Virtual Heart Failure Clinic and other developments for management of chronic conditions

Annemarie Kaan, RN MCN
Clinical Nurse Specialist, Heart Failure
Outline

- What is heart failure?
- Why is it so expensive?
- The virtual Heart Function Clinic
- The future
What is heart failure?

- Chronic condition that results in the heart not being able to pump enough blood to the body
  - High blood pressure
  - Heart attack with damage to the heart
  - Heart valve problems

- This causes
  - Shortness of breath
  - Tiredness
  - Fluid retention - swelling of limbs, abdomen, lungs

MoH report, 2010 available on request
Vinson et al J Am Geriatr Soc; 1990
Chow et al Can J Cardiol 2005
Who gets heart failure?

- Disease of the elderly - >65
- >93,000 people in BC with HF (2%)
- > $538 million in medical expenses
- Readmission rate high (20% in first 30 days)

MoH report, 2010 available on request
Vinson et al J Am Geriatr Soc; 1990
Chow et al Can J Cardiol 2005
Patient Flow Through Health Care

???

specialist
It takes a while to learn this stuff
Our Challenge...
Home Internet Use

Percent Access (%)

1999 2000 2001 2002 2003 2005 2007 2009

Canada
>65

Household Internet Use Survey. Statistics Canada
http://www40.statcan.gc.ca/l01/cst01/comm35a-eng.htm
‘virtual’ Heart Function Clinic Overview

- **Patient enters daily weight and reports symptoms**
- **Weight/symptoms within desired range**: Continues daily monitoring
- **Weight/symptoms out of desired range**: Alert sent to nurse’s inbox
  - Nurse contacts patient & implements treatment algorithm

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[Logo: British Columbia Alliance on Telehealth Policy and Research]

[Logo: PROVIDENCE HEART + LUNG INSTITUTE AT ST. PAUL'S HOSPITAL: New solutions for health]
## Centers

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complex Care Clinic</td>
<td>604-882-2344</td>
<td></td>
</tr>
<tr>
<td>Krish Ramachandran’s Clinic</td>
<td>604-806-9651</td>
<td></td>
</tr>
<tr>
<td>NH-Research Clinic</td>
<td>604-882-2344</td>
<td>c/o Northern Health</td>
</tr>
<tr>
<td>PACH</td>
<td>604-806-9005</td>
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<tr>
<td>PHC Pre-Heart Transplant</td>
<td>604-806-9887</td>
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<td>PHC-ST Paul's-HF</td>
<td>604-882-2344</td>
<td>Vancouver, BC</td>
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<td>Post-Transplant Clinic</td>
<td>604-882-2344</td>
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<tr>
<td>VCH-LGH-Cardiac Home</td>
<td>604-961-8222</td>
<td>North Van</td>
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<tr>
<td>VCH-VGH-HF</td>
<td>604-675-5264</td>
<td>Vancouver</td>
</tr>
</tbody>
</table>

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Virtual Heart

Login

Sign into your account

Username: [ ]

Password: [ ]

Login

Forgot your password?

Brought to you by:

Providence Health Care

in association with

BC's Heart Failure Network

Quality care for quality life

Version 3.0.4 © 2011 Heart Centre, Providence Health Care, All rights reserved
Monday, March 14, 2011

Your weight today: __________ kg

COMPARED TO YESTERDAY HOW WOULD YOU DESCRIBE:

1. Being woken up at night due to trouble breathing
   - Much worse
   - A little worse
   - The same
   - A little better
   - Much better

2. Your breathing generally
   - Much worse
   - A little worse
   - The same
   - A little better
   - Much better

3. Any swelling of the ankles or bloating you may have
   - Much worse
   - A little worse
   - The same
   - A little better
   - Much better
   - Never had this
4. Any racing, fluttering or missed beats of your heart you may have

5. Any feelings of dizziness or light-headedness you may have

6. Your overall energy levels

Communicate with the Nurse:

NOTE: Please remember, this website is NOT meant to take the place of visiting the clinic, doctor, or hospital. If at any time, you are concerned that you are feeling worse, either contact your GP, visit your local emergency department, or call 911.
You have entered that your **weight has increased 14.8 kg in the last 2 entries.**

A nurse will be contacting you on the next business day by phone to talk about ways that you might be able to prevent this in future. Remember, this website is not meant to treat your illness. If you feel unwell, you should contact your local doctor, or call the heart function clinic, or call 911.
Progress Chart for Gary Richard Bushby
Last Month: The past 3 month(s)

**Goal Weight:** 93 kg
**Triggers:**
- 2 kg in 2 days
- 5 kg in 7 days

**Systolic Max:** 150
**Min:** 80
**Diastolic Max:** 95
**Min:** 50
**HR Max:** 120
**Min:** 50
### Alerts Requiring Attention

<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Primary Nurse</th>
<th>Alert Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 13, 2015 7:09 AM</td>
<td>Jack</td>
<td>Dianne Ross</td>
<td>Being woken up at night due to trouble breathing. A little worse</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Your breathing generally: A little worse</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Your overall energy levels: A little worse</td>
</tr>
<tr>
<td>May 11, 2015 12:05 AM</td>
<td>Scott</td>
<td>Erica Johansson</td>
<td>no data entered in last 5 days</td>
</tr>
</tbody>
</table>

### Staff Notice Board

Consider deactivating patients who consistently don't enter data or turning off their alerts. Let the patient know the settings have changed.
Staff login
Heeney, Harry

Phone (H): 604-806-9976
Phone (W):
Phone (C):
Primary Nurse: Kaan Annemarie
Clinic: The Hear and Now

YOB: 1924 87 years old
E-mail: akaan@me.com
MRN: 02542153
Alerts disabled: No

Unresolved Alert

Alert Date: Mar 14, 2011 3:13 PM
Description: HR is out of range

Progress Charts

Progress Chart for Harry Heeney
Selected Dates: Mar 14 to Mar 14

Goal Weight: 70 kg
Triggers:
1 kg in 2 days
2 kg in 7 days
Heeney, Harry

Phone (H): 604-806-8976
Phone (W):
Phone (C):
Primary Nurse: Kaan Annemarie
Clinic: The Hear and Now

YOB: 1924  87 years old
E-mail: akaan@me.com
MRN: 02542158
Alerts disabled: No

Alert Details

Alert Date: Mar 14, 2011 3:13 PM
Description: HR is out of range
Heart Rate: 60

Data Entry Date: Mar 14, 2011
Weight: 58.0 kg

Resolve Alert

Action Taken: Alert Email Sent
Notes:

Resolve  Resolve & Print
Virtual Heart has gathered some useful materials to help you manage your Heart Failure.

**Worksheets**

- Heart Failure Reminder sheet
- 2011 Weight Log Sheets
- 2011 Resources For Patients With Heart Failure
- Low Salt Low Sodium Food Choices
- Patient "at a glance" instructions for virtual Heart
- 2011 Patient User Manual for Virtual Heart
- 2011 Heart Failure Zones (self assessment)
- Consent Form to Use Virtual Heart Website (VCH)
- Consent Form to Use Virtual Heart Website (VCH)
- 2011 Limiting Fluids
- 2011 Reducing Salt and Sodium
- Heart Failure 101 - What is Heart Failure?
- Patient Consent Form to use Virtual Heart

**External Links**

- Healthlink BC (formerly BC Nurseline)
- Education Modules on Heart Failure
- BC Heart Failure Network
- Positive Coping With Health Conditions Workbook
Patient comments

- Health awareness
  - “…keeps you focused on your health…”
  - “…helped me correlate my checking my weight…”
  - “…I learnt to take more precautions in what I’m doing with my lifestyle, way of living with the heart condition that I have…”

- Security
  - “…somebody out there is looking at it you know and giving me a call is something is wrong…”

- Ease of use
  - “…straight forward, simple, and that’s the way it should be.”
Self-Care Confidence

“Confidence that maintenance and management can be attained”

![Bar chart showing Self-Care Confidence over Intake, 3 months, and 6 months. The confidence level increases from intake to 6 months. The p-value is 0.006 at 6 months.]

p=0.006 @ 6 months
Over One in Four Americans Have Multiple Chronic Conditions

Percentage of All Americans

Source: Medical Expenditure Panel Survey, 2006
Chronic Diseases

- Chronic diseases are the leading cause of death and disability worldwide.
- High impact chronic diseases such as heart, kidney and lung diseases account for the top reasons for hospitalizations in most countries.
- The costs of treating chronic diseases is commonly more than half of all healthcare expenditures.
Mobile Texting in Canada

96.5 billion texts sent in 2012, up 24% from 2011
Txt2Prevent Hospital Readmissions

- Automated text message post-discharge.
- Medication adherence, follow-up care, self-management and lifestyle behaviours.
- Study to start this year
- Hospital readmissions, quality of life, medication adherence, costs.

Make an appointment to see your family doctor within 2 weeks of your discharge from the hospital.
The future...it’s already here...

- Smartphones
- Facetime/Skype etc
- Dr visit from home
- Remote monitoring
CARDIOMEMS WIRELESS PRESSURE SENSORS*

Implanted in Pulmonary Artery
- Heart Failure
- Pulmonary Hypertension

Implanted in Aorta
(Cleared for use in the U.S.)
- Abdominal Aortic Aneurysm
- Thoracic Aortic Aneurysm

Implanted in Radial Artery
- Hypertension

Small, portable external electronics module

*CAUTION: Investigational device. Limited by Federal law to investigational use and not cleared or approved for commercial sale by any regulatory agency.
Remote monitoring systems

Biotronik Cardiomessenger™ mobile transmitter of the Home Monitoring system

St-Jude Medical Merlin@home™ wireless transmitter

Boston Scientific wireless transmitter, weight scale, and blood pressure monitor of the Latitude Patient Management™ system

Medtronic transmitter (Home Monitor) of the CareLink™ network