Case Study from Stanford CERC: Applications of Health Information Technology (HIT) for Care Delivery Innovation

February 26, 2019
Fourteenth National Value-Based Payment and Pay for Performance Summit 2019

Stanford MEDICINE | Clinical Excellence Research Center

Stanford Clinical Excellence Research Center

OUR VISION

A health system that yields improved patient care and outcomes while lowering population-wide spending

OUR MISSION

Generate robust scientific evidence demonstrating how lower cost, high quality care delivery can be achieved

Our Portfolio

BRIGHT SPOTS RESEARCH
Discover scalable attributes of high-value clinical teams

AI-ASSISTED CARE RESEARCH
Discover methods to assure reliable delivery of high-value care

HEALTHCARE DESIGN FELLOWSHIP
Train the next generation in healthcare value improvement

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Healthcare Design Fellowship

Creating **healthcare value sleuths** - training early-career fellows to discover value-improving care innovations.

- Multi-disciplinary teams of post-doctoral fellows
- **Mission**: distill existing evidence to pinpoint the highest impact and overlooked opportunities to reduce healthcare spending in the target area
- Design a **care delivery model** that can be **subsequently implemented and iterated** at partner healthcare systems/sites

Year	Fellowship Target Areas
2011-12	• Chronic kidney disease • Cancer care
2012-13	• Pediatric chronic illness transitions to adult care • Stroke care
2013-14	• Ambulatory surgery
2014-15	• Critical care • Spine care
2015-16	• Cancer 2.0 • Maternity care • Early childhood care
2016-17	• Cognitive impairment • Prescription medications
2017-18	• Late life • High need high cost

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Model Dissemination and Iteration

Examples of current and past efforts to disseminate CERC's care delivery models:

Department of Veteran's Affairs: completed randomized study in **late stage oncology model**, resulting in lower heath care costs within 30 days of patients' death ($1,048 vs. $23,482)[1]

Virginia Mason's Rapid-Access TIA clinic: utilizing **stroke care model** to relocate low-risk patients from the hospital setting to outpatient setting and improve outcomes at lower costs

CareMore: trialed **cancer care model,** yielding >20% per capita net savings

Desert Oasis Healthcare: undergoing rapid pilot testing of **late life care model**

Kaiser Permanente: adopted and rapidly disseminated **acute stroke care** attributes

Brigham and Women's, Vanderbilt and Honor Health: testing multi-state pragmatic trial on **spine care model**

[1]Patel, Manali I., et al. Effect of a Lay Health Worker Intervention on Goals-of-Care Documentation and on Health Care Use, Costs, and Satisfaction Among Patients With Cancer: A Randomized Clinical Trial. *JAMA Oncology* (2018).

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The 2018-2019 CERC Design Challenge:

What are the top three applications of health information technology (HIT) to *reduce cost* and *improve quality* in American healthcare?

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2018-2019 CERC Design Fellows

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Courtenay Stewart, DO

Focus:
Outpatient Care

Anoop Rao, MD, MS

Natalia Leva , MD

Focus:
Inpatient Care

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Image source: venture scanner

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Outsized Spending On Chronic Illness

Total US healthcare spending = $3.4 Trillion

Sources: Centers for Disease Control; National Association of Chronic Disease

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Cost Drivers- Outpatient Population

Healthcare is Fragmented

Unaddressed Barriers to Care

Healthcare is Reactive

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High Value HIT for Outpatient Care

Healthcare is Fragmented

TEAM

Specialty e-consults

>$300/ consult[1]

Unaddressed Barriers to Care

TARGET

Social services platform

Patient goal-directed care

11%[2]

Healthcare is Reactive

TIMELY

Population health management platform

24/7 communication tools

23-52%[3]

[1]Reines, et al. (2018) NEJM Catalyst; [2]Jessica Grossmeier et al. (2012) Population Health Management; [3]Economic evaluation of clinical quality registries: Final report. Sydney: The Australian Commission on Safety and Quality in Health Care 2016.

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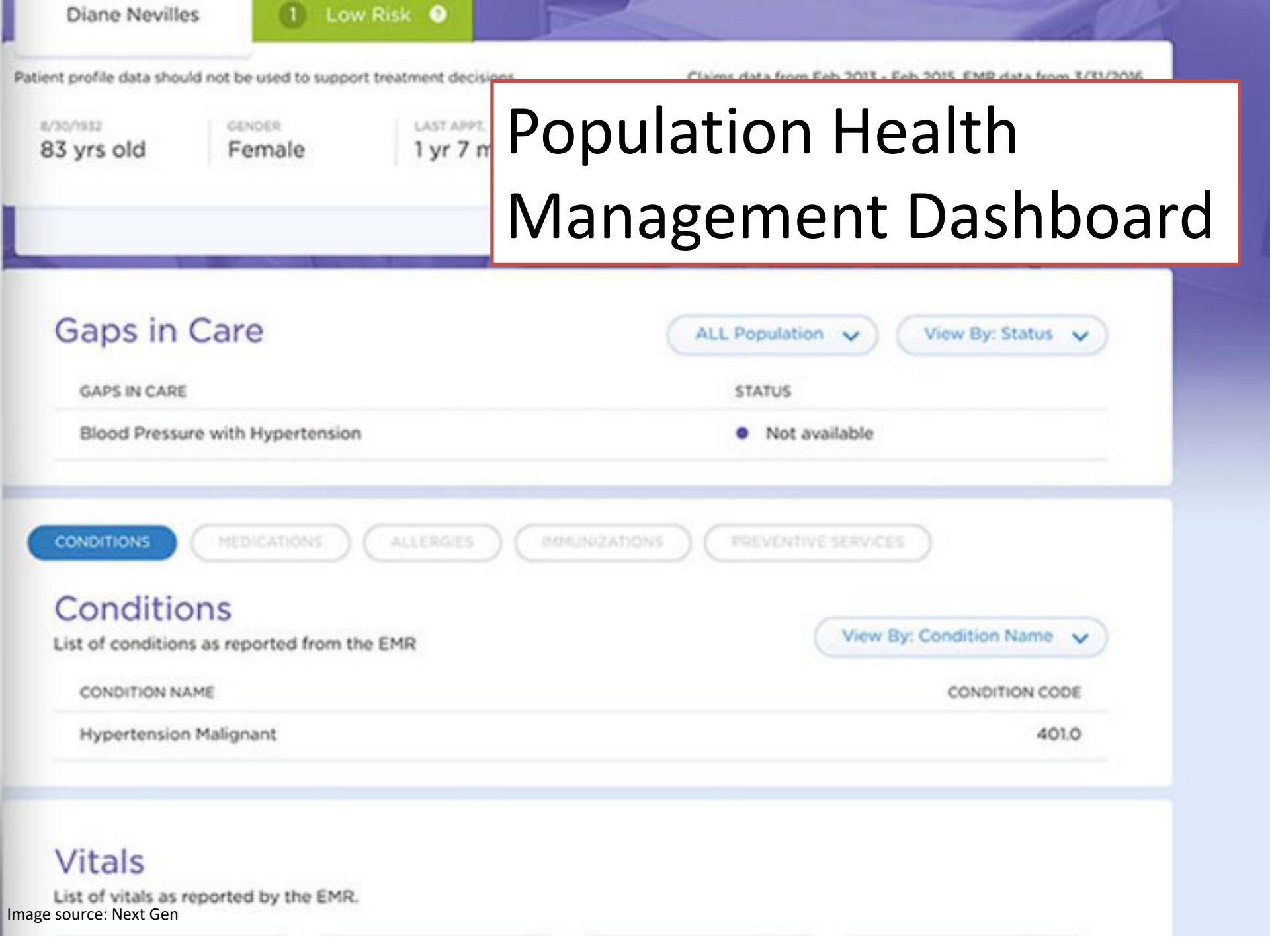
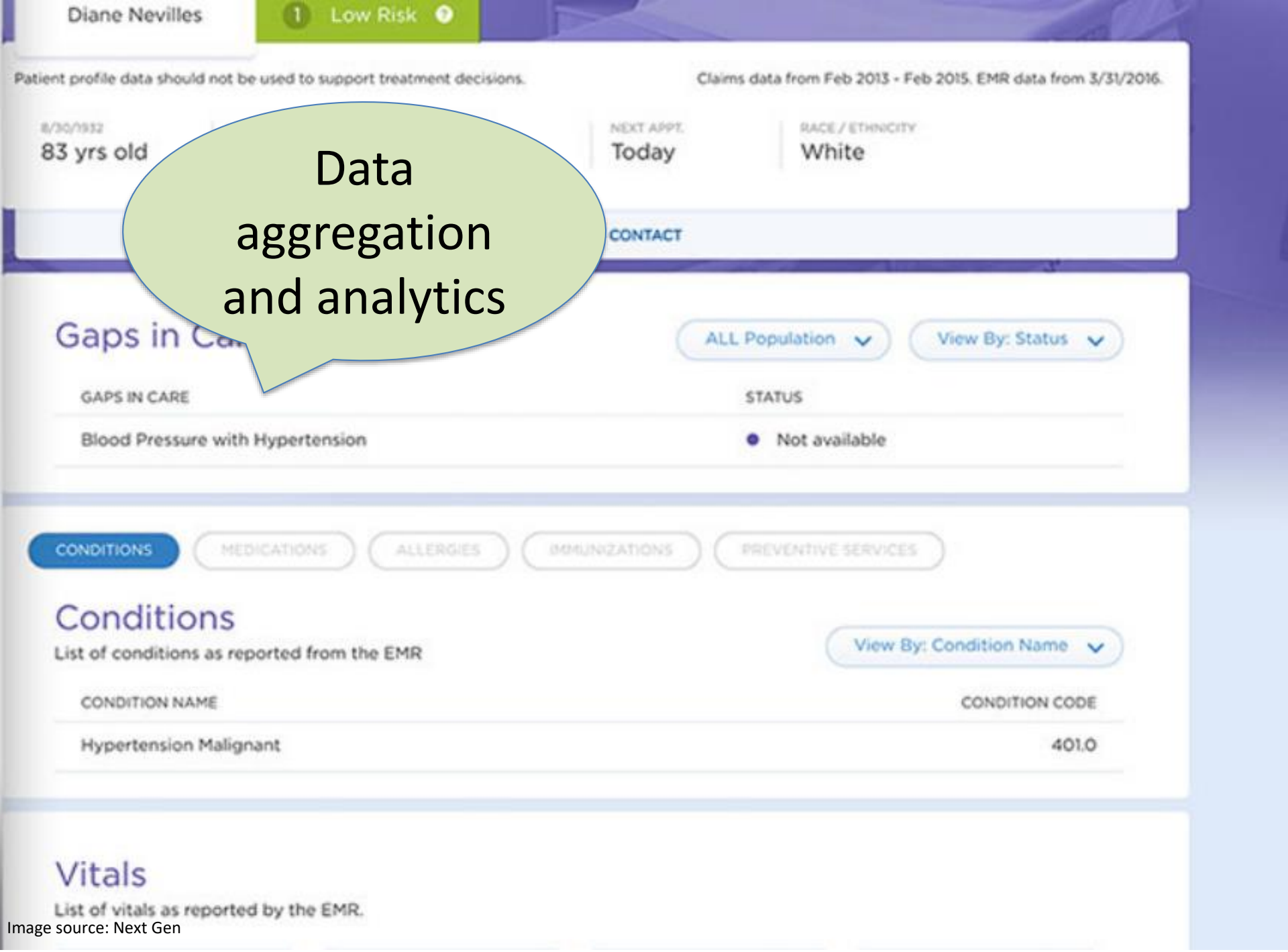


Population Health Management Dashboard

Image source: Next Gen



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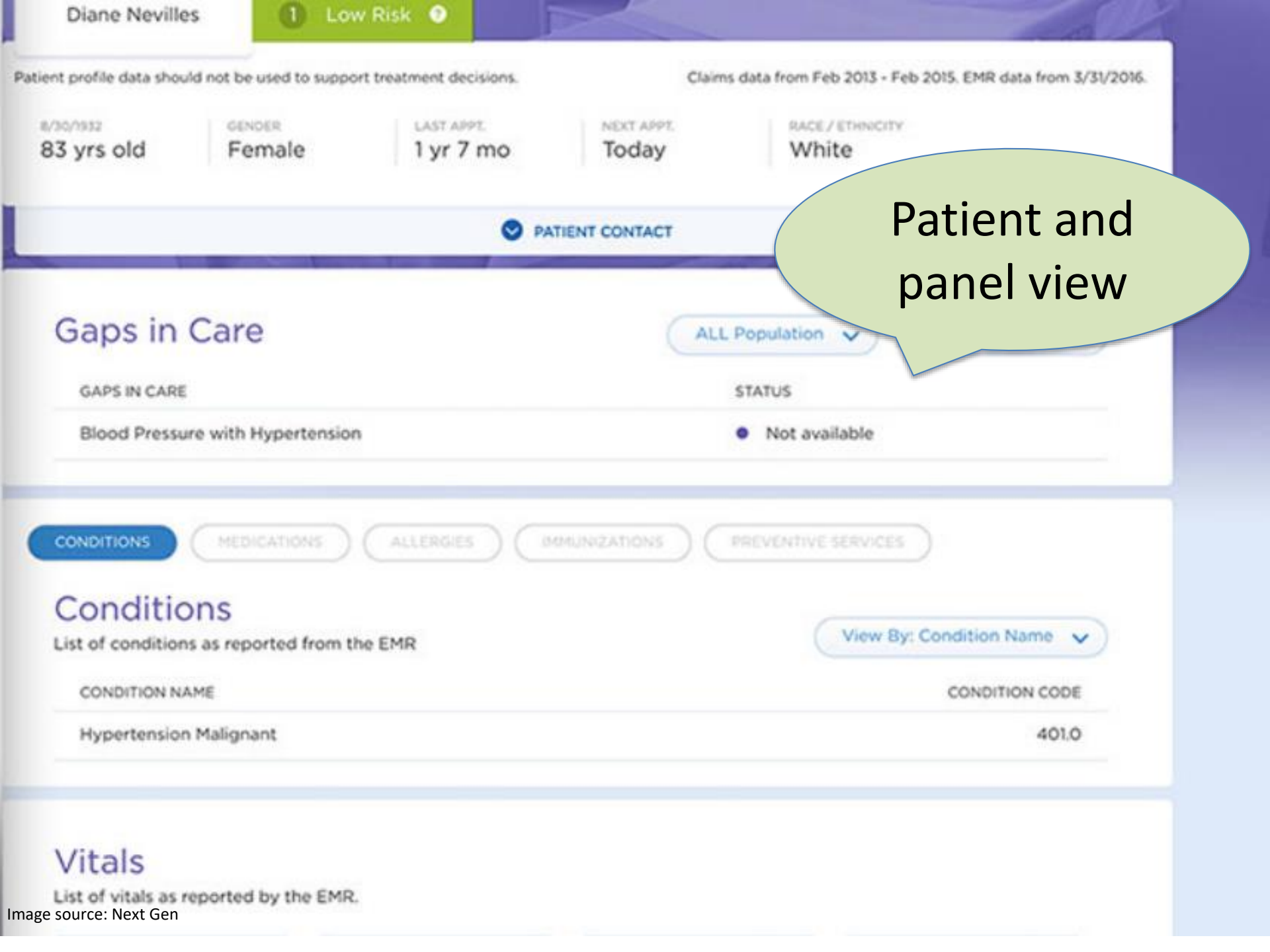

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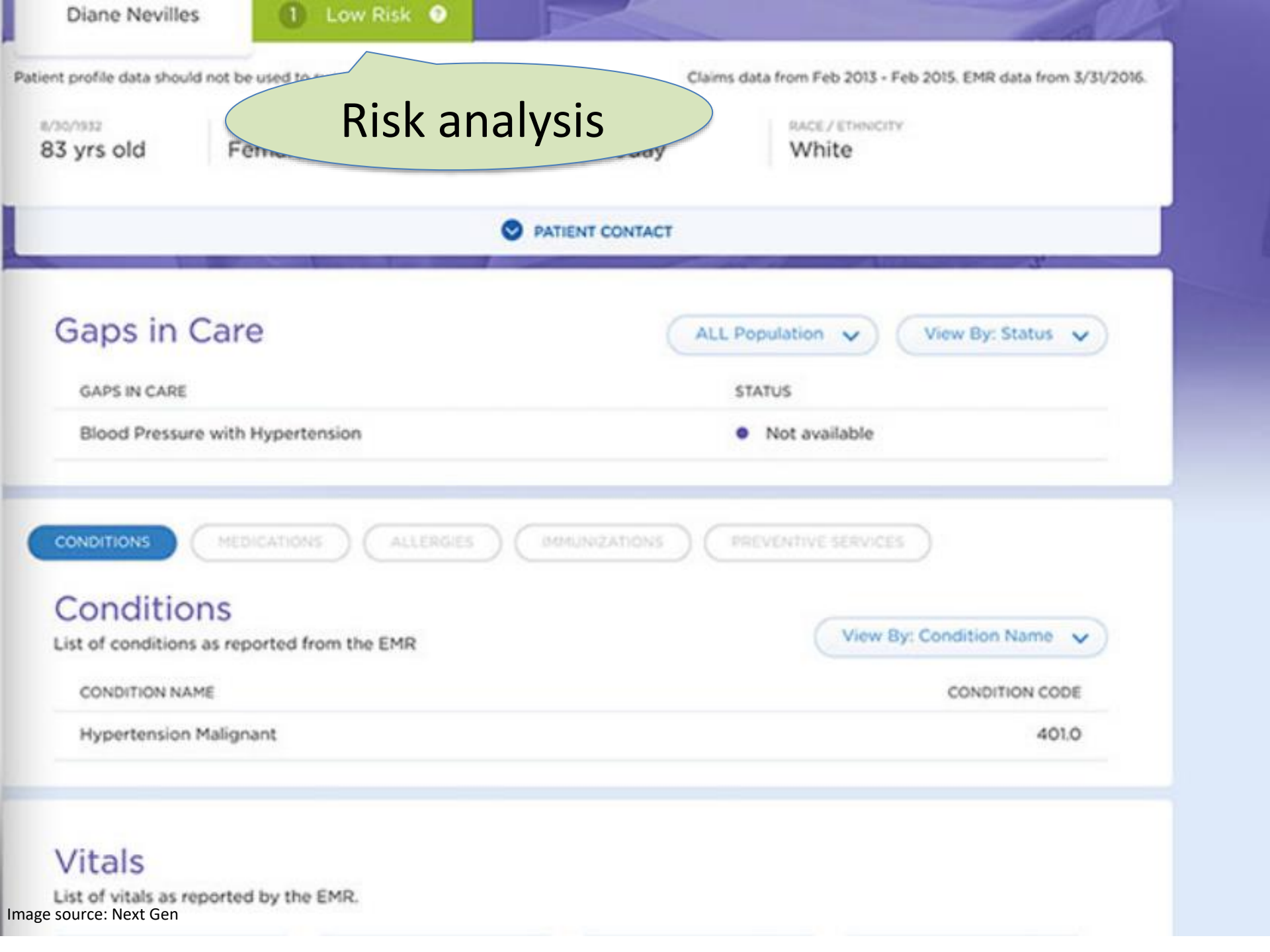

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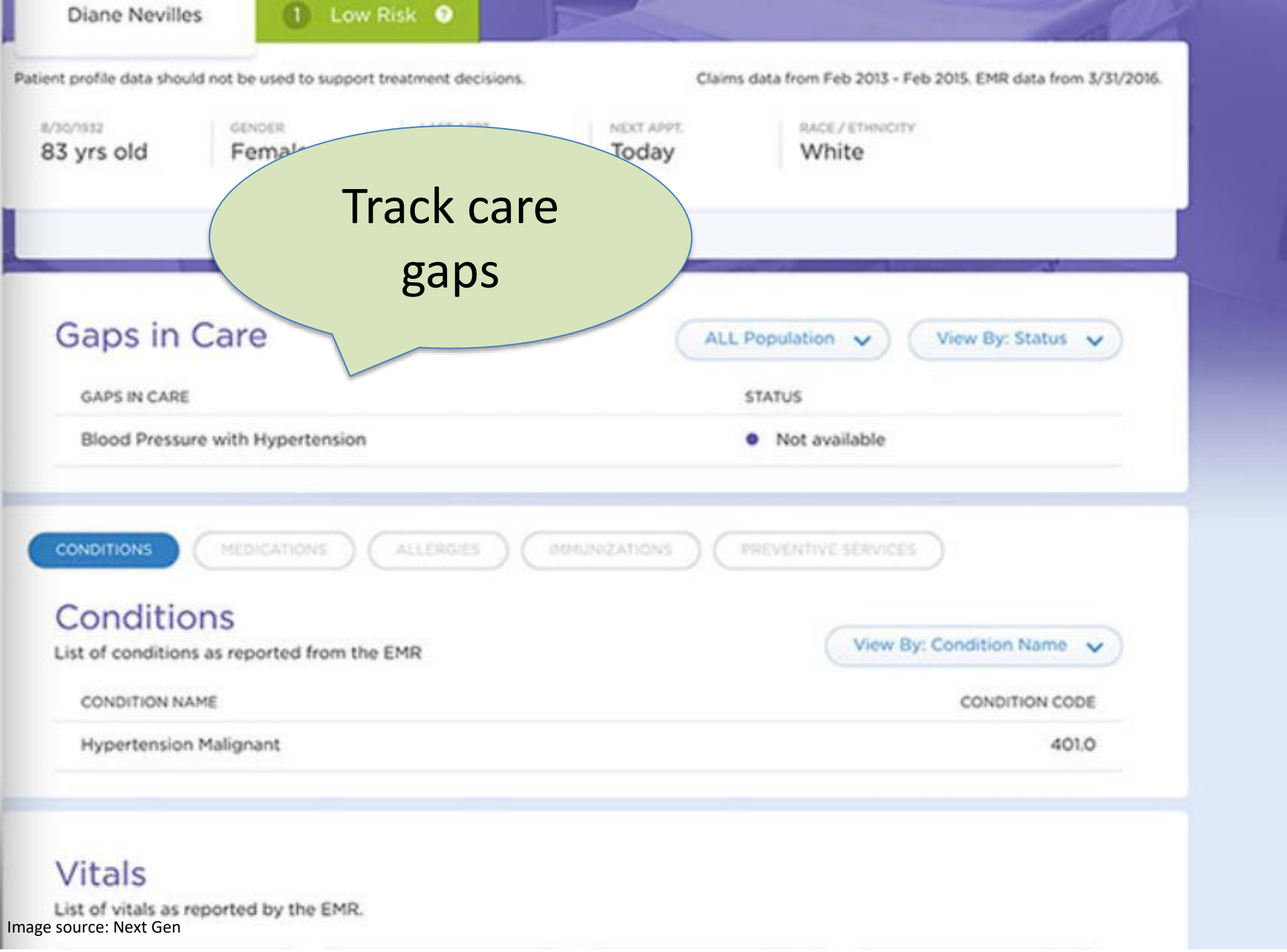

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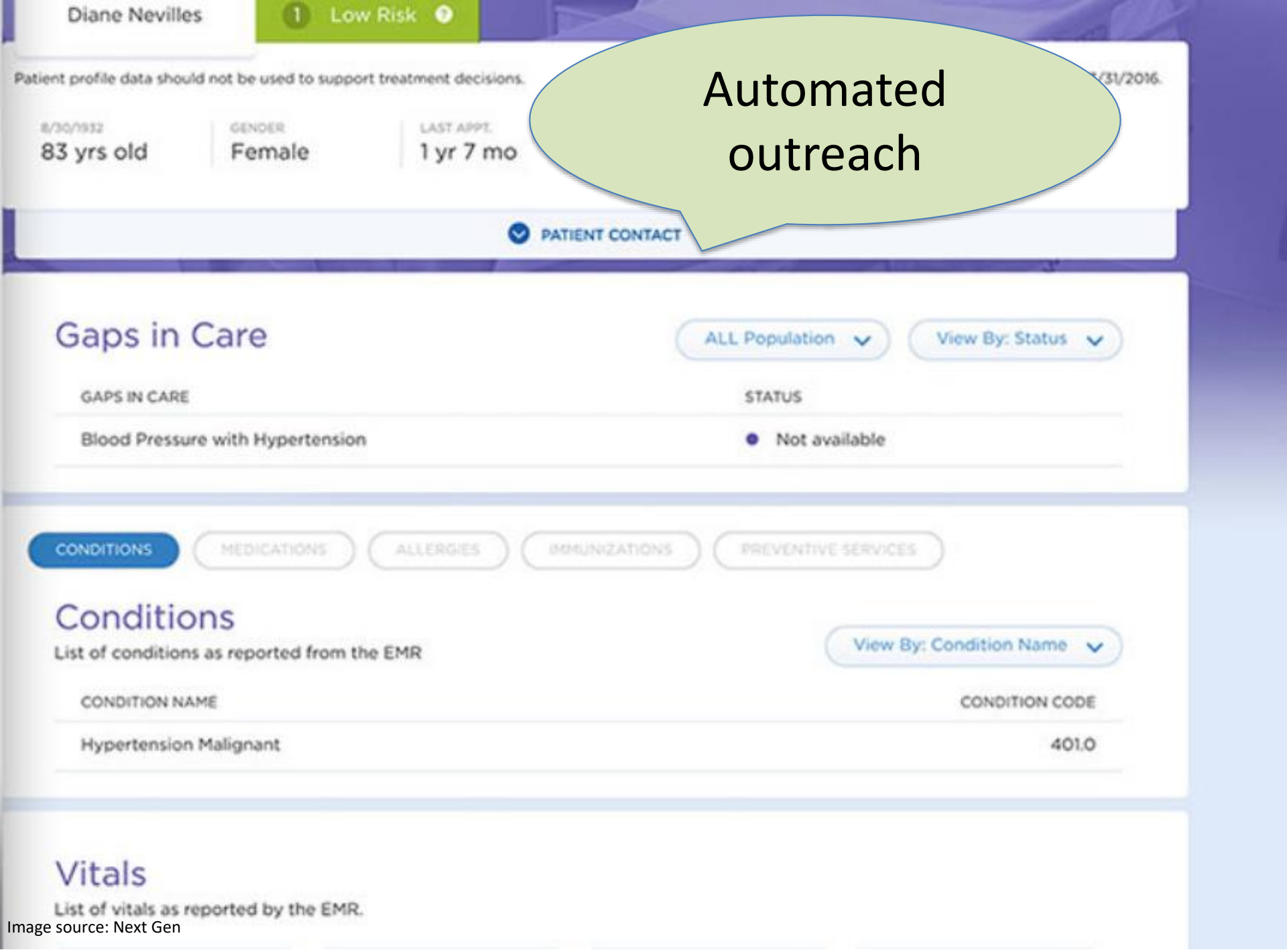

Image source: Next Gen

Cost Drivers- Inpatient Population

Unmet Mental Health Needs Amplify Medical Costs

Inefficient Inpatient Resource Utilization

Post-acute Care Transition Gaps

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High Value HIT for Inpatient Care

Unmet Mental Health Needs Amplify Medical Costs

First Responder Assist

Integrated platform for timely referrals

Tele-visits with MH provider

↓26-40% ED Visits[1,2,3]

Inefficient Inpatient Resource Utilization

Smart Resource Allocation

Predictive and workforce analytics

Centralized resource management

↓13% Hospital LOS[4]

Post-acute Care Transition Gaps

Pharmacy Led, Tech-enabled Transitions

Inpatient population-level monitoring via Dashboard

Tele-pharmacy check-ins and follow-up

↓4-14% 30-day Readmissions[5,6]

[1]Choi BY, et al. *Annals Em Med*, (2016); [2]Zavadsky, M et al. *AHRQ Healthcare Innovations Exchange*, (2013); [3]MedStar Mobile Healthcare; (2015); [4]Levine WC, et al. *Anesthes Clin*, (2015); [5]Kilcup 2013, et al. *J Am Pharm Assoc*, (2013); [6]Polinski JM, et *al. Health Aff*, (2016).

Tech-enabled, Pharmacy-driven Care Transitions

Inpatient Admission:

Hospital Admission

- Pharmacist monitors high-risk inpatient population via **Dashboard**
- Automatic **Generic Substitution** if appropriate

- **Bedside Check-in**
- Discuss **Red Flags**
- Create **Personalized Medication Record**
- **Fall Risk assessment**

After Discharge:

- Pharmacy technician performs **Tele Check-in** within 48-72h of discharge

- **Follow-up teaching** with Pharmacist as required

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Questions and Feedback

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