Microsoft Teams

Improve health team collaboration with apps in Microsoft Teams

Tailored solutions built for the healthcare industry

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Streamline common healthcare workflows using apps in Teams

Connect everyone in the flow of work with collaborative apps tailored for healthcare. Apps in Teams help everyone better meet the demands associated with daily hospital operations and virtual patient care by connecting them to the information, expertise, and tools they need to collaborate and get work done all in one place.

Core healthcare scenarios:

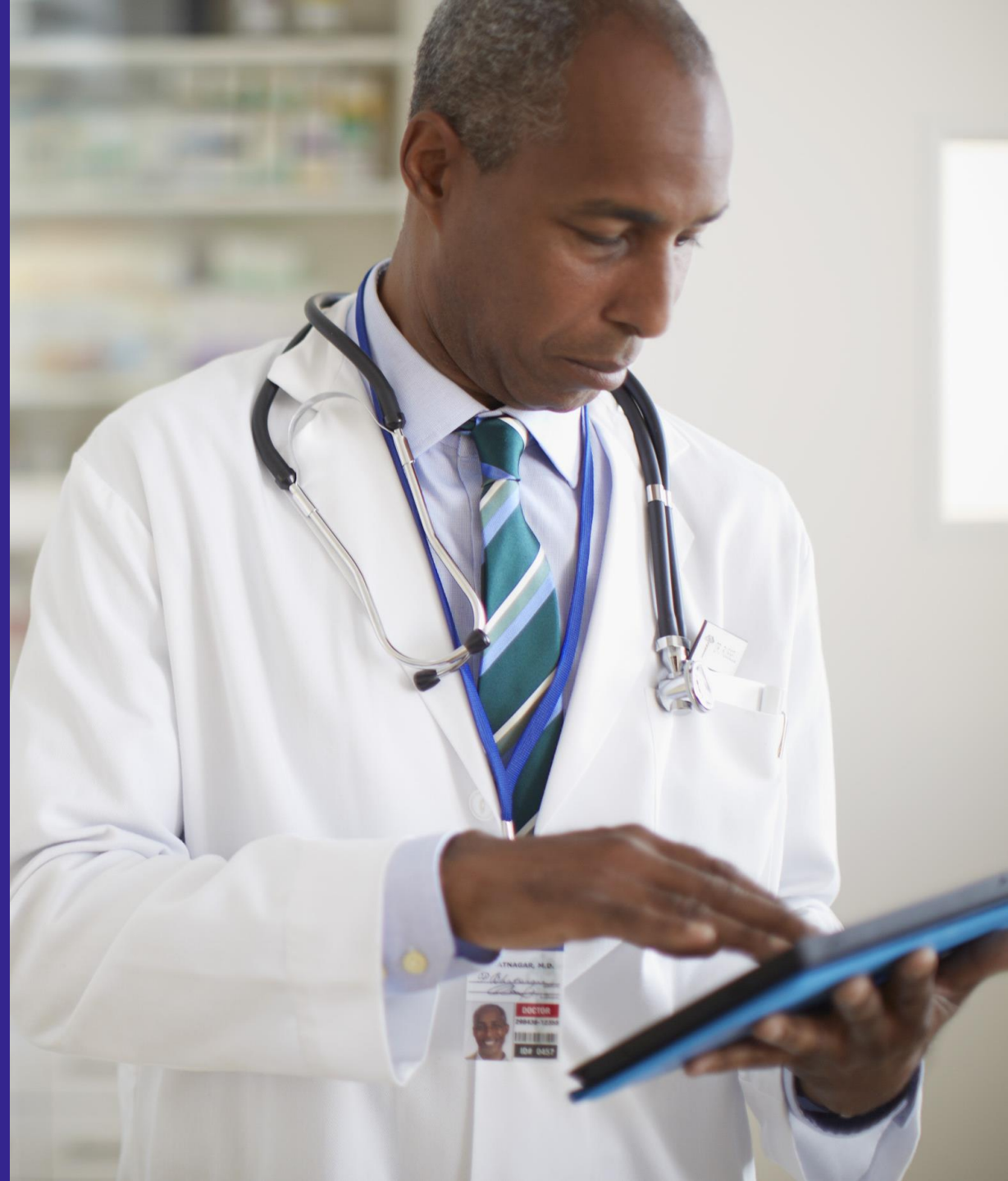
- Healthcare operations
  - Intra-facility management and role based messaging
- Virtual consult (telehealth)
  - Provider-patient consults via Teams

For each scenario:

- Vision
- Personas
- Storyboard
- Solution design best practices
- Solution architecture

Healthcare teamwork solutions

Healthcare operations



Scenario vision

Context

Doctor Karin Blair manages multiple patients, writes prescriptions, works with porters and nurses, and dictates reports. She spends a lot of time managing resources and coordinating tasks.

Nurse Daniela Mandera is always ready to respond to a doctor's instructions. She spends a lot of time creating paper-based records and maintaining documents.

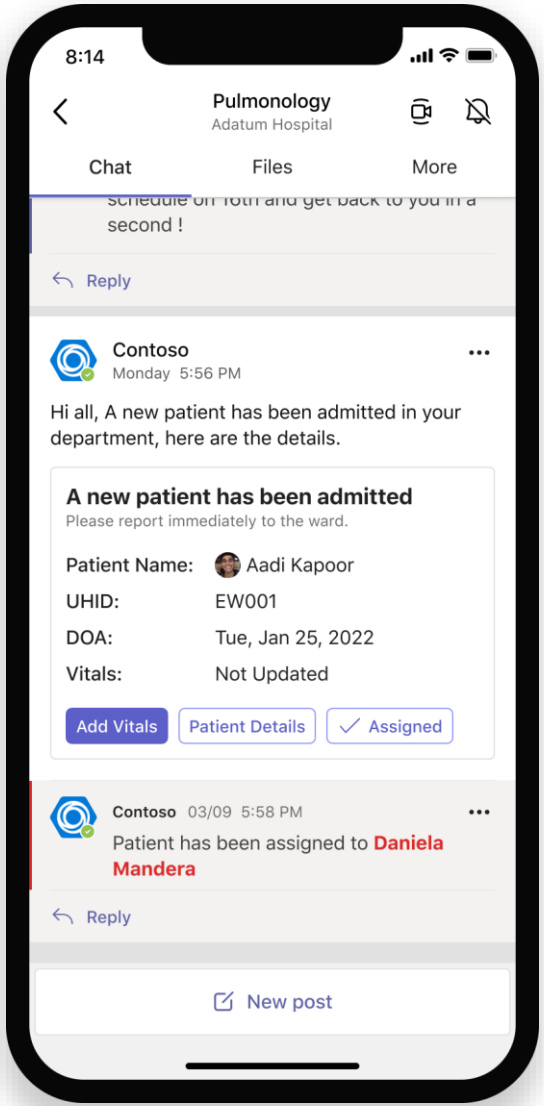
Porter Allan Munger transports lab samples and helps ensure patients have clean supplies. He spends a lot of time checking in with providers.

Current state	Future state
⚠ **The hospital admin** registers a patient or case, then relays that information in person or via phone to the doctor or nurse on staff. The admin also manages the porter team and manually assigns their shifts and tasks.	✓ **The admin** admits a patient or creates a case, triggering an automatic notification in a Teams channel just for medical staff.
⚠ **Nurse Mandera** tracks down Doctor Blair for instructions. She orders a patient's medication with a call to the pharmacy, or heads there to order in person. Back with the patients, Nurse Mandera manually records vitals on paper, creating records she'll need to maintain.	✓ **Nurse Mandera** receives a Teams notification that it's time to take a patient's vitals. While securely recording vitals right in Teams, she receives another notification—this time from a doctor assigning her a new task to order patient medication. Nurse Mandera quickly orders the medication through an e-pharmacy and gets back to patient care. She no longer needs to spend her time maintaining paper-based records.
⚠ **Dr. Blair** tracks down her paper prescription and notepads. She waits for staff to hand deliver needed reports, then finds nurses and porters to order her patients diagnostic tests. When she wants a second opinion from another doctor, she must find time to meet in person.	✓ **Dr. Blair** ditches her handwritten notepads and uses Teams to write prescriptions and patient follow-ups. With everything digitized, Doctor Blair can instantly look up a patient's information, medical history, and care plan, even on-the-go via the Teams mobile app. When Doctor Blair would like a second medical opinion, she simply opens a group chat to discuss a case with other doctors.
⚠ **Porter Munger** tries to balance maintaining the hospital facility and attending to patients. All his tasks are communicated ad-hoc, so he has no visibility to his work schedule.	✓ **Porter Munger** receives a notification any time a task is assigned to him. When complete, he uses Teams to update the task status, and can even take ownership of his schedule and assignments using the Microsoft Planner app in Teams.
⚠ **Everyone** experiences unnecessary back-and-forth emails and calls trying to keep up with patient status.	✓ **Everyone** has more time for patient care. With healthcare workflows in Teams, the admin, doctor, nurse, and porter all spend less time tracking down information, searching through handwritten notes, and waiting for in-person meetings.

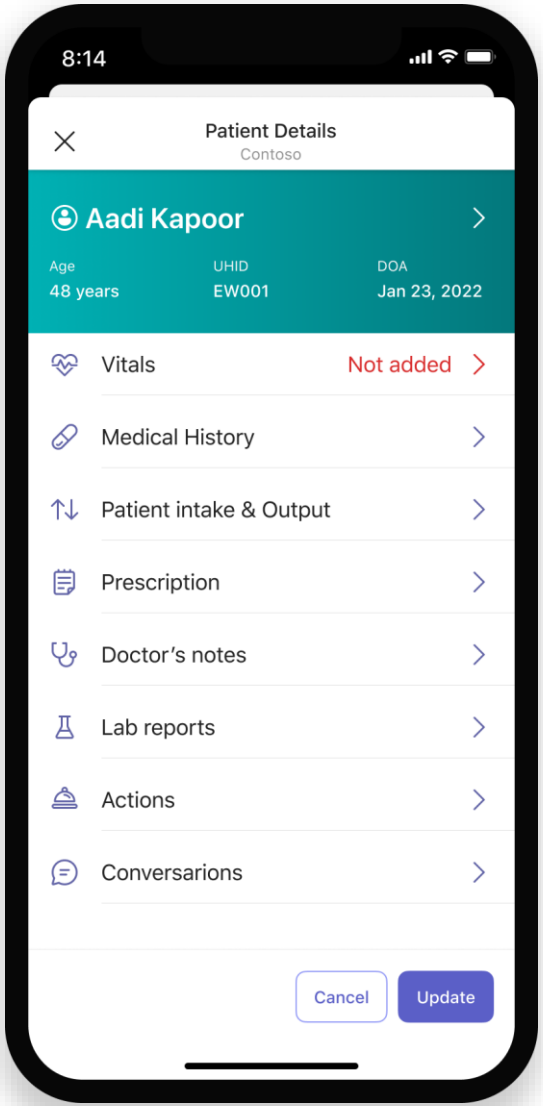
Healthcare - Hospital operations

Intake new patients and record essential information in the app

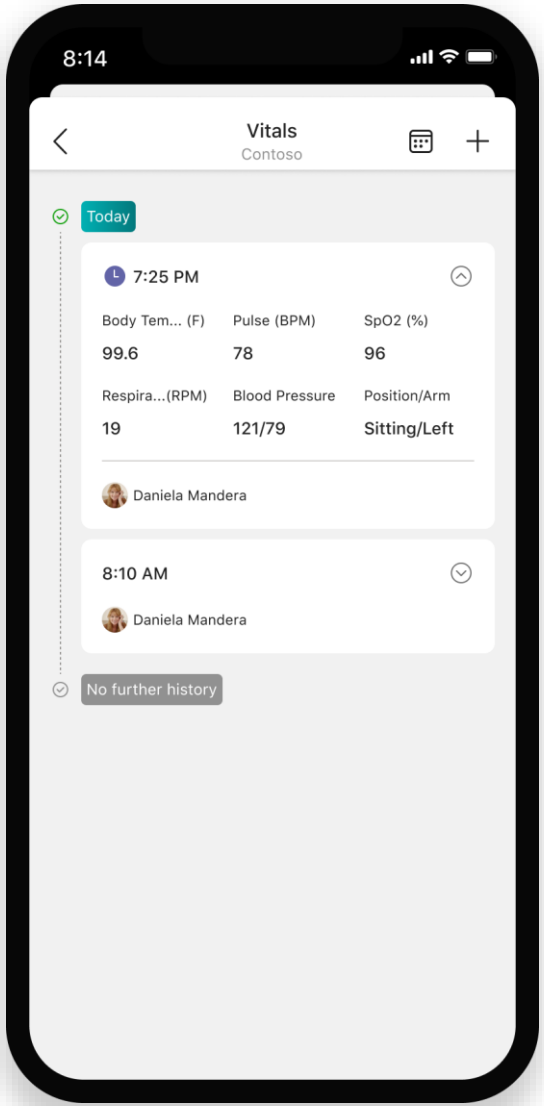
Simplify patient intake



Record patient vitals and order lab tests



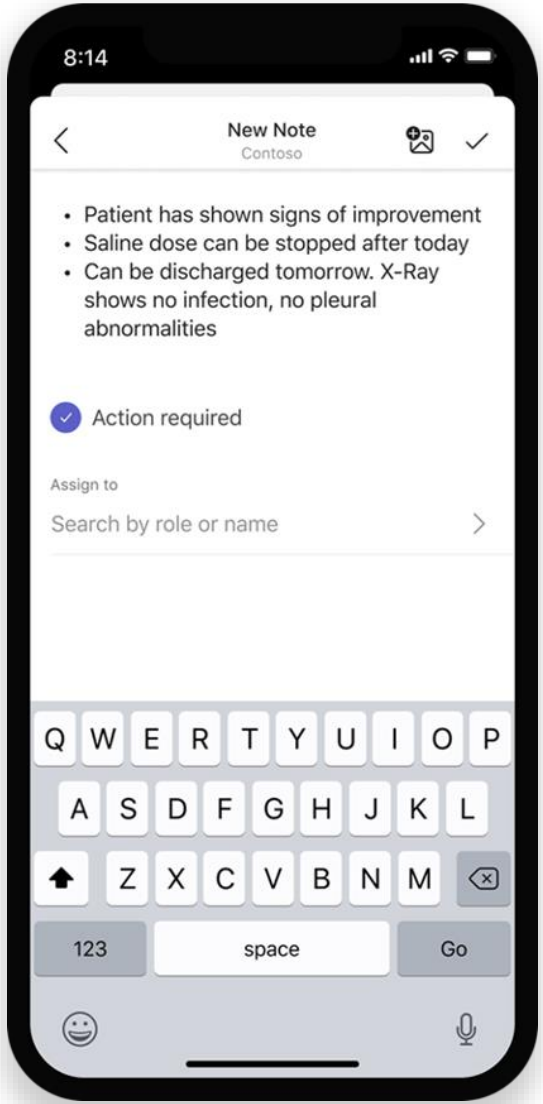
Automate staff notifications



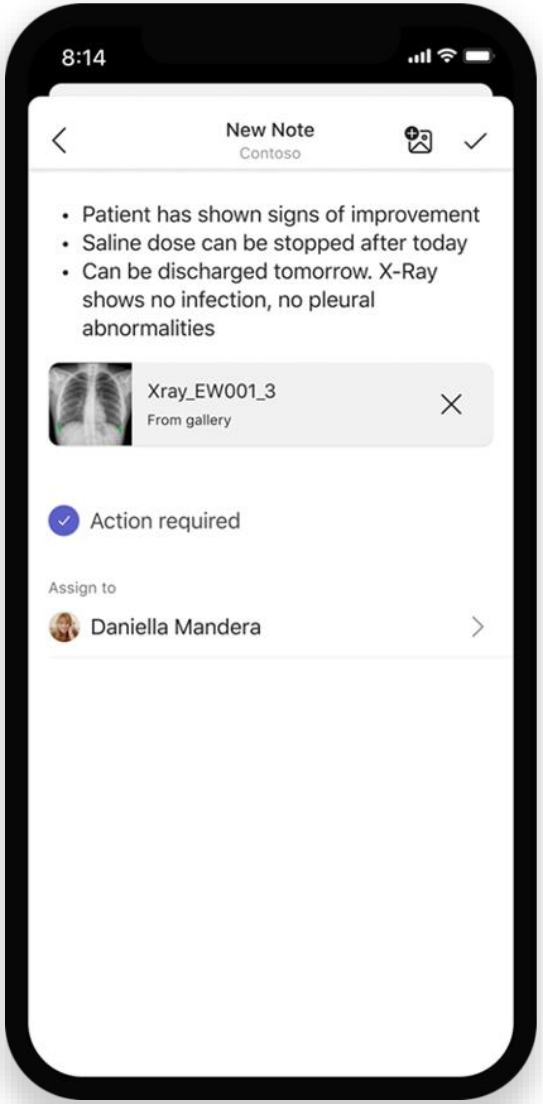
Healthcare - Hospital operations

Stay secure with role-based access controls

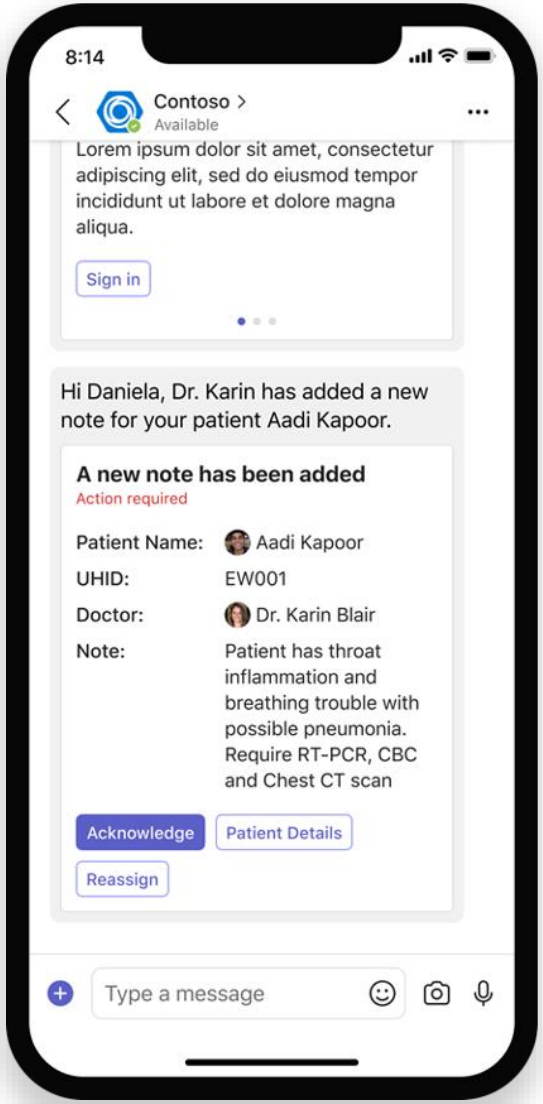
Take notes and assign role-based tasks



Notify doctors currently on staff to help ensure fast action



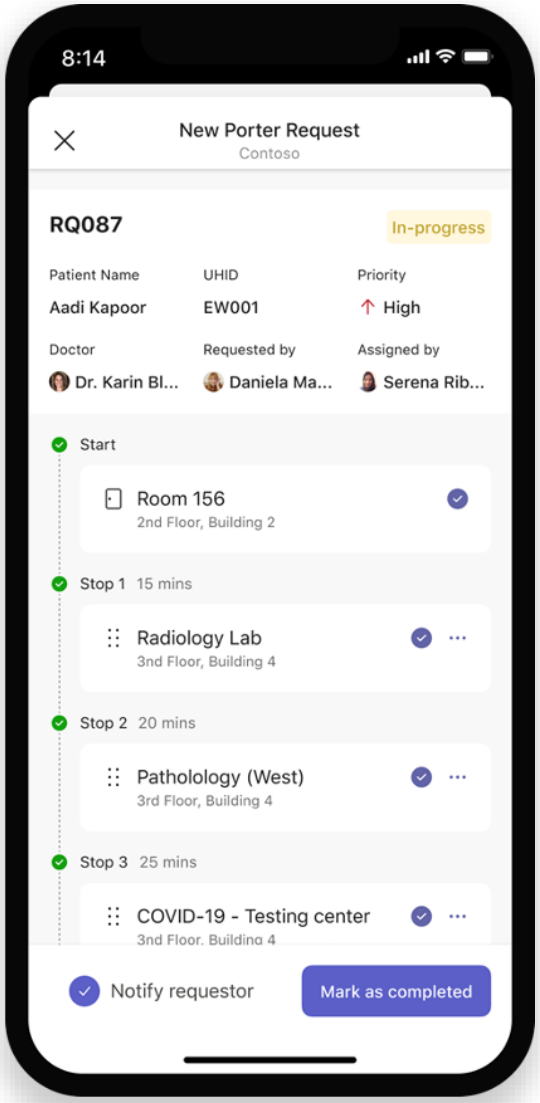
Leverage bot notifications to keep the whole care team up to date



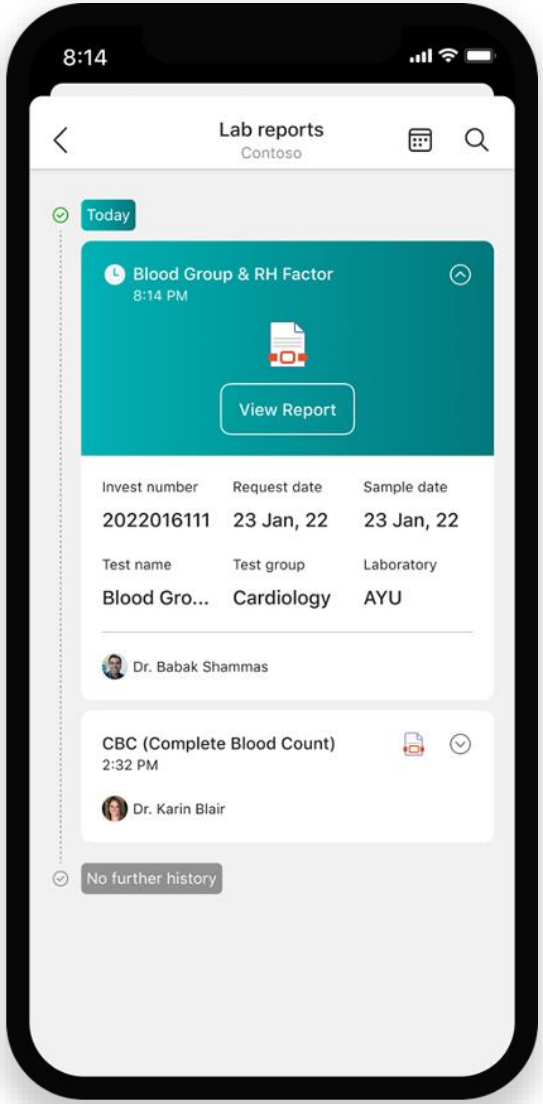
Healthcare - Hospital operations

Automate task notifications and reminders with a bot

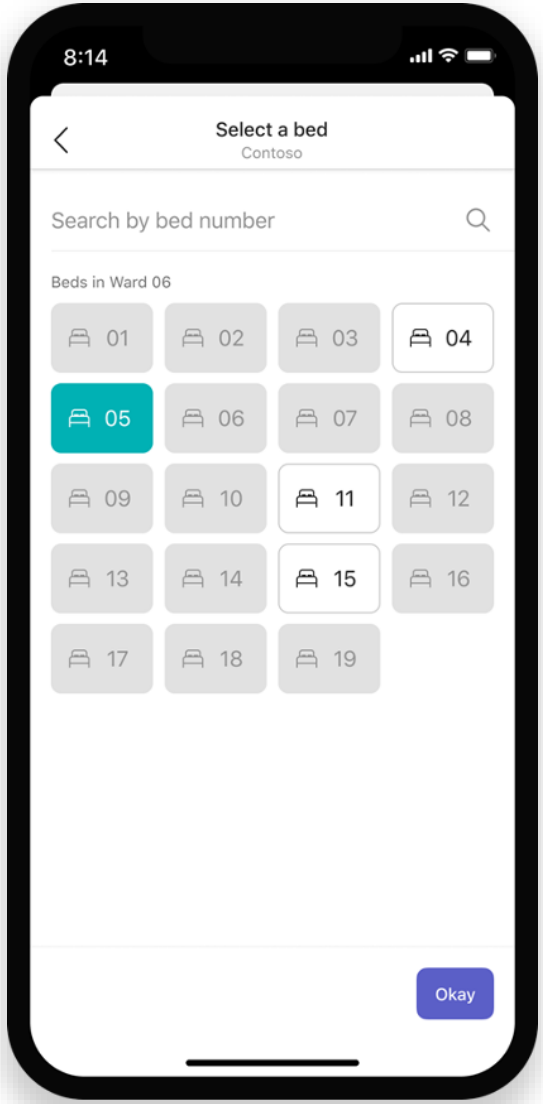
Enable porters to transfer patients between rooms



Notify medical staff when lab results are ready



Block facilities as required



Solution highlights – best practices

Key solution design considerations

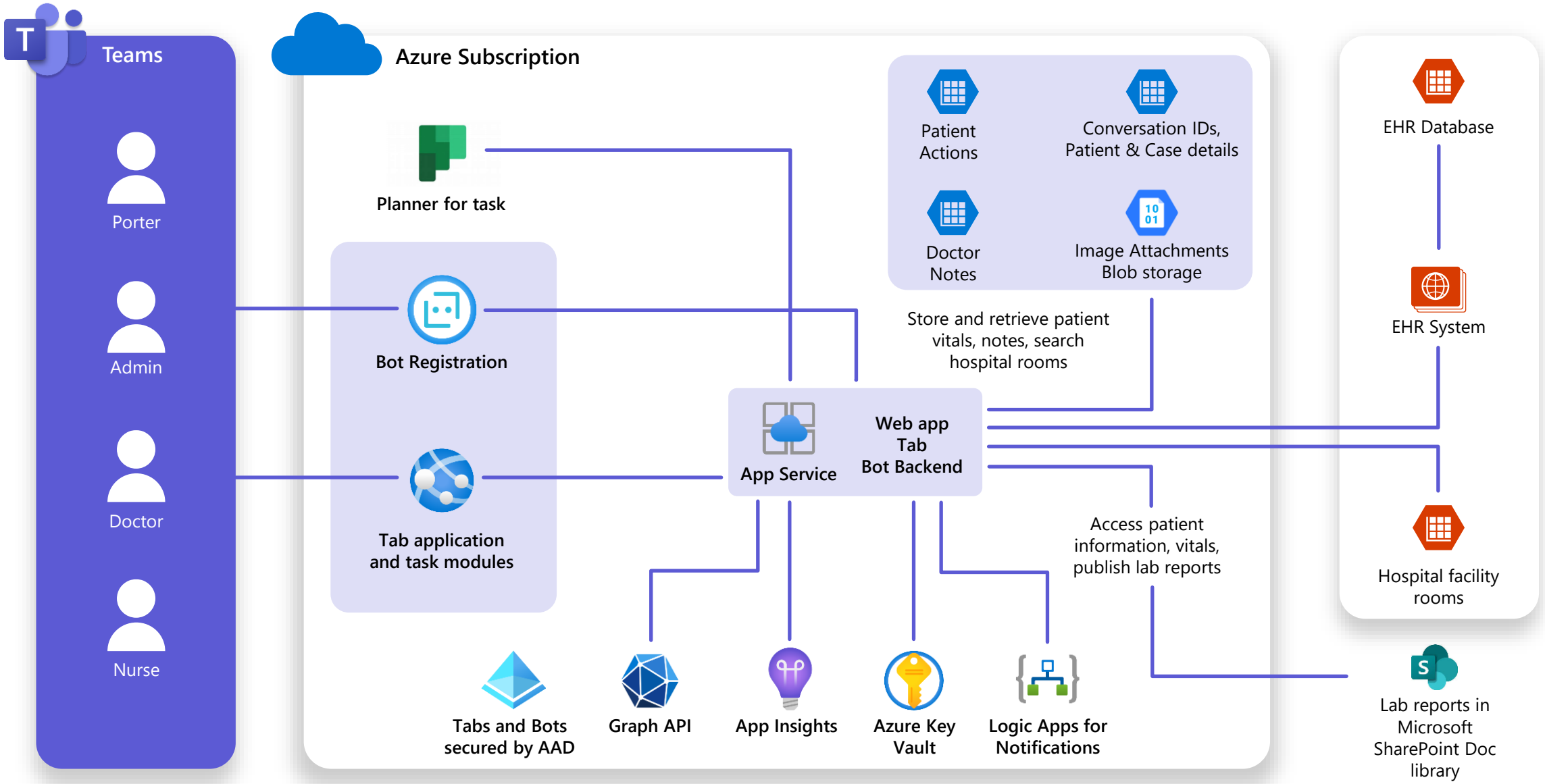
Platform extension points

- **Personal and channel scoped apps** operate via both a personal scoped bot and a channel scope bot. A personal tab is added to the app for all users.
  - **Personal scoped bot** posts card notifications that include user task details, status updates, and other changes.
  - **Channel scoped bot** posts notifications in a hospital channel when a patient is admitted, a new task needs to be assigned, etc.
  - **Task modules** handle the flow of each patient, tracking details like patient status, vitals, visit notes, discharge requirements, and more.
  - **Personal tabs** are spaces for users to access all the cases, patients, and tasks assigned to them. Users can use tabs to start working on anything assigned to them at any time, without needing to go through a notification.

User experience

- **Proactive messages** are sent to staff, bringing status changes, missed tasks, or assignments to their attention.
- **Notifications** are used to enable immediate user collaboration and provide status updates throughout the patient journey.
- **Group chat** enables providers to securely collaborate and discuss details about a specific case.
- **Planner** is integrated through **Microsoft Graph APIs** to help all users better manage their tasks.

Solution architecture



Healthcare – Teamwork Solutions

Virtual consult (Telehealth)

Healthcare – Virtual consult

Scenario vision

Context

Doctor Karin Blair cares for multiple patients every day. It's flu season and Dr. Blair is experiencing a major uptick in her patient workload.

Patient Danielle Booker is seeking an appointment to discuss a recent health concern.

Contoso Healthcare aims to help protect staff and patients from spreading diseases, cut down on physician paperwork, and reduce admin workloads to open more time for patient care.

Current state

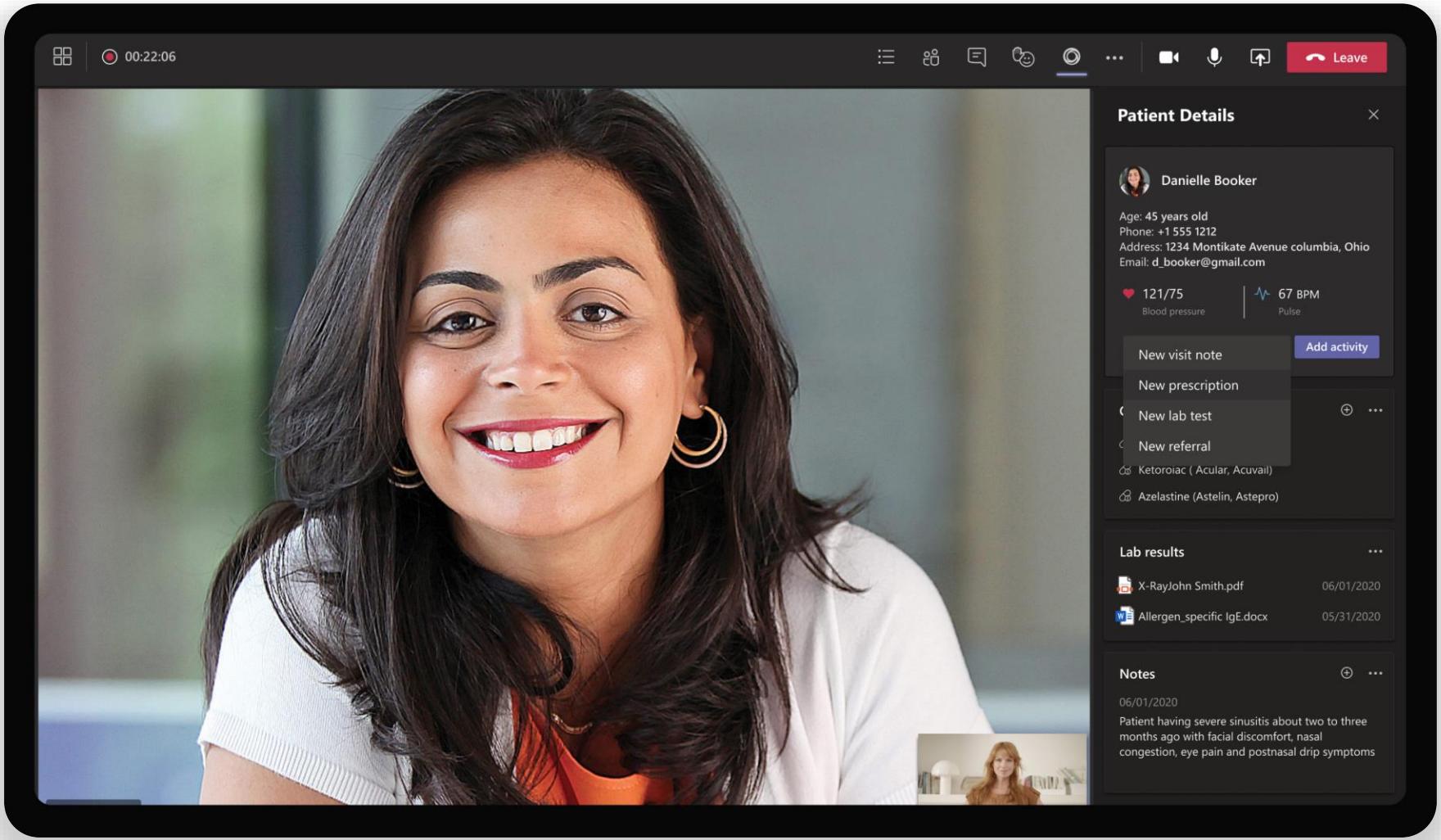
⚠	**Dr. Blair** holds multiple in-person appointments each day and rarely knows the reason for the appointment before she meets a patients. Patient intake information is typically collected and passed ad-hoc from an attending nurse.
⚠	**Patient Booker** calls Contoso Healthcare to book an appointment with Dr. Blair. She receives a phone confirmation but can't track her appointment status to see if Dr. Blair is going to be on time.
⚠	**Dr. Blair** scans Patient Booker's paper-based records during the appointment, then follows up with nurses in person to ask about any other lab reports or medical history for the patient.
⚠	**Dr. Blair** takes appointment notes on paper. After the appointment, she'll have to transfer notes, diagnosis, and prescription information into Contoso Healthcare's Electronic Health Records (EHR).
⚠	**Dr. Blair** manually cross-checks the EHR and a separate database to verify that the medication Patient Booker needs is safe considering her known allergies and current medications. Dr. Blair uses a paper prescription pad to order the Rx.
⚠	**Patient Booker** receives her paper prescription slip and follow-up instructions. If she misplaces her paper, she could miss a step in her care plan.

Future state

✓	**Dr. Blair** meets with patients remotely, minimizing exposure to communicable diseases and lowering personal protective equiment waste.
✓	**Patient Booker** wants to talk to Dr. Blair about a fever she's had for the last two days. The Contoso Healthcare system sets up a virtual appointment, scheduling time with Dr. Blair on the same day.
✓	**Dr. Blair** joins the patient appointment via a Teams meeting, where she can check all of Patient Booker's medical history, recent vitals, and current medication list.
✓	**Patient Booker** describes her recent symptoms to Dr. Blair, who can pull up lab reports during the meeting to check for information that will aid her diagnosis or treatment plan.
✓	**Dr. Blair** arrives at a diagnosis, asks Patient Booker about her allergies and prescribes medication in real-time. Dr. Blair taps into a medication knowledge base app integrated with Teams and shares information about the medications' use and potential side effects.
✓	**Patient Booker** receives her prescription via email, and Dr. Blair adds follow-up notes and orders additional tests right in the Contoso Healthcare EHR.

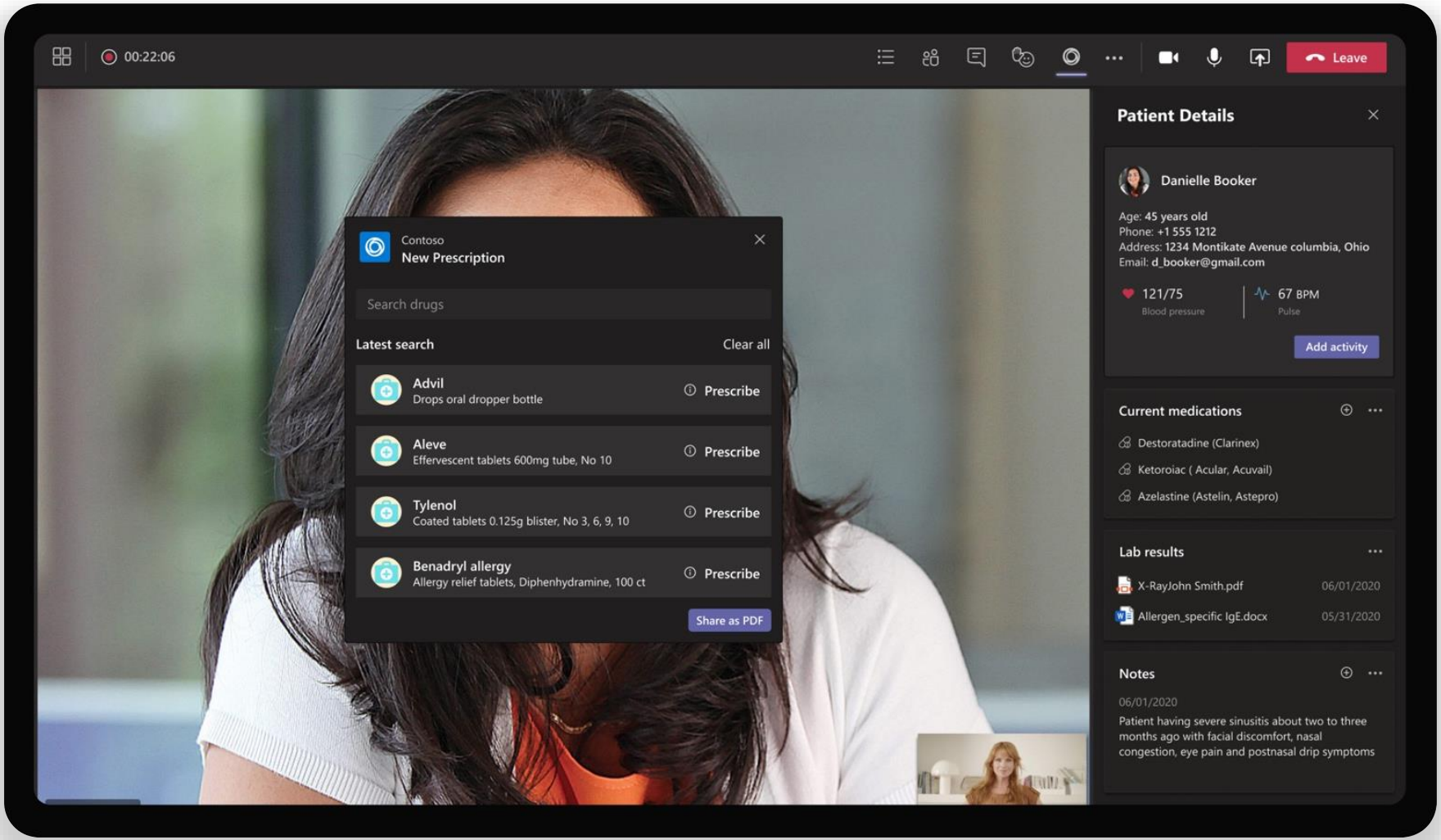
Healthcare – Virtual consult

During a virtual consult, providers can pull up patient information, recent vitals, and medical history—everything they need to aid in diagnosis and treatment.



Healthcare – Virtual consult

Provider appointment notes and new prescriptions are automatically saved in app memory. The app syncs with an EHR at regular intervals to help ensure all consult details are captured.



Healthcare – Virtual consult

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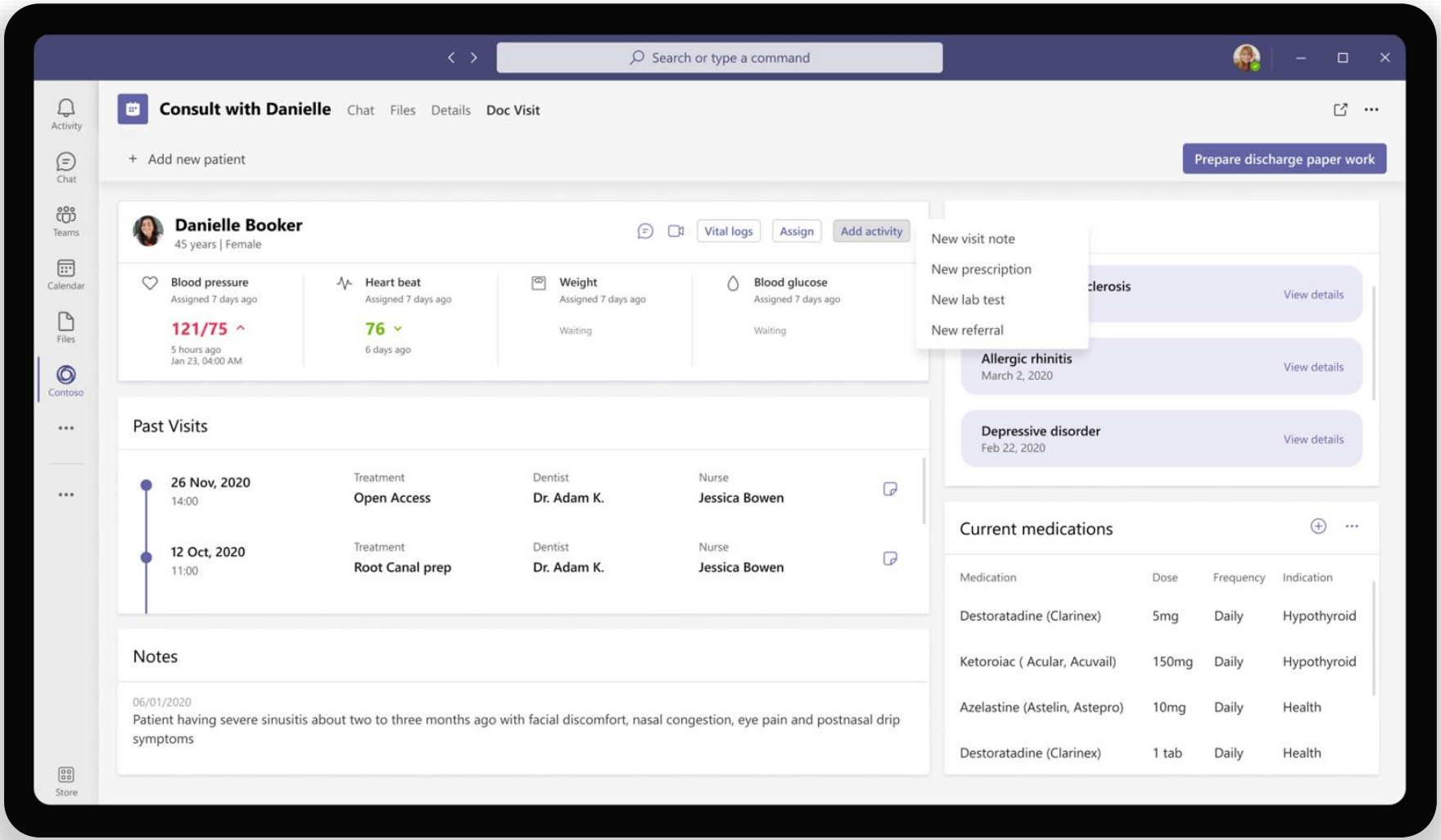


Solution highlights – best practices

Key solution design considerations

Platform extension points

- **Personal scoped app**—patient tracking and consults are done one on one between a doctor and patient.
  - **Personal tab** is used for presenting the list of patient consults scheduled, status, and double clicking on patient details. Tab is required to show all information in one hub with flexibility of UI elements.
  - **Personal bot** is mainly used for notifications, reminders, and alerting users about new patients.
- **Apps in meetings** are used to surface relevant information the provider needs while talking to a patient. As meetings and calls are often part of a provider's workflow, meeting extensibility is a core component.
- **Task modules** are used primarily for prescribing medication and sending automated emails. These actions are means to an end (like performing an action on patient case) and should be done within the flow of work..

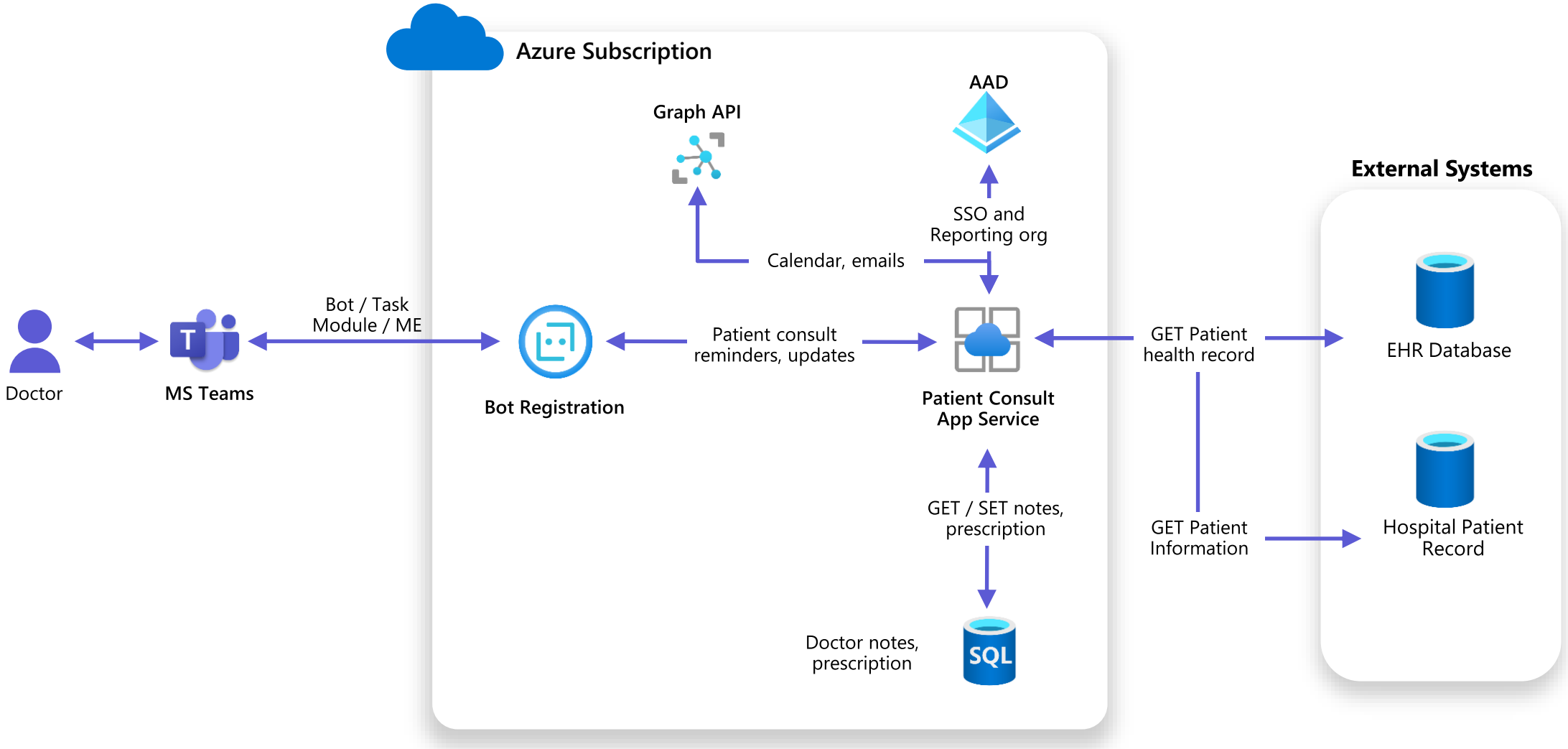
User experience

- **Proactive messages** are sent at a scheduled time to remind providers about their upcoming calls with patients.

Graph API

- The app utilizes Send Mail Graph API to create and send emails via signed-in doctor's account to patients on their case file and prescription.
- The app also uses Create Event Graph API to create Teams calls between doctors and patients and Calendar Graph APIs to read and show calendar events.

Solution architecture



Thank you