "Chat", and "Email".

View, Share, Import: Health Record or Device Data

The image displays the MyLinks web application interface. At the top, a navigation bar includes the MyLinks logo and menu items: Documents, Health Record, Journal, Research, and Forum. On the right side of the navigation bar, there is a user profile dropdown labeled 'debi', a notification bell icon, an envelope icon, and a speech bubble icon.

The main content area features a large teal banner with the text "Welcome to MyLinks. Let's get started!" and a "Take a tour" button. Below this banner, a central white card titled "My Health Record" contains a clipboard icon and three buttons: "Devices", "Share", and "Import".

On the left side, a smartphone is shown displaying the mobile version of the app, which mirrors the desktop layout. To the right of the central card, there are partially visible text elements: "ily's records", "nt Education", and "patients".

At the bottom of the interface, there is a navigation bar with four main categories, each represented by an icon and a title:

- My Health Record**: Represented by a clipboard icon, with buttons for "Devices", "Share", and "Import".
- Health Tools**: Represented by a book icon, with buttons for "Information" and "Tools".
- Participate in Research**: Represented by a checklist icon, with buttons for "Topics" and "Clinical Trials".
- Connect with Others**: Represented by an icon of three people, with buttons for "Forum", "Chat", and "Email".

View Health Education Information and Tools

The screenshot displays the MyLinks web application interface. At the top, a navigation bar includes the MyLinks logo and menu items: Documents, Health Record, Journal, Research, and Forum. On the right side of the navigation bar, there is a user profile dropdown labeled 'debi', along with icons for notifications, email, and chat.

The main content area features a large teal banner with the text "Welcome to MyLinks. Let's get started!" and a "Take a tour" button. Below this banner, a central diagram illustrates the interconnected nature of the platform's features. The diagram includes icons for "Health Devices" (a heart with an ECG line), "Secure Communication" (a person with a headset), "Research" (a microscope), and "Health Tools" (a clipboard with a plus sign). A large white box on the right side of the banner highlights the "Health Tools" section, which includes sub-links for "Information" and "Tools".

On the left side of the banner, a smartphone displays a mobile version of the MyLinks interface, showing the same navigation and tool options. Below the banner, four main feature cards are arranged horizontally:

- My Health Record:** Features a clipboard icon and sub-links for "Devices", "Share", and "Import".
- Health Tools:** Features a book icon and sub-links for "Information" and "Tools".
- Participate in Research:** Features a checklist icon and sub-links for "Topics" and "Clinical Trials".
- Connect with Others:** Features an icon of three people and sub-links for "Forum", "Chat", and "Email".

Indicate a Desire to Participate in Research and Find Research

The screenshot displays the MyLinks user interface. At the top, a navigation bar includes the MyLinks logo and menu items: Documents, Health Record, Journal, Research (with a dropdown arrow), and Forum. On the right side of the navigation bar, there is a user profile 'debi', a notification bell, an envelope icon, and a speech bubble icon.

The main content area features a teal header with the text 'Welcome to MyLinks. Let's get started!' and a 'Take a tour' button. Below this, a central diagram shows a network of icons connected by dashed lines. The icons include a clipboard with a red cross, a person, a person with a red cross, a person, a person, and a person. The text labels for these icons are: 'Combined charts', 'Manage family's records', 'Patient Education', and 'Connect with other patients'. A large white box highlights the 'Participate in Research' section, which contains a checklist icon, the text 'Participate in Research', and two buttons: 'Topics' and 'Clinical Trials'.

At the bottom, there are four white panels, each with an icon and a title. The first panel has a clipboard icon, the title 'My Health Record', and buttons for 'Devices', 'Share', and 'Import'. The second panel has a book icon, the title 'Health Tools', and buttons for 'Information' and 'Tools'. The third panel has a checklist icon, the title 'Participate in Research', and buttons for 'Topics' and 'Clinical Trials'. The fourth panel has an icon of three people, the title 'Connect with Others', and buttons for 'Forum', 'Chat', and 'Email'.

Connect With Others via Forums, Chat, Email

The screenshot displays the MyLinks web application interface. At the top, a navigation bar includes the MyLinks logo and menu items: Documents, Health Record, Journal, Research, and Forum. On the right side of the navigation bar, there is a user profile indicator labeled 'debi', along with notification and email icons. Below the navigation bar, a large teal banner contains the text 'Welcome to MyLinks. Let's get started!' and a 'Take a tour' button. A central white box with a blue border features a circular icon of three people and the text 'Connect with Others', with buttons for 'Forum', 'Chat', and 'Email' below it. The background of the banner has faint text: 'Health', 'Secure Communication', 'Records', 'Communication', and 'nts'. At the bottom, there are four main feature cards: 'My Health Record' with a clipboard icon and buttons for 'Devices', 'Share', and 'Import'; 'Health Tools' with a book icon and buttons for 'Information' and 'Tools'; 'Participate in Research' with a checklist icon and buttons for 'Topics' and 'Clinical Trials'; and 'Connect with Others' with a people icon and buttons for 'Forum', 'Chat', and 'Email'.

Importing Your Health Record

The screenshot displays the MyLinks website interface. At the top, the navigation bar includes the MyLinks logo and menu items: Documents, Health Record, Journal, Research, and Forum. On the right side of the navigation bar, there is a user profile 'debi', a notification bell, an envelope icon, and a chat bubble icon.

The main content area features a large teal banner with the text 'Welcome to MyLinks. Let's get started!' and a 'Take a tour' button. Below this banner, a central light blue box highlights the 'My Health Record' section. This section contains a clipboard icon, the text 'My Health Record', and three buttons: 'Devices', 'Share', and 'Import'. The 'Import' button is highlighted in green.

Surrounding the central box are several other features: 'Secure Communi...', 'H...', 'e family's records', 'Patient Education', and 'other patients'.

At the bottom of the page, there are four distinct sections, each with an icon and a title:

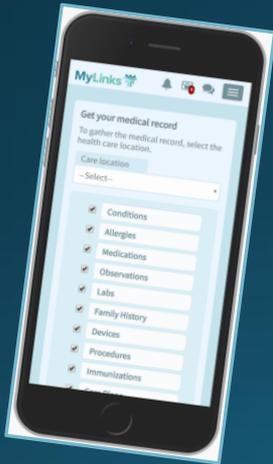
- My Health Record:** Includes a clipboard icon and buttons for 'Devices', 'Share', and 'Import'.
- Health Tools:** Includes a book icon and buttons for 'Information' and 'Tools'.
- Participate in Research:** Includes a checklist icon and buttons for 'Topics' and 'Clinical Trials'.
- Connect with Others:** Includes an icon of three people and buttons for 'Forum', 'Chat', and 'Email'.

Gather Medical Records via FHIR

1 Choose care location

2 Select categories

3 Select dates



Get your medical record

To gather the medical record, select the health care location.

Care location

Conditions

Allergies

Medications

Observations

Labs

Family History

Devices

Procedures

Immunizations

Care Plans

Any date

Use date range

Note: Not all categories honor a date range.

Date From

Date To

Get medical record

Gather Medical Records via FHIR

View existing data on left. Import desired items on right.

Conditions

Existing Conditions

Arthritis



Asthma



Myalgia and myositis NOS



Pneumonia



Conditions to be imported



Import

Name: Colonic adenomatous polyp



Status: active



Import

Name: Back pain



Status: resolved

Import Selected

View Medical Records

Health Record for Betty Shelton

Conditions

Arthritis
Pneumonia
Myalgia and myositis NOS
Asthma
Colonic adenomatous polyp

Labs

11/8/2015	POTASSIUM	Component: POTASSIUM BLOOD
10/3/2015	CBC AND DIFFERENTIAL	Narrative

Procedures

Repair umbilical lesion	3/17/2016
Remove tonsils and adenoids	3/17/2016

Medications

CLARITHROMYCIN
SOMA

Allergies

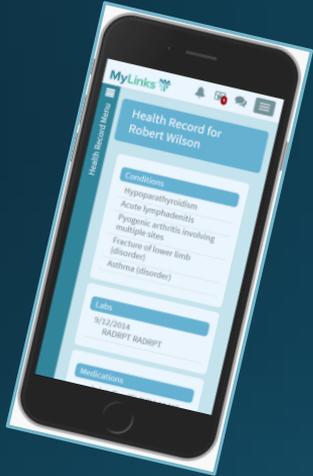
Food: Eggs
Medication: Penicillins
Codeine

Immunizations

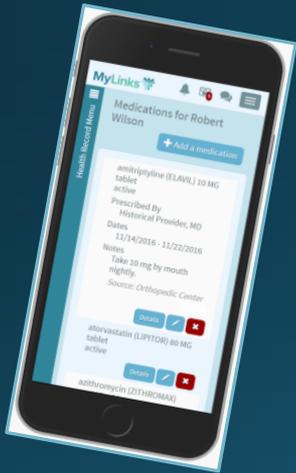
influenza virus vaccine, inactivated
Pneumococcal Conjugate,
unspecified formulation

Equipment

G754-B



View Medical Record Details



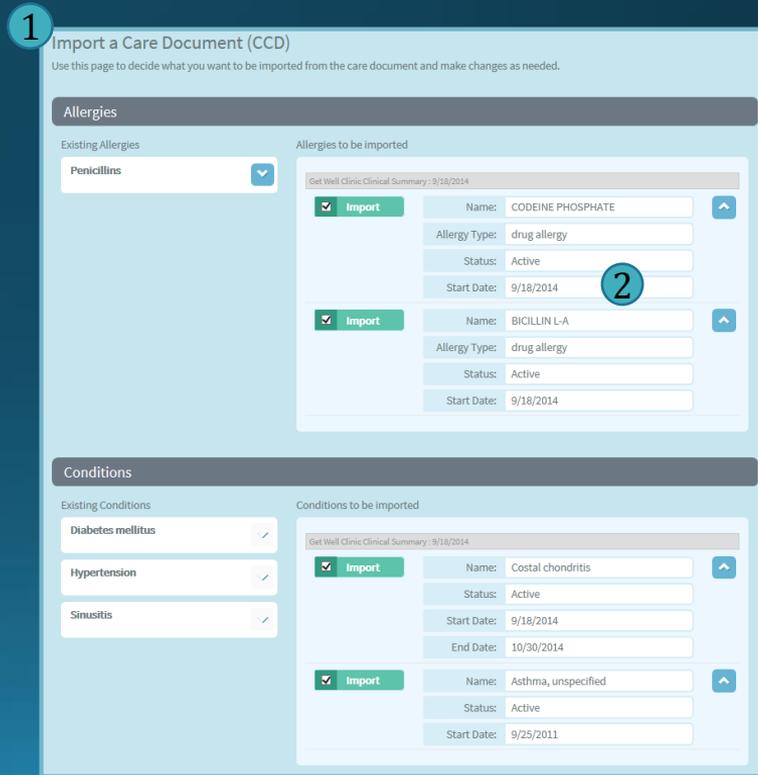
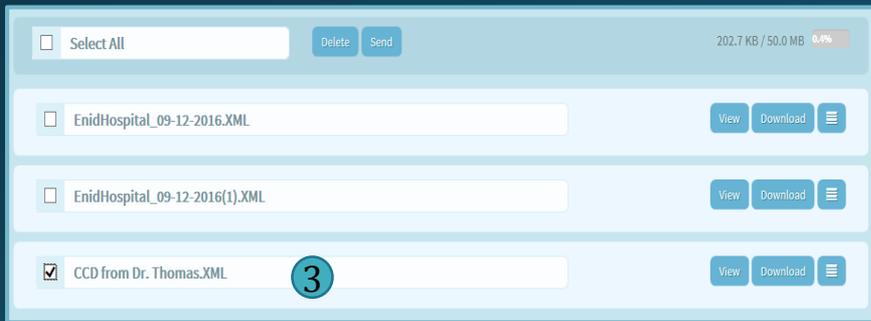
Medications for Robert Wilson

+ Add a medication

amitrityline (ELAVIL) 10 MG tablet	active	Details  
Prescribed By	Historical Provider, MD	
Dates	11/14/2016 - 11/22/2016	
Notes	Take 10 mg by mouth nightly.	
	Source: Orthopedic Center	
atorvastatin (LIPITOR) 80 MG tablet	active	Details  
azithromycin (ZITHROMAX) 500 MG tablet	active	Details  
digoxin (LANOXIN) 125 MCG tablet	active	Details  
ISOTretinoin (AC CUTANE) 30 MG capsule	active	Details  
lisinopril (PRINIVIL, ZESTRIL) 5 MG tablet	active	Details  
rosiglitazone (AVANDIA) 2 MG tablet	active	Details  

Gather Medical Records via CCD

- 1 Import a CCD from an email attachment or local file
- 2 Elements parsed as structured data
- 3 Document stored for easy sharing



View Document Content and History

Add a Document

Select All Delete Send 5.5 MB / 50.0 MB 11.0%

Northside Clinic.XML View Download 

Power of Attorney.PDF View Download 

Release of Information.PDF View Download 

[Document Name] View Download 

Conditions or Problems					
Problem Name	Problem Code	Onset Date	Status	Entry Date	P
Costochondritis	64109004 (SNOMED CT)	2014/09/18	Active	2014/09/18	S
ASTHMA	493.9 (ICD-9-CM)	2011/09/25	Active	2014/09/18	S

Medications			
Medication	Instructions	Start Date	
PROVENTIL HFA 108 (90 Base) MCG/ACT AERS	2 puffs every 6 hours PRN wheezing	2012/07/01	

Allergies, Adverse Reactions, Alerts			
Allergy Name	Reaction Description	Start Date	
CODEINE PHOSPHATE	Nausea	2014/09/18	
BICILLIN L-A	Hives	2014/09/18	

Procedures		
Code	Procedure Name	Date
CPT-82374	CO2	2014

OKLAHOMA ADVANCE DIRECTIVE FOR HEALTH CARE
PAGE 1 OF 8

If I, Betty Shelton (name), am incapable of making an informed decision regarding my health care, I direct my health care providers to follow my instructions below.

Part I. Living Will

If my attending physician and another physician determine that I am no longer able to make decisions regarding my medical treatment, I direct my attending physician and other health care providers, pursuant to the Oklahoma Advance Directive Act, to follow my instructions as set forth below.

1. If I have a terminal condition, that is, an incurable and irreversible condition that even with the administration of life-sustaining treatment will, in the opinion of the attending physician and another physician, result in death within six (6) months:

Document History

- 10/13/2016 6:29:29 AM - Uploaded
- 10/20/2016 11:07:58 AM - Emailed Emailed to: drthomas@secure.mylinks.com on 10/20/2016 11:07:57 AM

OK

Receive & Send Documents for Better Care Management

MyLinks  Documents Health Record Journal Research ▾ Forum BettyS ▾   

Add a Document

Select All Delete Send 5.5 MB / 50.0 MB 11.0%

<input checked="" type="checkbox"/> Northside Clinic.XML	View Download 
<input type="checkbox"/> Power of Attorney.PDF	View Download 
<input type="checkbox"/> Release of Information.PDF	View Download 
<input type="checkbox"/> DNR.PDF	View Download 

Send information via Direct address

Discard Save As Draft  Send

To:

CC:

Subject:

B *I* ~~S~~ U           

I had a fall and was admitted to Enid Hospital last weekend. I have attached my records and x-ray. I signed an advance directive document and sending it also.

Attachments









Multiple Ways to Link and Share



- FHIR – used to gather health data directly from clinics
- Direct Messaging – for secure bi-directional communication and sending of data
- Forums for gathering and sharing around health related topics
- Internal instant messaging to connect privately or with a group

Export Health Record



Documents

Health Record

Journal

Research ▾

Forum

BettyS ▾



Share your Health Record



Export your health record

Select the entries in your health record that you wish to export. You can save a PDF to your computer or device, or you can send the selected information via your MyLinks secure email.



24 hour, view only

Send someone a link that will allow them to view your health record for 24 hours.



Share Access

Give a caretaker the ability to manage your health record. They will be able to make changes on your behalf, but they cannot send messages or make changes to the account outside of the health record. You can revoke access at any time.

24 Hour, View Only Access

MyLinks  Documents Health Record Journal Research ▾ Forum BettyS ▾    

Share your Health Record



Export your health record

Select the entries in your health record that you wish to export. You can save a PDF to your computer or device, or you can send the selected information via your MyLinks secure email.



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Share Access

Give a caretaker the ability to manage your health record. They will be able to make changes on your behalf, but they cannot send messages or make changes to the account outside of the health record. You can revoke access at any time.

© 2016 MyLinks [terms](#) [privacy](#)

Grant access to caregiver or family

MyLinks  Documents Health Record Journal Research ▾ Forum BettyS ▾   

Share your Health Record



Export your health record
Select the entries in your health record that you wish to export. You can save a PDF to your computer or device, or you can send the selected information via your MyLinks secure email.



24 hour, view only
Send someone a link that will allow them to view your health record for 24 hours.



Share Access
Give a caretaker the ability to manage your health record. They will be able to make changes on your behalf, but they cannot send messages or make changes to the account outside of the health record. You can revoke access at any time.

Participate in Research

Patients indicate specific topics of interest

The screenshot shows the MyLinks patient portal interface. At the top, there is a navigation bar with the MyLinks logo and menu items: Documents, Health Record, Journal, Research (with a dropdown arrow), and Forum. On the right side of the navigation bar, the user's name 'BettyS' is displayed along with icons for notifications, messages, and a chat bubble with a red '1' indicator.

The main content area is divided into two sections. The first section is titled 'Select a Research Topic to Follow' and contains a search input field labeled 'Topic Search' and a blue 'Search' button.

The second section is titled 'My Research Interests' and displays a table of selected topics. The table has three columns: 'Research Topic', 'I want to participate', and 'I want to receive updates'. Two topics are listed: 'Autism' and 'Alzheimer's Disease Causes, Stages, and Symptoms'. Each topic row includes a blue square with a white 'x' icon for removal. Both topics have checked boxes in the 'I want to participate' and 'I want to receive updates' columns.

Research Topic	I want to participate	I want to receive updates
 Autism	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
 Alzheimer's Disease Causes, Stages, and Symptoms	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Participate in Research

Researchers view stats of potential candidates

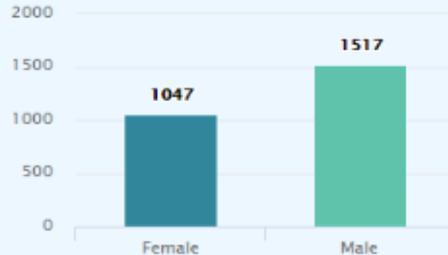
Inclusion Criteria

Has History of **High blood pressure**

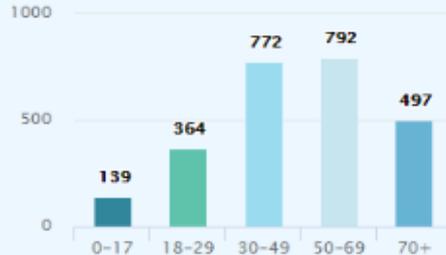
Family History of **Diabetes**

Add additional criteria

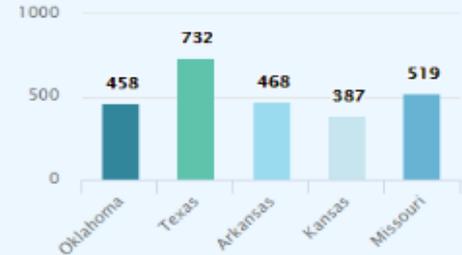
Potential Participants by Gender



Potential Participants by Age



Potential Participants by State



Currently 2,564 potential participants

Request Medical Record

Send Form

Securely Email

Participate in Research

Answer questionnaires directly from researchers

Have you been told you have high cholesterol?

Yes No Don't know

Have you been told you have high triglycerides?

Yes No Don't know

Are you taking any prescription cholesterol lowering drugs?

(Including, but not limited to, fish oil, fibrates, niacin > 50 mg/day, or bile acid sequestrants)

Yes No

Do you have a history of confirmed heart attack or stroke, or have been diagnosed with unstable angina (heart pain)?

Yes No

Do you have diabetes, requiring daily use of insulin or oral medication?

Yes No

Have you had any cancer within the past 5 years, with the exception of skin cancer?

Yes No

Participate in Research

Researchers instantly view questionnaire results

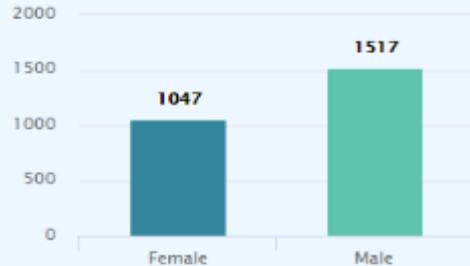
Inclusion Criteria

Has History of **High blood pressure**

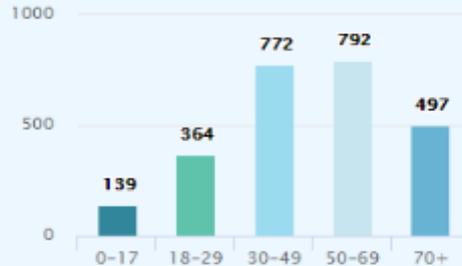
Family History of **Diabetes**

Add additional criteria

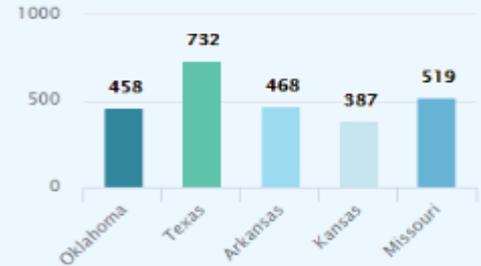
Potential Participants by Gender



Potential Participants by Age



Potential Participants by State



Currently 2,564 potential participants

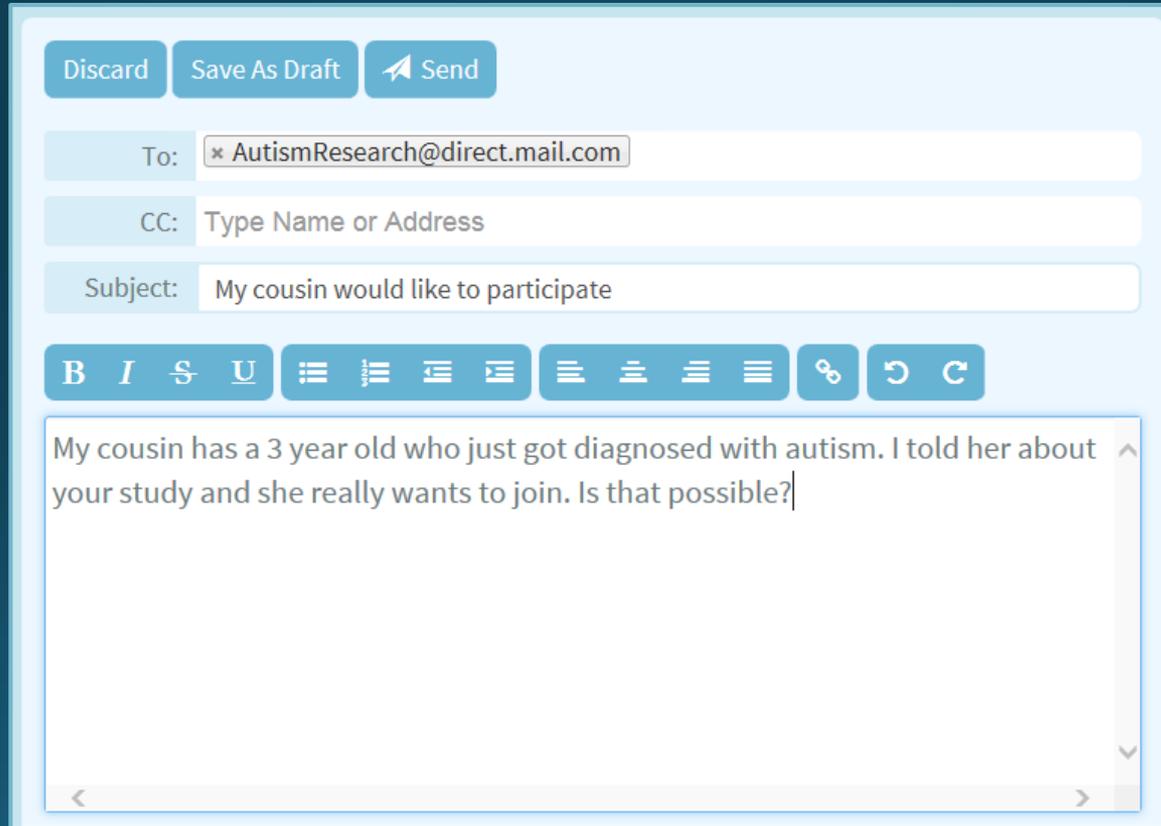
Request Medical Record

Send Form

Securely Email

Participate in Research

Communicate directly with researchers via Direct email



Discard Save As Draft Send

To: * AutismResearch@direct.mail.com

CC: Type Name or Address

Subject: My cousin would like to participate

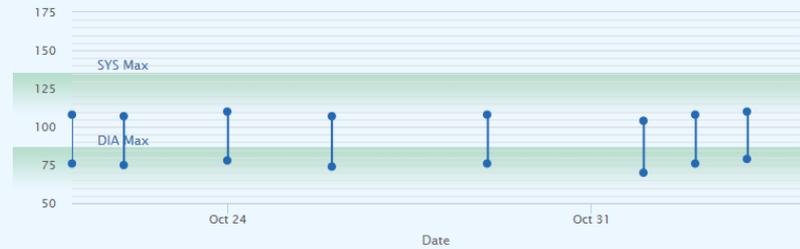
B *I* S U [List Icons] [Link Icon] [Undo/Redo Icons]

My cousin has a 3 year old who just got diagnosed with autism. I told her about your study and she really wants to join. Is that possible?

Connect Your Devices

Monitor data from all your devices in one place

Withings Blood Pressure



Withings Steps



Withings Weight



Withings Pulse



Keep a Journal

- Journaling has many health benefits
 - Clarify your thoughts and feelings
 - Identify items that impact how you feel (activities, food, environments, meds, etc.)
 - Come to terms about stressful events, reducing the impact of stress
 - Tracking your progress over time to see your improvements

10/9/2016		 
Today I experienced quite a bit of fatigue. Foggy headed and wondering if the candy bars were too much.		
10/8/2016		 
Great day. Went for a hike. Had no symptoms. Had 2 candy bars for energy.		
10/6/2016		 
Pretty good day. Some aches and pains, but still functioning normally. Took some Vitamin D and tried to stay away from chocolate.		
10/3/2016		 
Walked on the treadmill today. Took it slow. Drank a lot of water.		

List of FHIR Connections

- Seven unique connections include:
 - AthenaHealth Clinicals EHR
 - Epic EMR
 - NextGen Ambulatory EHR
 - Cerner EHR
 - Allscripts TouchWorks EHR
 - Allscripts Sunrise EHR
 - Allscripts Professional EHR

Security

- MyLinks utilizes Microsoft Azure HIPAA Compliant Services
- All data is encrypted at rest and in transit
- Enterprise-level account management system allows for account locking after multiple failed login attempts
- Login uses security image identification, secret questions, secure salted password hashing with adjustable iterations, and optional two-factor authentication support via mobile phone or messaging.
- Account sharing requires PIN verification from account owner

Contact Information



Debi Willis - CEO

Debi@MyLinks.com

405-735-5144