



Institute of Health Policy, Management & Evaluation
UNIVERSITY OF TORONTO



Centre for Global
eHealth Innovation
University Health Network

Where does Telemonitoring Fit in our Healthcare System?

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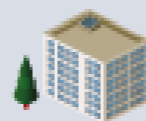
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Primary Care Office



This care setting is often the first stop for a person seeking a medical consultation, and can include a request for diagnosis, a physical examination or even minor surgery.

Palliative Care



Palliative care provides services to patients who are in the final stages of a terminal illness. Some of the services may be provided in a hospital, nursing home or in the home environment.

Hospitals



A hospital is a health care institution that provides acute care patient treatment through specialized staff and equipment dedicated to clinical practices. Types (academic, community, specialty, rehabilitation, chronic/continuing care).

Community Care Access Centre



The community care services provide personal care and support to clients with limitations in daily living activities.

Emergency Care



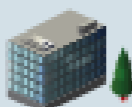
Emergency care is provided to patients with an illness, injury or life threatening situation that requires immediate attention. Emergency departments are typically located in acute care facilities and are open 24 hours.

Public Health



Public health focuses on the health of the community. Some of the functions of public health include assessing the health of the communities, developing public policies, and providing access to health care.

Ambulatory Care



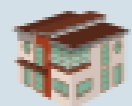
Ambulatory care is a health care consultation, treatment or intervention using advanced medical technology or procedures to provide treatment for day admissions.

Telehealth



Telehealth is the use of electronic information and telecommunication technology to support delivery of health care services remotely.

Urgent Care



Urgent care is a category of walk-in clinic focused on the delivery of ambulatory care in a dedicated medical facility outside of a traditional emergency room. It provides immediate care, but not serious enough to require an ER visit.

Nursing Stations



Nursing stations operate in remote areas, providing primary and emergency services to people who would otherwise have limited or no access to health care services.

Chronic Care

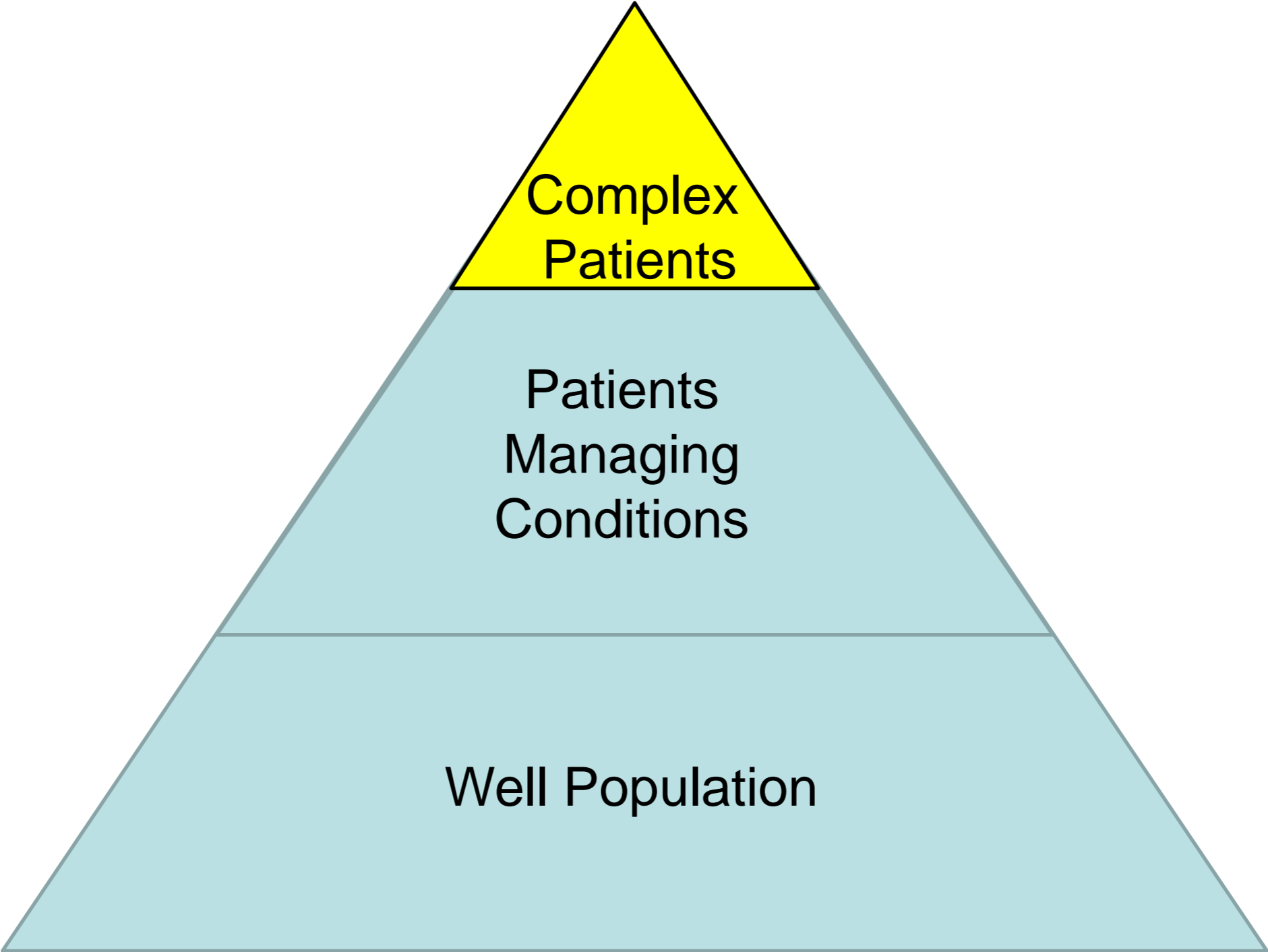


Complex continuing care provides continuing, medically sophisticated services for patients with long-term illnesses or disabilities that require technology-based treatment.

Family Health Teams



A Family Health Team can provide ongoing health care through a team of family doctors, registered nurses and other health care providers like dietitians and social workers.



Complex
Patients

Patients
Managing
Conditions

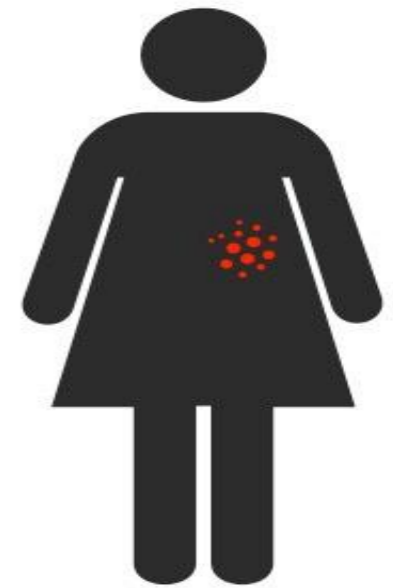
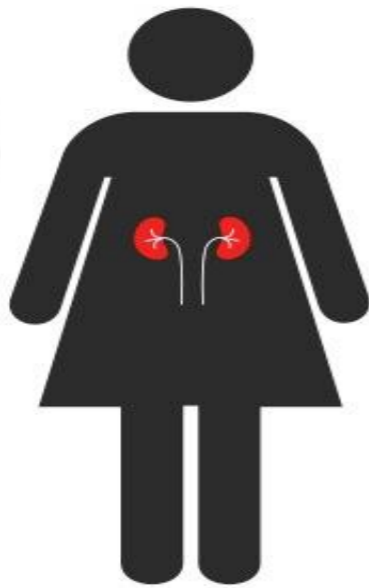
Well Population

DIABETES **HIGH BLOOD PRESSURE** **LUNG DISEASE** **CANCER**

KIDNEY DISEASE

HEART FAILURE

MENTAL HEALTH



Medly

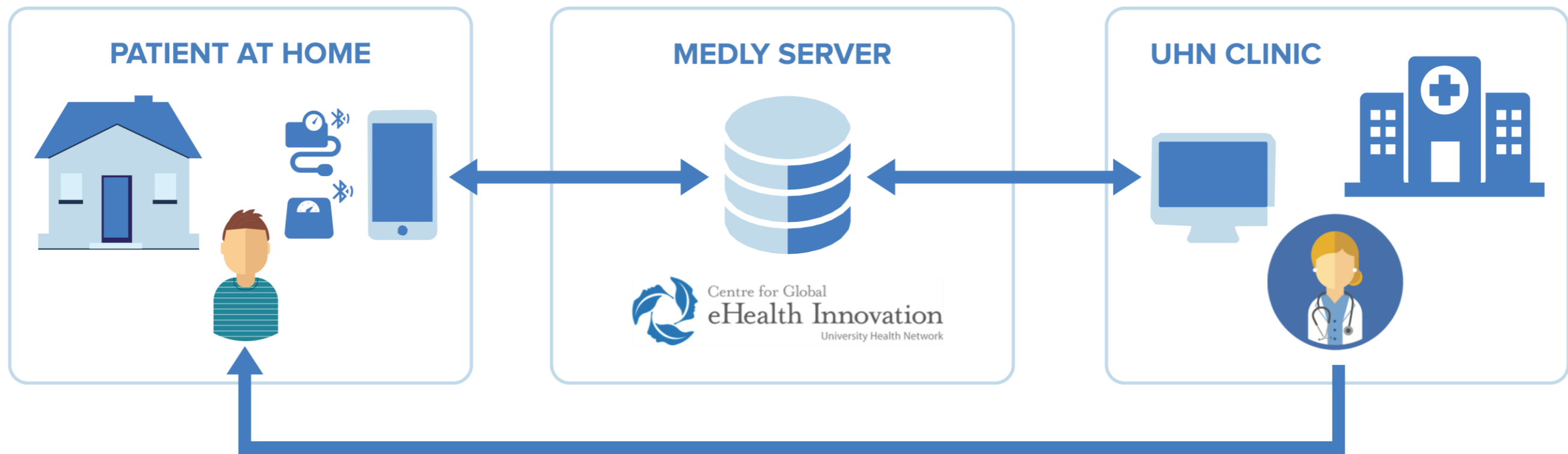
Platform for
chronic disease
management

Empowers
patients

Provides
clinicians alerts
and decision
support



Medly System



Medly Kit

Patients record symptoms & take vital signs

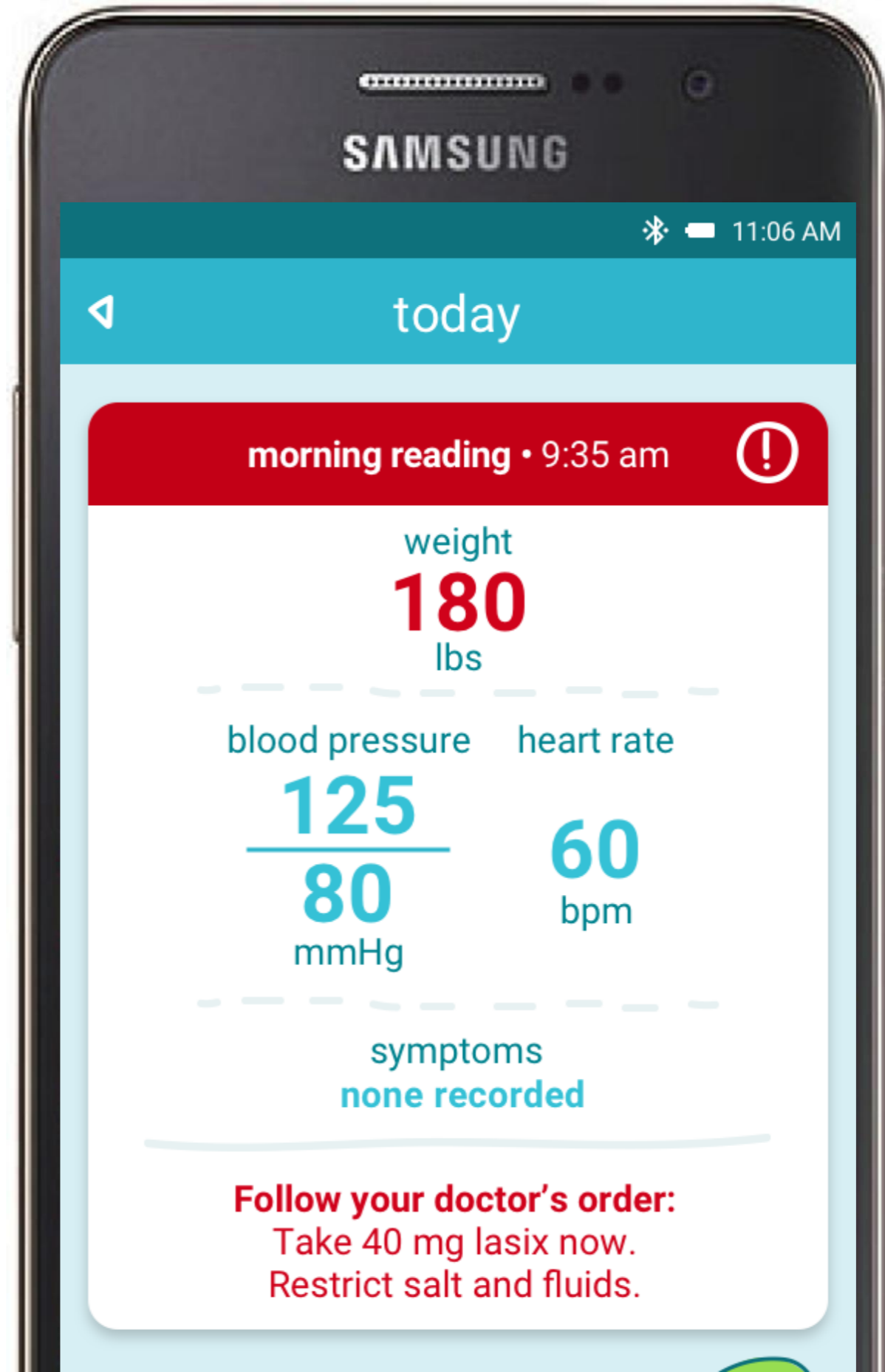
Sends self-care feedback & alerts when necessary



Feedback

Patient instructions based on their current condition

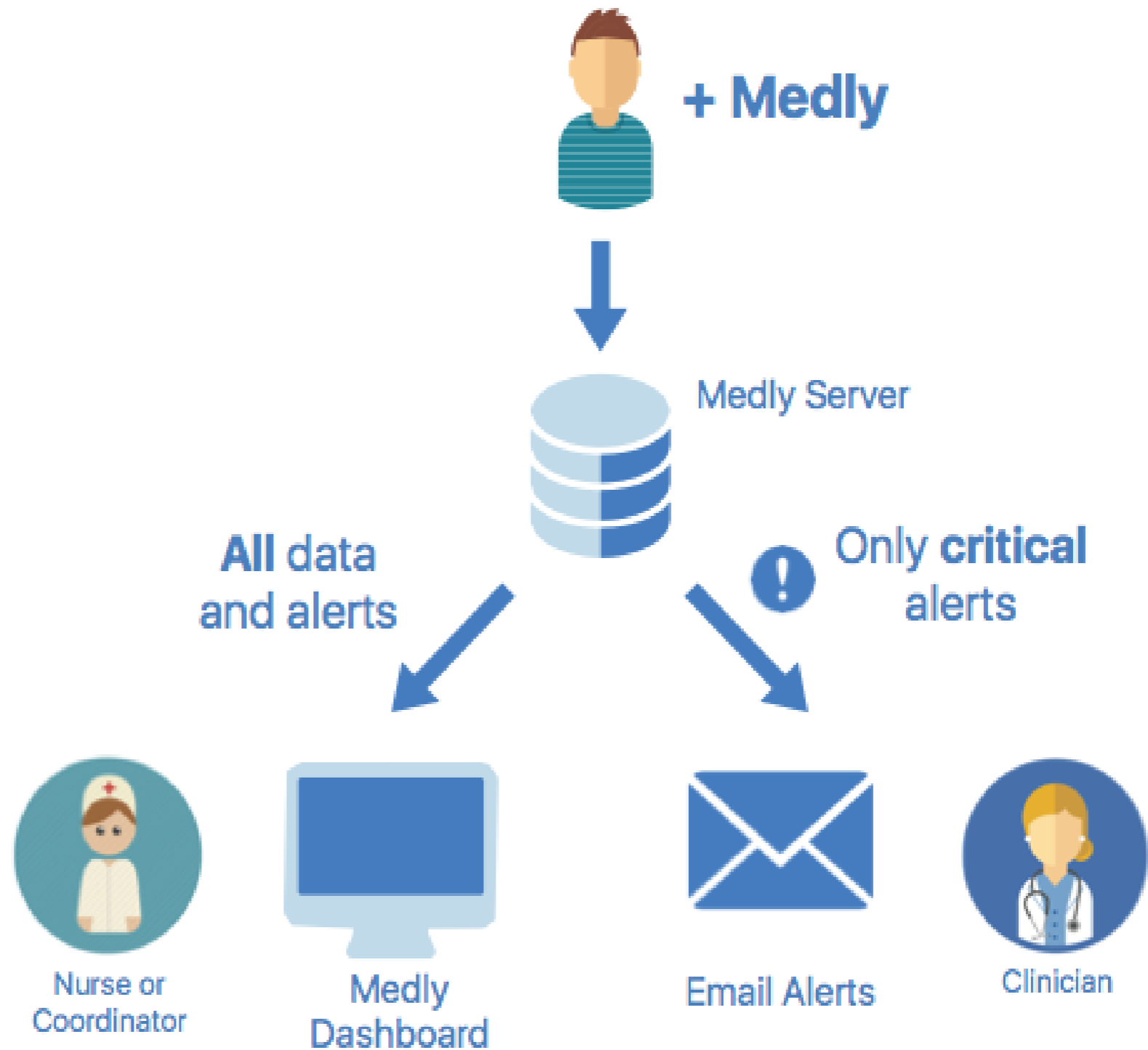
Automated adherence phone calls



Clinician Alerts

Clinicians provided real-time alerts (via secured email)

Access to real-time patient data



RCT in Clinic

- N=100
- usual care: usual care + telemonitoring
- followed for 6 months
- pre- and post-study questionnaires, chart reviews
- interviewed patients (n=22) and clinicians (n=5)

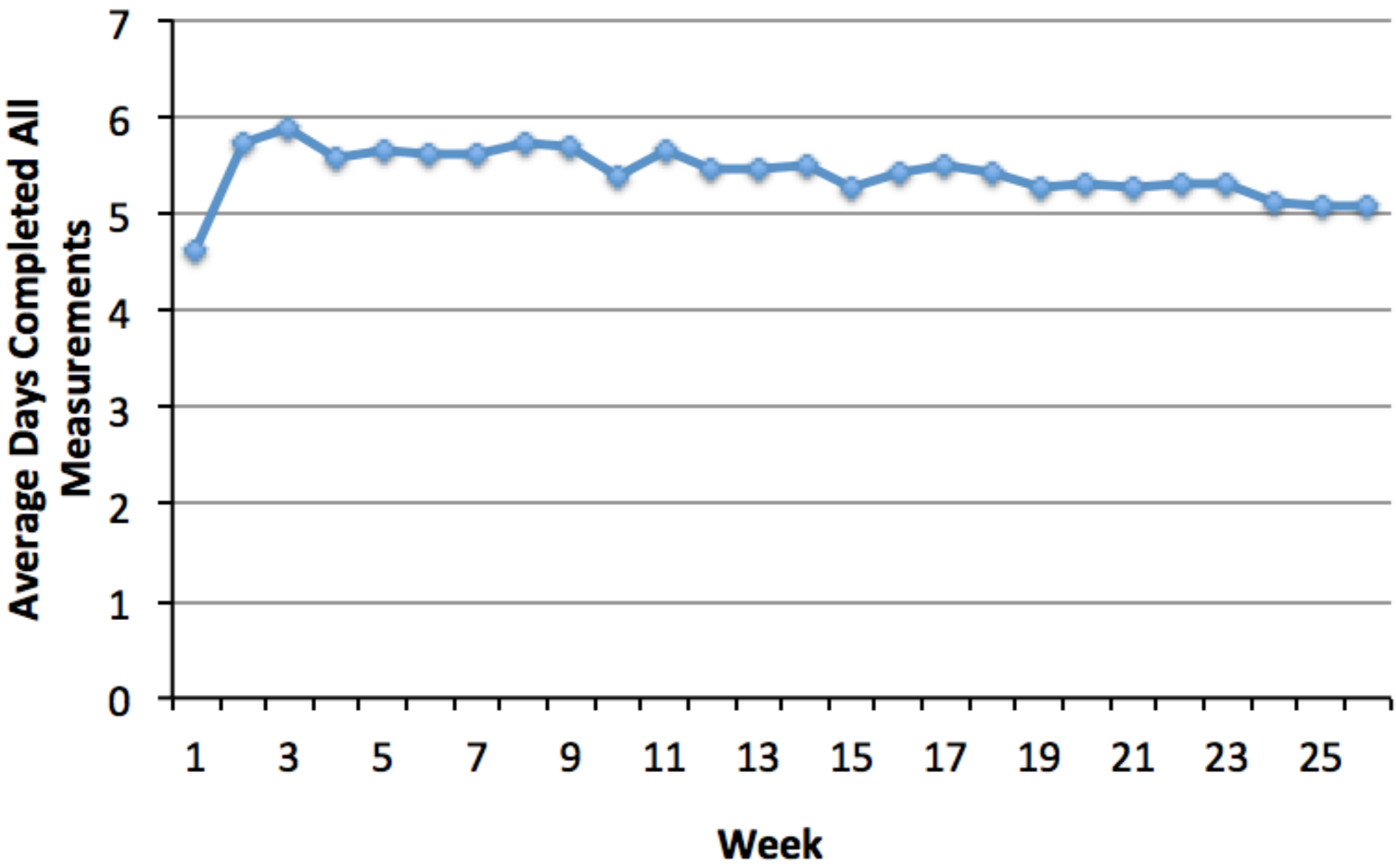
RCT Results

Improved:

- QoL (MLHFQ)
- Self-Care (SCHFI)
- BNP (↓ 150 pg/mL)*
- LVEF (↑ 7.4%)*

* sub-group analysis without new patients

Weekly Adherence to Daily Measurements



Patients' Perspective

*“I think I'm more **responsible** for myself, or more **accountable**... I know what's happening with me for that day... If my weight is higher then I make sure that I make **changes** in the diet...”*

*“I felt like I was **participating** in trying to keep my health.”*

Clinicians' Perspective

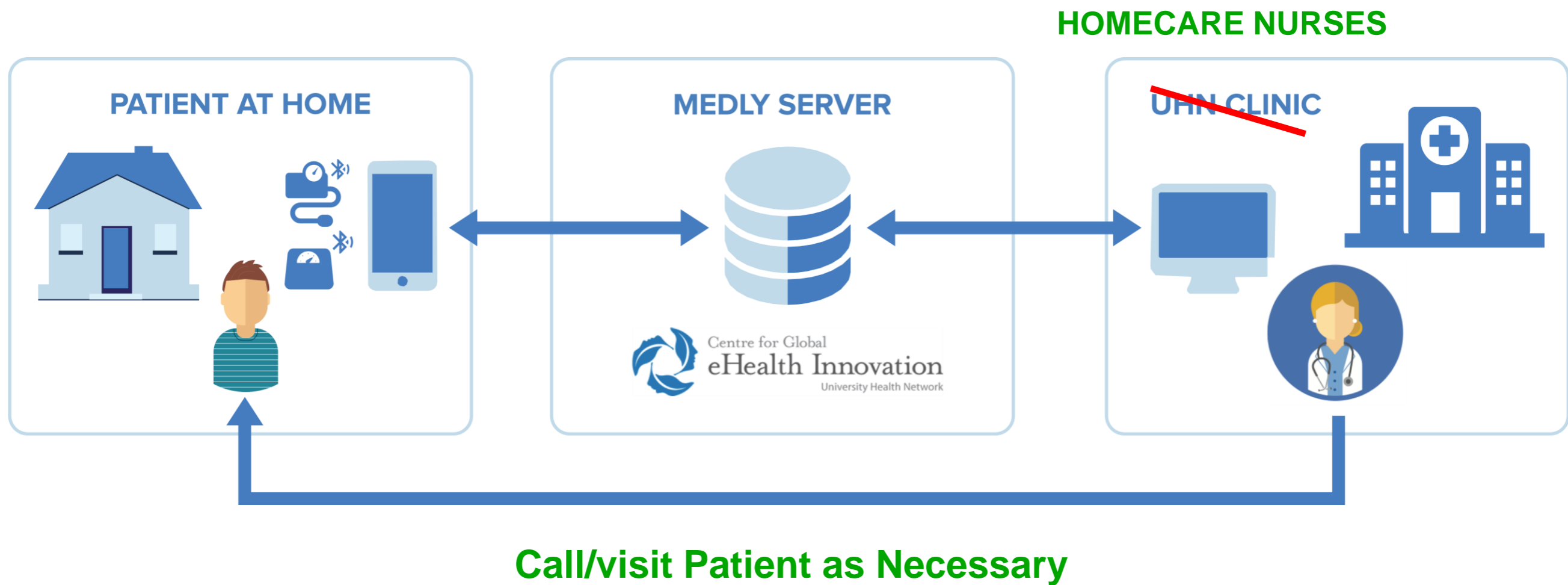


- Early detection
- Improved communication
- Teachable moments

Heather Ross MD, MHS, FRCP(C)

Project Clinical Champion
Medical Director, Cardiac Transplant Program

Homecare Nursing Model



ParaMed™
get better

 CellTrak™
connected with care™

 **NSERC**
CRSNG

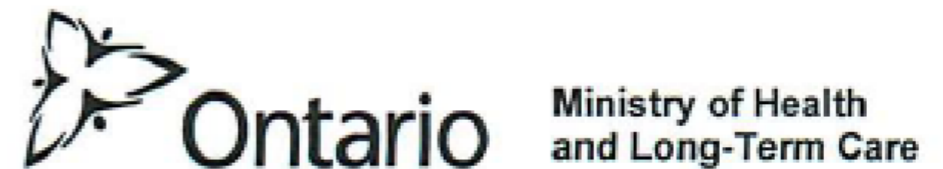
Clinic vs Homecare Nursing Trials

	Clinic Trial	HCN Trial
Recruitment	100 in 6 months	6 in 5 months
Drop-outs	6% (3/50)	50% (3/6)
Site preparation	Minimal	11 workflows mapped, 60+ nurses trained
Reimbursement	Absorbed in clinic	Pay for phone “visits”
MRP Contact	One location	Frustration

HCN Trial Outcomes

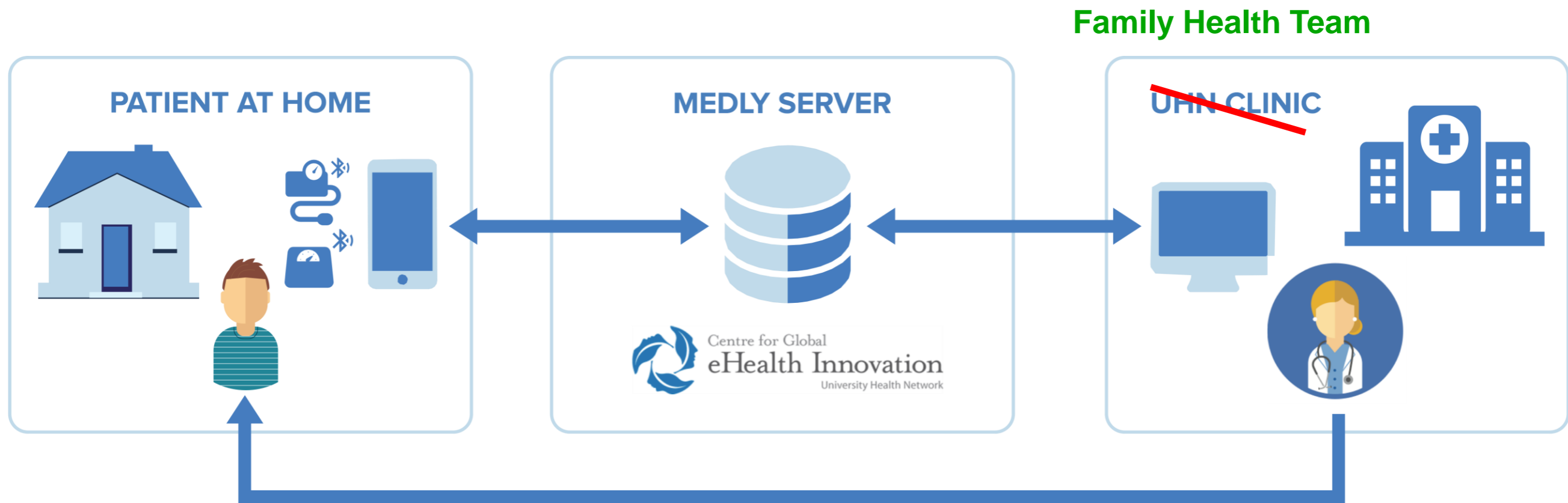
	Clinic Trial	HCN Trial
Self-care	↑	↑ Potential
Clinical Mgmt	↑	↑ Potential
Health Outcomes	↑	? (weight loss, edema reduction)
Cost	Likely to reduce costs	Can reduce costs but increased overhead
Operational	Feasible	Need system changes

Telemonitoring in Primary Care Model



North York
Family Health Team

Primary Care Model



Trials

HF RCT (specialty clinic)

CKD pilot (specialty clinic)

CKD RCT (specialty clinic)

COPD pilot (specialty clinic)

MCC RCT (specialty clinic)

HTN RCT (primary care)

HF pilot (homecare nursing)

MCC deployment (primary care)

⋮

Pilotitis

Definition:

- Continuous piloting without achieving sustained implementation

Symptoms:

- Frequent grant writing
- Fatigue and frustration

Pilotitis Etiology

- Lack of funding/business model
- Misaligned incentives
- Lack of reimbursement methods
- Contradictory evidence
- Complex HC system / workflows

Telemonitoring Program at UHN!

Barrier	Mitigation
Funding	Rogers Family donation
Incentives	Goal to reduce hospitalization by 50% in next decade
Reimbursement model	NP's salaried
Evidence/Product Quality	RCT and clinician buy-in
Complex workflows	Specialty clinic, clinical champion

What have we learned?

- Specialty clinic path for deployment is easiest path
- Learn a lot from “failures”
- Tech development is usually easy part...

Acknowledgements

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Questions?

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Sustainability

- No additional clinicians
- Patients referred by own physicians
- No visits to patient's home
- Redeploy patient Medly kits

Future Medly Kit Options

KIT Configuration

