# Unlocking Medicare Data for Seamless Patient Intake: Using Blue Button


## Abstract

Patient intake is a necessary but tedious process that involves collecting comprehensive information about a patient such as demographics, insurance information, medical history, occupation and income. Most health care practices collect paper-based information and then manually enter it into an Electronic Medical Record (EMR) or Practice Management System, making the process error-prone and time consuming and hampering the overall patient experience.

For a significant number of patients on Medicare and Medicaid programs, their medical information is already available with the Centers for Medicare and Medicaid Services (CMS). This provides the opportunity to fully or partially automate the intake process by downloading pre-existing and vetted information from CMS systems. CMS

has recently released an enhanced version of its Blue Button services, Blue Button 2.0. It exposes Application Programming Interfaces (APIs) that allow a client application to retrieve, with patient's consent, up to four years of medical history from CMS archives.

This paper delves into solutions that utilize Blue Button 2.0 APIs, Fast Healthcare Interoperability Resources (FHIR) and OAuth 2.0 protocols and frameworks to automate the patient intake process. In doing so, healthcare service providers stand to gain exponential value in the form of enhanced scalability and efficiency, without the need for additional manpower, creating an agile business.

## What ails the current patient intake process?

All health care businesses, ranging from small physician clinics to large hospital chains, health care payers, and case management services, are statutorily required to collect detailed patient information. Such information is critical to tasks such as investigating insurance benefits and generating accurate claims.

The current intake process usually comprises the following steps:

1. Patient calls or walks-in for an appointment.
2. The scheduler emails intake forms, provides links to online forms or offers hard copies, depending on the situation.
3. Information provided by the patient is then manually entered into the EMR systems.
4. Scheduler then manually or automatically checks for insurance benefits.

Under this approach, the patient spends a considerable amount of time to help capture the required information. In some instances, the patient might not be in the right state of health to supply such detailed information and this may lead to erroneous entries. Automating the patient intake process eliminates the need to involve the patient in the data capture stage by accessing patient data that already exists in CMS archives.

Let's take a look at a couple of common health care workflows involving patient intake and how Blue Button APIs can considerably reduce the effort involved.

## Enhancing patient intake flow with Blue Button APIs: Two key use cases

Blue Button 2.0 from CMS is an API that contains four years of Medicare Part A, B and D data for 53 million Medicare beneficiaries.[i] This data contains beneficiaries' health information, including type of Medicare coverage, drug prescriptions, primary care treatments, and costs.

The CMS Blue Button API uses the HL7 FHIR standard (a specification designed specifically for health care information exchange) for beneficiary data and the OAuth 2.0 standard for beneficiary authorization. It enables:

- A developer to register a beneficiary-facing application
- A beneficiary to grant an application access to four years of their Part A, B, and D claims data

Here are two uses cases where using Blue Button 2.0 APIs can significantly streamline the patient intake process.

**Scenario 1: New patient registration at a care provider**

Usually, at any care provider, primary care physician (PCP) or hospital, registering a new patient and determining his coverage is a lengthy and cumbersome process, as discussed earlier. Leveraging Blue Button 2.0 APIs, an EHR system can pull all relevant information (except date of birth and SSN) from CMS data store. Figure 1 illustrates the new patient registration workflow using Blue Button APIs.

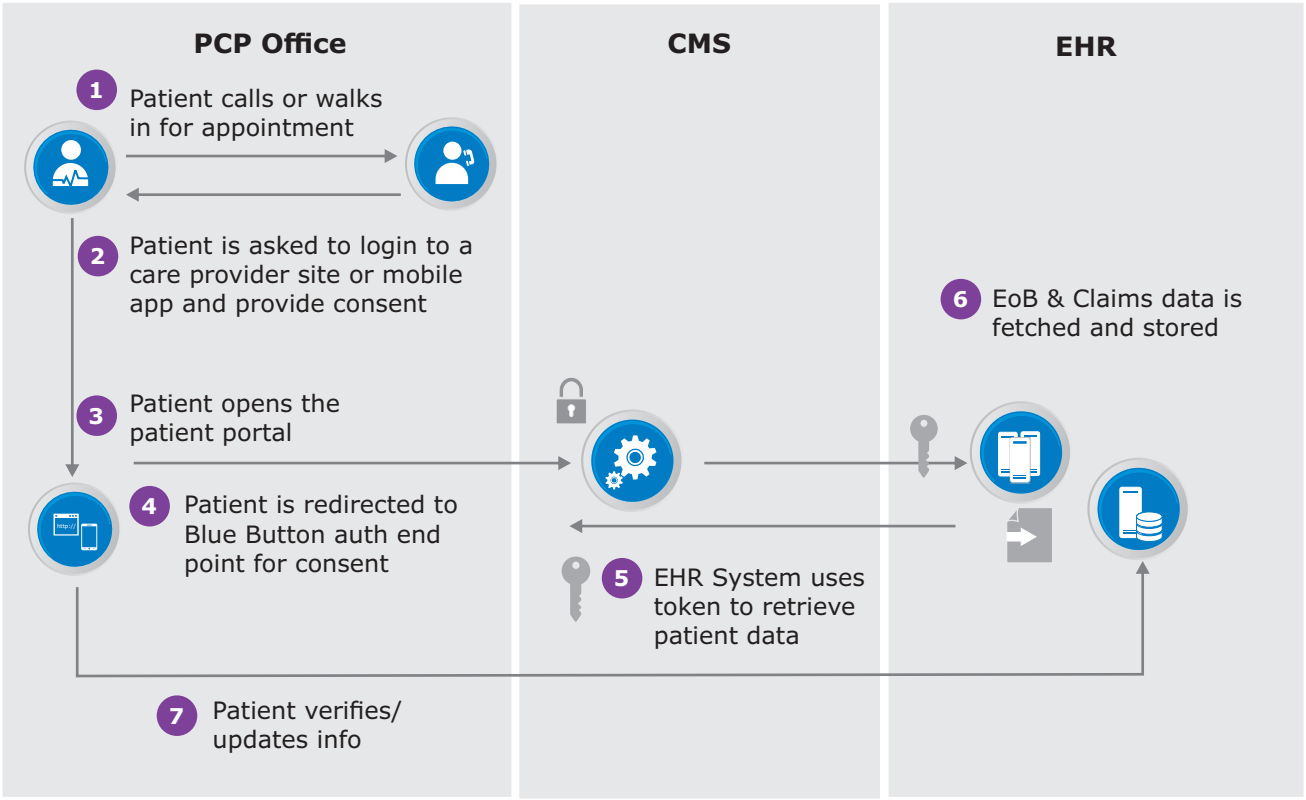



**Figure 1: New patient registration flow using Blue Button APIs**

This new process provides the health care provider with the latest patient information necessary to expedite the registration process and provide the best care for the patient.

### Scenario 2: Patient intake for case management

A physician office refers a patient to a case management program, usually when specialty drugs are involved. Based on the information provided by the physician office, case managers manually enter all the information into a Case Management System (CMS). They may also call the patient, insurance companies or other vendors to collect the necessary information. This process, like the patient registration process, is a lengthy and cumbersome one. Now, if the case manager were to leverage a system that uses Blue Button APIs, all he has to do is call and request the patient for consent. Once consent is obtained, the system automatically fetches all the necessary information from the CMS database. This will considerably reduce intake time as illustrated in Figure 2.

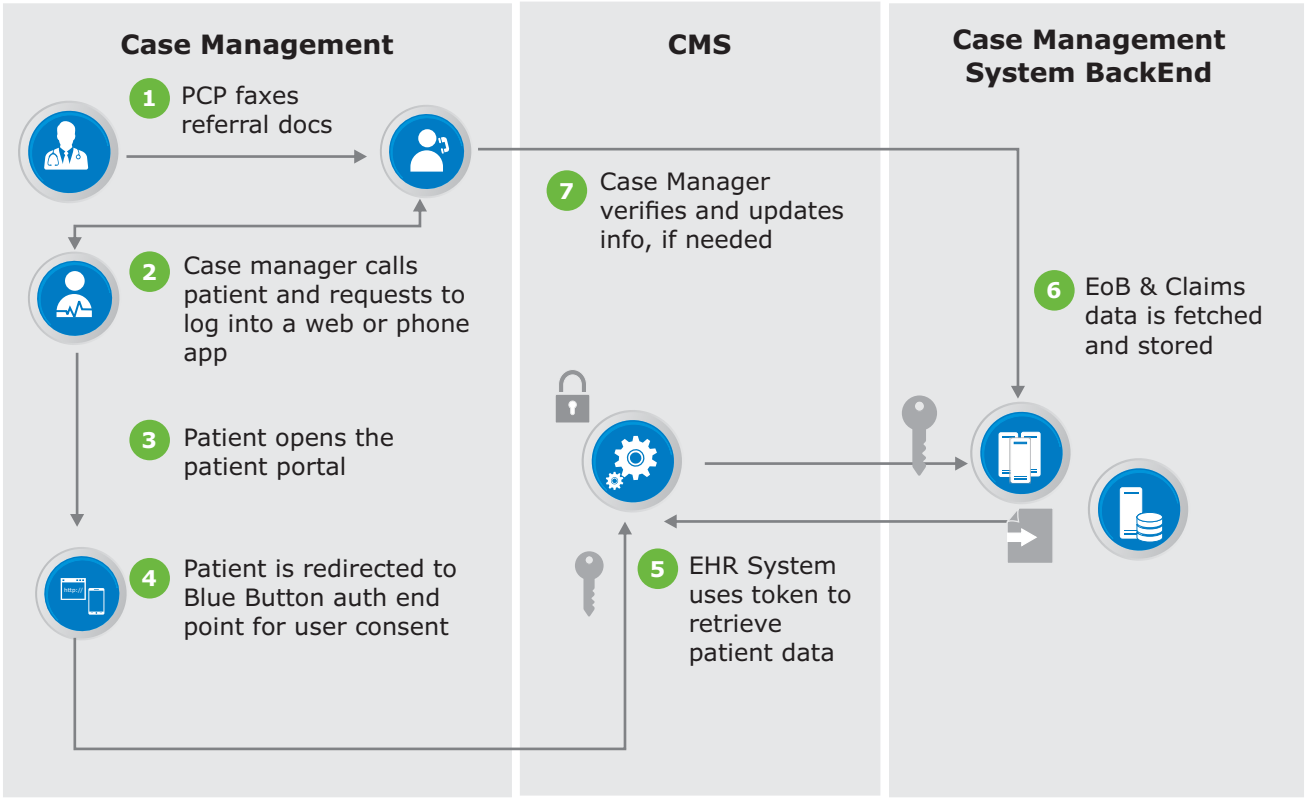
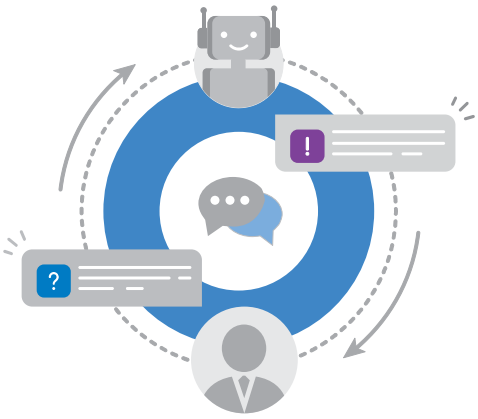



**Figure 2: Patient intake flow for case management leveraging Blue Button APIs**

The new automated patient intake process also allows the case manager to cross check information with that provided by the physician office as well as insurance companies, furthering reducing time and effort. The result: businesses can experience a clear increase in productivity, efficiency, agility and cost savings, by leveraging Blue Button APIs in their existing patient intake processes.



Other potential scenarios where these APIs can improve efficiency in related processes include:

- Improve accuracy of existing patient information via reconciliation with CMS data. Systems can run the checks in the background and flag any mismatches.
- Integrate Blue Button APIs with a patient engagement mechanism like a Chatbot to expedite the patient intake process.
- Collate data from both CMS and local storage to create a unified view of patient health record on a patient portal.
- A kiosk at the physician office, similar to airport self-check-in kiosks, supported by the new intake backend, can provide the infrastructure to improve efficiency of the intake process.

## Making interoperable healthcare a reality

The Blue Button initiative by CMS is a great first step towards solving the massive interoperability problem faced by the healthcare industry globally. Leveraging a combination of Blue Button APIs, FHIR specifications and OAuth-based security, not only can patient intake be automated but healthcare IT systems can also accept patient resources (FHIR) from third party systems like EMRs.

That's not all. Such a framework can also be integrated with AI-driven chatbots and patient portals to significantly improve patient experience through accurate healthcare information exchange between various stakeholders. So far, over 600 developers have signed up to leverage Blue Button APIs to make the dream of interoperable healthcare a reality.[ii] The era of connected healthcare is poised to empower patients to play a larger role in care-related decision making while enabling technology companies to develop better algorithms to enhance patient experience.

## References

i CMS Blue Button 2.0, Blue Button API Docs, https://bluebutton.cms.gov/developers/

ii Health Data Management, More than 600 developers sign up for Blue Button 2.0, August 2018, Accessed April 2019, https://www.healthdatamanagement.com/news/more-than-600-developers-sign-up-for-blue-button-20

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