



The Office of the National Coordinator for  
Health Information Technology



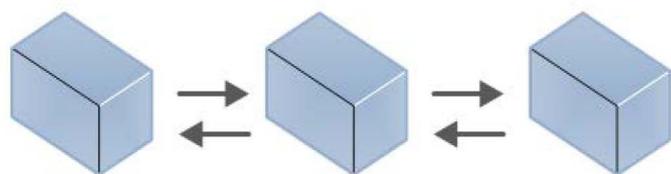
# Blue Button+ and Consumer-Mediated Exchange

**Pierce Graham-Jones**  
Innovator in Residence  
Dept. of Health & Human Services

April 18, 2013



# Consumer-Mediated Exchange

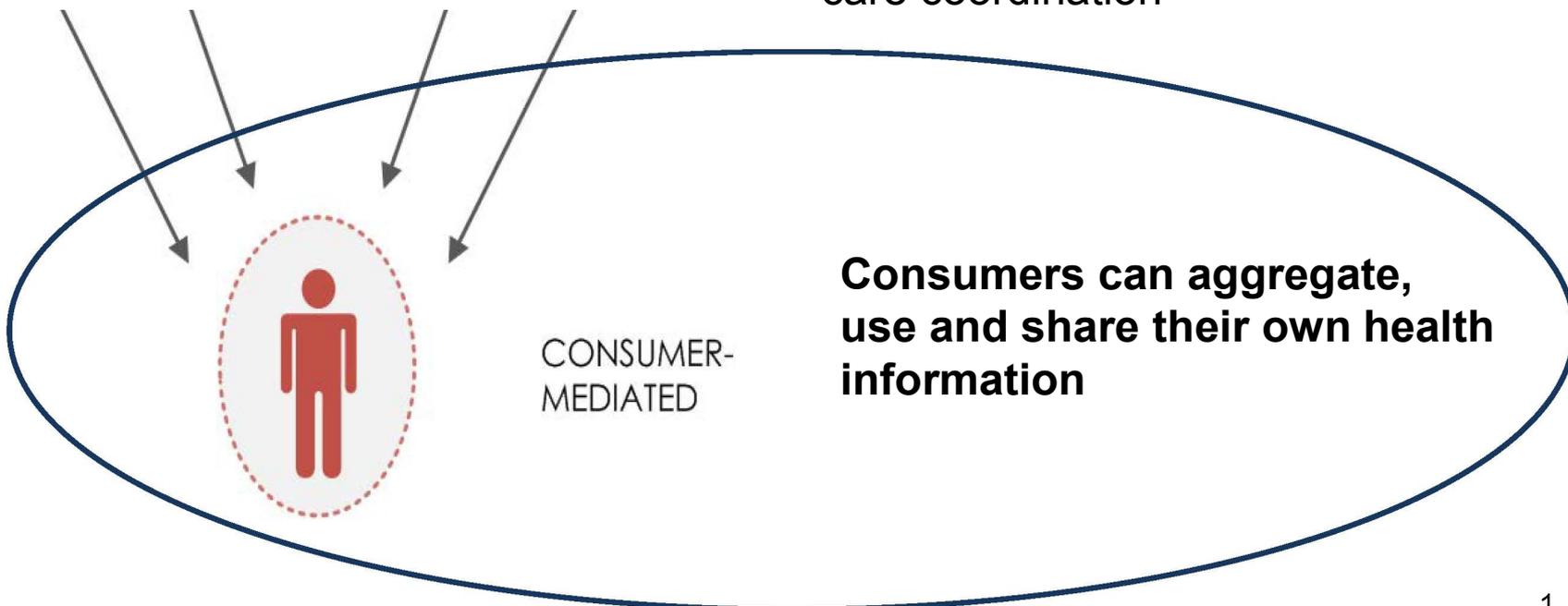


AFFINITY  
DATA  
SHARING  
NETWORKS

Robust exchange capabilities  
needed for accountable care

Widespread directed  
exchange so that every provider  
Can send and receive electronic  
health information to support  
care coordination

UBIQUITOUS DIRECTED EXCHANGE  
PROACTIVE



**Consumers can aggregate,  
use and share their own health  
information**

# MUS2: Consumer-Mediated Exchange



## Stage Two Requirements:

- More than 5% of patients must send secure messages to their EP
- More than 5% of patients must access their health information online (**View, Download, Transmit**)
- Every provider must offer View, Download and Transmit functions

# HIEs Are Well Positioned to Support Stage Two View, Download, Transmit Requirements

## **Patient view, download and transmit from shared portal can count for multiple providers – CMS FAQ**

If the patient was seen by the EP during the EHR reporting period, the patient would be counted in the EP's numerator for this measure if the patient (or his/her authorized representatives) views online, downloads, or transmits to a third party any of the health information from the shared portal or online PHR, regardless of whether the EP contributed the particular information that was viewed, downloaded, or transmitted by the patient. However, the EP must have contributed at least some of the information identified in the Stage 2 final rule to the shared portal or online PHR for the patient.



*In 2010, Department of Veterans Affairs starts the Blue Button initiative*

*Now over **88 million Americans** can download their health record from a portal (CMS, Dept. of Defense, Aetna, and United)*

*Over **1.5 million people** across the country have downloaded their health record*



# Blue Button is Evolving



## First version

- Access: Download only
- Format: Unstructured, making it difficult to parse
- Portability: Easy to download, read, and print – not easy to upload to other apps



## New version

- Access: Download **& Transmit Via Direct**, so easy to connect with other apps
- Format: **Structured**
- **Automation**, using internal triggers

*Blue Button+ brings Blue Button in line with MU2, and provides a blueprint for meeting MU2*



*68 committed organizations defined the next version of BB*



# Blue Button<sup>+</sup>

1

## Structure

C-CDA

Electronic EOB

2

## Transport

Direct

3

## Automation

Triggers



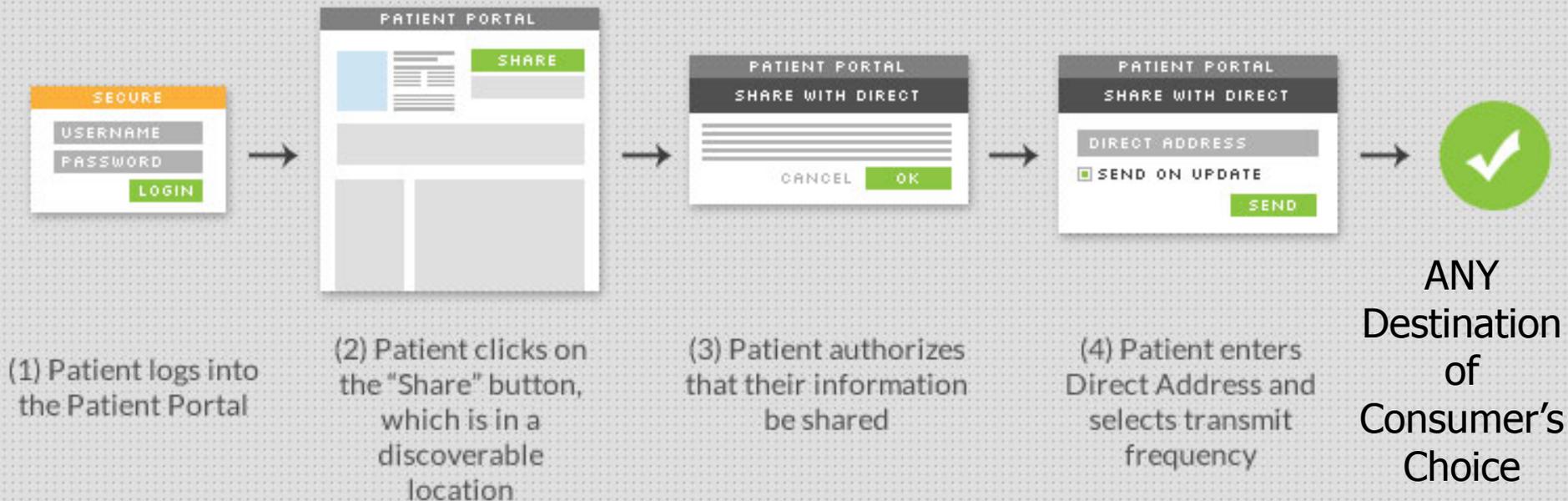
*Blue Button+ gives specific guidance to EHR companies in meeting the V/D/T requirements.*

Structure	Consolidated CDA (C-CDA)
Section & Fields	Described in Meaningful Use 2
Transmit	Direct Protocol (SMIME/SMTP)
Trust Anchors	Ability To Exchange Anchors
Transmit Frequency	Send once
Trust Anchors	Anchor Bundles
Transmit Context	In message body
Transmit Frequency	Send on change, automation

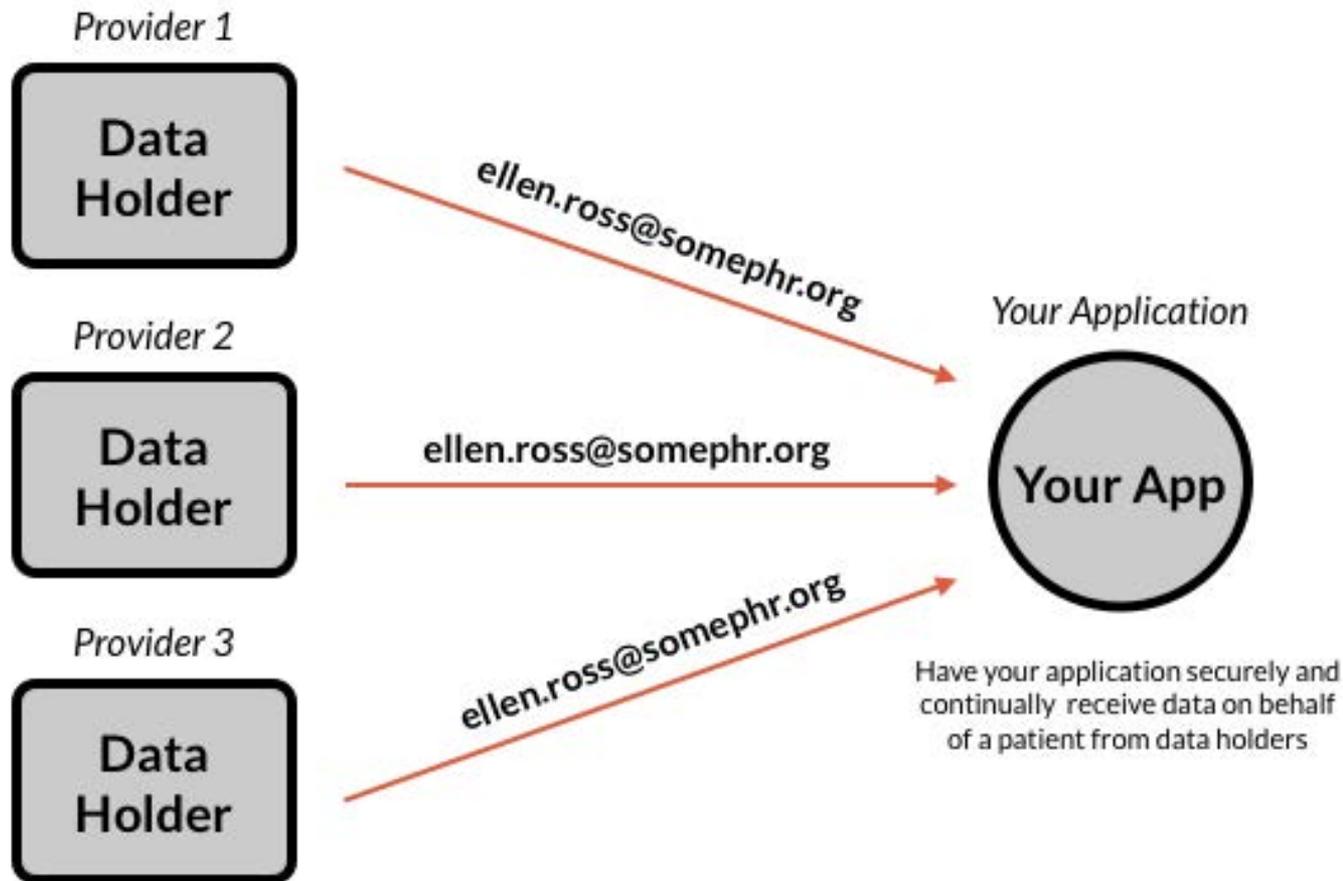


# What Blue Button+ looks like for Dataholders (HIEs, Providers, Payors, etc.)

## Patient Portal - Transmit Using Direct



# What Blue Button+ looks like for Developers and Patients



Blue Button Implementation Guide

bluebuttonplus.org

# Blue Button+ Implementation Guide

February 4, 2013 - Developer Preview

## Background

Evolution of BB  
VDT & BB+

## Content

Clinical  
Claims

## Download

## Transmit

## Receive

## Toolkit

## Privacy & Security

### Questions - Feedback

## Getting Started with Blue Button+

Blue Button is the symbol for a patient's access to their own data. Blue Button+ is the ability to get records in a human-readable and machine-readable format; and to send them where they choose. This enables a consumer to do everything from printing a physical copy to sharing it with a third party application.

### For Data Holders / Providers

Learn how to structure a patient health record and how to transmit it to a patient's location of choosing.  
Meet MU 2 - VDT requirement.

- 1 Structure health data as C-CDA
- 2 Transmit health data using Direct
- 3 Implement automation/triggers
- 4 Retrieve BB+ Patient Trust Bundle

### For Third Party Applications

Learn how to build applications powered by Blue Button+ receiving structured patient health records and getting automated access from dataholders.

- 1 Parse health data as C-CDA
- 2 Receive health data using Direct
- 3 Submit your anchor to trust bundle
- 4 Retrieve BB+ Provider Trust Bundle

This Blue Button+ guidance was developed through [ONC's Standards and Interoperability Framework](#) initiative with input from more than 70 organizations.

Display a menu

Quick Link - Implementation Guide  
<http://bluebuttonplus.org>

# Blue Button+ Implementation Guide

February 4, 2013 - Developer Preview

## Background

Evolution of BB  
VDT & BB+

## Content

Clinical  
Claims

## Download

## Transmit

## Receive

## Toolkit

## Privacy & Security

Questions - Feedback

## Format for Blue Button+ Health Content

An electronic health record keeps a digital record of clinical information about a particular individual. With the amount of variability among Health IT systems, it is important to have a consistent set of health information for each patient.

For Blue Button, the recommended standard for representing the patient health record is the [HL7 Consolidated Clinical Document Architecture](#) also known as the Consolidated CDA.

The Consolidated CDA is a XML-based standard that specifies the encoding, structure, and semantics of a clinical document.

There are a wide-range of templates that can be represented in the Consolidated CDA standard. For Blue Button we are outlining a subset of sections and fields that should be used.

**Tools:** [NIST Validator Web App](#) and [C-CDA Scorecard](#)

### 1. Sections

Blue Button adopts the requirements for sections and fields from Meaningful Use Stage 2. Meaningful Use specifies the fields and content structure of clinical data that providers will share with patients at care transitions. This same structure and consistency will aid application developers as they design and build consumer tools.

Whenever the C-CDA is generated for patients, it should have the following fields, if they exist in the dataholder's system:

Section	Description	Quick Link
Header	Patient information and demographics	<a href="#">Jump to XML</a>

# Blue Button+ Implementation Guide

February 4, 2013 - Developer Preview

## Background

Evolution of BB  
VDT & BB+

## Content

Clinical  
Claims

## Download

## Transmit

## Receive

## Toolkit

## Privacy & Security

Questions - Feedback

## Transmitting Data Using the Direct Protocol

This section describes the use of the [Direct Project](#) specification to transmit health data securely from a **data holder** to a **third party**. Implementation of Direct protocol is required for Meaningful Use Stage 2 CEHRT.



Examples of data holder systems include: provider's EHR, health insurance claims database, or pharmacy dispensing system. Examples of third parties include: personal health records, mobile applications, or web services.

### 1. Technical

#### A. Authentication

A patient's identity must be validated before a transmission of his/her data can occur. In the case of a patient portal, a patient or their authorized representative is authenticated by logging in using previously-validated credentials. In the case of a live interaction identity validation may be needed, and can be obtained orally or in writing. If the provider already knows the individual, no additional steps are needed to verify the individual's identity. (Also see [Blue Button Privacy and Security Related Questions](#))

These requirements are the same identity assurance and authentication requirements sufficient to meet the View and

Pilot Site - Updated January 31, 2013

## Blue Button Trust Bundles

A collection of trust anchors enabling secure exchange to third parties on behalf of patients

During this pilot phase, this page is being managed by the [Automate Blue Button](#) patient community, a voluntary group of personal health service providers that are working together to accelerate patient engagement in support of better health.

"ABBI" is an [ONC-sponsored](#) project that aims to make it easy for patients to conveniently receive copies their own health information. It has its origins in the Blue Button initiative that first liberated health information for millions of veterans, military personnel and Medicare beneficiaries.

This page is meant for healthcare providers, vendors and personal health services that wish to use Direct Project secure messaging to support their patients and customers.

[Register Your Service's Anchor](#) and be a part of the ecosystem

### Patients

Anchors of personal health systems, to be installed by provider systems for sending to patients

[Bundle Download](#) | [View Details](#)

## E. Automation and Triggers

When the patient has requested "ongoing" sharing of information, the data holder's system will have to use internal triggers that will cause new information to be sent. How this is done will differ from system to system, but we suggest the following as a starting point:

### Triggers for Clinical Systems:

- Discharge or transition to a new care setting (Acute/ER/Inpatient)
- End of encounter (Ambulatory)
- Any time significant new information is received (e.g., new image or lab report)

### Triggers for Payer Systems:

- New adjudicated claims data is available
- New explanation of benefits is available

Other triggers are permitted and encouraged. It is up to the implementer. Systems that are unable to implement triggers should investigate transmitting records at predetermined time intervals.

## F. Payload

When a transmission occurs, the following should be part of the payload as a multi-part MIME:

1. Clinical Summary
2. Additional Documents
3. Transmit Context
4. Request.txt (Optional)

### 1. Clinical Summary

The primary content of the transmission will be the [Clinical Summary](#), which is a snapshot of a patient's health history in the EHR.

The content format shall use the [Consolidated CDA w. Meaningful Use Stage 2 Sections and Fields](#) and have a MIME type of

# Blue Button+ Implementation Guide

February 4, 2013 - Developer Preview

## Background

Evolution of BB  
VDT & BB+

## Content

Clinical  
Claims

## Download

## Transmit

## Receive

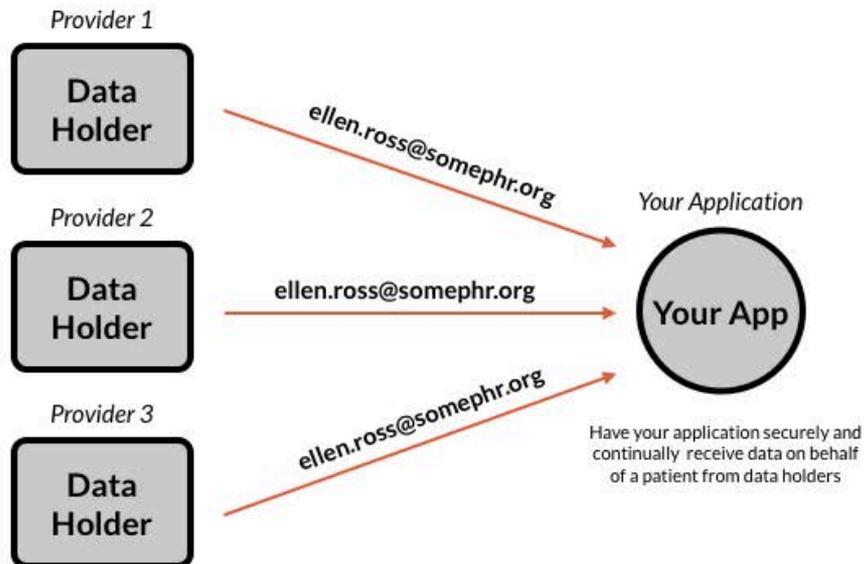
## Toolkit

## Privacy & Security

Questions - Feedback

## Receiving Health Data Using Direct

This section describes the use of the [Direct Project](#) specification to receive health data securely from a data holder on behalf of a patient or their authorized representative. The ability to receive health data securely enables an ecosystem to be built on patient health data.



### 1. Using the Direct Protocol to Receive Data

# Blue Button+ Implementation Guide

February 4, 2013 - Developer Preview

## Background

Evolution of BB  
VDT & BB+

## Content

Clinical  
Claims

## Download

## Transmit

## Receive

## Toolkit

## Privacy & Security

## Privacy and Security

The U.S. Department of Health and Human Services' Office for Civil Rights and Office of the National Coordinator have compiled the following document in response to questions related to the Automate Blue Button Initiative. This document will be periodically expanded upon, as more questions arise that we can address with existing guidance.

### Background

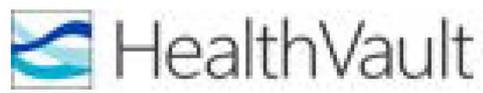
Blue Button functionality provides data that follows Meaningful Use Stage 2's requirements for sections and fields, formatted in Consolidated Clinical Document Architecture (Consolidated CDA). A Consolidated CDA contains a subset of protected health information (PHI) maintained in an individual's medical records and therefore is a subset of a designated record set. Accordingly, under the HIPAA Privacy Rule, the individual who is the subject of the PHI has a right of access to the PHI in the Consolidated CDA. (We recognize that individuals continue to have the right to request and receive all their PHI in the medical records outside of the Consolidated CDA or Blue Button function.) For ease of reference, we will call the PHI in a Consolidated CDA "Blue Button health information" in our Use Cases and Questions and Answers below.

DIRECT is a set of technical specifications that allow providers and individuals to securely transmit PHI electronically. It is similar to e-mail, in that providers and patients each have "DIRECT addresses" that allow them to communicate with each other, but is more secure than regular e-mail. For example, a John Q. Public could have a Direct address (JohnQPublic@direct.somephr.org). Meaningful Use Stage 2 requires every certified Electronic Health Record system to be able to send messages to DIRECT addresses.

### Use cases

1. While interacting in person with his HIPAA-covered health care provider's office the individual gives the provider either the individual's e-mail address or a Direct address and requests the provider to electronically transmit the individual's Blue Button health information to this e-mail or Direct address.

## Organizations Demonstrating their Path to Blue Button+ Today

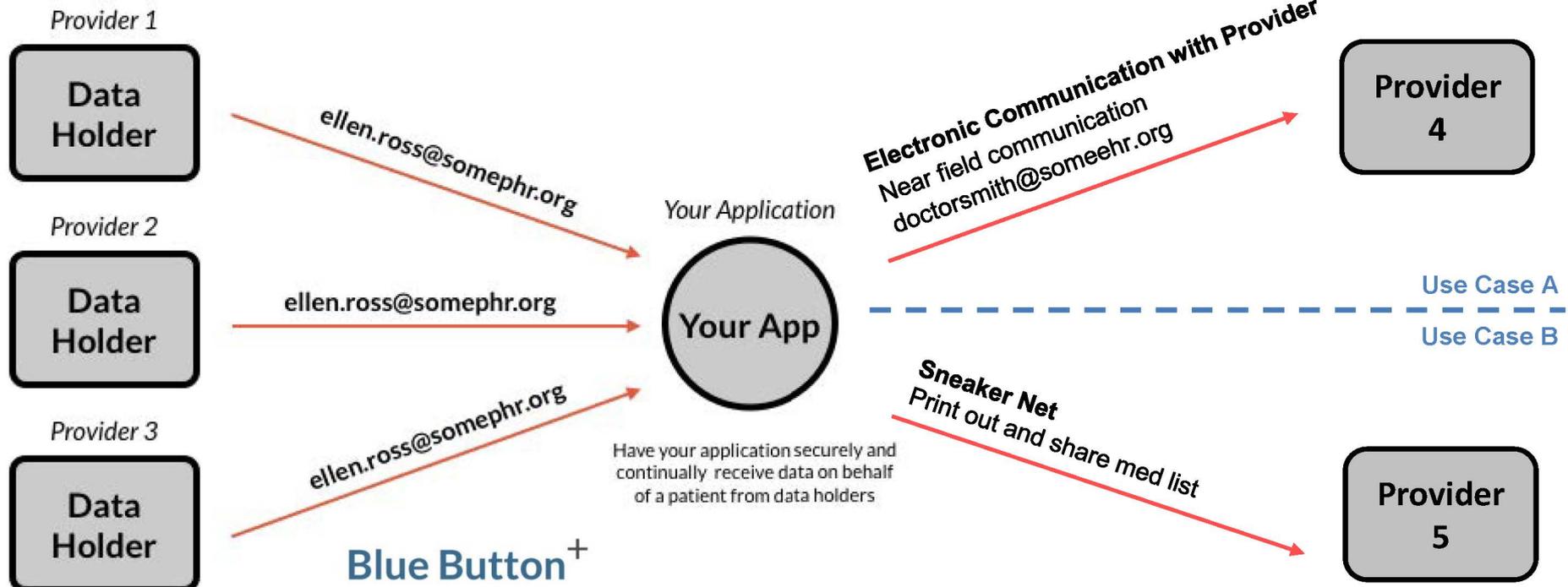


# Consumer-Mediated Exchange – Future State

**1** Patients get their data from providers and other data sources

**2** Patients aggregate their own data

**3** Patients share data with providers



## Current BB+ Activities

- 1 Patients get their data from providers and other data sources**

Dataholder adoption

Developer Adoption

- 2 Patients aggregate their own data**

Mobilize ecosystem and consumer adoption and uptake

- 3 Patients share data with providers**

Create clear implementation pathway

Share <http://bluebuttonplus.org>  
with your colleagues

Implement Blue Button+ Today

Join our group of early adopters



Beth Israel Deaconess  
Medical Center

