

Front Desk of the Future: Paperless Clinic

Thursday, March 30, 2023

AMGA Annual Conference 2023

VANDERBILT  UNIVERSITY
MEDICAL CENTER



Executive Summary

AMGA 2023 – Technology & Innovation Front Desk of the Future

Hunter Nichols

Vanderbilt University Medical Center
Senior Associate – Adult Ambulatory Operations
Associate Operating Officer – Hearing & Speech Sciences



Paperless Clinic:

- Reduce Paper
- Consistent Form Use
- Streamline Work
- Stellar Patient Experience

Learning Objectives:

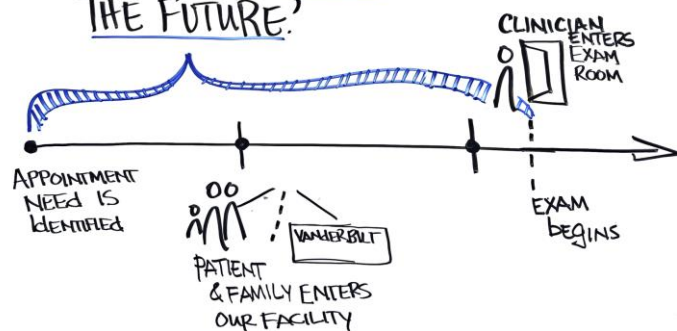
- Understand strategy for organizing, planning, and executing an enterprise-wide project through engagement of all stakeholders
- Identify opportunities to leverage technology that improves patient experience and streamlines clinic operations
- Develop structure and governance to navigate challenges in creating and sustaining significant operational change and investment in technology



Conceptualizing a 'Front Desk of the Future'

PURPOSE

TOGETHER WE WILL:
DEFINE POTENTIAL
CHARACTERISTICS OF
A 'FRONT DESK OF
THE FUTURE.'



My Health at Vanderbilt (MHAV)

- 'Opt out' functionality

Online Scheduling

- Expand functionality

Live Chat

- Feature with Access re: appt scheduling

Pre-Visit Enhancements

- Patient questionnaires via MHAV

Consents

- Complete administrative consents electronically

WayFinder App

Medication Reconciliation

Review of Systems

- Integrate ROS to questionnaire

Co-Pay Collection Enhancements

Patient Reported Outcomes (PROMS)

Save My Spot

- Same day appt scheduling for walk in clinics

Virtual Check-in

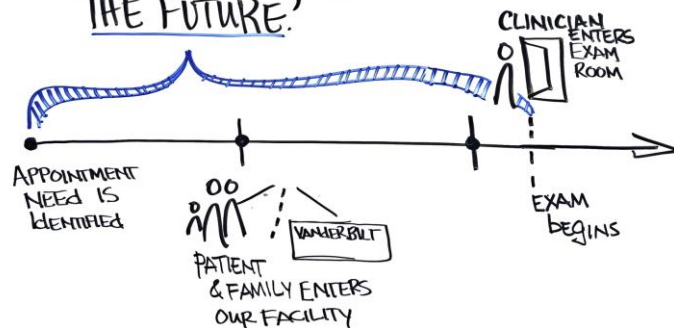
- Registration through check-in



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Patient Reported Outcomes (PROMS)

Review of Systems

- Integrate ROS to questionnaire

Overview of Paperless Clinics



1

Reduce paper at clinic check in

2

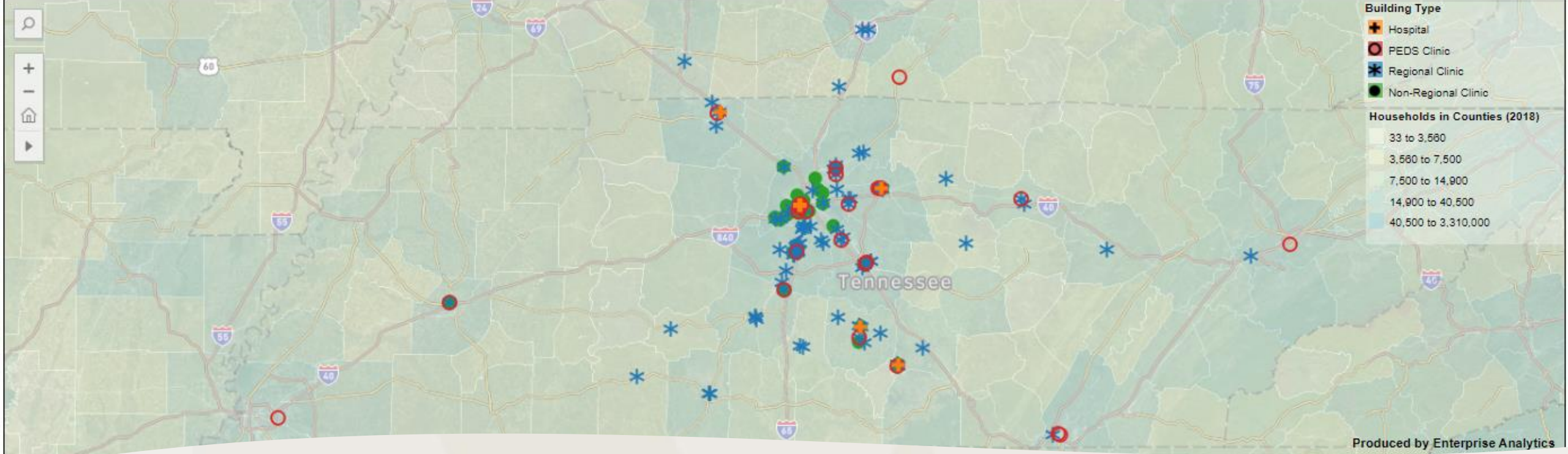
Consistency of forms

3

Streamline workflows

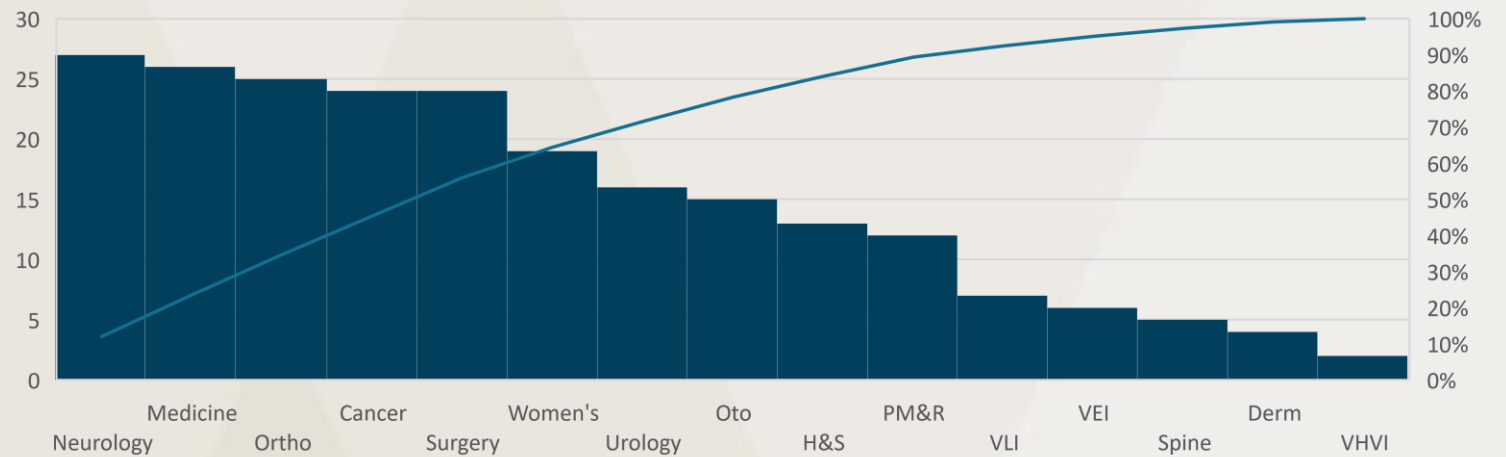
4

Provide a stellar patient experience



Scope of Paperless Clinics

Existing Paper Form by Page Pareto



Patient Experience Guiding Principles

Questionnaires available
72 HOURS
before appointment

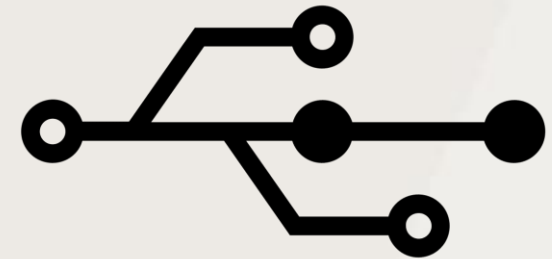


Limit Questionnaire to
30 Questions or Less

Reduce Question Redundancies
**Patient Entered
Information is 'sticky'**

- Pre-populated
- Carried forward
- Both

Utilize
Branching Logic



Assign Questionnaires by
Visit Type

Organizing Stakeholders

| <i>Responsible</i> | <i>Accountable</i> | <i>Supportive</i> | <i>Consulted</i> | <i>Informed</i> |
|--|---------------------------------|--|--|--|
| VP Adult Ambulatory HealthIT Executive Director PROMS Medical Director | EVP Adult Ambulatory CIO | Hunter Nichols HealthIT Project Lead HealthIT Project Manager PROMS Project Manager | PCC Leadership Team (ANO, AOO, Executive Medical Director, Physician Leader) HealthIT Governance Director MyHealth Epic builder | Local Clinic Leadership Patient & Family Advisory Councils PSS Advisory Board .Nursing Informatics Physician Support (HealthIT) eStar Training & Delivery Technical Support Desktop Support |

VUMC Executive Leadership

Service Line Leadership

Managers & Professional Homes

ROADSHOW



Operations Governance

HealthIT Governance

Project Team

Proof of Concept Location



📍 One Hundred Oaks

11

Unique Adult
Clinics

Proof of Concept Design

Service Line Kick-off Meeting
11/19 – 12/19

End User Acceptance Form Approval
12/9/19 – 1/3/20



11/31

Content Submitted



11/19 – 12/19

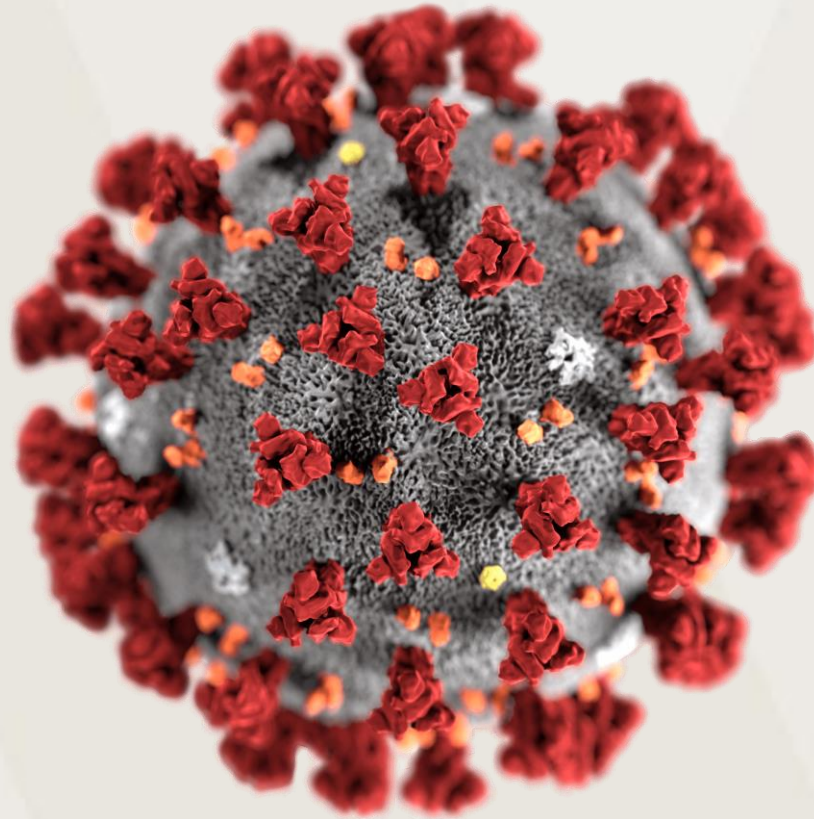
Ongoing stakeholder feedback & form build



1/6/20 – 1/20/20

Go-Live Form Replacement (Downtime)

COVID as a 'Catalyst'



Proof of Concept Takeaways



Consistent methodology



Improvements in displaying information



Proposed expansion pro forma



Proof of Concept

January 2020 - September 2020

Proposed Expansion Pro Forma



RISKS →

| | |
|---|---------------------|
| Average Number of Devices Per Clinic | 12 |
| Total Number of Front Desks | 250 |
| HARDWARE COSTS (per unit) | |
| Tablets | \$ 355 |
| 3 Yr Warranty | \$ 135 |
| Otter Box Case | \$ 90 |
| Cable/Charging Box | \$ 50 |
| Charging Cabinet | \$ 1,400 |
| TOTAL COST PER CLINIC | \$ 8,960 |
| TOTAL HARDWARE BUDGET | \$ 2,240,000 |
| LABOR (HealthIT) COSTS* | |
| IT resource cost per form | \$ 8,800 |
| Estimated # of remaining forms | 100 |
| TOTAL ESTIMATED LABOR COSTS | \$ 880,000 |
| PAPERLESS EXPANSION TOTAL | \$3,120,000 |

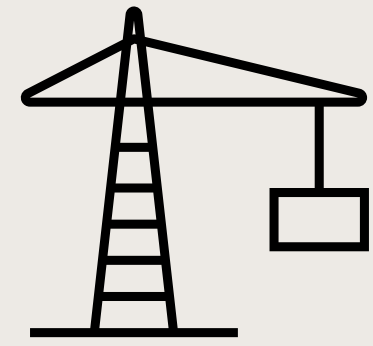
Project Workstreams



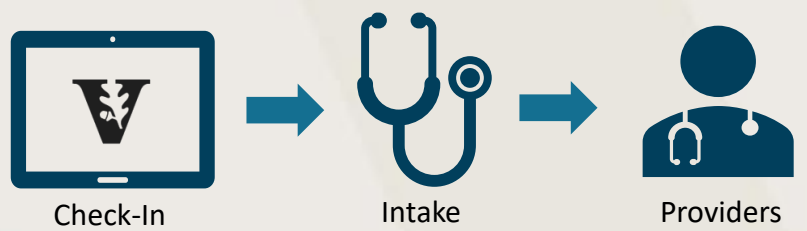
HARDWARE



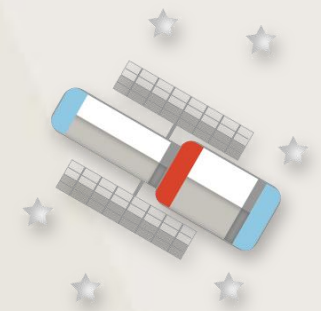
CONTENT



BUILD

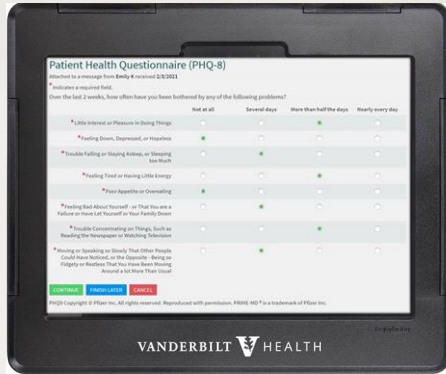


OPERATIONS



TRAINING

Project Workstreams



HARDWARE



Products Identified

**Storage, Security,
Charging**

**Tablet Configuration &
Functionality**

Project Workstreams



CONTEN

VANDERBILT UNIVERSITY
MEDICAL CENTER
Vanderbilt Spine Center
Return Patient Intake
Patient Completed Information

VANDERBILT UNIVERSITY
MEDICAL CENTER
Vanderbilt Dermatology
New Patient Intake
Patient Completed Information

Skindex-Mini

SCALE:

| | Never Bothered | | | | | | Always Bothered |
|--|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Your skin condition itching ? | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 | <input type="checkbox"/> 6 |
| Symptoms of your skin condition? – (For example: itching, stinging, burning, hurting, or skin irritation) | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 | <input type="checkbox"/> 6 |
| Emotionally bothered by your skin condition? – (For example: worry, embarrassment, frustration). | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 | <input type="checkbox"/> 6 |
| The effects of your skin condition on your daily activities ? – (For example: going out, accomplishing what you want, work activities, or your relationship with others). | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 | <input type="checkbox"/> 6 |

Heart Attack Hypertension Diabetes Mellitus
 Heart Disease Stroke Cancer

SOCIAL HISTORY:

Do you smoke? Yes No How many packs per day? _____

Do you drink alcohol? Yes No How many drinks per day? _____

Do you use street drugs? Yes No

Existing Questionnaire Inventory

Review with Service Line Stakeholders

Hand off to Build Team

Project Workstreams

The screenshot displays the NoteWriter interface with a questionnaire. The top navigation bar includes tabs for Chart Review, StarPanel Viewer, Order Review, Immunizations, Intake, Notes, NoteWriter, Plan, Universal Protocol Timeout, MAR, Wrap-Up, Snapshot, and Synopsis. The main content area is titled 'ROS: Edit Note' and features a status bar indicating that answers submitted by the patient today have been applied. The questionnaire is organized into columns for different medical systems, each with a 'neg' checkbox. The GI system is highlighted with a red background, and several symptoms within it are also highlighted in red. The symptoms are as follows:

| System | Symptoms |
|-----------------|--|
| Constitution | Fever, Chills, Weight loss, Malaise/Fatigue, Diaphoresis |
| Skin | Rash, Itching |
| HENT | Hearing loss, Tinnitus, Ear pain, Ear discharge, Nosebleeds, Congestion, Sinus pain, Stridor, Sore throat |
| Eyes | Blurred vision, Double vision, Photophobia, Eye pain, Eye discharge, Eye redness |
| Cardiovascular | Chest pain, Palpitations, Orthopnea, Claudication, Leg swelling, PND |
| Respiratory | Cough, Hemoptysis, Sputum production, Shortness of breath, Wheezing |
| GI | Heartburn, Nausea, Vomiting, Abdominal pain, Diarrhea, Constipation, Blood in stool, Melena |
| GU | Dysuria, Urgency, Frequency, Hematuria, Flank pain |
| Musculo | Myalgias, Neck pain, Back pain, Joint pain, Falls |
| Endo/Heme/Aller | Easy bruise/bleed, Env allergies, Polydipsia |
| Neurological | Dizziness, Headaches, Tingling, Tremor, Sensory change, Speech change, Focal weakness, Weakness, Seizures, LOC |
| Psychiatric | Depression, Suicidal ideas, Substance abuse, Hallucinations, Nervous/Anxious, Insomnia, Memory loss |

Build Questionnaire

Test Questionnaire
Functionality

Ensure appropriate
mapping

Project Workstreams



Check-In

OP

The screenshot shows a medical software interface with the following components:

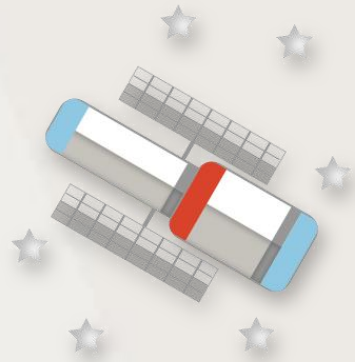
- Navigation Bar:** Includes 'Chart Review', 'StarPanel Viewer', 'Order Review', 'Immunizations', 'Intake' (highlighted with a red box), 'Notes', 'Plan', and 'Universal Protocol'.
- Intake Section:** Shows 'REQUIRED SECTIONS' with 'MIHAV Hx' highlighted. Below are 'Vital Signs', 'PI Demographics', and 'Update OPWB'.
- Patient-Entered History:** A table with columns for 'Response' and 'Date'. It lists various medical and surgical histories, including 'Abnormal Pap', 'Anemia', 'Fibroids', 'HPV infection', 'Urinary incontinence', 'Appendectomy', 'Weight Loss Surgery', 'Colposcopy', 'LEEP', 'Fibroid Removal (Myomectomy)', and 'Social History' (Tobacco Use).
- Overlaid Patient Questionnaire:** A window titled 'Patient Questionnaire' with a search bar and a refresh button. It displays a table of questions and answers related to pain management, such as 'Pain location today', 'IVP Pain Questionnaire', and 'Pain Score Now'.

Workflow Change Assessment

SOP Creation

Structure for ongoing governance

Project Workstreams



TRAINING

The screenshot shows the eStar search interface. At the top, there are logos for eStar and Vanderbilt University Medical Center. A search bar contains the text 'paperless'. Below the search bar, the text 'SEARCH RESULTS' is displayed. A filter section on the left includes a 'Hide Refine Search' button and a 'Filter by:' section with three options: 'My Courses' (checked), 'Instructor Led', and 'Online Course'. The main results area shows '5 results for "paperless"'. The first result is 'Paperless Clinic Provider Workflow Demo' with a play button icon. The second result is 'eStar Online: Using Patient Questionnaires in the Paperless Clinic' with a checkmark icon. A small inset window at the bottom shows a configuration dialog for a button named 'Patient Questionnaire' with a 'Report Name' of 'Meds' and a 'Button Name' of 'Meds'.

Revisit existing tip sheets

'At the elbow' support & virtual options

Conduct/Disseminate training broadly

Project Timeline



Proof of Concept at
One Hundred Oaks

January - September

2020



Expansion Pro Forma
Approved

October



Expand Paperless Clinic across all
Ambulatory sites

January - October

2021

Revisiting Pro Forma

| | BUDGET | ACTUAL | VARIANCE |
|--------------------------------------|---------------------|--------------------|---------------------|
| Average Number of Devices Per Clinic | 12 | 6 | 6 |
| Total Number of Front Desks | 250 | 210 | 40 |
| HARDWARE COSTS (per unit) | | | |
| Tablets | \$ 355 | \$ 355 | - |
| 3 Yr Warranty | \$ 135 | \$ 135 | - |
| Otter Box Case | \$ 90 | \$ 90 | - |
| Cable/Charging Box | \$ 50 | \$ 50 | - |
| Charging Cabinet | \$ 1,400 | \$ 350 | \$ 1,050 |
| TOTAL COST PER CLINIC | \$ 8,960 | \$ 4,130 | \$ 4,830 |
| TOTAL HARDWARE BUDGET | \$ 2,240,000 | \$ 867,300 | \$ 1,372,700 |
| LABOR (HealthIT) COSTS* | | | |
| IT resource cost per form | \$ 8,800 | \$ 8,800 | - |
| # of remaining forms | 100 | 65 | 35 |
| TOTAL ESTIMATED LABOR COSTS | \$ 880,000 | \$ 572,000 | \$ 308,000 |
| PAPERLESS EXPANSION TOTAL | \$3,120,000 | \$1,439,300 | \$ 1,680,700 |

Sustaining Operational Change



Integration with
existing Forms
Committee



Position specific
learning modules



Streamline
troubleshooting



Operational
playbook



'Secret Shopper'
and Executive
Rounding



'At the elbow'
support for clinic
specific needs



Leveraging
physician builders



'Clean up' in areas
that need
additional support

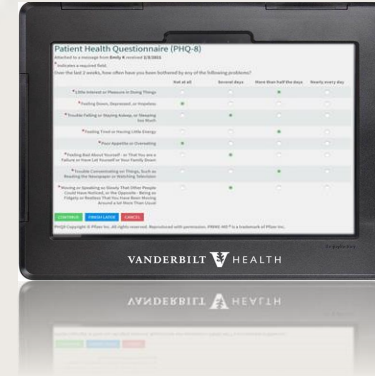
KPI of Paperless Clinics

Data from CY2022



73%

of all questionnaires are
completed via MHAV
(n=704,189)



9 min.

Average time to complete
questionnaire via tablet
(New patient)

Patient Feedback

“The check in staff member was excellent! she described the self-check in tablet process clearly with patience and grace. One of the best I have ever encountered at Vanderbilt!”

- Orthopaedics

“Check in experience could not be better. By the time I had completed the questionnaire, I was called by the nurse.”

- Internal Medicine

| | Not at all | Several days | More than half the days | Nearly every day |
|---|----------------------------------|----------------------------------|----------------------------------|-----------------------|
| Little Interest or Pleasure in Doing Things | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| *Feeling Down, Depressed, or Hopeless | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| *Trouble Falling or Staying Asleep, or Sleeping too Much | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| *Feeling Tired or Having Little Energy | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| *Poor Appetite or Overeating | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| *Feeling Bad About Yourself - or That You are a Failure or Have Let Yourself or Your Family Down | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| *Trouble Concentrating on Things, Such as Reading the Newspaper or Watching Television | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| *Moving or Speaking so Slowly That Other People Could Have Noticed, or the Opposite - Being so Fidgety or Restless That You Have Been Moving Around a lot More Than Usual | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |

CONTINUE FINISH LATER CANCEL

VANDERBILT HEALTH

“Immaculate procedures in place from front desk tablet, seating area to office equipment. Everything is signed or cleaned after any contact. Impressive and reassuring.”

- Eye Institute

Patient Feedback

84.8%

Press Ganey
Medical Practice Survey
Top Box Percentile Rank

QUESTIONS

Thank you!

Hunter Nichols

hunter.a.nichols@vumc.org

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