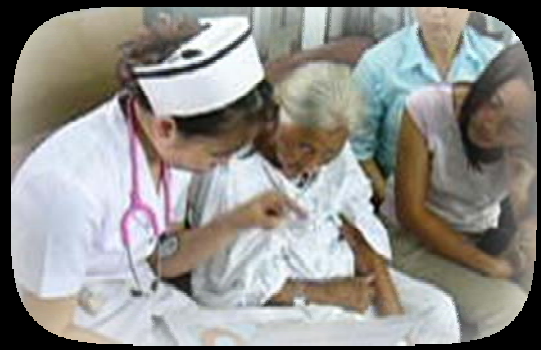
Holistic care in Heart Failure

Comprehensive Heart Failure Management Program

Low Tech, High Touch, High Efficiency



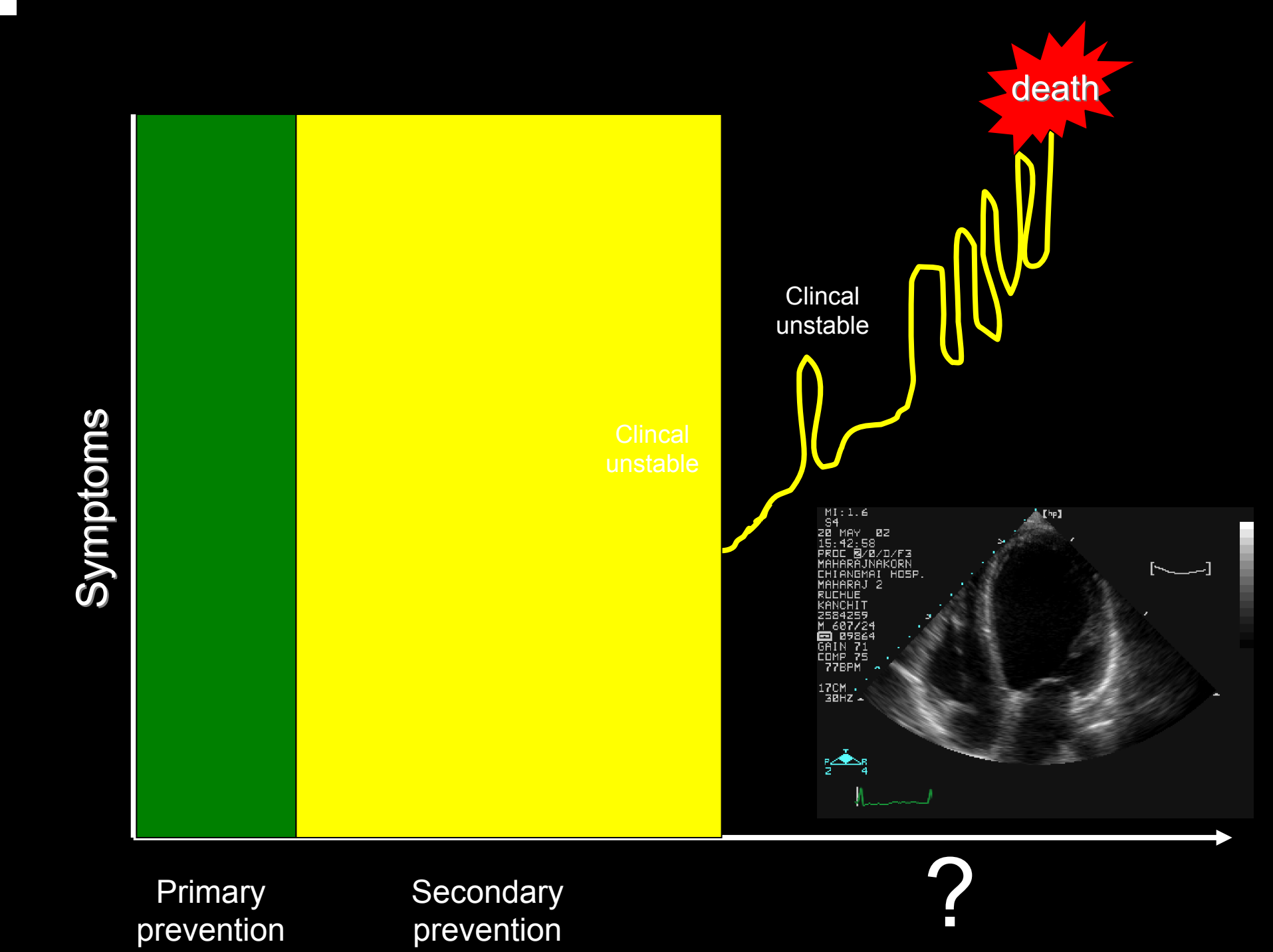
Warong Lapanun MD.

Case

- An old lady age 70
- Ischemic DCM, DM, HT, renal insufficiency

Hospital admissions

- Feb – worsening HF
- Mar – symptomatic hypotension
- April – worsening HF
- May – worsening HF
- Jun – warfarin overdose
- Jul – worsening HF
- Nov – hyperkalemia
- Dec – worsening HF and hyponatremia


death
Clincal
unstable
Clincal
unstable
Symptoms
Primary
prevention
Secondary
prevention
?

Problems and Pitfalls

High readmission rate

- 78% had at least two admission per year
- 40% within 3 months of discharge

Half of these readmissions may have been preventable !

Precipitating causes of heart failure

- Non compliance with medications
- Non compliance with dietary recommendations
- Inadequate diuretics programme
  - Increased cardiac demand
  - Concurrent illness
  - New cardiac event
- Use of new medications - NSAID's

“ Good drugs do not work on patients who do not take them ”

C. Everett Koop, M.D.

Drugs Prescriptions of Mr. Had-enough

1. Enalapril (20) ½ tab bid pc.
2. Bisoprolol (5) 1 tab OD.
3. Spironolactone (25) 1 tab OD.

6. Glibencarmide(5) 1½ tab bid ac
7. Metformin (500) 1 tab tid pc

POLYPHARMACY

10. Isordil (5) 1 tab SL prn

13. Warfarin (3) ½ tab o OD.
Except Mon. and Wed.

14. Warfarin (5) ½ tab o OD.
Only on Mon. and Wed.

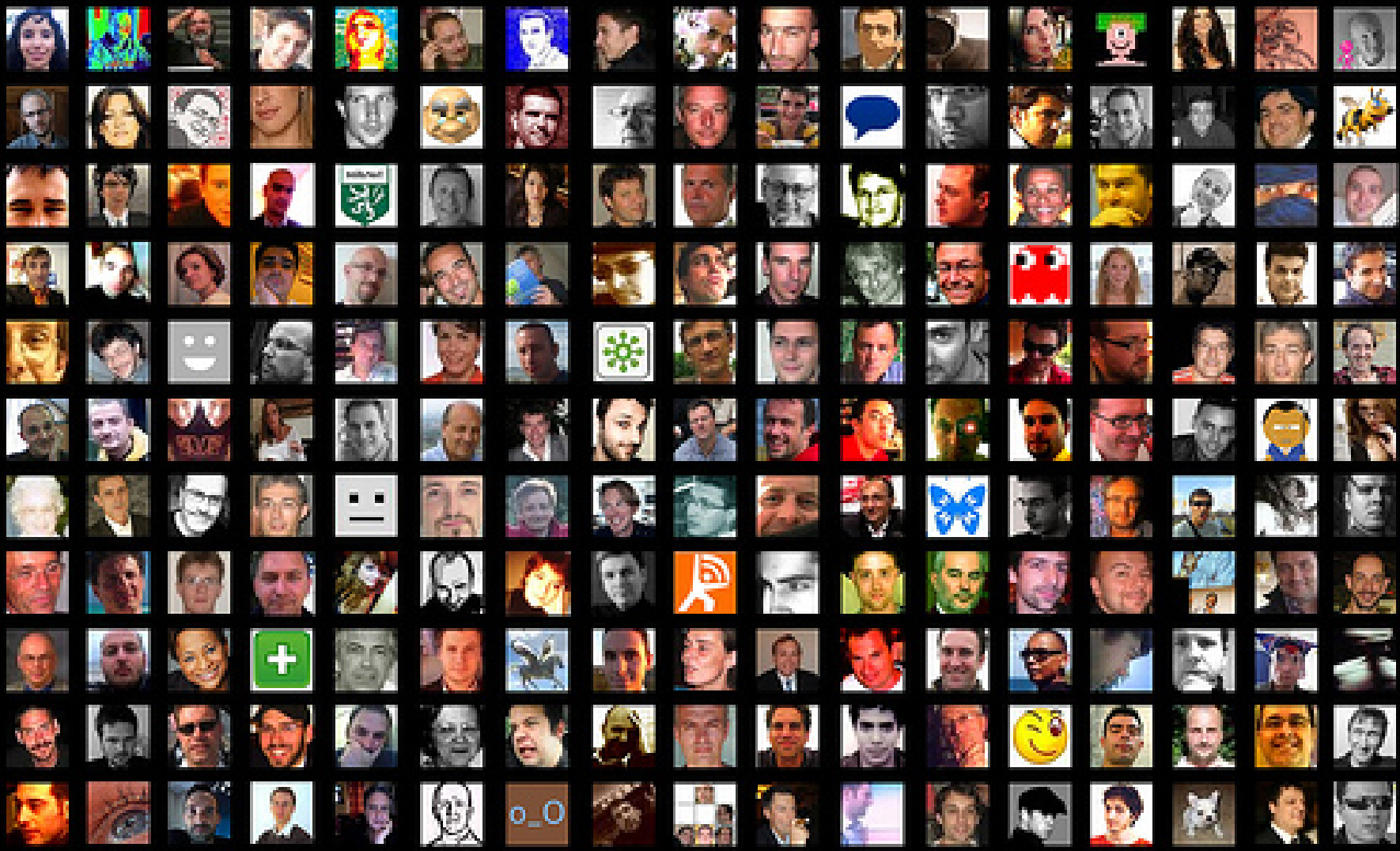
11. Amlodipine (10) 1 tab OD.

12. Atrovastatin (20) 1 tab pc evening

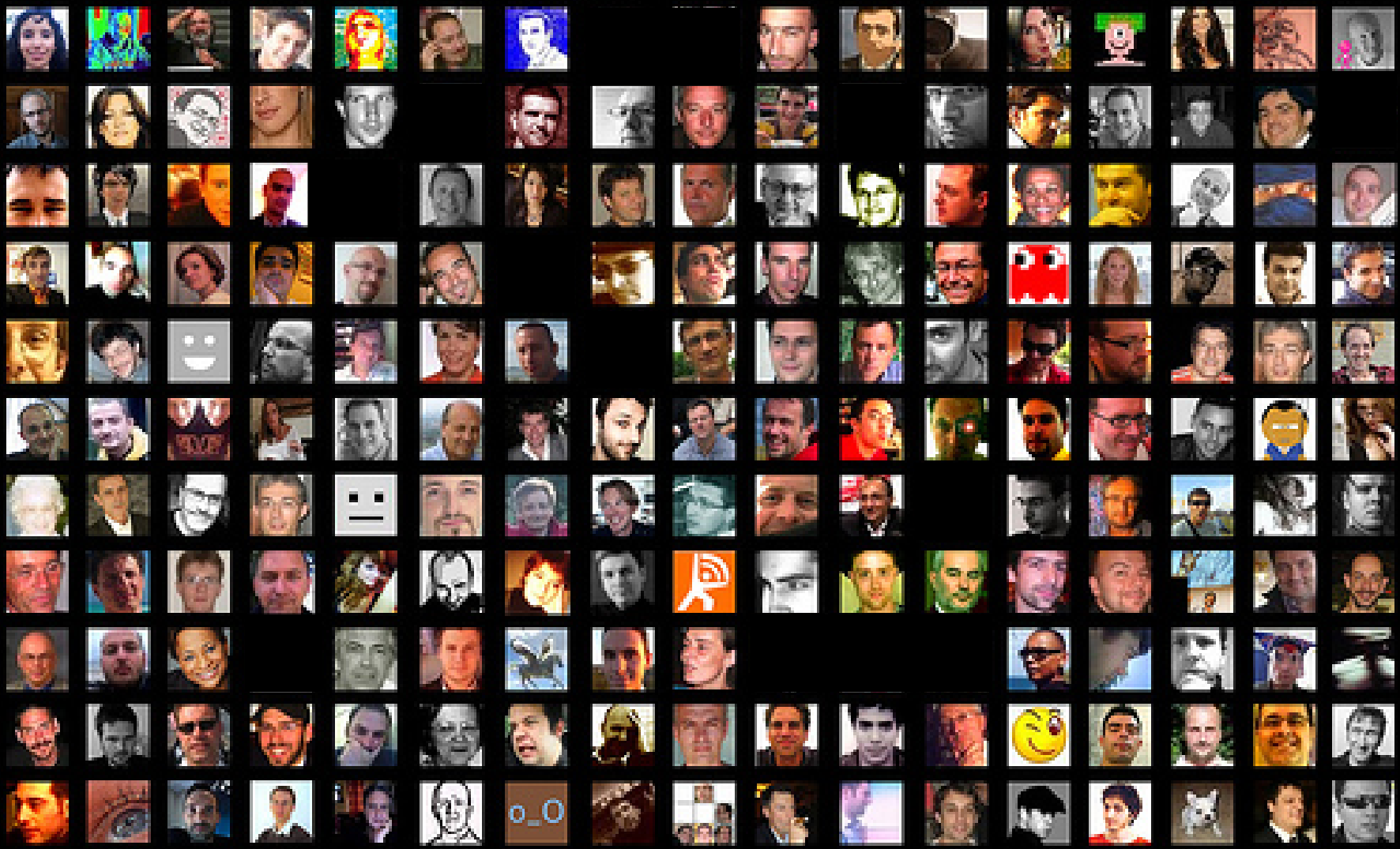
15. Lorazepam 1 tab prn hs.

16. Senekot 2 tab o hs

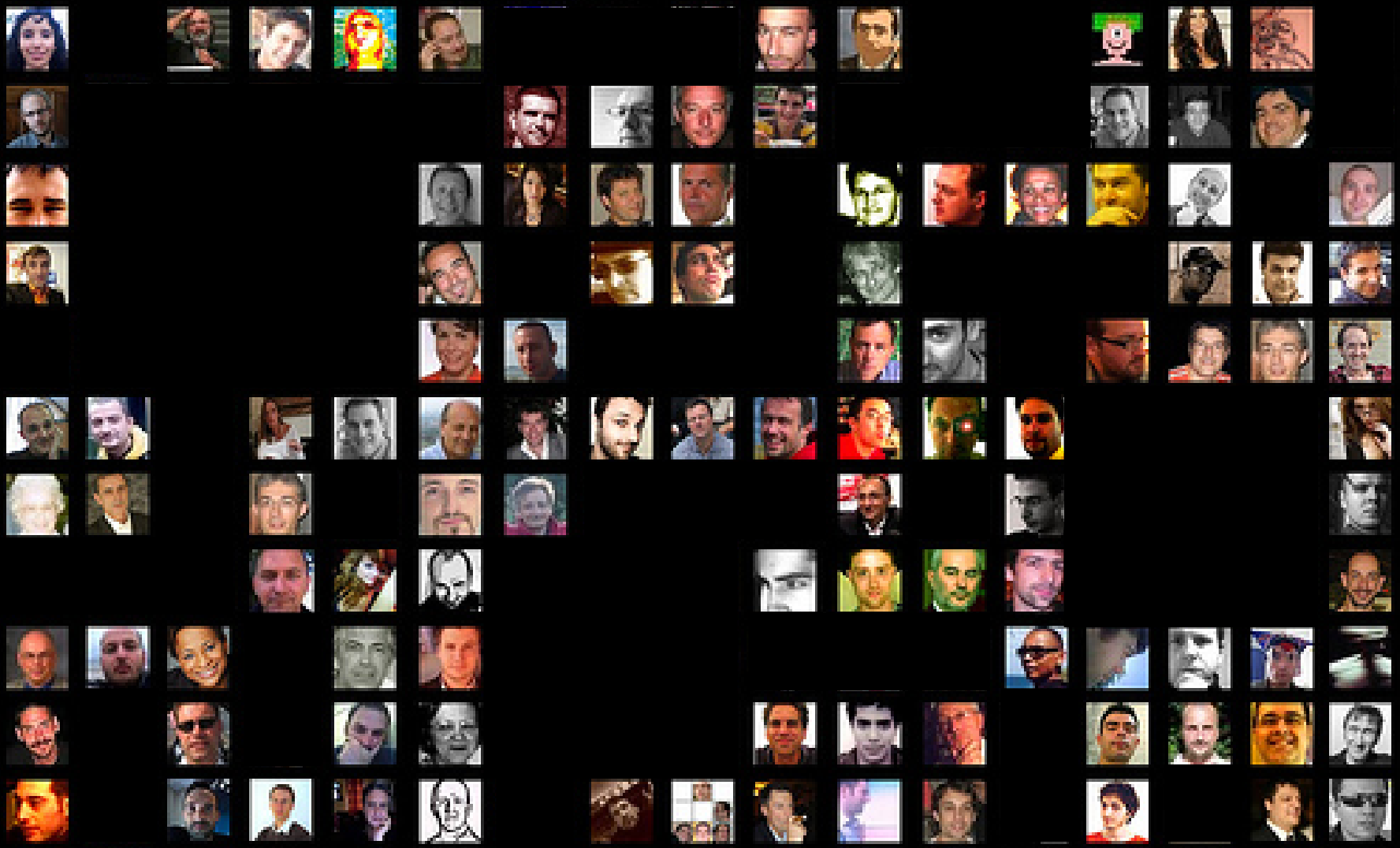
17. Omeprazole (20) 1 tab o OD



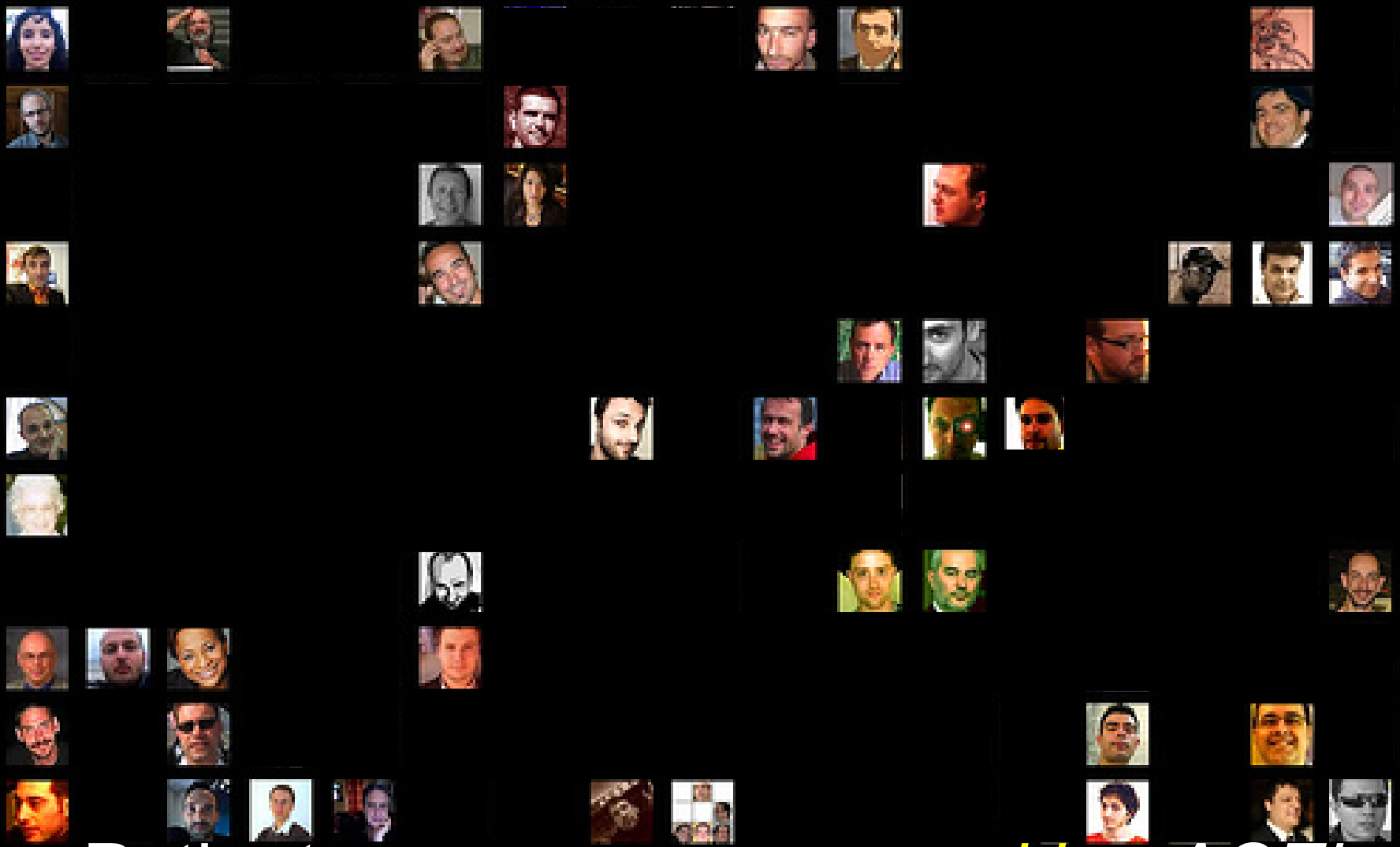
Patients with Sys HF



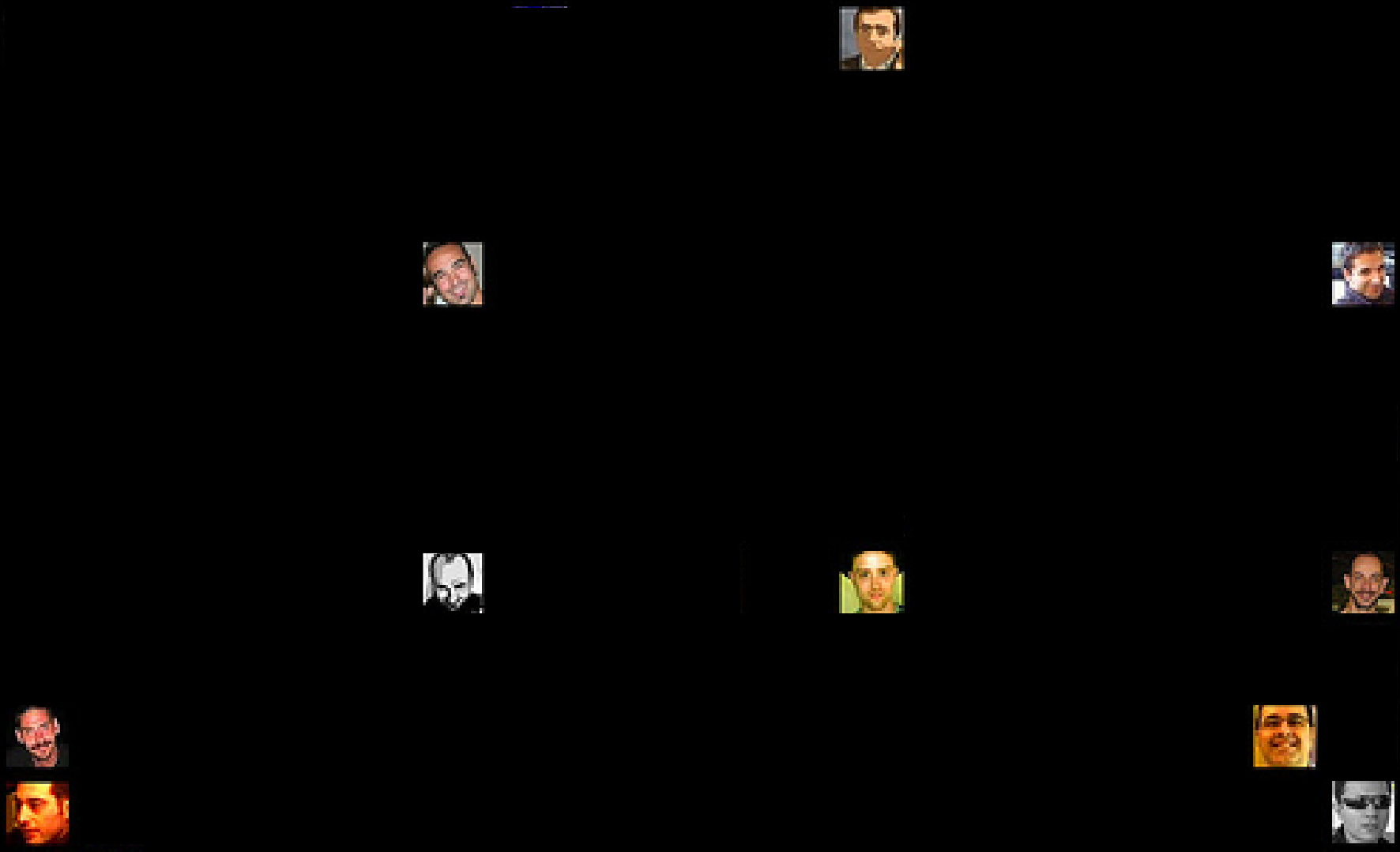
Patients without contraindication to ACEi and ß blocker



Patients with Sys HF who are given ACEi and β-blocker



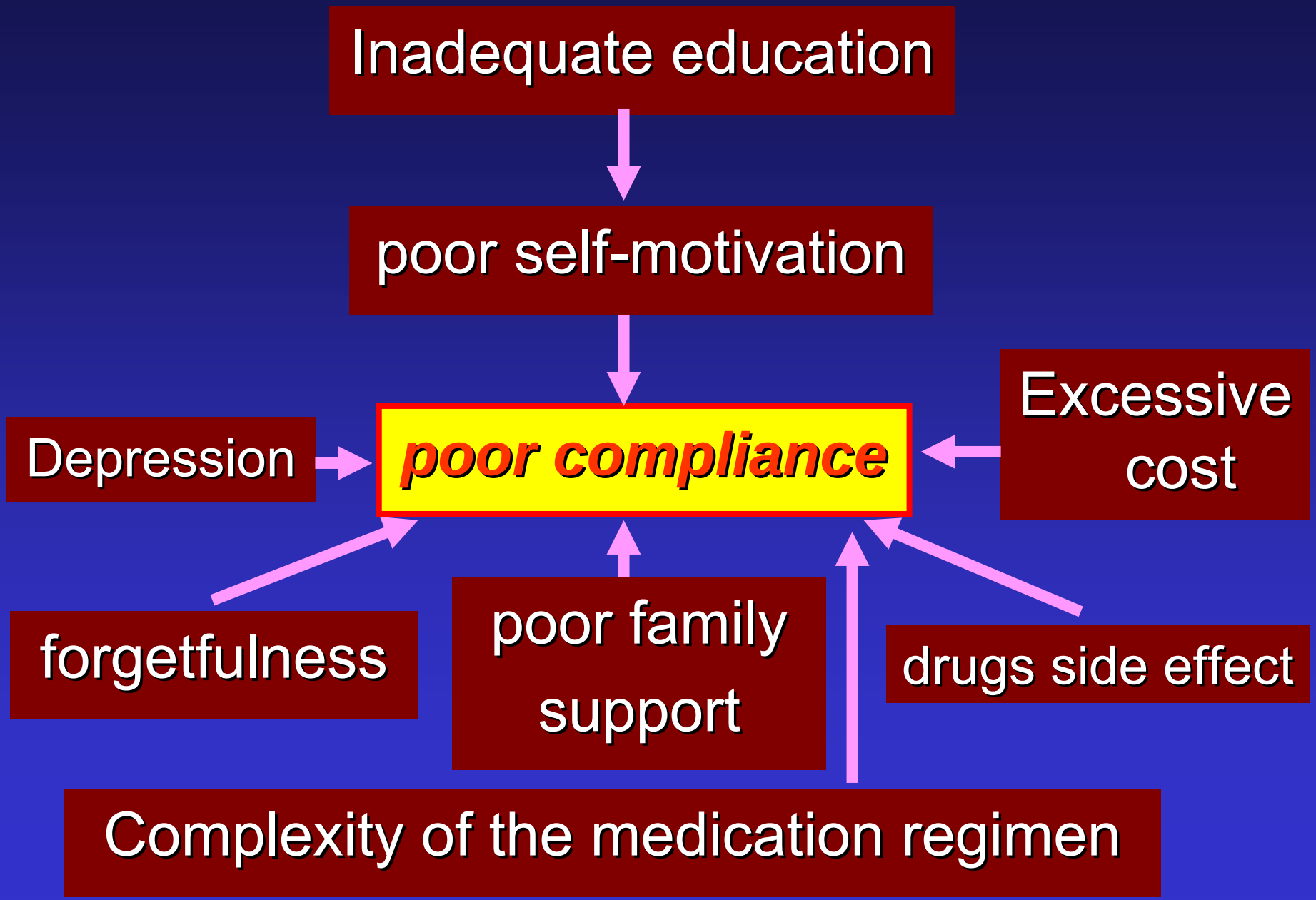
Patients who are *actually taking ACEi and β-blocker*



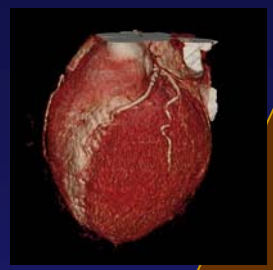
Patients who are taking ACEi and β-blocker

at the target dose

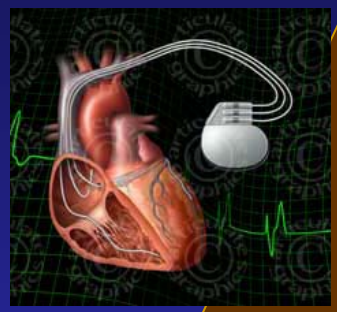
We can do better !


Inadequate education
poor self-motivation
Depression
poor compliance
Excessive cost
forgetfulness
poor family support
drugs side effect
Complexity of the medication regimen

Pyramid of HF care



Heart transplant



Revascularization

Resynchronization Therapy

Pharmacologic Therapy

Disease management program

Patient education

Self management

Low tech – high touch therapy

" filling the G A P in the care of chronic diseases "

ACC/AHA Practice Guideline

Circulation & JACC September 20, 2005; 1116-43

ACC/AHA 2005 Guideline Update for the Diagnosis and

Class I

Multidisciplinary disease-management programs for patients at high risk for hospital admission or clinical deterioration are recommended to facilitate the implementation of practice guidelines, to attack different barriers to behavioral change, and to reduce the risk of subsequent hospitalization for HF. (Level of Evidence: A)

John A. Gates, MD, FAHA; Peter S. Rahko, MD, FACC, FAHA; Marc A. Silver, MD, FACC, FAHA; Lynne Warner Stevenson, MD, FACC, FAHA; Clyde W. Yancy, MD, FACC, FAHA

How to establish a heart failure clinic

Specific objectives

- To increase optimal diagnosis
- To improve quality of care
- To increase optimal prescription (guideline adherence)
- To increase patients' medical adherence

Specific objectives

- To increase self care
- To improve quality of life
- To decrease morbidity and mortality
- To decrease the number of readmissions
- To decrease cost for HF care
- To facilitate HF research

Requirements in HF set up

- Interest in HF/chronic disease/elderly
- Adequate referral base
- Access to cardiac investigation
- Supportive colleagues
- Supportive partnership/institutions

Choosing approach

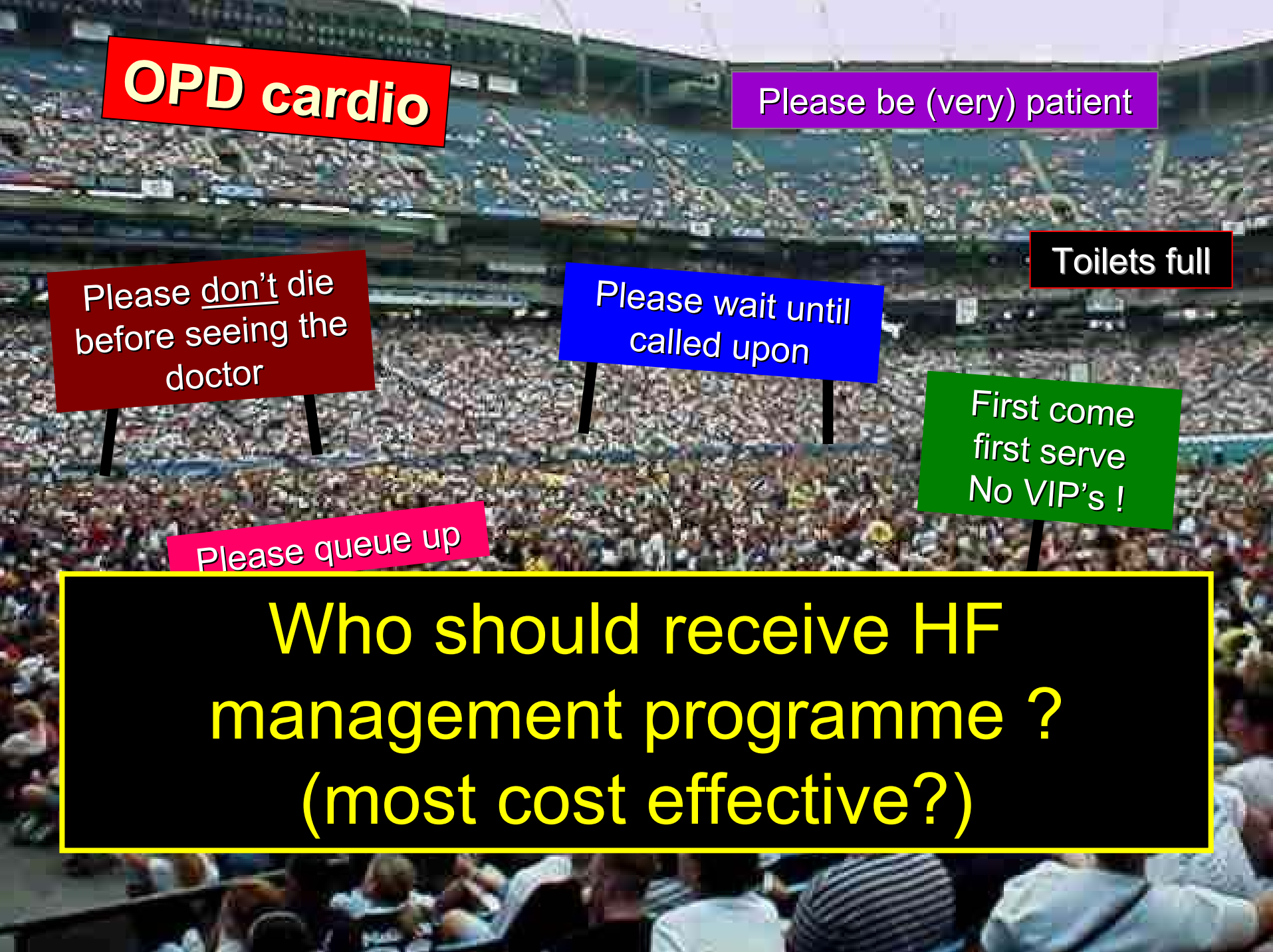
Models HF management programme

- Specialty Heart Failure Clinics
  - Nurse-coordinated or facilitated
  - Nurse-managed or directed

    (Advanced Practice Nurse or HF nurse specialist)
- Home-based approach
- Telephone monitoring / counseling

Define the program

- Mode (how often, where)
- Assess the possible numbers of patients
- Describe levels and numbers of staff
- Identify support needed
- Who to enroll?



Who should receive HF management programme ? (most cost effective?)

Select the type of patient to be eligible for intervention

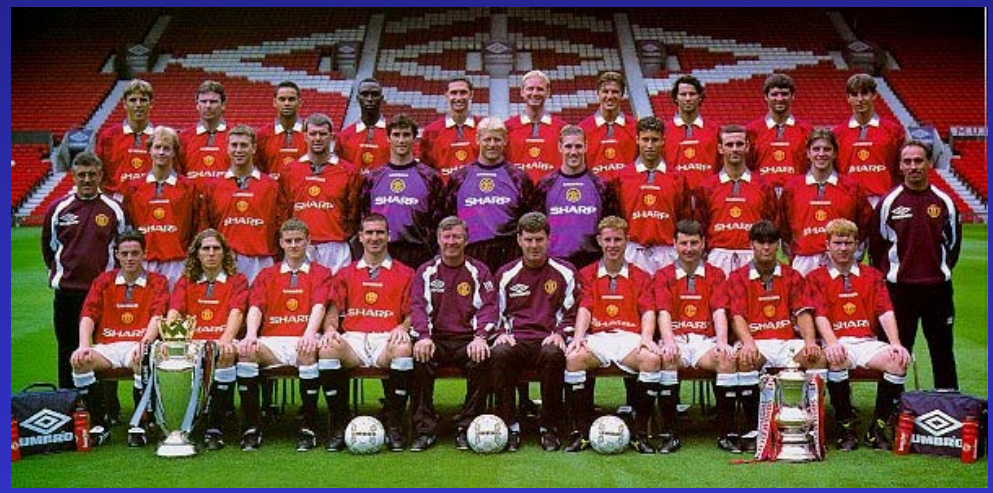
- Inclusion Criteria
  - CHF due LV systolic impairment
  - High risk patients
  - Willingness to receive the additional support

High risk for readmission

- Advanced age
- Low economic status
- Poor social support
- Co-morbidity – CAD, DM, RF, COPD
- Psychological problems - depression
- Non compliance
- Intolerance to recommended drug therapies
- History of frequent readmission

HF programme – a team approach

- **Cardiologists**
- **HF nurse specialists (Advanced Practitioner Nurse)**
- **Pharmacists**
- Ambulatory nurses
- Primary physician
- Dietitians
- Psychologist
- **Family members**



- And of cause…the **patient him/herself**

Establishing HF management programme

- Develop a precise protocol
- Appointing personnel (2)
  - at least 2 years of cardiology experiences
  - excellent communication skills
  - right attitude
- Specialist nurse training
  - Pathophysiology of HF
  - Assessing the patient with HF
  - HF treatment guidelines
  - Rehabilitation


CMU. HF Team

Job description

Cardiologists

- Enroll eligible patients
- Verify diagnosis
- Work up cause of HF
- Prescribe medication according to guideline
- Consultation
- Research lead

Job description

HF nurse or Case manager

- Motivate the patients
- Clinical status assessment
- Monitor and enhance compliance to care plan
- Education and counseling
- Coordination
- Research assistant
- Maintain patient registry
- Monitor outcomes and quality of service
- Telephone counseling
- Manage patient's loss to follow up
- ADHF ward visit

Job description

Pharmacist

- Develop a pharmacy care program
- Monitor and enhance compliance to medication
- Minimize medical error
- Monitor side effects
- Drug counseling
- Drug review and reconciliation

Job description

Family members

- Participate in behavioral changes with their loved ones
- Medication
- Encouragement

Patients

- Complete “home work”
  - Behavior logs
  - Charts
- Empowered to complete their care plan

Baseline assessment

- Demographic profile
  - Age, sex
  - Marital status, social support
  - Income
  - Education
- Past history
  - CVS risk factors profiles
  - Co-morbidity
  - Pattern of health care utilization

Baseline assessment

- Clinical status
  - Precise etiology of CHF
  - BMI
  - Hb
  - Electrolytes
  - Thyroid/ renal/ hepatic function
  - BNP / NT-proBNP
  - Echocardiographic data
  - CAG
  - EP data
- Review all therapy relative to guidelines
- Functional/general health status
  - NYHA class
  - Six-minute walk test
  - Mini-mental test
  - QOL – EQ-5d, SF-36 or Minnesota Living with Heart Failure Survey

Heart Failure Program - OPD

- Close follow up (first within 2 weeks of D/C)
- Drug titration
- Intensive education and counseling
  - attention to behavioral strategies
  - address barriers to compliance
- Maintain clinical stability
- Telephone counseling

Clinical assessment

Efficiently Monitoring your Patients

- At each visit, document severity of symptoms, weight, sitting and standing BP, JVP, peripheral oedema, cardiac exam, and other systems relevant for that patient
- Side-effects to drugs, all current drugs and over the counter pills
- Monitor serum electrolytes and renal function and other blood work when appropriate
- Use an electronic database for ease of access to continuous data and to generate reports

Heart Failure Clinic

BW. 52.5 Kg (↓ 3 Kg)

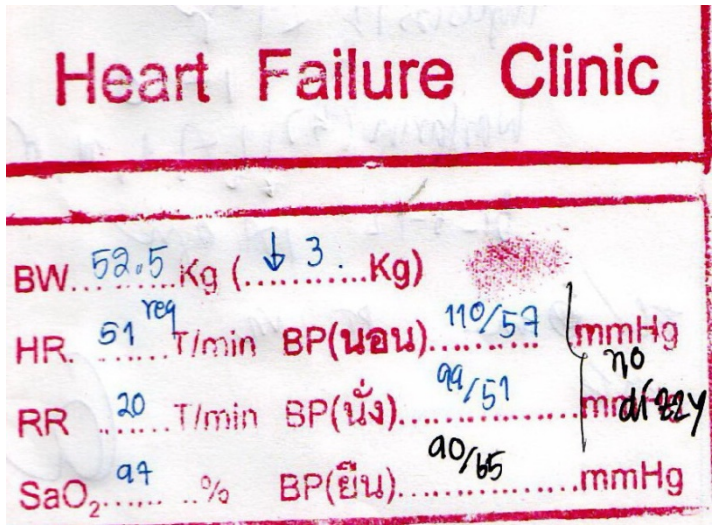
HR. 51 reg T/min BP(นอน) 110/57 mmHg

RR 20 T/min BP(นั่ง) 99/51 mmHg

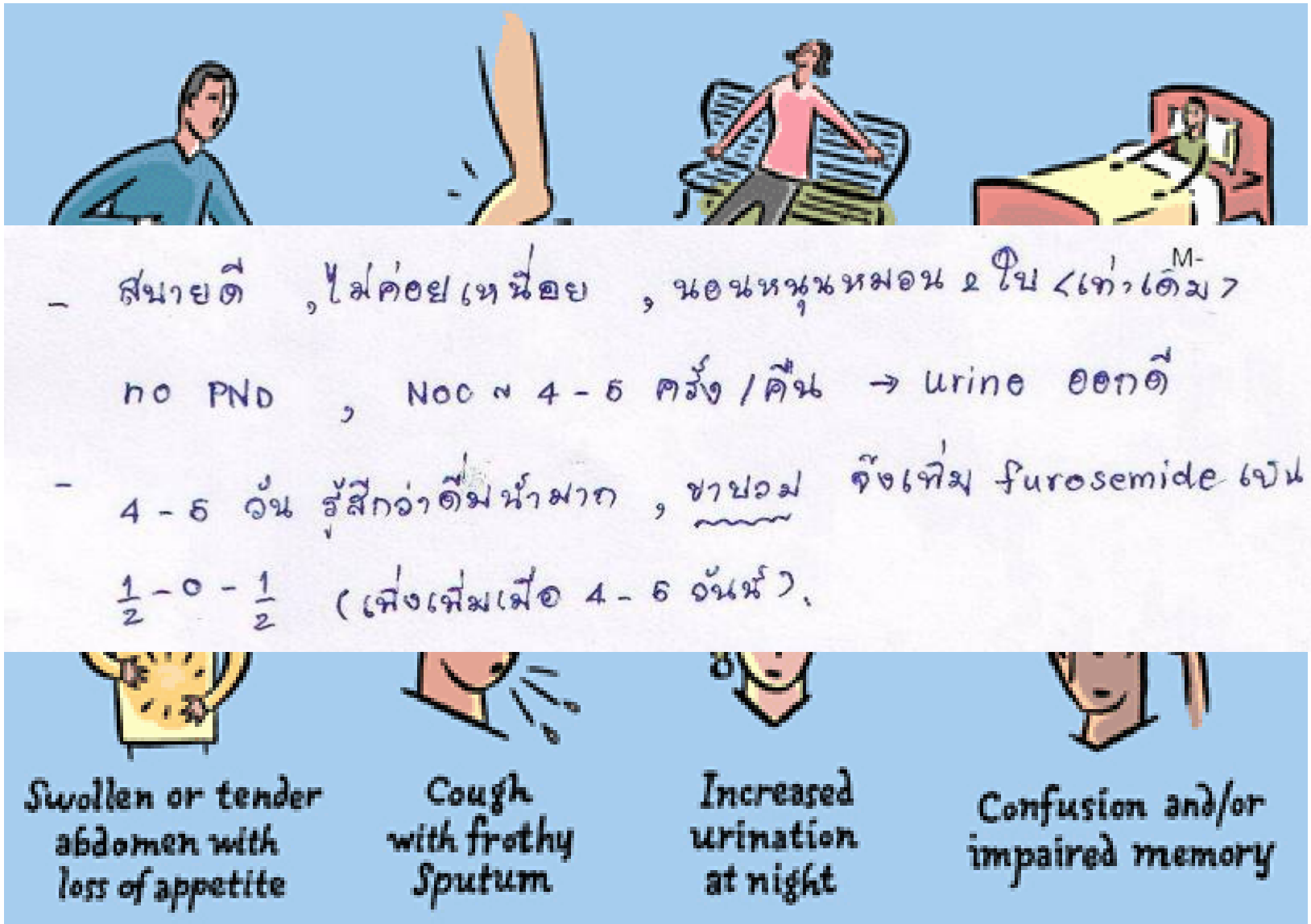
SaO_2 97 % BP(ยืน) 90/65 mmHg

no dizzy

วัดความดันโลหิตท่านอน ท่านั่ง ท่ายืน ประเมิน orthostatic hypotention



การประเมินอาการและอาการแสดงภาวะหัวใจล้มเหลว



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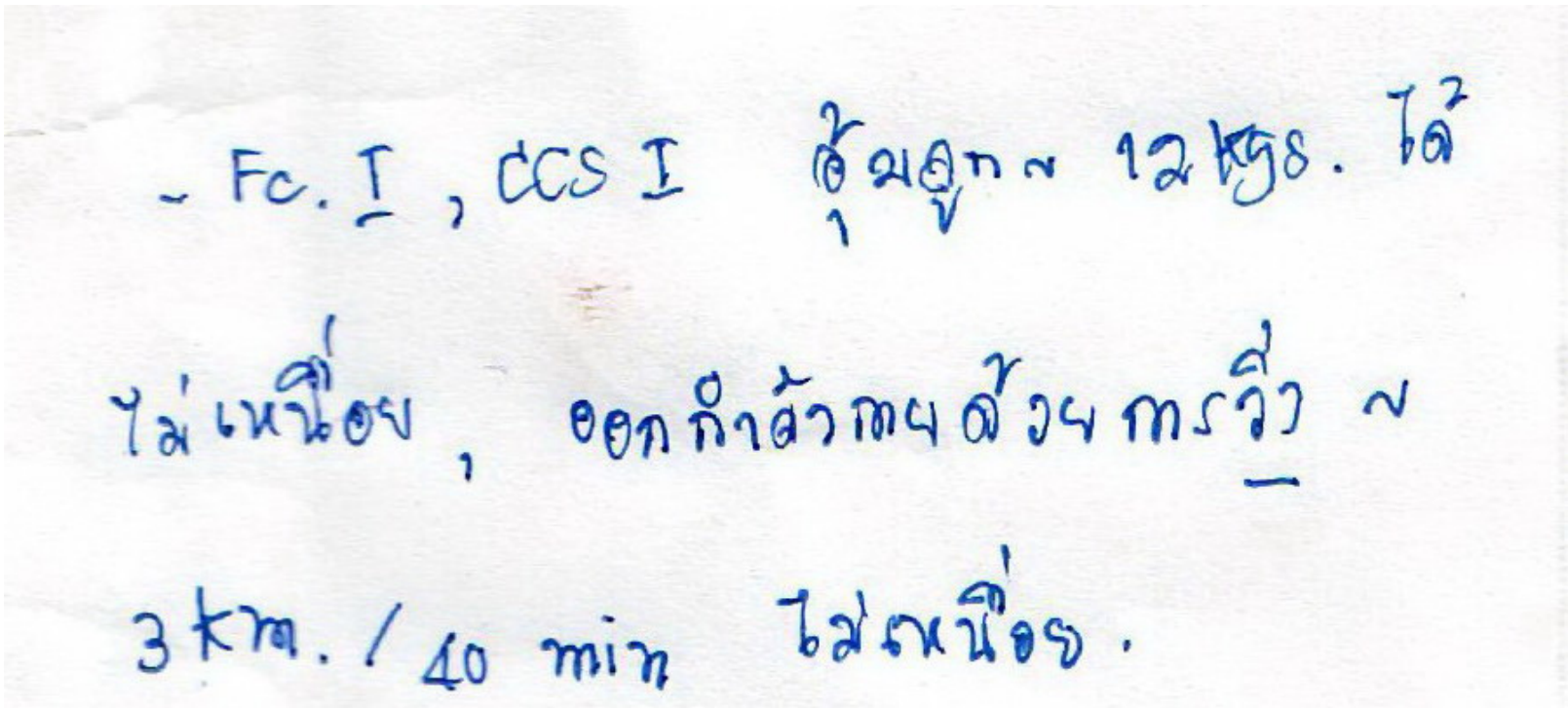
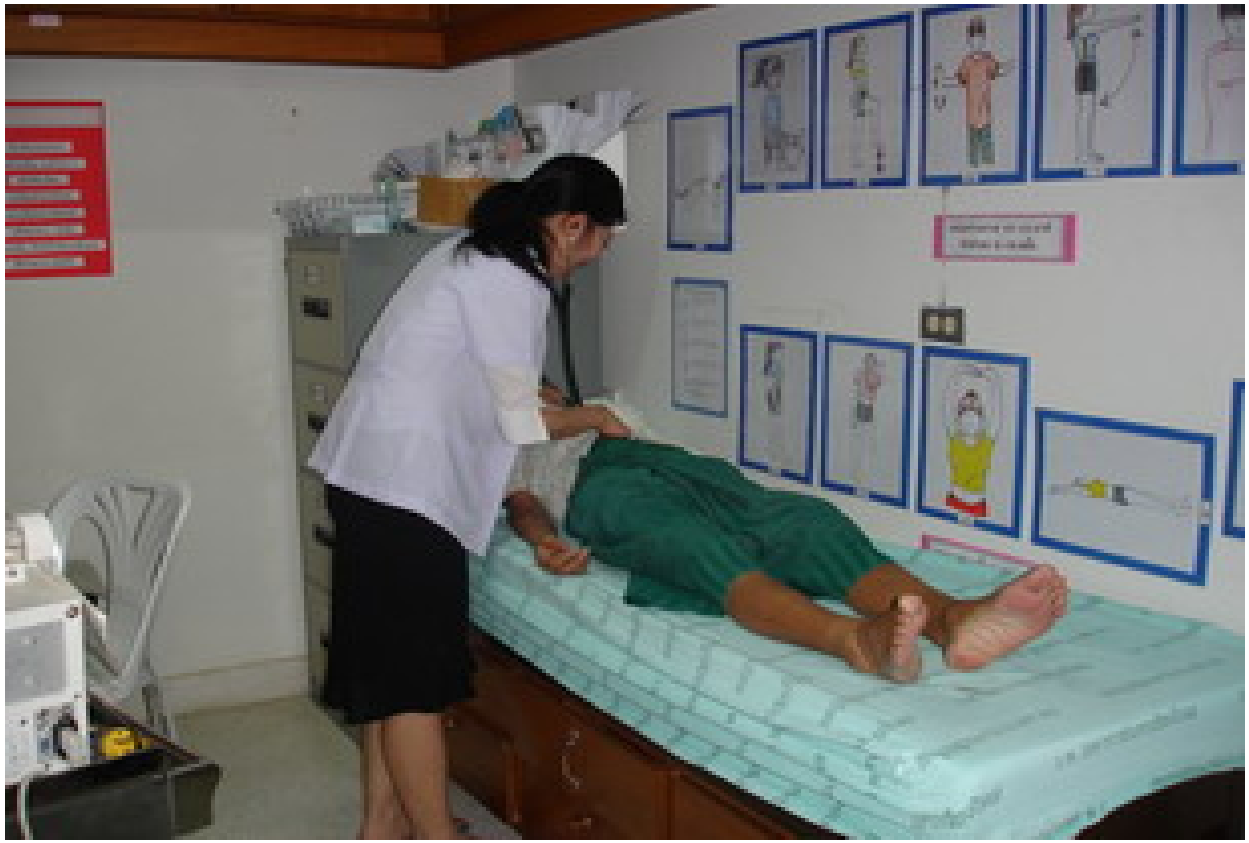




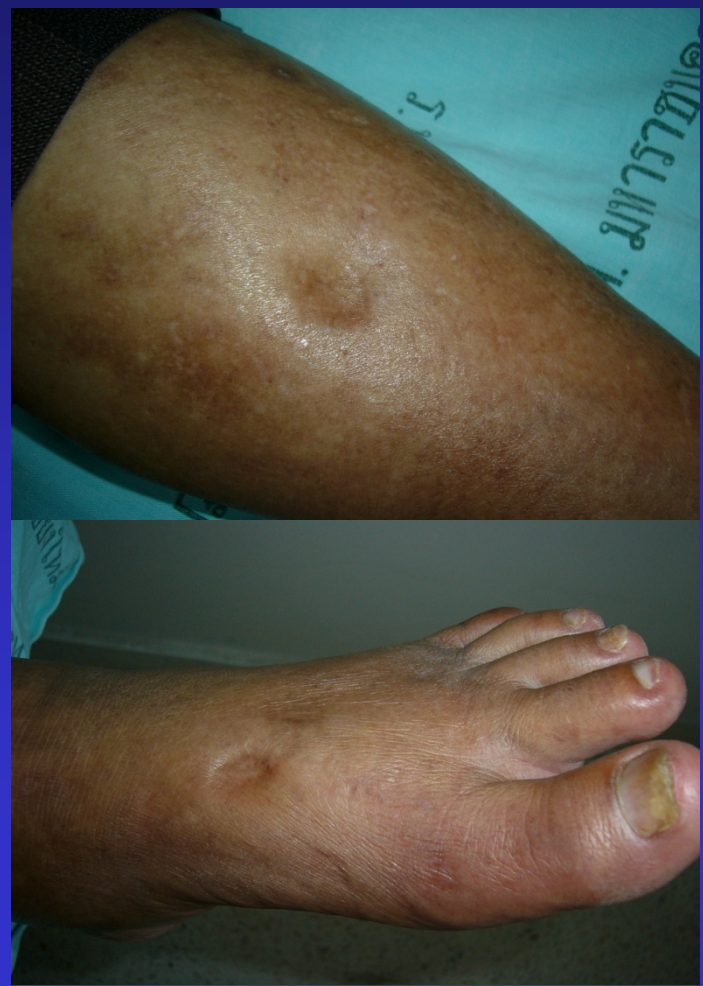
PE : not pale , no JX
JVP not raised
~~Sein~~ S3 gallop , no (M)
lung - clear
no edema (dependented edema).

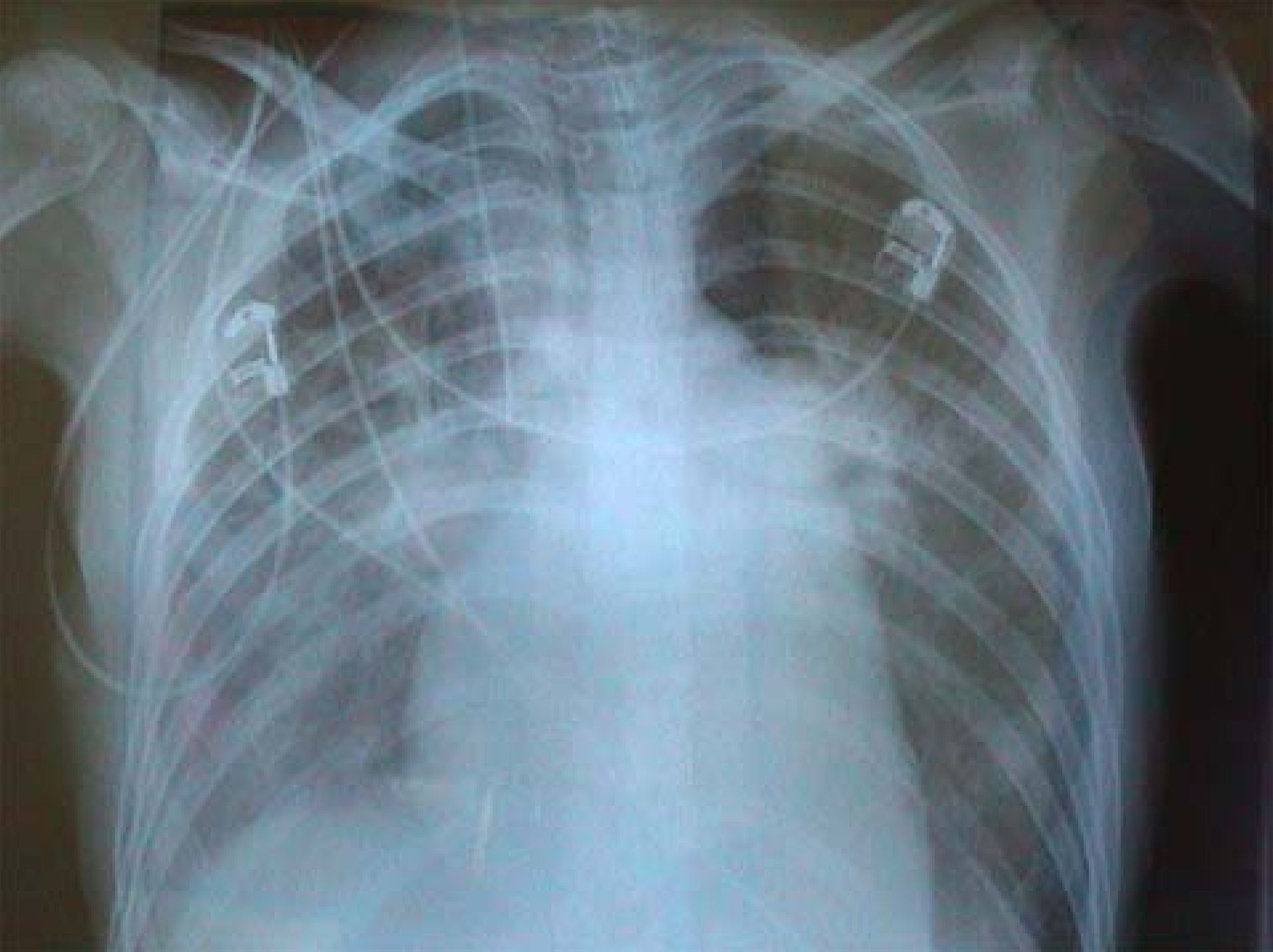

Intensive education


Involving family members

Education and Counseling

- General topics
  - Nature of heart failure
  - Be able to recognize early signs of worsening HF





The most important tool in HF management

Flexible diuretics regimen

Self daily weight monitoring :

If weight increases > 1 kg within 1 or 2 days

→ double the dose of diuretics , until returns to ideal BW

Education and Counseling

- Dietary recommendations
  - Sodium restriction
    - Excessive sodium retention
      - – a major cause of rehospitalization (60%)

- Alcohol restriction


PIGEON
TUNA
IN BRINE
PRODUCT OF THAILAND

Fluid restriction

- Severe heart failure
- On high dose diuretic
- Hyponatremia

< 1.5 litres per day

Self-care activity
Daily weight

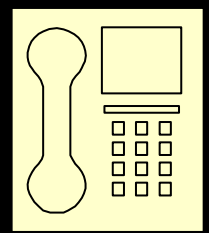
Problems	Patient-initiated action
• Sudden increase in weight of > 1.5 kg • Increasing peripheral edema of feet, legs, abdomen	• Reduce fluid intake to 1.5 liters • Reduce sodium intake < 2 g/day • Take an extra diuretic • Report symptoms

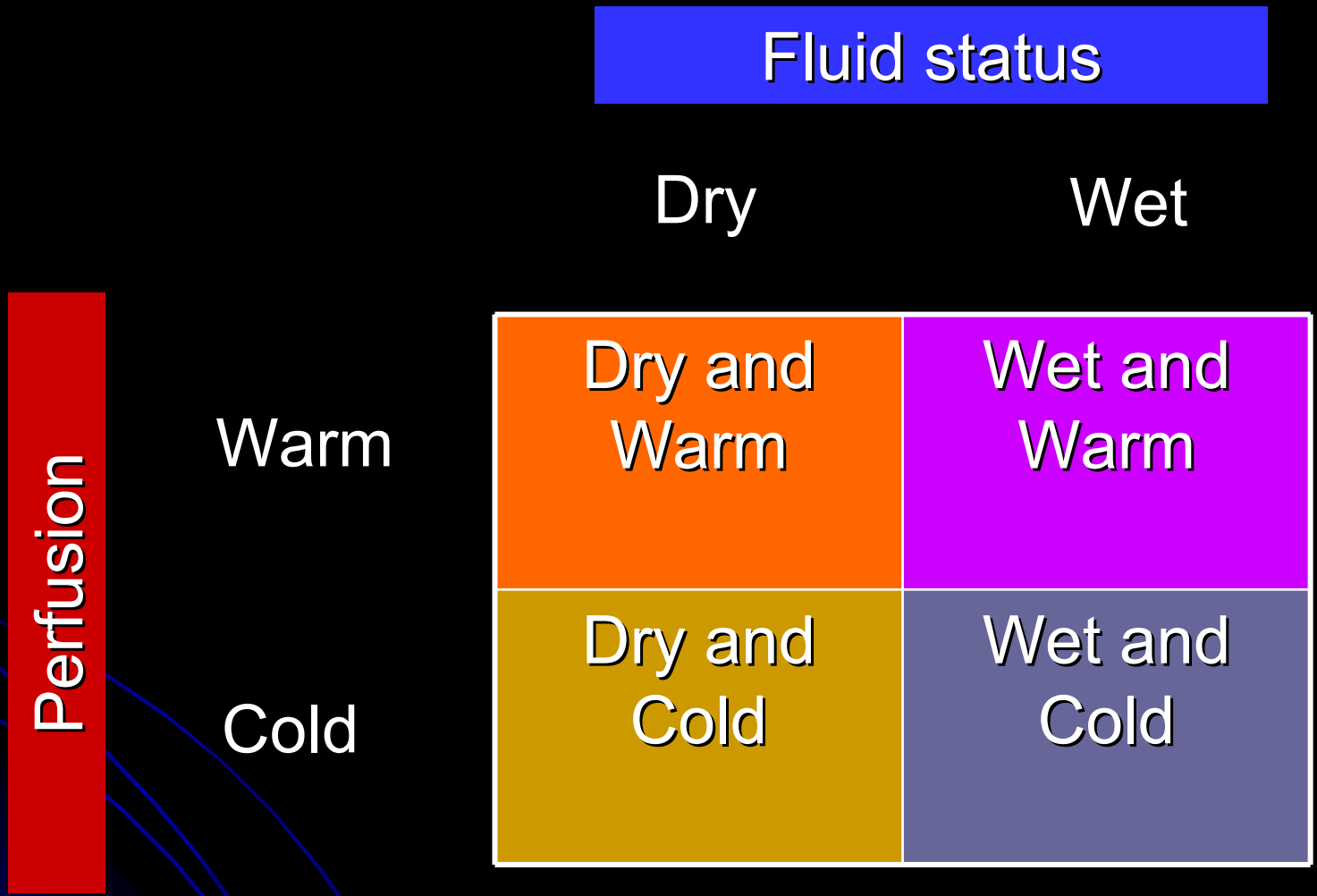
Monitoring symptoms for worsening HF

Problems	Patient-initiated action
• Worsening breathlessness • Waking up through the night with cough and shortness of breath • Sleeping on an increasing number of pillows	• Sleep on extra pillows • Reduce fluid intake to 1.5 liters • Reduce sodium intake < 2 g/day • Take an extra diuretic • Report symptoms

Self-care activity
Daily weight

Problems	Patient-initiated action
• Sudden decrease in weight of > 2 kg • Dry mouth, increased thirst	• Temporarily cease fluid restriction • Stop diuretic • Report symptoms




Fluid status
Dry
Wet
Perfusion
Warm
Cold
Dry and Warm
Wet and Warm
Dry and Cold
Wet and Cold

Medications

- name, purpose, frequency and significant side effect
- coping with a complicated regimen
- compliance strategies
  - to bring all medications to each visit
  - written medication schedule (for some)
  - cost issues

Adhere to prescribed therapy

Problems	Patient-initiated action
• Increased dizziness/postural hypotension • Adverse effects of prescribed therapy (impaired daily activity)	• Understand your medications • Spread out cardiac medications over the day • Discuss alternative time for taking medications

Adhere to prescribed therapy

Problems	Patient-initiated action
• Occasionally missing medications • Confusion about medications due to polypharmacy	• Use dorssette box or daily reminders • Ask for clear written medication instruction • Involve your pharmacist in solving medication problems

Written medication schedule

calendar

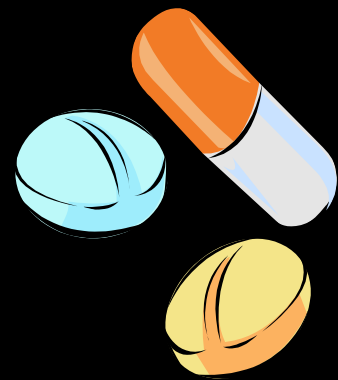
sample

label

preparation

Drugs which worsen heart failure

- Calcium channel blockers
  - Except for amlodipine, felodipine
- NSAID's
  - Including Celebrex,Vioxx and Mobic
- Tricyclic anti-depressans
- Type I anti-histamines
- Macrolide antibiotics
- Corticosteroids
- Glitazones

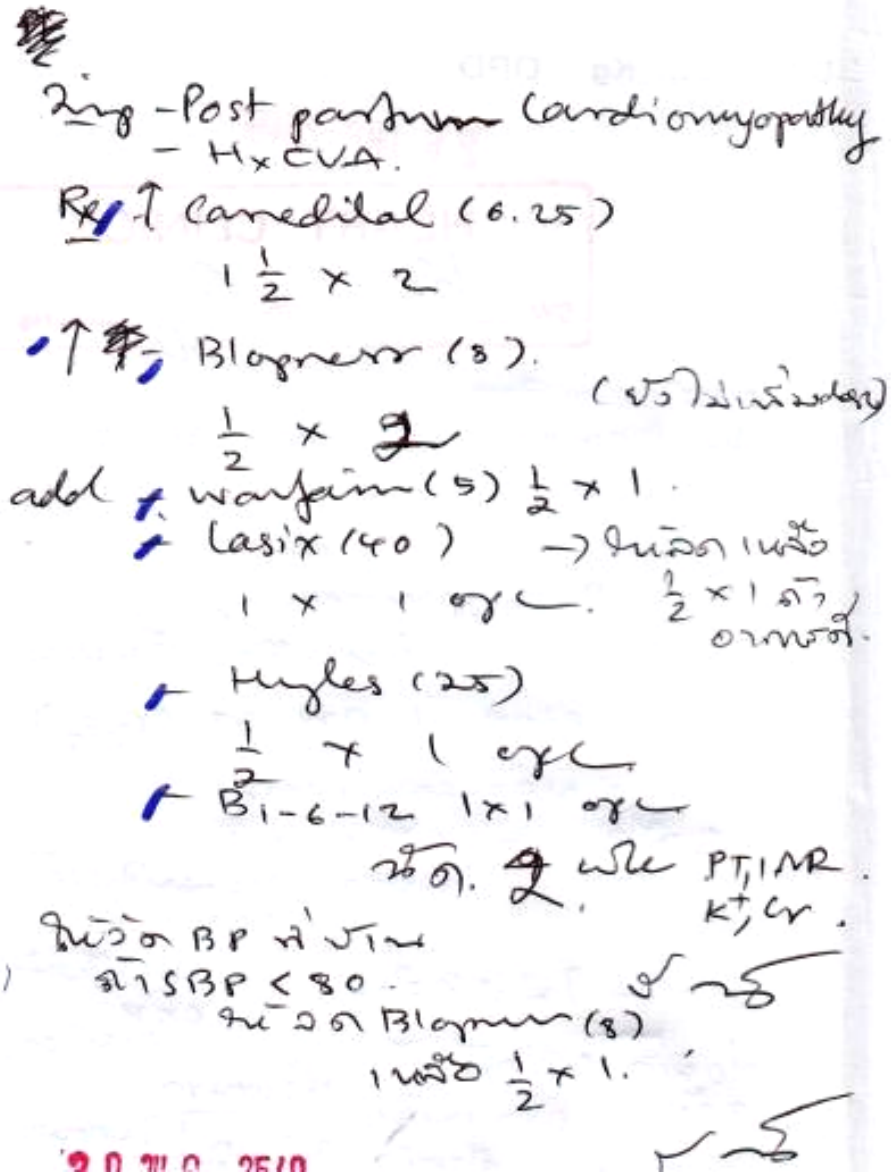


การประเมิน compliance

- กินยาเองถูกต้อง , ปฏิเสธการลืมกินยา
- no bleeding complication กินยา warfarin ถูกต้องโดยกิน 2 mg 1×1 ร่วมกับ 3 mg $\frac{1}{2}$×1 od → 3.5 mg/d (24.5 mg/wk)
- no postural hypotension
- ปฏิเสธการงดอาหารเสริม , สมุนไพร, ยาอื่นๆ <ยกเว้น para บางครั้ง>

Drug	ยาของวันที่ 18-ธ.ค.51	หมายเหตุ	ยาของวันที่ 2 ก.ย.51	หมายเหตุ
Antiplatelet	-			
ACEI/ARB	Bloprem (8) 1×1	✓ กินยาถูกต้อง	Bloprem (8) 1×1	
ß-Blocker	Dilatrend (25) $\frac{1}{2}$×2	✓	Dilatrend (25) $\frac{1}{2}$×2	
Diuretic				
Spironolactone	Hyrs (25) $\frac{1}{2}$×1	✓	Hyrs (25) $\frac{1}{2}$×1	
Digoxin	-			
Anticoagulant	-			
Nitrate	-			
Hydralazine	-			
Lipid lowering agent	-			
Antidiabetic agent	-			
Other anti-hypertensives	-			
	B_1-6-12 1×1 pc	✓	B_1-6-12 1×1	

medication titration /adiustment

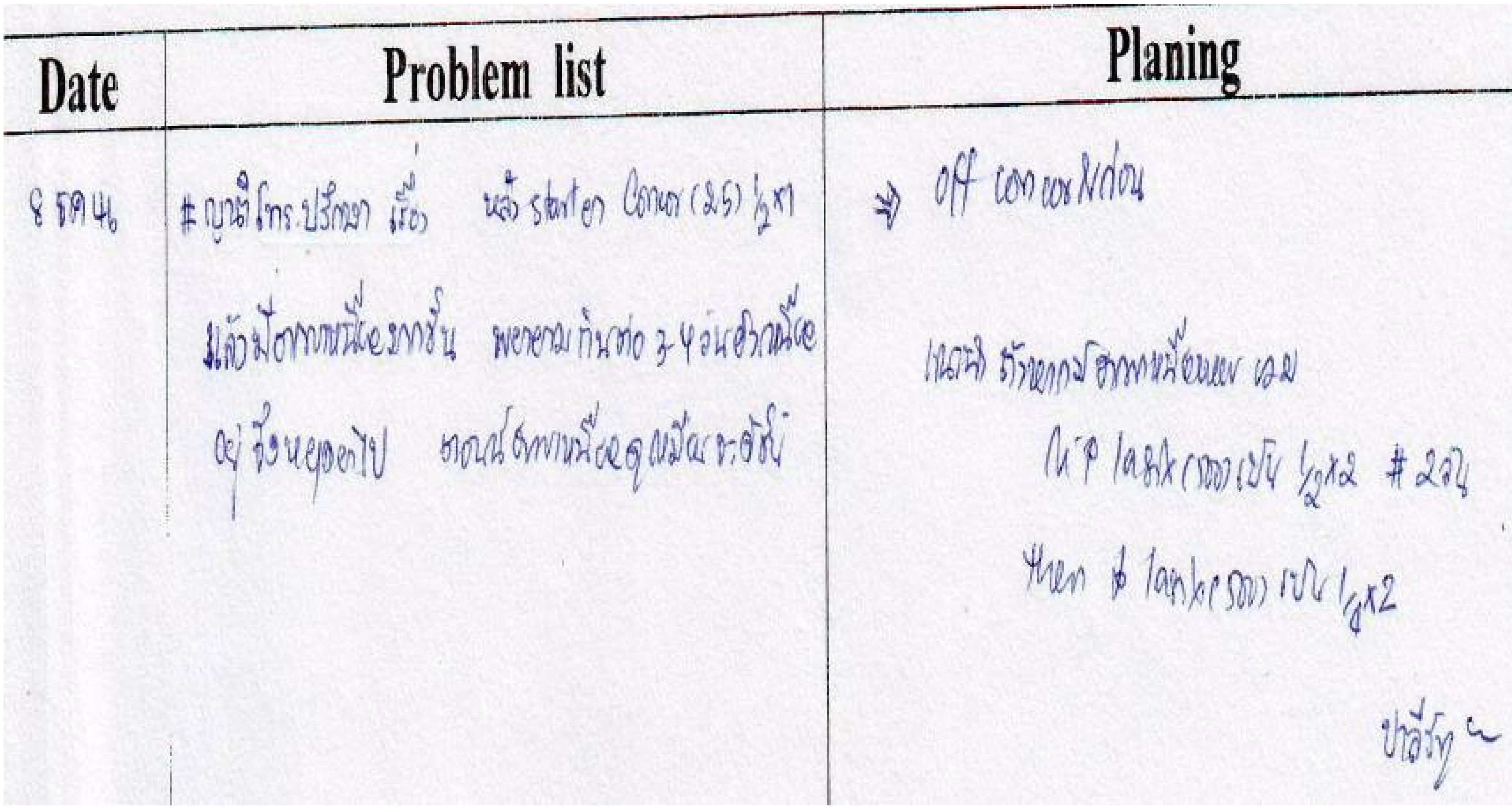


Patient self management

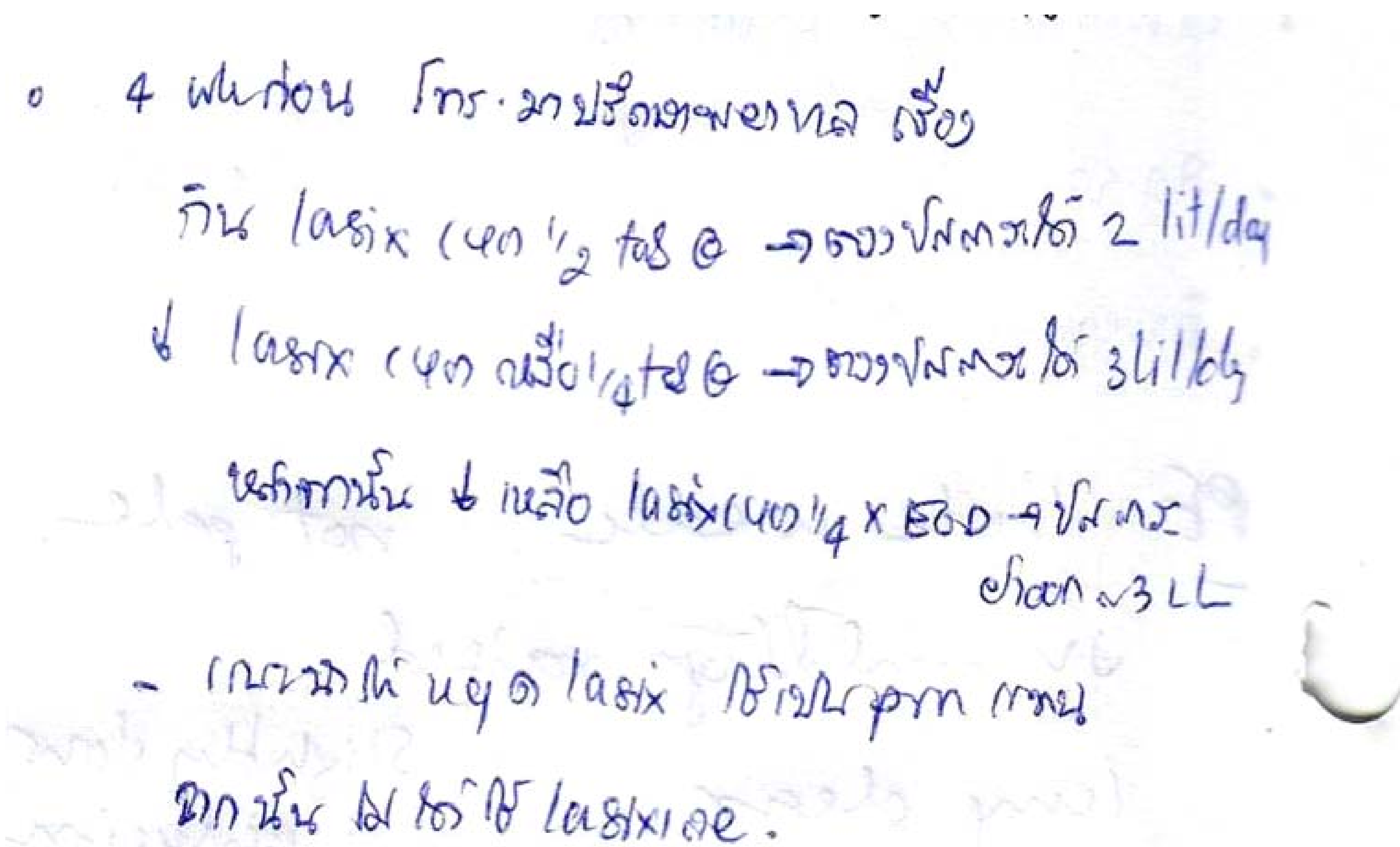
Flexible diuretics regimen

- 4 - 6 วัน รู้สึกว่าตีมน้ำมาก , ขาบวม ต้องเพิ่ม furosemide เป็น
  $\frac{1}{2}$ - 0 - $\frac{1}{2}$ (เพิ่งเพิ่มเมื่อ 4 - 6 วันนี้).

Telephone Counseling



Telephone Counseling



- 4 wk ก่อน โทร. มาปรึกษาพยาบาล เรื่อง
  กิน lasix (40) ½ tab ⊕ → ขาวปัสสาวะได้ 2 lit/day
  ↓ lasix (40) เหลือ ¼ tab ⊕ → ขาวปัสสาวะได้ 3 lit/day
  หลังจากนั้น ↓ เหลือ lasix (40) ¼ x EOD → ปัสสาวะ ได้ออก ~3 L
- แนะนำให้ หยุด lasix ใช้เฉพาะ prn เท่านั้น
  หลังจากนั้น ไม่ได้ใช้ lasix เลย.

Intractable HF

- ภาวะซีด
- มีภาวะลิ้นหัวใจรั่วหรือตีบมากร่วมด้วย
- ภาวะกล้ามเนื้อหัวใจขาดเลือดที่ต้องรับการแก้ไข
- ปัญหาภาวะหัวใจเต้นผิดจังหวะ เช่น atrial fibrillation ที่ไม่ได้รับการควบคุม
- ภาวะไทรอยด์ทำงานผิดปกติ
- ภาวะดื้อต่อยาขับปัสสาวะ (diuretic resistant)

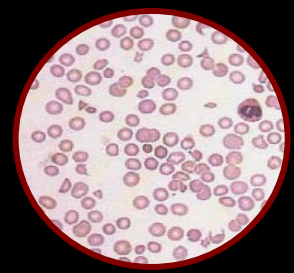
Intractable HF

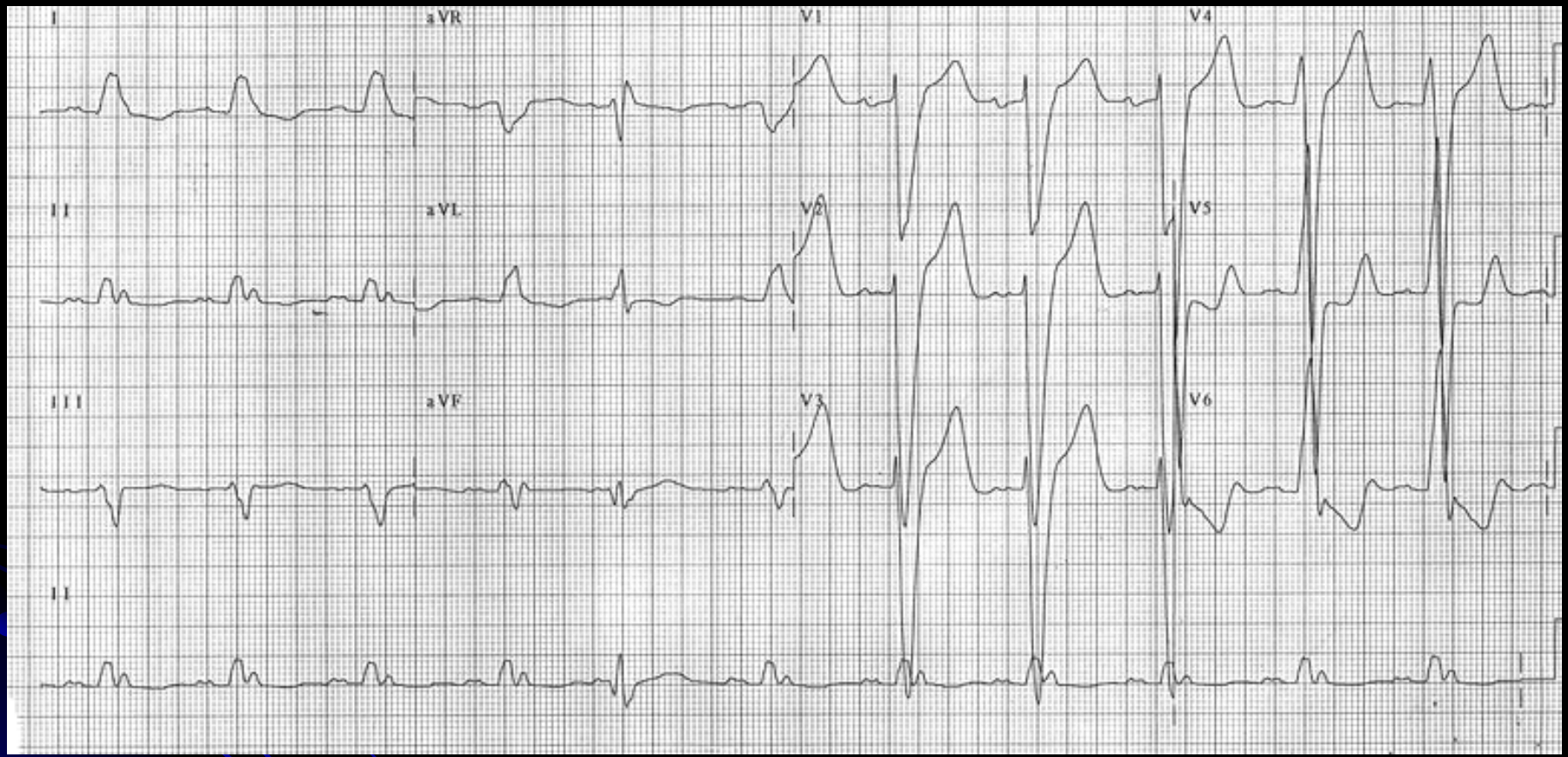
- compliance ไม่ดี (อาหาร, น้ำ, ยา)
- มี LV aneurysm ขนาดใหญ่
- มีภาวะ dyssynchrony (สงสัยถ้า QRS กว้างกว่า 120 ms)
- มีภาวะ obstructive sleep apnea ร่วมด้วย
- ภาวะทุพโภชาการ และ physical deconditioning
- ภาวะซึมเศร้า

Anemia

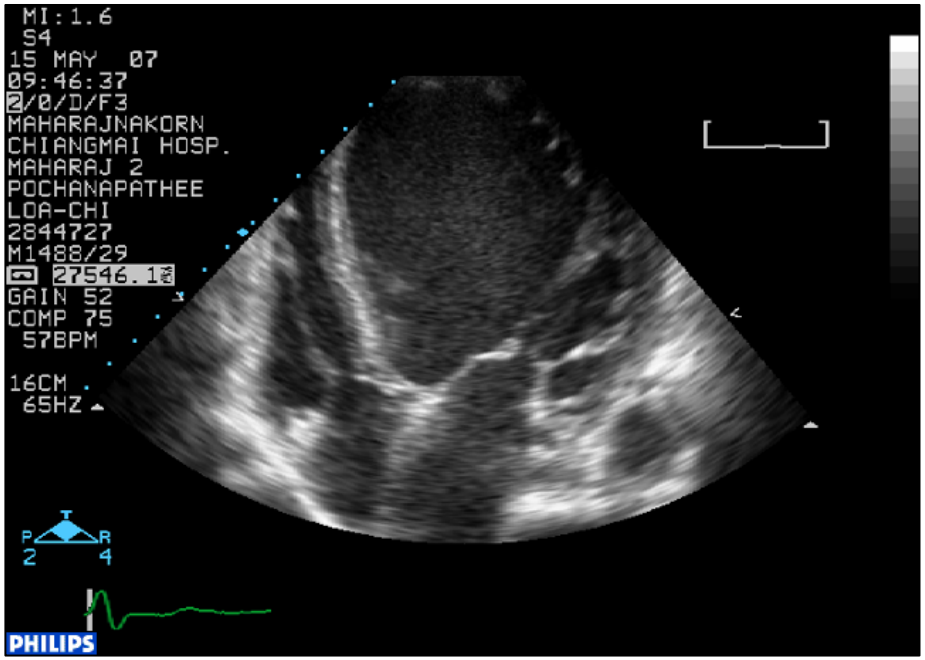
An under recognized problem in patients with CHF

- Prevalence > 30%, increasing up to 50% in severe HF
- DM and CKD common
- Associates with increased mortality
  - Each 1% decrease in Hct → 4% increase in mortality
- Frequent precipitating cause for worsening HF re-admission (Hb < 9 gm%)

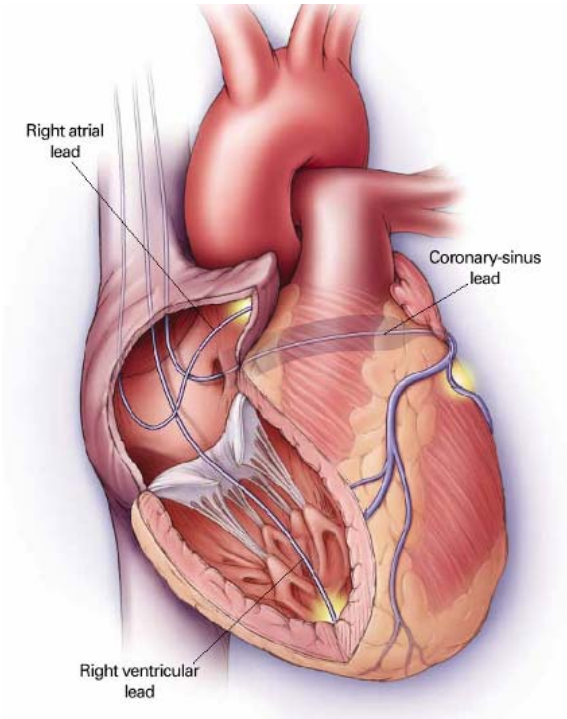


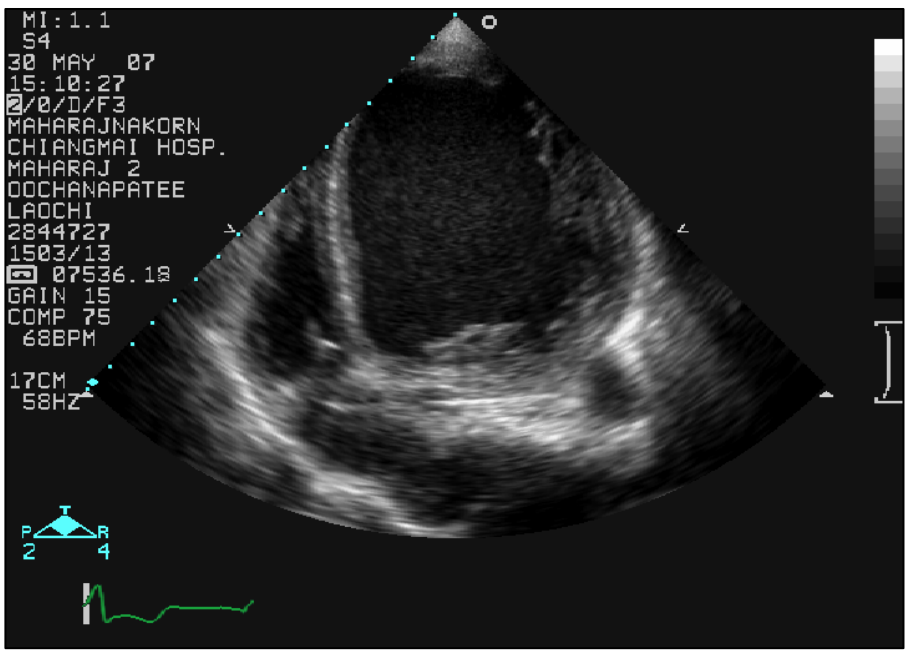


Prolonged PR interval plus LBBB - QRS interval = 0.22 sec



before CRT

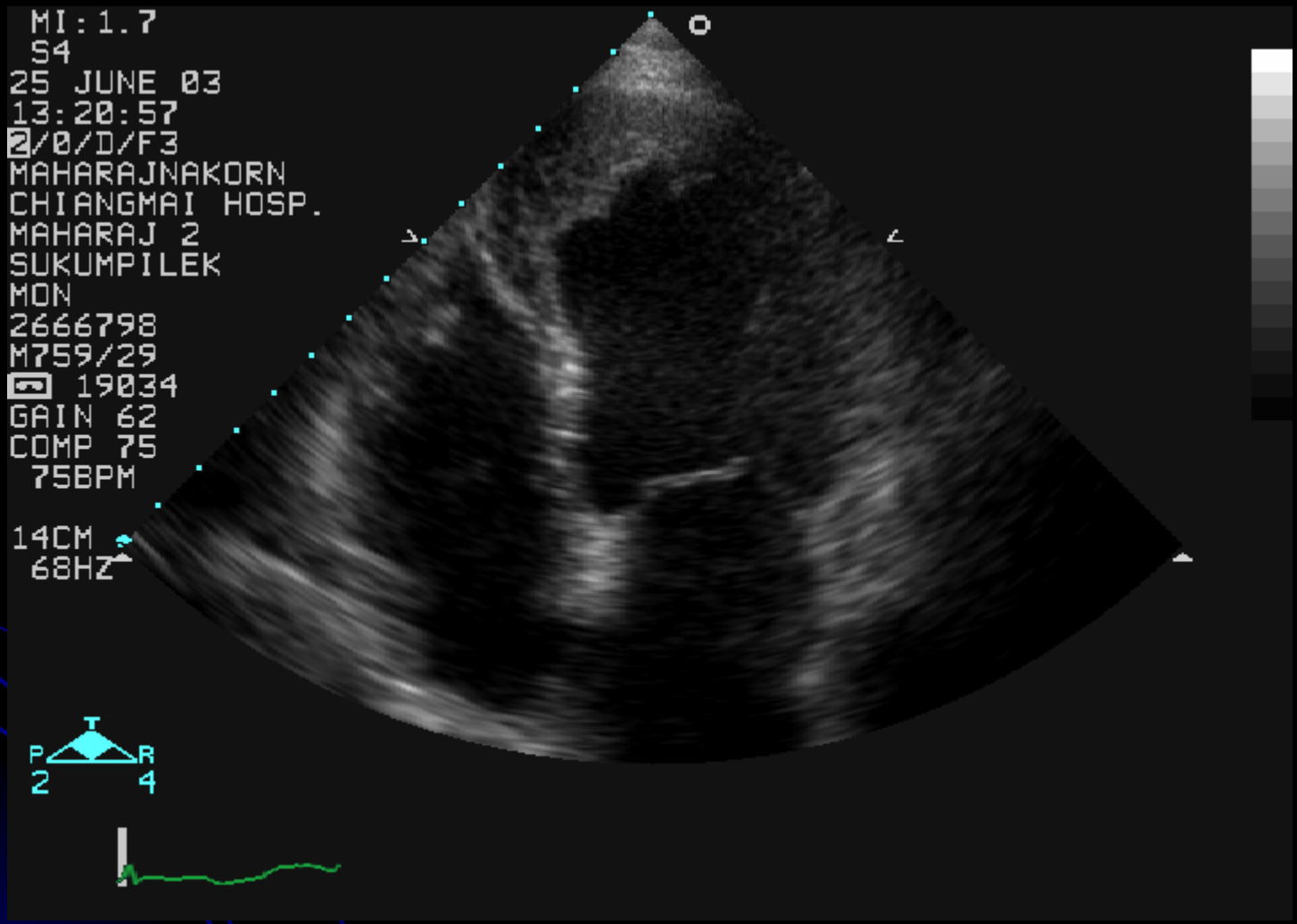




after CRT

Diuretic resistance

- Assess compliance with salt restriction and medicine intake
- Discontinue NSAIDs
- Adjust the dose of diuretic
- Switch to iv to overcome problems associated with impaired absorption
- Combine loop diuretics with other diuretics, preferably a thiazide diuretic
- Continuous iv infusion to avoid post diuretic salt retention if other options have failed



Large apical aneurysm with thrombus

Malnutrition
“cardiac cachexia”

Problems	Patient-initiated action
• Abnormal gradual weight loss (> 5 kg or 7.5% of non edematous weight) “cardiac cachexia” • muscle wastage • Indigestion	• Eat frequent, small, high caloric meals • Adequate exercise

Overweight

Problems	Patient-initiated action
• BMI> 25 • Unable to loose excess weight/fat	• Reduce calorie and fat intake, exercise regularly • Discuss nutritional problems with a dietician

Specific issues in management of HF in the elderly

- Polypharmacy
  - Poor compliance
  - Drug to drug interaction
  - Drug to disease interaction
- Altered phamacokinetics and pharmacodynamics
- More prevalence of HF with preserved LVEF
- Frequent co-morbidities
- Goal of treatment: symptoms relief/QOL VS. survival

Education and Counseling

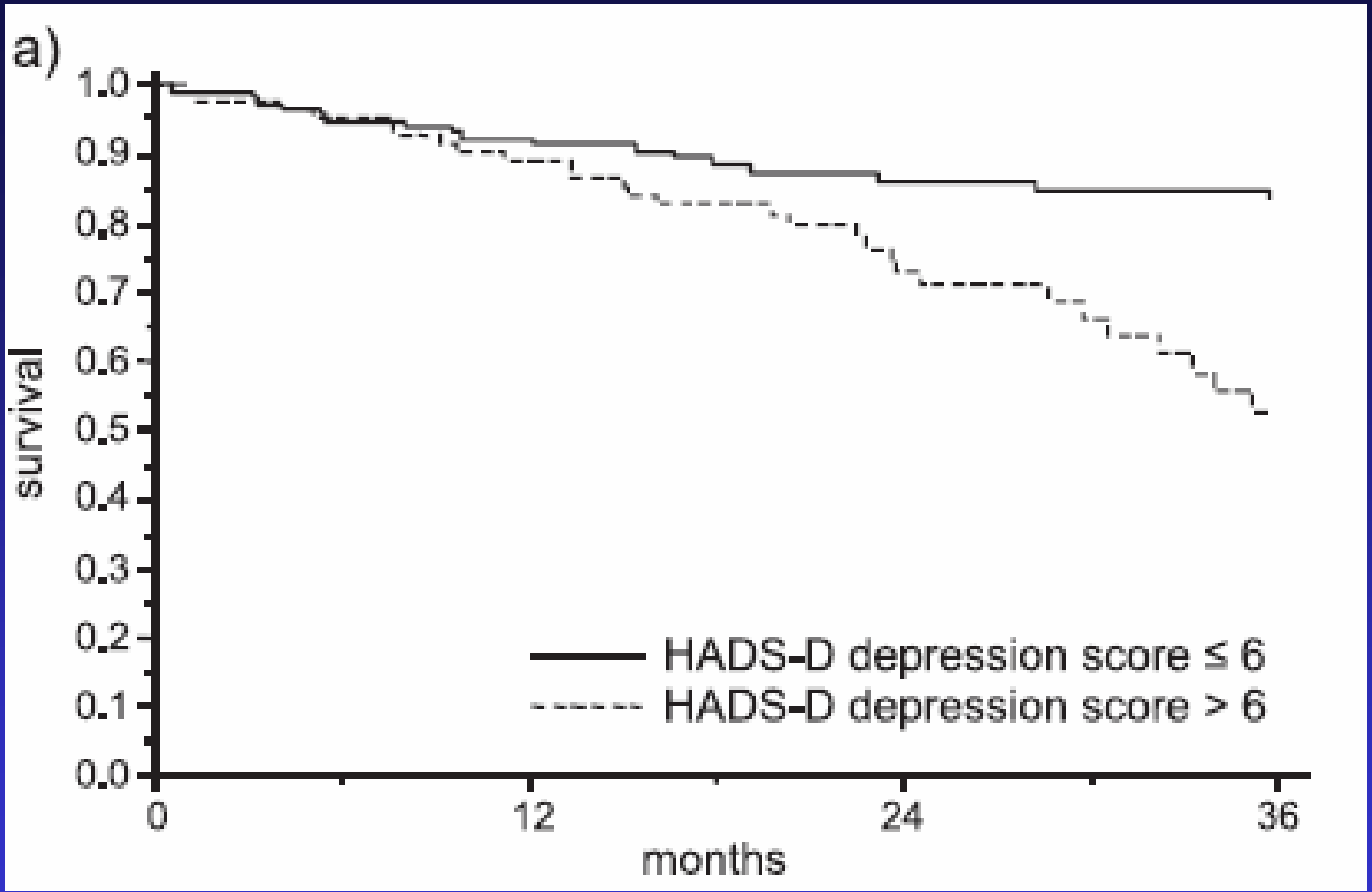
- Activity
  - Encourage the patient to stay as active as possible
  - Exercise programme
    - Home walking exercise programme
- Sexual activity
- Weight control
- Coping with psychological problem

Regular exercise

Problems	Patient-initiated action
• Reduced exercise capacity • Excessive tiredness/lethargy • Need for more rest periods • Increasing angina	• Plan your day and pace yourself • Keep as active as possible but ask for help to attend heavy activity • Discuss symptoms with your doctor/physiotherapist

Exercise Programme


Lode

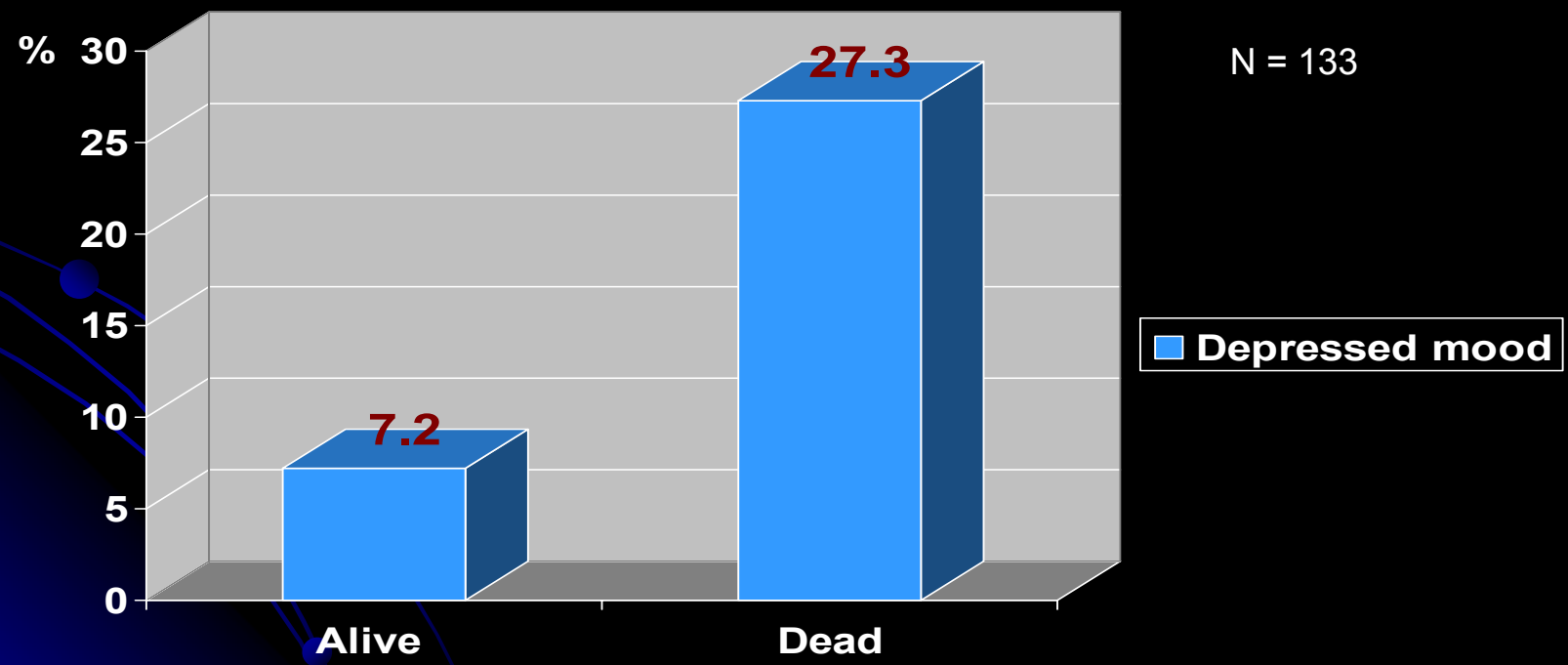


Jűnger J, Schellberg D, Műller-Tasch T, et al. Depression increasingly predicts mortality in the course of congestive heart failure. Eur J Heart Failure 2005;7:261-7

Depression as a predictor for death in CMU HF

Depressed mood prevalence = 10.5%

OR for death = 4.8 95%CI (1.5-15.7) p= 0.01



Document your achievements

- Keep track of number of patients seen and visits performed
- Show changes in therapy to “guideline” standards
- Identify outcomes achieved

Indicators for evaluating HF programme

- Unplanned readmission
- Time period to first hospital readmission
- Emergency department visit
- Days of hospitalization

- Patients satisfaction and quality of life

Keys

1. A qualified specialist nurse
2. A committed consultant cardiologist
3. A holistic approach
4. Interdisciplinary collaboration
5. Evidence based approach
6. Easy access to the specialist nurse
7. Facilitation of self management
8. Vigilant follow up

Summary

9) Develop realistic aims
10) Establish close link with hospital and community-base health care service
    - Empowering and partnering with the primary physician or referring doctor
11) Precise inclusion criteria
12) Precise post discharge care protocol
    - Pharmacologic treatment
    - Non pharmacologic treatment
13) Individualized care plan
14) Establish auditing procedures

Make sure you have an excellent nurse


Disease management in HF
A missing piece

So, what are you waiting for ?